

Upstate New York adults with diagnosed type 1 and type 2 diabetes and estimated treatment costs

Upstate New York

Adults with diagnosed diabetes: **2003: 295,399**
2008: 377,280

Percentage of adults with diagnosed diabetes (2008): **9.8%**

Estimated annual treatment cost: **\$2.5 billion**

New York State

Adults with diagnosed diabetes: **2003: 1,040,333**
2008: 1,266,912

Percentage of adults with diagnosed diabetes (2008): **8.4%**

Estimated annual treatment cost: **\$8.4 billion**

Finger Lakes Region

Adults with diagnosed diabetes: **2003: 47,122**
2008: 71,436

Percentage of adults with diagnosed diabetes (2008): **8.7%**

Estimated annual treatment cost: **\$475.0 million**

Central New York Region

Adults with diagnosed diabetes: **2003: 62,136**
2008: 77,312

Percentage of adults with diagnosed diabetes (2008): **9.3%**

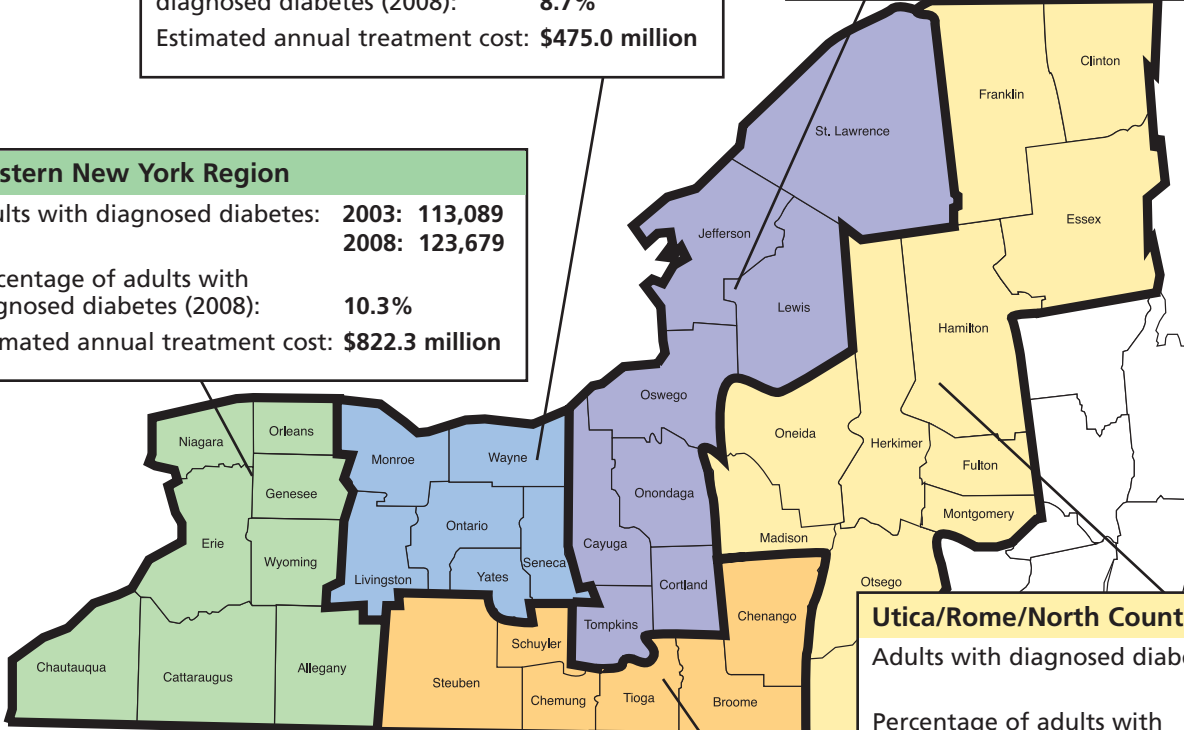
Estimated annual treatment cost: **\$514.0 million**

Western New York Region

Adults with diagnosed diabetes: **2003: 113,089**
2008: 123,679

Percentage of adults with diagnosed diabetes (2008): **10.3%**

Estimated annual treatment cost: **\$822.3 million**



- Western New York Region
- Finger Lakes Region
- Southern Tier Region
- Central New York Region
- Utica/Rome/North Country Region

Upstate New York refers to the New York state counties highlighted in the map above.

Utica/Rome/North Country Region

Adults with diagnosed diabetes: **2003: 37,593**
2008: 59,606

Percentage of adults with diagnosed diabetes (2008): **9.9%**

Estimated annual treatment cost: **\$396.3 million**

Southern Tier Region

Adults with diagnosed diabetes: **2003: 36,710**
2008: 44,724

Percentage of adults with diagnosed diabetes (2008): **11.3%**

Estimated annual treatment cost: **\$297.4 million**

Prevalence and impact

The serious health and economic consequences of diabetes are a growing concern across the state and nation. The prevalence of diabetes continues to rise, fueled by an aging population and increasing obesity rates. In New York state, the rate of diagnosed diabetes among adults climbed from 7.4 percent in 2003 to 8.4 percent in 2008, an increase of about 227,000 individuals.¹ The United States Centers for Disease Control and Prevention (CDC) predicts that if recent trends continue, eventually one in three Americans will develop diabetes during his/her lifetime.² Recent research suggests that annual diabetes-related spending is expected to reach \$336 billion (2007 dollars) by the year 2034.³

Today, diabetes is known to affect more than 1.3 million New Yorkers. About 377,000 New York state adults with diagnosed diabetes reside in the upstate region. By New York State Department of Health estimates, an additional 450,000 state residents have diabetes and don't know it.⁴

Contrary to what many Americans believe, diabetes is very serious, killing more U.S. residents each year than AIDS and breast cancer combined.⁵ Individuals with diabetes face roughly twice the risk of dying as those without the disease, of a similar age.⁶

Diabetes is the leading cause of new blindness, kidney disease, and non-traumatic lower extremity amputation. It also is a major contributor to the state's and nation's leading killer, cardiovascular disease (heart disease and stroke).⁷ In New York state during 2004, diabetes was linked to 434,000 hospitalizations, more than 5,000 lower extremity amputations, almost 3,000 new cases of end-stage renal (kidney) disease, and about 4,000 deaths. This condition was cited as the principle reason for 35.5 per 1,000 hospital admissions.⁸

The economic impact of diabetes and associated morbidities and disabilities is staggering. During 2007, U.S. health costs for diabetes were an estimated \$174 billion, including, \$116 billion in excess medical expenses and \$58 billion in reduced national productivity.⁹ About one in five U.S. health care dollars is spent to provide care for individuals with diabetes. For those with this disease, average annual medical expenditures are about 2.3 times higher than what they would be in the absence of diabetes.¹⁰

From a public health perspective, upstate New York is severely affected. By American Diabetes Association estimates (see *Data Sources and Methods* at the end of this report), about \$2.5 billion in annual excess medical costs are directly related to diagnosed diabetes.

This fact sheet highlights recent diabetes prevalence and management data and estimates health costs for those with diabetes - in upstate New York. Rates of diagnosed diabetes are based on data from the New York State Department of Health's 2008 Behavioral Risk Factor Surveillance System (BRFSS). This is an ongoing, state-based, random telephone survey of the non-institutionalized civilian adult population ages 18 and older. State and national data are compiled and reported by the CDC (see *Data Sources and Methods* at the end of this report). Where appropriate, BRFSS measures are compared to objectives of *Healthy People 2010*, the CDC-driven initiative setting community health improvement targets for the nation.¹¹

About diabetes

Diabetes is a condition in which a person is either unable to produce or properly use insulin to convert glucose (sugar) to energy. If not controlled over time, the glucose accumulation that occurs with diabetes damages vital organs, resulting in the diabetic complications and related conditions described on page 2.

There are several types of diabetes:

Type 1 diabetes usually strikes children and young adults, although it less commonly occurs in adults over age 30. Currently, there is no way to prevent this type of diabetes, which is believed to be genetic and/or environmental.

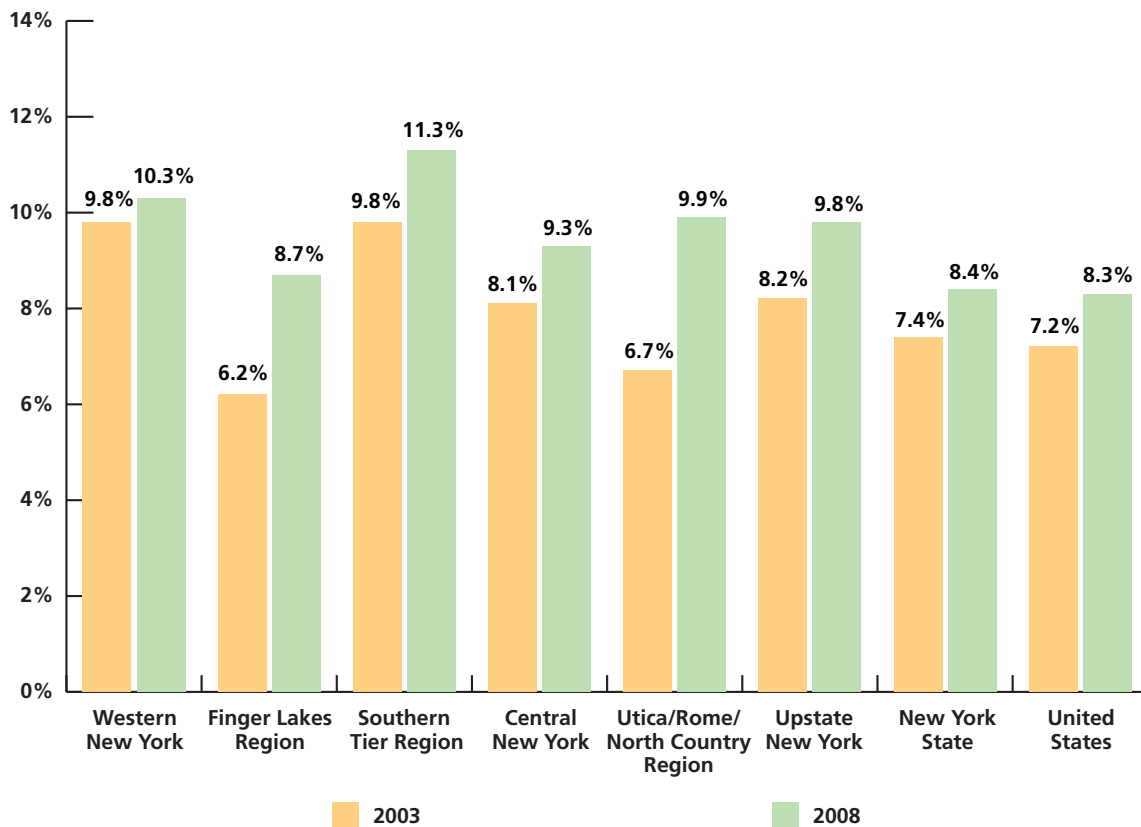
Type 2 diabetes, the focus of this report, is the most common form, occurring mainly in adults older than age 40. The CDC estimates that type 2 diabetes accounts for 90 percent to 95 percent of diabetes cases. Other risk factors for type 2 diabetes, in addition to advancing age, include obesity, physical inactivity, family history of diabetes, personal history of gestational diabetes (see below), impaired glucose metabolism, race and ethnicity.

Pre-diabetes, in which blood glucose is higher than normal but not high enough to warrant a diabetes diagnosis, almost always occurs before type 2 diabetes is diagnosed. With pre-diabetes, type 2 diabetes often can be delayed or prevented with lifestyle modifications and medication.

Gestational (pregnancy-related) diabetes occurs in women who did not have diabetes prior to pregnancy. Women who have had gestational diabetes face a 40 percent to 60 percent risk of developing type 2 diabetes in the ensuing five to 10 years.

Source: U.S. Centers for Disease Control and Prevention: <http://www.cdc.gov/nccdphp/publications/aag/ddt.htm>

Adult diabetes rates by geographical region, 2003 versus 2008



Sources: Obtained from The New York State Department of Health, Behavioral Risk Factor Surveillance System, 2008. To request access: <http://www.health.state.ny.us/nysdoh/brfss/>

The U.S. Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System: <http://apps.nccd.cdc.gov/brfss/>

The adult diabetes rate locally and nationally is on the rise. In 2008, close to one in 10 upstate New York adults (9.8 percent) reported having been diagnosed with diabetes, which is a 28 percent increase in the number of individuals with this condition since 2003:

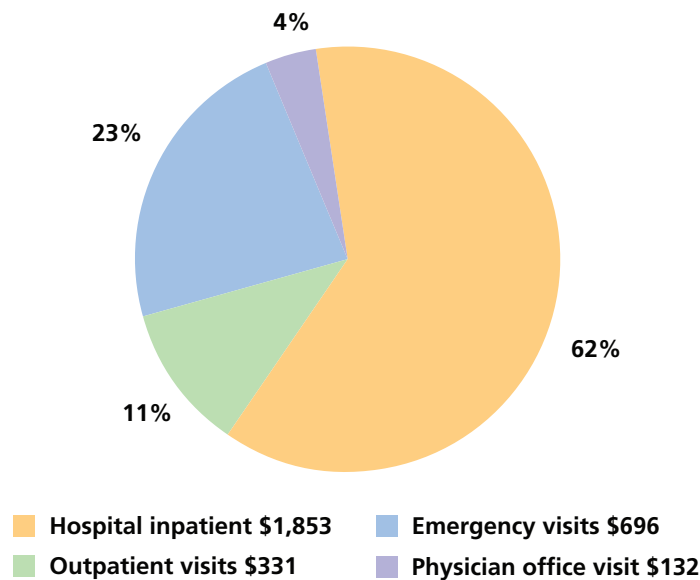
- The proportion of upstate adults diagnosed with diabetes as of 2008 was slightly higher than that statewide (8.4 percent) and in the U.S. (8.3 percent).¹²
- Across upstate regions, the 2008 diabetes rate ranged from 8.7 percent in the Finger Lakes region to 11.3 percent in the Southern Tier.
- Among U.S. states (including territories and the District of Columbia), New York's 2008 diabetes prevalence ranks 25th highest.

Costs

Diabetes is a serious condition, but through preventive measures and proper clinical management, its health-related and economic burden can be minimized. Preventive measures, such as proper diet and exercise, play a central role in prevention and management and also can help minimize immediate and long-term health care costs.

One recent study by the American Diabetes Association estimated that average annual medical expenditures for an individual with diagnosed diabetes were \$11,744, and diabetes contributed \$6,649 to that figure.¹³ Costs of diabetes-related medical events are primarily for inpatient hospital stays, as shown below:

Distribution of costs per medical event from diabetes complications, U.S., 2007 (millions)



Source: The American Diabetes Association: Economic Costs of Diabetes in the U.S. in 2007. Diabetes Care 31:596-616, 2008. <http://care.diabetesjournals.org/content/31/3/596.full.pdf+html>

To determine the excess medical costs associated with diabetes in upstate New York, the per capita \$6,649 figure cited above was multiplied by the number of people with diabetes in 2008, calculated according to the BRFSS survey. Excess annual medical costs to treat people with diabetes in upstate New York were an estimated \$2.5 billion, ranging from \$297.4 million in the Southern Tier to \$822.3 million in Western New York.

Region	Excess annual medical costs related to adults with diagnosed diabetes
Western New York	\$822.3 million
Finger Lakes Region	\$475.0 million
Southern Tier	\$297.4 million
Central New York	\$514.0 million
Utica/Rome/North Country	\$396.3 million
Upstate New York Total	\$2.5 billion

Sources: Prevalence data obtained from the New York State Department of Health, Behavioral Risk Factor Surveillance System, 2007. To request access: <http://www.health.state.ny.us/nysdoh/brfss/>

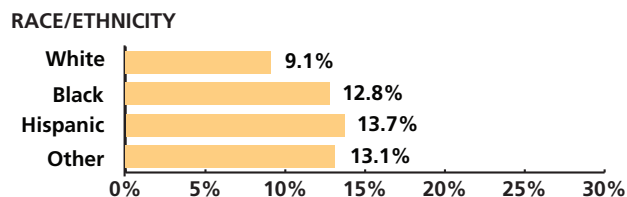
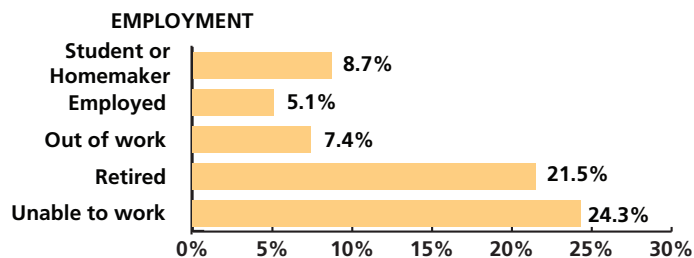
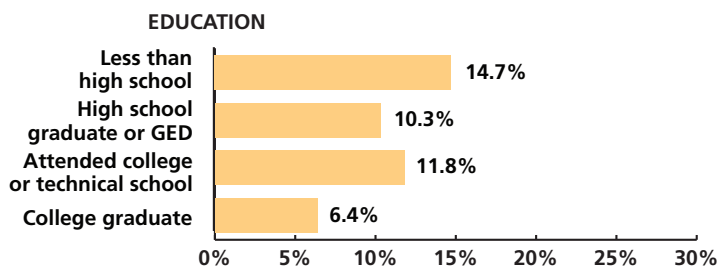
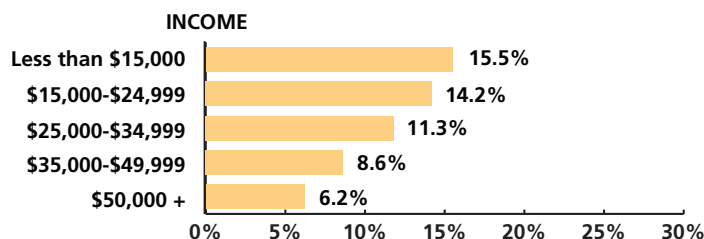
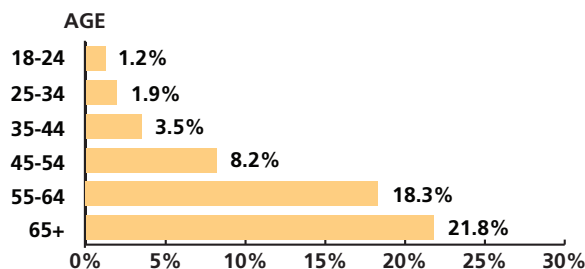
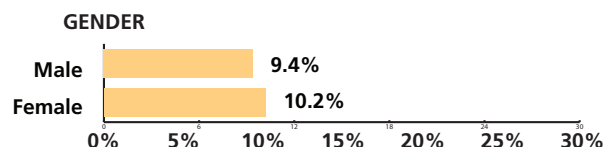
Costs were extrapolated from the American Diabetes Association: Economic costs of diabetes in the U.S. in 2007. Diabetes Care, 2008; 31. <http://care.diabetesjournals.org/content/31/3/596.full.pdf+html>, Page 596. Per capita spending in New York state was applied to the prevalence and populations (number of adults with diabetes) in upstate during 2008.



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Demographic profile of adult type 1 and type 2 diabetes prevalence in upstate New York, 2008

- Upstate women are slightly more likely to have diabetes (10.2 percent) compared to men (9.4 percent).
- Diabetes rates increase steadily with age. About 8.2 percent of those in the 45 to 54 age group have diabetes, compared to more than one in five of those ages 65 and older.
- The higher a person's income, the less likely the person is to have diagnosed diabetes. Diabetes prevalence is 6.2 percent among adults whose annual incomes are at or above \$50,000, versus 15.5 percent among those with incomes less than \$15,000.
- In general, higher education is linked to lower diabetes risk. Of those educated through college and beyond, 6.4 percent have diabetes versus almost 15 percent of adults who never graduated from high school (or don't have their GED). The diabetes rate among high school graduates and those who have their GED is 10.3 percent, while it's 11.8 percent among those who have some college or technical school education.
- The diabetes rate among students and homemakers is 8.7 percent, while the rate among the employed is 5.1 percent and the rate among the unemployed is 7.4 percent. In contrast, approximately one in five adults who are retired has diabetes, likely related to their age. Those who are unable to work have the highest diabetes rate among the groups compared, with about one-fourth having diagnosed diabetes.
- Diagnosed diabetes is related to race and ethnicity. Adults who are of Hispanic origin have a 13.7 percent diabetes rate, while those who are black have a 12.8 percent diabetes rate. Non-Hispanic whites have a diabetes rate of 9.1 percent.



Diabetes management among upstate New York adults who have type 1 or type 2 diabetes

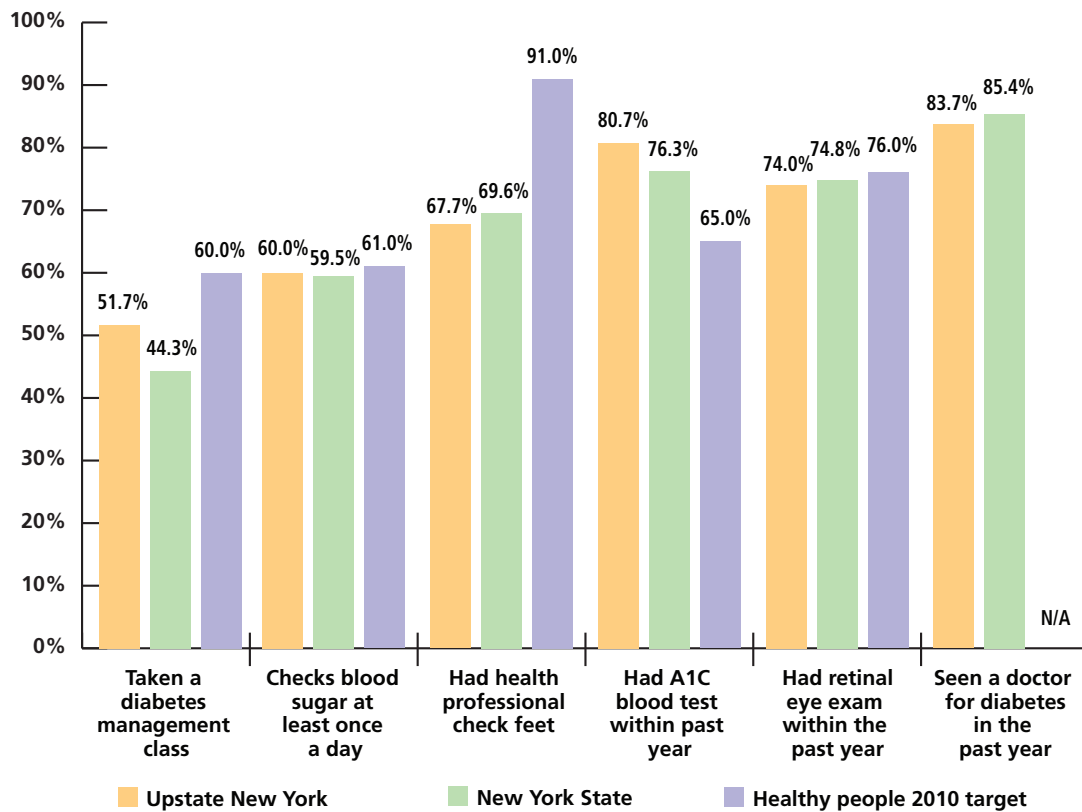
Diabetes is a serious condition, but with proper management, its devastating immediate and long-term consequences can be minimized.¹³ Often management involves a regimen of self-monitoring, clinical visits for the condition, medication as appropriate, and lifestyle adjustments (i.e., diet, physical activity). Proper management hinges on keeping blood sugar as close to normal as possible and responding quickly to the signs of complications. For example, blood glucose control reduces the risk for eye, kidney and nerve diseases by about 40 percent.¹⁴ Detecting and treating diabetic eye disease leads to a 50 percent to 60 percent reduction in vision loss. Comprehensive foot care can reduce amputation rates by 45 percent to 85 percent.¹⁵ The bottom line is that taking control of diabetes can maximize health and improve quality of life.

The *Healthy People 2010* diabetes objectives for adults are to increase the proportion of people with diabetes who:

- Receive formal diabetes education to 60 percent;
- Perform self-blood glucose monitoring at least once daily to 61 percent;
- Have at least an annual foot examination to 91 percent;
- Have a glycosylated hemoglobin measurement (A1C test) at least annually to 65 percent;¹⁶
- Have an annual dilated eye exam to 76 percent.

In 2008, the vast majority (83.7 percent) of upstate New York adults with diabetes saw a doctor for their diabetes within the previous year. Upstate New Yorkers with diabetes met or exceeded the *Healthy People 2010* targets on one measure, but fell short on others.

Diabetes management measures, upstate New York adults with diagnosed diabetes, 2008



Sources: Obtained from The New York State Department of Health, Behavioral Risk Factor Surveillance System, 2008. To request access: <http://www.health.state.ny.us/nysdoh/brfss/>

The U.S. Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System: <http://apps.nccd.cdc.gov/brfss/>
Data and reports can be accessed through: <http://www.health.state.ny.us/statistics/diseases/conditions/diabetes/>

In 2008, of upstate New York adults with diagnosed diabetes:

- About half have taken a class in managing their diabetes, despite the *Healthy People 2010* objective of 60 percent. An even lower percentage of adults statewide (44.3 percent) have taken a diabetes management class. Nationally, the percentage who have taken a diabetes management class (55 percent) is higher than in upstate and New York state;
- Sixty percent check their blood sugar daily, very close to the *Healthy People 2010* target of 61 percent. The percentage who checked their blood glucose daily were similar in New York state (59.5 percent);
- About 68 percent have had their feet checked by a health professional for sores or irritations within the previous year, more than 23 percentage points below the *Healthy People 2010* target of 91 percent. A similar percentage of New Yorkers (69.6 percent) have had their feet checked within the past year.
- About 4 in 5 have had a glycosylated hemoglobin (A1C) blood test within the past year, which is a greater proportion than those statewide (76.3 percent). The upstate rate exceeds the *Healthy People 2010* target for this measure (65 percent).
- Seventy-four percent of upstate New Yorkers with diabetes have had a retinal eye exam within the past year, closely approaching the *Healthy People 2010* target (76 percent). Statewide, 74.8 percent have had this exam within the past year.

Data sources and methods

Prevalence data were obtained from the New York State Department of Health's 2008 Behavioral Risk Factor Surveillance System (BRFSS). This is an ongoing, state-based, random telephone survey of the non-institutionalized civilian adult population ages 18 and older. State and national data are compiled and reported by the CDC.

The BRFSS survey asks respondents whether they have been diagnosed with diabetes by a doctor. Those with diagnosed diabetes are then asked a series of questions on self-care and medical management. Respondents with pre-diabetes or gestational diabetes were excluded from the analysis, but those with type 1 diabetes were included.

The upstate New York health care cost figures reported here apply data from the American Diabetes Association's latest study of the economic costs of diabetes in 2007, which found that individuals with diabetes incur an average of \$6,649 in excess health care expenses each year. This cost figure was multiplied by the number of people with diagnosed diabetes as determined by the 2008 BRFSS survey. Each region's population estimate was from the U.S. Census Bureau and its affiliate New York State Data Center (<http://www.empire.state.ny.us/nysdc/popandhous/ESTIMATE.asp>).

Endnotes

- ¹ Prevalence figures are based on data from the New York State Department of Health's Behavioral Risk Factor Surveillance System. To request access: <http://www.health.state.ny.us/nysdoh/brfss/>
- ² United States Centers for Disease Control and Prevention: Diabetes: Successes and opportunities for population-based prevention and control: At a glance, 2009. <http://www.cdc.gov/nccdphp/publications/aag/ddt.htm>
- ³ Huang ES, et al.; *Projecting the future diabetes population size and related costs for the U.S.* Diabetes Care: December 2009, vol.32, no. 12, pages 2225-2229. <http://care.diabetesjournals.org/content/32/12/2225.full.pdf+html>
- ⁴ New York State Department of Health. <http://www.health.state.ny.us/diseases/conditions/diabetes/>
- ⁵ American Diabetes Association, Diabetes myths. <http://www.diabetes.org/diabetes-basics/diabetes-myths/>
- ⁶ United States Centers for Disease Control and Prevention, 2009. <http://www.cdc.gov/nccdphp/publications/aag/ddt.htm>
- ⁷ New York State Department of Health. <http://www.health.state.ny.us/diseases/conditions/diabetes/>
- ⁸ New York State Department of Health, Diabetes Prevention and Control Program: *The state of diabetes in New York state, A surveillance report, 2007.* http://www.health.state.ny.us/statistics/diseases/conditions/diabetes/docs/1997-2004_surveillance_report.pdf
- ⁹ American Diabetes Association, *Economic costs of diabetes in the U.S. in 2007.* Diabetes Care, 2008, 31. <http://care.diabetesjournals.org/content/31/3/596.full.pdf+html>
- ¹⁰ American Diabetes Association, page 596. <http://care.diabetesjournals.org/content/31/3/596.full.pdf+html>
- ¹¹ A complete list of Healthy People 2010 objectives related to diabetes is at: <http://www.healthypeople.gov/Data/midcourse/pdf/FA05.pdf>
- ¹² New York state and national figures in this report are from the National Center for Chronic Disease Prevention & Health Promotion, Behavioral Risk Factor Surveillance System: <http://apps.nccd.cdc.gov/brfss/list.asp?cat=DB&yr=2008&qkey=1363&state=All>
- ¹³ American Diabetes Association. <http://care.diabetesjournals.org/content/31/3/596.full.pdf+html>
- ¹⁴ United States Centers for Disease Control and Prevention, 2009, page 2. <http://www.cdc.gov/nccdphp/publications/aag/ddt.htm>
- ¹⁵ United States Centers for Disease Control and Prevention, 2009, page 2. <http://www.cdc.gov/nccdphp/publications/aag/ddt.htm>
- ¹⁶ A glycosylated hemoglobin or "A1C" test is a simple blood test that indicates the level of blood sugar control over the previous three months.