



Diabetes in Idaho Behavioral Risk Factor Surveillance System Report 2004

Idaho Department of Health and Welfare
Division of Health
Bureau of Community and Environmental Health
Diabetes Prevention and Control Program



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EXECUTIVE SUMMARY

Diabetes in Idaho continues to steadily increase. From 1997 to 2004, the prevalence of diabetes in Idaho has gone from 4.0% to 6.2%. It is estimated 90,000 Idaho adults have diabetes but only 63,000 have actually been diagnosed. Nationally, 20.8 million adults and children have diabetes (14.6 million diagnosed and 6.2 million undiagnosed). Many complications are caused by diabetes (heart disease and stroke, high blood pressure, blindness, kidney disease, nervous system disease, amputations, dental disease, and complications of pregnancy) resulting in diabetes being the sixth leading cause of death among Idaho adults.

The increasing prevalence of diabetes can be prevented or reduced. Risk factors for developing diabetes include a sedentary lifestyle, overweight and obesity, poor eating habits, smoking, blood pressure, and cholesterol. Participation in a diabetes self-management education course increases the likelihood people with diabetes will receive the American Diabetes Association's recommended standards of preventive care. Addressing these modifiable risk factors can significantly contribute to reducing the prevalence of diabetes in Idaho.

In addition to health complications, diabetes is also a costly disease. It is estimated diabetes cost the United States \$92 billion dollars in medical costs and \$40 billion in indirect costs (disability, work loss, premature mortality) in 2002. The economic cost of diabetes complications can be prevented or significantly reduced by improving self-monitoring of blood glucose, increasing the proportion of people with diabetes who receive a recommended hemoglobin A1c test, annual influenza and pneumonia vaccinations, annual dilated eye exams, foot exams, and dental care. Diabetes education is an effective tool to prevent both the disease and its complications.

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INTRODUCTION

Purpose

The purpose of this comprehensive report is to provide the Idaho Diabetes Prevention and Control Program (DPCP) partners with a summary of the prevalence, effects, care levels, and risk factors associated with diabetes in the State of Idaho. This document supports efforts to reduce the burden of diabetes in the state, aids strategic planning efforts, and provides a means of increasing awareness and improving levels of care. Additionally, this report provides a benchmark for future program evaluation activities.

Diabetes Overview

Diabetes mellitus is characterized by hyperglycemia (elevated blood glucose) resulting from defects in insulin secretion, insulin action, or both. People with diabetes are at greater risk for developing other health complications including cardiovascular disease, kidney disease, blindness, and lower limb amputations.

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Most diabetes cases fall into two categories:

- Type 1, formerly called insulin-dependent diabetes or juvenile-onset diabetes, usually begins during childhood or adolescence and requires the use of insulin. About 5% to 10% of diabetes cases are type 1.
- Type 2, formerly called non-insulin-dependent diabetes or adult-onset diabetes, usually develops in adults who are overweight, physically inactive, or have a family history of diabetes, and is characterized by insulin resistance and relative insulin deficiency. Prevalence of type 2 diabetes is greater in certain ethnic and racial groups such as Hispanics, Native Americans, African Americans, and Asian-Pacific Islanders.

Diabetes poses a significant public health challenge for the United States. Some 800,000 new cases are diagnosed each year or 2,200 cases per day.¹ The number of people with diabetes has increased steadily over the past decade. Presently, 14.6 million children and adults in the U.S. have been diagnosed with diabetes while another 6.2 million people are estimated to have the disease but are undiagnosed.¹ In addition to the health problems caused by diabetes, it is also a costly disease. Estimates of the attributable costs of diabetes are around \$132 billion (\$92 billion direct; \$40 billion indirect).¹

Idaho Diabetes Prevalence

It is estimated 90,000 adult residents of Idaho have diabetes, but only 63,000 have actually been diagnosed.² The disease is especially prevalent among those 65 years of age or older (15.9%).³ Overall, the prevalence of diabetes among Idaho adults has increased 32% since 1994, from 4.2% to 6.2% in 2004.³

NATIONAL DIABETES TRENDS

Personal Behaviors

Obesity, improper nutrition (including increased ingestion of fats and processed foods) and lack of physical activity are occurring in individuals as young as 15. These behaviors may explain the increased diagnosis of type 2 diabetes in teenagers.⁴

Demographics

Diabetes is most common in people over the age of 60 years. Racial and ethnic groups are at a higher risk for diabetes. Because of the rising levels of obesity and physical inactivity in the U.S. population, the number of people with diabetes is expected to continue to increase into the first few decades of the 21st century.⁴

Ascertainment

Known as the hidden disease, diabetes is undiagnosed in an estimated 6.2 million people. Due to improved surveillance and data-recording systems, much of the missing data (i.e. complications associated with diabetes on death certificates, hospital discharge forms, emergency department paperwork and other documents) is now being captured.⁴

Limitations in Programs to Change Behaviors

Scientific evidence indicates secondary and tertiary prevention programs (i.e. dilated eye exams, foot exams and self-management education) are effective in reducing the complications of diabetes. Yet, changing the behaviors of people with diabetes, health care providers, or other individuals or organizations involved in diabetes health care is difficult. More effective interventions will need to be developed and implemented to improve the practice of diabetes care.⁴

Disparities

Gaps exist among racial and ethnic groups in the rate of diabetes and its associated complications in the United States. Certain racial, ethnic and socioeconomic communities suffer disproportionately compared to Caucasians.⁴

Prevention

Studies show an estimated 41 million adults in the United States have pre-diabetes.⁵ Pre-diabetes is a condition that raises the risk of developing type 2 diabetes, heart disease and stroke. Lifestyle changes in diet and exercise and losing weight can prevent or delay the disease. According to the national Diabetes Prevention Program (DPP) clinical trial, participants who made lifestyle changes reduced their risk of getting type 2 diabetes by 58%.⁵

HEALTHY PEOPLE 2010 DIABETES OBJECTIVES⁶

Healthy People 2010 (HP 2010) is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats. HP 2010 provides a framework for prevention for the United States.

The Idaho Diabetes Prevention and Control Program (DPCP) uses HP 2010 diabetes objectives to establish program benchmarks and measure progress toward preventing complications and reducing the burden of diabetes in Idaho. The objectives in bold are those being addressed by the DPCP.

- 5-1. Increase the proportion of persons with diabetes who receive formal diabetes education to 60%.**
- 5-2. Prevent diabetes. Target: 3.8 million new cases of diabetes per 1,000 population per year, aged 18-84 years.
- 5-3. Reduce the overall rate of diabetes that is clinically diagnosed. Target: 25 overall new cases per 1,000 population.
- 5-4. Increase the proportion of adults with diabetes whose condition has been diagnosed to 78%.
- 5-5. Reduce the diabetes death rate to 46 deaths per 1,000 population.
- 5-6. Reduce diabetes-related deaths among persons with diabetes to 7.8 per 1,000 persons with diabetes.
- 5-7. Reduce deaths from cardiovascular disease in persons with diabetes to 299 deaths per 100,000 persons with diabetes.
- 5-8. (Developmental) Decrease the proportion of pregnant women with gestational diabetes.
- 5-9. **(Developmental) Reduce the frequency of foot ulcers in persons with diabetes.**
- 5-10. Reduce the rate of lower extremity amputations in persons with diabetes to 2.9 lower extremity amputations per 1,000 persons with diabetes per year.
- 5-11. Increase the proportion of persons with diabetes who obtain an annual urinary microalbumin measurement to 14%.
- 5-12. Increase the proportion of adults with diabetes who have a glycosylated hemoglobin measurement at least once a year to 65%.**
- 5-13. Increase the proportion of adults with diabetes who have an annual dilated eye examination to 76%.**
- 5-14. Increase the proportion of adults with diabetes who have at least an annual foot examination to 91%.**
- 5-15. Increase the proportion of persons with diabetes who have at least an annual dental examination to 71%.**
- 5-16. Increase the proportion of adults with diabetes who take aspirin at least 15 times per month to 30%.
- 5-17. Increase the proportion of adults with diabetes who perform self-blood-glucose-monitoring at least once daily to 61%.**

IDAHO DIABETES PREVENTION AND CONTROL PROGRAM

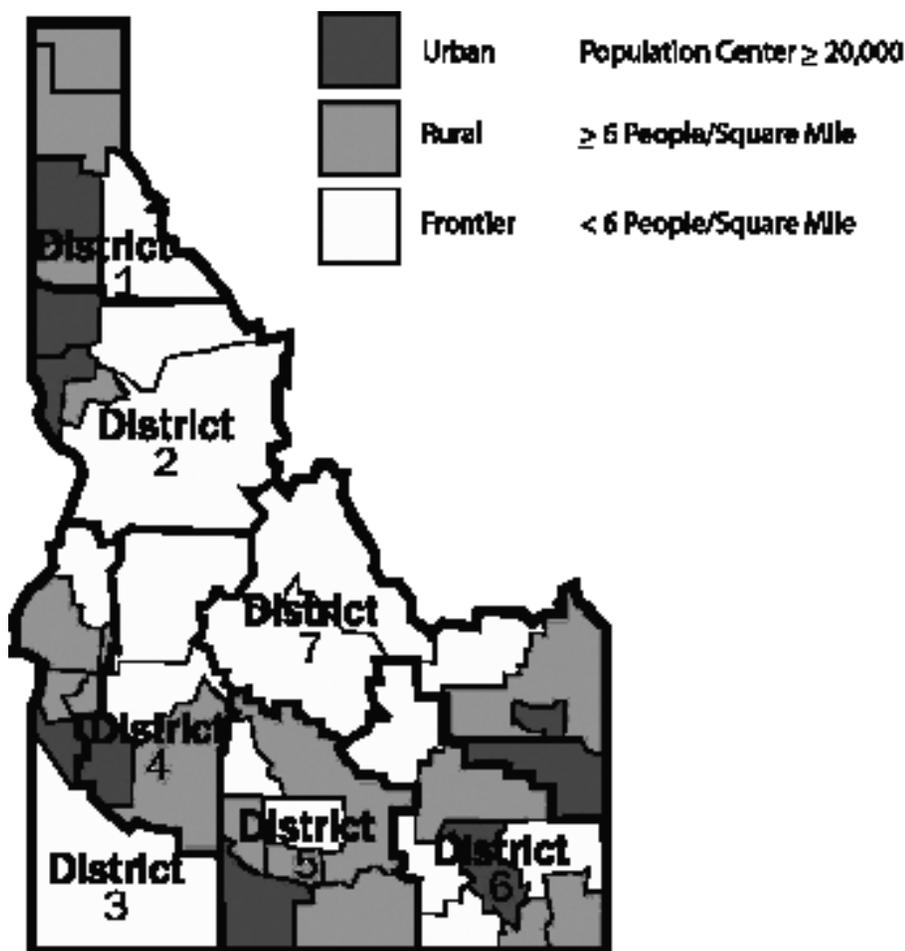
The Idaho Diabetes Prevention and Control Program (DPCP) has operated with capacity-building funding from the Centers for Disease Control and Prevention (CDC) since 1994. Because the burden of diabetes and the risk for developing the disease are growing statewide, addressing these issues is a public health responsibility. Over the past ten years, the DPCP has focused first on defining the burden of diabetes by assessing prevalence and incidence. Second, by moving forward with coordination and implementation of programs and projects which tackle access to care issues, providing professional and public education, promoting health communication messages, and creating synergistic partnerships among provider systems. Healthy People 2010 diabetes objectives serve as the state directive toward reducing the burden of diabetes.

10 The DPCP contributes to the infrastructure of the seven local district health departments and other Idaho Department of Health and Welfare programs. The Diabetes Alliance of Idaho (DAI), a statewide coalition of diabetes advisory groups, works with the DPCP to promote clinical practice recommendations through public and professional education. Over the years, the DPCP has placed increasing emphasis on evaluation and surveillance and using the data findings to build program reach.

IDAHO GEOGRAPHY AND POPULATION

- Idaho ranks 11th in land area among the states with 82,751 square miles.⁷
- Idaho is comprised of 44 counties. Nine of these counties are classified as urban, meaning that each contains a population center with at least 20,000 people. Nineteen counties are deemed to be rural, i.e. contain six or more people per square mile, while 16 counties are classified as frontier with fewer than six people per square mile.⁸
- Seven local public health districts serve all 44 counties of Idaho.
- Idaho ranks 39th in population among the states and the District of Columbia. The population of Idaho totals 1.43 million people composed of the following racial groups:⁷

Idaho Population Density by County: 2004 Public Health District Boundaries



White	92.3%
Native American/Alaskan Native	1.6%
Asian, Pacific Islander	1.2%
African American	0.3%
Hispanics (of any race)	8.9%

Source: US Census Bureau Population and Narrative Profile: 2004; Data set: 2004 American Community Survey. Retrieved from factfinder.census.gov on February 14, 2006.

IDAHO DIABETES AT-A-GLANCE

Mortality

- Diabetes was the sixth leading cause of death among Idaho residents in 2004.⁸
- Average annual death rates due to diabetes were substantially higher among those residents in older age groups, among Hispanics, and among those races other than white (see page 10 for more detailed mortality data).⁸

Health Care

- Areas for achieving improved levels of health care that meet the clinical practice recommendations of the American Diabetes Association (ADA) include:
 1. Increasing the number of visits to health care professionals;
 2. Optimizing the frequency that blood glucose levels are self monitored;
 3. Conducting an HbA1c test every three months;
 4. Receiving an annual influenza vaccination and a one-time pneumonia revaccination for individuals greater than 64 years-of-age previously immunized when they were less than 65 years-of-age if the vaccine was administered more than five years ago.
 5. Performing foot and eye examinations on a yearly basis.

Risk Factors

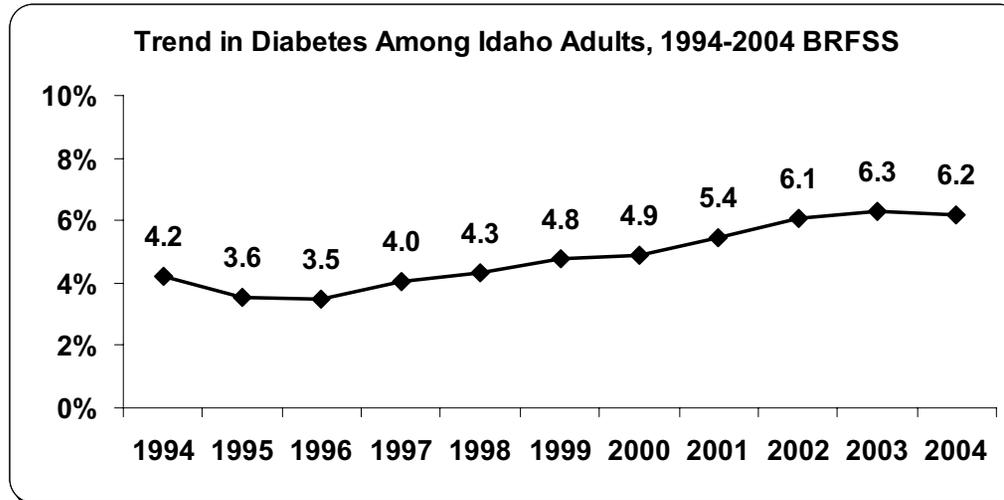
- Risk factors for developing diabetes include:
 1. More than 45 years-of-age;
 2. Being overweight or obese;
 3. Physically inactive;
 4. History of gestational diabetes, giving birth to a baby weighing more than nine pounds at birth; and
 5. Family history of diabetes.

Prevention

- Diabetes prevention should primarily focus on the known, manageable risk factors. Specifically, these are:
 1. Reducing overweight and obesity
 2. Increasing physical activity and exercise
 3. Dietary improvements, such as eating more fruits and vegetables
 4. Reducing hypertension
 5. Lowering blood cholesterol levels.

PREVALENCE

Approximately 63,000 people, or 6.2% of Idaho adults, 18 years of age or older, report ever being told by a doctor they have diabetes (excluding gestational diabetes).³ It is estimated that 27,000 adults are undiagnosed, leaving the total prevalence at 90,000.³



Statewide Diabetes Prevalence - 6.2%	
Prevalence of Diabetes by Health District	
Health District 1	7.0%
Health District 2	5.8%
Health District 3	7.7%
Health District 4	4.9%
Health District 5	5.8%
Health District 6	8.2%
Health District 7	5.8%

Mortality

Diabetes was the sixth leading cause of death among Idaho residents in 2004.⁸ The average annual age-specific death rate due to diabetes was considerably higher among residents age 65 and older, based on the three-year period from 2001 to 2003.⁸

Age Group	Diabetes as primary cause of death		Diabetes-related*	
	Three-Year Number of Deaths 2002-2004	Average-Annual Age-specific rate Per 100,000*	Three-Year Number of Deaths 2002-2004	Average-Annual Age-specific rate Per 100,000*
Total	1,020	24.9	2,341	57.1
<15	-	-	-	-
15-24	2	0.3	2	0.3
25-34	11	2.0	15	2.8
35-44	42	7.3	63	11.0
45-54	95	16.8	171	30.3
55-64	105	27.4	241	62.9
65-74	213	88.7	495	206.2
75-84	319	195.4	783	479.5
85+	233	366.3	571	897.6

*Diabetes-related deaths include Idaho resident deaths in Idaho and out-of-state who died from diabetes (diabetes was listed as underlying cause of death) plus all deaths to Idahoans who died in Idaho in which diabetes was listed anywhere in the cause-of-death section. Literal information for out-of-state deaths are not reported on the death certificates provided to Idaho Vital Statistics for analysis. Therefore, numbers and rates are underreported for diabetes-related out-of-state deaths.

To compare causes of death among populations that have different age distributions, it is best to use age-adjusted rates. Age-adjusting allows for direct comparisons without bias due to categorical age differences.

Diabetes as primary cause of death			Diabetes-related*	
	Three-Year Number of Deaths 2002-2004	Three-Year Average Annual Age-Adjusted Death Rate per 100,000	Three-Year Number of Deaths 2002-2004	Average-Annual Age-specific rate Per 100,000*
Gender				
Male	496	29.6	1,151	68.9
Female	524	24.1	1,190	54.3
Race**				
White	972	25.7	2,263	59.9
Race other than white	48	62.0	78	105.0
--American Indian	36	109.4	53	167.5
Ethnicity* **				
Non-Hispanic	976	26.0	2,260	60.2
Hispanic	42	44.3	79	87.3
Unknown	2	--	2	--

Note: Idaho Vital Records receives death records for Idaho resident deaths occurring out-of-state. These records list the ICD-10 code for underlying cause of death. However, literal information on immediate cause, conditions leading to the immediate cause, underlying cause, other significant contributing conditions, and description of how the injury occurred are not provided to Idaho Vital Records. Therefore, only records for Idaho residents in which the death occurred in Idaho were reviewed for diabetes contributing to the death. Keywords searched: “Diabetes”, “Diabetic”, and “Diab. Mellitus”. Approximately 5% of death records are from out of state and the diabetes-related death rate is likely to be somewhat below actual.

*Diabetes-related deaths include Idaho resident deaths in Idaho and out-of-state who died from diabetes (diabetes was listed as underlying cause of death) plus all deaths to Idahoans who died in Idaho in which diabetes was listed anywhere in the cause-of-death section. Literal information for out-of-state deaths are not reported on the death certificates provided to Idaho Vital Statistics for analysis. Therefore, numbers and rates are underreported for diabetes-related out-of-state deaths.

**The methodology for race of decedent changed from 2002 to 2003; caution should be used in the interpretation of race data. In 2002, it was possible to select only one race of decedent on Idaho death certificates. Beginning in 2003, it became possible to select one or more race(s) of decedent on Idaho death certificates. In 2002, if “other race” was selected and “Mexican” or “Hispanic” was written in as the other race, then the race was coded to “white”. Beginning in 2003, if “other race” was selected and “Mexican” or “Hispanic” was written in as the other race, then the race was coded to “other race”.

***Ethnicity is reported separate from race on the death certificate.

Health Care

Diabetes requires continuing medical care and education to prevent acute complications and to reduce the risk of long-term complications.¹⁰ Idaho adults with diabetes reported having health care insurance coverage (90.5%), slightly higher than the 84.1% coverage level for all adult residents, in 2004. Overall, 42.7% said they saw a health professional at least four times in the past year for their diabetes; 13.2% did not see a health professional for diabetes in the past year.³ Areas for achieving improved medical care to prevent complications include self-monitoring of blood glucose, hemoglobin A1c testing, influenza and pneumonia vaccinations, dilated eye exams, foot exams, and dental care.

Self-Monitoring of Blood Glucose

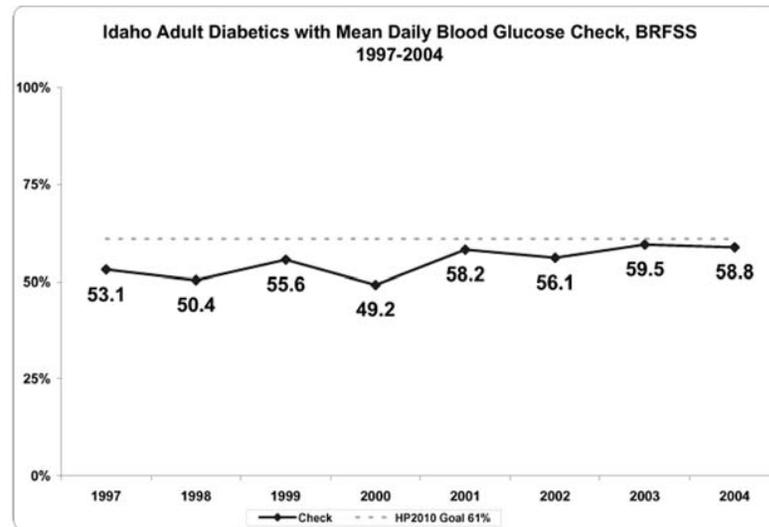
Achieving normal glucose levels for most patients requires education, self-management, and intensive treatment programs. Self-monitoring of blood glucose (SMBG), especially in insulin treated patients, is a critical component of most treatment programs.¹⁰

Healthy People 2010 Guideline

5-17. Increase the proportion of people with diabetes who perform self-blood-glucose-monitoring at least once daily to 61%.⁶

ADA Recommendation

SMBG should be carried out three or more times daily for patients using multiple insulin injections. For patients using less frequent insulin injections or oral agents or medical nutrition therapy (MNT) alone, SMBG is useful in achieving glycemic.¹⁰



In Idaho, adults with diabetes are not meeting the Healthy People 2010 goal of 61% checking blood glucose level an average of at least once a day.

Hemoglobin A1c

Hemoglobin A1c testing can provide a measure of a patient's average glycemic level over the preceding two to three months. High A1c levels (in excess of 7.0%) have been associated with increased risk of microvascular and neuropathic complications of diabetes.¹⁰

Healthy People 2010 Guideline

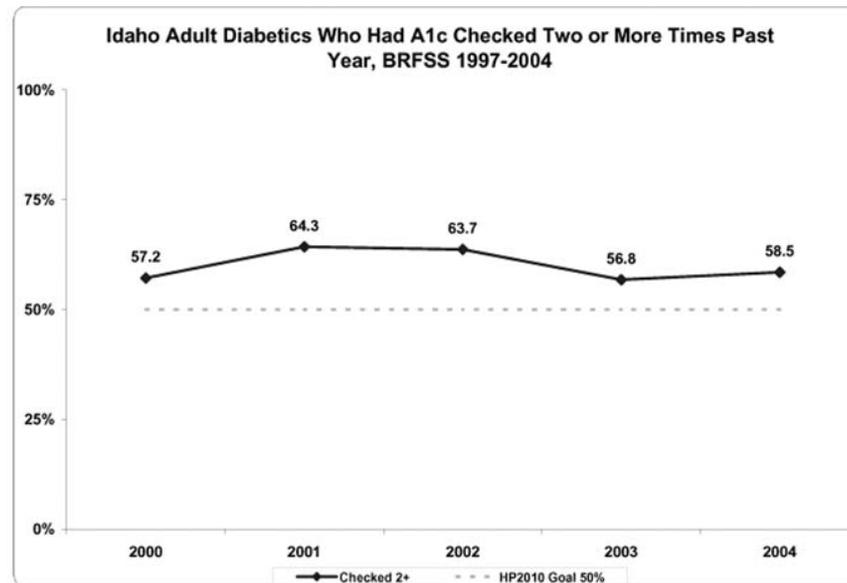
5-12. Increase the proportion of people with diabetes who have a glycosylated hemoglobin measurement at least once a year to 65%.⁶

ADA Recommendation

Perform Hemoglobin A1c test at least two times per year in patients who are meeting treatment goals (and have stable glycemic control), and quarterly in patients whose therapy has changed or who are not meeting glycemic controls.¹⁰

- Glycemic recommendations for patients in general: A1C goal of <7%.
- Glycemic recommendations for the individual patient: A1C as close to normal (<6%) as possible without significant hypoglycemia.

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While adults with diabetes in Idaho exceed the HP2010 goal for annual A1c checking, the 2004 rate of 73% is the lowest measured and the difference is statistically significant from previous years.

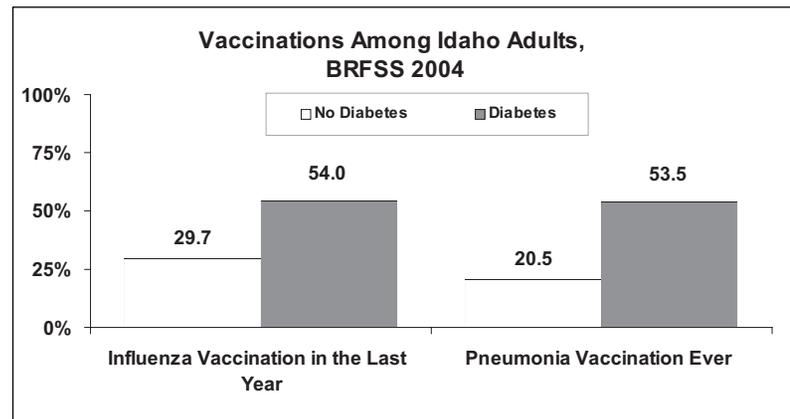
Vaccinations: Influenza and Pneumonia

Influenza and pneumococcal immunizations are effective preventive services for people with diabetes. People with diabetes are at increased risk for ketoacidosis, being hospitalized, and dying of complications from the flu and pneumonia.

ADA Recommendation

Consistent with the Centers for Disease Control's Advisory Committee on Immunization Practices, the influenza vaccine should be recommended annually for patients with diabetes, age greater than or equal to six months. Pneumococcal vaccine should be a one-time revaccination for individuals greater than 64 years-of-age previously immunized when they were less than 65 years-of-age if the vaccine was administered more than five years ago.¹⁰

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Influenza vaccinations for Idaho adults with diabetes decreased from 61.7% in 2003 to 54% in 2004. Inconsistencies in vaccine availability may have accounted for the decrease in immunizations.

Eye Exams

Retinopathy is a complication of diabetes that damages the eye's retina and can cause blindness. Diabetes is the leading cause of new cases of blindness among adults from 20 to 74-years-old and causes 12,000 to 24,000 new cases of blindness each year. Annual dilated eye exams can prevent diabetic retinopathy.¹

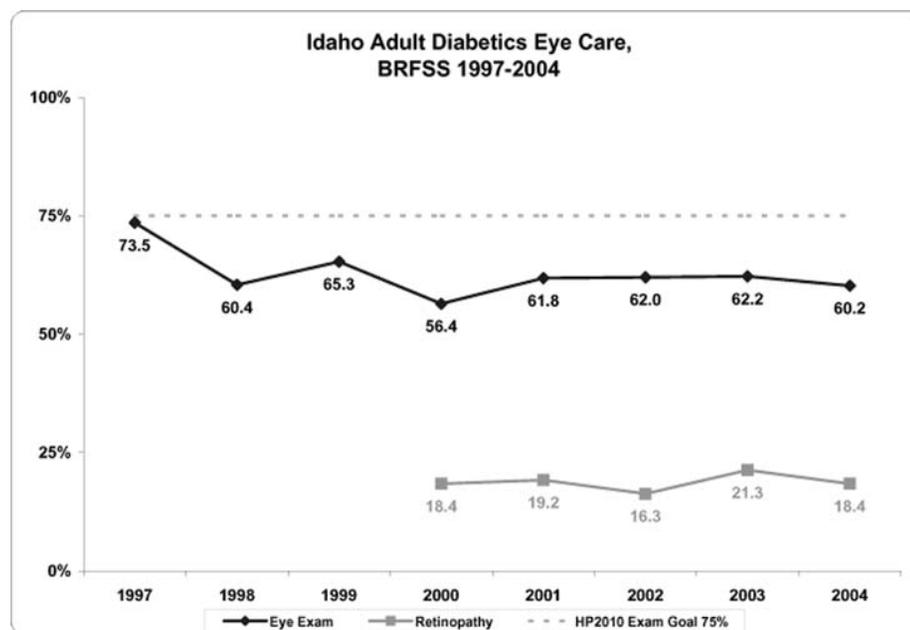
Healthy People 2010 Guideline

5-13. Increase the proportion of people with diabetes who have an annual dilated eye exam to 76%.⁶

ADA Recommendation

Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist shortly after diagnosis of diabetes. Subsequent examinations for type 2 diabetic patients should be repeated annually by an ophthalmologist or optometrist.¹⁰

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The rate of adults with diabetes in Idaho who have reported annual dilated eye examinations has not significantly changed since 1998, averaging about 60%, which is about 16% below the Healthy People 2010 goal of 76%.

Foot Exams

Foot ulcers and amputations are a major cause of morbidity, disability, and expense for people with diabetes. Early recognition and management of risk factors for foot ulcers and amputations can prevent or delay onset of these adverse outcomes. Risk identification is fundamental for effective preventive management of foot problems in people with diabetes.⁵

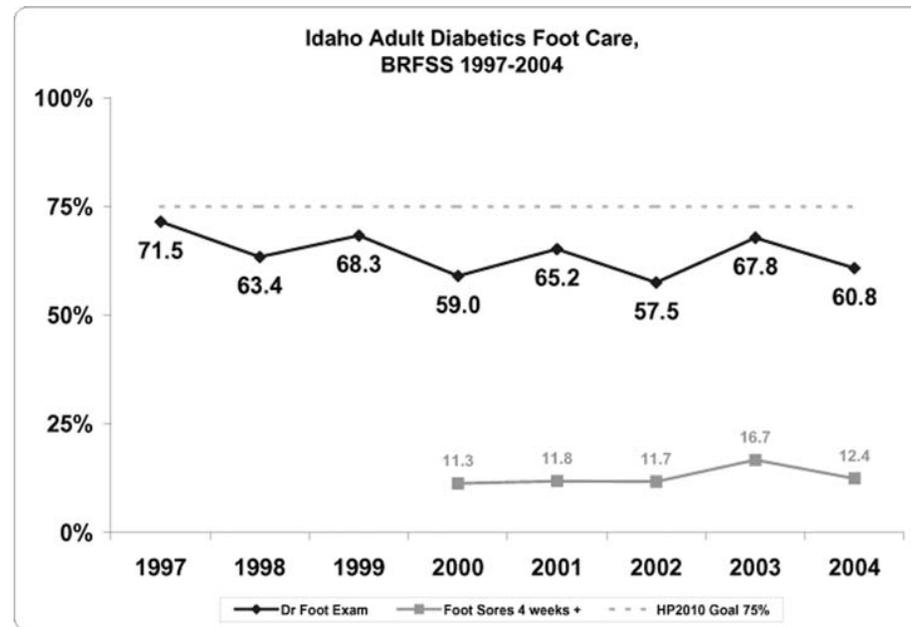
Healthy People 2010 Guideline

5-14. Increase the proportion of people with diabetes who have at least an annual foot examination to 91%.⁶

ADA Recommendation

Perform a comprehensive foot examination and provide foot self-care education annually on patients with diabetes to identify risk factors predictive of ulcers and amputations.¹⁰

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Of Idaho adults with diabetes, 60.8% had a doctor examine their feet sometime within the previous year. This indicates a statistically significant decline from the 2003 rate of 67.8%, as well as being below the Healthy People 2010 goal of 91%. Adults with diabetes also reported a rate of 64.1% of self-examining feet for sores.

Dental Care

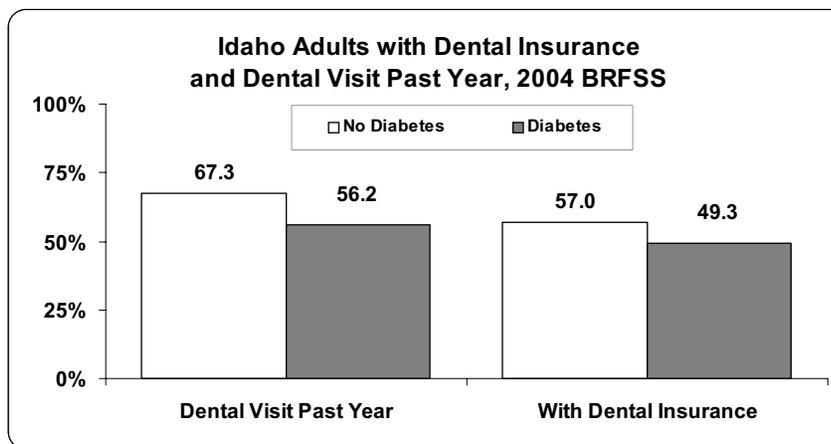
Oral health complications of diabetes include severe periodontitis and subsequent tooth loss, gingivitis, and dental abscesses. Periodontal infection may contribute to hyperglycemia, increase risk for cardiovascular complications and complicate diabetes control. Routine preventive dental care is an important part of the overall management of health for people with diabetes.¹¹

Healthy People 2010 Guideline

5-15. Increase the proportion of people with diabetes who have at least an annual dental examination. The target is to have 71% of people with diabetes having an annual dental exam.⁶

CDC Guidelines

It is recommended people with diabetes see a dentist at least once every six months.⁹



Of Idaho adults with diabetes, 56% had been to the dentist in the past year compared with 67% who did not have diabetes. Of adults with diabetes, 49% had some type of dental insurance; compared with 57% who did not have diabetes.

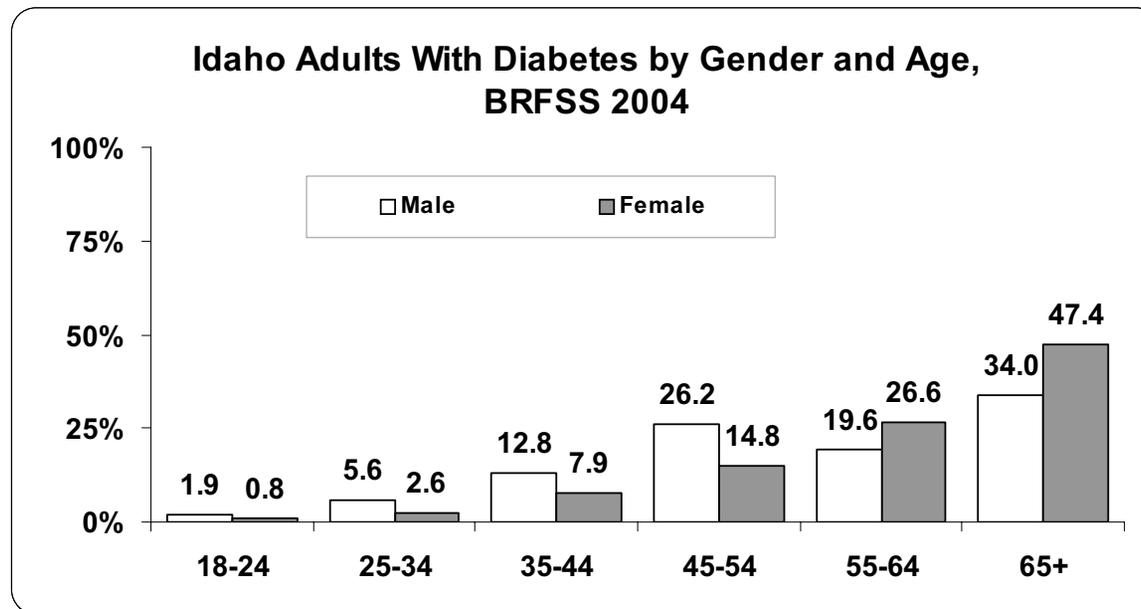
RISK FACTORS

Individuals with higher risks of developing diabetes include those with a family or gestational history of the disease, people of certain racial or ethnic groups (African Americans, Native Americans, Asians, and Hispanics), older age, obesity, physical inactivity, and the presence of high blood pressure or high cholesterol. Many of these factors can be managed or better controlled through medication, changes in diet, and/or lifestyle and behavior modifications.¹

Age

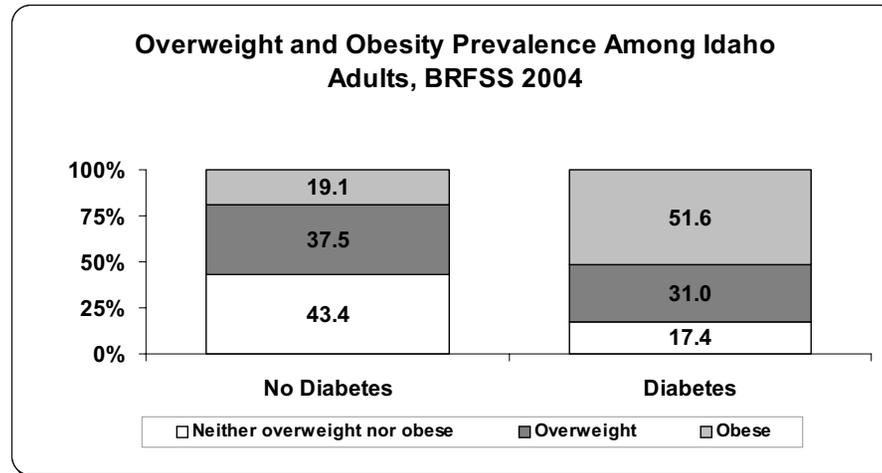
The average age of diagnosis with diabetes was 48 years-of-age for males and 52 for females. The overall age of diagnosis was 50. Males and females were equally likely to be diagnosed with diabetes (6.0% for males and 6.3% for females).³

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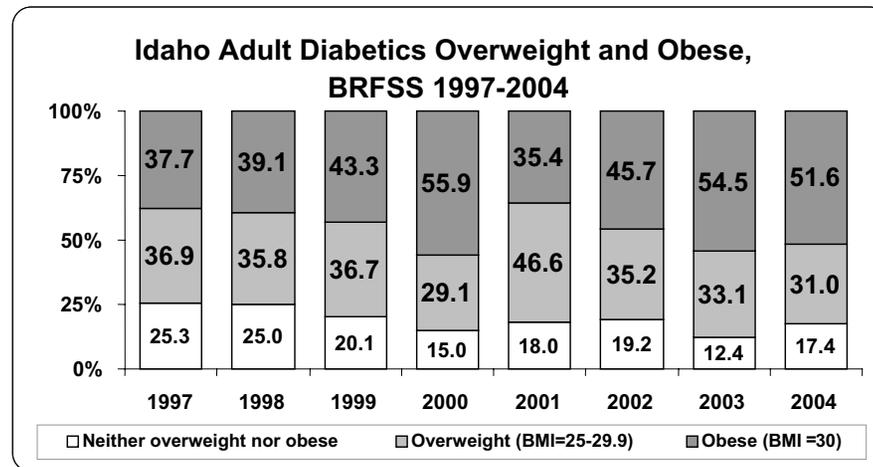
Weight

Adults with diabetes were more than two-and-a-half times as likely to be obese (body mass index greater than or equal to 30) than adults without diabetes.



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The prevalence of overweight or obesity in 2004 (82.6%) among adults with diabetes was greater than that of 1997 (74.6%) or 1998 (74.9%).



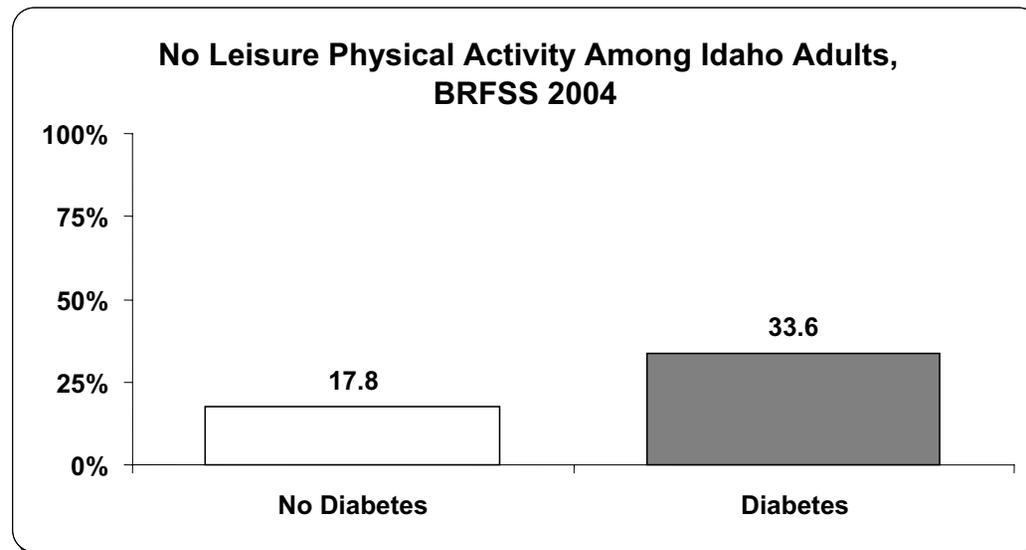
Physical Activity

Physical activity is important for people with diabetes because it can help to lower blood glucose levels, cholesterol, and blood pressure. A thorough medical exam is recommended for someone with diabetes planning to start or increase their physical activity.

ADA Recommendation

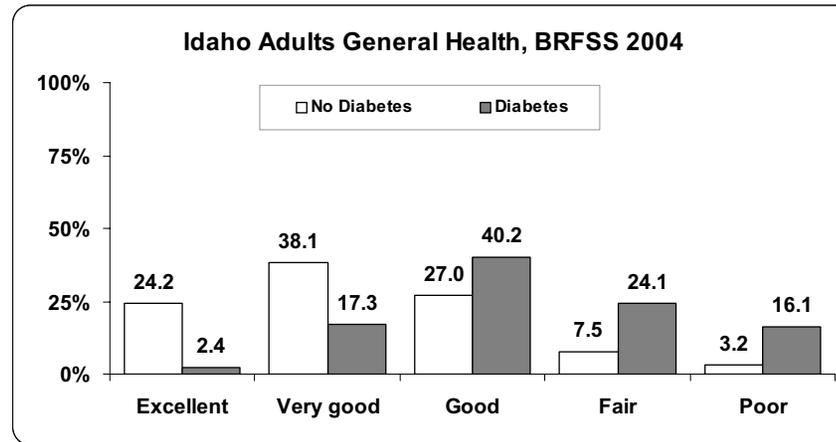
The ADA recommends that all individuals with diabetes should accumulate at least 150 minutes/week of moderate intensity (50-70% of maximal heart rate) aerobic physical activity and/or at least 90 min/week of vigorous aerobic exercise (>70% of maximum heart rate). The physical activity should occur at least 3 days/week with no more than 2 consecutive days without physical activity.¹⁰

- 24** Adults with diabetes were nearly twice as likely to report they did not participate in any leisure physical activity compared to individuals without diabetes.



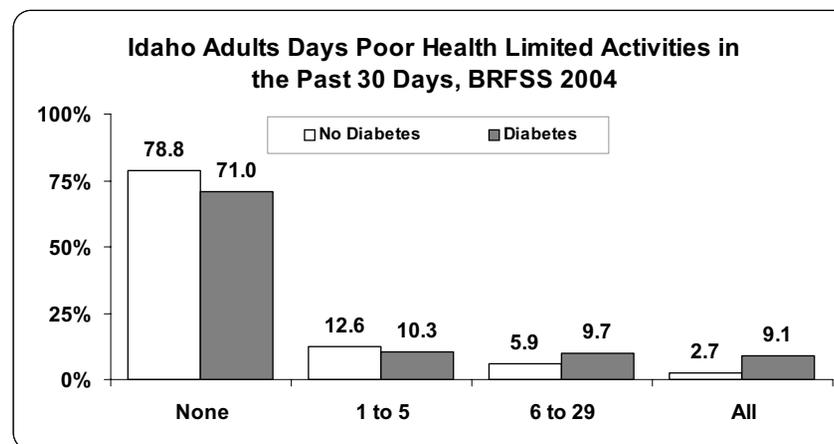
General Health

Diabetes is a complex disease that affects many aspects of daily life. It is difficult for people with diabetes to maintain continuous self-management of the disease and its complications when they report only a fair or poor rating of their own general health.



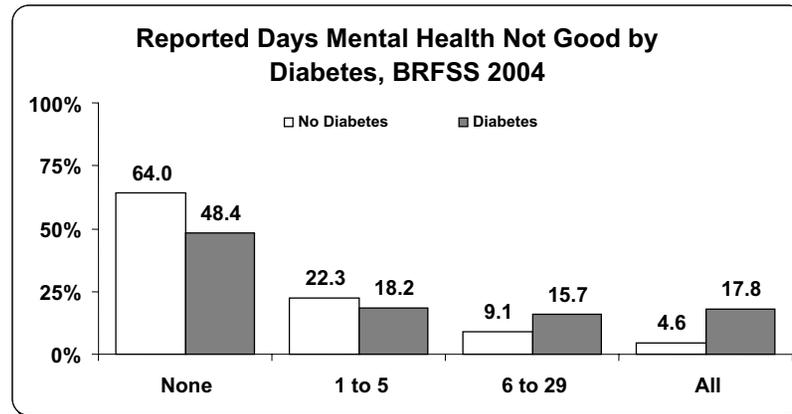
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Adults with diabetes were more than three times more likely to have poor health limit their activities every day than individuals without diabetes.



Mental Health

Compared with adults without diabetes, adults with diabetes were significantly more likely to have one or more days in the past 30 in which their mental health was not good.

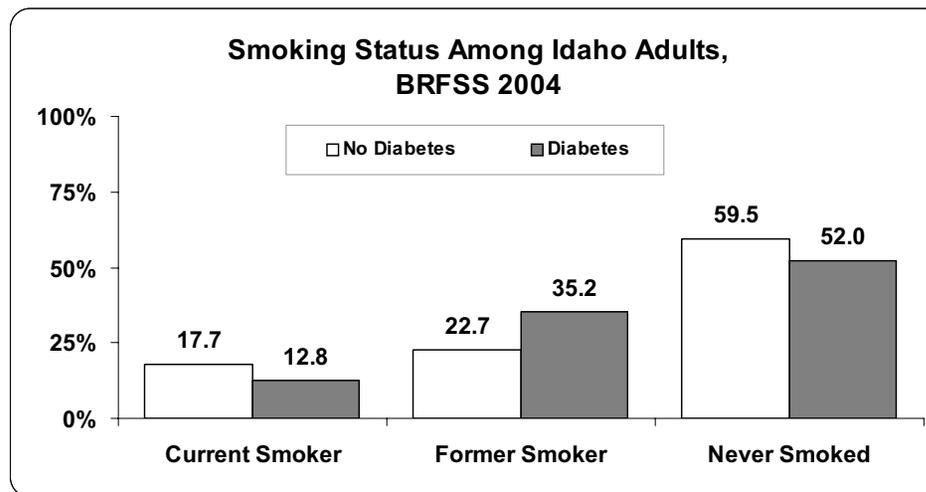


Smoking

Tobacco use, in combination with diabetes, is significantly detrimental to health. Because smoking increases cholesterol and blood pressure, people with diabetes who smoke are at increased risk for developing kidney disease, heart disease, stroke, blindness, neuropathy, foot ulcers and infections, and require amputations of the feet or legs. Smoking cessation is very important for people with diabetes.

ADA Recommendation

The ADA recommends that all people with diabetes should quit smoking. Providers should include smoking cessation counseling and other forms of treatment as a routine component of diabetes care.¹⁰



In 2004, adults with diabetes quit smoking at a significantly greater rate than adults without diabetes; 35.2% compared to 22.7%, respectively. Although fewer adults with diabetes (12.8%) reported being current smokers than adults without diabetes (17.7%), the difference was not statistically significant.

PREVENTION

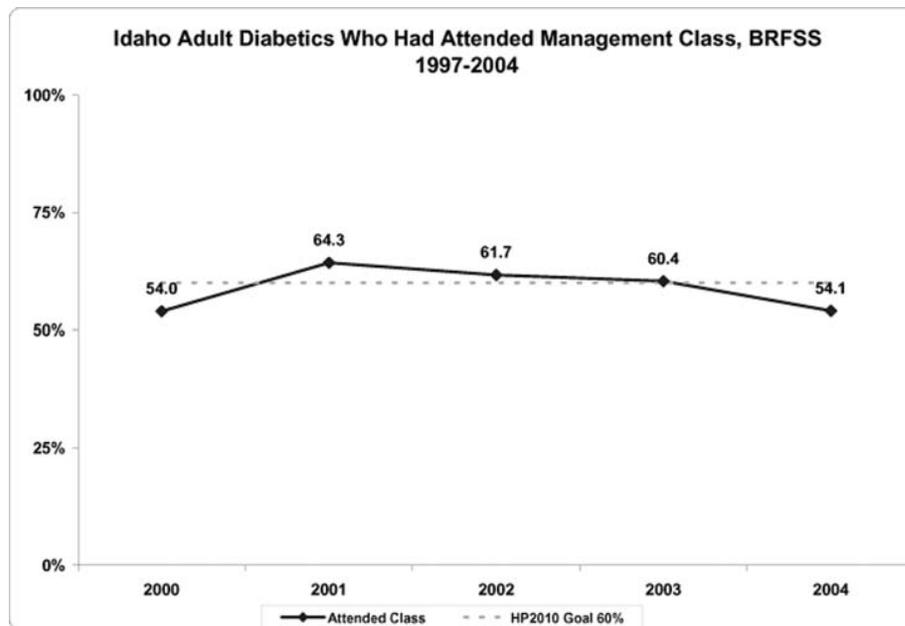
Complications

Individuals with diabetes can prevent or manage complications associated with diabetes, including foot amputations, diabetic neuropathy, and retinopathy. Diabetes Self-Management Education (DSME) is the cornerstone of care for all individuals with diabetes who want to achieve successful health-related outcomes. Participation in a DSME course has been shown to increase the likelihood of people with diabetes receiving recommended standards of preventive care as determined by the ADA.¹⁰

Healthy People 2010 Guideline⁶

5-1. Increase the proportion of people with diabetes who receive formal diabetes education to 60%.

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The 2004 percentage of adults with diabetes who had attended a diabetes self-management class (54.1%) was not significantly different than in 2003 (60.4%). The 2004 data was significantly lower than in 2001 (64.3%) and 2002 (61.7%).

Effects of Diabetes Self-Management Education on Diabetes Preventive Care

Preventive Care Standard	Ever taken a class on self-managing diabetes (percent)	
	Yes	No
Test blood sugar daily *	66.2	46.0
Annual A1c test *	87.2	75.7
Annual Doctor foot check *	69.0	52.2
Annual Doctor visit for diabetes	90.8	86.2
Check own feet daily	67.2	60.1
Annual dilated eye exam	64.9	56.6
Flu vaccination within previous year *	62.9	50.3
Pneumonia vaccination ever	52.8	45.8
On diabetes medication *	84.9	73.2

* Statistically significant difference (p<0.05) between adults with diabetes who have taken a class and those who have not taken a class.

SOURCES

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- 30 4 Healthy People 2010: Volume 1 (second edition), Focus Area 5: Diabetes. Retrieved from <http://www.healthypeople.gov/publications> on April 18, 2006.
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- 10 American Diabetes Association, Clinical Practice Recommendations, Volume 29, Supplement 1, January 2006.
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APPENDIX

Idaho has participated in the Behavioral Risk Factor Surveillance System (BRFSS) cooperative agreement with the Centers for Disease Control and Prevention (CDC) since 1984 to estimate the prevalence of risk factors that contribute to the leading causes of morbidity and mortality in Idaho. The BRFSS is the largest state-based survey providing prevalence estimates of high-risk behaviors addressed in Healthy People 2010, including smoking, alcohol and drug abuse, and seat belt non-use. The system also provides information on health care access, utilization and on the use of selected medical screening tests, including mammography, clinical breast examination, Pap smear, and blood cholesterol screening. Whenever feasible, questions field-tested and used by other national surveys such as the National Health and Nutrition Examination Survey (NHANES) and the National Health Interview Survey (NHIS) have been adopted. BRFSS surveys are also field-tested by the CDC each year prior to survey administration. Several studies have demonstrated the test-retest reliability of BRFSS questions. Results from these studies have been published in peer-reviewed journals, including the American Journal of Public Health and the CDC Working Paper Series.

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Methodology

The BRFSS is conducted as a random telephone survey of the non-institutionalized adult population. In order to produce health district estimates, Idaho's sample has grown in size from 600 people in 1984 to 4,900 beginning in 1997. The survey is administered in every month of the calendar year. After annual data is complete, individual responses are weighted to be representative of the state's adult population and analysis is performed on weighted data.

Idaho used disproportionate stratified sampling for its 2004 BRFSS. The sample was stratified by Idaho's seven public health districts. Approximately 700 Idahoans were interviewed within each health district, resulting in a total sample size of 5,072. Interviews were conducted by telephone using computer-assisted telephone interviewing (CATI) software to record responses.

The data were weighted to the respondent's probability of selection as well as age and sex based on 2004 population estimates. For example, some households have more than one telephone line and are more likely to be called. The weighting corrects for this difference in the probability of selection as well as differences between the population and the sample.

BRFSS Questions

SECTION 10: DIABETES

Q10.1 Have you ever been told by a doctor that you have diabetes?
(n=5,070)

- 1 Yes (6.2%)
- 2 Yes, but female told only during pregnancy (7%)
- 3 No (92.1%)
- 4 No, pre-diabetes or borderline diabetes (1.1%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

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MODULE 1: DIABETES

M1.1 [IF Q10.1=1, OTHERWISE SKIP TO NEXT SECTION] How old were you when you were told you have diabetes?
(n=381)

Mean age in years: 50.3

- 98 DON'T KNOW/NOT SURE
- 99 REFUSED

M1.2 Are you now taking insulin?
(n=393)

- 1 Yes (24.9%)
- 2 No (75.1%)
- 9 REFUSED

M1.3 Are you now taking diabetes pills?
(n=393)

- 1 Yes (66.6%)
- 2 No (33.4%)

- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

M1.4 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.
(n=388)

Mean number of times per day: 1.4

- 777 DON'T KNOW/NOT SURE
- 888 NEVER
- 999 REFUSED

M1.5 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.
(n=385)

Mean number of times per day: 0.8

- 555 NO FEET
- 777 DON'T KNOW/NOT SURE
- 888 NEVER
- 999 REFUSED

M1.6 Have you ever had any sores or irritations on your feet that took more than four weeks to heal?
(n=391)

- 1 Yes (12.4%)
- 2 No (87.6%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

M1.7 About how many times in the past 12 months have you seen a doctor, nurse, or other health professional for your diabetes?
(n=377)

Mean number of times: 3.8

- 77 DON'T KNOW/NOT SURE
- 99 REFUSED

M1.8 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 past 12 months has a doctor, nurse, or other health professional checked you for "A one C"?
(n=368)

Mean number of times: 2.5

- 77 DON'T KNOW/NOT SURE
- 98 NEVER HEARD OF HEMOGLOBIN A ONE C TEST
- 99 REFUSED

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M1.9 [IF M1.5?555, OTHERWISE SKIP TO M1.10] About how many times in the past 12 months has a health professional checked your feet for any sores or irritations?
(n=387)

Mean number of times: 1.7

- 77 DON'T KNOW/NOT SURE
- 99 REFUSED

M1.10 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.
(n=388)

- 1 Within the past month (< 1 month ago) (18.4%)
- 2 Within the past year (1 month but < 12 months ago) (41.9%)
- 3 Within the past 2 years (1 year but < 2 years ago) (11.2%)
- 4 2 or more years ago (24.1%)
- 8 NEVER (4.4%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

M1.11 Has a doctor ever told you that diabetes has affected your eyes or that you had retinopathy?
(n=390)

M1.12 Have you ever taken a course or class in how to manage your diabetes yourself?

(n=392)

- 1 Yes (54.1%)
- 2 No (45.9%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 11: ORAL HEALTH

Q11.3 [IF Q11.1?8 AND Q11.2?3, OTHERWISE SKIP TO NEXT SECTION] How long has it been since you had your teeth "cleaned" by a dentist or dental hygienist?

(n=4,627)

- 1 Within the past year (< 12 months ago) (64.9%)
- 2 Within the past 2 years (1 year but < 2 years ago) (14.2%)
- 3 Within the past 5 years (2 years but < 5 years ago) (10.6%)
- 4 5 or more years ago (8.9%)
- 8 NEVER (1.4%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

ID01Q05 Earlier I asked you about visits to the dentist. Do you have any kind of insurance coverage that pays for some or all of your routine dental care, including dental insurance, prepaid plans such as HMOs, or government plans such as Medicaid?

(n=5,013)

- 1 Yes (56.6%)
- 2 No (43.5%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 1: HEALTH STATUS

Q1.1 Would you say that in general your health is excellent, very good, good, fair, or poor?
(n=5,060)

- 1 Excellent (22.9%)
- 2 Very good (36.8%)
- 3 Good (27.8%)
- 4 Fair (8.5%)
- 5 Poor (4.0%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

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SECTION 2: HEALTHY DAYS - HEALTH-RELATED QUALITY OF LIFE

Q2.1 Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?
(n=4,977)

Mean number of days not good: 3.4

- 77 DON'T KNOW/NOT SURE
- 99 REFUSED

Q2.2 Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?
(n=4,986)

Mean number of days not good: 3.4

- 77 DON'T KNOW/NOT SURE
- 99 REFUSED

SECTION 12: IMMUNIZATION

Q12.1 During the past 12 months, have you had a flu shot?
(n=5,063)

- 1 Yes (31.0%)
- 2 No (69.0%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

Q12.2 During the past 12 months, have you had a flu vaccine that was sprayed in your nose?
(n=5,063)

- 1 Yes (4%)
- 2 No (99.6%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

Q12.3 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 also called the pneumococcal vaccine.
(n=4,626)

- 1 Yes (22.7%)
- 2 No (77.3%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

SECTION 7: TOBACCO USE

Q7.2 [IF Q7.1=1, OTHERWISE SKIP TO NEXT SECTION] Do you now smoke cigarettes every day, some days, or not at all?
(n=2,163)

- 1 Every day (32.5%)
- 2 Some days (10.0%)
- 3 Not at all (57.4%)
- 9 REFUSED

SECTION 4: EXERCISE

Q4.1 During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

(n=5,061)

- 1 Yes (81.2%)
- 2 No (18.8%)
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED