SPOKANE REGIONAL HEALTH DISTRICT

FOR MEDICAL PERSONNEL

Diabetes in Spokane County

introduction

Diabetes is a serious chronic disease affecting more than 25,000 adults in Spokane County. In Spokane County diabetes is the seventh leading cause of death. The prevalence of diabetes continues to rise each year, making diabetes one of the most significant public health problems in our county. Diabetes affects more than 1.4 million Washington residents according to the Washington State Department of Health. This fact sheet summarizes information on Spokane area diabetes issues, describes factors that contribute to our county's diabetes rate, and provides recommendations for reducing risks for this dangerous and costly disease.

Diabetes in Spokane County

Youth

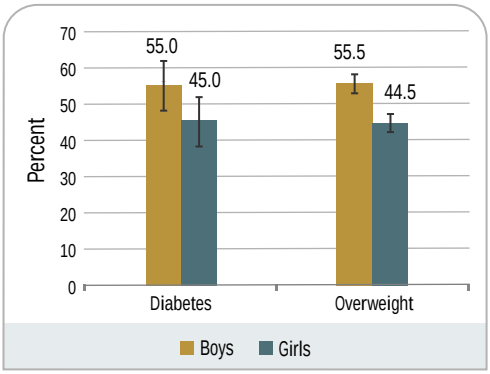
In 2004-2006, an estimated 4.4% of adolescents (children ages 13 to 17 years of age) in Spokane County had diabetes and 28.5% of diabetic children were overweight.

In 2004-2006, boys were 60% more likely to be diagnosed with diabetes and were also 60% more likely to be overweight than girls. Overweight adolescents were 20% more likely to have been diagnosed with diabetes than youth who were not overweight. These differences were statistically significant (Figure 1).

Figure 1

Diabetic and Overweight Youth by Sex

Spokane County 2004 - 2006



Source: Healthy Youth Survey, 2004 and 2006

Adults

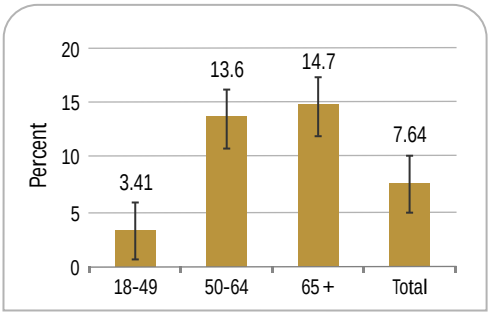
In 2004-2006, 7.6% of adults (18 years of age or older) in Spokane County had been identified as having diabetes. This translates to approximately 25,226 adults who are living with diabetes in Spokane County. In Spokane County the prevalence of diabetes significantly increased with age. The average age of diagnosis among diabetic adults in Spokane County was 48 years of age (Figure 2).

Age group comparisons show there were approximately 4 times more diabetic adults 50 to 64 years of age than there were diabetic adults 18 to 49 years of age; and approximately 4.3 times more diabetic adults 65 years of age or older than there were diabetic adults 18 to 49 years of age (Figure 2).

Figure 2

Diabetic Adults by Age Groups

Spokane County 2004 - 2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

In the United States

Diabetes in the U.S. has increased over the last 25 years, now affecting nearly 21 million Americans (7% of the U.S. population). It is estimated that over 6 million of those with diabetes do not know they have diabetes.

In 2005, an estimated 1.5 million people 20 years of age or older had been diagnosed with diabetes. An additional 54 million were estimated to have pre-diabetes which may lead to type 2 diabetes. Of the people in the United States with diabetes:

- 14.6 million have been diagnosed with diabetes
- 6.2 million have undiagnosed diabetes
- 1.6 million are 20 - 39 years of age
- 8.2 million are 40 -59 years of age
- 10.5 million are 60 years of age or older
- 10.9 million are men
- 9.7 million are women

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease, National Diabetes Factsheet, 2005.

In Spokane County

In 2005, an estimated 25,226 (7.6%) Spokane County adult individuals had diabetes.

Of the adults in Spokane County the following had diabetes:

- 7.1% of adult women
  8.3% of adult men
- 7.8% of White/non-Hispanic adults
  5.6% of non-White/Hispanic adults
- 7.2% of adults below 200% FPL*
  8.3% of adults above or equal to 200% FPL*

There was no significant difference for diabetes between genders, races, or income levels.

*Federal Poverty Level

Source: Behavioral Risk Factor Surveillance Risk Factor (BRFSS) 2004-2006.

What is Diabetes?

Diabetes is a serious chronic disease in which the body does not properly control and manage the amount of sugar (glucose) in the blood. There are two types of diabetes, type 1 and type 2, and the condition of pre-diabetes.

Type 1 diabetes

Type 1 diabetes, also known as juvenile diabetes or insulin-dependent diabetes, is usually diagnosed in children and young adults, although it can happen at any age. In type 1 diabetes, the body's pancreas does not produce enough insulin. Insulin is a hormone that is needed to convert glucose, starches and other foods into energy needed for daily life. Having type 1 diabetes increases the risk for many serious complications such as: heart disease (cardiovascular disease), blindness (retinopathy), nerve damage (neuropathy), kidney damage (nephropathy), and possible premature death.

Type 2 diabetes

Type 2 diabetes is the most common type of diabetes. Individulas with type 2 diabetes cannot maintain normal sugar levels either because the body does not make enough insulin or because the body can not use its own natural insulin properly–a process called insulin resistance. This can result in high blood glucose, which immediately causes cells to be starved for energy. Over the long term, high glucose levels can lead to complications, like heart, kidney, and eye disease, or other serious problems including possible premature death due to heart attacks or strokes. While diabetes occurs in people of all ages and races, some groups have a higher risk for developing type 2 diabetes than others. Type 2 diabetes is more common in African Americans, Hispanics, Native Americans, and Asians/ Pacific Islanders, as well as older populations.

Pre-diabetes

Pre-diabetes is a condition in which blood glucose levels are higher than normal but are not high enough for a diagnosis of diabetes. Individuals with pre-diabetes are at an increased risk for developing type 2 diabetes and for heart disease and stroke. It is estimated that over one million people in Washington State are in the pre-diabetes stage. Weight management, exercise and a healthy diet may reverse pre-diabetes thereby avoiding the more serious conditions of diabetes.

Source: 1. National Center for Chronic Disease Prevention and Health Promotion, National Diabetes Fact Sheet 2005. 2. American Diabetes Association, www.diabetes.org/about-diabetes.jsp

Diabetes Risks from Being Overweight or Obese

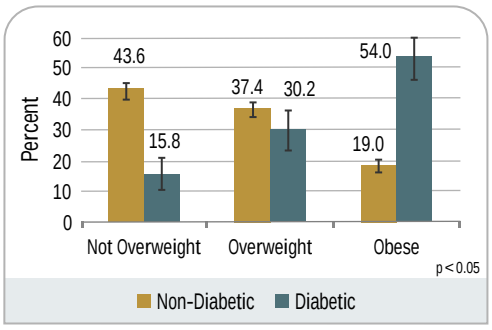
There are many health risks associated with being overweight or obese, one of which is diabetes. Overweight or obese adults are more likely than non-overweight or obese adults to develop type 2 diabetes. In the United States, approximately 64% of adults are overweight or obese due mostly to overeating and lack of exercise, and more than 85% of adults with type 2 diabetes are overweight.[1]

In Spokane County, 84.2% of diabetic adults were identified as either overweight or obese compared to 56.4% of non-diabetic individuals; a statistically significant difference (Figure 3). There were also significant differences between age groups and body mass indexes among adults with diabetes. Diabetic adults 18-49 years of age were more likely (84.9%) to be overweight or obese than were diabetic adults 65 years of age or older (74.3%) (Figure 4). In addition, diabetic adults 50-64 years of age were more likely (91.5%) to be overweight or obese than diabetic adults 65 years of age or older (Figure 4).

Figure 3

Body Mass Index Between Non-Diabetic and Diabetic Adults

Spokane County 2004 - 2006

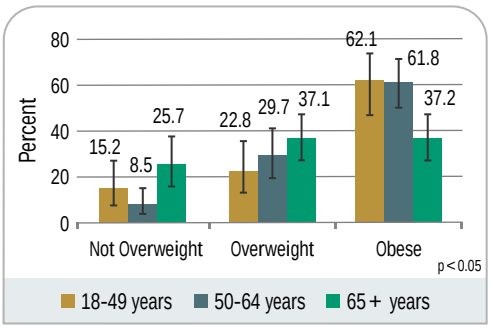


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Figure 4

Body Mass of Diabetic Adults by Age Group

Spokane County 2004 - 2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Risks of Being Overweight

An overweight individual is:

- 1.6 times more likely to develop diabetes,
- 1.8 times more likely to develop high blood pressure, and
- 1.5 times more likely to develop elevated cholesterol levels.

Risks of Being Obese

An obese individual is:

- 3 to 7 times more likely to develop diabetes, depending on the severity of the obesity,
- 3 to 7 times more likely to have an increased risk of high blood pressure, and
- 2 to 7 times more likely to have an increased risk of elevated cholesterol levels.

Box Source: Healthful Life Project. www.healthfullife.umdnj.edu/archives/obd_archive.htm, Accessed 3/12/1008.

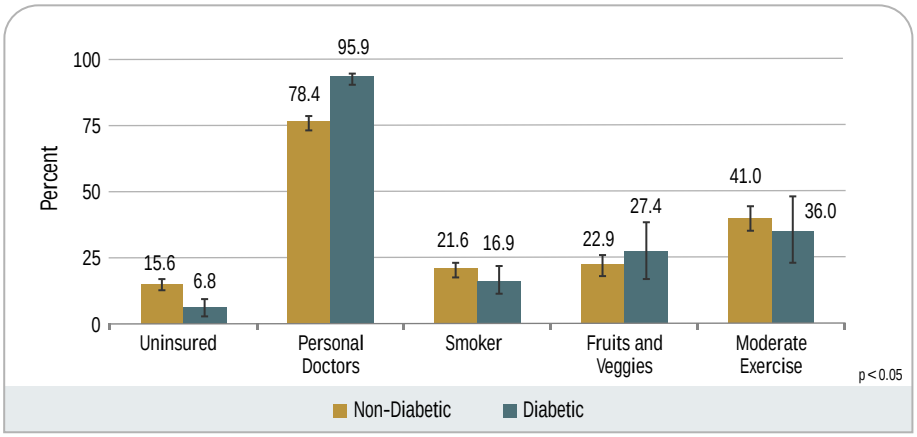
Insurance

In Spokane County, the percent of uninsured diabetic adults (6.8%) was significantly lower than uninsured non-diabetic adults (15.6%). Diabetic adults were two times more likely to have healthcare insurance when compared to non-diabetic adults. The percent of diabetic individuals who have one or more personal doctors (95.9%) was significantly greater than those individuals who are non-diabetic (78.4%) (Figure 5). Among diabetic adults, 99.1% percent of individuals 65 years of age and older stated that they have a personal physician compared to 89% of individuals 18-49 years of age, a significant difference.

Figure 5

Healthcare Factors and Lifestyle Behaviors Between Non-Diabetic and Diabetic Adults

Spokane County 2004-2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Smoking

Many individuals with diabetes work very hard to control their blood glucose, blood pressure, and cholesterol in order to prevent complications of diabetes. Unfortunately, smoking negates all of this hard work. Smoking increases the already high health risks associated with diabetes.[3]

An analysis of data indicates that active smokers have a 44% increased risk of developing type 2 diabetes compared to non-smokers.[3]

Further analysis suggests that the more a person smokes, the more likely he or she is to be diabetic. Heavy smokers (20+ cigarettes per day) had a 61% higher risk of diabetes, compared to lighter smokers; and lighter smokers had a 29% increased risk of diabetes than non-smokers.[3] Former smokers had a 23% increased risk of diabetes compared to those who have never been smokers.

Diabetic adults who smoke, dramatically increase their risk of other diabetes complications such as stroke and heart disease, further shortening life expectancy and decreasing quality of life.

> Adding smoking to diabetes drastically increases the risk of other diabetes complications, further shortening life expectancy and decreasing quality of life.

Smokers with diabetes are more likely to develop nerve damage and kidney disease and are three times more likely to die of cardiovascular disease than non-smoking diabetics.[4]

In 2004-2006, 21.6% of Spokane County's non-diabetic adult population and 16.9% of diabetic adults were identified as smokers. Diabetic adults in Spokane County were as likely to smoke as non-diabetic adults, no significant difference (Figure 5).

Healthy Eating and Exercise

Although there is no cure for diabetes, studies have found that lifestyle changes can prevent or delay the onset of diabetes among adults at high risk.[2] For people with diabetes, controlling and managing their blood glucose, blood pressure, and blood lipids, combined with losing weight, eating a healthy diet, and getting the recommended amount of exercise are essential to lowering their risks for developing complications associated with diabetes.[1]

By reducing body weight by 5% to 7% (10-15 pounds) and exercising for 150 minutes per week, an individual can help reduce the risk of developing type 2 diabetes by 58%.[1] Regular exercise promotes the use of insulin, which activates the uptake of blood glucose by the cells, thus converting glucose to energy.

When it comes to a healthy diet, there was not a significant difference in the intake of fruits and vegetables or in the amount of moderate exercise between diabetic and non-diabetic adults in Spokane County (Figure 5).

Self-Reported General Health Status

When Spokane County residents were asked to rate their general health along a scale from "excellent" to "poor", diabetic adults rated their health consistently and progressively worse than did non-diabetic adults; the difference was statistically significant. Among diabetic individuals, 43.2% reported their general health status as "fair" or "poor" compared to 12.1% of non-diabetic individuals. In Spokane County, people with diabetes were nearly five and a half times less likely to rate their health as "excellent," "very good," or "good" when compared to non-diabetics (Figure 7).

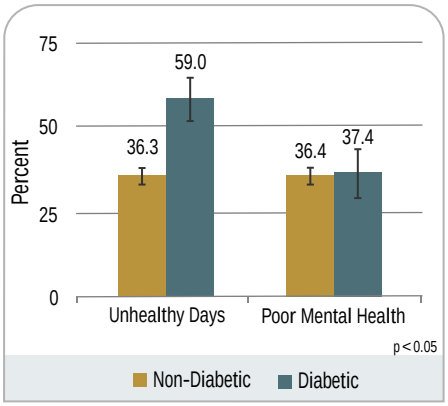
In Spokane County diabetic individuals were significantly more likely than non-diabetics to say they had experienced one or more "poor" health days in the last month (59% vs. 36.3%). The percentage of diabetic individuals and non-diabetic individuals who reported having one or more "poor" mental health days was similar, no significant difference (Figure 6).

Diabetic males were significantly more likely to report their general health as "excellent," "very good," or "good" (63.4%) compared to diabetic females (49.7%). Females were 60% less likely to rate their health as "excellent" or "very good" when compared to males (Figure 8).

Figure 6

Unhealthy Days and Poor Mental Health Days Between Non-Diabetic and Diabetic Adults

Spokane County 2004-2006

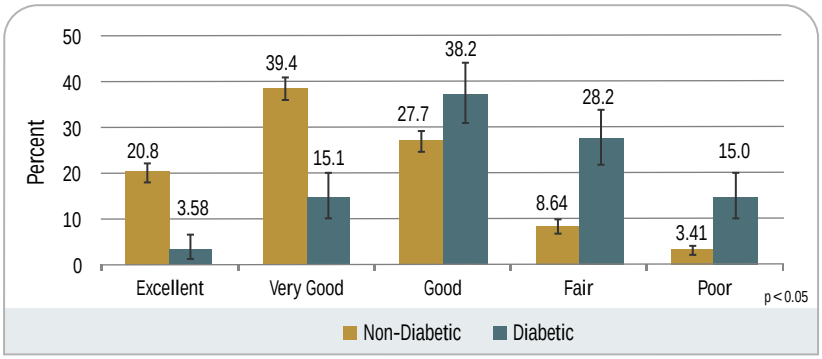


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Figure 7

General Health Between Non-Diabetic and Diabetic Adults

Spokane County 2004-2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Figure 8

General Health of Diabetic Men and Women

Spokane County 2004-2006

Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Table 1

Health Related Quality of Life

Spokane County 2004-2006

	Average Number of Unhealthy Days per Month	Average Number of Poor Mental Health Days per Month
Non-diabetic adults	10.3*	9.3
Diabetic adults	15.3*	13.6
Diabetic adult men	14.9	15.3
Diabetic adult women	15.5	12.6
Diabetics 18-49 years	13.3	12.1
Diabetics 50-64 years	14.3	13.3
Diabetics 65 + years	18.4	17.2
Diabetic adults ≤200% FPL**	17.3	14.0
Diabetic adults >200% FPL	13.7	13.2

Data Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006
*Significant difference $p < 0.05$
** Federal Poverty Level

Many people with diabetes take insulin to control their blood glucose levels. Insulin therapy can prevent diabetes complications by maintaining blood glucose levels at a desired range. For people with type 1 diabetes, insulin therapy replaces the insulin that they are unable to produce. Insulin therapy is sometimes needed for type 2 diabetes when other therapies have failed to keep blood glucose levels within the desired range. In Spokane County, approximately 3 out of 10 adults with diabetes take insulin (Figure 9).

Many individuals with type 2 diabetes take diabetes pills to control their blood glucose levels. Diabetes pills only work for people whose pancreas continues to make insulin. Diabetes pills are not insulin, but rather pills that help lower blood glucose levels by either stimulating the pancreas to release more insulin, increasing the body's sensitivity to the insulin that is already present, or slowing the breakdown of foods into glucose. In Spokane County, approximately 7 out of 10 adults with diabetes take diabetic pills (Figure 9).

For people with diabetes, taking a class on how to manage and control diabetes is an important and essential tool for developing, maintaining and adhering to a treatment plan. Individuals with diabetes who educate themselves learn how to improve their health, their lives, and their well-being. Knowledge about diabetes builds confidence and encourages individuals with diabetes to achieve and maintain good health, increase their ability to manage their diabetes, and reduce or prevent the risk of diabetes-related complications. In Spokane County, approximately 7 out of 10 adults with diabetes have taken a class on managing their diabetes (Figure 9).

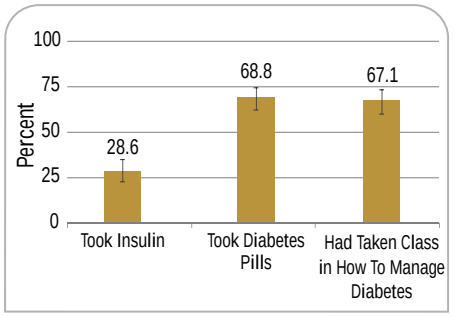
Self monitoring of blood glucose (SMBG) is one of the best tools that a person with diabetes can use to control their diabetes. Frequent testing and good record keeping provides information to determine if their diabetes is under control. The recommended frequency of testing is dependent upon the individual, the kind of medication being taken to manage their diabetes, and how well their sugar levels are being controlled. Approximately 7 out of 10 individuals with diabetes in Spokane County check their blood sugar at least daily (Figure 10).

For people with diabetes, proper foot care is essential to successful diabetes management. Elevated blood glucose levels place people with diabetes at an increased risk for nerve damage and lower limb amputation. Many complications associated with the feet can be prevented through simple and routine foot examinations to check for sores or other abnormalities. Foot care for individuals with diabetes is an important part of the daily diabetes regimen and is critical for avoiding these serious complications. Approximately 7 out of 10 adults with diabetes in Spokane County check their feet for sores at least daily (Figure 10).

Figure 9

Diabetes Management by Diabetic Adults

Spokane County 2004 - 2006

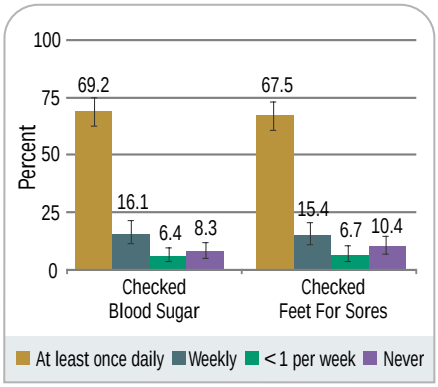


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Figure 10

Frequency of Diabetes Management Examinations by Diabetic Adults

Spokane County 2004 - 2006

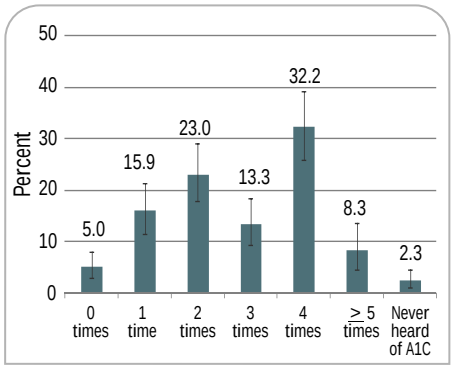


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

The A1c test, also known as glycated hemoglobin test, is used primarily to monitor blood glucose control over time. For people with diabetes, the A1c test gives a snap shot of the average amount of glucose in the blood over the last few months. The test is used to determine how well an individual's treatment plan is working and if the treatment plan needs to be adjusted. The American Diabetes Association (ADA) recommends A1c testing two to four times each year depending on the type of diabetes an individual has and if the person is taking insulin.[5] In Spokane County, approximately 7 out of 10 adults with diabetes have had the recommended number of A1c tests in a year (Figure 11).

Figure 11

Diabetic Adults Who Had an A1C Test Within The Last Year, Spokane County 2004 - 2006



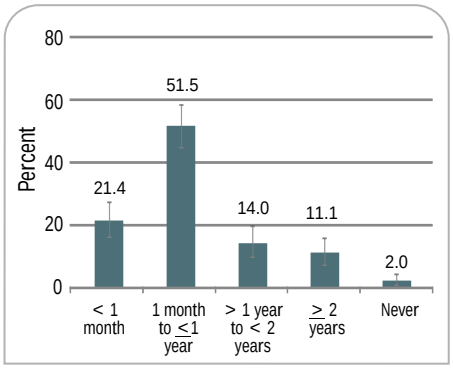
Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Diabetes can cause eye problems and is the leading cause of blindness in adults in the United States.[6] People with diabetes have a higher risk of blindness than people without diabetes. A simple eye exam can help in the prevention of blindness, but many people with diabetes fail to have their eyes examined annually. The American Diabetes Association (ADA) recommends that individuals between the ages of 10 and 29 years who have had diabetes for at least 5 years should have an annual dilated eye exam. In addition, individuals 30 years or older who have diabetes, should have an annual dilated eye exam, no matter how long they have had diabetes. More frequent eye exams may be needed for those with an eye disease.[7] In Spokane County, approximately 1 out of 4 adults with diabetes had not had their eyes examined within the last year (Figure 12).

Figure 12

Diabetic Adults Who Had an Eye Exam

Spokane County 2004 - 2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

The most life-threatening consequences of diabetes are heart disease and stroke, which affects diabetics more than twice as often as non-diabetics.[8] It is estimated that more than 65% of diabetics in the United States die from heart disease or stroke.[9]

For diabetic adults, heart attacks occur earlier in life often resulting in premature death. An adult who has been diagnosed with diabetes has the same risk of experiencing a heart attack as an individual who has already had a heart attack. Diabetic adults are two to four times more likely to suffer a stroke, and if they have already suffered a stroke, they are two to four times more likely to have another stroke.[9] Figure 13 shows that in Spokane County diabetics were 5.7 times more likely to experience myocardial infarction (heart attack) and 5.8 times more likely to experience angina than non-diabetics, a significant difference. Diabetic individuals were also 3.4 times more likely to experience a stroke when compared to non-diabetic individuals, a significant difference (Figure 13).

In Spokane County, diabetic males were 2.8 times more likely to experience a myocardial infarction and 2.9 times more likely to have a stroke than diabetic females, a significant difference. Males and females were equally likely to experience angina, no significant difference (Figure 14).

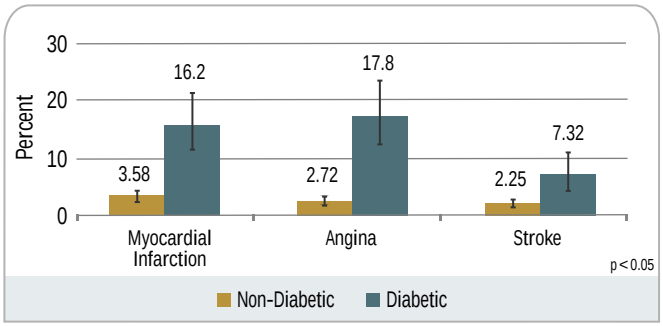
In Spokane County diabetic adults 65 years of age or older were 6.6 times more likely than 18-49 year olds to experience angina, and diabetic adults 50-64 years of age were 4 times more likely than 18-49 year olds to experience angina; both of which are statistically significant (Figure 15).

Diabetics in Spokane County with an income level equal to or less than 200% of the Federal Poverty Level (FPL) were 2.4 times more likely to experience myocardial infarction and angina than diabetics who had an income above 200% FPL; a statistically significant difference. There was no significant difference in the occurrence of stroke between poverty levels in Spokane County (Figure 16).

Figure 13

Cardiovascular Conditions and Stroke Between Non-Diabetic and Diabetic Adults

Spokane County 2004-2006

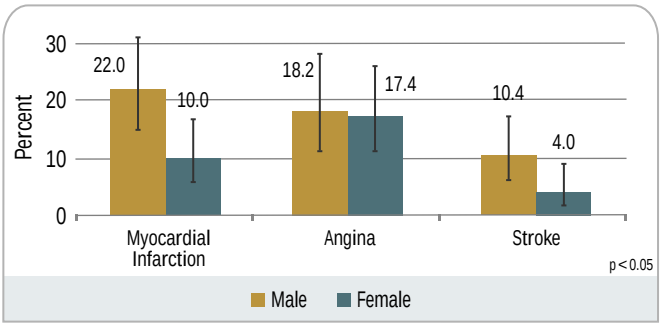


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Figure 14

Cardiovascular Conditions and Stroke of Diabetic Adults by Sex

Spokane County 2004-2006

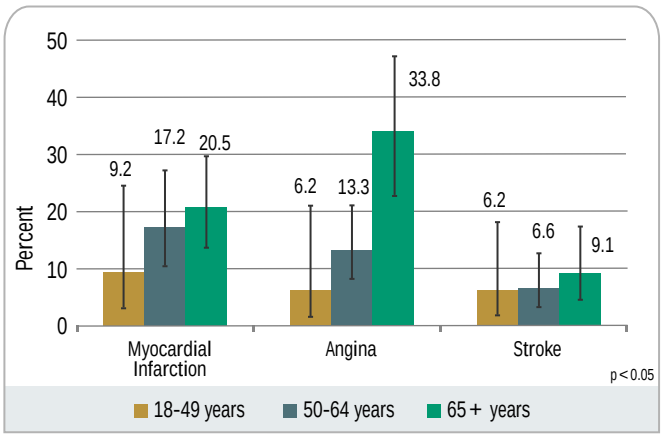


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Figure 15

Cardiovascular Conditions and Stroke of Diabetic Adults by Age Groups

Spokane County 2004-2006

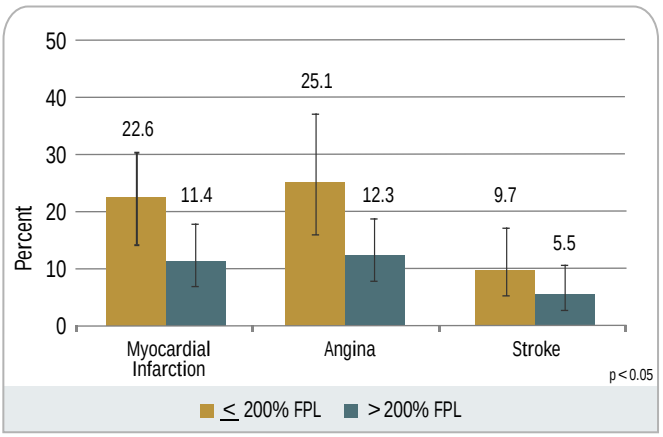


Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

Figure 16

Cardiovascular Conditions and Stroke of Diabetic Adults by Federal Poverty Level (FPL)

Spokane County 2004-2006



Source: Behavioral Risk Factor Surveillance System (BRFSS), 2004-2006

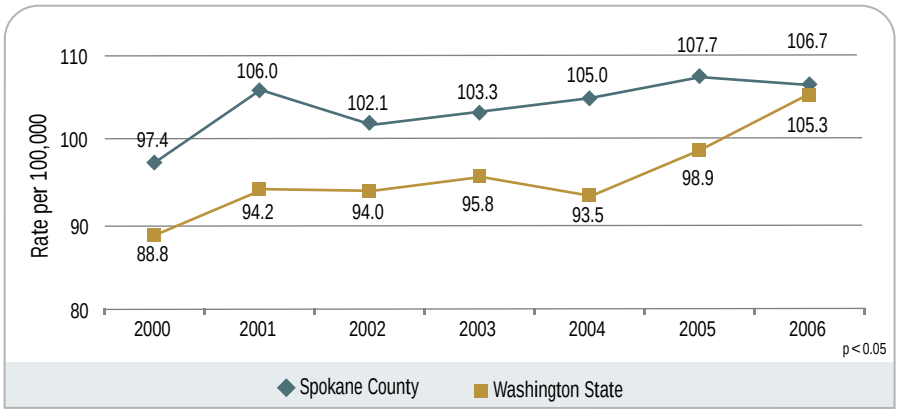
Although Spokane County and Washington State have experienced statistically significant upward trends for hospitalization rates for diabetes (primary diagnosis), Spokane County has maintained a higher rate than the state each year from 2000 to 2006. Spokane County has had an average of 452 hospitalizations each year from 2000-2006, with diabetes being the primary diagnosis. In the last three years this average has increased to 471 cases per year (Figure 17).

Each year from 2000 to 2006, Spokane County adults with diabetes who were 65 years of age or older had the highest rate of hospitalization for diabetes when compared to all other age groups. Children 0-17 years of age had the lowest rate. A significant upward trend in hospitalizations due to diabetes was observed among individuals with diabetes aged 18-49 from 2000 to 2006, while a significant downward trend was observed among diabetics 65 years of age or older (Figure 18).

Figure 17

Diabetes Hospitalization Rates

Washington State and Spokane County 2002-2006

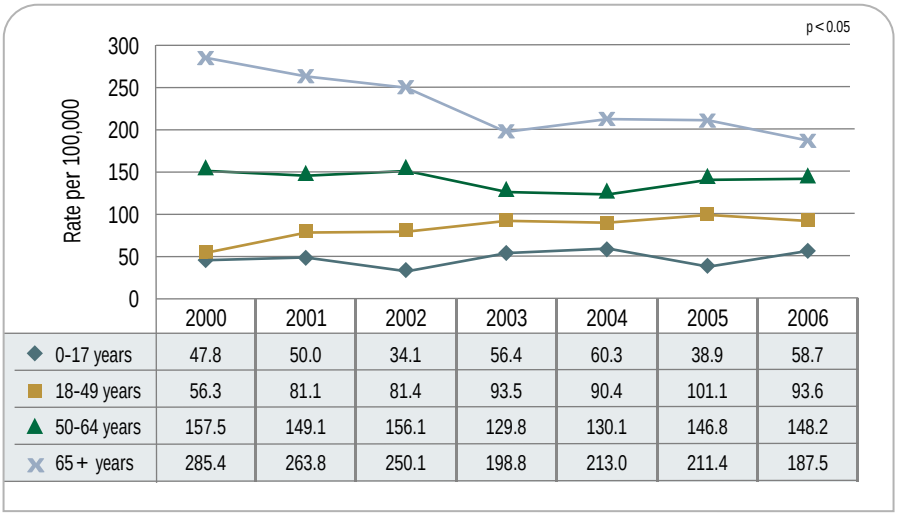


Data Source: Hospitalization Discharge Data, Washington State Department of Health, Office of Hospital and Patient Data Systems, 1990-2007 Population Estimates, Population Estimates for Public Health Assessment, Washington State Department of Health, Vista Partnership, and Krupski Consulting. December 2007.

Figure 18

Diabetes Hospitalization Rates By Age Group

Spokane County 2002-2006



	2000	2001	2002	2003	2004	2005	2006
0-17 years	47.8	50.0	34.1	56.4	60.3	38.9	58.7
18-49 years	56.3	81.1	81.4	93.5	90.4	101.1	93.6
50-64 years	157.5	149.1	156.1	129.8	130.1	146.8	148.2
65+ years	285.4	263.8	250.1	198.8	213.0	211.4	187.5

Data Source: Hospitalization Discharge Data: Washington State Department of Health, Office of Hospital and Patient Data Systems, 1990-2007 Population Estimates: Population Estimates for Public Health Assessment, Washington State Department of Health, Vista Partnership, and Krupski Consulting. December 2007.

Table 2

Leading Diagnosis Among Inpatient Hospitalizations For Individuals With Diabetes Identified As A Supplementary Diagnosis (2nd - 5th Diagnosis)

Spokane County 2006

Diagnosis	Percent
Heart disease	17.6%
Respiratory disease	12.5%
Diseases of the muscular skeletal system and connective tissue	11.7%
Digestive disease	9.7%
Genito/Urinary disease	5.5%
Cerebrovascular	4.5%
All Cancer	4.4%
Injury	4.2%
Diseases of skin and subcutaneous tissue	3.8%
All psychoses	2.8%
Infections & parasitic	2.2%
Pregnancy complications	0.9%
CNS disease	0.7%
Hypertensive disease	0.7%
Labor and delivery	0.3%

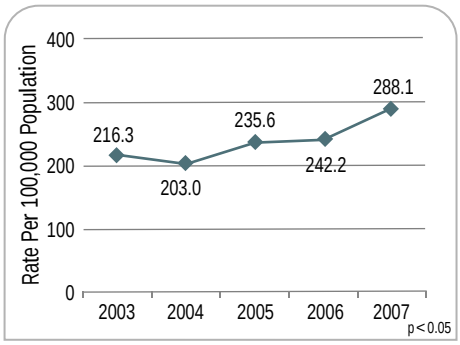
Data Source: Spokane County, CHARS 2006, Diabetes

In Spokane County from January 2003 to December 2008, there were a total of 5,205 visits to the emergency room (ER) where the patient had a primary diagnosis of diabetes (Type 1 and 2). In 2003, the rate of emergency room visits for residents of Spokane County who were diagnosed with diabetes was 216.3/100,000 and in 2007, the rate increased to 288.1/100,000 (Figure 19). This represents a significant upward trend with an increase of 33%. Males accounted for 46.6% of the visits to the ER for diabetes and females accounted for 53.4% of the visits. Adults 18-49 years of age made approximately half of all visits to the ER for diabetes. One in four visits were among people with diabetes 65 years and older and one in five visits were among 50-64 years of age (Table 3).

Figure 19

Emergency Room Visits for Diabetes

Spokane County 2003-2007



Source: Meditech System, Inland Northwest Health Services (INHS)

The rate of ER visits for females with diabetes in Spokane County from 2003 to 2007 was 11% higher and significantly greater than for males with diabetes. Among the different age groups, visits to the ER for people with diabetes increased as age increased. People 65 years and older with diabetes had a significantly greater rate of visiting the ER compared to any other age group. Compared to people with diabetes 50-64 years of age, individuals with diabetes 65 years and older were 1.6 times more likely to visit the ER, two times more likely than people with diabetes 18-49 years of age, and 8 times more likely than people with diabetes 17 years of age and younger (Figure 20).

Revisits to ER

Revisits were identified as any repeat visit by the same patient to the emergency room where the primary diagnosis was diabetes. A revisit to the emergency room may reflect uncontrolled diabetes. Uncontrolled diabetes is an indication that a person's diabetes has been poorly managed and reflects blood sugar levels that are inadequately controlled. If diabetes becomes uncontrolled, it can place the person with diabetes at risk for a host of complications; including heart disease, blindness, kidney failure, nerve damage, and possible premature death. In addition, uncontrolled diabetes increases medical costs resulting in higher medical expenses for the person with diabetes. Ultimately, uncontrolled diabetes affects the person's well-being, adding to indirect economic costs as well (Table3).

Revisits were separated into two categories: revisits within 1 year of a prior visit and revisits greater than 1 year of a prior visit. One in three visits (34.3%) to the emergency room was identified as a revisit, with 82.6% of the revisits occurring within one year of a prior visit. 37.6% of female total visits were identified as revisits while only 30.5% of the total visits for males were revisits. For people with diabetes 18-49 years of age, approximately 50% of visits to the ER were revisits and 85% of the revisits were within one year of a prior visit. For people with diabetes 50-64 years of age, 27% of visits to the ER were revisits and approximately 80% of the revisits were within one year of a prior visit (Table 3).

Table 3

Emergency Room Visits for People with Diabetes by Gender and Age Group

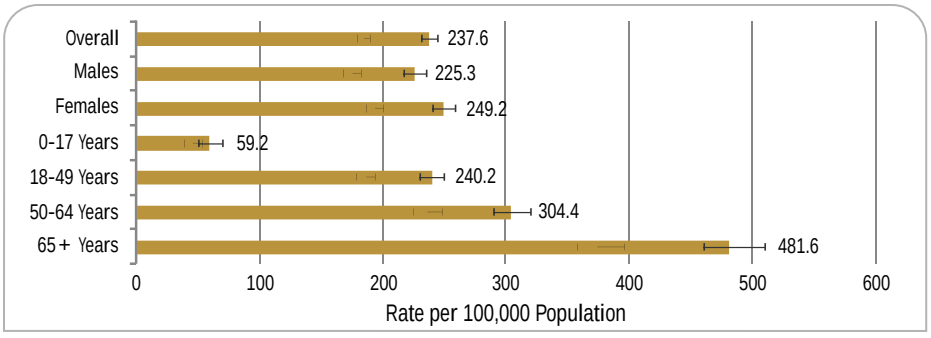
Spokane County 2003-2007

Group	Percent of Total Population	Number of Visits to ER	Percent of Total Visits to ER	Number of Revisits to ER*	Percent of Visits to ER that are Revisits	Percent of Revisits to ER Within 1 year
Males	49.1%	2,425	46.6%	740	30.5%	82.4%
Females	50.9%	2,780	53.4%	1,045	37.6%	82.7%
TOTAL	100.0%	5,205	100.0%	1,785	34.3%	82.6%
0-17 years	24.4%	317	6.1%	115	36.3%	83.5%
18-49 years	45.6%	2,398	46.1%	1,140	47.5%	85.4%
50-64 years	17.4%	1,160	22.2%	309	26.6%	79.6%
65+ years	12.6%	1,332	25.6%	221	16.6%	71.9%
TOTAL	100.0%	5,207	100.0%	1,785	34.3%	82.6%

Source: Meditech System, Inland Northwest Health Services (INHS) *Revisits were identified as any repeat revisits to the emergency room where the primary diagnosis was diabetes from January 2003 through December 2007 for the same patient; patients may have had multiple visits from January 2003 to December 2007.

Figure 20

Emergency Room Visits for Diabetes, Spokane County 2003 - 2007



Source: Meditech System, Inland Northwest Health Services (INHS)

Insurance Status and Cost of ER Visits

The predominant type of insurance for people with diabetes who visited the ER in Spokane County from 2003 to 2007 was government insurance, which accounted for 71.7% of all cases. This was significantly greater than any other type of insurance. Only 16.2% of individuals with diabetes who visited the emergency room had private insurance, while 10.3% were uninsured (Figure 21). Among individuals with government insurance who visited the ER, people with diabetes 18-49 years of age accounted for 41.1% of all visits with 45% having Medicaid. People with diabetes 65 years and older accounted for 35% of all visits with 99% having Medicare. Among the uninsured, 74.3% of visitors to the ER were between the ages of 18-49 (Table 4).

Insurance status may influence access to primary care necessary for prevention and control of diabetes. People with diabetes who lack access to primary care physicians are more likely to seek emergent care for uncontrolled diabetes.

Of people with diabetes visiting the ER, 89.4% had a primary care provider. Approximately 90% of those individuals with diabetes who visited the ER who had government insurance as their source of medical insurance had a primary care provider; 91% with private insurance had a primary care provider; 84% who were uninsured had a primary care provider; and 79% with military insurance had a primary care provider. This affects the cost burden of diabetes by increasing medical costs.

From 2003 to 2007, the average charge per visit to the ER for diabetics in Spokane County has increased significantly by 79% and the total charges for ER visits for diabetics has increased significantly by 250%, taking inflation into account. This is due partly to a rise in the number of visits to the ER (Table 5).

Table 4

Insurance Type for Individuals with Diabetes Visiting the ER by Age Group

Spokane County 2003-2007

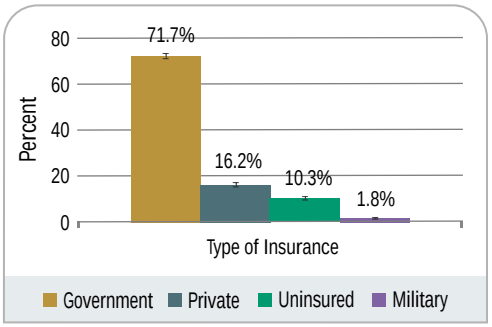
Group	Private Insurance	Government Insurance*	Military Insurance	Uninsured
0-17 years	13.9%	4.8%	7.5%	7.5%
18-49 years	51.5%	41.1%	31.2%	74.3%
50-64 years	30.8%	19.6%	52.7%	22.3%
65+ years	3.8%	34.5%	8.6%	1.0%
TOTAL	100.0%	100.0%	100.0%	100.0%

Source: Meditech System, Inland Northwest Health Services (INHS)
*Government insurance includes: DSHS Washington State, Healthy Options, and Medicare.

From 2003 to 2007, adults with diabetes 18-49 years of age accounted for 40% of the total charges for ER visits with a primary diagnosis of diabetes, while adults 50-64 and 65 and older accounted for slightly more than a quarter of the total charges each. Among individuals with diabetes aged 18-49, 53% of the total charges for the ER were attributed to revisits, whereas 31% of the total charges for individuals with diabetes aged 50-64 were attributed to revisits, and 18% of the total charges for individuals 65 years of age and older with diabetes were attributed to revisits. The data suggests that uncontrolled diabetes significantly affects individuals 18-49 years of age in Spokane County more than any other group. A significant proportion of individuals with diabetes who are uninsured are 18-49 years of age (Table 6).

Figure 21

Type of Insurance for Individuals With Diabetes Visiting the ER, Spokane County 2003 - 2007



Source: Meditech System, Inland Northwest Health Services (INHS)

Table 5

Charges for ER Visits by Individuals With Diabetes

Spokane County 2003-2007

Year	Average Charge Per Visit	Total Charges
2003	$4,223	$3,910,454
2004	$6,102	$5,351,586
2005	$5,565	$5,720,834
2006	$6,415	$6,896,449
2007	$7,539	$9,793,193
TOTAL	$6,085	$31,672,461

Source: Meditech System, Inland Northwest Health Services (INHS)

Table 6

Charges for ER Visits by Individuals With Diabetes by Sex and Age Group

Spokane County 2003-2007

Group	Average Charge per Visit	Total Charges	Total Charges Due to Revisits
Males	$6,719	$16,292,911	$6,256,974
Females	$5,536	$15,377,741	$5,247,635
0-17 years	$4,683	$1,484,555	$549,812
18-49 years	$5,265	$12,614,446	$6,682,549
50-64 years	$7,527	$8,730,980	$2,695,701
65+ years	$6,639	$8,842,481	$1,576,547

Source: Meditech System, Inland Northwest Health Services (INHS)

Diabetes is the fifth leading cause of mortality (death) in the United States. Since 1987, the death rate due to diabetes increased by 45%, while the death rates from heart disease, stroke, and cancer declined.[10] Studies indicate that diabetes is generally under reported on death certificates, particularly among elderly patients who had multiple chronic conditions. Heart disease and stroke accounted for about 65% of deaths among people with diabetes.[10] Heart disease death rates among diabetic adults were about 2 to 4 times higher than non-diabetic adults.[10]

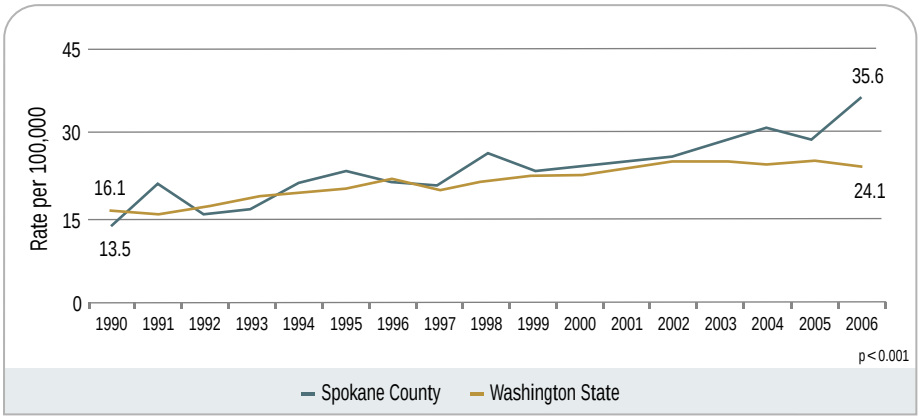
In 2006, the diabetes death rate in Spokane County was 35.6 deaths per 100,000 individuals; the Washington State rate was 24.1 deaths per 100,000. Although both Spokane County and Washington State showed an upward trend in diabetes mortality that was statistically significant, Spokane County's rate was approximately 50% greater than that of the state. From 1990 to 2006, Spokane County experienced an average increase of 4.34 mortality cases per 100,000 due to diabetes each year, whereas the state experienced only an increase of 2.74 cases per 100,000 (Figure 22).

During 2006 in Spokane County, the death rate where diabetes was a factor was 91 deaths per 100,000 as compared to 77.3 deaths per 100,000 for Washington State. Both Spokane County and the state showed an upward trend in diabetes-related death rates that was statistically significant. Spokane County experienced an average increase of 3.5 mortality cases related to diabetes each year since 1990 and the state experienced an increase of 2.9 cases each year (Figure 23).

Figure 22

Diabetes Mortality Rate

Washington State and Spokane County 1990-2006

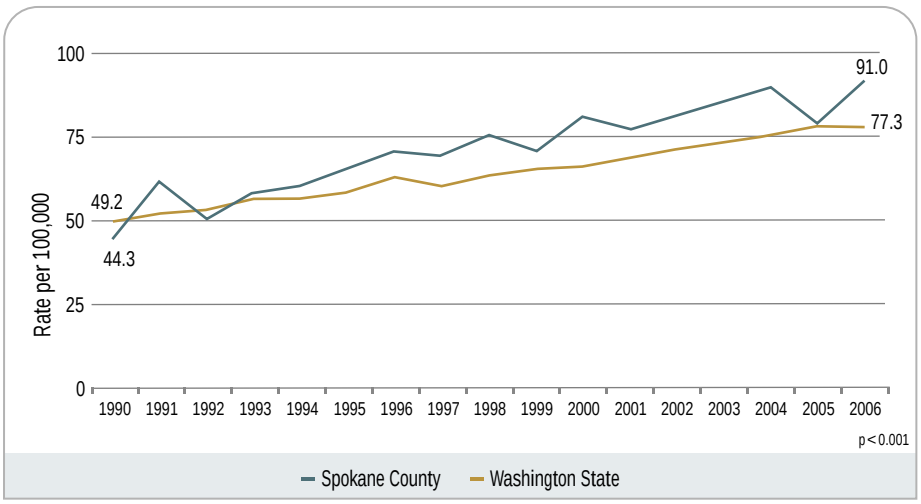


Data Source: Hospitalization Discharge Data: Washington State Department of Health, Office of Hospital and Patient Data Systems, 1990-2007
Population Estimates: Population Estimates for Public Health Assessment, Washington State Department of Health, Vista Partnership, and Krupski Consulting. December 2007.

Figure 23

Diabetes Related Mortality Rate

Washington State and Spokane County 1990-2006



Data Source: Hospitalization Discharge Data: Washington State Department of Health, Office of Hospital and Patient Data Systems, 1990-2007
Population Estimates: Population Estimates for Public Health Assessment, Washington State Department of Health, Vista Partnership, and Krupski Consulting. December 2007.

Table 7

Diabetes Mortality

Spokane County 1993-2006

	1993-1999		2000-2006	
Subset	Rate*	Count	Rate*	Count
Mortality attributed to diabetes per year	21.7	88	28.2	121
Mortality related to diabetes per year	66.9	271	83.3	358

*Deaths per 100,000 population
Death Certificate Data: Washington State Department of Health, Center for Health Statistics. 1990-2007
Population Estimates: Population Estimates for Public Health Assessment, Washington State Department of Health, Vista Partnership, and Krupski Consulting. December 2007.

Direct and Indirect Costs of Diabetes

In 2007 in the United States, the total economic cost of diabetes was estimated to be $174 billion (Figure 24), with diabetes medical expenditures alone estimated to be $116 billion. This is an overall increase of $42 billion since 2002. This 32% increase means expenditures have risen over $8 billion each year. In addition, the 2007 per capita annual cost of healthcare for diabetics is $11,744 a year.

In the United States, one out of every five healthcare dollars is spent on healthcare for someone with diagnosed diabetes; while an additional one in ten healthcare dollars is related to diabetes.[11] On average, diabetics have medical expenses that are approximately 2.3 times higher than medical costs incurred by non-diabetics.

Spokane County

The average cost in 2006 for a diabetic patient in Spokane County who was hospitalized with a primary diagnosis of diabetes was $18,788. The total charges for diabetic patients in Spokane County who were hospitalized with a primary diagnosis of diabetes was approximately $9 million dollars.

The average cost in 2006 for a diabetic patient in Spokane County who was hospitalized with diabetes as a related diagnosis was $20,505 and the total charges for diabetic patients who were hospitalized with diabetes as a related diagnosis was just under 75 million dollars.

Indirect Costs Related to Diabetes
2007 United States

- 15 million lost work days
- 120 million reduced work days
- 107 million additional lost work days related to unemployment
- 445,000 cases of unemployment disability
- $26.9 million of lost productivity due to premature death

Figure 24
Total Estimated Economic Cost of Diabetes
2007 United States

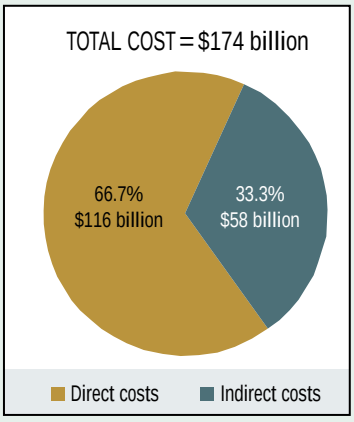


Figure 25
Direct Costs for Diabetes Medical Expenditures
2007 United States

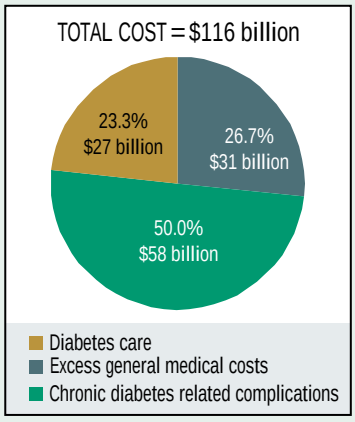
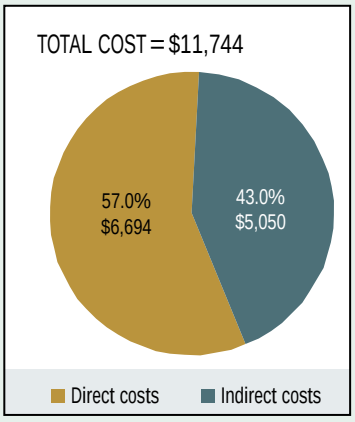


Figure 26
Per Capita Annual Cost of Healthcare for Diabetes
2007 United States



Box Source: American Diabetes Association, Direct and Indirect Costs of Diabetes in the United States. www.diabetes.org/diabetes-statistics/cost-of-diabetes-in-us.jsp. Accessed 3/4/2008.

Conclusion

Diabetes is an important public health issue. It is estimated that by the year 2050, approximately 12% of the United States population will be diagnosed with diabetes.[11]

Many factors are contributing to this increase, including: a higher prevalence of overweight and obese individuals, changes in the diagnostic criteria for diabetes, improved or enhanced detection of diabetes, the decreasing mortality rate of the general population, a growing elderly population, and a growth in the minority populations in whom the prevalence and incidence of diabetes are increasing. Although the increasing burden of diabetes and its complications is alarming, research has shown that lifestyle changes which include weight loss, exercise, and healthier eating can prevent the onset of diabetes among adults at high risk and decrease the onset of complications among those individuals who have been diagnosed with diabetes.

This fact sheet summarizes information about diabetes and its affect on Spokane County. The data sources used include: Behavioral Risk Factor Surveillance System (BRFSS), the Healthy Youth Survey (HYS), Comprehensive Hospital Abstract Reporting System (CHARS), Vital Records, and the Meditech System, Inland Northwest Health Services (INHS).

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