



New Hampshire 2007 Diabetes Data



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Division of Public Health Services
Bureau of Prevention Services
Diabetes Education Program

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INTRODUCTION

Diabetes is the 6th leading causes of death in the United States. It is a leading cause of blindness, end-stage renal disease, and lower limb amputation (1). Heart disease and stroke are two to four times more common in persons with diabetes and account for two-thirds of deaths among persons with diabetes (1). It is estimated that the national health care costs for diabetes are approximately \$100 billion dollars a year (1). The prevalence of diagnosed diabetes among adults in the United States increased by 49% between 1990 and 2000 (1). The prevalence of diabetes is expected to continue to increase in the future.

It is well recognized that close attention to blood glucose levels combined with monitoring of clinical indicators can lead to earlier interventions and significant reductions in rates of complications. This data book provides information on these indicators.

This publication is the sixth annual compilation of data on diabetes from the New Hampshire Department of Health and Human Services. The data can be used for multiple purposes: 1) to document the magnitude of the public health problem; 2) to monitor disease trends over time; 3) to detect changes in health care practices; 4) to evaluate control strategies; and, 5) to facilitate planning.

DATA HIGHLIGHTS

- Approximately 7.2% of the adult population of New Hampshire reported having been diagnosed with diabetes as of 2007.
 - The prevalence of diabetes increased with increasing age going from 1.5% among persons 18-24 years of age to 17.8% among persons ≥ 65 years old.
- Modifiable risk factors for diabetes include overweight and physical inactivity.
 - 61.8% of adults in New Hampshire were overweight in 2007.
 - 19.1% of adults in New Hampshire reported no leisure-time physical activity during the previous month in 2007.
- 70.2% of adults with diabetes in New Hampshire had received an influenza immunization in the past year in 2007.
- 67.1% of adults with diabetes in New Hampshire had ever been immunized against pneumococcal pneumonia in 2007.
- 79.4% of adults with diabetes in New Hampshire had a dilated eye examination in the past year in 2007.
- 79.2% of adults with diabetes in the state had a foot exam in the past year in 2007.
- 95.5% of adults with diabetes in New Hampshire reported they had a glycosylated hemoglobin measurement in the past year in 2007.
- 69.8% of adults with diabetes in New Hampshire reported ever being diagnosed with hypertension in 2007.
- 66.1% of adults with diabetes in New Hampshire had elevated cholesterol in 2007.
- 17.8% of adults with diabetes in New Hampshire were smokers in 2007.
- There were 17,551 diabetes related hospitalizations in New Hampshire in 2002; and 20,296 in 2005.
- There were 299 lower extremity amputations among persons with diabetes in New Hampshire in 2002; and 297 in 2005.
- 103 persons with diabetes in the state developed end stage renal disease in 2005.
- There were 1,039 deaths in New Hampshire in 2005 in which diabetes was recorded as the primary or contributing cause.

NEW FEATURES IN THIS REPORT

- Clinical prevention practices for adults with diabetes are presented for 15 sites (at 22 locations) that underwent chart audits.
- Data presented for the rate of end stage renal disease are based on the 2005 Incidence Report and were recalculated since the last data book publication. The figures presented in this book are believed to most accurately represent the incidence of end stage renal disease over the years. The graph depicts incidence rates as well as the case counts portrayed in the prior data book.
- This year the data book provides additional information at the county and at the large municipality level. These data are limited by sample size constraints.

FREQUENTLY ASKED QUESTIONS

What is the CDC? The Centers for Disease Control and Prevention (CDC) is part of the United States Department of Health and Human Services. The CDC is considered the nation's prevention agency; it focuses on public health measures to prevent disease, disability, and death. The national Division of Diabetes Translation, which is part of CDC, provides funds and guidance to states for their diabetes control efforts.

What is a confidence interval? A confidence interval is an estimated range of values for a particular characteristic of a population. The width of the confidence interval provides an indication of how uncertain the value is. Small sample sizes often have wide confidence intervals; larger samples have narrower confidence intervals. Read more about confidence intervals in the Methods Section.

Why are data not presented by race or ethnicity? Based on the 2000 United States Census, New Hampshire's population is approximately 96.0% white, 1.3% Asian, 0.7% African American, 0.2% American Indian, and 1.7% persons reporting other races. About 1.7% of the population is of Hispanic or Latino origin. The number of diabetes-related events in these groups is too small to allow meaningful analysis. As the state's demographics change and as data collection techniques improve, it may be possible to present more complete data on racial and ethnic minorities in the future.

I would like to see data for my town, but cannot find this information in the report. Why doesn't this report show town-level data? New Hampshire has a relatively small population of 1.3 million people divided among 234 cities and towns. In a given year, the number of illnesses or deaths related to diabetes is too small to generate meaningful results on a town level.

Some of the information in the report is identified as "age-adjusted". What does this mean and why is it done? To compare populations where the number of people in each age group is different, an adjustment needs to be made. For example, diabetes is more common among the elderly. Since New Hampshire has proportionally more older people than the United States in general, the rate of diabetes in New Hampshire might appear higher than the average rate in the United States. By age-adjusting the data using the 2000 standard United States population, the rates can be compared without concern about differences in the age distribution of the two populations.

METHODS

The format for this report is based on the components of the diabetes surveillance system for New Hampshire. The report contains information regarding the following measures:

1. Diabetes prevalence
2. Overweight
3. Physical inactivity
4. Influenza immunization
5. Pneumococcal immunization
6. Dilated eye examination
7. Foot examination
8. Glycosylated hemoglobin measurement
9. Hypertension
10. Elevated cholesterol
11. Smoking
12. Dental visits
13. General health status
14. Diabetes hospitalization
15. Lower extremity amputation
16. End stage renal disease
17. Diabetes mortality
18. Diabetic ketoacidosis mortality

New Hampshire's diabetes surveillance measures were selected based on the recommendations of national organizations. Measures #1-7 and 14-18 are from *Indicators for Chronic Disease Surveillance*, which was developed jointly by the Council of State and Territorial Epidemiologists, the Association of State and Territorial Chronic Disease Program Directors, and the Centers for Disease Control and Prevention (CDC) (2,3). Measures #4-8 are also national evaluation objectives from the Division of Diabetes Translation at CDC. Measures #6 and 8 are Health Plan Employer Data and Information Set (HEDIS) measures developed by the National Committee for Quality Assurance.

The source of data on measures #1-13 is the Behavioral Risk Factor Surveillance System (BRFSS). Measures #14 and 15 are from hospital discharge data. Measure #16 is from the US Renal Data System. Measures #17 and 18 are from death certificates.

Where appropriate, diabetes-related objectives from *Healthy People 2010* or *Healthy New Hampshire 2010* are given to put current data from New Hampshire in perspective (4,5). *Healthy People 2010* is a set of national health targets for the next decade. *Healthy New Hampshire 2010* is a set of state-specific health targets.

Information on diabetes in this report does not differentiate between type I and type II disease for two reasons: 1) type II disease accounts for approximately 95% of all cases of diabetes; and 2) most of the data sets currently available for diabetes do not specify type I or type II.

In some tables, both crude rates and age-adjusted rates are presented. The crude rate is calculated by dividing the number of events by the state's population and then multiplying by 100,000. Because the events of interest (hospitalizations, amputations, and deaths) are more common as a person ages, the crude rate can be affected by the number of people in each grouping of the population. To control for the effect of age, the age-adjusted rate was calculated using the 2000 United States standard population. The adjusted rate allows for more meaningful analysis when comparing data between states or when looking at trends in a single state over time.

In most cases, 95% confidence intervals (95% CI) are presented when data are obtained from surveys. Because surveys involve a sample of the population, rather than the entire population, each estimate has a margin of error. The confidence interval reflects the degree of uncertainty for each estimate. For example, 70.2% of persons with diabetes in New Hampshire reported having received an influenza immunization during the past year. The 95% confidence interval was 65.4%-75.1%. This can be interpreted to mean that our best estimate is that 70.2% of persons with diabetes in the state have been immunized for influenza in the past year, but the range that is likely to capture the true value 95% of the time could be as low as 65.4% or as high as 75.1%. In other words, the estimate from the survey has a margin of error of $\pm 4.9\%$.

DATA SOURCES

Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is a population-based, random-digit dialed telephone survey of civilian, non-institutionalized adults, aged 18 years and older. The survey is coordinated by the Centers for Disease Control and Prevention (CDC) and is conducted annually by all states. In New Hampshire, the Health Statistics and Data Management Section in the Department of Health and Human Services is responsible for the survey. The BRFSS includes questions on health behavior risk factors such as safety belt use, diet, weight control, diabetes, alcohol use, physical exercise, and preventive health screenings. The data are weighted to more accurately reflect the population by accounting for age, gender, and probability of selection. A core set of questions, which includes diabetes prevalence, is asked annually. Additional questions on diabetes are asked in an optional module. (BRFSS questions for which data are presented in this report are shown beginning on page 42.) In New Hampshire, 5956 interviews were completed in 2007. Women reporting gestational diabetes were considered not to have diabetes when BRFSS data were analyzed for this report. Missing, don't know/not sure, and refused responses were excluded from analysis. The national estimates provided are not calculated by pooling all BRFSS data as a sample of the nation as a whole, but are simply a calculation of the middle value of all the state estimates (the median). This method gives equal weight to smaller states and bigger states and cannot be relied upon to approximate a national sample. New Hampshire and national data can be accessed on line at: <http://www.cdc.gov/brfss/>.

Healthy People 2010

Healthy People 2010 is a set of national health targets for the next decade. It builds on initiatives pursued over the past two decades including the 1979 Surgeon General's Report, *Healthy People*, and *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*. It is designed to achieve two overarching goals: 1) increase quality and years of healthy life; and 2) eliminate health disparities. A copy of *Healthy People 2010* can be obtained on-line at: <http://www.health.gov/healthypeople/>.

Healthy New Hampshire 2010

Healthy New Hampshire 2010 is New Hampshire's health promotion and disease prevention agenda for the first decade of the 21st century. Similar to *Healthy People 2010*, it is a compilation of health objectives. A copy of *Healthy New Hampshire 2010* can be obtained on-line at: <http://www.dhhs.nh.gov/DHHS/DPHS/healthy+new+hampshire+2010.htm>

Hospital Discharge Data

Hospital discharge data is maintained by the New Hampshire Hospital Association under contract with the Department of Health and Human Services. The 26 acute-care, non-federal, inpatient facilities in the state report all admissions to this data set. The data set includes information on New Hampshire residents hospitalized in the state; New Hampshire residents hospitalized in another state are not included. The Health Statistics and Data Management Section oversees the analysis of this data set. Additional information about New Hampshire hospital discharge data is available on-line at: <http://www.dhhs.nh.gov/DHHS/HSDM/hospital-discharge-data.htm>.

United States Renal Data System

The United States Renal Data System is a national data system, which collects, analyzes, and distributes information about end-stage renal disease in the United States. The system is funded by the National Institutes of Health and the Centers for Medicare and Medicaid Services. Additional information is available on-line at: www.usrds.org.

Vital Statistics

New Hampshire law requires that reports of all birth, death, fetal death, marriage, and divorce be filed with the State Registrar in the Division of Vital Records Administration of the Department of State. The Health Statistics and Data Management Section in the Department of Health and Human Services analyzes these data. Depending on the event, filings are made by hospital personnel, physicians, funeral directors, city/town clerks, attorneys, and clerks of the courts. Reports of New Hampshire resident births and deaths in other states, and Canada, are provided to the State Registrar, for statistical purposes only, under an inter-state/Canadian agreement for the exchange of vital events information.

For death certificates, the cause of death reported is the underlying cause of death. In a death record, the underlying cause of death is the specific disease, condition, or injury that initiated the chain of events leading to death. The underlying cause of death is not always the same as the immediate cause of death. For example, if a person was hospitalized for diabetes, but developed pneumonia and died while in the hospital, the underlying cause of death would be diabetes. Additional information on deaths in New Hampshire is available at: <http://www.dhhs.nh.gov/DHHS/HSDM/death-data.htm>.

Diabetes Clinic Sites

The state's Diabetes Education Program provides grant funds to the Community Health Access Network (CHAN) to improve diabetes care at clinic sites throughout the state. The clinic sites are a mixture of community health centers and primary care office practices. Chart audits are conducted each year in 21 clinic sites to assess adherence to guidelines for clinical preventive services for adults with diabetes during calendar year 2007.

BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM

Figure 1. Prevalence of diabetes among adults by year – New Hampshire and United States, 1997-2007

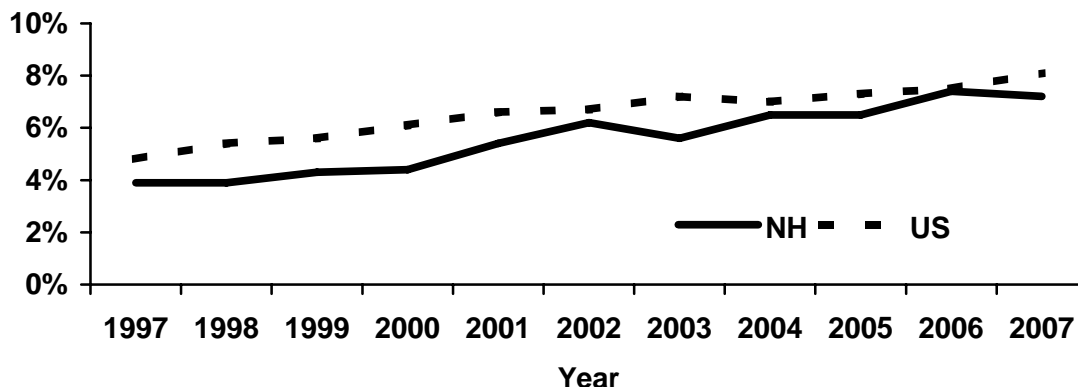


Table 1. Prevalence of diabetes among adults by year – NH and US, 1997-2007

	1997 (%)	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)
NH	3.9	3.9	4.3	4.4	5.4	6.2	5.6	6.5	6.5	7.4	7.2
95% CI	2.9-4.9	2.7-5.1	3.1-5.4	3.4-5.3	4.6-6.1	5.4-6.9	5.0-6.3	5.8-7.2	5.8-7.1	6.7-8.2	6.5-7.9
US	4.8	5.4	5.6	6.1	6.6	6.7	7.2	7.0	7.3	7.5	8.1

Comment: The prevalence of diabetes among adults in New Hampshire in 2007 was 7.2% (95% Confidence Interval 6.5%-7.9%). Caution is advised when interpreting data, however, based on the confidence intervals, the increase over the past 10 years is statistically significant.

Methods: The numerator included respondents who reported having been diagnosed with diabetes by a doctor (except those with gestational diabetes). The denominator included all respondents except those with missing, don't know, or refused answers. National data are median values, while New Hampshire data are means. National data includes all 50 states. The District of Columbia and Puerto Rico were included beginning in 1996.

Healthy People 2010: The national *Healthy People 2010* objective (#5-3) is to reduce the overall rate of diabetes that is clinically diagnosed to 2.5%.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 2. Prevalence of diabetes by demographic group – New Hampshire, 2007

Demographic Group	Percent	95% Confidence Interval
Age Group (years)		
18-24	1.5	0.0-3.7
25-34	0.8	0.0-1.6
35-44	2.3	1.3-3.3
45-54	6.7	5.1-8.3
55-64	12.7	10.5-14.9
65+	17.8	15.6-20.0
Gender		
Male	7.5	6.3-7.9
Female	6.9	6.1-7.7
Income		
<\$15,000	18.5	14.4-22.6
\$15,000-24,999	12.1	9.4-14.8
\$25,000-34,999	13.5	10.0-17.0
\$35,000-49,999	7.5	5.7-9.3
\$50,000-74,999	6.0	4.4-7.6
\$75,000+	3.2	2.4-4.0
Education (years)		
<12	12.9	9.6-16.2
12	8.7	7.1-10.3
13-15	7.0	5.6-8.4
16+	5.3	4.3-6.3
Total	7.2	6.4-8.0

Comment: The prevalence of diabetes increases with increasing age. There was no significant difference in diabetes prevalence between males and females. The prevalence of diabetes was higher in persons with lower incomes and less education.

Methods: For each demographic group, the numerator included respondents who reported having been diagnosed with diabetes by a doctor. Women reporting gestational diabetes were considered not to have diabetes for the purpose of this analysis. Each denominator included all respondents in that demographic group except those with missing, don't know, or refused answers.

Healthy People 2010: The national *Healthy People 2010* objective (#5-3) is to reduce the overall rate of diabetes that is clinically diagnosed to 2.5%.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 3. Prevalence of diabetes by selected metropolitan/micropolitan areas - New Hampshire, 2007

	New Hampshire	Concord	Lebanon	Manchester	Rockingham County
Diabetes Prevalence (95% CI)	7.2 (6.4-8.0)	8.1 (5.9-10.3)	6.2 (5.0-7.4)	6.1 (4.9-7.3)	8.2 (6.6-9.8)

Comment: The point estimates of diabetes prevalence appear to vary by community; however, none of these differences are statistically significant. Future surveys may shed additional light upon these differences.

Figure 2. Prevalence of overweight and obesity among adults by year – New Hampshire and United States, 1997-2007

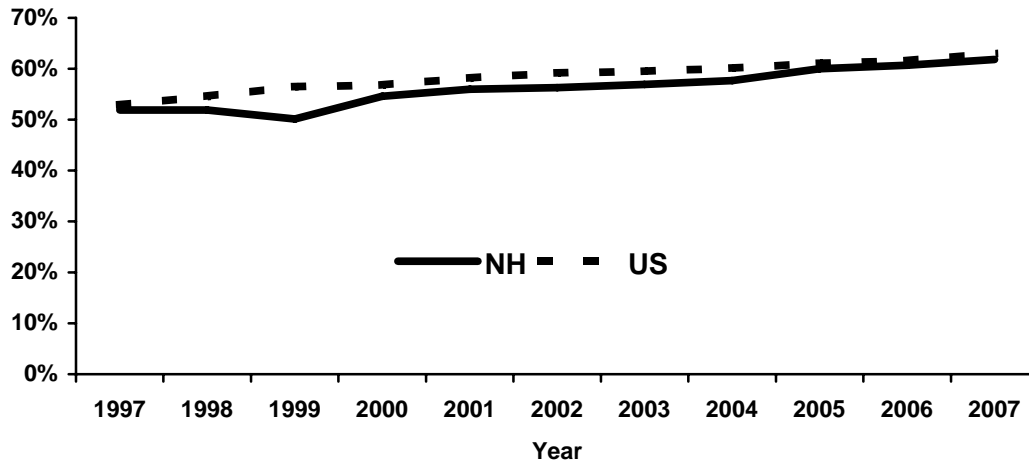


Table 4. Prevalence of overweight and obesity among adults by year – New Hampshire and United States, 1997-2007

	1997 (%)	1998 (%)	1999 (%)	2000 (%)	2001 (%)	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)
NH	52.0	51.9	50.1	54.6	56.0	56.3	56.9	57.7	60.0	60.7	61.8
95% CI	49.0-54.9	49.0-54.8	46.8-53.4	51.9-57.3	54.2-57.7	54.7-57.9	55.3-58.6	56.0-59.4	58.4-60.6	59.0-62.4	60.2-63.4
US	52.9	54.6	56.5	56.8	58.2	59.2	59.5	60.1	61.1	61.6	63.0

Comment: Being overweight is a risk factor for diabetes. The prevalence of overweight and obesity among New Hampshire adults increased from 46.1% in 1994 to 61.8% in 2007.

Methods: Overweight is defined as a Body Mass Index (BMI) ≥ 25.0 . This definition includes both persons who are overweight ($25.0 \leq \text{BMI} < 30.0$) and persons who are obese ($\text{BMI} \geq 30.0$). BMI is calculated by dividing a person’s weight in kilograms by their height in meters squared.

Healthy People 2010: The *Healthy People 2010* objective (#19-2) is to reduce the proportion of adults who are obese ($\text{BMI} \geq 30$) to 15% or less. In 2007, 25% of adults in New Hampshire were obese.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to reduce the prevalence of overweight ($\text{BMI} \geq 25.0$) to 40%.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 5. Prevalence of overweight and obesity among adults by demographic group – New Hampshire, 2007

Demographic Group	Normal Weight	Percent Overweight	95% CI	Percent Obese	95% CI
Age Group (years)					
18-24	56.7	29.2	21.4-37.0	14.1	8.4-19.8
25-34	44.1	35.4	30.7-40.1	20.5	16.6-24.4
35-44	38.3	32.7	29.4-36.0	29.0	25.7-32.3
45-54	32.3	38.9	35.8-42.0	28.8	25.9-31.7
55-64	28.4	40.6	37.3-43.9	31.0	27.9-34.1
65+	37.1	41.2	38.5-43.9	21.6	19.2-24.0
Gender					
Male	30.2	42.9	40.4-45.4	26.9	24.7-29.1
Female	46.3	30.3	28.3-32.3	23.4	21.6-25.2
Income					
<\$15,000	38.6	29.0	22.5-35.5	32.4	26.5-38.3
\$15,000-24,999	33.4	35.7	30.8-40.6	30.9	26.2-35.6
\$25,000-34,999	35.2	36.1	30.6-41.6	28.8	23.7-33.9
\$35,000-49,999	35.3	37.0	32.7-41.3	27.7	23.8-31.6
\$50,000-74,999	35.6	37.3	33.4-41.2	27.2	23.7-30.7
\$75,000+	38.1	39.8	37.1-42.5	22.1	19.7-24.5
Education (years)					
<12	34.7	32.9	26.4-39.4	32.4	26.1-38.7
12	33.6	35.7	30.8-40.6	30.9	26.2-35.6
13-15	38.6	34.3	31.0-37.6	27.0	24.1-29.9
16+	41.5	37.3	34.9-39.7	21.2	19.2-23.2
Total	38.2	36.7	35.1-38.3	25.1	23.7-26.5

Comment: The prevalence of overweight and obesity among New Hampshire adults was higher among males and among persons older than 25 years of age. There are also significant differences in overweight by income. Persons with a college degree were less likely to be obese than those with less education.

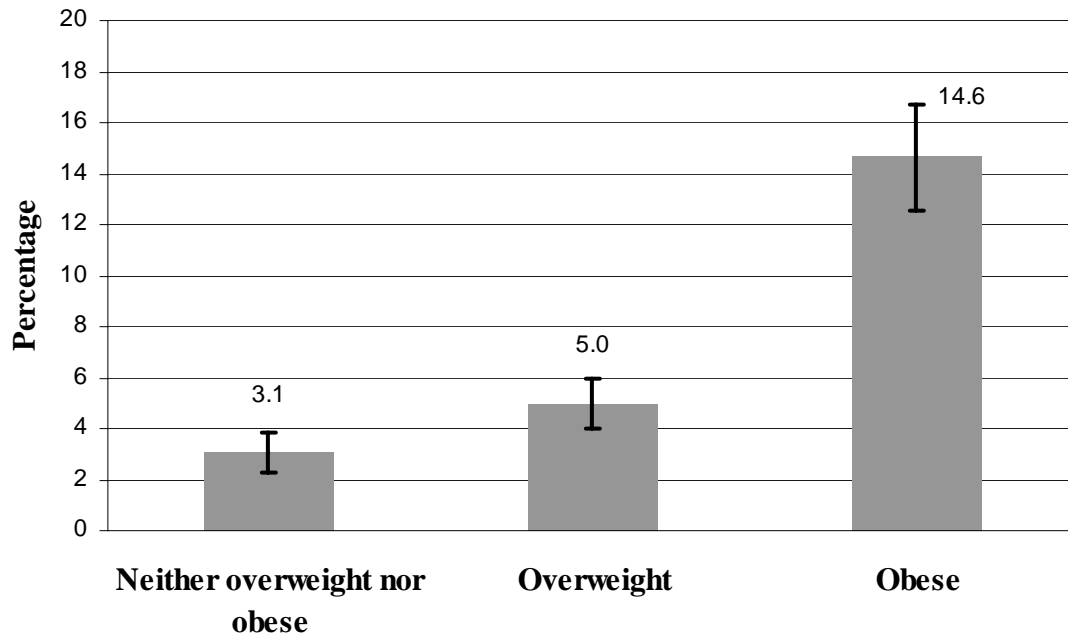
Methods: Overweight is defined as a Body Mass Index (BMI) 25.0-29.9. Obesity is defined as BMI \geq 30. BMI is calculated by dividing a person’s weight in kilograms by their height in meters squared.

Healthy People 2010: The *Healthy People 2010* objective (#19-2) is to reduce the proportion of adults who are obese (BMI \geq 30) to 15% or less. In 2007, 25.1% of adults in New Hampshire were obese.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to reduce the prevalence of overweight (BMI \geq 25) to 40%.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 3. Prevalence of diabetes by BMI categories - New Hampshire, 2005



Comment: An analysis of 2005 data shows a positive relationship between the prevalence of diabetes and weight status. The prevalence of diabetes is highest among obese persons in New Hampshire.

Methods: Overweight is defined as a Body Mass Index (BMI) 25.0-29.9. Obesity is defined as BMI ≥ 30 . BMI is calculated by dividing a person's weight in kilograms by their height in meters squared.

Healthy People 2010: The *Healthy People 2010* objective (#19-2) is to reduce the proportion of adults who are obese (BMI ≥ 30) to 15% or less. In 2007, 25.1% of adults in New Hampshire were obese.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to reduce the prevalence of overweight (BMI ≥ 25) to 40%.

Data Source: Behavioral Risk Factor Surveillance System (7).

Table 6. Adults with no leisure-time physical activity by demographic group – New Hampshire, 2007

Demographic Group	Percent	95% Confidence Interval
Age Group (years)		
18-24	11.4	6.3-16.5
25-34	16.4	12.7-20.1
35-44	18.4	15.7-21.1
45-54	16.2	14.0-18.4
55-64	21.4	18.7-24.1
65+	28.7	26.2-31.2
Gender		
Male	18.1	16.1-20.1
Female	20.1	18.5-21.7
Income		
<\$15,000	48.1	41.8-54.4
\$15,000-24,999	29.1	24.6-33.6
\$25,000-34,999	26.7	21.8-31.6
\$35,000-49,999	22.4	18.9-25.9
\$50,000-74,999	16.9	14.0-19.8
\$75,000	9.3	
Education (years)		
<12	39.3	32.6-46.0
12	27.2	24.5-29.9
13-15	19.0	16.6-21.4
16+	10.5	9.1-11.9
Total	19.1	17.9-20.3

Comment: Lack of physical activity is a risk factor for diabetes. Physical inactivity was more common among the elderly and those with lower incomes and less education.

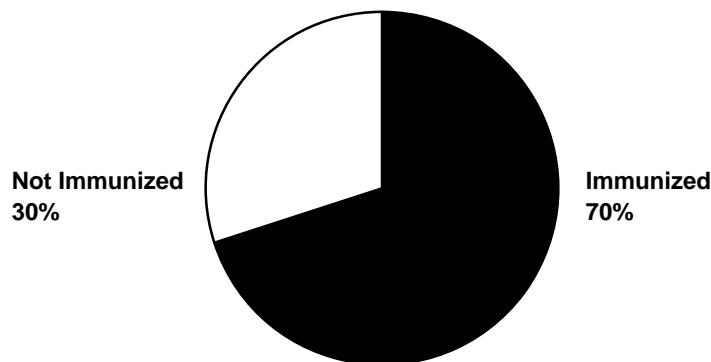
Methods: Lack of leisure-time physical activity was defined as no leisure time physical activity during the past month.

Healthy People 2010: The national *Healthy People 2010* objective (#22-1) is to decrease the percentage of adults with no leisure-time physical activity to 20%.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to increase to 50% the proportion of persons who engage in physical activity for thirty minutes or more five or more times a week.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 4. Influenza immunization among persons with diabetes – New Hampshire, 2007



Comment: It is recommended that all persons with diabetes receive an annual influenza immunization. Data from 2007 indicated that 70.2% (95% Confidence Interval 65.4%-75.1%) of all adults with diabetes in New Hampshire had been immunized against influenza during the previous year. This compares with 68.2% (95% Confidence Interval 62.5%-73.8%) of adults in New Hampshire reporting having been immunized for influenza in 2002.

In 2007, about 61.1% of persons with diabetes who were 18-64 years of age and about 83.0% of persons ≥ 65 years of age reported that they had received an influenza immunization in the past twelve months.

Methods: The numerator included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had received an influenza immunization during the past year. These included people who had received either the flu shot or FluMist[®]*. The denominator included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers.

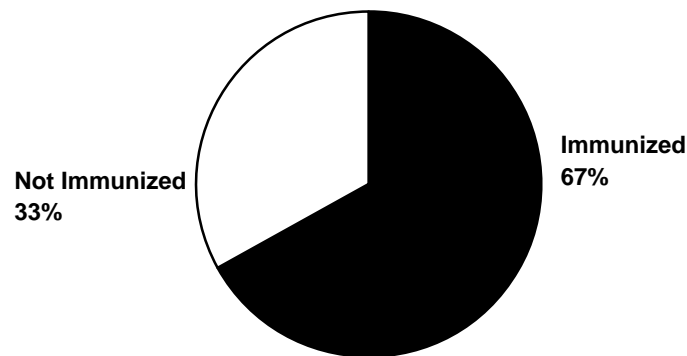
Healthy People 2010: The national *Healthy People 2010* objective (#14-29) is to immunize 90% of persons with diabetes who are institutionalized or ≥ 65 years of age and 60% of persons with diabetes who are 18-64 years of age.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to immunize 80% of independently living adults age 50 or over. The NH objective has not been set for influenza immunization.

Data Source: Behavioral Risk Factor Surveillance System (6).

* FluMist is not yet recommended for individuals with diabetes.

Figure 5. Pneumococcal immunization among persons with diabetes – New Hampshire, 2007



Comment: It is recommended that all persons with diabetes receive a pneumococcal immunization at least once. Data from 2007 indicated that 67.1% (95% Confidence Interval 62.0%-72.2%) of adults with diabetes in New Hampshire had been immunized against pneumococcal disease. This compares with 58.3% of New Hampshire adults in 2002 (95% Confidence Interval 52.3%-64.2%) reporting having ever received pneumococcal immunization.

In 2007, about 55.3% of persons with diabetes who were 18-64 years of age, and 82.7% of persons ≥ 65 years of age, reported having ever received a pneumococcal immunization.

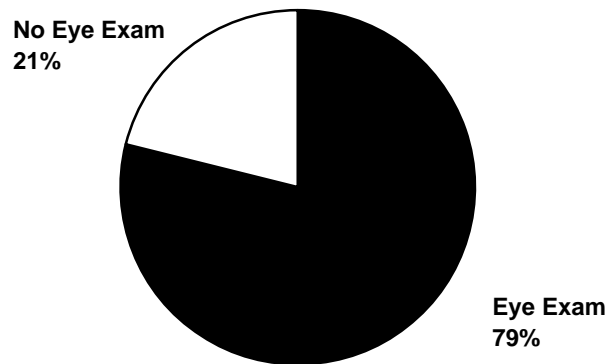
Methods: The numerator included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had ever received a pneumococcal immunization. The denominator included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers.

Healthy People 2010: The national *Healthy People 2010* objective (#14-29) is to immunize 90% of persons with diabetes who are institutionalized or ≥ 65 years of age and 60% of persons with diabetes who are 18-64 years of age.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to immunize 90% of independently living adults age 65 or over. The NH objective has not been set for pneumococcal immunization.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 6. Dilated eye examinations among persons with diabetes – New Hampshire, 2007



Comment: It is recommended that all persons with diabetes receive an annual dilated eye examination. Data from 2007 indicated that 79.4% (95% Confidence Interval 75.2%-83.5%) of adults with diabetes in New Hampshire had a dilated eye examination during the previous 12 months. This compares with 79.6% of people in 2002 (95% Confidence Interval 74.7%-84.5%) reporting having had an annual dilated eye exam.

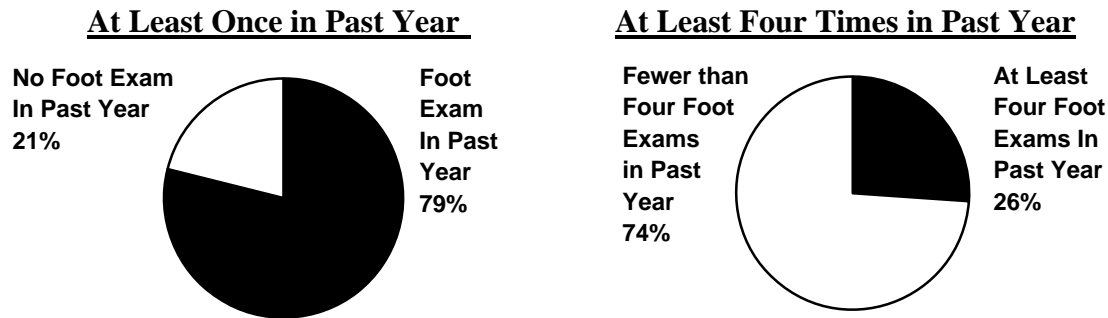
Methods: The numerator included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had received a dilated eye examination during the past year. The denominator included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers.

Healthy People 2010: The national *Healthy People 2010* objective (#5-13) is to increase to 75% the proportion of adults with diabetes who have an annual dilated eye examination.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to increase to 80% the percentage of adults with diabetes who report having a dilated eye exam in the last 12 months.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 7. Foot examinations among persons with diabetes – New Hampshire, 2007



Comment: Annual Foot Examination -- In 2007, 79.2% of adults (95% Confidence Interval 75.1%-83.4%) with diabetes in New Hampshire reported receiving at least one foot examination by a health professional in the past year. This compares with 78.3% of people in 2002 (95% Confidence Interval 73.1%-83.6%) reporting having had a foot exam.

Quarterly Foot Examination -- It is recommended that all persons with diabetes have their feet examined at least four times annually by a health professional. In 2007, 26% (95% Confidence Interval 21.3%-29.9%) of adults with diabetes in New Hampshire reported at least four foot examinations by a health professional during the previous year.

Methods: The numerator for annual foot examinations included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had received a foot examination during the past year. The numerator for quarterly foot examinations included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had received at least four foot examinations during the past year. The denominator for both measures included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers.

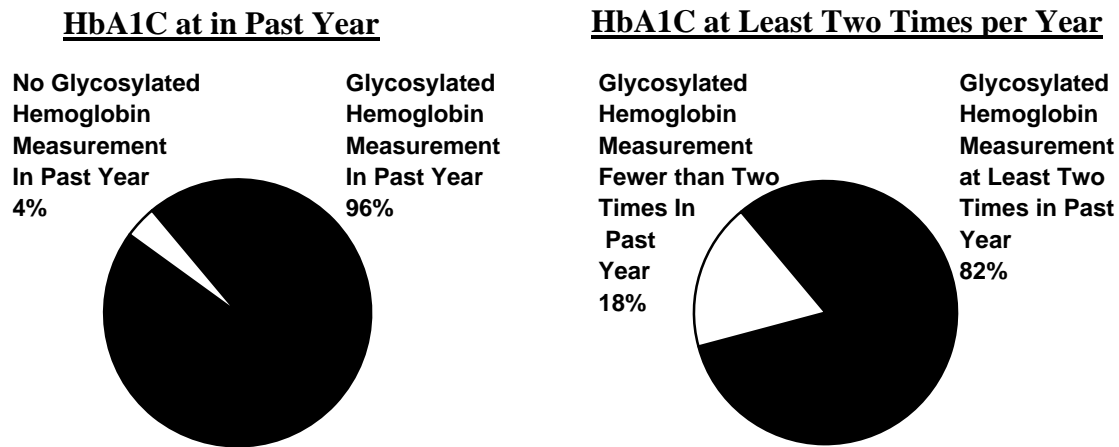
CDC National Evaluation Objective: The Division of Diabetes Translation at CDC requires monitoring the annual rate of foot examinations.

Healthy People 2010: The national *Healthy People 2010* objective (#5-14) is to increase the proportion of adults with diabetes who have at least an annual foot examination to 75%.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 8. Glycosylated hemoglobin* measurement among persons with diabetes – New Hampshire, 2007 *(Also referred to as ‘Hemoglobin A1c’ or HbA1C)



Comment: Annual glycosylated hemoglobin measurement -- In 2007, 95.5% (95% Confidence Interval 93.5%-97.5%) of adults with diabetes in New Hampshire reported having a glycosylated hemoglobin measurement during the past year. This compares with 91.9% of people in 2002 (95% Confidence Interval 88.4%-95.4%) reporting having had an A1c test within the past year.

HbA1C at least two times per year: It is recommended that persons with diabetes have a glycosylated hemoglobin measurement at least two times annually. In 2007, 81.6% (95% Confidence Interval 77.8%-85.4%) of adults with diabetes in New Hampshire reported two or more glycosylated hemoglobin measurements during the past year. The report on this measure has changed from prior years. In prior years, the measure was four or more HbA1C tests per year. Although that is the recommendation for those with poor blood glucose control, individuals with diabetes who have good control may only need to have the HbA1C twice each year. To better reflect the recommendations, the measure has been changed.

Methods: The numerator for annual glycosylated hemoglobin measurement included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had at least one glycosylated hemoglobin measurement during the past year. The numerator for quarterly glycosylated hemoglobin measurement included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had at least four glycosylated hemoglobin measurements during the past year. The denominator for both measures included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers.

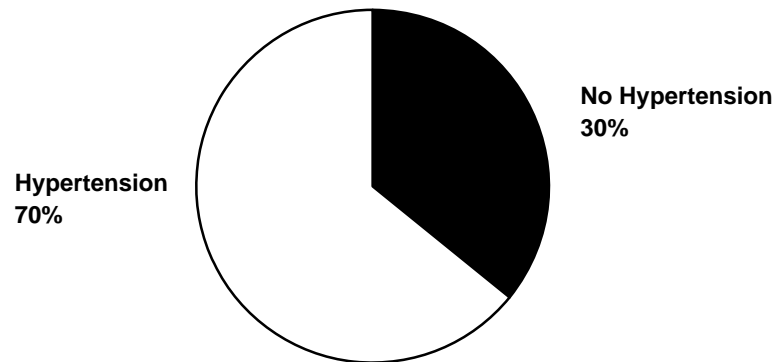
CDC National Evaluation Objective: The Division of Diabetes Translation at CDC requires monitoring the annual rate of glycosylated hemoglobin measurements.

Healthy People 2010: The national *Healthy People 2010* objective (#5-12) is to increase to 50% the proportion of adults with diabetes who have a glycosylated hemoglobin measurement at least once a year.

Healthy New Hampshire 2010: The *Healthy New Hampshire 2010* objective is to increase to 50% the percentage of adults with diabetes who report having had a glycosylated hemoglobin measurement in the last 12 months.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 9. Hypertension among persons with diabetes – New Hampshire, 2007



Comment: In 2007, 69.8% (95% Confidence Interval 65.1%-74.5%) of adults with diabetes in New Hampshire reported having hypertension compared to 22.9% (95% Confidence Interval 21.6%-24.2%) of adults without diabetes. This question has not been asked every year. In 2001, 63.6% of people with diabetes reported having hypertension (95% Confidence Interval 57.0%-70.2%).

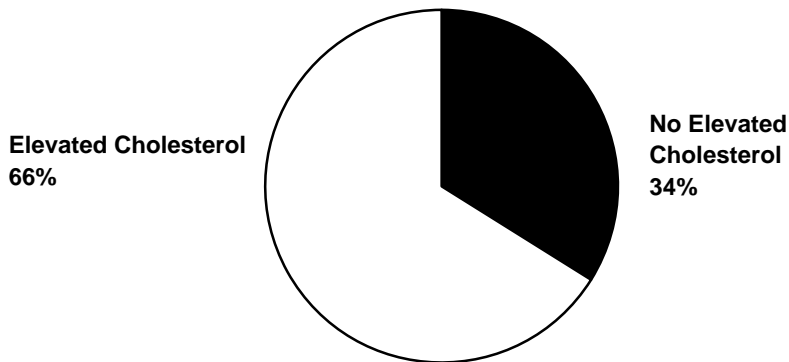
Methods: The numerator included all persons ≥ 18 years of age who reported being diagnosed with diabetes and hypertension. The denominator included all persons ≥ 18 years of age who reported having been diagnosed with diabetes.

Healthy People 2010: Reduce the proportion of adults with high blood pressure to 16% (#12.9). The objective is not specific to persons with diabetes.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 10. Elevated cholesterol among persons with diabetes – New Hampshire, 2007



Comment: In 2007, 66.1% (95% Confidence Interval 61.3%-70.9%) of adults with diabetes in New Hampshire reported having elevated cholesterol compared with 36.2% (95% Confidence Interval 34.5%-37.8%) of adults without diabetes. This question has not been asked every year. In 2001, 56.7% of people with diabetes reported having elevated cholesterol (95% Confidence Interval 49.7%-63.6%).

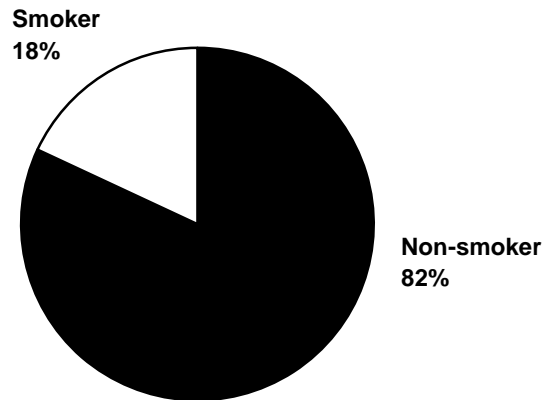
Methods: The numerator included all persons ≥ 18 years of age who reported being diagnosed with diabetes and elevated cholesterol. The denominator included all persons ≥ 18 years of age who reported having been diagnosed with diabetes.

Healthy People 2010: Reduce the proportion of adults with high total blood cholesterol levels to 17% (#12-14). The objective is not specific to persons with diabetes.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 11. Smoking among persons with diabetes – New Hampshire, 2007



Comment: In 2007, 17.8% (95% Confidence Interval 13.8%-21.8%) of adults with diabetes in New Hampshire smoked compared to 19.5% (95% Confidence Interval 18.0%-20.9%) of adults without diabetes (7). This compares with 16.7% of people with diabetes reporting smoking in 2002 (95% Confidence Interval 22.2%-25.0%).

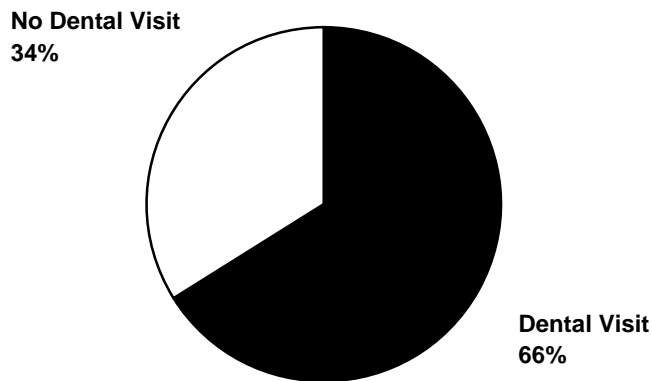
Methods: The numerator included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who were current smokers. The denominator included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers.

Healthy People 2010: The *Healthy People 2010* objective (#27-1) is to decrease smoking among adults to 12%. The objective is not specific to persons with diabetes.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 12. Dental visits by persons with diabetes – New Hampshire, 2006



Comment: This question is asked only once every two years and was not asked in 2007. It is recommended that all persons with diabetes receive at least an annual dental examination. Data from 2006 indicated that 66.0% (95% Confidence Interval 61.1%-70.9%) of adults with diabetes in New Hampshire had visited a dentist or dental clinic during the previous 12 months. This compares with 65.1% of people with diabetes reporting having seen a dentist in 2002 (95% Confidence Interval 59.2%-70.9%).

Among New Hampshire adults without diabetes, 76.1% (95% Confidence Interval 74.8%-77.5%) reported having visited a dentist in 2006.

Methods: The numerator included all persons ≥ 18 years of age who reported being diagnosed with diabetes and who had visited a dentist or dental clinic during the past year. The denominator included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers.

Healthy People 2010: The *Healthy People 2010* objective (#5-15) is to increase to 75% the proportion of persons with diabetes who have an annual dental examination.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Figure 13. General health status of adults with and without diabetes – New Hampshire, 2007

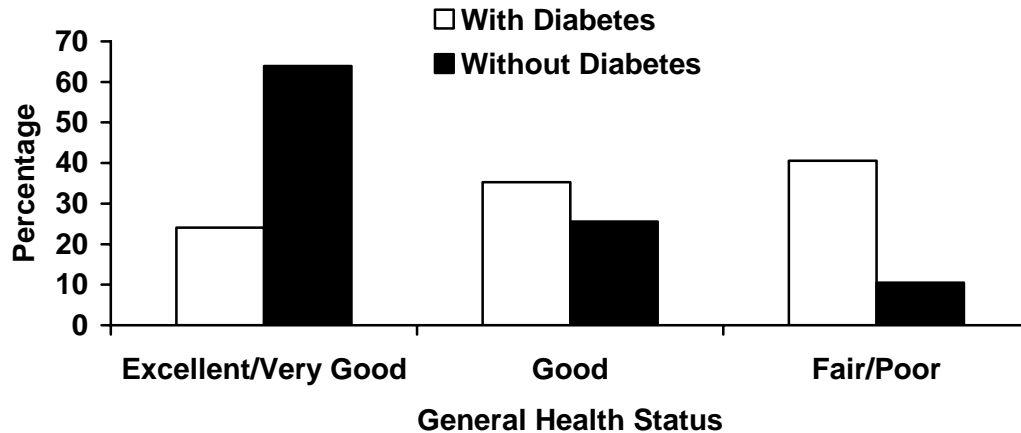


Table 7. General health status of adults with and without diabetes – New Hampshire, 2004

	Excellent/Very Good % (95% CI)	Good % (95% CI)	Fair/Poor % (95% CI)
Diabetes	24.1 (19.8-28.3)	35.3 (30.6-40.0)	40.6 (35.8-45.4)
No Diabetes	63.9 (62.2-65.5)	25.6 (24.1-27.1)	10.5 (9.5-11.6)

Comment: Adults with diabetes were significantly less likely to report excellent or very good health compared to adults without diabetes and significantly more likely to report fair or poor health. In 2002 24.1% (95% Confidence Interval 19.0%-29.1%) of people with diabetes reported their general health status as excellent/very good.

Methods: The denominator for the general health status of adults with diabetes included all persons ≥ 18 years of age who reported having been diagnosed with diabetes, except those with missing, don't know, or refused answers. The denominator for the general health status of adults without diabetes included all persons ≥ 18 years of age who reported not having been diagnosed with diabetes or who reported being diagnosed with gestational diabetes.

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Behavioral Risk Factor Surveillance System (6).

Table 8. Prevalence of diabetes and associated risk factors by county – New Hampshire, 2007

Region	Prevalence of Diabetes Percent (95% CI)	Prevalence of Coronary Heart Disease Percent (95% CI)	Prevalence of Myocardial Infarction Percent (95% CI)	Prevalence of Stroke Percent (95% CI)	Prevalence of Overweight and Obesity Percent (95% CI)	Prevalence of No Leisure Time Activity Percent (95% CI)	Prevalence of Current Smoking Percent (95% CI)
Belknap	6.3 (4.0-8.6)	4.6 (2.6-6.5)	3.2 (1.6-4.8)	3.6 (1.5-5.7)	67.3 (61.1-73.5)	19.8 (14.9-24.8)	16.7 (12.0-21.3)
Carroll	8.7 (5.4-11.9)	4.4 (1.8-7.1)	4.8 (2.2-7.4)	3.2 (1.1-5.2)	55.2 (47.7-62.6)	17.6 (12.8-22.3)	22.6 (16.5-28.8)
Cheshire	8.0 (5.4-10.6)	4.2 (2.5-6.0)	4.3 (2.2-6.4)	2.6 (1.3-3.9)	63.4 (58.1-68.7)	17.2 (13.2-21.2)	17.1 (13.2-21.1)
Coos	10.2 (6.4-14.0)	4.7 (2.3-7.2)	4.7 (2.4-7.1)	5.2 (2.3-8.1)	67.8 (61.3-74.3)	27.0 (20.6-33.4)	23.4 (17.2-29.6)
Grafton	5.5 (3.6-7.5)	2.9 (1.7-4.1)	3.0 (1.7-4.3)	1.4 (0.6-2.3)	60.0 (54.4-65.5)	16.8 (12.5-21.0)	17.6 (13.4-21.7)
Hillsborough	6.0 (4.8-7.2)	4.7 (3.6-5.9)	4.1 (3.1-5.1)	2.4 (1.5-3.3)	61.7 (58.6-64.9)	20.6 (18.2-23.0)	18.3 (15.8-20.8)
Merrimack	8.0 (5.9-10.0)	4.3 (2.8-5.7)	4.2 (2.7-5.7)	1.4 (0.6-2.1)	60.4 (55.3-65.4)	14.7 (11.4-18.0)	16.7 (12.8-20.5)
Rockingham	7.8 (6.0-9.5)	4.0 (2.7-5.5)	4.1 (2.7-5.5)	2.1 (1.6-3.1)	60.5 (56.7-64.2)	18.2 (15.4-21.0)	20.3 (17.0-23.7)
Strafford	8.9 (6.3-11.6)	4.2 (2.5-5.8)	4.5 (2.4-6.6)	2.2 (1.1-3.4)	66.1 (61.0-71.2)	23.3 (18.9-27.8)	23.7 (18.9-28.5)
Sullivan	6.1 (3.1-9.1)	6.1 (3.4-8.8)	6.6 (3.4-9.8)	2.8 (1.2-4.4)	60.1 (53.1-67.0)	18.6 (13.7-23.5)	23.9 (17.3-30.4)
New Hampshire	7.2 (6.5-7.9)	4.3 (3.8-4.9)	4.2 (3.6-4.7)	2.3 (1.9-2.7)	61.8 (60.2-63.4)	19.1 (17.9-20.3)	19.3 (18.0-20.7)

Comment: Prevalence of diabetes and associated risk factors vary by county in New Hampshire.

Methods:

Prevalence of Diabetes - The numerator included respondents who reported having been diagnosed with diabetes by a doctor (except those with gestational diabetes). The denominator included all respondents except those with missing, don't know, or refused answers.

Prevalence of Coronary Heart Disease - The numerator included respondents reporting being told by a doctor, nurse or other health professional that they had coronary heart disease or "angina". The denominator included all those responding to the question except those responding don't know or refuse.

Prevalence of Myocardial Infarction - The numerator included respondents reporting being told by a doctor, nurse or other health professional that they had a myocardial infarction or "heart attack". The denominator included all those responding to the question except those responding don't know or refuse.

Prevalence of Stroke - The numerator included respondents reporting being told by a doctor, nurse or other health professional that they had a stroke. The denominator included all those responding to the question except those responding don't know or refuse.

Prevalence of Overweight and Obesity - Overweight is defined as a Body Mass Index (BMI) 25.0-29.9. Obesity is defined as BMI > 30. BMI is calculated by dividing a person's weight in kilograms by their height in meters squared.

Prevalence of No Leisure Time Activity - Lack of leisure-time physical activity was defined as no leisure time physical activity during the past month.

Prevalence of Current Smoking - All respondents were age 18 years or older. The numerator included all respondents who had smoked 100 cigarettes or more in their lifetime and reported smoking every day or on some days. The denominator included all survey respondents except those with "missing", "don't know" and "refused" answers.

Data Source: Behavioral Risk Factor Surveillance System (6).

HOSPITAL DISCHARGE DATA

Table 9. Diabetes-related hospitalizations – New Hampshire, 2002 – 2005
These include both in and out-of-state hospitalizations of NH residents

Year	Hospitalizations	Crude Rate (per 100,000 population)	Age-Adjusted Rate (per 100,000 population using 2000 standard US population)
2002	17,551	1,376.9	1,366.5
2003	18,498	1,436.6	1,406.0
2004	19,110	1,470.9	1,423.4
2005	20,296	1,549.4	1,479.4

Comment: In 1996, hospital discharge data revealed an age-adjusted rate of 1,063.9 diabetes related hospitalizations in New Hampshire. This compares with the rate of 1,479.4 in 2005, an increase of 39%.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related hospitalizations (resident hospital discharges with ICD-9-CM 250.00-250.93).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 10. Diabetes-related hospitalizations by age group—New Hampshire, 2004 and 2005

Age Group (years)	Hospitalizations		Age-Specific Rate (per 100,000 population)	
	2004	2005	2004	2005
0-4	12	19	15.3	25.8
5-14	86	86	45.8	49.9
15-24	216	225	128.7	122.7
25-34	378	423	235.1	285.3
35-44	945	1,125	434.8	528.4
45-54	1,850	2,355	893.4	1,108.1
55-64	3,249	4,227	2,432.7	2,902.1
65-74	4,131	4,895	5,085.9	5,861.5
75-84	4,190	5,054	7,882.6	9,060.8
≥85	1,448	1,887	6,827.6	8,558.8
Total	16,505	20,296	1,261.2+	1,549.4+
+ Crude rate			1,256.1++	1,479.4++
++ Age-Adjusted Rate*				

Table 11. Diabetes-related hospitalizations by gender—New Hampshire, 2004 and 2005

Sex	Hospitalizations		Crude Rate (per 100,000 population)		Age-Adjusted Rate*	
	2004	2005	2004	2005	2004	2005
Male	8,144	10,351	1,266.8	1,604.2	1,414.3	1,687.9
Female	8,361	9,945	1,255.8	1,496.1	1,151.1	1,326.3
Total	16,505	20,296	1,261.2	1,549.4	1,256.1	1,479.4

*per 100,000 population; using 2000 standard US population

Comment: The rate of diabetes-related hospitalizations increased steadily with age. The slight decline in the hospitalization rate for the oldest age group (85+) may be due to survivor bias. In other words, many individuals with diabetes will have died prior to reaching this age. Diabetes-related hospitalizations were more common among males than females.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related hospitalizations (resident hospital discharges with ICD-9-CM 250.00-250.93).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 12. Diabetes-related hospitalizations by payor – New Hampshire, 2004 and 2005

Payor	Hospitalizations		Percent of Total	
	2004	2005	2004	2005
Medicare	10,091	13,022	66.0	64.2
Commercial insurance	3,738	4,948	22.7	24.4
Medicaid	854	961	5.2	4.7
Self-pay	643	689	3.9	3.4
Other	369	676	2.2	3.3
Total	16,505	20,296	100.0	100.0

Comment: Medicare paid for approximately two-thirds of diabetes-related hospitalizations in New Hampshire in recent years. Altogether, government insurance paid almost 70% of all diabetes-related hospitalizations in New Hampshire.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related hospitalizations (resident hospital discharges with ICD-9-CM 250.00-250.93).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 13. Diabetes-related lower extremity amputations – New Hampshire, 2002-2005

Year	Amputations	Crude Rate (per 100,000 population)	Age-Adjusted Rate*
2002	299	23.5	22.9
2003	294	22.8	21.9
2004	294	22.6	21.5
2005	297	21.3	20.0

*per 100,000 population using 2000 standard US population

Comment: The age-adjusted rate of diabetes-related lower extremity amputations has varied from 20.0 per 100,000 to 22.9 per 100,000 since 2002 in New Hampshire. There does not appear to be any consistent trend.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related amputations (resident hospital discharges with ICD-9-CM 250.00-250.93 and a procedure of ICD-9-CM 84.1, and not having a ICD-9-CM code of 895-897 [traumatic amputation]).

Healthy People 2010: Reduce the rate of lower extremity amputations in persons with diabetes to 1.8 amputations per 1,000 persons with diabetes per year.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 14. Diabetes-related lower extremity amputations by age group – New Hampshire, 2005

Age Group (years)	Amputations	Age-Specific Rate (per 100,000 population)
0-34	5	--
35-44	13	6.1
45-54	41	19.3
55-64	75	51.5
65-74	65	77.8
75-84	67	120.1
≥85	13	59.0
Total	279	
+ Crude Rate		21.3
++ Age-Adjusted Rate*		20.0

Table 15. Diabetes-related lower extremity amputations by gender – New Hampshire, 2005

Gender	Amputations	Crude Rate (per 100,000 population)	Age-Adjusted Rate*
Male	208	32.2	32.9
Female	71	10.7	9.5
Total	279	21.3	20.0

* per 100,000 population using 2000 standard US population

Table 16. Diabetes-related lower extremity amputations by payor – New Hampshire, 2005

Payor	Amputations	Percent
Medicare	171	61.3
Commercial insurance	72	25.8
Medicaid	19	6.8
Self-pay	7	2.5
Other	10	3.6
Total	279	100

Comment: Amputations of the lower extremity are more common as people age and among males. Medicare paid for approximately 61% of diabetes-related lower extremity amputations. Altogether, government insurance paid for 68% of diabetes-related lower extremity amputations in New Hampshire.

Methods: Both primary and contributing diagnoses were used to determine diabetes-related amputations (resident hospital discharges with ICD-9-CM 250.00-250.93 and a procedure of ICD-9-CM 84.1, and not having a ICD-9-CM code of 895-897 [traumatic amputation]). Rates were not calculated in Table 12 if the number of events per age group was less than 10.

Healthy People 2010: Reduce the rate of lower extremity amputations in persons with diabetes to 1.8 amputations per 1,000 persons with diabetes per year.

Healthy New Hampshire 2010: No objective.

Data Source: Inpatient Hospital Discharge Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

U.S. RENAL DATA SYSTEM

Figure 14. Incidence rate of end stage renal disease attributed to diabetes by year – New Hampshire, 1994-2005

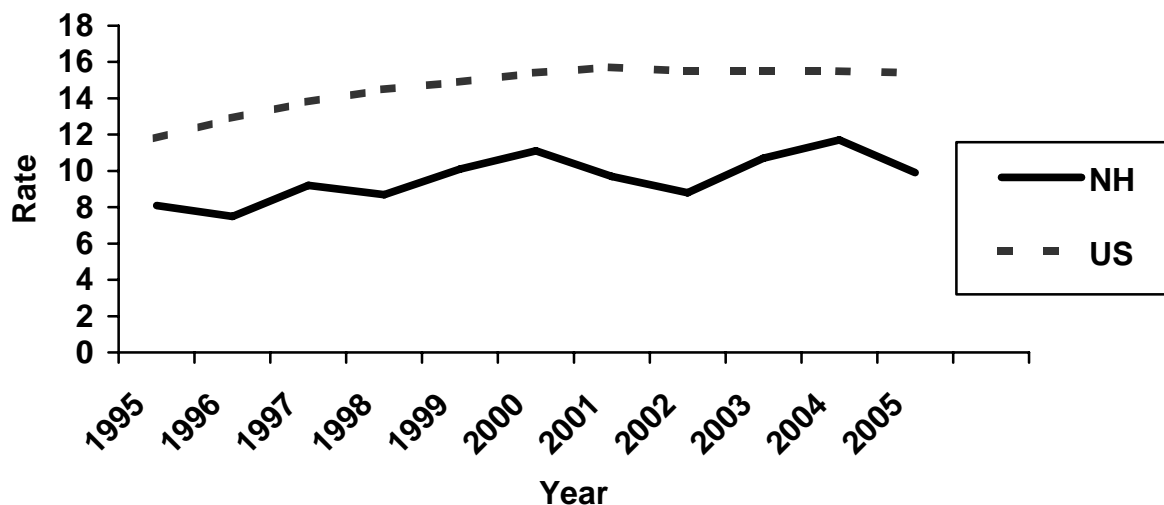


Table 17. Incident Cases and Rates* of End Stage Renal Disease Attributed to Diabetes by Year – New Hampshire and United States, 1995-2005

	1995	1997	1999	2001	2003	2005
NH cases	66	80	91	90	110	103
NH rate	8.1	9.2	10.1	9.7	10.7	9.9
US rate	11.8	13.8	14.9	15.7	15.5	15.4

* per 100,000 population

Comment: The number of persons in New Hampshire reported with end stage renal disease attributed to diabetes increased from 55 in 1994 to 103 in 2005; an increase of almost 100%.

Methods: The US Renal Data System is funded by the National Institutes of Health and the Centers for Medicare and Medicaid Services to monitor the incidence of end stage renal disease using a variety of data sources. Rates are adjusted by age, sex, and race.

Healthy People 2010: Reduce kidney failure due to diabetes (#4.7) to 78 new cases of end stage renal disease in persons with diabetes per 1,000,000 persons per year.

Healthy New Hampshire 2010: No objective.

Data Source: United States Renal Data System (8).

VITAL STATISTICS

Table 18. Diabetes-related mortality by year – New Hampshire, 1995-2005

Year	Deaths	Crude Death Rate (per 100,000 population)	Age-Adjusted Death Rate (per 100,000 population using 2000 standard US population)
1995	796	69.5	75.7
1996	851	73.3	79.4
1997	893	76.1	81.8
1998	892	75.3	80.2
1999	977	81.3	86.0
2000	967	78.2	81.7
2001	963	76.8	79.4
2002	947	74.3	75.2
2003	910	70.7	70.5
2004	1,038	79.9	79.0
2005	1,039	79.3	77.4

Comment: The increase in the crude diabetes death rate in New Hampshire may be due to an increasing prevalence of diabetes and an aging population.

Methods: Both underlying and contributing causes of death were used to determine diabetes-related mortality (ICD-9 code of 250.0-250.9; ICD-10 code of E10.0-E14.9).

Healthy People 2010: The national *Healthy People 2010* objective (#5-5) is to decrease age-adjusted diabetes-related mortality to 45 deaths per 100,000 persons.

Healthy New Hampshire 2010: No objective.

Data Source: Mortality Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 19. Diabetes-related mortality by age group – New Hampshire, 2005

Age Group (years)	Deaths	Age-Specific Death Rate (per 100,000 population)
0-24	0	---
25-34	3	---
35-44	20	9.4
45-54	52	24.5
55-64	122	83.8
65-74	241	288.6
75-84	367	658.0
≥85	234	1,061.3
Total	1,039	
+ Crude Rate		79.3+
++ Age-Adjusted Rate		77.4++

Table 20. Diabetes-related mortality by gender – New Hampshire, 2005

Sex	Deaths	Crude Rate (per 100,000 population)	Age-Adjusted Death Rate (per 100,000 population using 2000 standard US population)
Male	557	86.3	98.5
Female	482	72.5	61.3
Total	1,039	79.3	77.4

Comment: The diabetes-related death rate increases with increasing age. The diabetes-related death rate was significantly higher for males than females.

Methods: Both underlying and contributing causes of death were used to determine diabetes-related mortality (ICD-9 code of 250.0-250.9; ICD-10 code of E10.0-E14.9). Rates were not calculated in Table 19 if the number of events per age group was less than 20.

Healthy People 2010: The national *Healthy People 2010* objective (#5-5) is to decrease age-adjusted diabetes-related mortality to 45 deaths per 100,000 persons.

Healthy New Hampshire 2010: No objective.

Data Source: Mortality Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

Table 21. Diabetes ketoacidosis-related mortality – New Hampshire, 1995-2005

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Deaths	9	9	6	8	1	7	9	6	6	5	11

Comment: The number of deaths from diabetic ketoacidosis in New Hampshire is too small for meaningful analysis.

Methods: Both underlying and contributing causes of death were used to determine diabetic ketoacidosis-related mortality (ICD-9 code 250.1; ICD-10 code E10.1, E11.1, E12.1, E13.1, or E14.1).

Healthy People 2010: No objective.

Healthy New Hampshire 2010: No objective.

Data Source: Mortality Data Set, Health Statistics and Data Management Section, Bureau of Disease Control and Health Statistics, Division of Public Health Services, New Hampshire Department of Health and Human Services.

DIABETES PRIMARY CARE SITES

Table 22. Receipt of clinical prevention practices for adults with diabetes at participating clinic sites – New Hampshire, 2005 and 2007

Clinical Prevention Practice	2005 %	2007 %
Influenza vaccine in past year	39	60
History of pneumococcal vaccine	48	65
Dilated eye exam in past year	35	41
Foot exam in past 3 months	24	57
Foot exam in past year	51	67
Glycosylated hemoglobin test in past 3 months	49	52
Two glycosylated hemoglobin test in past year	68	79
Most recent glycosylated hemoglobin test <7.0	50	51
Aspirin therapy	60	68
Micro albumin in past year	54	56
LDL cholesterol in past year	71	75
LDL <100 mg/dL	54	53
Diabetes education in past year	58	48
Current tobacco use	27	27
Tobacco cessation recommend in past year among current tobacco users	56	67
Self-management goals discussed with patient and documented	55	56
ACE/ARB* therapy (if patient is over 55)	56	74
Body Mass Index Recorded	26	73
Blood Pressure (percent meeting recommendations <130/80)	40	46
Number of patients in sample	4823	4750

*ACE Angiotensin Converting Enzyme inhibitors, ARBs Angiotensin II Receptor Blockers

Comment: Use caution when comparing data from the clinic sites to statewide results from the Behavioral Risk Factor Surveillance System (BRFSS). Information from the clinic sites was based on medical records whereas the BRFSS data were obtained from a telephone survey of adult respondents. Telephone surveys of patients have a risk for recall bias. Imperfect chart documentation may lead to under representation of information from electronic medical records. Patients seen in community health centers may also be of lower socio-economic status than the general population and, therefore, less likely to receive and follow through with the indicated preventive services due to financial and other constraints.

Methods: Fifteen clinic sites participated in the diabetes chart audits for calendar year 2007: Ammonoosuc Community Health Services (Littleton), Avis Goodwin Community Health Center (Dover and Rochester), Coos County Family Health Services (Berlin), Families First Health and Support Center (Portsmouth), Health First Family Care Center (Franklin), Lamprey Health Care (Newmarket and Raymond), Manchester Community Health Center (Manchester), Nashua Area Health Center, Partners in Health (Newport), and Weeks Medical Center (Lancaster). These fifteen sites had a total of 6,456 adults with diabetes. Records were abstracted for 4,823 patients. All charts were reviewed at 11 clinics. A sample of charts was reviewed at Newport, New London, Weeks and White Mountain Clinics.

Healthy People 2010: Multiple objectives. Please see pages 9-21.

Healthy New Hampshire 2010: Immunize 80% of independently living adults age 50 or over against influenza. Immunize 90% of independently living adults age 65 or over against pneumococcal disease. Increase to 80% the percentage of adults with diabetes who report having a dilated eye exam in the last 12 months. Increase to 50% the percentage of adults with diabetes who report having had a glycosylated hemoglobin measurement in the last 12 months.

Data Source: Community Health Access Network and New Hampshire Diabetes Education Program.

CONCLUSIONS

In 2007, 7.2% of adults in New Hampshire reported being diagnosed with diabetes. The prevalence of diabetes increases with increasing age. Three factors are likely to contribute to an increasing prevalence of diabetes in New Hampshire. First, many adults in the state are overweight. Second, fewer adults are physically active. Third, the state's population is becoming older.

Primary prevention for diabetes consists of maintaining appropriate body weight, good nutrition, and adequate amounts of physical activity. Secondary and tertiary prevention consist of good glucose control and interventions such as immunizations and foot and eye examinations. The data in this report indicate that these types of clinical interventions are underutilized. The morbidity and mortality associated with diabetes could be decreased if all persons with the disease received the recommended clinical preventive services.

CONTRIBUTORS

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BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM QUESTIONS

Diabetes

Have you ever been told by a doctor that you have diabetes?

If “Yes” and respondent is female, ask: “Was this only when you were pregnant?”

If Respondent says pre-diabetes or borderline diabetes, use response code 4.

1 Yes

2 Yes, but female told only during pregnancy

3 No

4 No, pre-diabetes or borderline diabetes

7 Don't know/Not sure

9 Refused

When was the last time you had an eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light.

1=Within the past month

2=Within the past year

3=Within the past 2 years

4=2 or more years ago

8=Never

7=Don't know/Not sure

9=Refused

Has a doctor ever told you that diabetes has affected your eyes or that you had retinopathy?

1=Yes

2=No

7=Don't know/Not sure

9=Refused

About how many times in the past 12 months has a health professional checked your feet for any sores or irritations?

__ __=Number of times

88=None

77=Don't know/Not sure

99=Refused

About how often do you check your feet for any sores or irritations? (Include times when checked by a family member or friend, but do not include times when checked by a health professional.)

- 1= __ __ Times per day
- 2= __ __ Times per week
- 3= __ __ Times per month
- 4= __ __ Times per year
- 888=Never
- 555=No feet
- 777=Don't know/Not sure
- 999=Refused

Have you ever had any sores or irritations on your feet that took more than four weeks to heal?

- 1=Yes
- 2=No
- 7=Don't know/Not sure
- 9=Refused

A test for hemoglobin "A one C" measures the average level of blood sugar over the past three months. About how many times in the last year has a doctor, nurse, or other health professional checked you for hemoglobin "A one C"?

- __ __=Number of times
- 88=None
- 98=Never heard of hemoglobin "A one C" test
- 77=Don't know/Not sure
- 99=Refused

Are you now taking diabetes pills?

- 1=Yes
- 2=No
- 7=Don't know/Not sure
- 9=Refused

Are you now taking insulin?

- 1=Yes
- 2=No
- 9=Refused

About how often do you check your blood for glucose or sugar? Include times when checked by a family member or friend, but do not include times when checked by a health professional.

- 1__ __ Times per day
- 2__ __ Times per week
- 3__ __ Times per month
- 4__ __ Times per year
- 888=Never
- 777=Don't know/Not sure
- 999=Refused

About how many times in the past 12 months have you seen a doctor, nurse, or other health professional for your diabetes?

- __ __=Number of times
- 88=None
- 77=Don't know/Not sure
- 99=Refused

How old were you when you were told you have diabetes?

- __ __=Age in years
- 77=Don't know/Not sure
- 99=Refused

Body Mass Index

About how much do you weigh without shoes?

- __ __ __=Weight (pounds)
- 777=Don't know/Not sure
- 999=Refused

About how tall are you without shoes?

- __ / __ __=Height (ft/inches)
- 777=Don't know/Not sure
- 999=Refused

Leisure-time Physical Activity

During the past month, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise?

- 1=Yes
- 2=No
- 7=Don't know/Not sure
- 9=Refused

Influenza Immunization

During the past 12 months, have you had a flu shot?

1=Yes

2=No

7=Don't know/Not sure

9=Refused

Pneumococcal Immunization

Have you ever had a pneumonia shot? This shot is usually given only once or twice in a person's lifetime and is different from the flu shot. It is called the pneumococcal vaccine.

1=Yes

2=No

7=Don't know/Not sure

9=Refused

Hypertension

Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?

1=Yes

2=No

7=Don't know/Not sure

9=Refused

Elevated Cholesterol

Have you ever been told by a doctor, nurse, or other health professional that your blood cholesterol is high?

1=Yes

2=No

7=Don't know/Not sure

9=Refused

Smoking

Have you smoked at least 100 cigarettes in your entire life?

1=Yes

2=No

7=Don't know/Not sure

9=Refused

Do you now smoke cigarettes everyday, some days, or not at all?

1 Every day

2 Some days

3 Not at all

9 Refused

Oral Health

How long has it been since you last visited the dentist or a dental clinic for any reason?

- 1=Within the past year
- 2=Within the past 2 years
- 3=Within the past 5 years
- 4=5 or more years ago
- 7=Don't know/Not sure
- 8=Never
- 9=Refused

General Health Status

Would you say that in general your health is:

- 1=Excellent
- 2=Very good
- 3=Good
- 4=Fair
- 5=Poor
- 7=Don't know/Not sure
- 9=Refused