

# Diabetes in Idaho

## Behavioral Risk Factor Survey

### Hispanic Report 2006





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## **Executive Summary**

Many diseases disproportionately affect minorities and low-income communities in the U.S. Factors such as economic, social, genetic and environmental contribute to these health disparities. In 2006, the Diabetes Prevention and Control Program of the Idaho Department of Health and Welfare conducted a survey of Idaho Hispanic adults to measure aspects of diabetes management and care. Particular findings bear out the conclusion that adequate management of diabetes continues to be less than optimal for Idaho's Hispanic residents.

Risk factors for diabetes, including obesity, high blood pressure and high cholesterol levels were predominant in Hispanics with diabetes and were greater than those for Hispanics without diabetes. Findings showed that Hispanics with diabetes were slightly less likely to engage in leisure time physical activity than Hispanics without diabetes.

In some areas of diabetes management and care, interpretation of the data is difficult and perhaps not possible without further investigation. For example, Hispanics with diabetes were significantly more likely to have visited a doctor for a routine checkup in the last year as well as undergo an annual diabetes-related doctor exam. However, their risk factors, as noted above, remained higher than those for Hispanics without diabetes. Additional studies may help to draw out conclusions regarding these findings.

Preventive care practices, such as daily self-monitoring of blood glucose, self-administered foot check, twice yearly A1C checks and annual dilated eye exam were low in this population of Hispanics with diabetes. It is encouraging to note, however, data indicating that Hispanics with diabetes who participated in a diabetes management class were more likely to engage in multiple preventive care practices than Hispanics with diabetes who did not participate in these classes.

The state of Idaho faces many challenges in the area of diabetes management and care for Hispanics. This study, though limited in its scope, can help direct and focus ongoing and future efforts in the delivery of services for Hispanics with diabetes.

### **Idaho Diabetes Prevention and Control Program**

June 2006

## Introduction

In 2006, the Diabetes Prevention and Control Program of the Bureau of Community and Environmental Health (Idaho Department of Health and Welfare) conducted a survey of Idaho Hispanic adults to measure diabetes management and care, barriers and motivators of physical activity and the health behaviors of smokers.

The questionnaire covered a variety of areas, including general health, health care access, hypertension awareness, cholesterol awareness, immunizations, tobacco use, environmental tobacco smoke exposure, diabetes, oral health, exercise, physical activity and the built environment. It also included demographic questions such as education level, age and income. Many of the questions were adopted from the Behavioral Risk Factor Surveillance System (BRFSS), which was designed by the Centers for Disease Control and Prevention (CDC) to estimate the prevalence of risk factors for the major cause of morbidity and mortality in the United States.

## Methodology

Data for the Idaho Hispanic Survey (IHS) were obtained by telephone using a list-sample of noninstitutionalized adults in Idaho aged 18 and over with Hispanic surnames. Only respondents who self-identified as Hispanic were interviewed and included in this survey. In order to assess the health and behaviors of Hispanics with diabetes and compare with Hispanic adults without diabetes, an over-sample of diabetic Hispanics was obtained. Calls were conducted between January 19 and 27, 2006. In order to reach respondents, calls were made during the day, evening and weekend. Interviews were conducted in both English and Spanish, depending on the preference of the respondent.

If there was a Hispanic adult with diabetes in the household, this individual was automatically selected to participate. If there was more than one adult with diabetes in the household, the computer program randomly selected an adult in the household with diabetes to participate. If there were no adults with diabetes in the household, a Hispanic adult member of the household was randomly selected to be interviewed. Once the quota of completes was achieved with adults without

diabetes, only adults with diabetes were selected to be respondents. A total of 257 valid interviews were completed (126 with diabetes, 131 without diabetes), yielding an American Association for Public Opinion Research (AAPOR) response rate of 38%. The AAPOR rate reflects the percentage of completed and partially completed interviews achieved after fully processing all attempted sample records. It also estimates the number of eligible households from the total number of phone numbers of unknown status. Data were analyzed using SAS® software.

## Limitations

This study was not conducted using probability sampling; therefore, findings cannot be projected to the Idaho population. Probability samples attempt to ensure that every member of the population of interest has a known likelihood of participating. However, the population of interest in this study (Idaho Hispanics with diabetes) has such a low incidence among the total state population that conducting a probability sample among this sub-group was cost prohibitive.

The sample was also limited to noninstitutionalized adults aged 18 and over with Hispanic surnames who live in households with a land line telephone who can communicate in English or Spanish. Adults who reside in prisons or dormitories, who have only cellular telephones or who cannot communicate by telephone were excluded. Federal Communications Commission research in 2003 suggests that minorities and the poor are less likely to have a telephone in the home compared with non-minorities and the affluent. Hispanics with surnames that were not recognized as Hispanic or who have unlisted telephone numbers were also excluded from this study. Further, certain behaviors measured in this study may be underreported (Centers for Disease Control and Prevention, 2004).

Results based upon small sample sizes (fewer than 100 respondents) are reported throughout this report. Small sample sizes produce unreliable results with larger margins of error and do not necessarily represent the larger population.

As this study was conducted as a non-probability sample, results should be considered exploratory in nature and caution should be used in interpretation. Statistical methods for estimating the range of sampling error are not appropriate for nonprobability sample data and therefore were not applied. The results of this study only apply to study participants and should not be generalized to the Idaho Hispanic population.

Despite the limitations, the sampling methods used allow for an exploratory investigation of a population that is often underrepresented in other studies. It may uncover issues which deserve further, more rigorous, inquiry.

## Prevalence

This study does not allow for an estimate of diabetes prevalence. However, in the 2005 Behavioral Risk Factor Surveillance System (BRFSS), the prevalence of diabetes in the Hispanic population was 6.7%, whereas the state prevalence was 6.8%. In this survey of Hispanics in Idaho, the majority of people with diabetes were women. Almost half of Hispanics with diabetes in this study were between the ages of 45-64. The majority of Hispanics without diabetes were younger, with 72% of Hispanics without diabetes reporting ages between 18 to 44. The average age of diabetes diagnosis was 43.1 years for sampled Hispanics. When examined by sex, the average age of diabetes diagnosis for men was 43.8 years and 42.5 years for women. A minority of Hispanics with diabetes had been diagnosed with pre-diabetes\*. In this study, more than half of respondents with diabetes had not finished high school, compared with respondents without diabetes.

## Demographic Characteristics of Respondents by Diabetes Status

	Diabetes (%)	No Diabetes (%)
<b>Sex</b>		
Male	48.1	57.9
Female	51.9	42.1
<b>Age</b>		
18-44	33.3	72.0
45-64	48.1	17.6
65+	18.6	10.4
<b>Education</b>		
K-11	58.0	35.2
High School Graduate	22.1	33.6
Some College	18.4	18.4
College Graduate	11.5	12.8

\*Pre-diabetes, also called Impaired Glucose Tolerance or Impaired Fasting Glucose (IGT/IFG), is a condition in which blood glucose levels are higher than normal but not high enough to be characterized as diabetes. Doctors can use either the fasting plasma glucose test (FPG) or the oral glucose tolerance test (OGTT) to detect pre-diabetes. A person with pre-diabetes has a fasting blood glucose level between 110 and 125 mg/dl. If the blood glucose level rises to 126 mg/dl or above, a person has diabetes. In the OGTT test, blood glucose is tested after fasting and again 2 hours after drinking a glucose-rich drink. In pre-diabetes, the 2-hour blood glucose is 140 to 199 mg/dl. Normal blood glucose is below 140 mg/dl 2 hours after the drink. (Available at: [http://www.pamf.org/diabetes/profile\\_diagnosed.html](http://www.pamf.org/diabetes/profile_diagnosed.html), Accessed 9/1/2006).

## Income

Hispanics with diabetes in this survey were more likely to have lower household incomes than Hispanics without diabetes. Over one-fourth of the Hispanics with diabetes sampled in this survey had a household income of less than \$15,000 a year compared with Hispanics without diabetes.

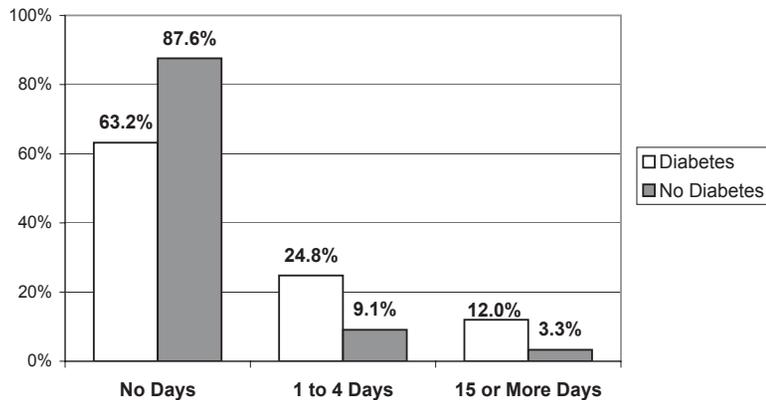
## Quality of Life

In this survey, Hispanics who have been diagnosed with diabetes were more likely to report their health as fair or poor than those who have not been diagnosed with diabetes.

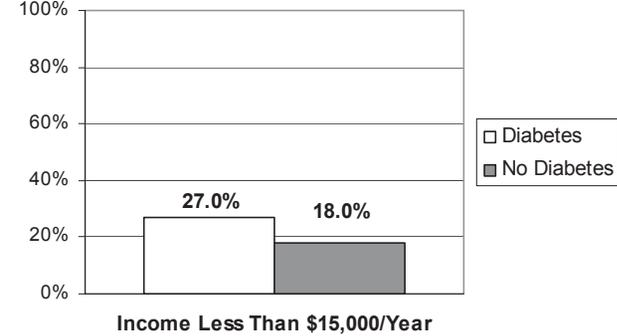
## Physical Health

Respondents with diabetes were more likely to report that within the last 30 days, their usual activities had been limited due to poor physical or mental health. Twelve percent of Hispanics diagnosed with diabetes reported that their usual activities had been limited 15 or more days, whereas only 3% of those without diabetes reported limited activities 15 or more days per month.

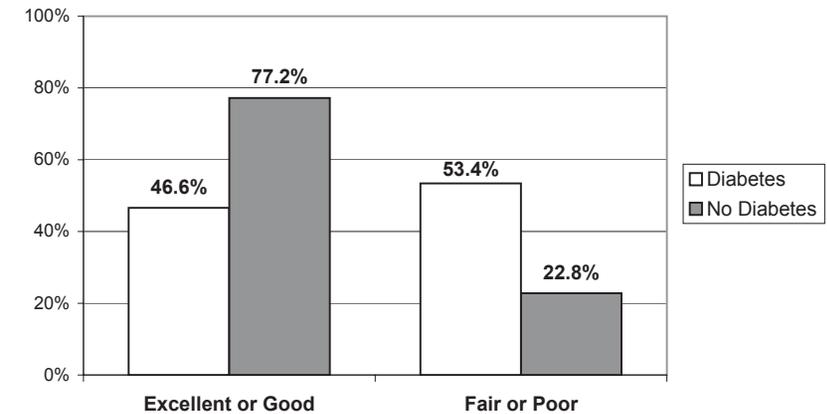
### Number of Days in Past Month That Poor Physical Health Limited Physical Activity



## Household Income



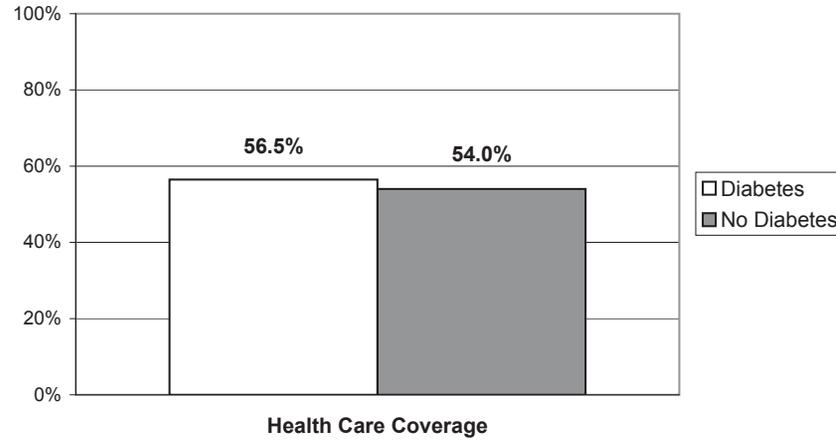
## Self-Reported Health Status by Diabetes Status



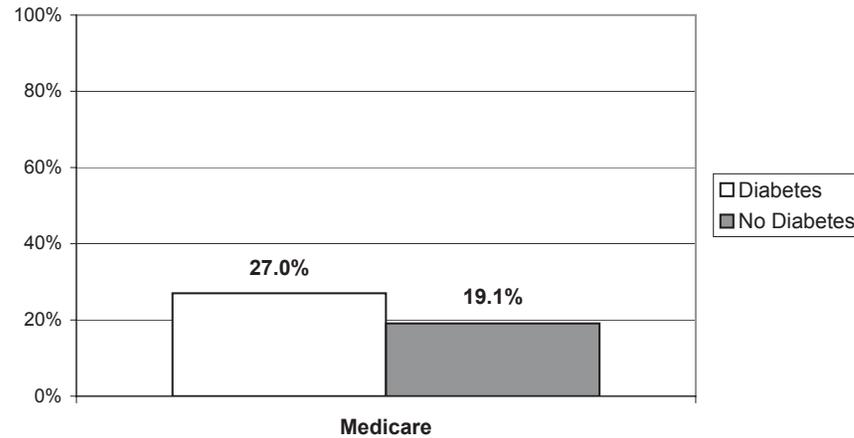
## Health Care Access

The results from this survey found that a little over half of Hispanics with diabetes had health care coverage, which is just slightly lower than Hispanics without diabetes who had health care coverage. Respondents with diabetes were more likely to have Medicare as their main type of health care coverage than those without diabetes.

## Health Care Coverage



## Medicare as Main Type of Coverage



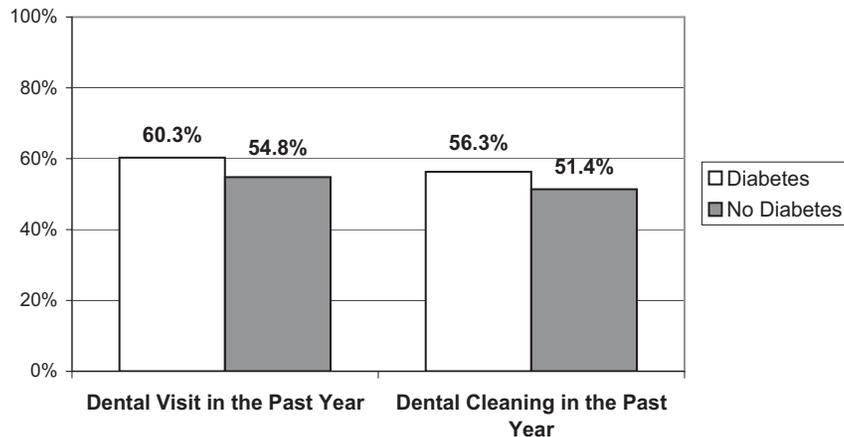
## Doctor Visits

The results from this study show a difference between respondents with diabetes and respondents without diabetes in regards to the number of times they had visited a doctor for a routine checkup. Of Hispanics with diabetes, the majority had seen a doctor for a routine checkup (not diabetes related) in the last year. However, Hispanics with diabetes were less able to see a doctor due to cost than Hispanics without diabetes. The majority of both Hispanics with diabetes and without diabetes went to a doctor's office or a public/community health clinic when they were sick or needed advice.

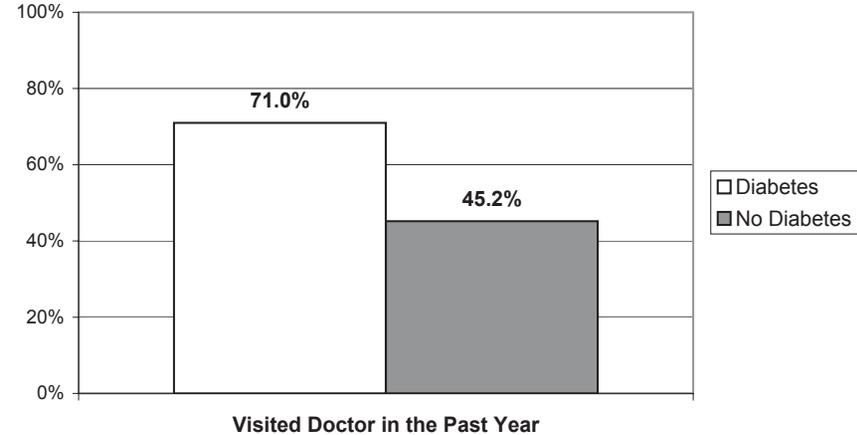
## Dental Visits

More than half of respondents with diabetes had been to the dentist in the past year. A slightly lower percent of Hispanics without diabetes had been to the dentist in the past year. The percentage of individuals with diabetes who had their teeth cleaned in the past year was slightly higher than those individuals without diabetes.

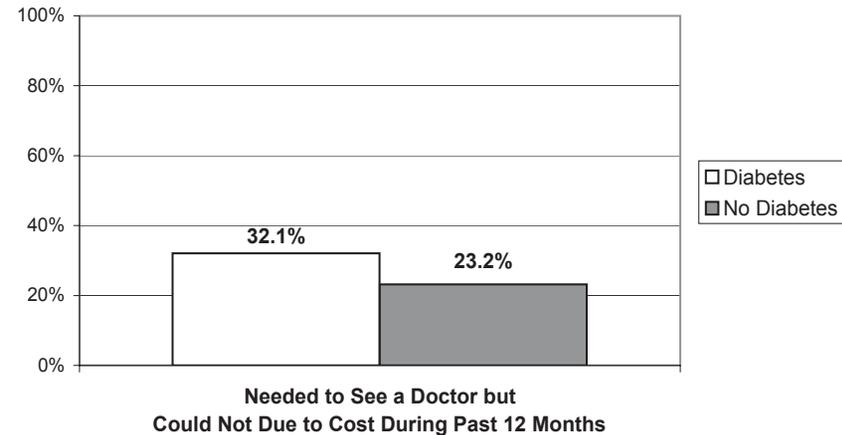
### Dental Visit and Dental Cleaning



### Routine Doctor Visit by Diabetes Status



### Affect of Cost on Doctor Visit



## Risk Factors

Respondents of this study were more likely to be overweight regardless of diabetes status than Idaho adults overall (61.4% – BRFSS, 2005). They were also more likely to be obese than Idaho adults overall (24.5% – BRFSS, 2005). More Hispanics with diabetes fell into the categories of overweight and obese than individuals without diabetes.

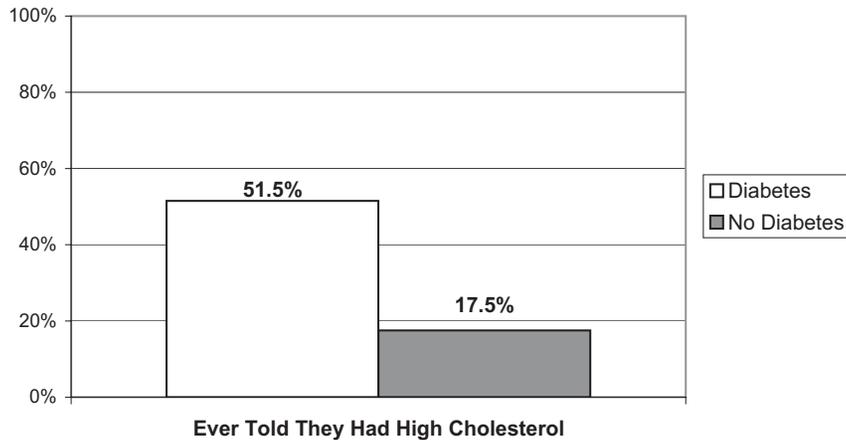
## Blood Pressure

Respondents with diabetes were more likely to have been diagnosed with high blood pressure than people without diabetes.

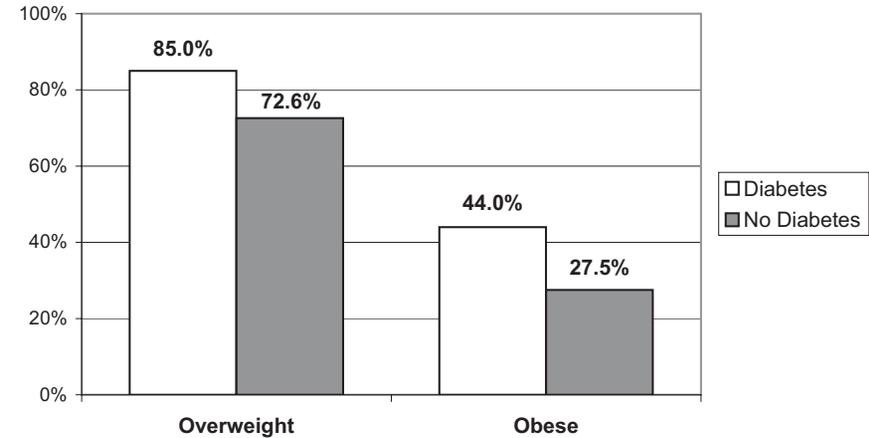
## Cholesterol

Respondents with diabetes were also more likely to have been told that they have high cholesterol than people without diabetes.

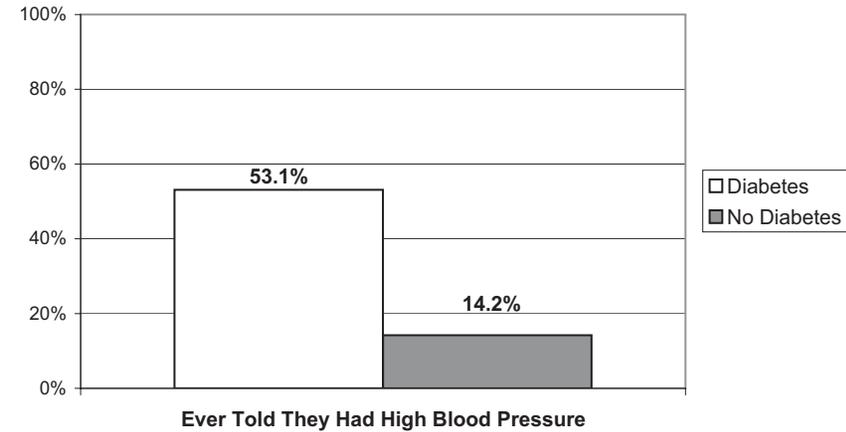
### Cholesterol Status



### Prevalence of Overweight and Obesity



### Blood Pressure Status



## Pneumonia and Flu Shots

The results from this survey show that respondents with diabetes were more likely to have received a flu shot than Hispanics without diabetes. The same is also true of pneumonia vaccines; Hispanics with diabetes were also more likely to have received the pneumonia vaccine than their counterparts without diabetes.

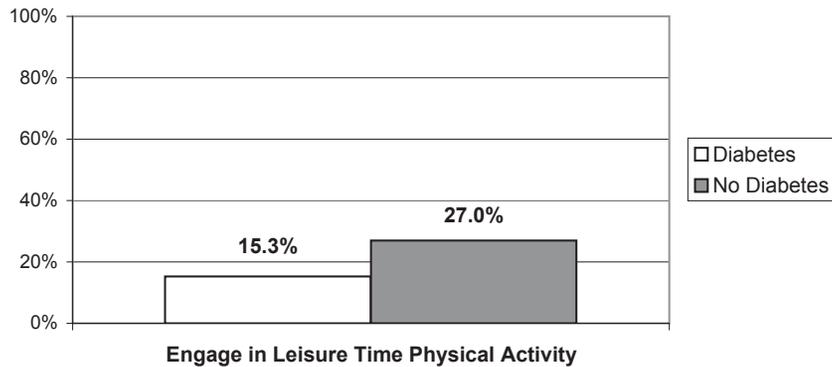
## Smoking

In this study, Hispanics with diabetes were less likely to be smokers than Hispanics without diabetes. They were also less likely to be exposed to environmental tobacco smoke (ETS) than people without diabetes.

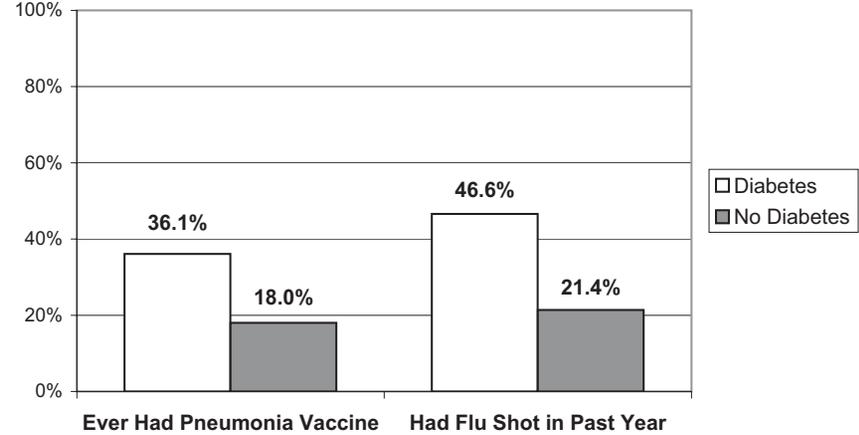
## Physical Activity

Respondents without diabetes were slightly more likely to engage in leisure time physical activity (for example, running, calisthenics, golf, gardening or walking for exercise) than Hispanics with diabetes.

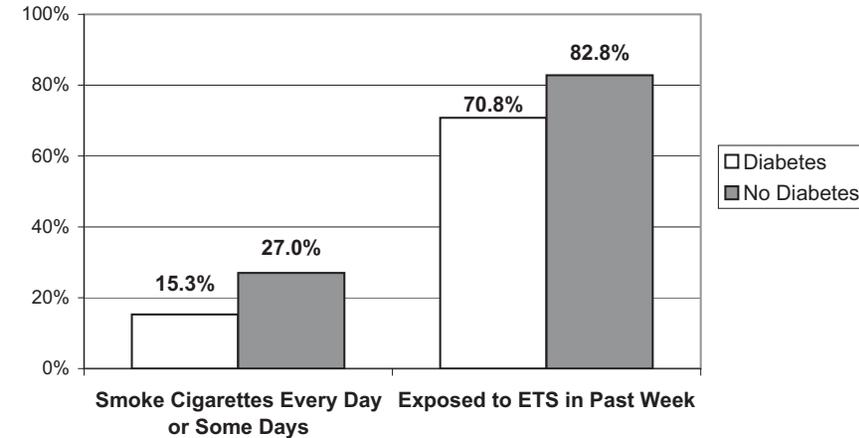
### Physical Activity



## Pneumonia and Flu Vaccination



## Prevalence of Cigarette Smoking and ETS Exposure



## Preventive Care

### Insulin Use

Respondents with diabetes were more likely to take diabetes pills than insulin. Of those taking diabetes pills, 16% were also taking insulin. The percentage of those taking neither pills nor insulin was also 16%.

### Blood Sugar and Foot Exams

Roughly half of respondents with diabetes checked their blood sugar once or more a day. Hispanics with diabetes in this study were slightly more likely to check their feet than their blood sugar. A little more than half of the respondents checked their feet more than once a day.

### Physician-Conducted Foot Exam

Only 12% of respondents with diabetes had foot sores that took four or more weeks to heal. The majority of respondents with diabetes had a doctor check their feet during the past year.

### Diabetes Checkup by a Doctor

The majority of respondents with diabetes reported they had been to the doctor for a diabetes checkup in the past year.

### A1C Check

A little less than half of the respondents with diabetes reported that they had received an A1C check two or more times in the past year. Thirteen percent reported that they had never heard of an A1C check.

### Dilated Eye Exam

A little more than half of respondents with diabetes had an eye exam in the past year. Twenty-seven percent had an eye exam more than a year ago and 22% never had an eye exam. Almost three-fourths of respondents with diabetes had been told by a doctor that diabetes has affected their eyes or that they have retinopathy.

### Diabetes Self-Management Education Class

Half of respondents with diabetes have attended a diabetes management class.

#### Preventive Care Practices Among Respondents Diagnosed with Diabetes

Preventive Care	%
Taking Insulin	22.9
Taking Diabetes Pills	77.1
Daily Self-Monitor of Blood Glucose	48.4
Daily Self-Administered Feet Check	55.0
Feet Checked by Physician in the Past Year	63.3
Annual Diabetes-Related Doctor Exam	86.6
Had A1C Checked Twice in the Last Year	41.2
Annual Dilated Eye Exam	51.2
Pneumonia Vaccine Ever	36.1
Flu Vaccination in the Past Year	46.6
Engage in Leisure Time Physical Activity	55.4
Want to Increase Level of Physical Activity	71.6
Ever Taken Diabetes Management Class	50.4

## Participation in a Diabetes Management Class

Respondents with diabetes who had received a diabetes management class were more likely to monitor their blood glucose once or more per day, to have had a doctor foot check, and to have had an annual eye exam than those who had not taken a class.

## Diabetes Preventive Care Management by Participation in a Diabetes Management Class

Preventive Care	Participation in a Diabetes Management Class	
	Yes (%)	No (%)
Taking Insulin	30.3	15.4
Taking Diabetes Pills	68.2	86.2
Daily Self-Monitor of Blood Glucose	60.0	35.6
Daily Self-Administered Feet Check	58.5	51.6
Feet Checked by Physician in the Past Year	69.2	57.1
Annual Doctor Exam	87.7	85.5
Had A1C Checked Twice in the Last Year	53.0	29.2
Annual Dilated Eye Exam	64.6	37.5
Pneumonia Vaccine Ever	42.6	29.3
Flu Vaccination Within the Past Year	54.6	38.5
Engage in Leisure Time Physical Activity	60.0	50.8
Want to Increase Level of Physical Activity	70.8	73.9

## Preventive Care Management by Sex of Respondent

In this study, males were more likely than females to be taking insulin, diabetes pills, have an annual doctor exam, and have an annual eye exam. Females were more likely than males to self-monitor blood glucose levels on a daily basis, check their feet daily, to have received a flu vaccination within the last year and to have taken a diabetes management class.

## Diabetes Preventive Care Management by Sex of Respondent

Preventive Care	Sex	
	Male (%)	Female (%)
Taking Insulin	25.4	20.6
Taking Diabetes Pills	81.0	73.5
Daily Self-Monitor of Blood Glucose	41.0	55.6
Daily Self-Administered Feet Check	49.2	60.6
Feet Checked by Physician in the Past Year	62.3	64.2
Annual Doctor Exam	92.1	81.3
Had A1C Checked Twice in the Last Year	41.3	41.2
Annual Dilated Eye Exam	54.8	47.8
Pneumonia Vaccine Ever	24.8	28.6
Flu Vaccination Within the Past Year	27.3	40.8
Engage in Leisure Time Physical Activity	63.3	52.4
Want to Increase Level of Physical Activity	66.9	77.1
Ever Taken a Diabetes Management Clas	46.0	54.4

## Preventive Care Management by Household Income

Respondents with diabetes who had a household income of \$25,000 a year or more were more likely to have higher rates of multiple preventive care management behaviors than respondents making less than \$25,000 a year. These behaviors included taking diabetes pills, having an annual doctor and eye exam, and being physically active.

## Diabetes Preventive Care Management by Household Income

Preventive Care	Annual Household Income	
	Less than \$25,000 (%)	\$25,000 or More (%)
Taking Insulin	21.5	23.5
Taking Diabetes Pills	72.3	83.0
Daily Self-Monitor of Blood Glucose	53.3	48.9
Daily Self-Administered Feet Check	54.7	57.5
Feet Checked by Physician in the Past Year	62.5	63.8
Annual Doctor Exam	84.1	93.5
Had A1C Checked Twice in the Last Year	43.1	38.3
Annual Eye Exam	44.4	59.6
Pneumonia Vaccine Ever	29.4	27.8
Flu Vaccination Within the Previous Year	31.4	34.3
Engage in Leisure Time Physical Activity	46.7	69.5
Want to Increase Level of Physical Activity	73.1	68.6
Have Taken A Diabetes Management Class	47.7	57.5

## Preventive Care Management by Education Level

Overall, respondents with diabetes who were high school graduates or higher had higher rates of preventive care management behaviors than respondents who were not high school graduates. Preventive care management behaviors included having had an annual doctor exam, a foot check by physician in the past year, twice yearly A1C check, an annual dilated eye exam, and a flu vaccine in the past year.

## Diabetic Preventive Care Management by Education Level

Preventive Care	Education	
	K-11th Graduate (%)	High School Graduate or Higher (%)
Taking Insulin	19.7	27.3
Taking Diabetes Pills	77.6	76.4
Daily Self-Monitor of Blood Glucose	42.9	55.6
Daily Self-Administered Feet Check	46.0	67.3
Feet Checked by Physician in the Past Year	60.0	67.9
Annual Doctor Exam	83.6	90.7
Had A1C Checked Twice in the Last Year	35.5	49.1
Annual Eye Exam	39.2	67.3
Pneumonia Vaccine Ever	42.1	61.8
Flu Vaccination Within the Previous Year	24.8	28.4
Engage in Leisure Time Physical Activity	40.0	73.1
Want to Increase Level of Physical Activity	71.4	71.4
Have Taken A Diabetes Management Class	31.4	36.2

## Built Environment

There were no differences between Hispanics with and without diabetes regarding their satisfaction with their current level of physical activity. Additionally, both groups indicated their neighborhoods were a place to be physically active and that there are sidewalks in their neighborhoods.

## Assessment of Physical Activity and Built Environment by Diabetes Status

	Diabetes (%)	No Diabetes (%)
<b>Satisfied with Current Level of Physical Activity</b>		
Yes	65.6	66.1
Neither Satisfied Nor Dissatisfied	8.8	12.4
No	25.6	21.5
<b>My Neighborhood is a Place to be Physically Active</b>		
Yes	89.8	90.2
No	10.2	9.8
<b>There Are Many Places Within Walking Distance of My Home</b>		
Yes	71.0	60.0
Neither Agree Nor Disagree	1.6	6.7
No	27.4	33.3
<b>There Are Sidewalks on My Neighborhood's Streets</b>		
Yes	65.0	68.1
Neither Agree Nor Disagree	1.6	2.5
No	33.3	29.4

## Barriers to Physical Activity

In this study, all respondents wanted to increase their level of physical activity. However, the majority of both groups indicated that their lack of time, motivation, and being too tired acted as barriers against increasing physical activity. The majority of respondents with and without diabetes indicated that their biggest motivation for being physically active was health and fitness.

## Desire to Increase Physical Activity and Barriers to Physical Activity

	Diabetes (%)	No Diabetes (%)
<b>During the Last Three Months I Wanted to Increase Physical Activity</b>		
Yes	72.3	69.4
No	27.7	30.7
<b>I Don't Have Time</b>		
Yes	62.7	66.7
No	37.3	33.3
<b>I Don't Have Anywhere to Be Physically Active</b>		
Yes	46.4	44.3
No	53.6	55.7
<b>I Don't Have the Motivation</b>		
Yes	55.0	57.4
No	45.0	42.6
<b>I Don't Have People to Be Physically Active With</b>		
Yes	39.1	46.3
No	60.9	53.7
<b>I Am Not Physically Able</b>		
Yes	36.8	23.4
No	63.2	76.6
<b>I Am Too Tired</b>		
Yes	60.0	58.1
No	40.0	41.9

## APPENDIX

### Hispanic BRFSS Questions

**Q10.1** Have you ever been told by a doctor that you have diabetes?

- 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

**#1** [IF Q10.1=1, OTHERWISE SKIP TO NEXT SECTION] How old were you when you were told you have diabetes?

- Age in Years
- 98 DON'T KNOW/NOT SURE
- 99 REFUSED

**#2** Are you now taking insulin?

- 1 Yes
- 2 No
- 9 REFUSED

**#3** Are you now taking diabetes pills?

- 1 Yes
- 2 No
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

**#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.

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

**#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.

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

**#6** 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

**#7** 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
- 77 DON'T KNOW/NOT SURE
- 99 REFUSED

**#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"?

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

**#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?

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

**#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.**

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

**#11 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

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

- 1 Yes
- 2 No
- 7 DON'T KNOW/NOT SURE
- 9 REFUSED

**#13 Has a medical professional ever told you that you have pre-diabetes, also known as borderline diabetes?**

- 1 Yes
- 2 No
- 7 DON'T KNOW / NOT SURE
- 9 REFUSED





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

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IDHW-12165-5/06- # . Cost per unit =