Diabetes Surveillance Report, Maine 2012

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Diabetes Surveillance Report, Maine 2012

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Executive Summary

Diabetes is a complex disease that can lower a person's quality of life and dramatically reduce their life expectancy. Diabetes is the seventh leading cause of death in the U.S., accounting for nearly 234,000 deaths in 2008. According to the U.S. Centers for Disease Control and Prevention, approximately 25.8 million people in the U.S. have diabetes; of those, 18.8 million people have been diagnosed with diabetes and 7 million people have not yet been diagnosed. In addition, about 35% of the adult U.S. population above 20 years of age has prediabetes (nearly 79 million adults). Among adults in the U.S., diabetes is the leading cause of kidney failure, nontraumatic lower extremity amputations, and new cases of blindness. Diabetes is also a major cause of heart attack and stroke—people with diabetes are 2-4 times more likely to die from heart disease or stroke than people without diabetes.[1]

To understand the impact of diabetes in Maine we analyzed state data. Our key findings are:

- Between 1995 and 2010, the diabetes prevalence rate in Maine increased from 3.5% to 8.7% and this rate is identical to the 2010 national median.
- In 2009, Maine's diabetes-related death rate (65.8 per 100,000 population) was significantly lower than that of the U.S. (71.2 per 100,000 population).
- The prevalence of prediabetes among Maine adults who are obese was 3.5 times higher than among Maine adults who are at a healthy weight. Nearly 1 in 5 (18.2%) Maine adults who are obese have been diagnosed with diabetes, a prevalence rate almost 6 times higher than those who are at a healthy weight.
- The prevalence of diabetes was significantly higher among Maine adults who do not engage in the recommended amount of physical activity (11.0%) compared to those who do (5.9%).
- The prevalence of prediabetes was almost twice as high and diabetes is 2.6 times higher among Maine adults with high cholesterol compared to those without high cholesterol.
- The prevalence of prediabetes was 3.5 times higher and the prevalence of diabetes is almost 5 times higher among Maine adults with high blood pressure compared to those without high blood pressure.

Conclusion

This report provides updated data and facts concerning the burden of diabetes in Maine. This information is intended to support the diabetes community in Maine with program planning, strengthening community-clinical linkages, and other work needed to address the growing health burden of diabetes.

References

1. Centers for Disease Control and Prevention. National diabetes fact sheet: National estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2011. http://www.cdc.gov/diabetes/pubs/factsheet11.htm Accessed August 14th, 2012.

Introduction

Diabetes is a chronic disease characterized by high levels of blood glucose resulting from defects in insulin production, insulin action, or both. High levels of blood glucose over a long period of time can damage many different organs of the body and lead to serious complications such as heart disease, stroke, kidney disease, nerve damage, blindness, coma, leg and foot ulcers, lower-extremity amputation, and premature death. Over the past decade, data from the Behavioral Risk Factor Surveillance System (BRFSS) has shown an increasing prevalence of diabetes in the U.S. and in Maine. In 2010, nearly 1.9 million adults in the U.S. were newly diagnosed with diabetes.[1] There is no known cure for diabetes and it is an expensive disease. After adjusting for population age and sex differences, annual medical expenditures among people with diagnosed diabetes are 2.3 times greater than people without diabetes.[1] Many complications from diabetes, including reductions in diabetes-related cardiovascular disease death, can be avoided through consistent blood-glucose control, lifestyle modification and targeted medical management.[1-3]

Prediabetes is a condition in which individuals have blood glucose levels higher than normal, but not high enough to be classified as diabetes. People with prediabetes have an increased risk of developing type 2 diabetes, heart disease, and stroke. Research has shown that modest lifestyle changes such as losing weight and increasing physical activity, can prevent or delay the onset of type 2 diabetes among adults with prediabetes.[1,2]

Much of the management of diabetes occurs outside of the medical system. Increasing diabetes prevention, and providing high-quality diabetes self-management for those affected by the disease, are critical in turning the tide on this epidemic.[3] For this reason we look closely at several indicators in this report: diabetes and prediabetes prevalence, the disease burden for both, and benefits of prevention and self-management interventions. This information will help focus attention and efforts towards improving outcomes for Maine people who have or are at risk for diabetes.

References

1. Centers for Disease Control and Prevention. National diabetes fact sheet: National estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2011.Accessed at http://www.cdc.gov/diabetes/pubs/factsheet11.htm on 14th Aug, 2012.
2. Geode P, Vedel P. Multifactorial intervention and cardiovascular disease in patients with type 2 diabetes. *The New England Journal of Medicine.* January 2003; 348:383-393(5).
3. Centers for Disease Control and Prevention. Successes and opportunities for population-based prevention and control: At a glance, 2010. http://www.cdc.gov/chronicdisease/resources/publications/AAG/ddt.htm Accessed June 13, 2011.

Chapter 1: Prevalence of Diabetes and Prediabetes

The percentage of the population that has diabetes during a particular time period, also called prevalence, provides one measure of the burden of diabetes. In this chapter we describe the prevalence of prediabetes and diabetes among Maine adults, examining trends over the years and patterns among different demographic groups using data from the Behavioral Risk Factor Surveillance System (BRFSS).

About the Data

We used data from the Maine Behavioral Risk Factor Surveillance System (BRFSS), an annual random-digit-dialed telephone survey of non-institutionalized adults, to estimate the prevalence of diabetes among Maine adults. The BRFSS collects information from randomly selected adults on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. Each year, more than 6,500 Maine adults participate in this important survey. The data are weighted to be representative of Maine's adult population as a whole. BRFSS was established in 1984 by the Centers for Disease Control and Prevention (CDC); currently data are collected monthly in all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam, allowing comparisons of state and national data.

A few points about the BRFSS deserve attention. BRFSS excludes people who are institutionalized, including those living in nursing homes, prisons, college dormitories, and the homeless. It also excludes adults without a landline telephone and those who are unable to communicate over the phone. Therefore, the BRFSS survey does not represent all segments of Maine's population. Further, the BRFSS data rely on the accuracy of participants' self-reported responses. With respect to self-reported diabetes, data will be limited by the extent to which people with diabetes have been diagnosed. Currently, national data suggest that about 27% of the population has diabetes that has not been diagnosed yet.[1] If Maine data mirror national data, we would expect that the true diabetes prevalence is higher than that reported on the BRFSS survey. The BRFSS survey samples only adults and we are unable to report prevalence estimates for diabetes among those younger than 18 years of age using BRFSS data.

Despite these limitations, the BRFSS remains our only source of state-level data for many health conditions and behaviors among adults, including diabetes. BRFSS data are sufficiently sensitive to document the increase in diabetes shown in national surveys, including those that include blood glucose testing. In addition, the relationships between diabetes and risk factors observed in the BRFSS data also mirror those illustrated in the scientific literature.

Diabetes and Prediabetes Prevalence Rates

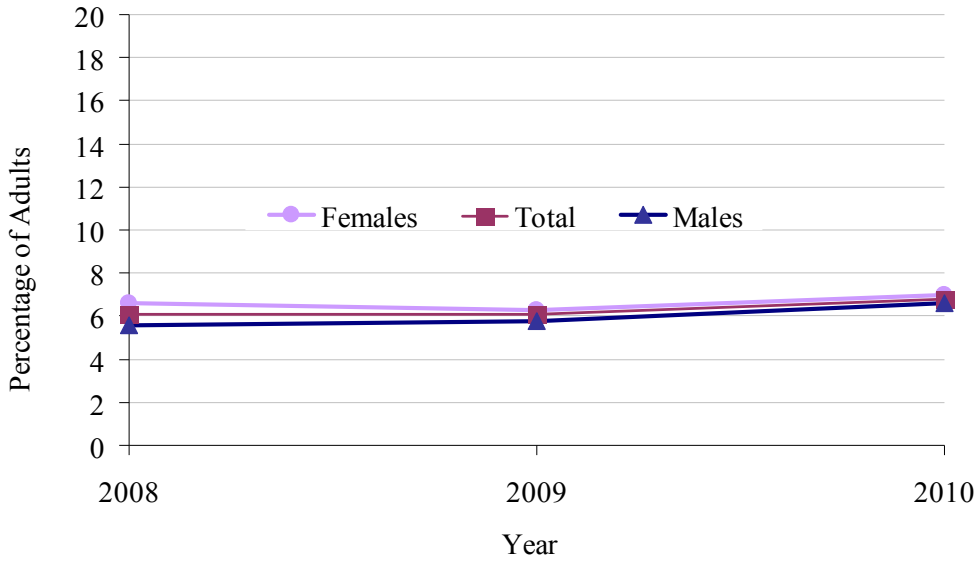
Prediabetes prevalence rates in Maine have remained fairly constant since 2008.

- BRFSS data on prediabetes in Maine have only been available since 2008.
- About 7% of Maine adults currently have prediabetes (Table 1.1, Figure 1.1).
- Prediabetes prevalence rates have remained fairly constant over the past 3 years. There was a slight increase in rates in 2010 but this increase was not statistically significant (Table 1.1, Figure 1.1).

There is no gender disparity in prediabetes prevalence rates in Maine.

- Currently, in Maine, the prediabetes prevalence rate is similar among males and females (Table 1.1, Figure 1.1).

Figure 1.1 Prediabetes Prevalence by Year and Gender, Maine Adults, 2008-2010

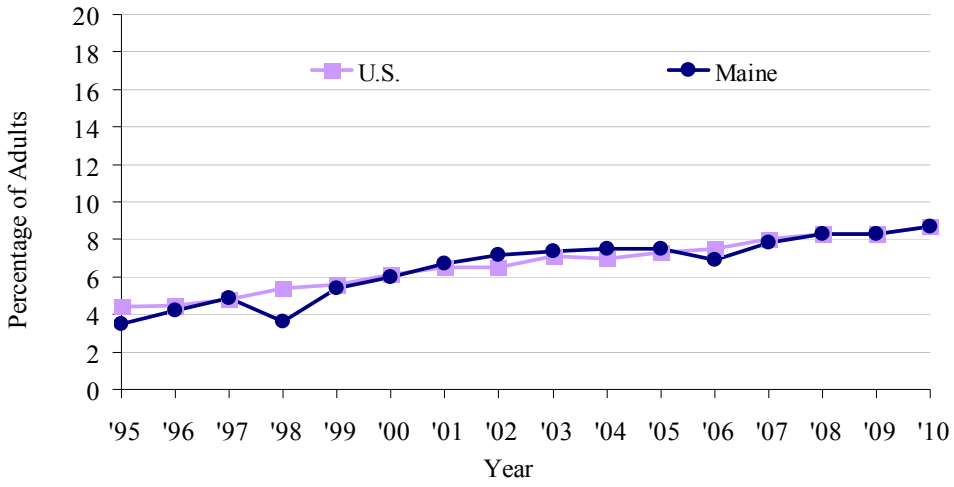


Prediabetes does not include pregnancy-related prediabetes.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

Diabetes prevalence rates in Maine are similar to those of the U.S.

- Diabetes prevalence has been increasing in Maine and the U.S. (Table 1.2, Figure 1.2).
- Maine's diabetes prevalence rate has been increasing at the same rate as the U.S. (Table 1.2, Figure 1.2).
- Between 1995 and 2010, the diabetes prevalence rate in Maine tripled from 3.5% to 8.7%, with an average annual increase of 9.5% (Table 1.2, Figure 1.2).
- In 2010, Maine's diabetes prevalence rate of 8.7% was identical to the national median (Table 1.2, Figure 1.2).
- Maine's diabetes prevalence rate has been similar to that of the U.S. in all years since 1995, except for 1998 when Maine's rate was slightly lower than the U.S. rate (3.6% vs. 5.4% respectively; Table 1.2, Figure 1.2).

Figure 1.2 Diabetes Prevalence, U.S. and Maine Adults, 1995-2010

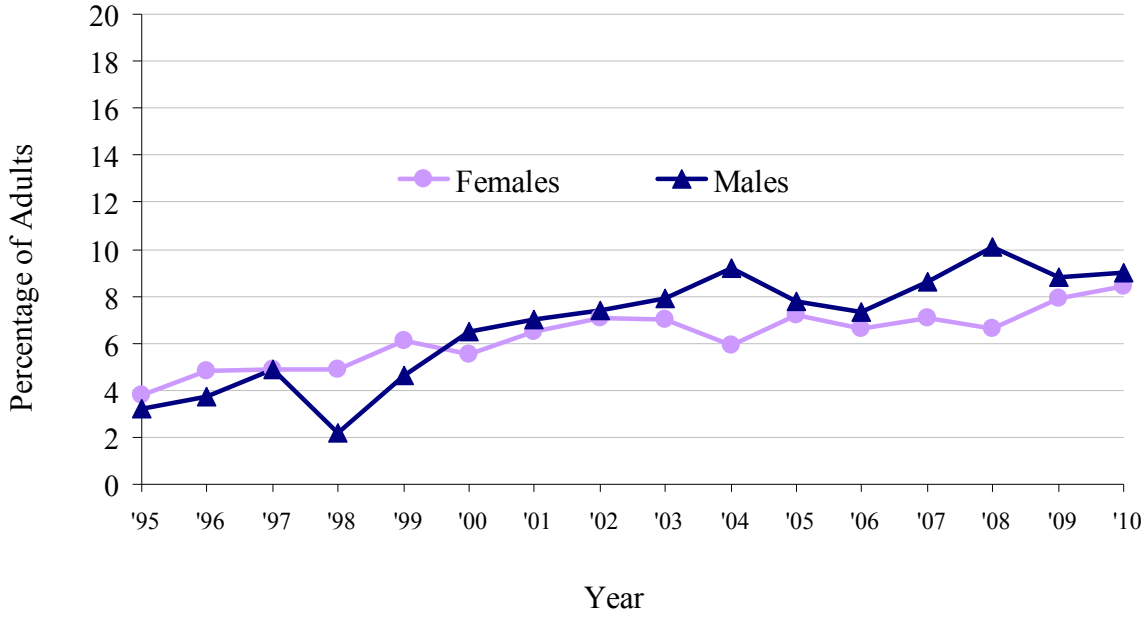


Diabetes does not include pregnancy-related diabetes.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

Since 2000, males have generally had a higher diabetes prevalence rate than females.

- While the annual rates for males and females are not significantly different, the combined 2008-10 rates show that males do have a significantly higher diabetes prevalence rate than females in Maine (Table 1.3, Table 1.4, Figure 1.3).
- The diabetes prevalence rate has increased among both males and females since 1995 (Table 1.3, Figure 1.3).

Figure 1.3 Diabetes Prevalence by Year and Gender, Maine Adults, 1995-2010



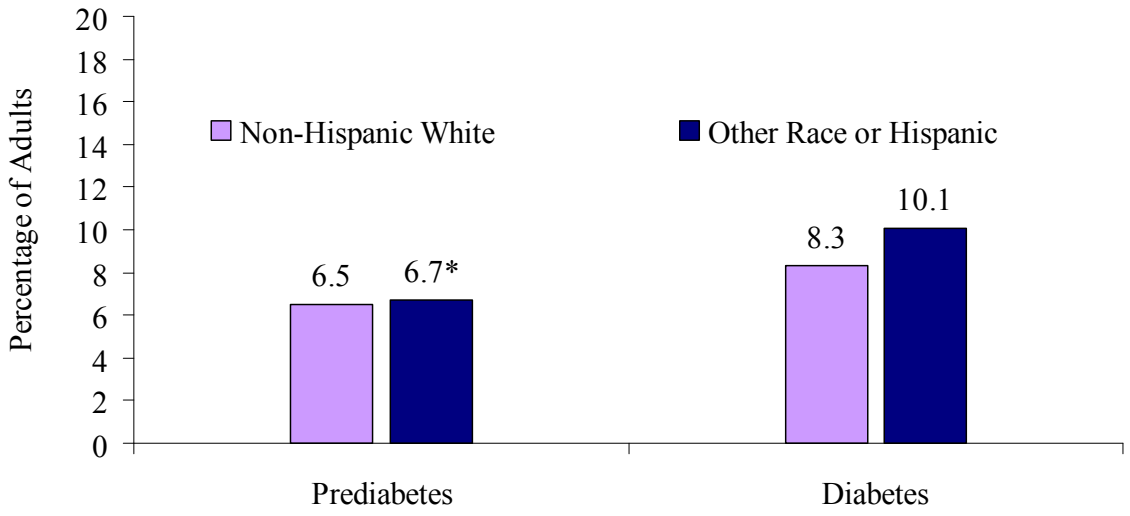
Diabetes does not include pregnancy-related diabetes.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

There is no racial and ethnic disparity in diabetes prevalence in Maine.

Information on racial and ethnic disparities in prediabetes prevalence in Maine is limited.

- Because Maine's population is more than 95% non-Hispanic White, the Maine BRFSS interviews only a small number of adults who are Hispanic, Black, American Indian/Alaska Native, Asian/Pacific Islander, or of other race groups. This substantially limits our ability to detect and examine racial and ethnic disparities.
- Comparing non-Hispanic White adults to adults who are Hispanic or of other race groups, there is no significant difference in prediabetes or diabetes prevalence rates (6.5% vs. 6.7%* and 8.3% vs. 10.1%, respectively; Table 1.4, Figure 1.4).

Figure 1.4 Prediabetes and Diabetes Prevalence by Race, Maine Adults, 2008-2010



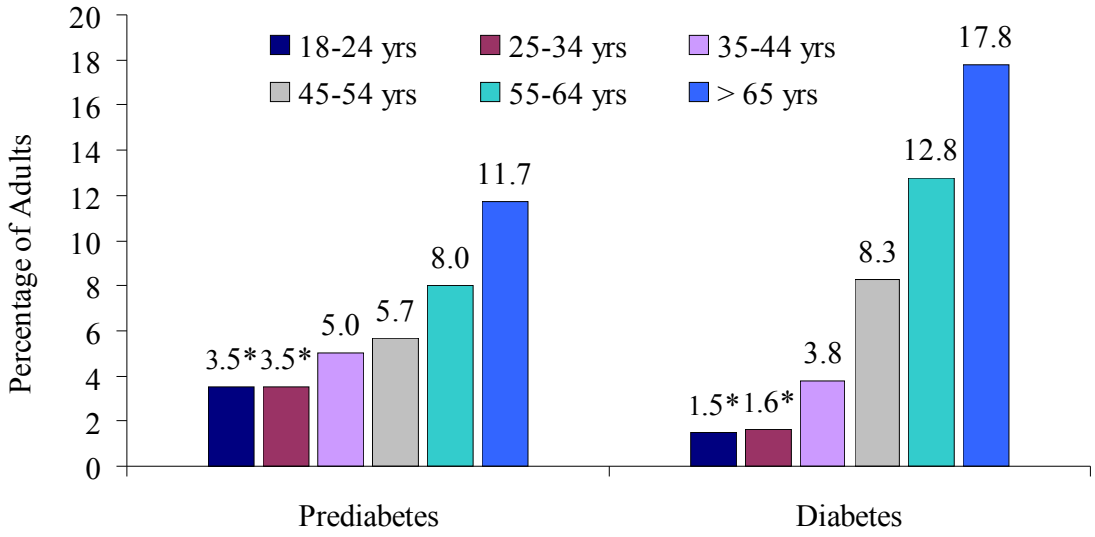
Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
*This percentage is based on a numerator < 50 and may be unreliable; please use caution in interpreting.
Data Source: Behavioral Risk Factor Surveillance System.

* This percentage is based on a numerator < 50 and may be unreliable; please use caution in interpreting.

Prediabetes and diabetes prevalence increases with age. Maine adults in the 65+ years age-group have higher prediabetes and diabetes prevalence compared to younger age groups.

- Maine adults in the 65+ years age group have significantly higher prediabetes prevalence compared to those in all other younger age groups- 18-24, 25-34, 35-44, 45-54, and 55-64 years age groups (11.7% vs. 3.5%, 3.5%, 5.0%, 5.7%, and 8.0%, respectively; Table 1.4, Figure 1.5).
- Maine adults in the 65+ years age group have significantly higher diabetes prevalence compared to those in all other younger age groups- 18-24, 25-34, 35-44, 45-54, and 55-64 years age groups (17.8% vs. 1.5%, 1.6%, 3.8%, 8.3%, and 12.8%, respectively; Table 1.4, Figure 1.5).

Figure 1.5 Prediabetes and Diabetes Prevalence by Age, Maine Adults, 2008-2010



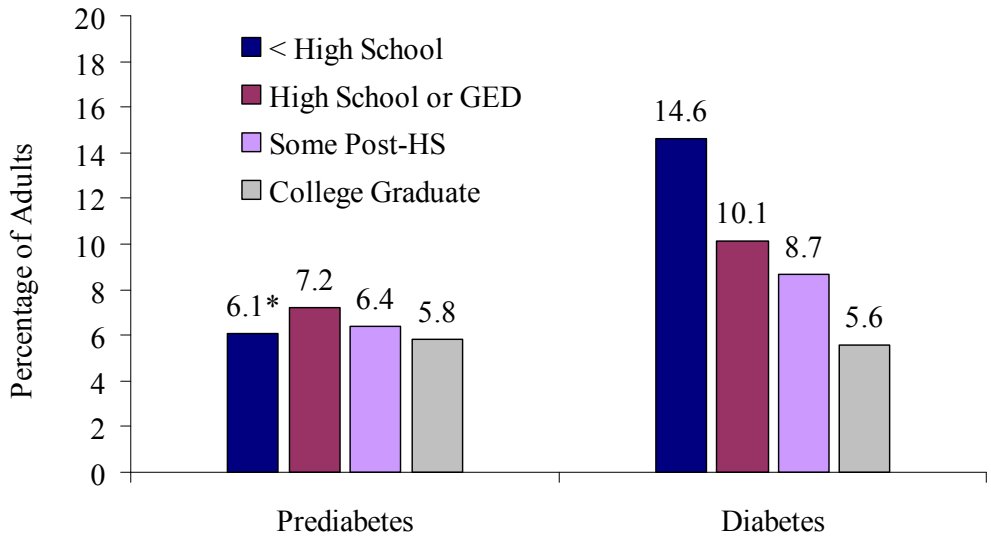
Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
*These percentages are based on a numerator < 50 and may be unreliable; please use caution in interpreting.
Data Source: Behavioral Risk Factor Surveillance System.

There is no significant difference in prediabetes prevalence by education level.

Maine adults with less education have higher diabetes prevalence rates.

- The prevalence of prediabetes is similar among Maine adults with less than a high school education, high school or G.E.D., some post-high school education and college graduates. Prediabetes prevalence among adults with less than high school education is based on a numerator <50 and may be unreliable; please use caution in interpreting (Table 1.4, Figure 1.6).
- Among Maine adults, diabetes prevalence is highest in the lowest education group and decreases with increasing education. Maine adults who had less than a high school education (14.6%) have significantly higher diabetes prevalence rates than those who were high school graduates (10.1%), those with some post-high school education (8.7%), and college graduates (5.6%; Table 1.4, Figure 1.6).

Figure 1.6 Prediabetes and Diabetes Prevalence by Education, Maine Adults, 2008-2010

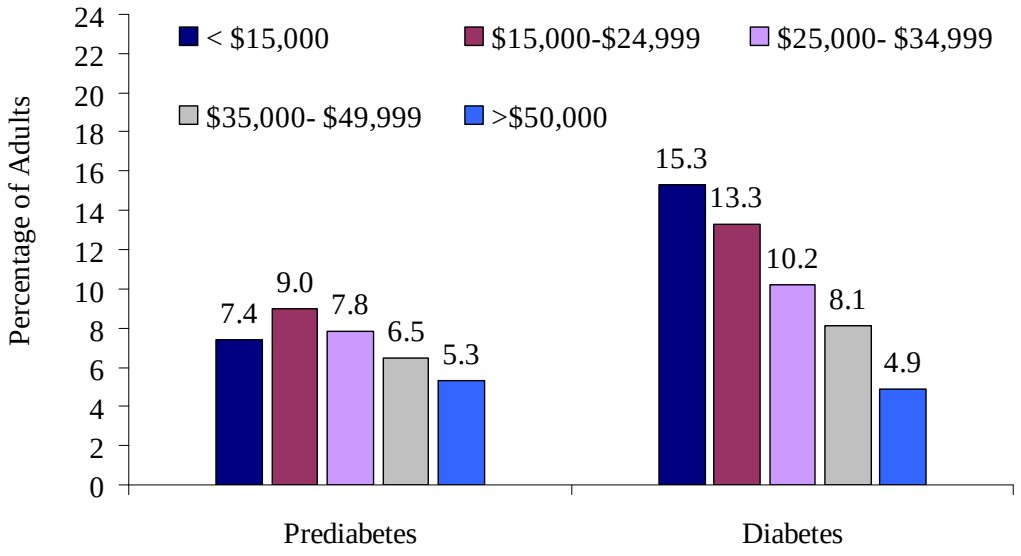


Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
*This percentage is based on a numerator < 50 and may be unreliable; please use caution in interpreting.
Data Source: Behavioral Risk Factor Surveillance System.

In general, Maine adults in lower annual household income group have higher prediabetes and diabetes prevalence rates.

- Maine adults in the $15,000-24,999 annual household income group have significantly higher prediabetes prevalence than adults in the $50,000+ group. There is no significant difference in prediabetes prevalence among other groups (Table 1.4, Figure 1.7).
- Maine adults in the <$15,000 and the $15,000-24,999 annual household income groups have significantly higher diabetes prevalence rates (15.3% and 13.3%, respectively) than adults in $25,000-34,999 group (10.2%), $55,000-49,999 group (8.1%), and $50,000+ group (4.9%) (Table 1.4, Figure 1.7).
- There is no significant difference in diabetes prevalence rates among adults in $15,000-24,999 annual household income group and <$15,000 group (Table 1.4, Figure 1.7).

Figure 1.7 Prediabetes and Diabetes Prevalence by Income, Maine Adults, 2008-2010

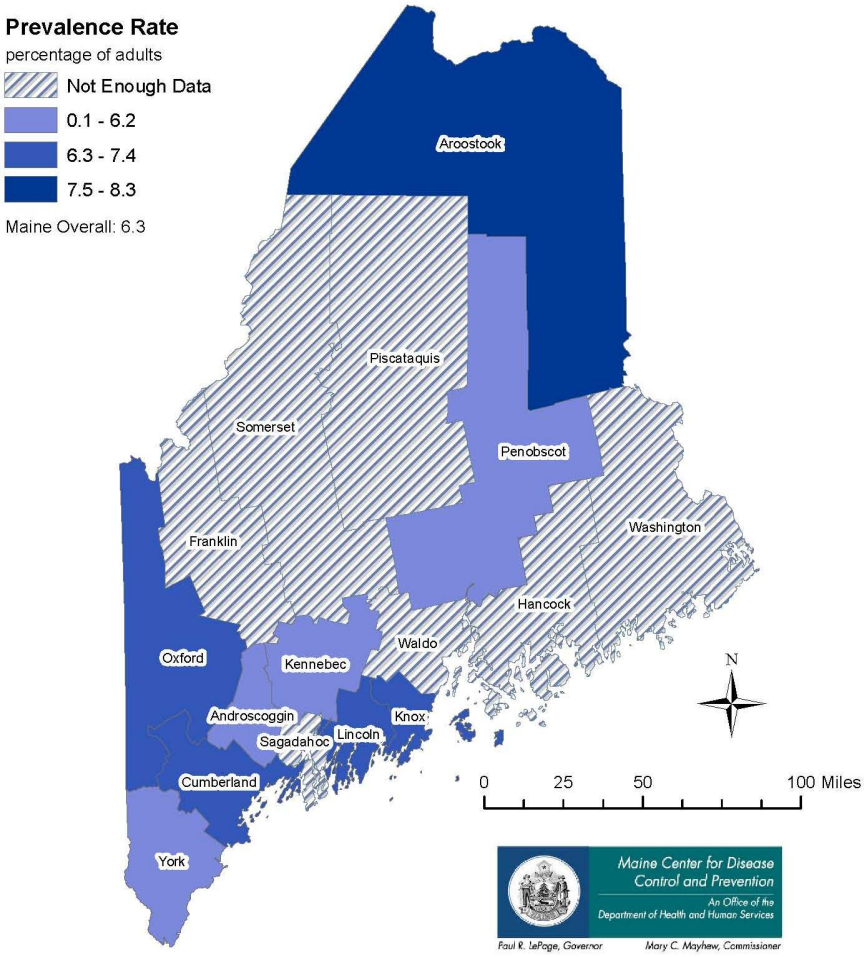


Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
Income is annual household income.
Data Source: Behavioral Risk Factor Surveillance System.

There are no significant differences between Maine counties in prediabetes prevalence.

- Aroostook County has the highest prediabetes prevalence rate in the state, but it is not significantly higher than the overall state prevalence rate (Table 1.5, Figure 1.8).
- Androscoggin and Kennebec Counties have the lowest prediabetes prevalence rates in the state, but they are not significantly lower than the state rate (Table 1.5, Figure 1.8).
- Because there are relatively few BRFSS respondents with prediabetes, it is difficult to assess county-level differences. As more years of data become available, more certainty will be possible.

Figure 1.8 Prediabetes Prevalence by County of Residence, Maine Adults, 2008-2010

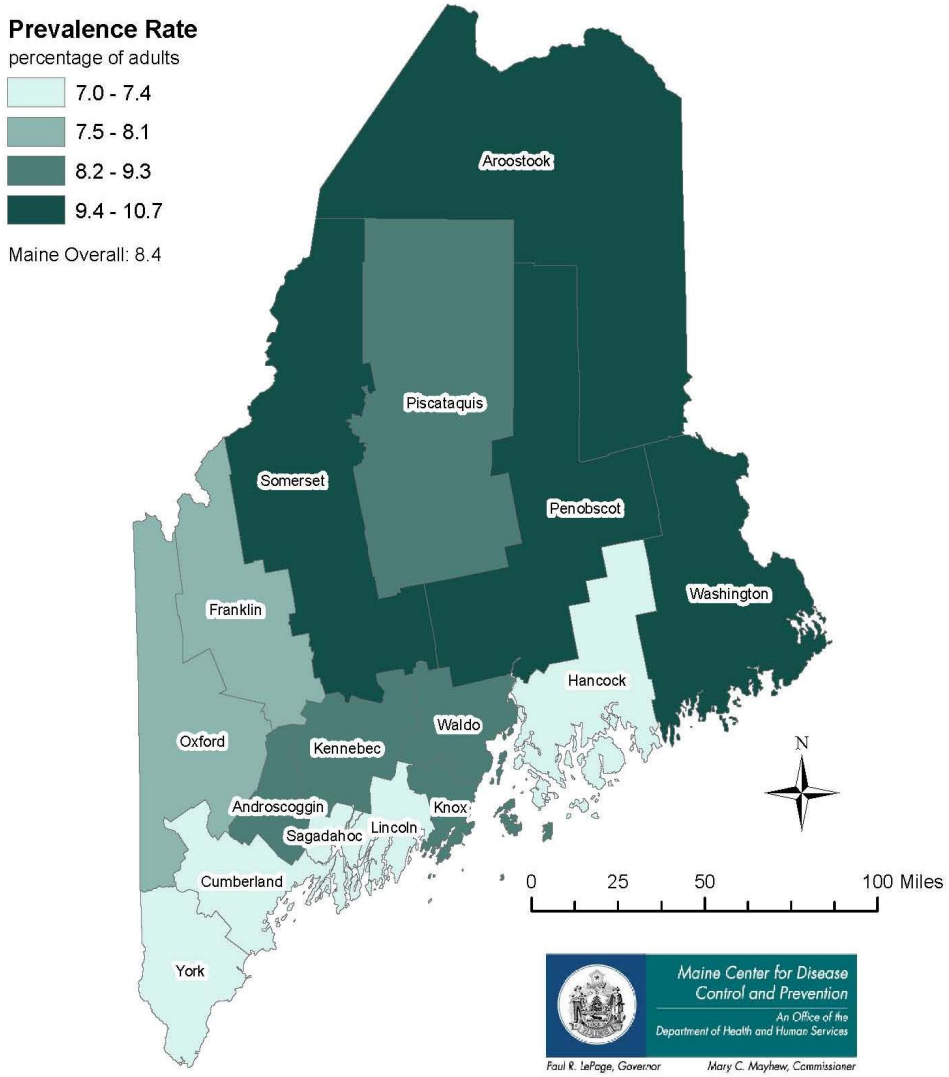


Data Source: Behavioral Risk Factor Surveillance System.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Prediabetes does not include pregnancy-related prediabetes.
Map Created by David Pied and Nisha Kini on 04/18/2012

Counties with the highest diabetes prevalence rates tend to cluster in northern and eastern Maine.

- Aroostook and Penobscot Counties have the highest diabetes prevalence rate in the state, both significantly higher than the state rate (Table 1.5, Figure 1.9).
- Cumberland County has the lowest lower diabetes prevalence rate in the state, significantly lower than the state rate (Table 1.5, Figure 1.9).

Figure 1.9 Diabetes Prevalence by County of Residence, Maine Adults, 2008-2010



Data Source: 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.
Diabetes does not include pregnancy-related diabetes.
Map Created by David Pied and Nisha Kini on 04/18/2012

References

1. Centers for Disease Control and Prevention. National diabetes fact sheet: National estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. http://www.cdc.gov/diabetes/pubs/factsheet11.htm Accessed August 14th, 2012.

Chapter 2: Prevalence of Diabetes and Prediabetes by Selected Risk Factors

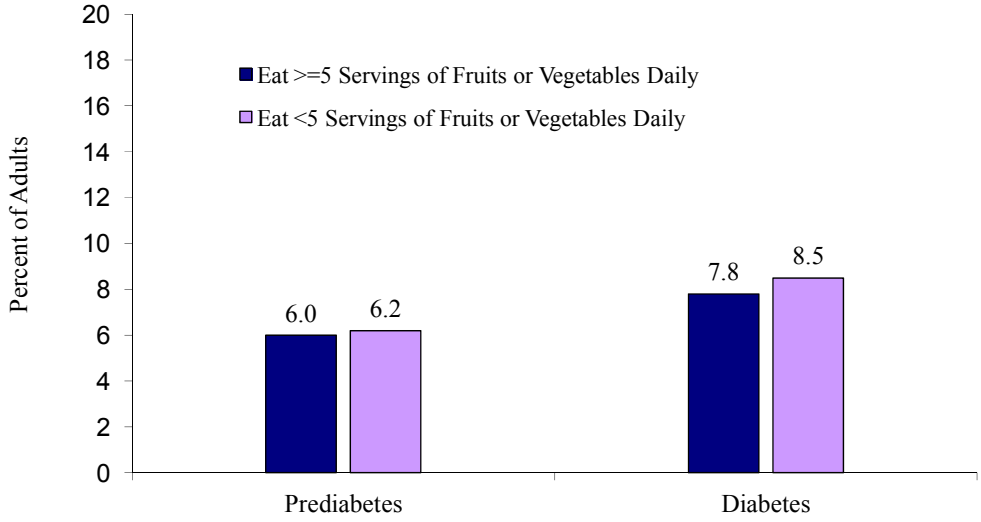
Diabetes is a risk factor for heart disease and stroke. Many people with diabetes also have other conditions such as high cholesterol and high blood pressure which increase their chance of developing heart disease and stroke.[1] Certain factors increase the risk of developing diabetes and these include being overweight, having unhealthy eating habits and being physically inactive.[2] In this chapter we will look at the prevalence of prediabetes and diabetes among Maine adults with these risk factors.

Diet, Physical Activity and Weight Status

Prevalence rates of prediabetes and diabetes are similar among Maine adults who eat 5 or more servings of fruits and vegetables per day compared to those who do not.

- The prevalence of prediabetes is similar among Maine adults who eat less than 5 servings of fruits and vegetables per day (6.2%) compared to those who eat 5 or more servings of fruits or vegetables per day (6.0%). The difference between these two groups is not significant (Table 2.1, Figure 2.1).
- The prevalence of diabetes is similar among individuals who eat less than 5 servings of fruits and vegetables per day (8.5%) compared to those who eat 5 or more servings of fruits or vegetables per day (7.8%). The difference between these two groups is not significant (Table 2.1, Figure 2.1).
- Having an unhealthy diet can contribute to weight gain, which can increase the risk of developing prediabetes[3] or diabetes.[4] Although fruit and vegetable intake is only one measure of a healthy diet, it is the only dietary indicator for which we have data.

Figure 2.1 Prediabetes and Diabetes Prevalence by Fruit and Vegetable Consumption, Maine Adults, 2009

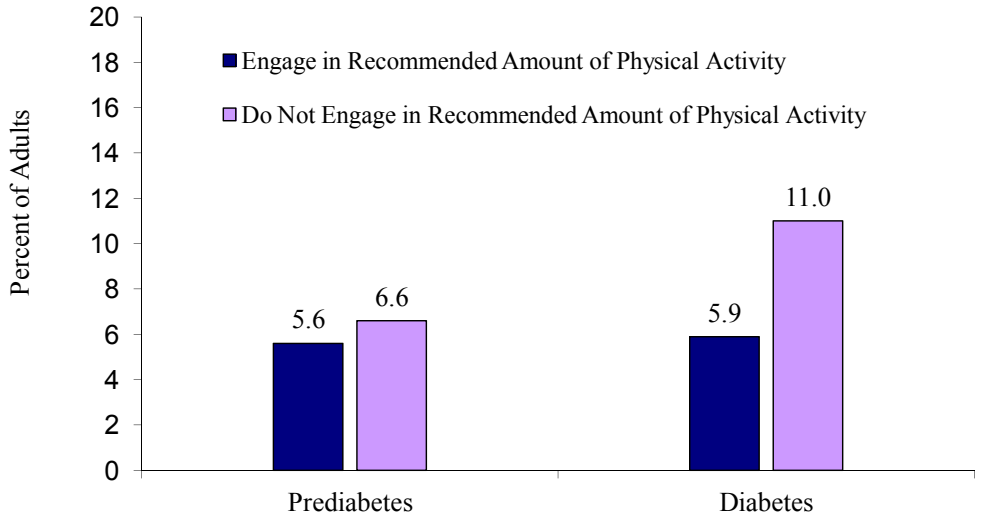


Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

Maine adults who do not engage in the recommended amount of physical activity have a higher prevalence of diabetes.

- Engaging in the recommended amount of physical activity is defined by the U.S. CDC as engaging in at least 30 minutes of moderate physical activity on five or more days per week, or vigorous physical activity for at least 20 minutes on three or more days per week.
- The prevalence of prediabetes is similar, and not significantly different, among Maine adults who do not engage in the recommended amount of physical activity (6.6%) and those who do (5.6%; Table 2.1, Figure 2.2).
- The prevalence of diabetes, however, is significantly higher among Maine adults who do not engage in the recommended amount of physical activity (11.0%) compared to those who do (5.9%; Table 2.1, Figure 2.2).
- Physical inactivity is known to be a risk factor for developing prediabetes and diabetes.[5]

Figure 2.2 Prediabetes and Diabetes Prevalence by Physical Activity Status, Maine Adults, 2009

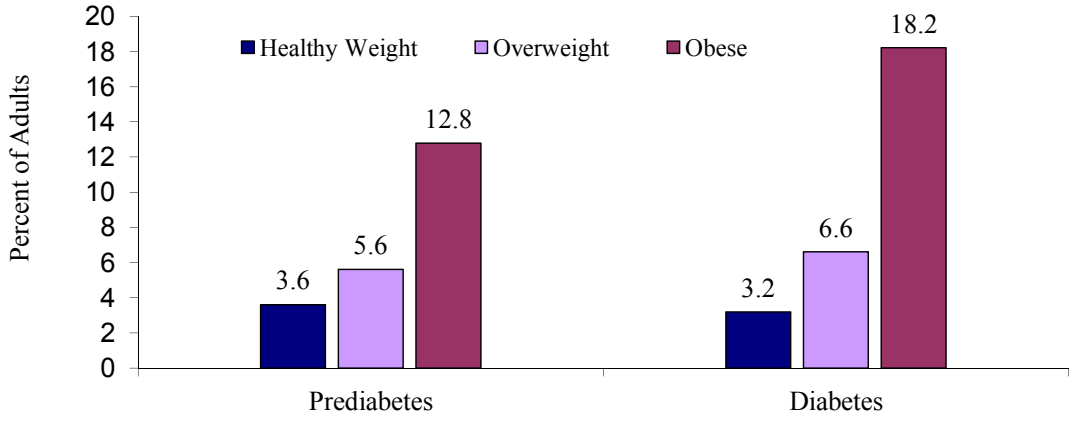


Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Recommended amount of physical activity is defined as 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

Maine adults who are obese have a higher prevalence of prediabetes and diabetes.

- The prevalence of prediabetes among Maine adults who are obese is 3.5 times higher than among Maine adults who are at a healthy weight. Maine adults who are obese have a significantly higher prevalence of prediabetes (12.8%) compared to Maine adults who are at a healthy weight (3.6%) and Maine adults who are overweight but not obese (5.6%; Table 2.1, Figure 2.3).
- Nearly one in five (18.2%) Maine adults who are obese have diagnosed diabetes; this prevalence rate is almost 6 times higher than Maine adults who are at a healthy weight. Maine adults who are obese have a significantly higher prevalence of diabetes (18.2%) compared to Maine adults who are at healthy weight (3.2%) and Maine adults who are overweight but not obese (6.6%; Table 2.1, Figure 2.3).
- Being overweight or obese is known to increase the risk of developing prediabetes[3] and diabetes.[4]

Figure 2.3 Prediabetes and Diabetes Prevalence by Weight Status, Maine Adults, 2010



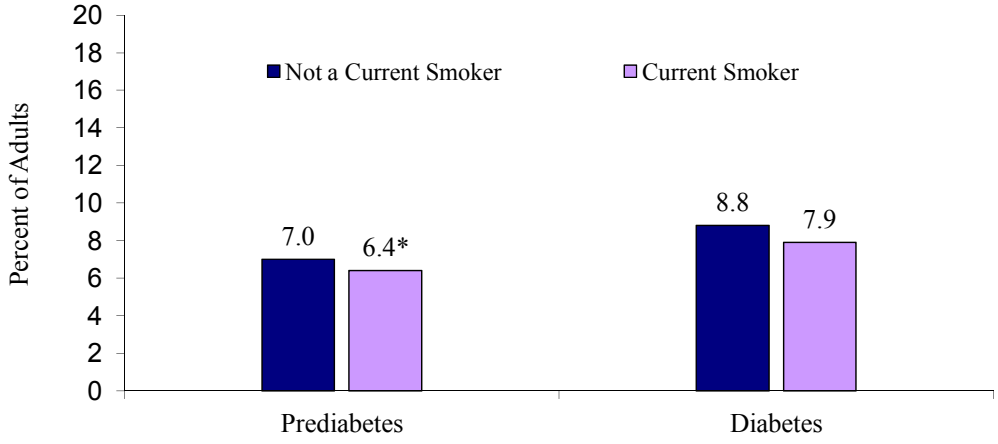
Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Healthy weight defined as BMI >=18.5 and <25.0 kg/m^2;
Overweight defined as BMI >=25.0 and < 30.0 kg/m^2;
Obese defined as BMI >=30 kg/m^2.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

Smoking

There is no difference in prediabetes and diabetes prevalence by smoking status.

- There were too few people in the survey who had prediabetes and were current smokers to provide a reliable prevalence rate for that group, but the data indicate that the prevalence of prediabetes is similar among Maine adults who are current smokers (6.4%) compared to those who are not (7.0%; Table 2.1, Figure 2.4).
- There is no significant difference in the prevalence of diabetes among Maine adults who are current smokers (7.9 %) and those who are not (8.8%; Table 2.1, Figure 2.4).
- Cigarette smoking increases the risk of type 2 diabetes. People with diabetes who smoke dramatically increase their risk of cardiovascular disease and other diabetes complications. [6]

Figure 2.4 Prediabetes and Diabetes Prevalence by Smoking Status, Maine Adults, 2010



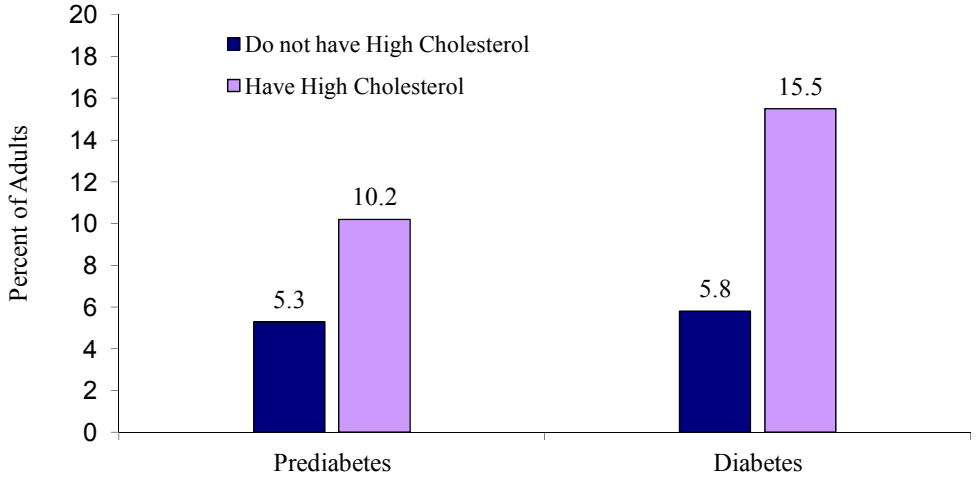
Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
*This percentage is based on a numerator < 50 and may be unreliable; please use caution in interpreting.
Data Source: Behavioral Risk Factor Surveillance System.

Cardiovascular Disease

Maine adults with high cholesterol have a higher prevalence of prediabetes and diabetes.

- The prevalence of prediabetes is almost twice as high and diabetes is 2.6 times higher among Maine adults with high cholesterol compared to those without high cholesterol. These differences are statistically significant (prediabetes: 10.2% vs. 5.3%; diabetes: 15.5% vs. 5.8%, respectively); (Table 2.1, Figure 2.5).
- People with diabetes and prediabetes are at a greater risk for developing heart disease.[7] Lower cholesterol levels improves heart disease prognosis in people with diabetes.[8]

Figure 2.5 Prediabetes and Diabetes Prevalence by High Cholesterol Status, Maine Adults, 2009

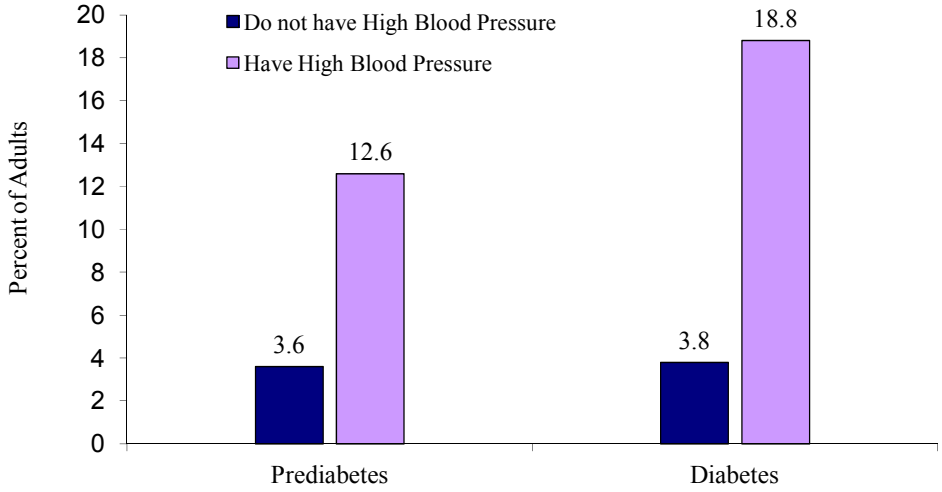


Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

Maine adults with high blood pressure have a higher prevalence of prediabetes and diabetes.

- The prevalence of prediabetes is 3.5 times higher and the prevalence of diabetes is almost 5 times higher among Maine adults with high blood pressure compared to those without high blood pressure. These differences are statistically significant (prediabetes prevalence: 12.6% vs. 3.6%, respectively; diabetes prevalence: 18.8% vs. 3.8%, respectively; Table 2.1, Figure 2.6).
- People with diabetes who also have high blood pressure are at an increased risk of diabetic complications and any reduction in blood pressure reduces the risk of complications.[9]

Figure 2.6 Prediabetes and Diabetes Prevalence by High Blood Pressure Status, Maine Adults, 2009

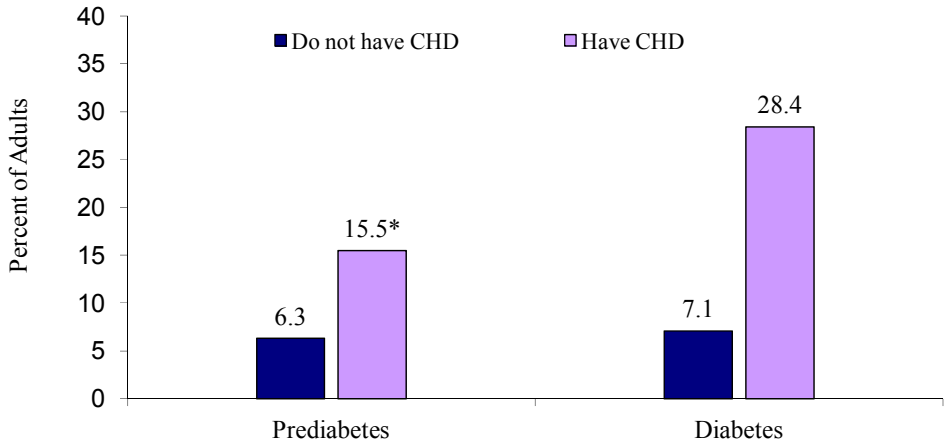


Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
Data Source: Behavioral Risk Factor Surveillance System.

Maine adults with a history of coronary heart disease have a higher prevalence of diabetes.

- There were too few people in the survey who had prediabetes and coronary heart disease to provide a reliable prevalence rate for that group, but the data indicate that the prevalence of prediabetes may be higher among adults with a history of coronary heart disease (15.5%) compared to those without (6.3%; Table 2.1, Figure 2.7).
- The prevalence of diabetes is 4 times higher among Maine adults with a history of coronary heart disease compared to those without a history of coronary heart disease. This difference is statistically significant (28.4% vs. 7.1%, respectively; Table 2.1, Figure 2.7).
- Having diabetes is known to increase the risk of developing coronary heart disease.[7]

Figure 2.7 Prediabetes and Diabetes Prevalence by History of Coronary Heart Disease, Maine Adults, 2010

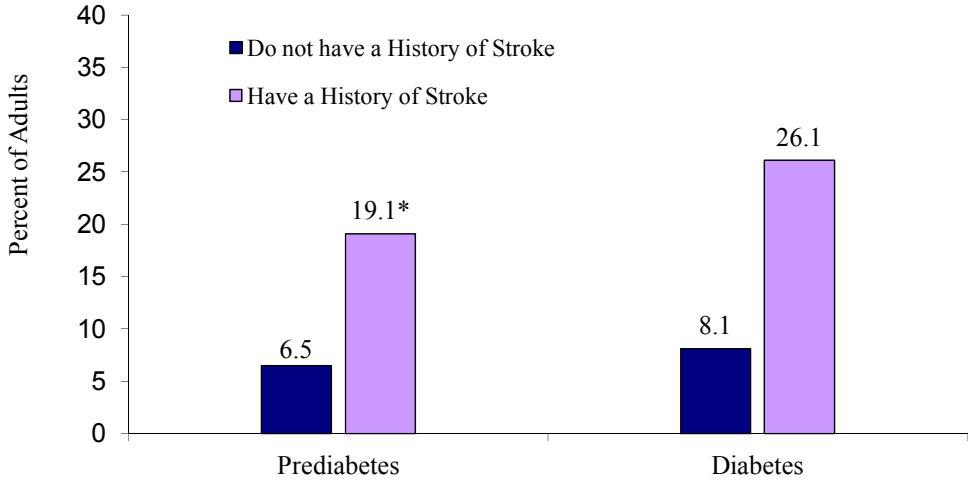


Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
CHD= Coronary Heart Disease.
*This percentage is based on a numerator < 50 and may be unreliable; please use caution in interpreting.
Data Source: Behavioral Risk Factor Surveillance System.

Maine adults with a history of stroke have a higher prevalence of diabetes.

- There were too few people in the survey who had prediabetes and a history of stroke to provide a reliable prevalence rate for that group, but the data indicate that the prevalence of prediabetes may be higher among adults with a history of stroke (19.1%) compared to those without (6.5%; Table 2.1, Figure 2.8).
- The prevalence of diabetes is 3.2 times higher among Maine adults with a history of stroke compared to those without a history of stroke. This difference is statistically significant (26.1% vs., 8.1%, respectively; Table 2.1, Figure 2.8).
- Having diabetes is known to increase the risk of having a stroke.[10]

Figure 2.8 Prediabetes and Diabetes Prevalence by History of Stroke, Maine Adults, 2010



Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Adults = ages 18+ years.
*This percentage is based on a numerator < 50 and may be unreliable; please use caution in interpreting.
Data Source: Behavioral Risk Factor Surveillance System.

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Chapter 3: Diabetes and Diabetes-Related Hospitalization

While diabetes is normally thought of as a chronic condition, it can also cause acute life-threatening blood sugar changes that require emergency health care and hospitalization.[1] In addition, diabetes increases the risk of cardiovascular disease and non-traumatic lower extremity amputation. In this chapter we discuss trends and patterns of:

- Diabetes hospitalizations,
- Diabetic ketoacidosis hospitalizations,
- Diabetes-related hospitalizations,
- Diabetes-related cardiovascular disease hospitalizations,
- Diabetes-related non-traumatic lower extremity amputation hospitalizations.

Of the approximately 22,000 hospitalizations for cardiovascular diseases in Maine during 2009, one in four (~5,500), were diabetes-related (Table 3.8).

This chapter provides a complete description of trends in diabetes and diabetes-related hospitalization rates in Maine and in the U.S.

About the Data

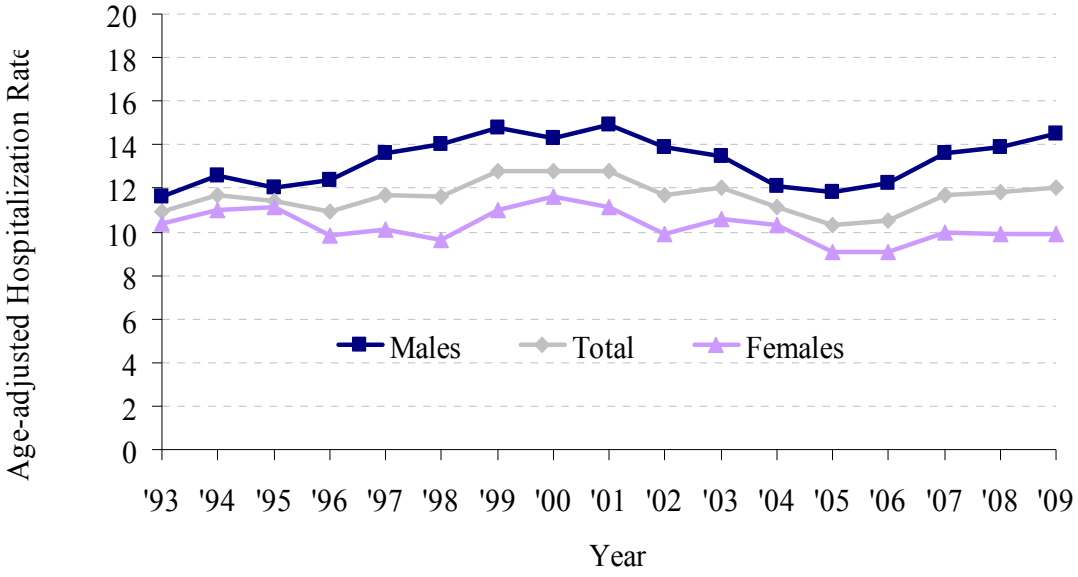
Diabetes hospitalizations are hospital stays where diabetes was the principal reason for the stay; diabetic ketoacidosis hospitalizations are diabetes hospitalizations where diabetic ketoacidosis was specifically listed as the principal reason for the stay. Diabetes-related hospitalizations are hospital stays where diabetes was either the principal or a contributing reason for the stay. Diabetes-related cardiovascular disease hospitalizations are hospital stays where a major cardiovascular disease was the principal reason for the stay and diabetes was a contributing diagnosis. Diabetes-related non-traumatic lower extremity amputation hospitalizations are hospital stays where a non-traumatic lower extremity amputation procedure was performed and diabetes was either the principal or contributing cause of the stay.

Diabetes Hospitalizations

Diabetes hospitalization rates in Maine declined in the early- to mid-2000's, however, rates have been on the rise since 2005.

- Maine's diabetes hospitalization rate increased from 10.9 per 10,000 in 1996 to a high of 12.8 per 10,000 in 1999, and remained at that level through 2001. After falling from 12.8 in 2001 to 10.3 in 2005, Maine's diabetes hospitalization rates have since increased significantly to 12.0 in 2009, nearly back at the same high level as in 1999-2001 (Table 3.1, Figure 3.1).

Figure 3.1 Diabetes Hospitalization Rates by Gender, Maine, 1993-2009



Diabetes Hospitalizations: ICD-9-CM 250; principal diagnosis.
Rates per 10,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

In Maine, males have higher diabetes hospitalization rates than females.

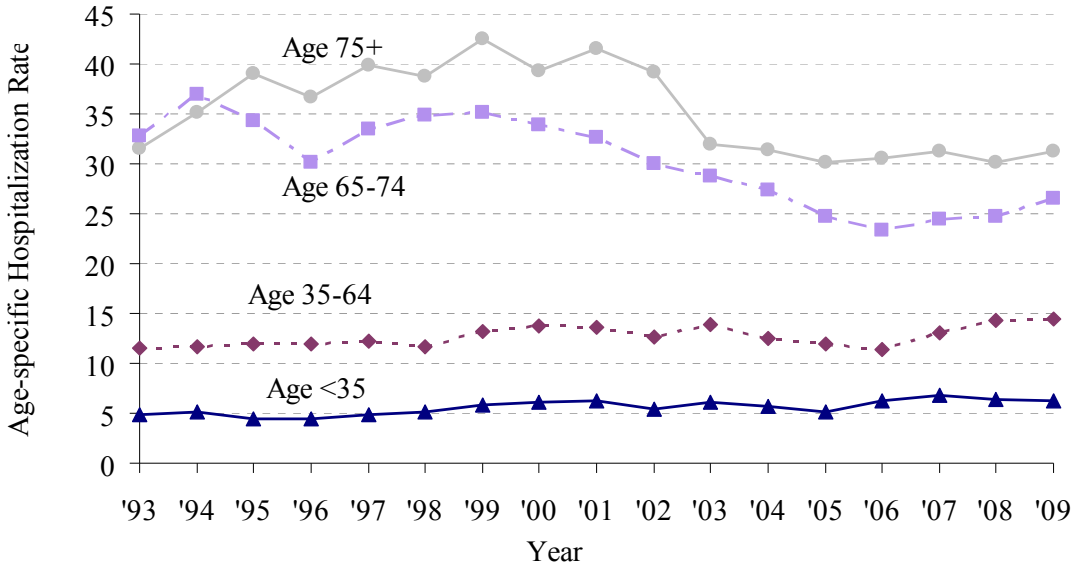
- There is a gender disparity in diabetes hospitalization rates. Males have had significantly higher rates than females since 1996 (Table 3.1, Figure 3.1).
- In 2009, the diabetes hospitalization rate among Maine males (14.5 per 10,000 population) was 31.7% higher than that of Maine females (9.9 per 10,000 population; Table 3.1, Figure 3.1).

- The trend in diabetes hospitalization rates was similar for males and females through 2005. Rates reached a high point between 1999 and 2001 and then declined significantly to 2005 (Table 3.1, Figure 3.1).
- Since 2005, however, diabetes hospitalization rates have increased significantly for males (from 11.8 per 10,000 in 2005 to 14.8 in 2009), while they have increased only very slightly, but not significantly, for females (from 9.1 in 2005 to 9.9 in 2009). This has caused a widening gender disparity (Table 3.1, Figure 3.1).

Diabetes hospitalization rates are higher in older age groups compared to younger age groups.

- Diabetes hospitalization rates increase with age. Mainers 35-64 years of age have diabetes hospitalization rates almost 2 times greater than Mainers younger than 35 years of age. Mainers over 65 years of age have diabetes hospitalization rates more than 4 times greater than Mainers younger than 35 years of age (Table 3.2, Figure 3.2).
- While trends in diabetes hospitalization rates differ somewhat by age group, rates for all age groups have increased or have not improved in recent years (Table 3.2, Figure 3.2).
- Among Mainers 75+ years of age, rates increased from 1993 to the early 2000's before declining steeply between 2001 and 2003. Since then, rates for this age group have been stable, around 31.0 per 10,000 (Table 3.2, Figure 3.2).

Figure 3.2 Diabetes Hospitalization Rates by Age Group, Maine, 1993-2009



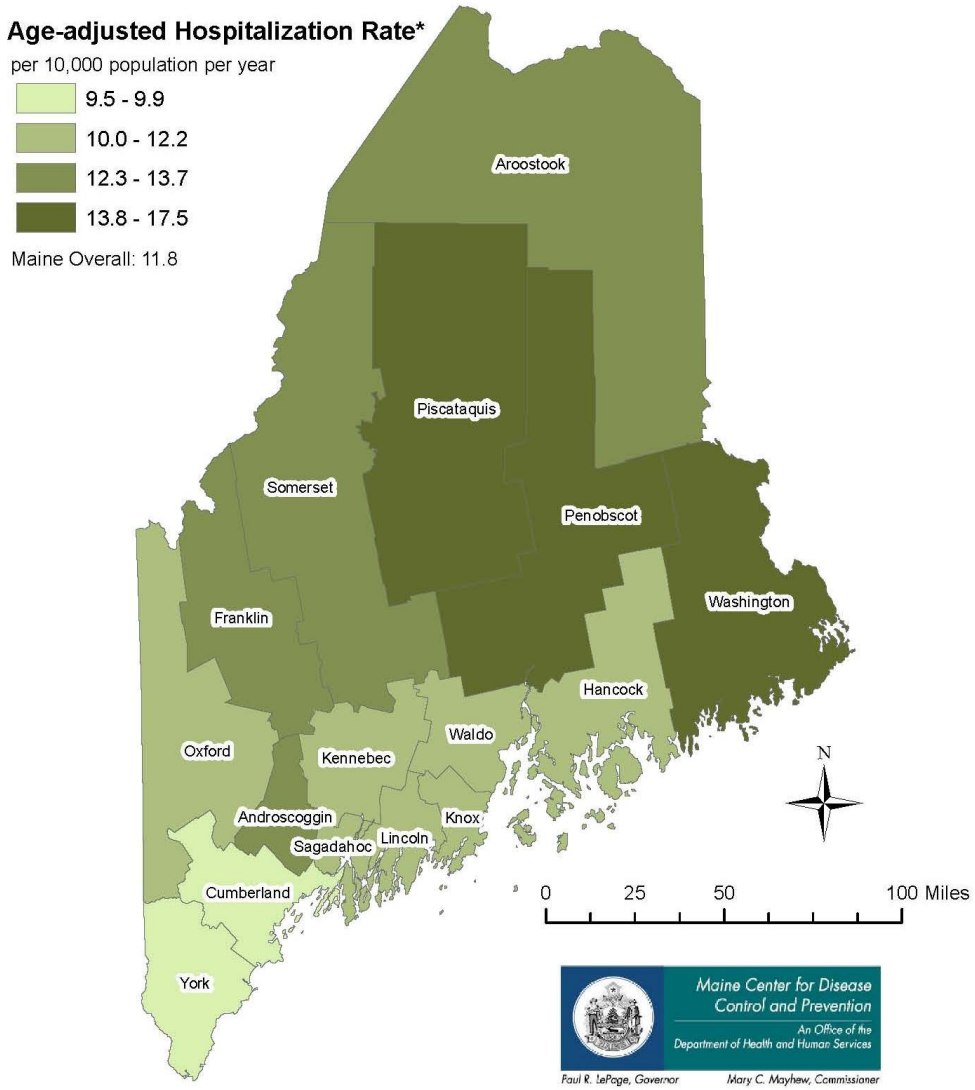
Diabetes Hospitalizations: ICD-9-CM 250; principal diagnosis.
Rates per 10,000 population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

- Among Mainers 65-74 years of age, diabetes hospitalization rates declined significantly between 1999 and 2006 (from 35.1 to 23.3 per 10,000). Since then, rates have increased slightly but not significantly (Table 3.2, Figure 3.2).
- Among Mainers 35-64 years of age, diabetes hospitalization rates reached a high of 13.9 per 10,000 in 2003 before declining significantly to 11.4 in 2006. Since then, rates have increased significantly to 14.5 per 10,000 in 2009, higher than at any time since 1993 (Table 3.2, Figure 3.2).
- Among Mainers <35 years of age, diabetes hospitalization rates increased very slowly, but significantly, from 4.4 per 10,000 in 1996, to a high of 6.8 in 2007. Since then, rates have not significantly improved, and the 2009 rate of 6.3 per 10,000 remains significantly higher than the rates in the early- to mid-1990's (Table 3.2, Figure 3.2).

There is substantial geographic variation in diabetes hospitalization rates in Maine.

- Androscoggin, Penobscot, Washington and Piscataquis Counties have the highest diabetes hospitalization rates in the state, all significantly higher than the state rate during 2007-2009 (Table 3.3, Figure 3.3).
- York and Cumberland Counties have the lowest diabetes hospitalization rates in the state, both significantly lower than the state rate during 2007-2009 (Table 3.3, Figure 3.3).

Figure 3.3 Diabetes Hospitalization by County of Residence, Maine Adults, 2007-2009



Data Source: Maine Inpatient Database, Maine Health Data Organization.
Diabetes Hospitalizations: ICD-9-CM 250; principal diagnosis.
*Age-adjusted to the year 2000 standard U.S. population
Map Created by David Pied and Nisha Kini on 04/18/2012

Diabetic Ketoacidosis Hospitalizations

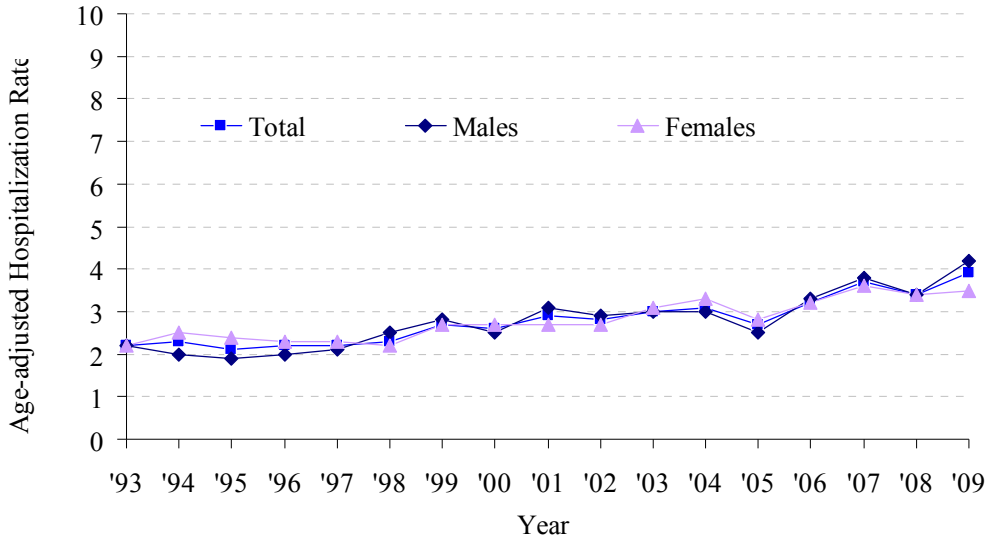
Diabetic ketoacidosis hospitalization rates in Maine have increased since 1993.

- Diabetic ketoacidosis hospitalization rates in Maine were stable between 1993 and 1998, but have since increased slowly and a bit sporadically. Rates increased significantly from 2.3 per 10,000 in 1998 to 3.1 in 2004, dipped slightly, then increased significantly again from 2.7 in 2005 to 3.7 in 2007. Rates dipped back down in 2008 and then increased to 3.9 in 2009, the highest rate to date (Table 3.4, Figure 3.4).

There is no significant difference in diabetic ketoacidosis hospitalization rates among Maine males and females.

- Males and females in Maine have similar diabetic ketoacidosis hospitalization rates. In 2009, the rate among males of 4.2 per 10,000 was only slightly, and not significantly, higher than the rate among females (3.5 per 10,000; Table 3.4, Figure 3.4).
- The trend in diabetic ketoacidosis hospitalization rates is similar for males and females, with a slow and sporadic increase over time. Between 2008 and 2009, however, the rate for males increased, though not significantly, while the rate for females remained stable. This should be monitored to ensure it is not the start of a gender disparity (Table 3.4, Figure 3.4).

Figure 3.4 Diabetic Ketoacidosis Hospitalization Rates by Gender, Maine, 1993-2009



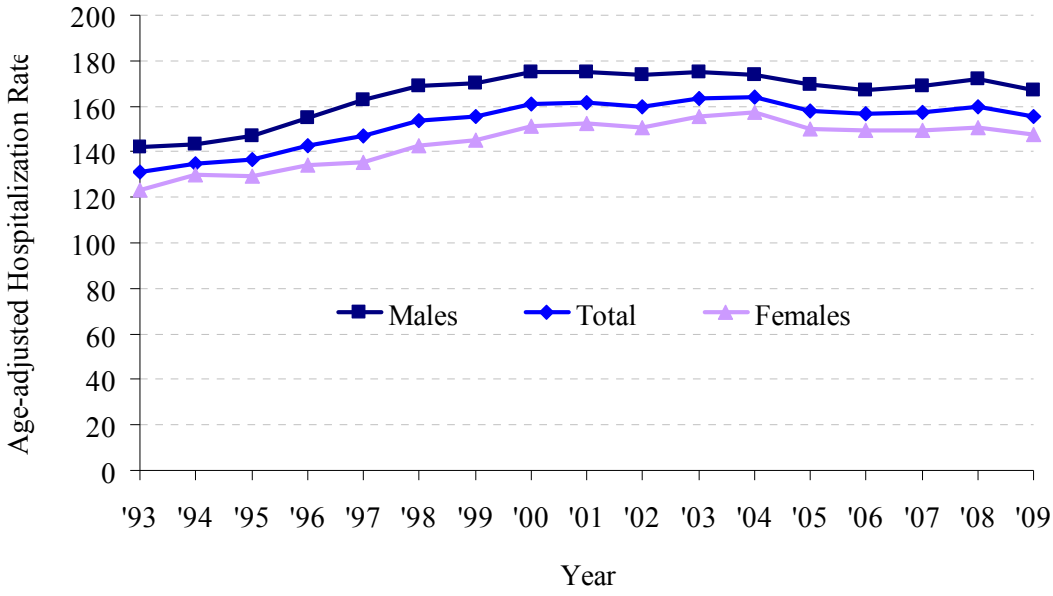
Diabetic Ketoacidosis Hospitalizations: ICD-9-CM code 250.1 as the principal diagnosis.
Rates per 10,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Diabetes-Related Hospitalizations

Diabetes-related hospitalization rates in Maine increased between 1993 and 2004, and have declined slightly, but not steadily, in recent years.

- Diabetes-related hospitalization rates in Maine increased steadily from 130.9 per 10,000 in 1993 to 163.8 in 2004. Since then, rates have decreased significantly to 155.6 per 10,000 population in 2009. While the 2009 rate is significantly lower than the 2004 rate, it still significantly higher than the 1993 rate (130.9 per 10,000 population; Table 3.5, Figure 3.5).

Figure 3.5 Diabetes-Related Hospitalization Rates by Gender, Maine, 1993-2009



Diabetes-Related Hospitalizations: ICD-9-CM 250; any listed diagnosis.
Rates per 10,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

In Maine, males have higher diabetes-related hospitalization rates than females.

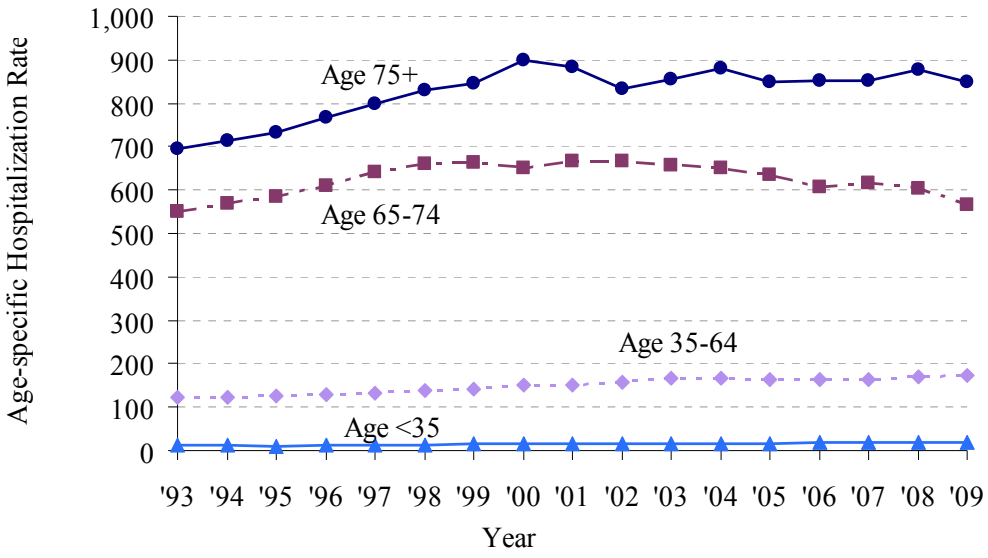
- There is a gender disparity in diabetes-related hospitalization rates, with males showing significantly higher rates than females for all years shown. The gender gap has been fairly consistent over the past 15 years (Table 3.5, Figure 3.5).
- In 2009, the diabetes-related hospitalization rate among Maine males of 167.1 per 10,000 population was 11.5% higher than that of Maine females (147.8 per 10,000 population; Table 3.5, Figure 3.5).

- The trend in diabetes-related hospitalization rates has been similar among males and females, showing the same trend as Maine overall (Table 3.5, Figure 3.5).
- Rates for males increased slightly but not significantly between 2006 and 2008, while rates for females were more stable, but rates for males and females both declined slightly but not significantly, from 2008 to 2009 (Table 3.5, Figure 3.5).

Diabetes-related hospitalization rates are higher in older age groups compared to younger age groups.

- Diabetes-related hospitalization rates increase with age. Compared to Mainers <35 years of age, Mainers over 75 years of age have diabetes-related hospitalization rates almost 46 times higher, Mainers 65-74 years of age have rates 30 times higher, and Mainers 35-64 years of age have rates 9 times higher (Table 3.6, Figure 3.6a, 3.6b).

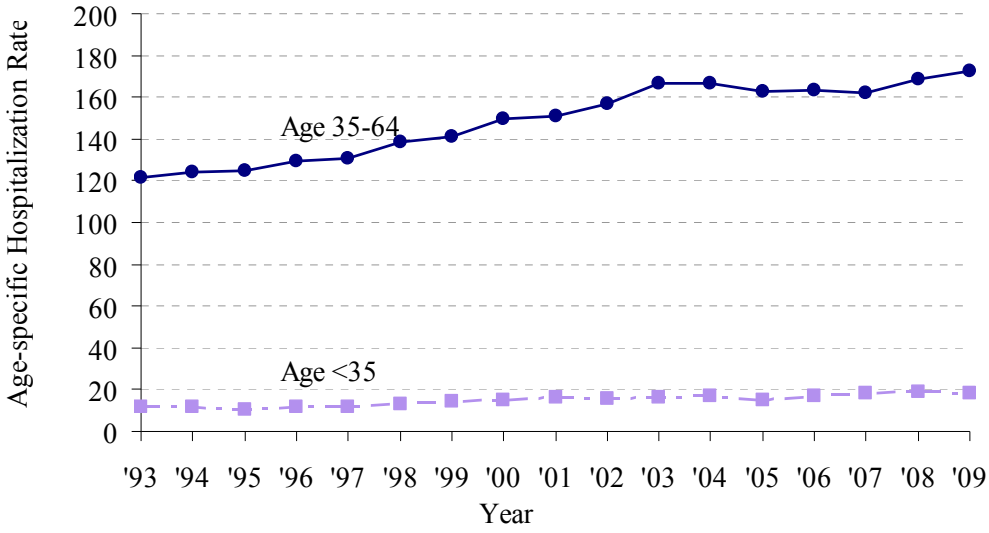
Figure 3.6a Diabetes-Related Hospitalization Rates by Age Group, Maine, 1993-2009



Diabetes-Related Hospitalizations: ICD-9-CM 250; any listed diagnosis.
Rates per 10,000 population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

- Between 1993 and the late 1990's and early 2000's, diabetes-related hospitalization rates in Maine increased significantly among all age groups. Since then, however, trends have differed by age group. Rates have continued to increase among those <35 years of age and 35-64 years of age; rates for both are significantly higher in 2009 than they were in 2002. Among those 65-74 years of age, rates were stable from 1999 until 2003, and have since declined such that the 2009 rate is almost as low as the 1993 rate. Among those 75+ years of age, rates decreased significantly from 2000 to 2002, but have not improved since (Table 3.6, Figure 3.6a, 3.6b).

Figure 3.6b Diabetes-Related Hospitalization Rates by Age Group (zoomed in), Maine, 1993-2009

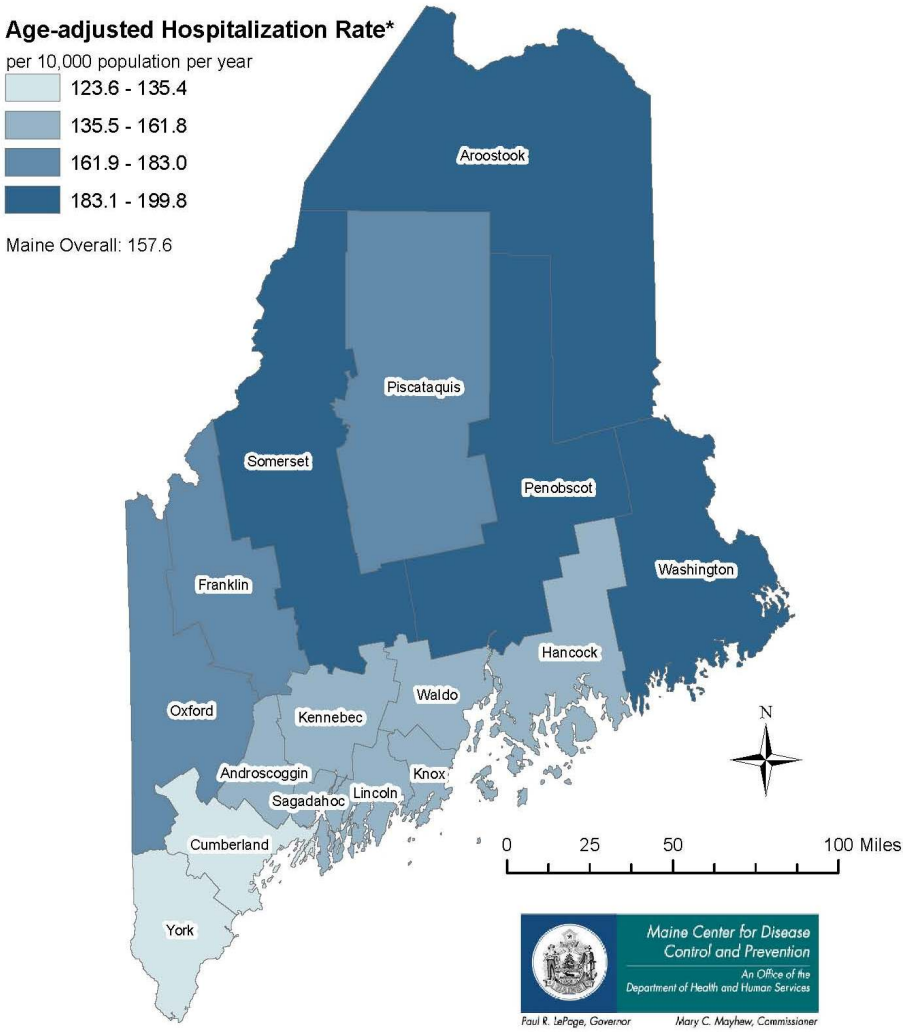


Diabetes-Related Hospitalizations: ICD-9-CM 250; any listed diagnosis.
Rates per 10,000 population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

The counties with the highest diabetes-related hospitalization rates are clustered in northern and eastern Maine.

- Piscataquis, Franklin, Oxford, Washington, Somerset, Aroostook and Penobscot Counties have the highest diabetes-related hospitalization rates in the state, all significantly higher than the state rate (Table 3.7, Figure 3.7).
- York, Cumberland, Sagadahoc, Lincoln and Kennebec Counties have the lowest diabetes-related hospitalization rates in the state, all significantly lower than the state rate (Table 3.7, Figure 3.7).

Figure 3.7 Diabetes-Related Hospitalization Rates, by County of Residence, Maine 2007-2009



Data Source: Maine Inpatient Database, Maine Health Data Organization.
Diabetes-Related Hospitalizations: ICD-9-CM 250; any listed diagnosis.
*Age-adjusted to the year 2000 standard U.S. population

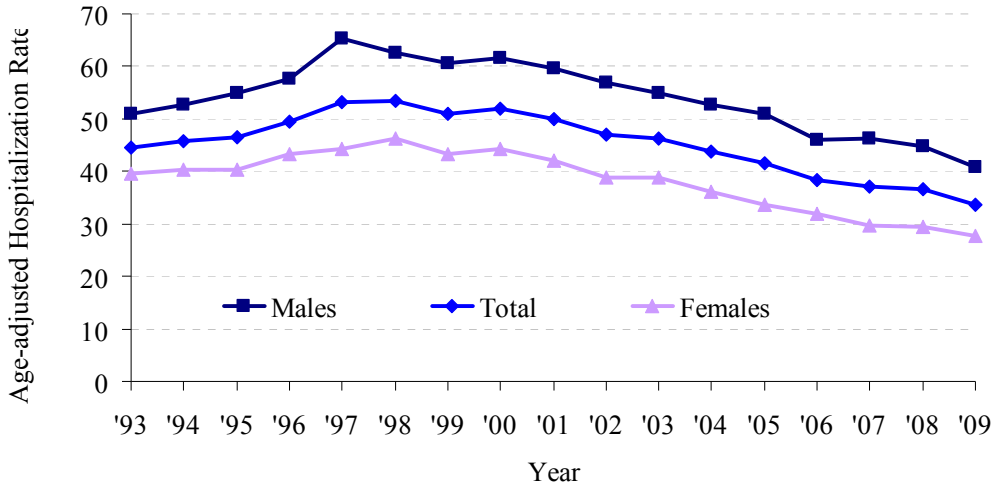
Map Created by David Pied and Nisha Kini on 04/18/2012

Diabetes-Related Cardiovascular Disease Hospitalizations

Diabetes-related cardiovascular disease hospitalization rates in Maine have declined dramatically since 1998.

- Between 1993 and 1998, diabetes-related cardiovascular disease hospitalization rates in Maine increased steadily from 44.5 to 53.5 per 10,000 population. By 2009, however, rates had declined steeply to reach the current rate of 33.7 per 10,000 population.
- Between 1998 and 2009, the diabetes-related cardiovascular disease hospitalization rate in Maine decreased 37% overall, with an average annual decrease of 3.7%. This decline corresponds to declines in all cardiovascular disease hospitalizations during this time period.
- The 2009 diabetes-related cardiovascular disease hospitalization rate (33.7 per 10,000 population) is significantly lower than the rate in 1993 (44.5 per 10,000 population; Table 3.8, Figure 3.8).

Figure 3.8 Diabetes-Related Cardiovascular Disease Hospitalization Rates by Gender, Maine, 1993-2009



Cardiovascular Disease: ICD-9-CM codes 390-434, 436-448; principal diagnosis and diabetes (ICD-9-CM code 250) as other listed diagnosis.
Rates per 10,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

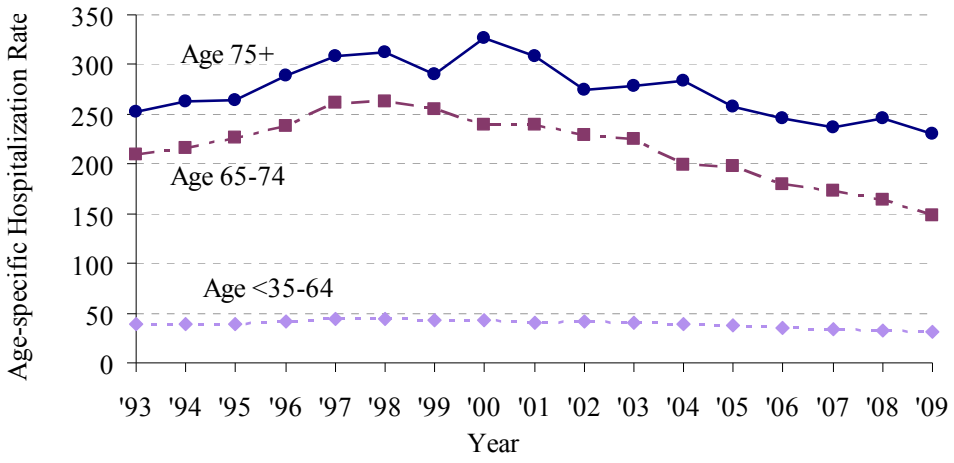
In Maine, males have higher diabetes-related cardiovascular disease hospitalization rates than females.

- There is a gender disparity in diabetes-related cardiovascular disease hospitalization rates, with males having significantly higher rates than females for all years shown. The gender disparity gap has been fairly consistent over the past 15 years. (Table 3.8, Figure 3.8).
- In 2009, the diabetes-related cardiovascular disease hospitalization rate among Maine males (40.8 per 10,000 population) was 46.8% higher than that of Maine females (27.8 per 10,000 population; Table 3.8, Figure 3.8).
- The trend in diabetes-related cardiovascular disease hospitalization rates has been similar among males and females, showing similar trends as Maine overall, as described above. Rates for males have declined significantly from a high of 65.2 per 10,000 in 1997 to 40.8 in 2009, a 37.4% total decline and an average annual decline of 3.3%. Rates for females have declined significantly from a high of 46.2 per 10,000 in 1998 to 27.8 in 2009, a 39.8% total decline and an average annual decline of 4.4% (Table 3.8, Figure 3.8).

Diabetes-related cardiovascular disease hospitalization rates are higher in older age groups compared to younger age groups.

- Diabetes-related cardiovascular disease hospitalization rates increase with age. Compared to diabetes-related cardiovascular disease hospitalization rates among Mainers 35-64 years of age, Mainers over 75 years of age have rates almost 7 times higher and Mainers 65-74 years of age have rates almost 5 times higher (Table 3.9, Figure 3.9).
- Similar to trends overall in Maine, between 1993 and the late 1990's and early 2000's, the age-specific diabetes-related cardiovascular disease hospitalizations rates generally increased in Maine for all age groups shown. Since then however, rates have declined among all age groups, though the timing and rate of decline has been slightly different for different age groups (Table 3.9, Figure 3.9).

Figure 3.9 Diabetes-Related Cardiovascular Disease Hospitalization Rates by Age Group, Maine, 1993-2009



Cardiovascular Disease: ICD-9-CM codes 390-434, 436-448; principal diagnosis and diabetes (ICD-9-CM code 250) as other listed diagnosis.
Rates per 10,000 population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

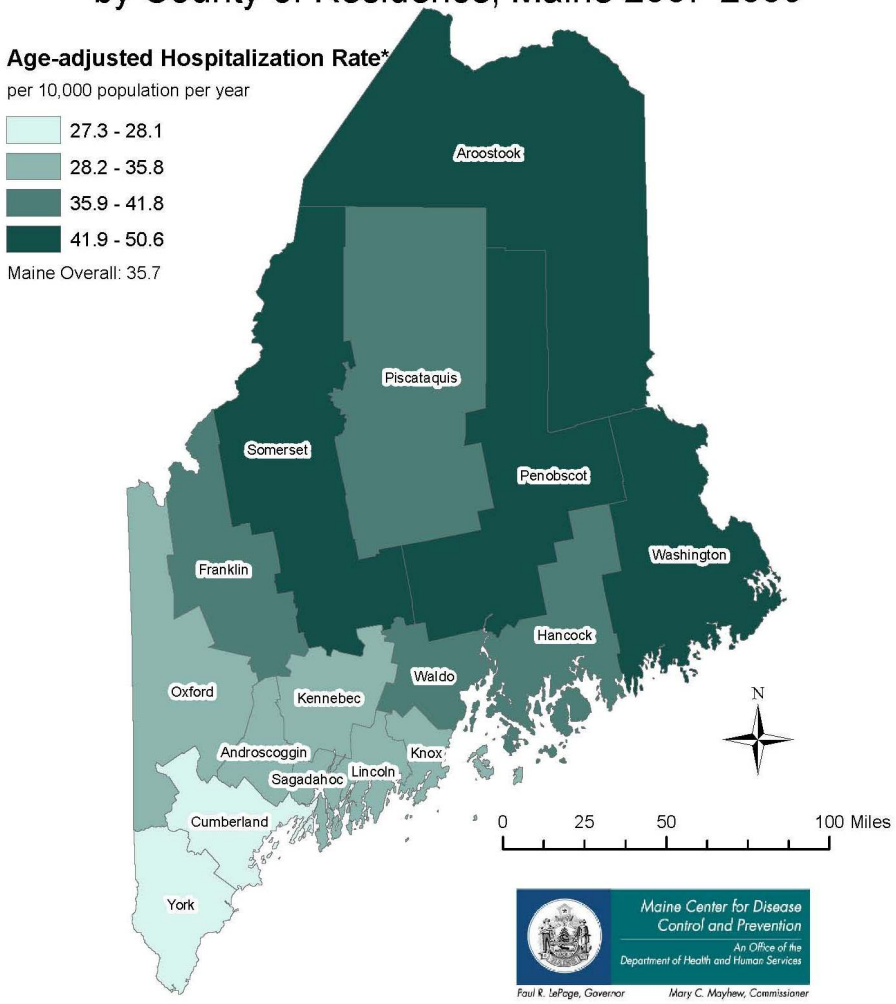
- Rates among Mainers 35-64 and 64-74 years of age have declined significantly since 1998 (2.8% and 4.6% average annual decline respectively). As a result, the 2009 rates for those 35-64 and 65-74 years of age (31.3 and 148.7 per 10,000, respectively) are now significantly lower than 1993 rates (39.5 and 209.4 per 10,000, respectively; Table 3.9, Figure 3.9).
- Rates among Mainers 75+ years of age reached a high of 327.2 per 10,000 in 2000, and have declined significantly since then. Though the decline started later and has been more sporadic than among the other age groups, the decline has been significant and substantial

(3.7% average annual decline). The 2009 rate of 229.7 per 10,000 is significantly lower than the 1993 rate of 251.8 (Table 3.9, Figure 3.9).

The counties with the highest diabetes-related cardiovascular disease hospitalization rates tend to be clustered in northern and eastern Maine.

- Hancock, Penobscot, Washington, Aroostook, and Somerset Counties have the highest diabetes-related cardiovascular disease hospitalization rates in the state, all significantly higher than the state rate (Table 3.10, Figure 3.10).
- York, Cumberland, Lincoln, and Androscoggin Counties have the lowest diabetes-related cardiovascular disease hospitalization rates in the state, all significantly lower than the state rate (Table 3.10, Figure 3.10).

Figure 3.10 Diabetes-Related Cardiovascular Disease Hospitalization Rates, by County of Residence, Maine 2007-2009



Data Source: Maine Inpatient Database, Maine Health Data Organization.
Cardiovascular Disease: ICD-9-CM codes 390-434, 436-448; principal diagnosis and diabetes (ICD-9-CM code 250) as other listed diagnosis.
*Age-adjusted to the year 2000 standard U.S. population.

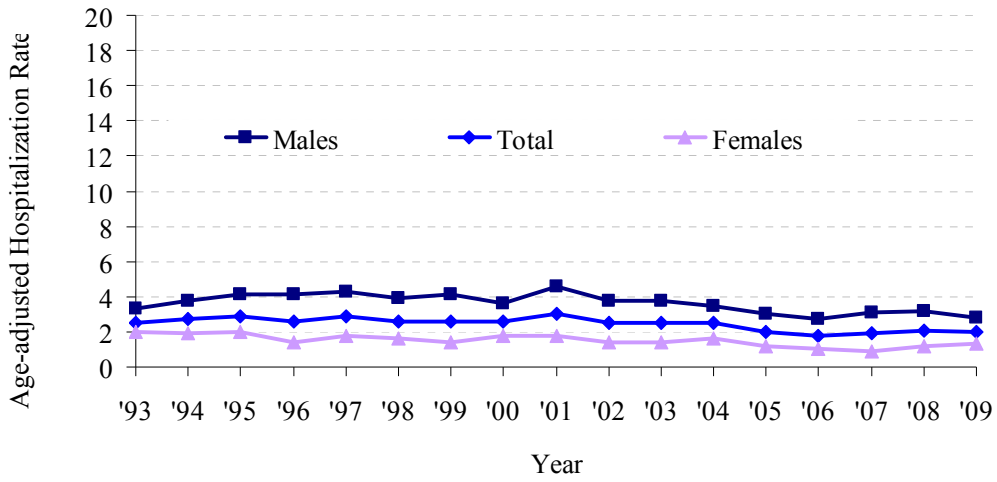
Map Created by David Pied and Nisha Kini on 04/18/2012

Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalizations

Diabetes-related non-traumatic lower extremity amputation hospitalization rates in Maine decreased between 2001 and 2006, but have been stable since then.

- Between 1993 and the early 2000's, diabetes-related non-traumatic lower extremity amputation hospitalization rates in Maine were relatively stable—between 2.5 and 3.0 per 10,000 population. Between 2001 and 2006, rates declined significantly from 3.0 to 1.8 per 10,000 population. Since 2006, the rates have been stable and around 2.0 per 10,000 population. The 2009 rate of 2.0 per 10,000 population is significantly lower than the 1993 rate of 2.5 (Table 3.11, Figure 3.11).

Figure 3.11 Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization Rates by Gender, Maine, 1993-2009



Diabetes-Related Non-traumatic Lower Extremity Amputation: Hospitalizations with diabetes (ICD-9-CM code 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM procedure code 84.1) as any listed procedure and not having ICD-9-CM codes 895–897 (traumatic amputation).
Rates per 10,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

In Maine, males have higher diabetes-related non-traumatic lower extremity amputation hospitalization rates than females.

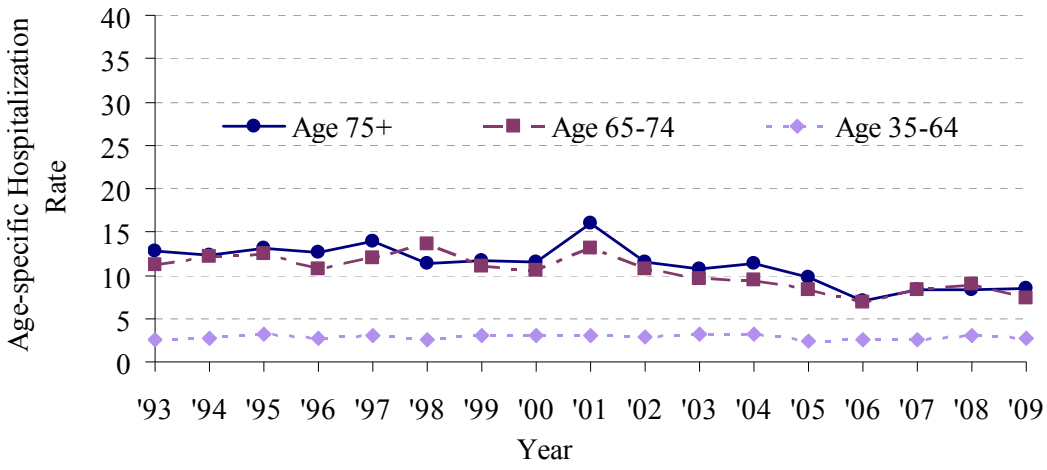
- There is a gender disparity in diabetes-related non-traumatic lower extremity amputation hospitalization rates, with males showing significantly higher rates than females for all years shown. The gender disparity has been relatively consistent over time (Table 3.11, Figure 3.11).

- In 2009, the diabetes-related non-traumatic lower extremity amputation hospitalization rate among Maine males (2.8 per 10,000 population) was significantly higher than that of Maine females (1.3 per 10,000 population; Table 3.11, Figure 3.11).
- Trends in diabetes-related non-traumatic lower extremity amputation hospitalization rates are generally similar for males and females, with trends for both being similar to that of the overall Maine rates described above (Table 3.11, Figure 3.11).
- Rates for males and females generally declined between 2001 and 2007, and have since been stable, with no significant change among either males or females. Among males, rates declined significantly from 4.6 per 10,000 in 2001 to 2.7 in 2006 (9.9% average annual decline), and remain at 2.8 per 10,000 in 2009. Among females, rates declined significantly from 1.8 per 10,000 in 2001 to 0.9 in 2007 (9.9% average annual decline). While the rates for females look as though they increased from 2007 and 2009, this is not a statistically significant increase (Table 3.11, Figure 3.11).

Diabetes-related non-traumatic lower extremity amputation hospitalization rates are higher among Mainers over the age of 65 years compared to those who are 35-64 years of age.

- Compared to Mainers 35-64 years of age, Mainers 65-74 and 75+ years of age have diabetes-related non-traumatic lower extremity amputation hospitalization rates almost 3 times higher (Table 3.12, Figure 3.12).
- Between 1993 and 2009, the difference in diabetes-related non-traumatic lower extremity amputation hospitalization rates was not significantly different among Mainers 65-74 years and 75+ years of age for all years shown (Table 3.12, Figure 3.12).
- Trends in diabetes-related non-traumatic lower extremity amputation hospitalization rates vary somewhat by age group (Table 3.12, Figure 3.12).

Figure 3.12 Diabetes-Related Non-Traumatic Lower Extremity Hospitalization Rates by Age Group, Maine, 1993-2009



Diabetes-Related Non-traumatic Lower Extremity Amputation: Hospitalizations with diabetes (ICD-9-CM code 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM procedure code 84.1) as any listed procedure and not having ICD-9-CM codes 895–897 (traumatic amputation).
Rates per 10,000 population.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

- Among Mainers 35-64 years of age, diabetes-related non-traumatic lower extremity amputation hospitalization rates did not improve, or change significantly in any direction, between 1993 and 2009 (Table 3.12, Figure 3.12).
- Among Mainers 65-74 and 75+ years of age, rates were essentially stable between 1993 and 2001, ranging from 10 to 14 among those 65-74 years and from 11 to 16 among those 75+ years. There was a steep rise between 2000 and 2001 for both groups, which was not

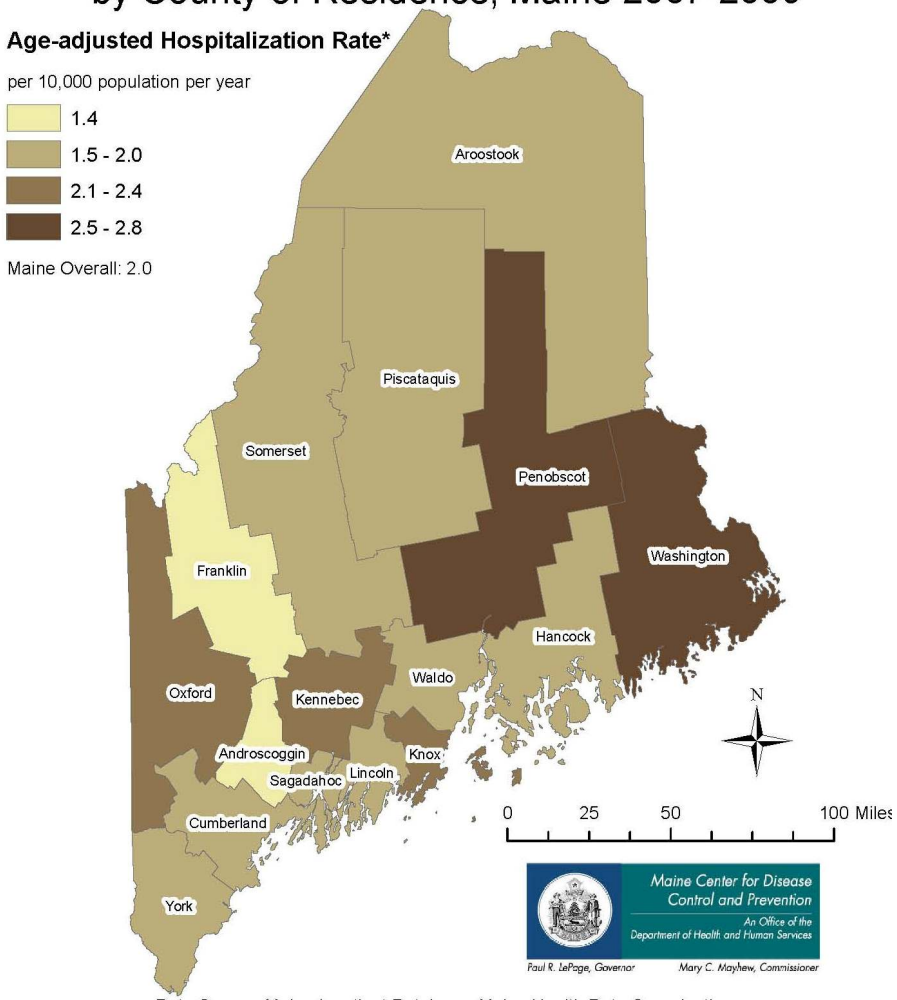
statistically significant, but confuses the trend somewhat. Between 2001 and 2006, rates declined significantly for both age groups. Since 2006, rates have been stable, with a small, but not significant, increase.

- Among those 65-74 years, the 2009 rate of 7.3 per 10,000 is significantly lower than the 2001 and 1993 rates (13.1 and 11.2, respectively). Among those 75+ years, the 2009 rate of 8.5 per 10,000 is significantly lower than the 2001 rate (16.0 per 10,000), but not the 1993 rate (12.8 per 10,000; Table 3.12, Figure 3.12).

Penobscot County currently has a significantly higher diabetes-related non-traumatic lower extremity amputation hospitalization rate than the state, but otherwise, rates do not vary much by county.

- Penobscot and Washington have the highest diabetes-related non-traumatic lower extremity amputation hospitalization rate but only the rate for Penobscot is significantly higher than the state average (Table 3.13, Figure 3.13).
- Androscoggin, and Franklin Counties have the lowest diabetes-related non-traumatic lower extremity amputation hospitalization rate in the state, but this difference is not statistically significant compared to the state overall (Table 3.13, Figure 3.13).

Figure 3.13 Diabetes-Related Non-traumatic Lower Extremity Amputation Hospitalization Rates, by County of Residence, Maine 2007-2009



Data Source: Maine Inpatient Database, Maine Health Data Organization.
Non-traumatic Lower Extremity Amputation: Hospitalizations with diabetes (ICD-9-CM code 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM procedure code 84.1) as any listed procedure and not having ICD-9-CM codes 895–897 (traumatic amputation)
*Age-adjusted to the year 2000 standard U.S. population.
Map Created by David Pied and Nisha Kini on 04/18/2012

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1. Centers for Disease Control and Prevention. National diabetes fact sheet: National estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. http://www.cdc.gov/diabetes/pubs/factsheet11.htm Accessed August 14th, 2012.

Chapter 4: Diabetes and Diabetes-Related Death

In this chapter we look at diabetes and diabetes-related deaths in Maine and in the U.S. The overall trends in diabetes and diabetes-related death rates are described below:

- Diabetes and diabetes-related death rates show a declining trend overall in Maine over the past decade.
- Gender disparity persists with males showing higher diabetes and diabetes-related death rates than females.
- Diabetes and diabetes-related death rates increase with age.
- Geographic disparity persists with northern and eastern counties showing higher diabetes and diabetes-related death rates.

This chapter provides a complete description of trends in diabetes and diabetes-related death rates in Maine and in the U.S.

About the Data

Mortality data provide a source of demographic, geographic, and cause of death information for all deaths in Maine. Maine's Data, Research and Vital Statistics Program collects mortality data in accordance with the National Center for Health Statistics (NCHS) guidelines. State-level mortality data are processed following a standard protocol created by the NCHS, making Maine mortality data comparable to mortality data from other states and the U.S.

Diabetes deaths are those in which diabetes was determined to be the underlying cause of death. Diabetes-related deaths are those in which diabetes was determined to be either the underlying or a contributing cause of death. Because diabetes increases the risk of cardiovascular disease and many deaths among people with diabetes are due to cardiovascular disease, we will also look at diabetes-related cardiovascular disease deaths, which are those in which a major cardiovascular disease was determined to be the underlying cause of death and diabetes was a contributing cause of death.

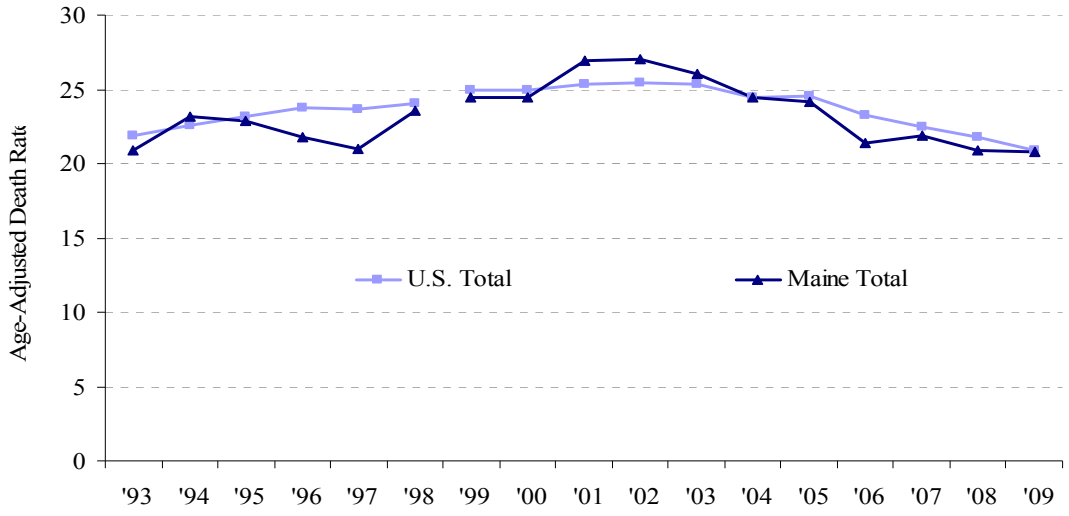
Mortality data have limitations, especially where diabetes is concerned. Diabetes is co-morbid to many conditions causing death and is believed to be under-reported as any listed cause of death on death certificates.[1] Despite this fact, mortality data are uniformly reported and offer valuable information on trends over time and state-to-nation comparisons.

Diabetes Deaths

Maine's diabetes death rate is similar to the U.S. rate. Maine's diabetes death rates are currently declining.

- Between 1999 and 2009, Maine and the U.S. had similar diabetes death rates (Table 4.1, Figure 4.1).
- Between 2000 and 2002, Maine's diabetes death rate increased slightly but not significantly and then gradually declined. Between 2002 and 2009, diabetes death rates among Maine residents declined significantly, 23% overall with an average annual decline of 3.6% (Table 4.1, Figure 4.1).

Figure 4.1 Diabetes Death Rates by Year, Maine and U.S., 1993-2009

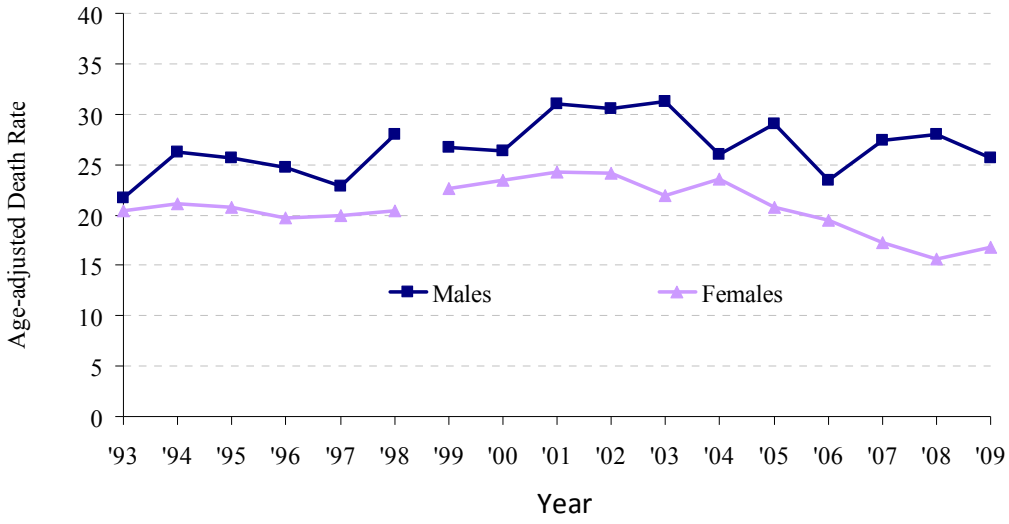


Diabetes Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: U.S. data-CDC Wonder, Maine data- Data, Research and Vital Statistics, Maine CDC.

In Maine, males have a higher diabetes death rate than females.

- There is a gender disparity in diabetes death rates, with males showing higher rates than females for all years shown and significantly higher rates in the last three years (Table 4.2, Figure 4.2).
- In 2009, the diabetes death rate among Maine males (25.6 per 100,000) population was 52.4% higher than among females (16.8 per 100,000 population; Table 4.2, Figure 4.2).
- Among Maine females, diabetes death rates did not change significantly between 1999 and 2004. Between 2004 and 2008, however, diabetes death rates among Maine females declined steadily and significantly from 23.6 per 100,000 population in 2004 to 16.8 per 100,000 population in 2009 (Table 4.2, Figure 4.2).
- While the diabetes death rates among Maine males fluctuated between 1999 and 2009, there was no significant year-to-year change or trend, and no substantial improvement. The current (2009) diabetes death rate of 25.6 per 100,000 population is not significantly lower than the rate in 1999 (26.7 per 100,000 population; Table 4.2, Figure 4.2).

Figure 4.2 Diabetes Death Rates by Gender, Maine, 1993-2009

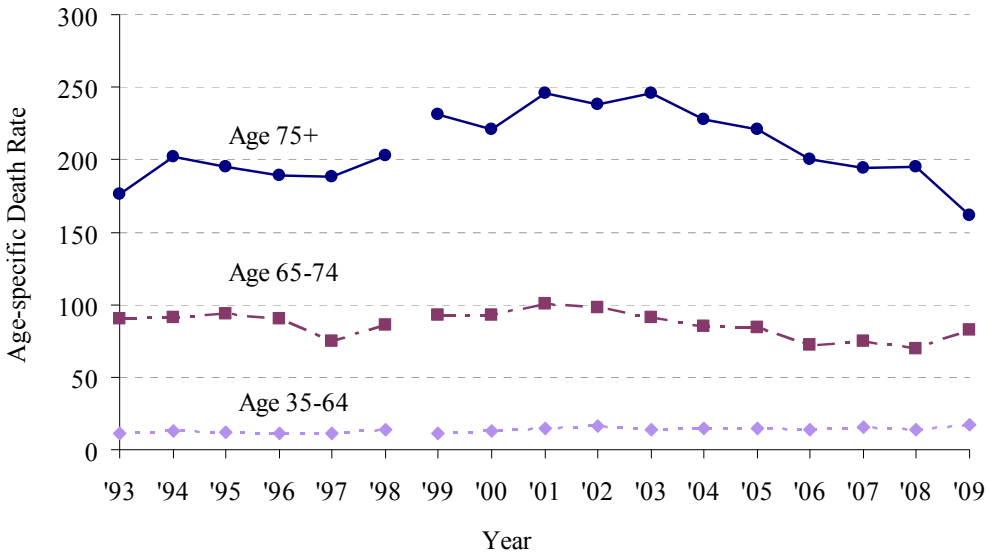


Diabetes Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Data, Research and Vital Statistics, Maine CDC.

Diabetes death rates are higher in older age groups compared to those in younger groups.

- Diabetes death rates increase with age. Mainers over 75 years of age have diabetes death rates almost 9 times greater than Mainers 35-64 years of age, and Mainers 65-74 years of age have death rates almost 5 times greater than Mainers 35-64 years of age (Table 4.3, Figure 4.3).
- Diabetes death rates among Mainers ages 35-64 have not changed substantially over the past decade; the rate among Mainers ages 65-74 has generally, but not significantly, declined since 2001; and the rate among Mainers ages 75+ declined significantly between 2003 and 2009 (Table 4.3, Figure 4.3).

Figure 4.3 Diabetes Death Rate by Age Group, Maine, 1993-2009

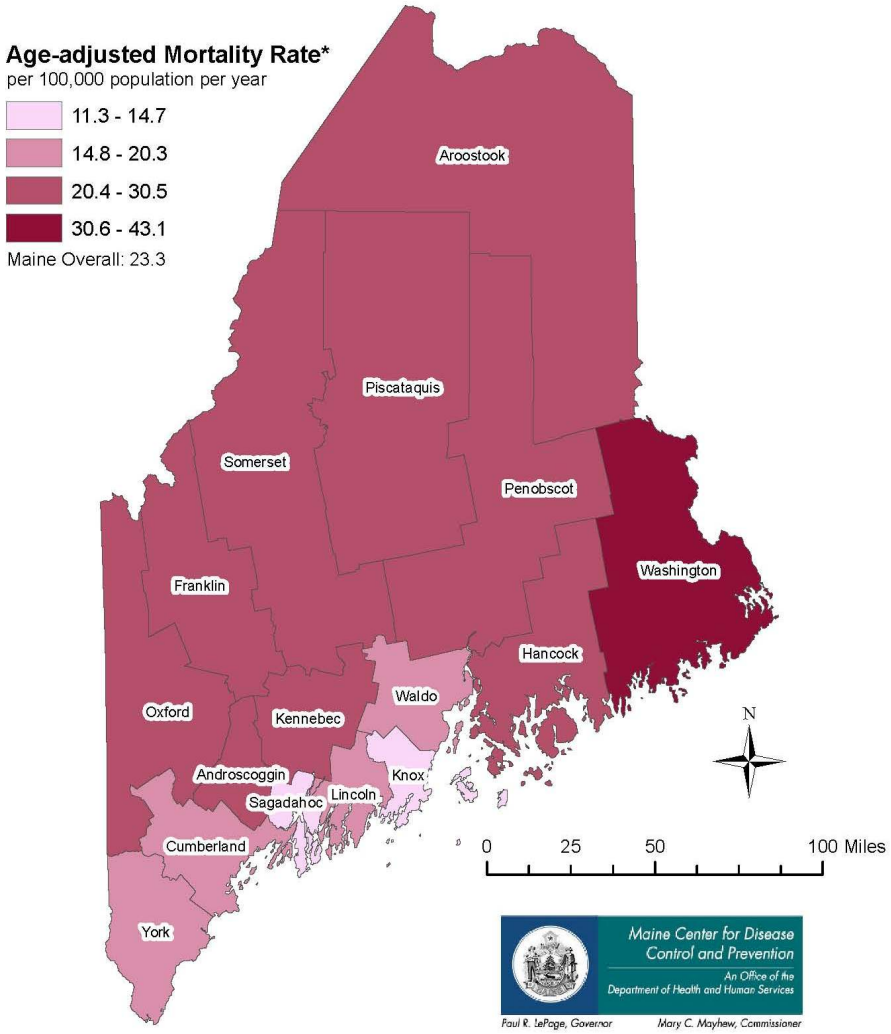


Diabetes Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population.
Data Source: Data, Research and Vital Statistics, Maine CDC.

Counties with high diabetes death rates are clustered in northern and eastern Maine.

- Washington County has the highest diabetes-related death rate in the state, significantly higher than the state rate (Table 4.4, Figure 4.4).
- Sagadahoc, Knox, Cumberland, and York Counties have the lowest diabetes death rates in the state, all significantly lower than the state rate (Table 4.4, Figure 4.4).
- The diabetes death rate in Washington County (the highest rate in the state) is almost four times the rate of Sagadahoc County (the lowest rate in the state; Table 4.4, Figure 4.4).

Figure 4.4 Diabetes Death Rates,
by County of Residence, Maine 2005-2009



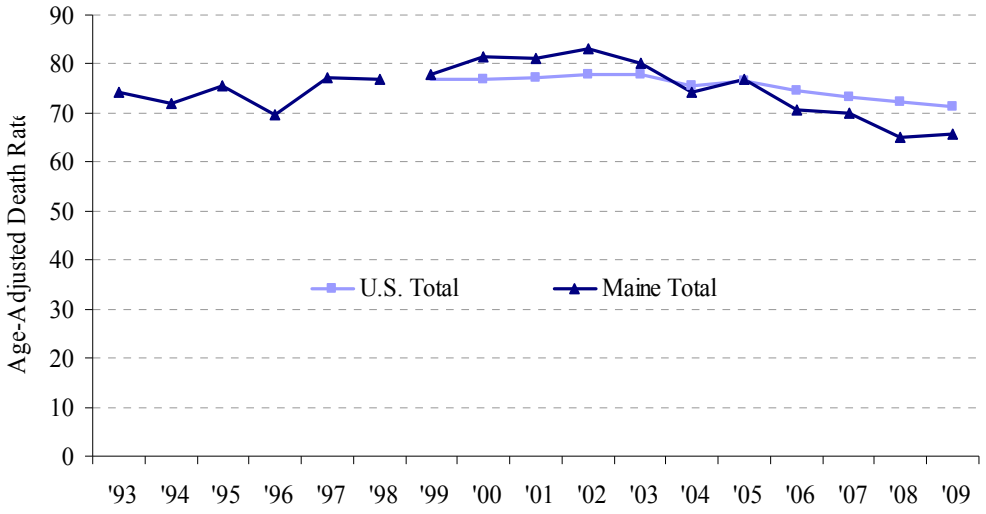
Data Source: Maine Mortality Data; Data Research and Vital Statistics, Maine CDC.
Diabetes Deaths: ICD-10 codes E10–E14; underlying cause of death.
*Age-adjusted to the year 2000 standard U.S. population
Map Created by David Pied and Nisha Kini on 04/18/2012

Diabetes-Related Deaths

Maine currently has a lower diabetes-related death rate than the U.S.

- Between 1999 and 2003, Maine had a higher diabetes-related death rate than the U.S. (Table 4.5, Figure 4.5).
- Since 2002, diabetes-related death rates have declined faster in Maine than the U.S. As a result, Maine's diabetes-related death rate has been lower than that of the U.S. since 2006 (Table 4.5, Figure 4.5).
- In 2009, Maine's diabetes-related death rate (65.8 per 100,000 population) was significantly lower than that of the U.S. (71.2 per 100,000 population; Table 4.5, Figure 4.5).

Figure 4.5 Diabetes-Related Death Rates by Year, Maine and U.S., 1993-2009

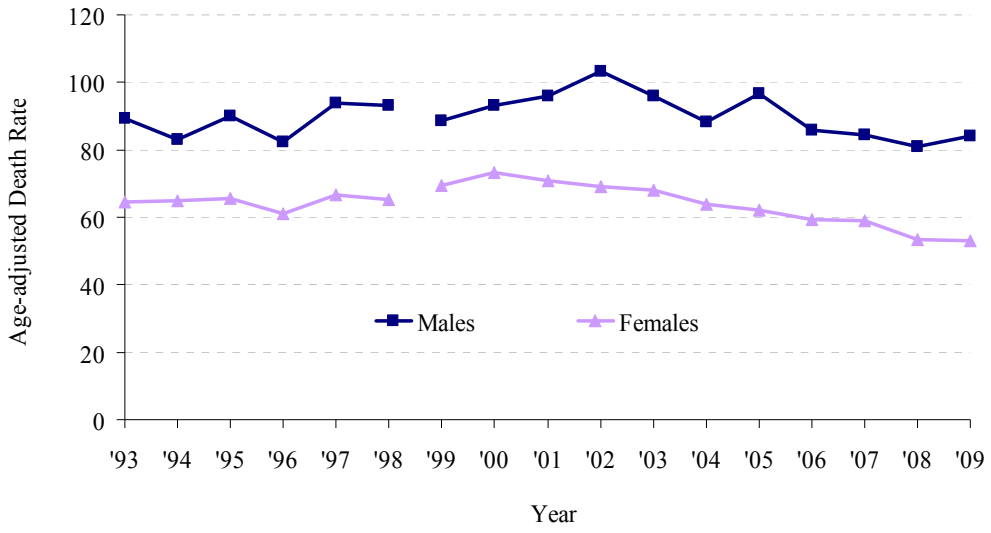


Diabetes-Related Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying or contributing cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: U.S. data-CDC Wonder, Maine data- Data, Research and Vital Statistics, Maine CDC.

In Maine, males have a higher diabetes-related death rate compared to females.

- There is a gender disparity in diabetes-related death rates, with males showing significantly higher rates than females for all years shown (Table 4.6, Figure 4.6).
- In 2009, the diabetes-related death rate among Maine males (84.1 per 100,000 population) was 59% higher than among Maine females (52.9 per 100,000 population; Table 4.6, Figure 4.6).
- Between 1999 and 2000, the diabetes-related death rate among Maine females increased slightly, but not significantly. Since then, the diabetes-related death rate among Maine females has declined steadily and significantly from 73.4 per 100,000 in 2000 to 52.9 per 100,000 in 2009. Between 2000 and 2009, the diabetes-related death rate for Maine females declined 27.9%, an average annual decline of 3.5% (Table 4.6, Figure 4.6).
- The diabetes-related death rate among Maine males has not declined as steadily or as much compared to females. Between 1999 and 2002, the diabetes-related death rate among Maine males generally increased. Between 2002 and 2008, the rate declined significantly (with the exception of 2005, when the rate increased slightly, but not significantly). While the rate did increase slightly from 2008 to 2009, this increase was not significant, and the 2009 rate is still significantly lower than 2002. Between 2002 and 2009, diabetes-related death rates among Maine males declined 18.6 % overall with an average annual decline of 2.7% (Table 4.6, Figure 4.6).

Figure 4.6 Diabetes-Related Death Rates by Gender, Maine, 1993-2009

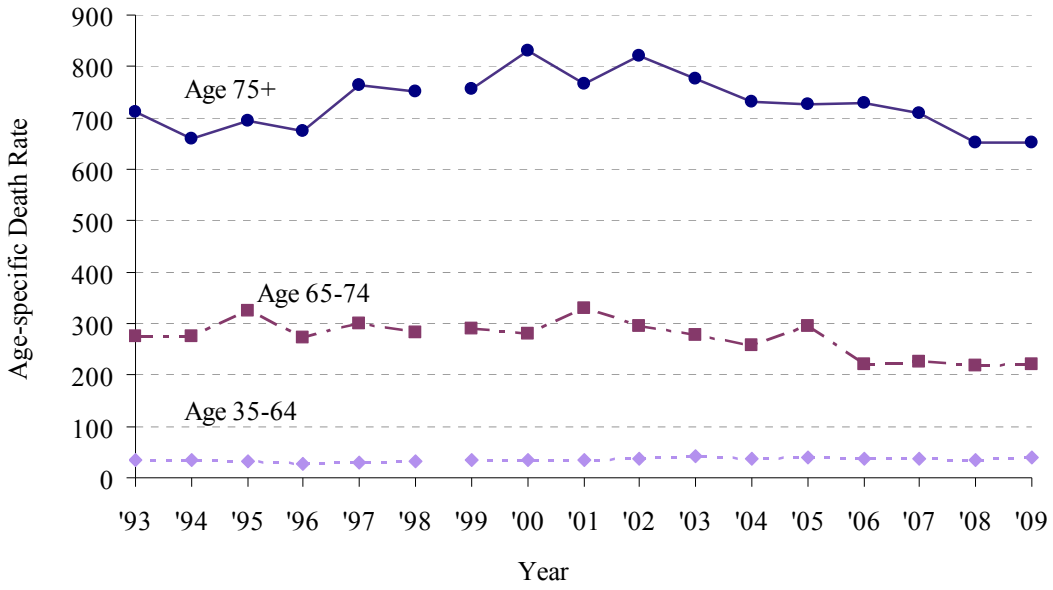


Diabetes-Related Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying or contributing cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Data, Research and Vital Statistics, Maine CDC.

Diabetes-related death rates are higher in older age groups compared to younger age groups.

- Diabetes-related death rates increase with age. Mainers over 75 years of age have a diabetes-related death rate almost 16 times higher than that of Mainers 35-64 years of age. Mainers 65-74 years of age have a death rate almost 6 times higher than that of Mainers 35-64 years of age (Table 4.7, Figure 4.7).
- The diabetes-related death rate among Mainers over 75 years of age declined significantly from 2002 to 2009. The death rate among Maine adults 65-74 years of age declined significantly from 2001 to 2006, but has not improved since then. The rate for Mainers 35-64 years of age has not improved over the decade (Table 4.7, Figure 4.7).

Figure 4.7 Diabetes-Related Death Rate by Age Group, Maine, 1993-2009

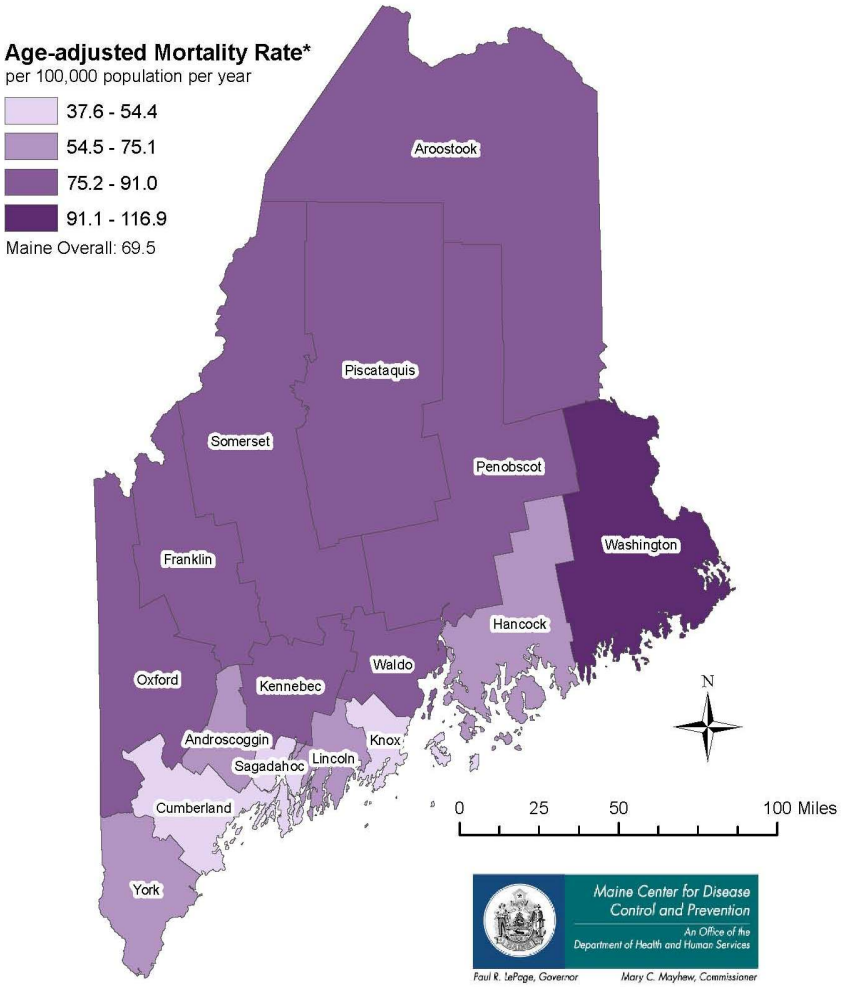


Diabetes -Related Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying or contributing cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population.
Data Source: Data, Research and Vital Statistics, Maine CDC.

Counties with the highest diabetes-related death rates are clustered in northern and eastern Maine.

- Aroostook, Kennebec, Penobscot, Somerset, Waldo, Piscataquis, Oxford, and Washington Counties have the highest diabetes-related death rate in the state, all significantly higher than the state rate for that period (Table 4.8, Figure 4.8).
- Sagadahoc, Cumberland, and Knox County have the lowest diabetes-related death rate in the state, all significantly lower than the state rate for that period (Table 4.8, Figure 4.8).
- The diabetes-related death rate in Washington County (the highest rate in the state) is three times the rate of Sagadahoc County (the lowest rate in the state; Table 4.8, Figure 4.8).

Figure 4.8 Diabetes-Related Death Rates, by County of Residence, Maine 2005-2009



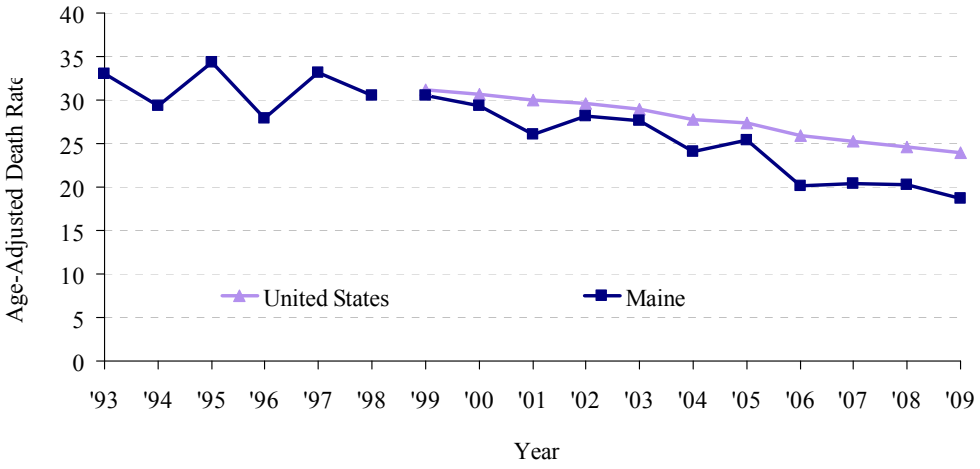
Data Source: Maine Mortality Data; Data Research and Vital Statistics, Maine CDC.
Diabetes-Related Deaths: ICD-10 codes E10–E14; underlying or contributing cause of death.
*Age-adjusted to the year 2000 standard U.S. population
Map Created by David Pied and Nisha Kini on 04/18/2012

Diabetes-Related Cardiovascular Disease Deaths

Maine currently has a lower diabetes-related cardiovascular disease death rate compared to the U.S.

- Between 1999 and 2005, Maine had a similar or slightly lower death rate for diabetes-related cardiovascular disease compared to the national rate. There were no significant differences except in 2001 when Maine's rate was significantly lower than the national rate (26.1 vs. 30.0 per 100,000 population respectively; Table 4.9, Figure 4.9).
- Since 2006, however, Maine has had a significantly lower diabetes-related cardiovascular disease death rate compared to the national rate. In 2009, Maine's diabetes-related cardiovascular disease death rate was 21.8% lower than the national rate (18.7 vs. 23.9 per 100,000 population; Table 4.9, Figure 4.9).
- The diabetes-related cardiovascular disease death rate declined significantly in Maine between 2005 and 2009, from 25.4 to 18.7 per 100,000. This is an overall 26.4% decline, with an average decline of 6.9% per year (Table 4.9, Figure 4.9).

Figure 4.9 Diabetes-Related Cardiovascular Disease Deaths by Year, Maine and U.S., 1993-2009

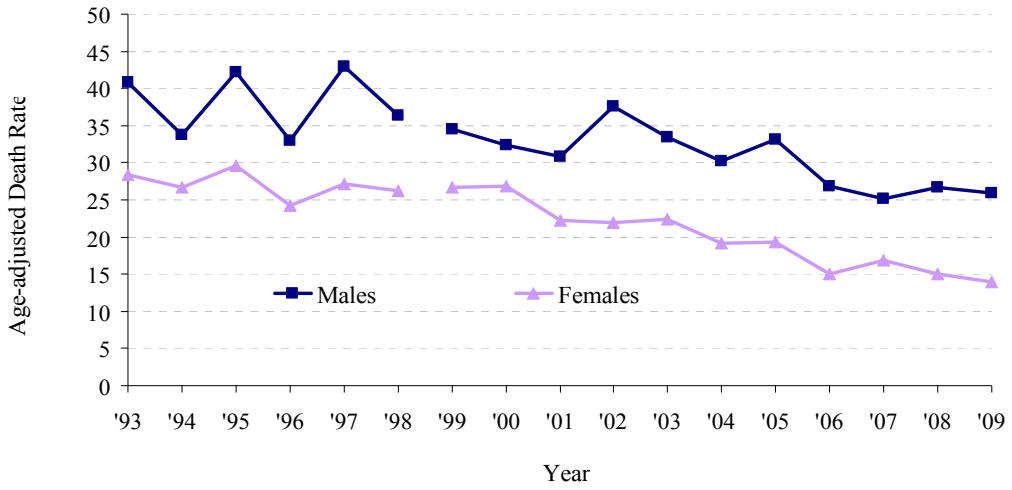


Diabetes-Related Cardiovascular Disease Deaths: 1999-2009: ICD-10 codes I00-I78; underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death; 1993-1998: ICD-9 codes 390-434, 436-448; underlying cause of death and ICD-9 code 250 as contributing cause of death.
Change in ICD code represented by break in graph line.
U.S. Data not available for years 1993-1998.
Rates per 100,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: U.S. data-CDC Wonder, Maine data- Data, Research and Vital Statistics, Maine CDC.

Maine males have a higher diabetes-related cardiovascular disease deaths rate compared to Maine females.

- There is a gender disparity in diabetes-related cardiovascular disease deaths rates, with males showing significantly higher rates in recent years (Table 4.10, Figure 4.10).
- Between 1999 and 2009 the diabetes-related cardiovascular disease death rate for Maine females declined significantly, 47.9% overall, with an average annual decline of 5.8% (Table 4.10, Figure 4.10).
- Between 1999 and 2009, the diabetes-related cardiovascular disease death rate among Maine males did not decline as steadily or as much as among Maine females. During this time the male rate fluctuated, reaching its highest points in 2002 and 2005 (37.6 and 33.1 per 100,000 population respectively). Since 2005 however, the rate decreased gradually (to 25.9 per 100,000 population in 2009). From 1999 to 2009, the rate decreased 21.8% overall, with an average annual decline of 5.5% (Table 4.10, Figure 4.10).

Figure 4.10 Diabetes-Related Cardiovascular Disease Deaths by Gender, Maine, 1993-2009

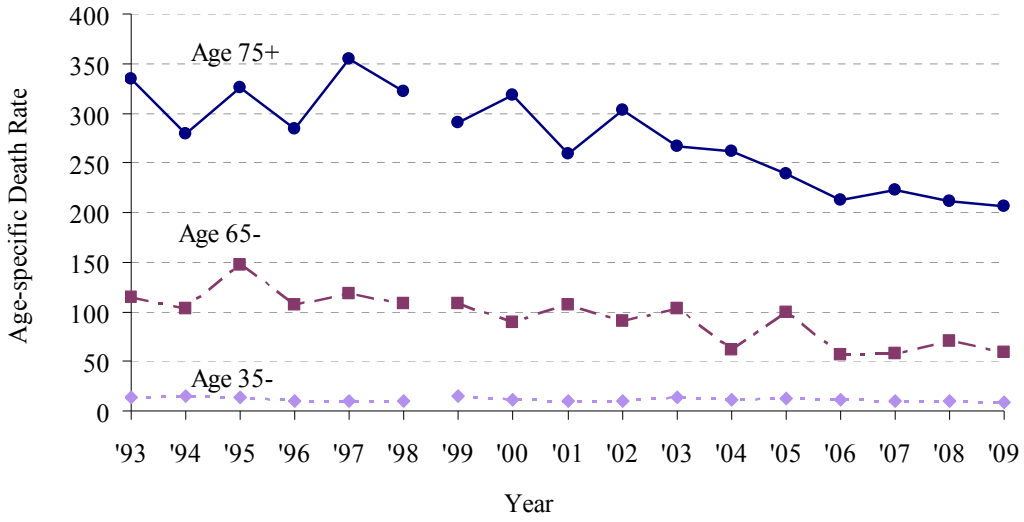


Diabetes-Related Cardiovascular Disease Deaths: 1999-2009: ICD-10 codes I00-I78; underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death; 1993-1998: ICD-9 codes 390-434, 436-448; underlying cause of death and ICD-9 code 250 as contributing cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population, age-adjusted to the year 2000 standard U.S. population.
Data Source: Data, Research and Vital Statistics, Maine CDC.

Diabetes-related cardiovascular disease death rates are higher among older age groups compared to younger age groups.

- Diabetes-related cardiovascular disease death rates increase with age. Mainers over 75 years of age have a diabetes-related cardiovascular disease death rate almost 25 times higher than that of Mainers 35-64 years of age. Mainers 65-74 years of age have a death rate almost 7 times higher than that of Mainers 35-64 years of age (Table 4.11, Figure 4.11).
- While age-specific diabetes-related cardiovascular disease death rates have shown considerable year-to-year variability, rates in 2009 are significantly lower than those in 1999 for all three age groups (Table 4.11, Figure 4.11).

Figure 4.11 Diabetes-Related Cardiovascular Deaths by Age Group, Maine, 1993-2009

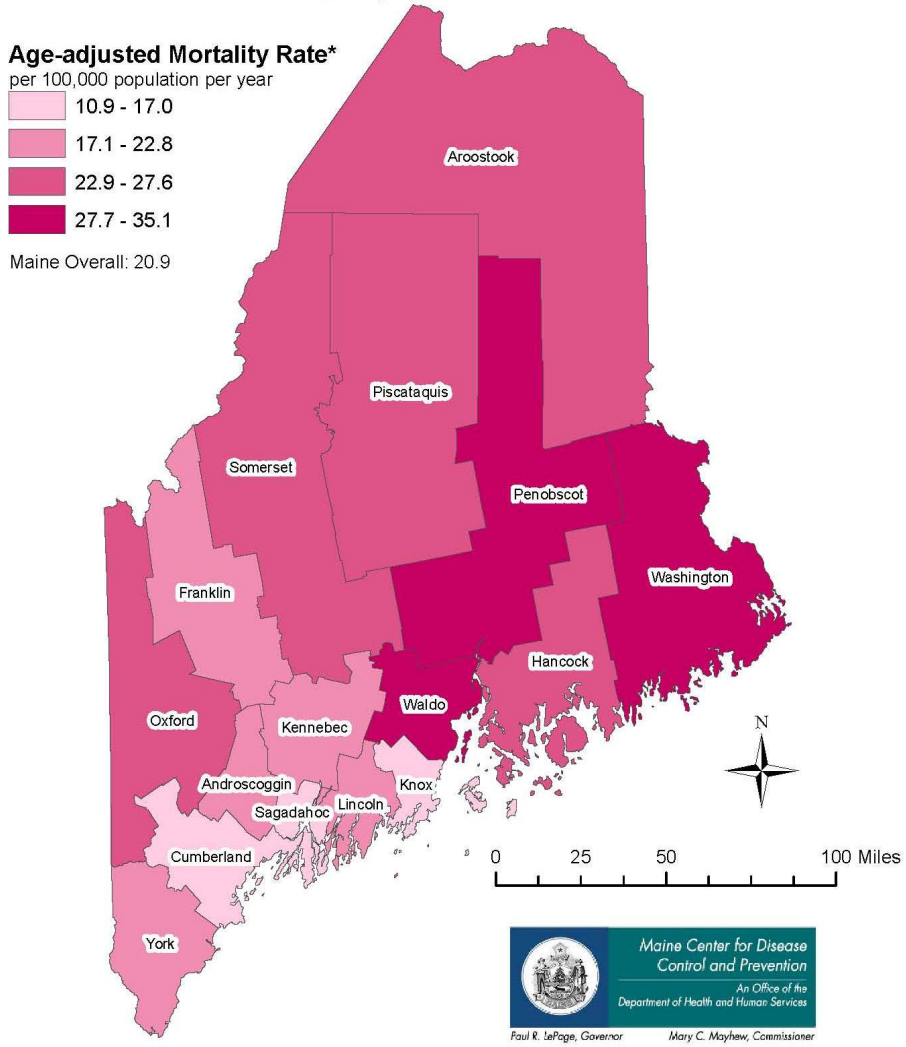


Diabetes-Related Cardiovascular Disease Deaths: 1999-2009: ICD-10 codes I00-I78; underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death; 1993-1998: ICD-9 codes 390-434, 436-448; underlying cause of death and ICD-9 code 250 as contributing cause of death.
Change in ICD code represented by break in graph line.
Rates per 100,000 population.
Data Source: Data, Research and Vital Statistics, Maine CDC.

Counties with the highest diabetes-related cardiovascular disease death rates are clustered in northern and eastern Maine.

- Penobscot, Washington, and Waldo Counties have the highest diabetes-related cardiovascular disease death rates, all significantly higher than the state rate (Table 4.12, Figure 4.12).
- The diabetes-related cardiovascular disease death rate in Cumberland County is significantly lower than the state rate (Table 4.12, Figure 4.12).

Figure 4.12 Diabetes-Related Major Cardiovascular Disease Death Rates, by County of Residence, Maine 2005-2009



Data Source: Maine Mortality Data; Data Research and Vital Statistics, Maine CDC.
Diabetes-Related Major Cardiovascular Disease Deaths: ICD-10 codes I00-I78;
underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death.
*Age-adjusted to the year 2000 standard U.S. population

Map Created by David Pied and Nisha Kini on 04/18/2012

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1. Cheng WS, Wingard DL, Kritz-Silverstein D, Barrett-Connor E. Sensitivity and specificity of death certificates for diabetes. *Diabetes Care.* 2008;31(2):279-284. http://care.diabetesjournals.org/content/31/2/279.full.pdf Accessed on 29th Sept, 2012.

Chapter 5: Healthy Maine 2010 Milestones Achieved and Healthy Maine 2020 Objectives

In 2002, the Maine Center for Disease Control and Prevention released "Healthy Maine 2010: Longer and Healthier Lives," a report which specifies goals and objectives for Maine's ten health priority areas. One of those areas is chronic disease, under which are objectives for diabetes-related death rates, diabetes-related non-traumatic lower extremity amputation hospitalization, hemoglobin A1C (HbA1C) testing, annual dilated eye examination, and diabetes self-management education. Healthy Maine 2010 is available online at http://www.maine.gov/dhhs/mecdc/phdata/healthy-maine.htm

In this chapter, we document how Maine has progressed in relation to the Healthy Maine 2010 goals. We also discuss new Healthy Maine 2020 objectives. We compare national Healthy People 2010 and Healthy People 2020 Objectives where possible.

Diabetes-Related Deaths, U.S. and Maine

- Maine's diabetes-related death rates fell from 81.5 per 100,000 population in 2000 to 65.8 per 100,000 population in 2009. We are very close to achieving the Healthy Maine 2010 target rate of less than 65.0 diabetes-related deaths per 100,000 population (Table 5.1 below).
- There is no Healthy Maine 2020 Objective for diabetes-related deaths.

Table 5.1 Diabetes-Related Deaths, U.S. and Maine

Objective		Baseline 2000	Healthy People/ Healthy Maine 2010 Objectives	Current Rates (Year)	Healthy People/ Healthy Maine 2020 Objectives
Reduce the diabetes-related death rate	**U.S.**	77.0	45.0	72.2 (2008)	65.8
	Maine	81.5	65.0	65.8 (2009)	None

Diabetes Deaths: ICD-10 codes E10–E14; underlying or contributing cause of death.
Death rates are per 100,000 population age-adjusted to the year 2000 standard U.S. population.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.
U.S. Data Source: Compressed Mortality Files accessed through CDC Wonder.
Note: There is no Healthy Maine 2020 Objective for Diabetes-related Deaths.

Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization, U.S. and Maine

- In Maine, the diabetes-related non-traumatic lower extremity amputation hospitalization rate in 2009 was similar to the rate in 2000 (2.8 vs. 2.5 per 1,000 diabetic population, respectively). Maine did not achieve the Healthy Maine 2010 target of 1.8 diabetes-related non-traumatic lower extremity amputation hospitalizations per 1,000 diabetic population (Table 5.2 below).
- Please note that this Healthy Maine 2010 objective is defined differently from the diabetes-related non-traumatic lower extremity hospitalization rate shown in Chapter 3 (Table 3.11). The Healthy Maine Objective looks at diabetes-related non-traumatic lower extremity hospitalization rate per 1,000 diabetic population (among people with diabetes) whereas in Chapter 3 shows diabetes-related non-traumatic lower extremity hospitalization rates per 10,000 population (among the total population).
- There is no Healthy Maine 2020 Objective for diabetes-related non-traumatic lower extremity amputation hospitalization.

Table 5.2 Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization, U.S. and Maine

Objective		Baseline 2000	Healthy People/ Healthy Maine 2010 Objectives	Current Rates (2009)	Healthy People/ Healthy Maine 2020 Objectives
Reduce the diabetes-related non-traumatic lower extremity amputation hospitalization rate	**U.S.**	5.4	1.8	3.2	This measure is being tracked for informational purposes. If warranted, a target will be set during the decade
	Maine	2.5	1.8	2.8	None

Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization: Hospitalizations with diabetes (ICD-9-CM code 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM procedure code 84.1) as any listed procedure and not having ICD-9-CM codes 895–897 (traumatic amputation).
Rates are age-adjusted hospitalizations rates per 1,000 diabetic population age-adjusted to the year 2000 standard U.S. population.
Maine Data Source: Maine Inpatient Database, Maine Health Data Organization.
U.S. Data Source: Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, Division of Health Care Statistics, data from the National Hospital Discharge Survey and Division of Health Interview Statistics, data from the National Health Interview Survey. Data computed by personnel in the CDC's Division of Diabetes Translation, National Center for Chronic Disease Prevention and Health Promotion.
Note: There is no Healthy Maine 2020 Objective for Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization.

Hemoglobin A1C (HbA1C) tests, U.S. and Maine

- The proportion of adults with diabetes who had an HbA1C test at least once a year increased from 88.0% in 2000, to 92.1% in 2010. Maine came close, but did not achieve the Healthy Maine 2010 target rate of greater than 95% (Table 5.3 below).
- There is no Healthy Maine 2020 Objective for HbA1C tests.

Table 5.3 HbA1C (Hemoglobin A1C) tests, U.S. and Maine

Objective		Baseline 2000	Healthy People/ Healthy Maine 2010 Objectives	Current Rates (2010)
Increase the proportion of adults with diabetes who have an HbA1C test at least once a year.	**U.S.**	65.9	50.0	68.5
	Maine	88.0	95.0	92.1

Objective		Current Rates (2010)	Healthy People/ Healthy Maine 2020 Objectives
Increase the proportion of adults with diabetes who have an HbA1C test at least twice a year.	**U.S.**	64.6	71.1
	Maine	79.5	None

Rates are percentage of adult population with diabetes.
All %s are weighted to be more representative of the general adult population and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.
Note: The 2010 Objectives looked at adults who had HbA1C tested at least once a year while the 2020 Objective looks at adults who had HbA1C tested at least twice a year.
There is no Healthy Maine 2020 Objective for HbA1C test.

Annual Dilated Eye Examination, Maine Adults

- In 2010, 75.3% of adults with diabetes reported having an annual dilated eye exam, which was similar to the percent in 2000 (74.0%). Maine did not achieve the Healthy Maine 2010 target rate of greater than 85% (Table 5.4 below).
- There is no Healthy Maine 2020 Objective for annual dilated eye exam.

Table 5.4 Annual Dilated Eye Examination, Maine Adults

Objective		Baseline 2000	Healthy Maine 2010 Objectives	Current Rates (2010)	Healthy Maine 2020 Objectives
Increase the proportion of persons with diabetes who have an annual dilated eye examination.	**Maine**	74.0	85.0	75.3	None

Rates are percentage of adult population with diabetes.
All %s are weighted to be more representative of the general adult population and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.
Note: There is no Healthy Maine 2020 Objective for annual dilated eye exam.
The U.S. rates for Healthy people 2010 and 2020 were calculated using data from the National Health Interview Survey (NHIS) and are not comparable to Maine data.

Diabetes Self-Management Education, Maine

- In 2010, 61.7% of adults with diabetes reported having taken a course or class on managing diabetes; this was similar to the 2000 percentage (62.3%). Maine did not achieve the Healthy Maine 2010 target of greater than 80% (Table 5.5 below).
- The Healthy Maine 2020 Objective aims to increase the percentage of adults with diabetes who have taken a course or class in managing their diabetes to 68% (Table 5.5 below).

Table 5.5 Diabetes Self-Management Education, Maine

Objective		Baseline 2000	Healthy Maine 2010 Objectives	Current Rates (2010)	Healthy Maine 2020 Objectives
Increase the proportion of adults with diabetes who have taken a course or class in managing their diabetes.	**Maine**	62.3	80.0	61.7	68.0

Rates are percentage of adult population with diabetes.
All %s are weighted to be more representative of the general adult population and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.
Note: The U.S. rates for Healthy people 2010 and 2020 were calculated using data from the National Health Interview Survey (NHIS) and are not comparable to Maine data.

Preventive Behaviors among Adults with Prediabetes, Maine

Healthy Maine 2020 has two objectives that cover preventive behaviors among adults with prediabetes.

1. The first objective is to increase the proportion of adults diagnosed with prediabetes who report engaging in the recommended amount of physical activity from the current (2009) rate of 54.5% to 60.0% in 2020 (Table 5.6 below).
2. The second objective is to increase the proportion of adults diagnosed with prediabetes who are at a healthy weight from the current (2010) rate of 20.4% to 23.0% in 2020 (Table 5.6 below).

Table 5.6 Prediabetes Preventive Behavior, Maine

Objective	Current Rates	Healthy Maine 2020 Objectives
Increase the proportion of adults diagnosed with prediabetes who report engaging in the recommended amount of physical activity	54.5 (2009)	60.0
Increase the proportion of adults diagnosed with prediabetes who are at a healthy weight	20.4 (2010)	23.0

Rates are percentage of adult population with prediabetes.
All %s are weighted to be more representative of the general adult population and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.
Recommended amount of physical activity is defined as 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week.
Healthy weight defined as BMI >=18.5 and <25.0 kg/m^2.
Note: There are no directly comparable Healthy People 2020 Objectives for prediabetes.
There were no Healthy People/ Healthy Maine 2010 Objectives for prediabetes.

Chapter 6: Preventive Practices among Maine Adults with Diabetes

The U.S. Centers for Disease Control and Prevention (CDC) has several recommendations concerning preventive practices for adults living with diabetes. This chapter will examine a few of these recommendations, using data from the Behavioral Risk Factor Surveillance System (BRFSS), conducted in Maine. We look at practices such as checking blood glucose levels, getting HbA1C (hemoglobin A "one" C) measured, seeing a doctor for a routine diabetes visit, getting a dilated eye exam, checking for foot sores or irritation, taking classes in diabetes self-management, getting immunizations, and getting a dental exam. We also look at one complication related to diabetes, diabetic retinopathy, and its prevalence among Maine adults with diabetes.

Monitoring Glucose Levels

Maintaining normal glucose levels is very important in order to prevent complications from diabetes, such as cardiovascular disease, diabetic retinopathy, diabetic kidney disease, and diabetic neuropathy.[1] Glucose levels can be monitored in two ways:

1. Measuring blood glucose level: This can be done at home by individuals with diabetes, after they have received adequate training from their doctor's office. The recommended frequency of self-monitoring of blood glucose varies according to individual needs. This method gives an estimate of the blood glucose level at the point in time the test is done.
2. Measuring HbA1C level: This is done at a laboratory. The CDC recommends that people with diabetes have their HbA1C levels checked at least twice a year. This method measures the average level of blood sugar over the preceding three months, and provides an indicator of blood sugar control over time.

In Maine, we know that:

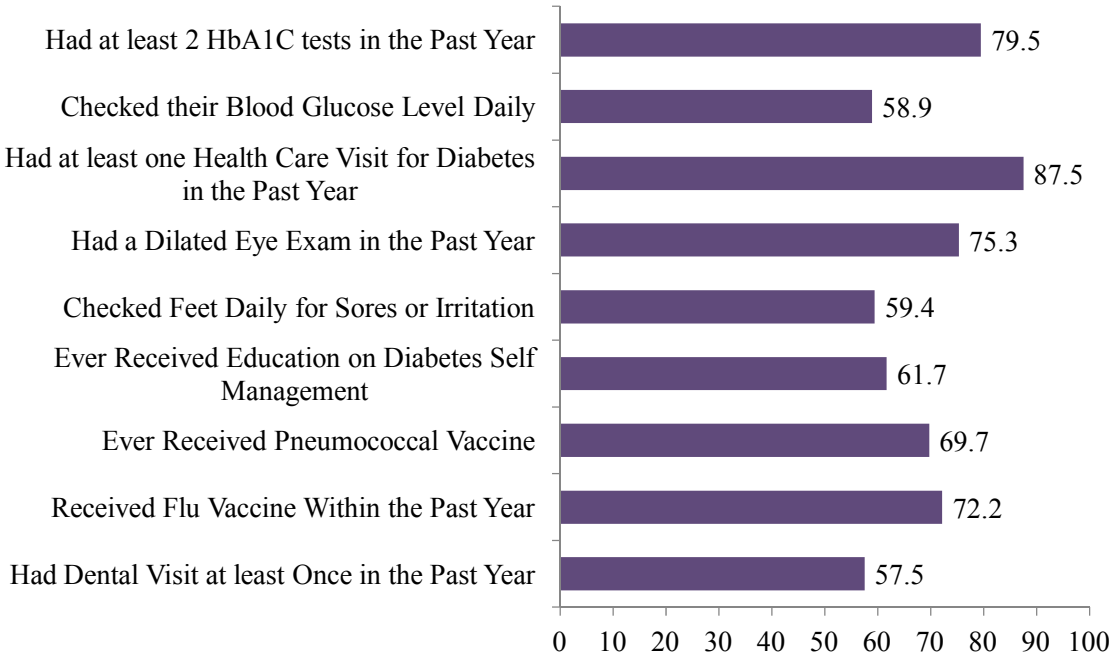
- About 60% of adults with diabetes said they check their blood glucose level at least once a day. About 15% have never checked their blood glucose level (Figure 6.1, Table 6.1).
- Most adults (92.1%) with diabetes checked their HbA1C at least once in the past year. Nearly 80% adhered to CDC's recommendation and had their HbA1C checked at least twice in the past year (Figure 6.1, Table 6.1).
- Only 6.2 % of adults with diabetes had never had their HbA1C checked and only 1.7% had never heard about HbA1C (Table 6.1).

Health Care Visit

The CDC recommends that people with diabetes should have at least one routine health care visit for diabetes every year.

About 87% of Maine adults with diabetes reported having a routine health care visit for their diabetes in the past year (Figure 6.1, Table 6.1).

Figure 6.1 Preventive Practices among Maine Adults with Diabetes, 2010



Diabetes does not include pregnancy-related diabetes.
Adults = ages 18+ years
HbA1C= Hemoglobin A "one" C
Data Source: Behavioral Risk Factor Surveillance System

Eye Care

Diabetic retinopathy is the most common cause of blindness among people with diabetes.[2] The CDC recommends that people with diabetes should have at least one dilated eye exam every year so that any new or progressing diabetic retinopathy may be detected as early as possible. Early detection will result in prompt treatment, which will prevent worsening of retinopathy and help maintain eye sight.

- Most Maine adults (75.3%) with diabetes had a dilated eye exam in the past year; 21.4% had an eye exam at least once in their lifetime, but not within the past year (Figure 6.1, Table 6.1).
- Only 3.3% of Maine adults with diabetes had never had a dilated eye exam (Figure 6.1, Table 6.1).
- About 17% of Maine adults with diabetes reported having being told by a physician that diabetes is affecting their eyes or that they have diabetic retinopathy (Table 6.1).

Foot Care

People with diabetes are susceptible to foot ulcers, which if left unnoticed and untreated can result in diabetic gangrene, which may lead to amputation.[3] To avoid these complications it is very important that people with diabetes check their feet daily for sores and irritations and have at least one foot exam every year by a health care professional.

- About 60% of Maine adults with diabetes check their feet daily for sores or irritation and 84% had their feet checked by a health care professional in the past year (Figure 6.1, Table 6.1).

Diabetes Self-Management Education Class

The purpose of the National Diabetes Education Program (NDEP) is to reduce the burden of diabetes and pre-diabetes by facilitating the adoption of proven approaches to prevent or delay the onset of diabetes and its complications.

- Only 62% of Maine adults with diabetes reported having ever taken a diabetes self-management education class (Figure 6.1, Table 6.1).

Immunizations

People with diabetes have reduced immune function and are more susceptible to complications from influenza and pneumococcal infections. Influenza and pneumoccocal immunization in people with diabetes has the potential for significant reduction in morbidity and mortality related to influenza and pneumoccocal disease. Hence it is advised that people with diabetes receive both these vaccines.[4]

- About 70% of Maine adults with diabetes had received pneumococcal vaccine in their life time and about 72% had received influenza vaccine within the past year (Figure 6.1, Table 6.1).

Oral Health

A number of oral health conditions are associated with diabetes such as gingivitis, periodontitis, dental caries, oral infections, and other conditions.[5] Hence, it is important that people with diabetes have at least one dental visit every year.

- Only 58% of Maine adults with diabetes had a dental visit in the past year (Figure 6.1, Table 6.1) and about 42% had a dental visit at least once in their lifetime but not in the past year (Table 6.1).

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Appendix

Table 1.1 Prevalence of Prediabetes by Year and Gender, Maine Adults, 2008-2010

	Adults who have been told by a Healthcare Professional that they have Prediabetes or Borderline Diabetes									
		Maine Total			Maine Males			Maine Females		
Year	Total Resp.	n	%	95% CI	n	%	95% CI	n	%	95% CI
2008	6,076	444	**6.1**	5.4-6.8	178	**5.6**	4.7-6.6	266	**6.6**	5.6-7.5
2009	3,573	262	**6.1**	5.1-7.0	101	**5.8**	4.4-7.3	161	**6.3**	5.1-7.5
2010	3,589	290	**6.8**	5.8-7.8	114	**6.6**	5.1-8.0	176	**7.0**	5.7-8.4

Total Resp. = Total Respondents (unweighted denominator); n = unweighted numerator; 95% CI = 95% Confidence Interval.
Prediabetes does not include pregnancy-related prediabetes.
All %s are weighted to be representative of the general Maine adult population and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.

Table 1.2 Prevalence of Diabetes by Year, U.S. and Maine, 1995-2010

Adults who have been told by a Healthcare Professional that they have Diabetes

	U.S. Median^		Maine Total			
Year	**Number of States^**	**Median %**	**Total Resp.**	**n**	**%**	**95% CI**
1995	49	**4.4**	1,277	48*	**3.5***	2.5-4.5*
1996	50	**4.5**	1,699	84	**4.2**	3.2-5.3
1997	51	**4.8**	1,698	80	**4.9**	3.8-6.0
1998	51	**5.4**	1,615	73	**3.6**	2.7-4.5
1999	51	**5.6**	1,671	98	**5.4**	4.3-6.5
2000	51	**6.1**	4,599	284	**6.0**	4.8-7.1
2001	51	**6.5**	2,417	172	**6.7**	5.6-7.9
2002	51	**6.5**	2,435	188	**7.2**	6.1-8.4
2003	51	**7.1**	2,388	195	**7.4**	6.3-8.6
2004	50	**7.0**	3,529	293	**7.5**	6.5-8.4
2005	51	**7.3**	3,956	337	**7.5**	6.6-8.4
2006	51	**7.5**	4,038	320	**6.9**	6.1-7.8
2007	51	**8.0**	6,824	653	**7.8**	7.1-8.5
2008	51	**8.3**	6,782	697	**8.3**	7.5-9.0
2009	51	**8.3**	8,076	909	**8.3**	7.7-9.0
2010	51	**8.7**	8,123	958	**8.7**	8.0-9.3

Total Resp. = Total Respondents (unweighted denominator); n = unweighted numerator; 95% CI = 95% Confidence Interval.
Diabetes does not include pregnancy-related diabetes.
Response value "No, prediabetes or borderline diabetes" added in 2004.
^Includes the 50 states and Washington, D.C.
*This percentage is based on a numerator < 50 and may be unreliable; please use caution in interpreting.
All %s are weighted to be representative of the general Maine adult population and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.

Table 1.3 Prevalence of Diabetes by Year and Gender, Maine Adults, 1995-2010

Adults who have been told by a Healthcare Professional that they have Diabetes

	Maine Males			Maine Females		
Year	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
1995	19*	**3.2***	1.7-4.7*	29*	**3.8***	2.3-5.2*
1996	32*	**3.7***	2.3-5.0*	52	**4.8**	3.4-6.1
1997	38*	**4.9***	3.3-6.5*	42*	**4.9***	3.3-6.5*
1998	17*	**2.2***	1.1-3.3*	56	**4.9**	3.5-6.2
1999	39*	**4.6***	3.1-6.2*	59	**6.1**	4.4-7.7
2000	117	**6.5**	4.6-8.4	167	**5.5**	4.1-6.8
2001	70	**7.0**	4.9-9.0	102	**6.5**	5.2-7.9
2002	78	**7.4**	5.6-9.2	110	**7.1**	5.7-8.5
2003	85	**7.9**	6.2-9.7	110	**7.0**	5.6-8.4
2004	137	**9.2**	7.5-10.9	156	**5.9**	4.8-6.9
2005	138	**7.8**	6.3-9.3	199	**7.2**	6.1-8.2
2006	131	**7.3**	5.9-8.6	189	**6.6**	5.6-7.6
2007	266	**8.6**	7.4-9.8	387	**7.1**	6.3-8.0
2008	345	**10.1**	8.8-11.4	352	**6.6**	5.8-7.4
2009	381	**8.8**	7.8-9.8	528	**7.9**	7.1-8.7
2010	408	**9.0**	8.0-10.0	550	**8.4**	7.5-9.2

Total Resp. = Total Respondents (unweighted denominator); n = unweighted numerator; 95% CI = 95% Confidence Interval.
Diabetes does not include pregnancy-related diabetes.
*These percentages are based on a numerator < 50 and may be unreliable; please use caution in interpreting.
All %s are weighted to be representative of the general Maine adult population and to adjust for non-response.
Response value “No, prediabetes or borderline diabetes” added in 2004.
Data Source: Behavioral Risk Factor Surveillance System.

Table 1.4 Prevalence of Prediabetes and Diabetes by Demographics, Maine Adults, 2008-2010

	Prediabetes				Diabetes			
Demographic Groups	**Total Respondents**	**n**	**%**	**95% CI**	**Total Respondents**	**n**	**%**	**95% CI**
Total	7,162	552	**6.4**	5.8-7.1	22,981	2,564	**8.4**	8.0-8.8
Gender								
Male	2,701	215	**6.2**	5.2-7.2	8,895	1,134	**9.3**	8.6-9.9
Female	4,461	337	**6.7**	5.8-7.6	14,086	1,430	**7.6**	7.2-8.1
Race/Ethnicity								
Non-Hispanic White	6,848	525	**6.5**	5.8-7.2	21,908	2,413	**8.3**	7.9-8.7
Other Race or Hispanic	226	25*	**6.7***	3.8-9.7*	810	116	**10.1**	7.9-12.3
Age								
18-24	202	6*	**3.5***	0.7-6.3*	631	13*	**1.5***	0.6-2.5*
25-34	520	20*	**3.5***	1.8-5.2*	1,559	31*	**1.6***	0.9-2.2*
35-44	969	50	**5.0**	3.5-6.5	3,041	121	**3.8**	3.0-4.5
45-54	1,558	94	**5.7**	4.4-7.0	4,857	411	**8.3**	7.4-9.2
55-64	1,805	148	**8.0**	6.6-9.4	5,749	733	**12.8**	11.8-13.8
65+	2,108	234	**11.7**	10.1-13.2	7,144	1,255	**17.8**	16.8-18.8
Education								
Less Than H.S.	375	35*	**6.1***	3.7-8.5*	1,409	299	**14.6**	12.6-16.6
H.S. or G.E.D.	2,281	192	**7.2**	5.8-8.5	7,459	1,019	**10.1**	9.4-10.9
Some Post-H.S.	1,850	145	**6.4**	5.1-7.7	5,804	659	**8.7**	7.9-9.5
College Graduate	2,644	178	**5.8**	4.8-6.8	8,275	580	**5.6**	5.0-6.1
Annual Household Income								
Less than $15,000	726	64	**7.4**	5.1-9.8	2,589	520	**15.3**	13.6-17.0
$15,000-24,999	1,120	122	**9.0**	7.1-10.9	3,667	589	**13.3**	12.0-14.6
$25,000-34,999	724	70	**7.8**	5.7-9.9	2,470	308	**10.2**	8.9-11.6
$35,000-49,999	1,009	73	**6.5**	4.8-8.1	3,376	323	**8.1**	7.1-9.1
$50,000+	2,753	161	**5.3**	4.3-6.3	8,285	503	**4.9**	4.4-5.4

Total Respondents = unweighted denominator; n = unweighted numerator; 95% CI = 95% Confidence Interval; H.S. =High School.
Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
*These percentages are based on a numerator < 50 and may be unreliable; please use caution in interpreting.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.

Table 1.5 Prevalence of Prediabetes and Diabetes by County of Residence, Maine Adults, 2008-2010

	Prediabetes				Diabetes			
County	**Total Respondents**	**n**	**%**	**95% CI**	**Total Respondents**	**n**	**%**	**95% CI**
Androscoggin	830	59	**6.0**	4.1-7.9	1,409	157	**8.6**	7.0-10.3
Aroostook	696	68	**8.3**	5.7-10.9	1,244	192	**10.7**	8.9-12.4
Cumberland	2,123	167	**7.0**	5.7-8.3	3,692	343	**7.0**	6.2-7.9
Franklin	516	30*	**5.2***	3.1-7.4*	851	78	**7.6**	5.4-9.7
Hancock	634	40*	**4.4***	2.9-5.9*	1,079	103	**7.1**	5.6-8.7
Kennebec	1,063	78	**6.0**	4.3-7.6	1,828	209	**8.9**	7.5-10.3
Knox	734	69	**7.3**	5.3-9.3	1,244	134	**8.7**	6.8-10.5
Lincoln	668	58	**6.9**	4.9-8.9	1,135	107	**7.0**	5.3-8.7
Oxford	574	52	**7.4**	4.9-9.8	990	112	**8.1**	6.4-9.8
Penobscot	1,089	79	**6.2**	4.4-8.0	1,941	256	**10.4**	8.9-11.8
Piscataquis	347	31*	**7.7***	4.4-10.9*	608	72	**9.3**	6.8-11.9
Sagadahoc	506	34*	**5.8***	3.4-8.1*	880	87	**7.4**	5.6-9.3
Somerset	472	32*	**5.7***	3.2-8.3*	863	119	**10.0**	7.7-12.3
Waldo	644	38*	**5.9***	3.2-8.7*	1,108	125	**8.7**	6.9-10.5
Washington	580	37*	**5.0***	3.1-6.8*	1,030	140	**10.4**	8.3-12.4
York	1,530	110	**6.1**	4.8-7.5	2,632	260	**7.3**	6.2-8.3
Maine Total	13,238	996	**6.3**	5.8-6.8	22,981	2,564	**8.4**	8.0-8.8

Total Respondents = unweighted denominator; n = unweighted numerator; 95% CI = 95% Confidence Interval.
Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
*These percentages are based on a numerator < 50 and may be unreliable; please use caution in interpreting.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.

Table 2.1 Prevalence of Prediabetes and Diabetes by Risk Factors, Maine Adults

	Prevalence of Prediabetes				Prevalence of Diabetes			
Demographic Groups	**Total Respondents**	**n**	**%**	**95% CI**	**Total Respondents**	**n**	**%**	**95% CI**
Total (2010)	3,589	290	**6.8**	5.8-7.8	8,123	958	**8.7**	8.0-9.3
Eat 5 or more servings of fruits or vegetables per day (2009)								
Yes	1,044	71	**6.0**	4.3-7.8	2,352	246	**7.8**	6.6-8.9
No	2,446	185	**6.2**	5.0-7.3	5,537	638	**8.5**	7.7-9.3
Engage in recommended level of physical activity (2009)								
Yes	1,902	121	**5.6**	4.3-6.9	4,038	320	**5.9**	5.2-6.7
No	1,671	141	**6.6**	5.3-8.0	4,038	589	**11.0**	10.0-12.1
Weight Status (2010)								
Healthy Weight	1,288	53	**3.6**	2.2-5.0	2,623	124	**3.2**	2.5-3.8
Overweight	1,274	95	**5.6**	4.3-6.8	2,900	268	**6.6**	5.7-7.6
Obese	854	124	**12.8**	10.1-15.5	2,208	513	**18.2**	16.5-20.0
Current Smoker (2010)								
Yes	595	48*	**6.4***	4.2-8.6*	1,303	135	**7.9**	6.3-9.5
No	2,968	242	**7.0**	5.9-8.1	6,761	816	**8.8**	8.1-9.6
Have High Cholesterol (2009)								
Yes	1,369	151	**10.2**	8.5-11.9	3,300	575	**15.5**	14.1-16.9
No	1,833	103	**5.3**	3.9-6.7	4,009	303	**5.8**	5.0-6.6
Have High Blood Pressure (2009)								
Yes	1,244	155	**12.6**	10.1-15.1	3,090	658	**18.8**	17.3-20.4
No	2,312	105	**3.6**	2.8-4.4	4,963	249	**3.8**	3.3-4.4
Have a History of Coronary Heart Disease (2010)								
Yes	249	42*	**15.5***	10.5-20.5*	793	255	**28.4**	24.8-32.0
No	3,340	248	**6.3**	5.3-7.3	7,330	703	**7.1**	6.4-7.7
Have a History of Stroke (2010)								
Yes	114	19*	**19.1***	10.4-27.8*	318	94	**26.1**	20.6-31.5
No	3,470	271	**6.5**	5.5-7.5	7,786	859	**8.1**	7.5-8.8

Total Respondents = unweighted denominator; n = unweighted numerator; 95% CI = 95% Confidence Interval.
Prediabetes and diabetes do not include pregnancy-related prediabetes and diabetes.
Recommended amount of physical activity is defined as 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week.
Healthy weight defined as BMI >=18.5 and <25.0 kg/m^2; Overweight as BMI >=25.0 and < 30.0 kg/m^2; Obese as BMI >=30.0 kg/m^2.
*These percentages are based on a numerator < 50 and may be unreliable; please use caution in interpreting.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.

Table 3.1 Diabetes Hospitalization Rates by Year, Maine, 1993-2009

	Maine Total				Maine Males				Maine Females			
Year	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI
1993	1,384	11.1	**10.9**	10.4 - 11.5	670	11.1	**11.6**	10.8 - 12.6	714	11.2	**10.4**	9.7 - 11.2
1994	1,489	12.0	**11.7**	11.1 - 12.3	728	12.1	**12.6**	11.7 - 13.5	761	11.9	**11.0**	10.3 - 11.9
1995	1,475	11.9	**11.4**	10.9 - 12.0	699	11.6	**12.0**	11.1 - 12.9	776	12.1	**11.1**	10.4 - 12.0
1996	1,422	11.4	**10.9**	10.4 - 11.5	737	12.1	**12.4**	11.5 - 13.4	685	10.7	**9.8**	9.0 - 10.5
1997	1,540	12.3	**11.7**	11.1 - 12.3	824	13.5	**13.6**	12.7 - 14.6	716	11.1	**10.1**	9.4 - 10.9
1998	1,541	12.2	**11.6**	11.0 - 12.2	845	13.8	**14.0**	13.0 - 15.0	696	10.8	**9.6**	8.9 - 10.4
1999	1,719	13.6	**12.8**	12.2 - 13.4	925	15.0	**14.8**	13.9 - 15.8	794	12.2	**11.0**	10.3 - 11.8
2000	1,746	13.7	**12.8**	12.2 - 13.4	905	14.6	**14.3**	13.4 - 15.3	841	12.8	**11.6**	10.8 - 12.4
2001	1,774	13.8	**12.8**	12.2 - 13.5	961	15.4	**14.9**	14.0 - 15.9	813	12.3	**11.1**	10.3 - 11.9
2002	1,644	12.7	**11.7**	11.1 - 12.3	907	14.4	**13.9**	13.0 - 14.8	737	11.1	**9.9**	9.2 - 10.7
2003	1,695	13.0	**12.0**	11.4 - 12.6	904	14.2	**13.5**	12.7 - 14.5	791	11.8	**10.6**	9.9 - 11.4
2004	1,592	12.1	**11.1**	10.6 - 11.7	827	12.9	**12.1**	11.3 - 13.0	765	11.3	**10.3**	9.6 - 11.1
2005	1,513	11.4	**10.3**	9.8 - 10.9	816	12.6	**11.8**	11.0 - 12.7	697	10.3	**9.1**	8.4 - 9.8
2006	1,520	11.5	**10.5**	10.0 - 11.1	843	13.0	**12.2**	11.4 - 13.1	677	10.0	**9.1**	8.4 - 9.8
2007	1,665	12.6	**11.7**	11.1 - 12.3	927	14.4	**13.6**	12.7 - 14.6	738	10.9	**10.0**	9.3 - 10.8
2008	1,716	13.0	**11.8**	11.2 - 12.4	971	15.1	**13.9**	13.1 - 14.9	745	11.1	**9.9**	9.2 - 10.7
2009	1,760	13.4	**12.0**	11.5 - 12.6	1,010	15.7	**14.5**	13.6 - 15.5	750	11.1	**9.9**	9.1 - 10.6

Diabetes: ICD-9-CM 250; principal diagnosis.
#=Number.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.2 Diabetes Hospitalizations by Selected Age Groups and Year, Maine, 1993-2009

	Age <35 years			Age 35-64			Age 65-74			Age 75+		
Year	# of Hospitalizations	Age-specific Rate	95% CI	# of Hospitalizations	Age-specific Rate	95% CI	# of Hospitalizations	Age-specific Rate	95% CI	# of Hospitalizations	Age-specific Rate	95% CI
1993	301	**4.9**	4.4 - 5.5	528	**11.5**	10.6 - 12.6	314	**32.8**	29.3 - 36.6	241	**31.5**	27.6 - 35.7
1994	313	**5.2**	4.6 - 5.8	546	**11.7**	10.8 - 12.8	357	**37.0**	33.3 - 41.1	273	**35.1**	31.1 - 39.5
1995	265	**4.5**	4.0 - 5.0	569	**12.0**	11.0 - 13.0	332	**34.3**	30.7 - 38.2	309	**39.0**	34.7 - 43.5
1996	257	**4.4**	3.9 - 5.0	579	**11.9**	11.0 - 12.9	290	**30.1**	26.7 - 33.7	296	**36.6**	32.6 - 41.1
1997	281	**4.9**	4.3 - 5.5	607	**12.2**	11.2 - 13.2	323	**33.5**	29.9 - 37.3	329	**39.9**	35.7 - 44.5
1998	291	**5.1**	4.5 - 5.7	590	**11.6**	10.7 - 12.6	336	**34.8**	31.2 - 38.8	324	**38.7**	34.6 - 43.2
1999	333	**5.9**	5.3 - 6.6	685	**13.2**	12.2 - 14.2	337	**35.1**	31.5 - 39.1	364	**42.5**	38.2 - 47.1
2000	337	**6.1**	5.4 - 6.8	738	**13.7**	12.7 - 14.7	326	**33.9**	30.3 - 37.8	345	**39.3**	35.3 - 43.7
2001	349	**6.3**	5.7 - 7.0	741	**13.6**	12.6 - 14.6	313	**32.7**	29.1 - 36.5	371	**41.5**	37.4 - 46.0
2002	298	**5.4**	4.8 - 6.1	704	**12.6**	11.7 - 13.6	287	**30.0**	26.7 - 33.7	355	**39.1**	35.1 - 43.4
2003	339	**6.1**	5.5 - 6.8	786	**13.9**	13.0 - 15.0	275	**28.7**	25.4 - 32.3	295	**31.9**	28.4 - 35.8
2004	317	**5.7**	5.1 - 6.4	718	**12.5**	11.6 - 13.4	261	**27.4**	24.1 - 30.9	296	**31.4**	27.9 - 35.2
2005	286	**5.2**	4.6 - 5.9	699	**12.0**	11.1 - 12.9	237	**24.7**	21.6 - 28.0	291	**30.1**	26.7 - 33.8
2006	341	**6.2**	5.6 - 6.9	661	**11.4**	10.5 - 12.3	229	**23.3**	20.4 - 26.5	289	**30.6**	27.2 - 34.3
2007	368	**6.8**	6.1 - 7.5	756	**13.0**	12.1 - 14.0	243	**24.5**	21.5 - 27.7	298	**31.2**	27.7 - 34.9
2008	343	**6.4**	5.7 - 7.1	829	**14.3**	13.3 - 15.3	255	**24.7**	21.8 - 27.9	289	**30.1**	26.8 - 33.8
2009	340	**6.3**	5.7 - 7.0	830	**14.5**	13.5 - 15.5	287	**26.5**	23.5 - 29.7	303	**31.2**	27.8 - 34.9

Diabetes: ICD-9-CM 250; principal diagnosis.
#=Number.
Age-specific rates are hospitalizations per 10,000 population within that age group.
95% CI: 95% confidence interval of the age-specific rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.3 Diabetes Hospitalizations by County of Residence, Maine, 2007-2009

County	Average Annual Number of Hospitalizations	Crude Rate	Age-adjusted rate	95% CI
Androscoggin	155	14.6	**13.7**	12.5 - 15.0
Aroostook	113	15.8	**13.2**	11.8 - 14.8
Cumberland	293	10.6	**9.9**	9.2 - 10.6
Franklin	40	13.4	**12.9**	10.6 - 15.5
Hancock	71	13.3	**11.7**	10.1 - 13.4
Kennebec	163	13.5	**12.2**	11.1 - 13.4
Knox	57	13.9	**11.0**	9.4 - 12.9
Lincoln	45	13.0	**11.5**	9.5 - 13.8
Oxford	76	13.5	**12.2**	10.6 - 13.9
Penobscot	236	15.8	**14.8**	13.7 - 16.0
Piscataquis	36	21.2	**17.5**	14.2 - 21.4
Sagadahoc	45	12.3	**11.2**	9.4 - 13.4
Somerset	70	13.7	**12.6**	10.9 - 14.4
Waldo	47	12.3	**11.4**	9.6 - 13.6
Washington	56	17.3	**15.4**	13.1 - 18.1
York	210	10.4	**9.5**	8.7 - 10.3
Maine total	1,714	13.0	**11.8**	11.5 - 12.2

Diabetes: ICD-9-CM 250; principal diagnosis.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.4 Diabetic Ketoacidosis Hospitalization Rates by Year, Maine, 1993-2009

	Maine Total				Maine Males				Maine Females			
Year	# of Hospitali-zations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospitali-zations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospita-lizations	Crude Rate	Age-adjusted Rate	95% CI
1993	270	2.2	**2.2**	2.0 - 2.5	132	2.2	**2.2**	1.8 - 2.6	138	2.2	**2.2**	1.9 - 2.6
1994	277	2.2	**2.3**	2.0 - 2.5	123	2.0	**2.0**	1.7 - 2.4	154	2.4	**2.5**	2.1 - 2.9
1995	262	2.1	**2.1**	1.9 - 2.4	113	1.9	**1.9**	1.5 - 2.2	149	2.3	**2.4**	2.0 - 2.8
1996	269	2.2	**2.2**	1.9 - 2.4	125	2.1	**2.0**	1.7 - 2.4	144	2.2	**2.3**	1.9 - 2.7
1997	278	2.2	**2.2**	2.0 - 2.5	132	2.2	**2.1**	1.8 - 2.5	146	2.3	**2.3**	1.9 - 2.7
1998	289	2.3	**2.3**	2.1 - 2.6	150	2.5	**2.5**	2.1 - 2.9	139	2.1	**2.2**	1.8 - 2.6
1999	336	2.7	**2.7**	2.4 - 3.0	170	2.8	**2.8**	2.4 - 3.2	166	2.6	**2.7**	2.3 - 3.1
2000	323	2.5	**2.6**	2.3 - 2.9	154	2.5	**2.5**	2.1 - 2.9	169	2.6	**2.7**	2.3 - 3.1
2001	368	2.9	**2.9**	2.6 - 3.2	193	3.1	**3.1**	2.7 - 3.6	175	2.7	**2.7**	2.3 - 3.2
2002	354	2.7	**2.8**	2.5 - 3.1	184	2.9	**2.9**	2.5 - 3.4	170	2.6	**2.7**	2.3 - 3.1
2003	386	3.0	**3.0**	2.7 - 3.3	192	3.0	**3.0**	2.6 - 3.5	194	2.9	**3.1**	2.6 - 3.5
2004	402	3.1	**3.1**	2.8 - 3.5	190	3.0	**3.0**	2.6 - 3.4	212	3.1	**3.3**	2.9 - 3.8
2005	351	2.7	**2.7**	2.4 - 3.0	165	2.6	**2.5**	2.2 - 3.0	186	2.8	**2.8**	2.4 - 3.3
2006	403	3.0	**3.2**	2.9 - 3.6	207	3.2	**3.3**	2.8 - 3.8	196	2.9	**3.2**	2.7 - 3.7
2007	455	3.5	**3.7**	3.4 - 4.1	238	3.7	**3.8**	3.4 - 4.4	217	3.2	**3.6**	3.1 - 4.1
2008	424	3.2	**3.4**	3.1 - 3.7	212	3.3	**3.4**	2.9 - 3.9	212	3.1	**3.4**	2.9 - 3.9
2009	485	3.7	**3.9**	3.5 - 4.2	262	4.1	**4.2**	3.7 - 4.8	223	3.3	**3.5**	3.1 - 4.0

Diabetic Ketoacidosis Hospitalizations: ICD-9-CM code 250.1 as the principal diagnosis.
#=Number.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.5 Diabetes-Related Hospitalization Rates by Year, Maine, 1993-2009

	Maine Total				Maine Males				Maine Females			
Year	# of Hospital izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI
1993	16,850	135.6	**130.9**	128.9 - 132.9	7,850	129.8	**142.0**	138.9 - 145.3	9,000	141.1	**123.3**	120.8 - 125.9
1994	17,555	141.3	**134.8**	132.8 - 136.8	8,017	132.7	**143.5**	140.4 - 146.8	9,538	149.3	**129.8**	127.2 - 132.5
1995	18,023	144.9	**136.6**	134.6 - 138.6	8,408	139.1	**147.2**	144.0 - 150.4	9,615	150.4	**129.3**	126.7 - 131.9
1996	19,048	152.5	**142.6**	140.6 - 144.6	8,964	147.6	**155.1**	151.9 - 158.4	10,084	157.1	**134.2**	131.6 - 136.9
1997	19,952	159.0	**146.9**	144.9 - 149.0	9,614	157.6	**163.1**	159.8 - 166.4	10,338	160.3	**135.5**	132.9 - 138.2
1998	21,100	167.6	**153.4**	151.3 - 155.5	10,128	165.5	**169.1**	165.8 - 172.5	10,972	169.6	**142.5**	139.9 - 145.3
1999	21,761	171.8	**155.5**	153.5 - 157.6	10,417	169.0	**170.1**	166.8 - 173.4	11,344	174.4	**145.1**	142.4 - 147.8
2000	23,041	180.4	**161.1**	159.1 - 163.2	10,993	176.9	**175.0**	171.7 - 178.4	12,048	183.7	**151.5**	148.8 - 154.3
2001	23,430	182.4	**161.7**	159.6 - 163.8	11,210	179.3	**175.0**	171.8 - 178.3	12,220	185.3	**152.6**	149.9 - 155.4
2002	23,586	182.2	**160.0**	158.0 - 162.1	11,406	181.0	**173.8**	170.6 - 177.1	12,180	183.3	**150.5**	147.8 - 153.2
2003	24,520	187.8	**163.4**	161.4 - 165.5	11,737	184.3	**175.1**	171.9 - 178.4	12,783	191.1	**155.4**	152.7 - 158.1
2004	25,036	190.1	**163.8**	161.7 - 165.8	11,940	185.7	**173.8**	170.7 - 177.0	13,096	194.3	**157.2**	154.4 - 159.9
2005	24,613	186.2	**157.7**	155.7 - 159.7	11,884	184.1	**169.4**	166.3 - 172.5	12,729	188.3	**149.7**	147.0 - 152.3
2006	24,428	184.8	**156.8**	154.8 - 158.8	11,773	182.1	**166.9**	163.8 - 170.0	12,655	187.4	**149.5**	146.8 - 152.2
2007	24,724	187.7	**157.5**	155.5 - 159.5	12,025	187.1	**169.2**	166.1 - 172.3	12,699	188.3	**149.4**	146.8 - 152.1
2008	25,488	193.6	**159.7**	157.8 - 161.7	12,468	194.1	**171.9**	168.9 - 175.0	13,020	193.2	**150.7**	148.1 - 153.4
2009	25,286	191.8	**155.6**	153.7 - 157.6	12,304	191.2	**167.1**	164.1 - 170.2	12,982	192.4	**147.8**	145.2 - 150.4

Diabetes-Related Hospitalizations: ICD-9-CM 250; any listed diagnosis.
#=Number.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.6 Diabetes-Related Hospitalizations by Selected Age Groups and Year, Maine, 1993-2009

	Age <35 years			Age 35-64			Age 65-74			Age 75+		
Year	# of Hospital-izations	Age-specific Rate	95% CI	# of Hospital-izations	Age-specific Rate	95% CI	# of Hospital-izations	Age-specific Rate	95% CI	# of Hospital-izations	Age-specific Rate	95% CI
1993	708	**11.6**	10.7 - 12.4	5,563	**121.7**	118.5 - 124.9	5,253	**548.9**	534.1 - 563.9	5,326	**695.6**	677.0 - 714.5
1994	723	**12.0**	11.1 - 12.9	5,776	**124.1**	120.9 - 127.3	5,504	**570.6**	555.7 - 585.9	5,552	**713.6**	695.0 - 732.6
1995	632	**10.7**	9.9 - 11.5	5,919	**124.6**	121.5 - 127.8	5,667	**585.9**	570.8 - 601.4	5,805	**731.8**	713.1 - 750.9
1996	679	**11.6**	10.7 - 12.5	6,278	**129.1**	125.9 - 132.3	5,881	**609.5**	594.1 - 625.3	6,210	**768.6**	749.6 - 788.0
1997	680	**11.8**	10.9 - 12.7	6,516	**130.7**	127.5 - 133.9	6,180	**640.0**	624.2 - 656.2	6,576	**797.5**	778.4 - 817.0
1998	746	**13.1**	12.1 - 14.0	7,051	**138.8**	135.6 - 142.1	6,364	**660.0**	643.9 - 676.5	6,939	**829.6**	810.2 - 849.3
1999	810	**14.3**	13.4 - 15.3	7,329	**141.0**	137.8 - 144.3	6,382	**665.0**	648.8 - 681.5	7,240	**844.7**	825.4 - 864.4
2000	836	**15.1**	14.0 - 16.1	8,066	**149.9**	146.7 - 153.2	6,257	**651.2**	635.1 - 667.5	7,882	**898.4**	878.6 - 918.4
2001	889	**16.1**	15.0 - 17.2	8,271	**151.3**	148.0 - 154.6	6,374	**665.2**	649.0 - 681.7	7,896	**883.5**	864.2 - 903.2
2002	872	**15.8**	14.8 - 16.9	8,756	**157.1**	153.9 - 160.5	6,374	**667.1**	650.8 - 683.7	7,584	**834.9**	816.2 - 853.9
2003	913	**16.5**	15.4 - 17.6	9,380	**166.4**	163.0 - 169.8	6,319	**658.5**	642.4 - 675.0	7,908	**855.6**	836.8 - 874.6
2004	941	**17.0**	16.0 - 18.2	9,570	**166.4**	163.0 - 169.7	6,209	**650.8**	634.7 - 667.2	8,316	**881.4**	862.6 - 900.5
2005	831	**15.2**	14.2 - 16.3	9,483	**163.0**	159.8 - 166.3	6,094	**634.9**	619.1 - 651.1	8,205	**848.6**	830.4 - 867.2
2006	948	**17.3**	16.2 - 18.4	9,471	**163.1**	159.8 - 166.4	5,962	**607.1**	591.8 - 622.7	8,047	**852.1**	833.6 - 871.0
2007	1,006	**18.6**	17.5 - 19.8	9,432	**162.4**	159.1 - 165.7	6,128	**616.9**	601.6 - 632.6	8,158	**852.9**	834.5 - 871.6
2008	1,028	**19.1**	18.0 - 20.4	9,794	**168.8**	165.4 - 172.1	6,248	**605.1**	590.2 - 620.3	8,418	**877.5**	858.9 - 896.5
2009	986	**18.3**	17.2 - 19.5	9,898	**172.6**	169.2 - 176.0	6,143	**566.6**	552.5 - 580.9	8,259	**849.7**	831.5 - 868.3

Diabetes-Related Hospitalizations: ICD-9-CM 250; any listed diagnosis.
#=Number.
Age-specific rates are hospitalizations per 10,000 population within that age group.
95% CI: 95% confidence interval of the age-specific rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.7 Diabetes-Related Hospitalizations by County of Residence, Maine, 2007-2009

County	Average Annual Number of Hospitalizations	Crude Rate	Age-adjusted rate	95% CI
Androscoggin	1,911	179.0	**156.2**	152.1 - 160.3
Aroostook	1,909	266.1	**195.1**	189.9 - 200.3
Cumberland	4,333	156.6	**135.4**	133.0 - 137.8
Franklin	592	198.5	**172.1**	164.0 - 180.5
Hancock	1,126	211.4	**160.1**	154.6 - 165.8
Kennebec	2,182	180.4	**150.5**	146.8 - 154.3
Knox	902	221.4	**161.8**	155.6 - 168.3
Lincoln	743	214.4	**149.1**	142.8 - 155.7
Oxford	1,295	228.8	**183.0**	177.2 - 189.0
Penobscot	3,368	226.1	**199.8**	195.8 - 203.8
Piscataquis	400	235.6	**170.5**	160.6 - 180.8
Sagadahoc	622	171.1	**145.3**	138.7 - 152.2
Somerset	1,230	239.6	**194.5**	188.2 - 201.0
Waldo	727	189.4	**157.4**	150.7 - 164.3
Washington	841	259.1	**189.9**	182.4 - 197.7
York	2,984	148.0	**123.6**	121.0 - 126.2
Maine total	25,166	191.0	**157.6**	156.4 - 158.7

Diabetes-Related Hospitalizations: ICD-9-CM 250; any listed diagnosis.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.8 Diabetes-Related Cardiovascular Disease Hospitalizations by Year, Maine, 1993-2009

	Maine Total				Maine Males				Maine Females			
Year	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI
1993	5,762	46.4	**44.5**	43.4 - 45.7	2,821	46.7	**50.9**	49.0 - 52.8	2,941	46.1	**39.5**	38.0 - 40.9
1994	6,003	48.3	**45.8**	44.7 - 47.0	2,967	49.1	**52.8**	50.9 - 54.8	3,036	47.5	**40.4**	39.0 - 41.9
1995	6,187	49.8	**46.5**	45.4 - 47.7	3,131	51.8	**54.9**	52.9 - 56.9	3,056	47.8	**40.2**	38.8 - 41.7
1996	6,641	53.2	**49.4**	48.2 - 50.6	3,332	54.9	**57.6**	55.6 - 59.6	3,309	51.6	**43.2**	41.7 - 44.7
1997	7,287	58.1	**53.3**	52.1 - 54.5	3,848	63.1	**65.2**	63.1 - 67.3	3,439	53.3	**44.2**	42.8 - 45.8
1998	7,418	58.9	**53.5**	52.3 - 54.7	3,778	61.7	**62.6**	60.6 - 64.7	3,640	56.3	**46.2**	44.7 - 47.8
1999	7,202	56.9	**50.9**	49.8 - 52.1	3,731	60.5	**60.5**	58.6 - 62.5	3,471	53.4	**43.4**	42.0 - 44.9
2000	7,507	58.8	**51.9**	50.8 - 53.1	3,887	62.6	**61.7**	59.7 - 63.6	3,620	55.2	**44.2**	42.8 - 45.7
2001	7,315	56.9	**49.9**	48.7 - 51.0	3,824	61.2	**59.5**	57.6 - 61.5	3,491	52.9	**42.1**	40.7 - 43.6
2002	7,000	54.1	**46.9**	45.8 - 48.0	3,750	59.5	**56.9**	55.1 - 58.7	3,250	48.9	**38.8**	37.5 - 40.2
2003	7,046	54.0	**46.2**	45.1 - 47.3	3,714	58.3	**55.0**	53.2 - 56.8	3,332	49.8	**38.9**	37.6 - 40.3
2004	6,803	51.6	**43.7**	42.6 - 44.7	3,648	56.7	**52.8**	51.0 - 54.5	3,155	46.8	**36.2**	34.9 - 37.5
2005	6,618	50.1	**41.5**	40.5 - 42.5	3,630	56.2	**51.0**	49.4 - 52.7	2,988	44.2	**33.6**	32.4 - 34.9
2006	6,117	46.3	**38.4**	37.4 - 39.3	3,280	50.7	**46.1**	44.6 - 47.8	2,837	42.0	**32.0**	30.8 - 33.2
2007	5,986	45.4	**37.2**	36.2 - 38.1	3,326	51.7	**46.3**	44.7 - 47.9	2,660	39.4	**29.8**	28.7 - 31.0
2008	5,982	45.4	**36.5**	35.5 - 37.4	3,297	51.3	**44.8**	43.3 - 46.4	2,685	39.8	**29.4**	28.3 - 30.5
2009	5,659	42.9	**33.7**	32.8 - 34.6	3,060	47.5	**40.8**	39.4 - 42.3	2,599	38.5	**27.8**	26.8 - 28.9

Diabetes-related Cardiovascular Disease: major cardiovascular disease (ICD-9-CM codes 390-434, 436-448) as the principal diagnosis and diabetes (ICD-9-CM code 250) as any other listed diagnosis.
#=Number.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.9 Diabetes-Related Cardiovascular Disease Hospitalizations by Selected Age Groups and Year, Maine, 1993-2009

	Age 35-64			Age 65-74			Age 75+		
Year	Number of Hospital-izations	Age-specific Rate	95% CI	Number of Hospital-izations	Age-specific Rate	95% CI	Number of Hospital-izations	Age-specific Rate	95% CI
1993	1,804	**39.5**	37.7 - 41.3	2,004	**209.4**	200.3 - 218.8	1,928	**251.8**	240.7 - 263.3
1994	1,843	**39.6**	37.8 - 41.4	2,086	**216.3**	207.1 - 225.8	2,045	**262.9**	251.6 - 274.5
1995	1,876	**39.5**	37.7 - 41.3	2,196	**227.0**	217.6 - 236.7	2,097	**264.4**	253.2 - 275.9
1996	1,999	**41.1**	39.3 - 42.9	2,296	**238.0**	228.3 - 247.9	2,329	**288.3**	276.7 - 300.2
1997	2,198	**44.1**	42.3 - 46.0	2,531	**262.1**	252.0 - 272.5	2,539	**307.9**	296.1 - 320.1
1998	2,243	**44.2**	42.4 - 46.0	2,538	**263.2**	253.1 - 273.7	2,612	**312.3**	300.4 - 324.5
1999	2,245	**43.2**	41.4 - 45.0	2,451	**255.4**	245.4 - 265.7	2,489	**290.4**	279.1 - 302.0
2000	2,312	**43.0**	41.2 - 44.8	2,304	**239.8**	230.1 - 249.8	2,871	**327.2**	315.4 - 339.4
2001	2,237	**40.9**	39.2 - 42.7	2,291	**239.1**	229.4 - 249.1	2,759	**308.7**	297.3 - 320.5
2002	2,290	**41.1**	39.4 - 42.8	2,190	**229.2**	219.7 - 239.0	2,491	**274.2**	263.6 - 285.2
2003	2,294	**40.7**	39.0 - 42.4	2,162	**225.3**	215.9 - 235.0	2,573	**278.4**	267.7 - 289.3
2004	2,209	**38.4**	36.8 - 40.0	1,900	**199.2**	190.3 - 208.3	2,679	**283.9**	273.3 - 294.9
2005	2,223	**38.2**	36.6 - 39.8	1,893	**197.2**	188.4 - 206.3	2,486	**257.1**	247.1 - 267.4
2006	2,027	**34.9**	33.4 - 36.5	1,758	**179.0**	170.7 - 187.6	2,323	**246.0**	236.1 - 256.2
2007	1,968	**33.9**	32.4 - 35.4	1,719	**173.1**	165.0 - 181.4	2,269	**237.2**	227.6 - 247.2
2008	1,923	**33.1**	31.7 - 34.7	1,686	**163.3**	155.6 - 171.3	2,353	**245.3**	235.5 - 255.4
2009	1,795	**31.3**	29.9 - 32.8	1,612	**148.7**	141.5 - 156.1	2,233	**229.7**	220.3 - 239.5

Diabetes-related Cardiovascular Disease: major cardiovascular disease (ICD-9-CM codes 390-434, 436-448) as the principal diagnosis and diabetes (ICD-9-CM code 250) as any other listed diagnosis.
Age-specific rates are hospitalizations per 10,000 population within that age group.
95% CI: 95% confidence interval of the age-specific rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.
Among Mainers <35 years of age the number of hospitalizations were too small to provide reliable estimates for most years.

Table 3.10 Diabetes-Related Cardiovascular Disease Hospitalizations by County of Residence, Maine, 2007-2009

County	Average Annual Number of Hospitalizations	Crude Rate	Age-adjusted rate	95% CI
Androscoggin	409	38.3	**32.5**	30.7 - 34.4
Aroostook	511	71.3	**50.2**	47.7 - 52.9
Cumberland	911	32.9	**28.1**	27.1 - 29.2
Franklin	141	47.1	**40.0**	36.2 - 44.1
Hancock	301	56.4	**41.8**	39.1 - 44.7
Kennebec	507	41.9	**33.7**	32.0 - 35.4
Knox	213	52.2	**35.8**	33.0 - 38.7
Lincoln	164	47.4	**31.2**	28.5 - 34.2
Oxford	261	46.1	**35.4**	32.9 - 38.0
Penobscot	802	53.9	**46.9**	45.0 - 48.8
Piscataquis	98	57.9	**40.1**	35.6 - 45.0
Sagadahoc	143	39.2	**32.3**	29.3 - 35.6
Somerset	329	64.2	**50.6**	47.5 - 53.9
Waldo	183	47.6	**38.1**	35.0 - 41.5
Washington	227	69.8	**48.4**	44.8 - 52.2
York	675	33.5	**27.3**	26.1 - 28.5
Maine total	5,876	44.6	**35.7**	35.2 - 36.3

Diabetes-related Cardiovascular Disease: major cardiovascular disease (ICD-9-CM codes 390-434, 436-448) as the principal diagnosis and diabetes (ICD-9-CM code 250) as any other listed diagnosis.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.11 Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization Rates by Year, Maine, 1993-2009

	Maine Total				Maine Males				Maine Females			
Year	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI	# of Hospital-izations	Crude Rate	Age-adjusted Rate	95% CI
1993	326	2.6	**2.5**	2.3 - 2.8	183	3.0	**3.3**	2.9 - 3.8	143	2.2	**2.0**	1.6 - 2.3
1994	351	2.8	**2.7**	2.4 - 3.0	216	3.6	**3.8**	3.3 - 4.4	135	2.1	**1.9**	1.6 - 2.2
1995	381	3.1	**2.9**	2.6 - 3.2	234	3.9	**4.1**	3.6 - 4.7	147	2.3	**2.0**	1.7 - 2.3
1996	346	2.8	**2.6**	2.3 - 2.9	237	3.9	**4.1**	3.6 - 4.7	109	1.7	**1.4**	1.2 - 1.7
1997	389	3.1	**2.9**	2.6 - 3.2	255	4.2	**4.3**	3.7 - 4.8	134	2.1	**1.8**	1.5 - 2.1
1998	364	2.9	**2.6**	2.4 - 2.9	242	4.0	**3.9**	3.5 - 4.5	122	1.9	**1.6**	1.3 - 1.9
1999	369	2.9	**2.6**	2.4 - 2.9	257	4.2	**4.1**	3.6 - 4.6	112	1.7	**1.4**	1.2 - 1.7
2000	374	2.9	**2.6**	2.3 - 2.9	233	3.7	**3.6**	3.2 - 4.1	141	2.1	**1.8**	1.5 - 2.1
2001	442	3.4	**3.0**	2.7 - 3.3	297	4.8	**4.6**	4.1 - 5.2	145	2.2	**1.8**	1.5 - 2.1
2002	371	2.9	**2.5**	2.2 - 2.7	253	4.0	**3.8**	3.3 - 4.3	118	1.8	**1.4**	1.2 - 1.7
2003	377	2.9	**2.5**	2.2 - 2.7	262	4.1	**3.8**	3.3 - 4.3	115	1.7	**1.4**	1.1 - 1.7
2004	383	2.9	**2.5**	2.2 - 2.7	245	3.8	**3.5**	3.0 - 3.9	138	2.0	**1.6**	1.4 - 1.9
2005	317	2.4	**2.0**	1.8 - 2.2	214	3.3	**3.0**	2.6 - 3.4	103	1.5	**1.2**	1.0 - 1.4
2006	281	2.1	**1.8**	1.6 - 2.0	195	3.0	**2.7**	2.3 - 3.1	86	1.3	**1.0**	0.8 - 1.2
2007	311	2.4	**1.9**	1.7 - 2.2	230	3.6	**3.1**	2.7 - 3.5	81	1.2	**0.9**	0.7 - 1.2
2008	348	2.6	**2.1**	1.9 - 2.4	239	3.7	**3.2**	2.8 - 3.6	109	1.6	**1.2**	1.0 - 1.5
2009	328	2.5	**2.0**	1.8 - 2.2	217	3.4	**2.8**	2.5 - 3.2	111	1.6	**1.3**	1.0 - 1.5

Diabetes-Related Non-Traumatic Lower Extremity Amputation: Hospitalizations with diabetes (ICD-9-CM code 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM procedure code 84.1) as any listed procedure and not having ICD-9-CM codes 895–897 (traumatic amputation).
#=Number.
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 3.12 Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization by Selected Age Groups and Year, Maine, 1993-2009

	Age 35-64			Age 65-74			Age 75+		
Year	Number of Hospital-izations	Age-specific Rate	95% CI	Number of Hospital-izations	Age-specific Rate	95% CI	Number of Hospital-izations	Age-specific Rate	95% CI
1993	117	**2.6**	2.1 - 3.1	107	**11.2**	9.2 - 13.5	98	**12.8**	10.4 - 15.6
1994	132	**2.8**	2.4 - 3.4	117	**12.1**	10.0 - 14.5	96	**12.3**	10.0 - 15.1
1995	152	**3.2**	2.7 - 3.8	121	**12.5**	10.4 - 14.9	105	**13.2**	10.8 - 16.0
1996	132	**2.7**	2.3 - 3.2	104	**10.8**	8.8 - 13.1	103	**12.7**	10.4 - 15.5
1997	156	**3.1**	2.7 - 3.7	116	**12.0**	9.9 - 14.4	115	**13.9**	11.5 - 16.7
1998	131	**2.6**	2.2 - 3.1	131	**13.6**	11.4 - 16.1	95	**11.4**	9.2 - 13.9
1999	161	**3.1**	2.6 - 3.6	106	**11.0**	9.0 - 13.4	100	**11.7**	9.5 - 14.2
2000	169	**3.1**	2.7 - 3.7	101	**10.5**	8.6 - 12.8	102	**11.6**	9.5 - 14.1
2001	169	**3.1**	2.6 - 3.6	126	**13.1**	11.0 - 15.7	143	**16.0**	13.5 - 18.8
2002	163	**2.9**	2.5 - 3.4	102	**10.7**	8.7 - 13.0	105	**11.6**	9.5 - 14.0
2003	183	**3.2**	2.8 - 3.8	92	**9.6**	7.7 - 11.8	100	**10.8**	8.8 - 13.2
2004	185	**3.2**	2.8 - 3.7	90	**9.4**	7.6 - 11.6	108	**11.4**	9.4 - 13.8
2005	141	**2.4**	2.0 - 2.9	80	**8.3**	6.6 - 10.4	95	**9.8**	7.9 - 12.0
2006	143	**2.5**	2.1 - 2.9	68	**6.9**	5.4 - 8.8	67	**7.1**	5.5 - 9.0
2007	148	**2.5**	2.2 - 3.0	83	**8.4**	6.7 - 10.4	79	**8.3**	6.5 - 10.3
2008	175	**3.0**	2.6 - 3.5	92	**8.9**	7.2 - 10.9	80	**8.3**	6.6 - 10.4
2009	160	**2.8**	2.4 - 3.3	79	**7.3**	5.8 - 9.1	83	**8.5**	6.8 - 10.6

Diabetes-Related Non-Traumatic Lower Extremity Amputation: Hospitalizations with diabetes (ICD-9-CM code 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM procedure code 84.1) as any listed procedure and not having ICD-9-CM codes 895–897 (traumatic amputation).
Age-specific rates are hospitalizations per 10,000 population within that age group.
95% CI: 95% confidence interval of the age-specific rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.
Among Mainers <35 years of age the number of hospitalizations were too small to provide reliable estimates for all years.

Table 3.13 Diabetes-Related Non-Traumatic Lower Extremity Amputation Hospitalization by County of Residence, Maine, 2005-2009

County	Average Annual Number of Hospitalizations	Crude Rate	Age-adjusted rate	95% CI
Androscoggin	17	1.6	**1.4**	1.1 - 1.9
Aroostook	20	2.8	**2.0**	1.5 - 2.6
Cumberland	57	2.1	**1.8**	1.5 - 2.0
Franklin	5	1.8	**1.4**	0.8 - 2.4
Hancock	14	2.6	**1.9**	1.4 - 2.6
Kennebec	36	2.9	**2.4**	1.9 - 2.9
Knox	12	3.0	**2.1**	1.4 - 2.9
Lincoln	9	2.6	**1.9**	1.2 - 2.8
Oxford	17	2.9	**2.2**	1.7 - 3.0
Penobscot	47	3.1	**2.6**	2.2 - 3.1
Piscataquis	4	2.6	**1.7**	0.9 - 3.1
Sagadahoc	8	2.2	**1.9**	1.2 - 2.9
Somerset	11	2.1	**1.7**	1.2 - 2.5
Waldo	8	2.2	**1.8**	1.2 - 2.7
Washington	13	4.1	**2.8**	2.0 - 3.8
York	50	2.5	**2.0**	1.7 - 2.4
Maine total	329	2.5	**2.0**	1.9 - 2.1

Diabetes-Related Non-Traumatic Lower Extremity Amputation: Hospitalizations with diabetes (ICD-9-CM code 250) as any listed diagnosis and amputation of the lower limb (ICD-9-CM procedure code 84.1) as any listed procedure and not having ICD-9-CM codes 895–897 (traumatic amputation).
Crude rates are hospitalizations per 10,000 population.
Age-adjusted rates are hospitalizations per 10,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Data Source: Maine Inpatient Database, Maine Health Data Organization.

Table 4.1 Diabetes Deaths by Year, U.S. and Maine, 1993-2009

	U.S. Total				Maine Total			
Year	Number of Deaths	Crude Rate	Age-adjusted Rate	95% CI	Number of Deaths	Crude Rate	Age-adjusted Rate	95% CI
1993	53,894	20.7	**21.9**	21.7-22.1	273	22.0	**20.9**	18.5 - 23.6
1994	56,692	21.5	**22.6**	22.4-22.8	307	24.7	**23.2**	20.7 - 26.0
1995	59,254	22.2	**23.2**	23.0-23.4	307	24.7	**22.9**	20.4 - 25.7
1996	61,767	22.9	**23.8**	23.6-23.9	296	23.7	**21.8**	19.4 - 24.5
1997	62,636	23.0	**23.7**	23.5-23.9	288	23.0	**21.0**	18.6 - 23.6
1998	64,751	23.5	**24.1**	23.9-24.2	328	26.0	**23.6**	21.1 - 26.3
				Change from ICD-9 to ICD-10				
1999	68,399	24.5	**25.0**	24.8-25.2	348	27.5	**24.5**	22.0 - 27.2
2000	69,301	24.6	**25.0**	24.9-25.2	356	27.9	**24.5**	22.1 - 27.2
2001	71,372	25.1	**25.3**	25.1-25.5	398	31.0	**26.9**	24.3 - 29.7
2002	73,249	25.4	**25.4**	25.2-25.6	405	31.3	**27.0**	24.4 - 29.8
2003	74,219	25.5	**25.3**	25.1-25.5	397	30.4	**26.0**	23.5 - 28.7
2004	73,138	24.9	**24.5**	24.3-24.7	382	29.0	**24.5**	22.1 - 27.1
2005	75,119	25.3	**24.6**	24.4-24.8	384	29.1	**24.2**	21.8 - 26.7
2006	72,449	24.2	**23.3**	23.1-23.5	342	25.9	**21.4**	19.1 - 23.8
2007	71,382	23.7	**22.5**	22.4-22.7	354	26.9	**21.9**	19.6 - 24.3
2008	70,553	23.2	**21.8**	21.6-21.9	341	25.9	**20.9**	18.8 - 23.3
2009	68,205	22.4	**20.9**	20.8-21.1	349	26.5	**20.8**	18.7 - 23.1

Diabetes Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.
U.S. Data Source: Compressed Mortality Files accessed through CDC Wonder.

Table 4.2 Diabetes Deaths by Year and Gender, Maine, 1993-2009

	Maine Males				Maine Females			
Year	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**
1993	112	18.5	**21.7**	17.7 - 26.2	161	25.2	**20.4**	17.3 - 23.9
1994	136	22.5	**26.2**	21.8 - 31.1	171	26.8	**21.1**	18.0 - 24.5
1995	139	23.0	**25.7**	21.5 - 30.4	168	26.3	**20.7**	17.7 - 24.2
1996	134	22.1	**24.7**	20.6 - 29.4	162	25.2	**19.7**	16.7 - 23.0
1997	126	20.7	**22.9**	19.0 - 27.3	162	25.1	**19.9**	16.9 - 23.3
1998	157	25.7	**28.0**	23.7 - 32.8	171	26.4	**20.4**	17.4 - 23.8
Change from ICD-9 to ICD-10								
1999	153	24.8	**26.7**	22.5 - 31.3	195	30.0	**22.6**	19.5 - 26.1
2000	155	24.9	**26.4**	22.3 - 30.9	201	30.6	**23.4**	20.2 - 26.9
2001	186	29.8	**31.0**	26.7 - 35.9	212	32.2	**24.2**	21.0 - 27.7
2002	192	30.5	**30.6**	26.3 - 35.3	213	32.1	**24.1**	20.9 - 27.6
2003	198	31.1	**31.3**	27.0 - 36.0	199	29.7	**21.9**	18.9 - 25.2
2004	170	26.4	**26.0**	22.2 - 30.3	212	31.4	**23.6**	20.5 - 27.0
2005	192	29.7	**29.0**	25.0 - 33.4	192	28.4	**20.8**	17.9 - 24.1
2006	160	24.8	**23.4**	19.8 - 27.4	182	27.0	**19.5**	16.8 - 22.7
2007	189	29.4	**27.4**	23.6 - 31.7	165	24.5	**17.3**	14.7 - 20.3
2008	193	30.0	**28.0**	24.1 - 32.3	148	22.0	**15.6**	13.1 - 18.4
2009	187	29.1	**25.6**	22.0 - 29.7	162	24.0	**16.8**	14.3 - 19.7

Diabetes Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.

Table 4.3 Diabetes Deaths by Selected Age Groups and Year, Maine, 1993-2009

	Age 35-64			Age 65-74			Age 75+		
Year	**Number of Deaths**	**Age-specific Rate**	**95% CI**	**Number of Deaths**	**Age-specific Rate**	**95% CI**	**Number of Deaths**	**Age-specific Rate**	**95% CI**
1993	50	**10.9**	8.1 - 14.4	86	**89.9**	71.9 - 111.0	135	**176.3**	147.8 - 208.7
1994	59	**12.7**	9.6 - 16.3	88	**91.2**	73.2 - 112.4	157	**201.8**	171.5 - 236.0
1995	58	**12.2**	9.3 - 15.8	91	**94.1**	75.8 - 115.5	155	**195.4**	165.8 - 228.7
1996	54	**11.1**	8.3 - 14.5	87	**90.2**	72.2 - 111.2	153	**189.4**	160.6 - 221.9
1997	56	**11.2**	8.5 - 14.6	72	**74.6**	58.3 - 93.9	155	**188.0**	159.6 - 220.0
1998	69	**13.6**	10.6 - 17.2	83	**86.1**	68.6 - 106.7	170	**203.2**	173.8 - 236.2
				Change from ICD-9 to ICD-10					
1999	59	**11.4**	8.6 - 14.6	89	**92.7**	74.5 - 114.1	198	**231.0**	200.0 - 265.5
2000	70	**13.0**	10.1 - 16.4	89	**92.6**	74.4 - 114.0	194	**221.1**	191.1 - 254.5
2001	80	**14.6**	11.6 - 18.2	96	**100.2**	81.2 - 122.3	220	**246.2**	214.7 - 280.9
2002	92	**16.5**	13.3 - 20.2	94	**98.4**	79.5 - 120.4	216	**237.8**	207.1 - 271.7
2003	78	**13.8**	10.9 - 17.3	87	**90.7**	72.6 - 111.8	227	**245.6**	214.7 - 279.7
2004	83	**14.4**	11.5 - 17.9	81	**84.9**	67.4 - 105.5	215	**227.9**	198.4 - 260.5
2005	85	**14.6**	11.7 - 18.1	81	**84.4**	67.0 - 104.9	214	**221.3**	192.7 - 253.1
2006	82	**14.1**	11.2 - 17.5	71	**72.3**	56.5 - 91.2	189	**200.1**	172.6 - 230.8
2007	90	**15.5**	12.5 - 19.0	74	**74.5**	58.5 - 93.5	186	**194.5**	167.5 - 224.5
2008	79	**13.6**	10.8 - 17.0	72	**69.7**	54.6 - 87.8	187	**194.9**	168.0 - 225.0
2009	101	**17.6**	14.3 - 21.4	89	**82.1**	65.9 - 101.0	157	**161.5**	137.3 - 188.9

Diabetes Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying cause of death.
Age-specific rates are deaths per 100,000 population within that age group.
95% CI: 95% confidence interval of the age-specific rate.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.

Table 4.4 Diabetes Deaths by County of Residence, Maine, 2005-2009

County	Average Annual Number of Deaths	Crude Rate	Age-adjusted rate	95% CI
Androscoggin	31	28.6	**24.2**	20.5 - 28.4
Aroostook	23	32.4	**23.1**	19.1 - 27.9
Cumberland	58	21.0	**17.9**	15.9 - 20.1
Franklin	11	35.5	**30.5**	22.7 - 40.1
Hancock	16	30.7	**23.0**	18.2 - 28.6
Kennebec	37	30.4	**25.1**	21.6 - 29.1
Knox	8	20.5	**14.7**	10.5 - 20.1
Lincoln	9	25.2	**16.1**	11.7 - 22.0
Oxford	20	35.3	**27.5**	22.3 - 33.6
Penobscot	40	26.9	**23.9**	20.7 - 27.5
Piscataquis	7	42.9	**28.9**	20.3 - 40.4
Sagadahoc	5	12.6	**11.3**	7.2 - 17.2
Somerset	16	30.6	**25.2**	19.9 - 31.5
Waldo	9	24.4	**20.3**	14.9 - 27.3
Washington	20	61.6	**43.1**	34.9 - 52.7
York	44	21.7	**18.1**	15.8 - 20.7
Maine total	354	26.8	**21.8**	20.8 - 22.9
U.S. total	71,642	23.7	**22.6**	22.5 - 22.7

Diabetes Deaths: ICD-10 codes E10–E14; underlying cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted 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 4.5 Diabetes-Related Deaths by Year, U.S. and Maine, 1993-2009

	U.S. Total				Maine Total			
Year	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**
1993	*	*	*	*	966	77.8	**74.1**	69.5 - 79.0
1994	*	*	*	*	951	76.5	**72.0**	67.5 - 76.7
1995	*	*	*	*	1,016	81.7	**75.5**	71.0 - 80.3
1996	*	*	*	*	945	75.7	**69.5**	65.1 - 74.1
1997	*	*	*	*	1,067	85.0	**77.3**	72.7 - 82.1
1998	*	*	*	*	1,073	85.2	**76.9**	72.3 - 81.6
Change from ICD-9 to ICD-10								
1999	209,664	75.1	**76.7**	76.4-77.0	1,108	87.5	**77.8**	73.3 - 82.5
2000	213,062	75.7	**77.0**	76.7-77.4	1,187	92.9	**81.5**	76.9 - 86.3
2001	218,125	76.4	**77.1**	76.8-77.4	1,199	93.3	**81.1**	76.5 - 85.8
2002	224,089	77.7	**77.8**	77.5-78.1	1,249	96.5	**83.1**	78.5 - 87.8
2003	227,573	78.3	**77.7**	77.4-78.0	1,225	93.8	**80.0**	75.5 - 84.6
2004	225,450	76.8	**75.6**	75.3-75.9	1,154	87.6	**74.2**	70.0 - 78.6
2005	233,615	78.8	**76.6**	76.3-77.0	1,224	92.6	**76.8**	72.6 - 81.3
2006	231,037	77.2	**74.4**	74.1-74.7	1,127	85.3	**70.5**	66.5 - 74.8
2007	231,402	76.7	**73.1**	72.8-73.4	1,128	85.6	**69.9**	65.8 - 74.1
2008	233,829	76.9	**72.2**	71.9-72.5	1,064	80.8	**65.1**	61.2 - 69.2
2009	230,642	76.0	**71.2**	71.0-71.5	1,105	83.8	**65.8**	61.9 - 69.8

Diabetes-Related Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying or contributing cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
* Data not available for that year.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.
U.S. Data Source: Multiple causes of Death (Detailed Mortality) Files accessed through CDC Wonder.

Table 4.6 Diabetes-Related Deaths by Year and Gender, Maine, 1993-2009

	Maine Males				Maine Females			
Year	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**
1993	447	73.9	**89.3**	81.0 - 98.2	519	81.4	**64.4**	58.9 - 70.3
1994	425	70.4	**83.1**	75.2 - 91.6	526	82.4	**65.0**	59.5 - 70.9
1995	477	78.9	**90.0**	81.9 - 98.7	539	84.3	**65.5**	60.1 - 71.4
1996	437	72.0	**82.3**	74.6 - 90.6	508	79.2	**61.1**	55.8 - 66.7
1997	507	83.1	**94.0**	85.8 - 102.7	560	86.8	**66.8**	61.4 - 72.7
1998	517	84.5	**93.0**	85.0 - 101.6	556	85.9	**65.4**	60.0 - 71.1
Change from ICD-9 to ICD-10								
1999	508	82.4	**88.5**	80.9 - 96.7	600	92.2	**69.3**	63.8 - 75.2
2000	540	86.9	**93.3**	85.5 - 101.7	647	98.6	**73.4**	67.8 - 79.4
2001	574	91.8	**96.0**	88.2 - 104.3	625	94.8	**70.8**	65.3 - 76.7
2002	630	100.0	**103.3**	95.3 - 111.8	619	93.2	**69.0**	63.6 - 74.8
2003	605	95.0	**95.8**	88.2 - 103.9	620	92.7	**68.1**	62.7 - 73.7
2004	566	88.0	**88.4**	81.1 - 96.1	588	87.2	**63.8**	58.7 - 69.3
2005	641	99.3	**96.5**	89.1 - 104.4	583	86.3	**62.1**	57.1 - 67.5
2006	569	88.0	**85.7**	78.7 - 93.2	558	82.6	**59.4**	54.5 - 64.6
2007	568	88.4	**84.3**	77.4 - 91.7	560	83.0	**59.1**	54.2 - 64.3
2008	555	86.4	**80.9**	74.3 - 88.1	509	75.5	**53.2**	48.6 - 58.2
2009	586	91.1	**84.1**	77.3 - 91.3	519	76.9	**52.9**	48.4 - 57.8

Diabetes-Related Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying or contributing cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.

Table 4.7 Diabetes-Related Deaths by Selected Age Groups and Year, Maine, 1993-2009

	Age 35-64			Age 65-74			Age 75+		
Year	**Number of Deaths**	**Age-specific Rate**	**95% CI**	**Number of Deaths**	**Age-specific Rate**	**95% CI**	**Number of Deaths**	**Age-specific Rate**	**95% CI**
1993	154	**33.7**	28.6-39.4	263	**274.8**	242.6-310.1	544	**710.5**	652.0-772.8
1994	167	**35.9**	30.6-41.7	265	**274.7**	242.7-309.9	514	**660.7**	604.8-720.3
1995	149	**31.4**	26.5-36.8	314	**324.6**	289.7-362.6	550	**693.4**	636.6-753.8
1996	135	**27.8**	23.3-32.8	262	**271.6**	239.7-306.5	544	**673.3**	617.9-732.4
1997	144	**28.9**	24.4-34.0	289	**299.3**	265.8-335.9	629	**762.8**	704.4-824.9
1998	164	**32.3**	27.5-37.6	272	**282.1**	249.6-317.7	628	**750.8**	693.2-811.9
				Change from ICD-9 to ICD-10					
1999	180	**34.6**	29.8-40.1	278	**289.7**	256.6-325.8	648	**756.1**	699.0-816.6
2000	185	**34.4**	29.6-39.7	269	**280.0**	247.5-315.5	729	**830.9**	771.7-893.5
2001	193	**35.3**	30.5-40.7	316	**329.8**	294.4-368.2	685	**766.5**	710.2-826.1
2002	214	**38.4**	33.4-43.9	283	**296.2**	262.7-332.8	745	**820.2**	762.3-881.2
2003	232	**41.2**	36.0-46.8	267	**278.3**	245.9-313.7	717	**775.7**	720.0-834.6
2004	213	**37.0**	32.2-42.3	246	**257.9**	226.6-292.2	689	**730.3**	676.7-786.9
2005	232	**39.9**	34.9-45.4	283	**294.9**	261.5-331.3	702	**726.1**	673.3-781.8
2006	221	**38.1**	33.2-43.4	217	**221.0**	192.5-252.4	688	**728.6**	675.1-785.1
2007	219	**37.7**	32.9-43.0	223	**224.5**	196.0-256.0	678	**708.8**	656.5-764.2
2008	207	**35.7**	31.0-40.9	226	**218.9**	191.3-249.3	626	**652.6**	602.4-705.7
2009	230	**40.1**	35.1-45.6	239	**220.4**	193.4-250.2	634	**652.3**	602.5-705.1

Diabetes-Related Deaths: 1999-2009: ICD-10 codes E10–E14; 1993-1998 ICD-9 code 250; underlying or contributing cause of death.
Age-specific rates are deaths per 100,000 population within that age group.
95% CI: 95% confidence interval of the age-specific rate.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.

Table 4.8 Diabetes-Related Deaths by County of Residence, Maine, 2005-2009

County	Average Annual Number of Deaths	Crude Rate	Age-adjusted rate	95% CI
Androscoggin	96	89.8	**75.1**	68.5 - 82.2
Aroostook	82	114.0	**80.6**	72.9 - 88.9
Cumberland	142	51.3	**43.7**	40.5 - 47.1
Franklin	28	95.1	**81.8**	68.8 - 96.6
Hancock	53	99.9	**73.8**	65.2 - 83.3
Kennebec	118	97.9	**80.8**	74.4 - 87.6
Knox	33	80.7	**54.4**	46.3 - 63.7
Lincoln	34	96.9	**63.4**	54.1 - 74.2
Oxford	66	116.4	**91.0**	81.4 - 101.5
Penobscot	135	91.2	**81.7**	75.6 - 88.1
Piscataquis	22	128.8	**88.3**	72.5 - 106.9
Sagadahoc	15	42.1	**37.6**	29.6 - 47.2
Somerset	53	102.8	**84.3**	74.4 - 95.2
Waldo	39	100.7	**85.2**	73.5 - 98.3
Washington	56	169.4	**116.9**	103.4 - 131.9
York	156	77.4	**65.0**	60.5 - 69.8
Maine total	1,130	85.6	**69.5**	67.7 - 71.4
U.S. total	232,105	76.9	**73.3**	73.2 - 73.4

Diabetes Deaths: ICD-10 codes E10–E14; underlying or contributing cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the U.S. 2000 standard population.
95% CI: 95% confidence interval of the age-adjusted rate.
Maine Data Source: Maine Mortality Data, Office of Data, Research, and Vital Statistics, Maine CDC.
U.S. Data Source: Multiple causes of Death (Detailed Mortality) Files accessed through CDC Wonder.

Table 4.9 Diabetes-Related Cardiovascular Disease Deaths, by Year, U.S. and Maine, 1993-2009

	U.S. Total				Maine Total			
Year	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**	**Number of Deaths**	**Crude Rate**	**Age-adjusted Rate**	**95% CI**
1993	*	*	*	*	430	34.6	**33.0**	30.0 - 36.3
1994	*	*	*	*	387	31.1	**29.4**	26.5 - 32.5
1995	*	*	*	*	463	37.2	**34.4**	31.3 - 37.7
1996	*	*	*	*	380	30.4	**27.9**	25.2 - 30.9
1997	*	*	*	*	459	36.6	**33.2**	30.2 - 36.4
1998	*	*	*	*	426	33.8	**30.5**	27.7 - 33.5
Change from ICD-9 to ICD-10								
1999	85,321	30.6	**31.2**	31.0-31.5	434	34.3	**30.5**	27.7 - 33.5
2000	84,657	30.1	**30.6**	30.4-30.8	428	33.5	**29.3**	26.6 - 32.2
2001	84,868	29.7	**30.0**	29.8-30.2	387	30.1	**26.1**	23.6 - 28.9
2002	85,235	29.6	**29.6**	29.4-29.8	424	32.8	**28.1**	25.5 - 31.0
2003	84,783	29.2	**28.9**	28.7-29.1	423	32.4	**27.6**	25.0 - 30.3
2004	82,695	28.2	**27.7**	27.5-27.9	376	28.5	**24.1**	21.8 - 26.7
2005	83,501	28.2	**27.4**	27.2-27.6	406	30.7	**25.4**	23.0 - 28.0
2006	80,688	27.0	**25.9**	25.8-26.1	323	24.4	**20.1**	18.0 - 22.5
2007	79,967	26.5	**25.2**	25.0-25.4	331	25.1	**20.4**	18.2 - 22.7
2008	80,068	26.3	**24.6**	24.4-24.8	333	25.3	**20.2**	18.1 - 22.5
2009	78,562	25.6	**23.9**	23.7-24.1	312	23.7	**18.7**	16.7 - 20.9

Diabetes-Related Cardiovascular Disease Deaths: 1999-2009: ICD-10 codes I00-I78 as the underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death.
1993-1998: ICD-9 codes 390-434, 436-448 as the underlying cause of death and ICD-9 code 250 as contributing cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
* Data not available for that year.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.
U.S. Data Source: Compressed Mortality Files accessed through CDC Wonder.

Table 4.10 Diabetes-Related Cardiovascular Disease Deaths by Year and Gender, Maine, 1993-2009

	Maine Males				Maine Females			
Year	Number of Deaths	Crude Rate	Age-adjusted Rate	95% CI	Number of Deaths	Crude Rate	Age-adjusted Rate	95% CI
1993	200	33.1	**40.8**	35.2 - 47.0	230	36.1	**28.3**	24.8 - 32.3
1994	172	28.5	**33.8**	28.8 - 39.4	215	33.7	**26.7**	23.2 - 30.5
1995	219	36.2	**42.2**	36.7 - 48.4	244	38.2	**29.6**	26.0 - 33.6
1996	175	28.8	**32.9**	28.1 - 38.3	205	31.9	**24.3**	21.1 - 27.9
1997	228	37.4	**42.9**	37.4 - 48.9	231	35.8	**27.1**	23.7 - 30.9
1998	202	33.0	**36.4**	31.5 - 41.9	224	34.6	**26.2**	22.8 - 29.9
Change from ICD-9 to ICD-10								
1999	201	32.6	**34.5**	29.8 - 39.7	233	35.8	**26.7**	23.3 - 30.4
2000	187	30.1	**32.4**	27.8 - 37.4	241	36.7	**26.8**	23.5 - 30.5
2001	186	29.8	**30.9**	26.6 - 35.8	201	30.5	**22.2**	19.2 - 25.6
2002	225	35.7	**37.6**	32.8 - 42.9	199	30.0	**21.9**	18.9 - 25.2
2003	215	33.8	**33.4**	29.1 - 38.3	208	31.1	**22.4**	19.4 - 25.7
2004	192	29.9	**30.2**	26.0 - 34.8	184	27.3	**19.2**	16.5 - 22.3
2005	222	34.4	**33.1**	28.8 - 37.8	184	27.2	**19.3**	16.6 - 22.4
2006	179	27.7	**26.9**	23.1 - 31.2	144	21.3	**15.0**	12.6 - 17.8
2007	168	26.1	**25.2**	21.5 - 29.3	163	24.2	**16.9**	14.3 - 19.8
2008	184	28.6	**26.7**	22.9 - 30.9	149	22.1	**15.1**	12.7 - 17.8
2009	175	27.2	**25.9**	22.1 - 30.1	137	20.3	**13.9**	11.6 - 16.5

Diabetes-Related Cardiovascular Disease Deaths: 1999-2009: ICD-10 codes I00-I78 as the underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death.
1993-1998: ICD-9 codes 390-434, 436-448 as the underlying cause of death and ICD-9 code 250 as contributing cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.

Table 4.11 Diabetes-Related Cardiovascular Disease Deaths by Selected Age Groups and Year, Maine, 1993-2009

	Age 35-64			Age 65-74			Age 75+		
Year	**Number of Deaths**	**Age-specific Rate**	**95% CI**	**Number of Deaths**	**Age-specific Rate**	**95% CI**	**Number of Deaths**	**Age-specific Rate**	**95% CI**
1993	64	**14.0**	10.8 - 17.9	109	**113.9**	93.5 - 137.4	256	**334.3**	294.6 - 377.9
1994	68	**14.6**	11.3 - 18.5	100	**103.7**	84.4 - 126.1	217	**278.9**	243.0 - 318.6
1995	63	**13.3**	10.2 - 17.0	142	**146.8**	123.7 - 173.0	258	**325.2**	286.8 - 367.4
1996	47	**9.7**	7.1 - 12.8	103	**106.8**	87.1 - 129.5	230	**284.7**	249.1 - 323.9
1997	53	**10.6**	8.0 - 13.9	114	**118.1**	97.4 - 141.8	292	**354.1**	314.7 - 397.2
1998	52	**10.2**	7.6 - 13.4	104	**107.9**	88.1 - 130.7	269	**321.6**	284.3 - 362.4
				Change from ICD-9 to ICD-10					
1999	81	**15.6**	12.4 - 19.4	104	**108.4**	88.5 - 131.3	249	**290.5**	255.6 - 328.9
2000	63	**11.7**	9.0 - 15.0	86	**89.5**	71.6 - 110.5	279	**318.0**	281.8 - 357.6
2001	52	**9.5**	7.1 - 12.5	102	**106.4**	86.8 - 129.2	232	**259.6**	227.3 - 295.2
2002	59	**10.6**	8.1 - 13.7	87	**91.1**	72.9 - 112.3	275	**302.7**	268.0 - 340.7
2003	78	**13.8**	10.9 - 17.3	99	**103.2**	83.9 - 125.6	246	**266.1**	233.9 - 301.6
2004	68	**11.8**	9.2 - 15.0	59	**61.8**	47.1 - 79.8	247	**261.8**	230.2 - 296.6
2005	77	**13.2**	10.4 - 16.5	95	**99.0**	80.1 - 121.0	231	**238.9**	209.1 - 271.8
2006	67	**11.5**	8.9 - 14.7	55	**56.0**	42.2 - 72.9	201	**212.8**	184.4 - 244.4
2007	59	**10.2**	7.7 - 13.1	58	**58.4**	44.3 - 75.5	213	**222.7**	193.8 - 254.7
2008	57	**9.8**	7.4 - 12.7	73	**70.7**	55.4 - 88.9	203	**211.6**	183.5 - 242.8
2009	48	**8.4**	6.2 - 11.1	64	**59.0**	45.5 - 75.4	200	**205.8**	178.2 - 236.4

Diabetes-Related Cardiovascular Disease Deaths: 1999-2009: ICD-10 codes I00-I78 as the underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death.
1993-1998: ICD-9 codes 390-434, 436-448 as the underlying cause of death and ICD-9 code 250 as contributing cause of death.
Age-specific rates are deaths per 100,000 population within that age group.
95% CI: 95% confidence interval of the age-specific rate.
Maine Data Source: Maine Mortality Data, Data, Research, and Vital Statistics, Maine CDC.

Table 4.12 Diabetes-Related Cardiovascular Disease Deaths by County of Residence, Maine, 2005-2009

County	Average Annual Number of Deaths	Crude Rate	Age-adjusted rate	95% CI
Androscoggin	29	26.7	**22.3**	15.2 - 24.4
Aroostook	25	34.0	**23.9**	19.8 - 31.6
Cumberland	35	12.7	**10.9**	7.7 - 11.7
Franklin	8	25.5	**22.1**	13.2 - 32.3
Hancock	18	33.7	**24.4**	20.6 - 35.0
Kennebec	34	27.9	**22.8**	17.5 - 26.4
Knox	11	25.9	**17.0**	9.2 - 20.9
Lincoln	11	30.9	**20.5**	14.5 - 30.8
Oxford	19	33.9	**26.4**	18.7 - 32.6
Penobscot	50	33.5	**30.0**	23.9 - 33.5
Piscataquis	7	39.4	**27.6**	20.0 - 48.4
Sagadahoc	6	15.3	**13.8**	8.8 - 23.8
Somerset	15	29.5	**24.2**	14.5 - 28.2
Waldo	16	41.5	**35.1**	22.3 - 41.9
Washington	15	44.5	**30.4**	23.0 - 42.5
York	45	22.3	**18.7**	14.1 - 20.3
Maine total	341	25.9	**20.9**	18.5 - 21.0
U.S. total	80,557	26.7	**25.4**	25.3 - 25.5

Diabetes-Related Cardiovascular Disease Deaths: ICD-10 codes I00-I78 as the underlying cause of death and ICD-10 codes E10–E14 as contributing cause of death.
Crude rates are deaths per 100,000 population.
Age-adjusted rates are deaths per 100,000 population age-adjusted to the year 2000 standard U.S. population.
95% CI: 95% confidence interval of the age-adjusted rate.
Maine Data Source: Maine Mortality Data, Office of Data, Research, and Vital Statistics, Maine CDC.
U.S. Data Source: Multiple causes of Death (Detailed Mortality) Files accessed through CDC Wonder.

Table 6.1Preventive Practices among Maine Adults with Diabetes, 2010

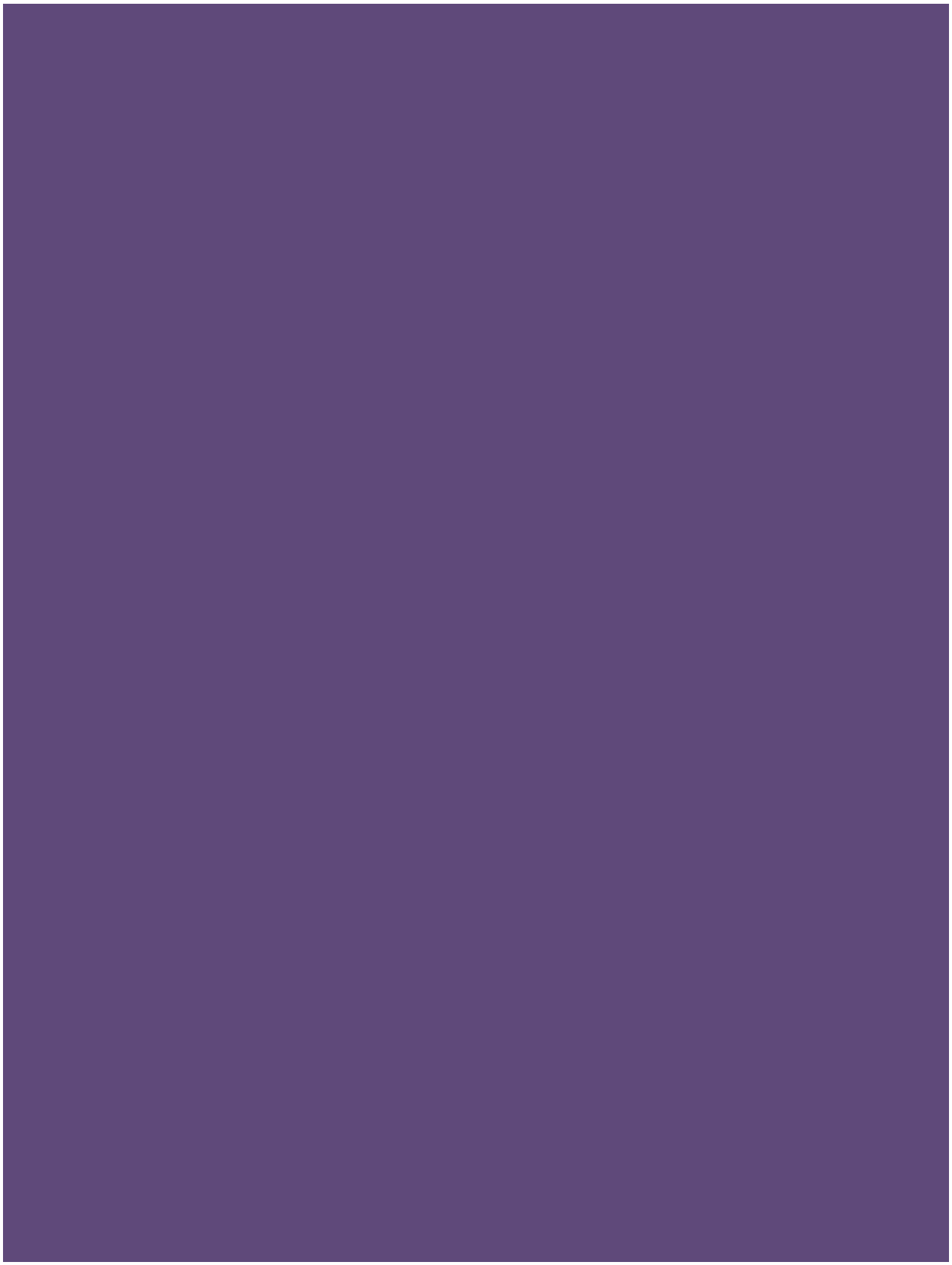
	Total Respondents	n	%	95% CI
Had HbA1C test in the past year				
Two or more times	440	338	**79.5**	75.3-83.8
Only once	440	60	**12.5**	9.0-16.0
Never	440	31*	**6.2***	3.5-8.9*
Never heard of HbA1C	440	11*	**1.7***	0.6-2.8*
Checked Blood Glucose Level				
At least once per day	468	269	**58.9**	53.6-64.2
Less than once per day	468	125	**26.2**	21.5-30.9
Never	468	74	**14.9**	11.2-18.6
Had at least one Health Care Visit for Diabetes in the past year				
Yes	452	392	**87.5**	83.9-91.0
No	452	60	**12.5**	9.0-16.1
Had Dilated Eye Exam				
At least once in the past year	462	349	**75.3**	70.4-80.2
At least once in their lifetime but not in the past year	462	100	**21.4**	16.7-26.1
Never	462	13*	**3.3***	1.3-5.3*
Have Diabetic Retinopathy				
Yes	465	81	**16.6**	12.7-20.5
No	465	384	**83.4**	79.5-87.3

Total Respondents = unweighted denominator; n = unweighted numerator; 95% CI = 95% Confidence Interval.
Diabetes does not include pregnancy-related diabetes.
HbA1C= Hemoglobin A "one" C.
*These percentages are based on a numerator < 50 and may be unreliable; please use caution in interpreting.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.

Table 6.1 (continued) Preventive Practices among Maine Adults with Diabetes, 2010

	Total Respondents	n	%	95% CI
Checked Feet for Sores/ Irritation				
By self				
At least once per day	468	275	**59.4**	54.0-64.8
Less than once per day	468	137	**27.7**	22.8-32.6
Never	468	56	**12.9**	9.2-16.6
At least once per year by health care professional				
Yes	457	382	**84.4**	80.5-88.3
No	457	75	**15.6**	11.7-19.5
Received Formal Education on Diabetes Self-Management				
Yes	467	285	**61.7**	56.3-67.0
No	467	182	**38.3**	33.0-43.7
Immunization				
Pneumococcal Vaccine (At least once in lifetime)				
Yes	901	646	**69.7**	66.0-73.3
No	901	255	**30.3**	26.7-34.0
Influenza (Flu) Vaccine (Within the past year)				
Yes	945	689	**72.2**	68.8-75.7
No	945	256	**27.8**	24.3-31.2
Had Dental Visit				
At least once in the past year	958	530	**57.5**	53.8-61.2
Not in the past year but at least once in their lifetime	958	423	**42.2**	38.5-45.8
Never in their lifetime	958	5*	**0.4***	0.02-0.7*

Total Respondents = unweighted denominator; n = unweighted numerator; 95% CI = 95% Confidence Interval.
Diabetes does not include pregnancy-related diabetes.
*These percentages are based on a numerator < 50 and may be unreliable; please use caution in interpreting.
All %s are weighted to be more representative of the general adult population of Maine and to adjust for non-response.
Data Source: Behavioral Risk Factor Surveillance System.



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