# Section III: Health Prevalence

## Diabetes

Diabetes is a disease that occurs when the body fails to regulate glucose levels in the blood appropriately. Signs of diabetes are frequent thirst or hunger, frequent urination, feeling tired or no energy, slow healing cuts or sores, blurred vision, dry, and itchy skin.[4] Some of the risk factors of diabetes are older age, lack of exercise, overweight or obesity, poor diet, race / ethnicity, high blood pressure and high blood cholesterol.[4]

The BRFSS asked respondents *"Have you ever been told by a doctor that you have diabetes?"* with four response categories: *1 - Yes, 2 - Yes, but female told only during pregnancy, 3 - No, 4 - pre-diabetes or borderline diabetes.* In this report, only the first category of responses were tabulated and shown in the following paragraphs.

More than 20 million Americans have diabetes, but about 6.2 million people (nearly one in three) do not know they have the disease![4] Check out the diabetes risk test, available at: http://www.diabetes.org/risk-test.jsp.

Prevalence of reported diagnosed diabetes has grown rapidly in Oklahoma as well as the United States during the past 16 years (Figure III-1). In the 1990s, at least 16 states reported a low diabetes rate of 2.0-3.9%. All states, except for Alaska, have reported at least a 4.0%-5.9% diagnosed diabetes rate since 2000. Furthermore, 28 states reported over 6.0% diabetes prevalence, mainly in the eastern and southern states.

In 2005, the diabetes prevalence nearly doubled the average rate in the 90s. As many as 17 states have reported greater than 8.0% diabetes prevalence, and not a single state was below 4.0%.

In Oklahoma, the diabetes prevalence has more than doubled from 4.0% to 8.9% between 1988- 2005 (Figure III-2). The US diabetes prevalence

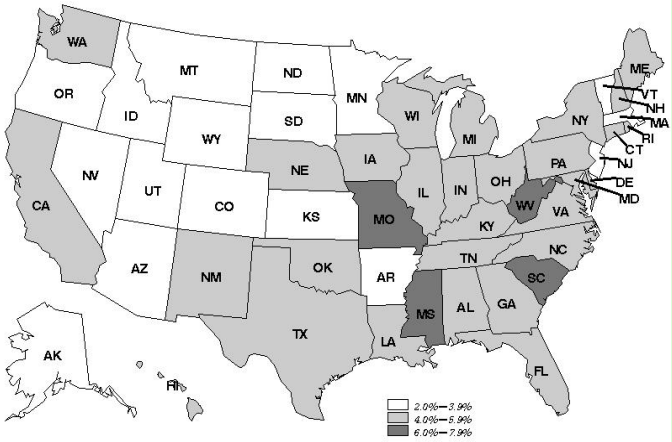
Oklahoma Diabetes Surveillance Report can be found at: http://www.health.state.ok.us/program/cds/surveillancediabetes.html

In 2005, as many as 17 states have reported greater than 8.0% diabetes prevalence. Not a single state was below 4.0%.

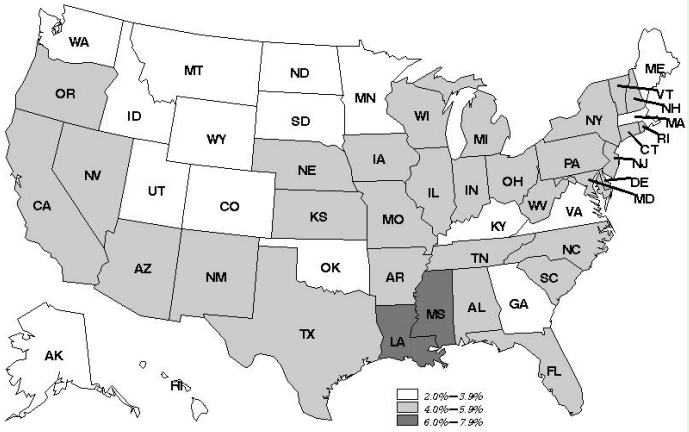
In 2005, Oklahoma ranked 7th highest for the population diabetes rate in the nation and DC. An estimated 238,000 or 8.9% Oklahoma adults reported diagnosed diabetes.

## Figure III-1

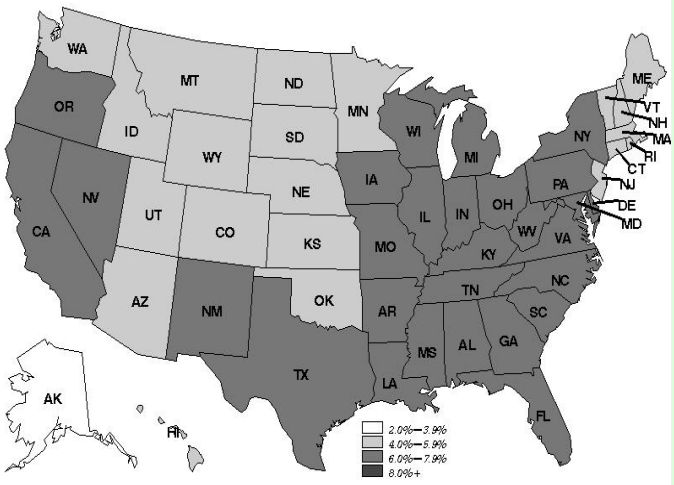
### Adults with Diagnosed Diabetes, US 1990



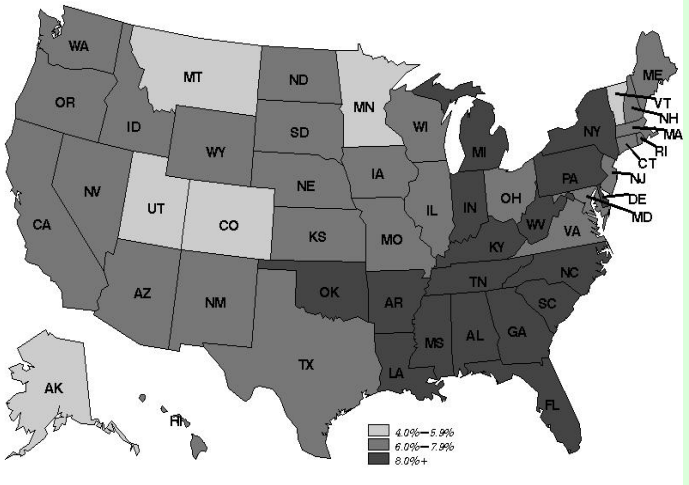

### Adults with Diagnosed Diabetes, US 1995




### Adults with Diagnosed Diabetes, US 2000




### Adults with Diagnosed Diabetes, US 2005



rate increased nearly 50% from 1990-2005, while Oklahoma numbers increased nearly 73% during that same period.

In 2005, Oklahoma ranked 7th highest in the nation and DC for the population of adults reported being diagnosed with diabetes, with an estimated 238,000 or 8.9%. In addition, nearly 92% of adults diagnosed with diabetes were currently taking medicine for their high blood pressure.

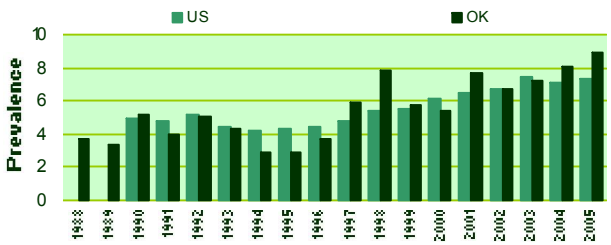
### Diabetes and Gender

From 1988-1997, the prevalence of diagnosed diabetes was higher among female adults than males (Figure III-3). However, the trend in the most recent years has changed. Since 1988, the prevalence of diabetes among male adults has increased six-fold, from 1.5% to 9.3%.

In 2005, the prevalence of diagnosed diabetes among male adults was slightly higher than the female adults, 9.3% vs. 8.6%, respectively (Figure III-3). This number did not include nearly 1% of female adults who had diabetes during pregnancy only.

**Figure III-2**

**Adults Reporting Diagnosed Diabetes, US and Oklahoma, 1988-2005**




* No U.S. data for 1988 & 1989.

**Figure III-3**

**Men and Women Ages 18+ Reporting Diagnosed Diabetes, Oklahoma 1988-2005**

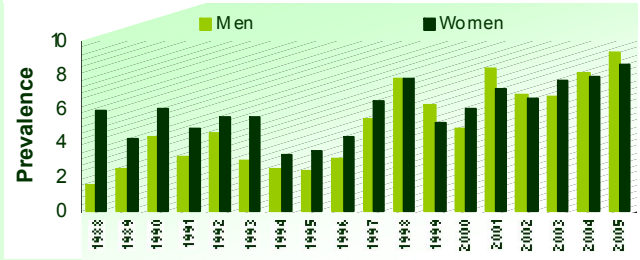
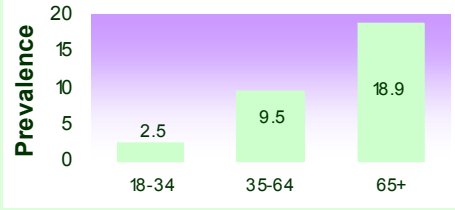



**Figure III-4**

**Adults with Diagnosed Diabetes, by Age, Oklahoma 2005**



**Adults Reporting Diagnosed Diabetes, Oklahoma 2005**

**Figure III-5**

- **By Education and Annual Household Income**

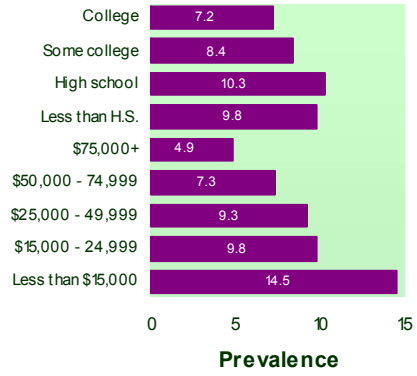



**Figure III-6**

- **By Race and Ethnicity**

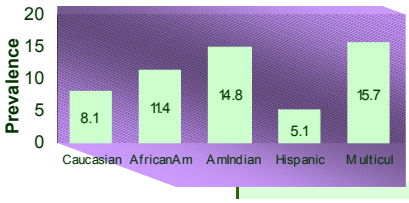
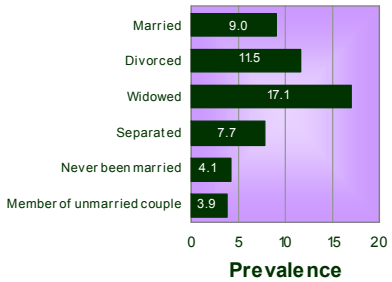



**Figure III-7**

- **By Marital Status**




### Diabetes and Age

Diabetes is closely associated with aging. As Oklahoma adults became older, the reported diagnosed diabetes prevalence became higher. Nearly one in five elders aged 65+ reported being diagnosed with diabetes, as did one in ten middle aged adults (Figure III-4).

### Diabetes, Education and Household Income

Diabetes disparities existed among education and annual household income levels. The higher the education and annual household income levels, the less likely adults were to report diagnosed diabetes. Adults who completed high school, were 43.1% more likely to report diagnosed diabetes than college graduates, 10.3% vs. 7.2%, respectively.

Oklahoma adults with the lowest income (less than $15,000) reported the highest diabetes prevalence, 14.5%, and tripled the rate for adults with the highest incomes, 4.9% (Figure III-5). After age was statistically accounted for, annual household income remained significantly associated with diabetes, but not for education levels.

### Diabetes, Race and Ethnicity

In 2005, American Indian NH and Multicultural NH adults were approximately twice as likely to be diagnosed with diabetes than Caucasian NH (Figure III-6). Hispanics were at the lowest risk for diagnosed diabetes, 5.1%.

### Diabetes and Marital Status

Widowed adults, who were older than adults in most other marital status, were highest at risk for diagnosed diabetes, 17.1%, while “never been married” and “member of unmarried couple” groups (which consisted of mainly young adults) were the least at risk for diabetes, 3.9%-4.0% (Figure III-7). Divorced adults were 27.8% more likely than married adults to report diagnosed diabetes.

**Adults with Diagnosed Diabetes, Oklahoma 2005**

**Figure III-8**

- **By Employment Status**

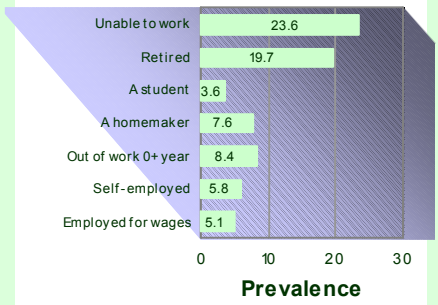
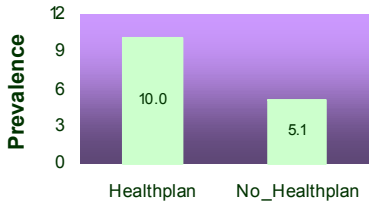



**Figure III-9**

- **By Health Plan Status**




### Diabetes and Employment Status

Nearly one in four adults "unable to work" and one in five retired adults reported diagnosed diabetes. Out of work adults were 1.6 times more likely to report diabetes than adults employed for wages (Figure III-8).

Out of work adults were 1.6 times more likely to report diabetes than adults employed for wages.

### Diabetes and Health Insurance

Health care access is essential for adults with diabetes and a key measure of health care access is the availability of health insurance coverage. In 2005, Oklahoma adults who had health insurance coverage were two times more likely to be diagnosed with diabetes, 10.0%, as compared to 5.1% for those who had no health plan (Figure III-9).

### Diabetes and Risk Factors

Modification of risk factors such as poor eating habits, physical inactivity, overweight and obesity, high blood pressure and high blood cholesterol can substantially reduce the risk of diabetes. Adults with diabetes were nearly three times higher in reported high blood pressure, nearly twice as high in reported high blood cholesterol (HighChol), and 1.5 times in no leisure time physical activity

In 2005, Oklahoma adults who reported diagnosed diabetes were twice as likely to be obese than overweight (16.6% vs. 8.1%).

Adults with diabetes were 1.5 times more likely to report no leisure time physical activity than their counterparts without diabetes.

than adults with no diabetes (Figure III-10). The prevalence of smoking was significantly higher among adults with no diabetes than their older counterparts who were more likely to be diagnosed with diabetes though the majority of smokers were younger adults (Figure III-10).

Diabetes also increases the risk for complications in cardiovascular diseases. Adults with diabetes were nearly five times higher in reported angina and heart attack, and over three times higher in reported stroke, than those with no diabetes (Figure III-11).

**Figure III-10**

**Prevalence of Selected Risk Factors among Adults with or without Diabetes, Oklahoma 2005**

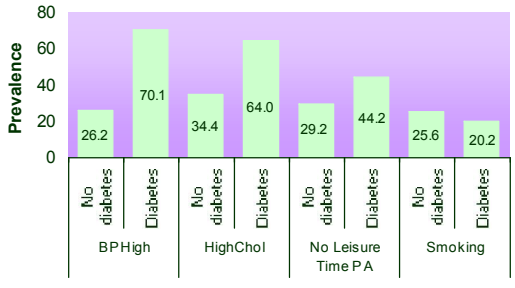
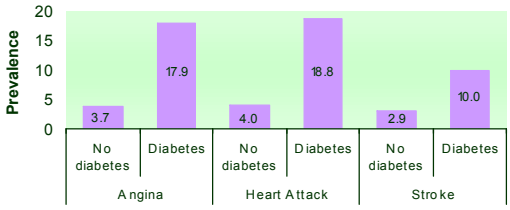



**Figure III-11**

**Risk Factors for Complications among Adults with or without Diabetes, Oklahoma 2005**




### Diabetes and Weight

In 2005, obese and overweight adults had a higher prevalence of diabetes, 16.6% and 8.1%, respectively, than normal weight adults, 4.2%. Additionally, adults with diagnosed diabetes were twice as likely to be obese than overweight.

Across the years, obesity rates rose (Figure III-12) similar to diagnosed diabetes. Since 1994, prevalence of obesity among adults with diabetes has increased about 64%.

### Diabetes and Eye Exam

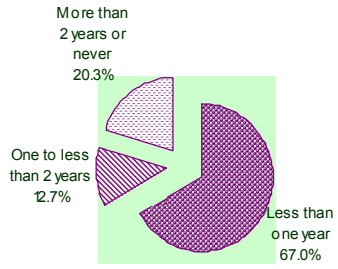
In 2002-2004, Oklahoma adults who reported diagnosed diabetes were asked *"When was the last time you had eye exam in which the pupils were dilated? This*

*would have made you temporarily sensitive to bright light."* Respondents were given three choices: 1) less than twelve months, 2) one year to less than two years, 3) greater than two years or never. Twenty percent of adults with diagnosed diabetes chose greater than two years or never (Figure III-13).

Adults with diabetes who reported eye exam "greater than two years or never" were similar by gender, female, 20.6%, versus male, 20.0%; younger, ages 18-34, 39.6%; more likely to be Hispanics, 40.7%; and did not have health insurance coverage, 39.2%.

**Figure III-13**

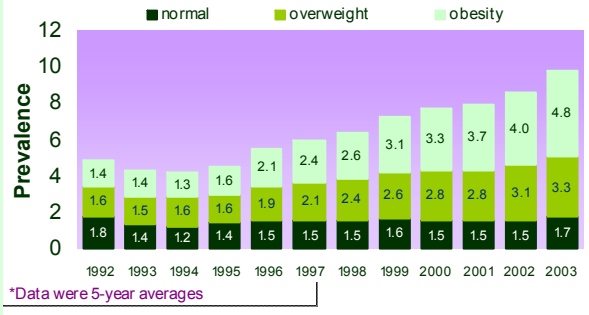
**Reported Eye Exam among Adults with Diagnosed Diabetes, Oklahoma 2002-2004**




Adults with diabetes who reported eye exam "greater than two years or never" were similar by gender, female, 20.6%, versus male, 20.0%; younger, ages 18-34, 39.6%; more likely to be Hispanics, 40.7%; and did not have health insurance coverage, 39.2%.

**Figure III-12**

**Adults with Diagnosed Diabetes by Weight Categories, Oklahoma 1992-2003***




*Data were 5-year averages

# Cardiovascular Diseases

Cardiovascular disease (CVD) involves all types of diseases of the heart and blood vessels. Common types of CVD are angina, stroke, and heart attack. Over 147,000 Americans killed by CVD are under age 65.[5]

In 2005, the Oklahoma's 9.8% was nearly 21.0% higher than national median, 8.1%.

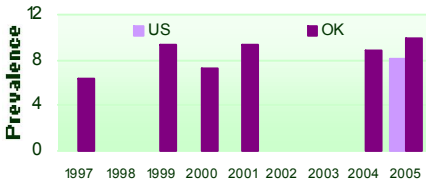
Heart disease and stroke are the first and third leading causes of death in Oklahoma. In 2001, an estimated 10,840, 31.0%, deaths were due to heart disease and 2,380, 7%, deaths resulted from stroke.[6]

Oklahoma BRFSS has monitored CVD diagnosis and its risk factors since 1997. Three CVD questions included in the survey were: *"Has a doctor ever told you that you had a heart attack, also called a myocardial infarction?" "Has a doctor ever told you that you had angina or coronary heart disease?" "Has a doctor ever told you that you had a stroke?"* Since 2001, CDC has expanded the questions to include diagnosis from "a nurse or other health professional."

This report combined these three questions under CVD because the sample sizes for heart attack, angina and stroke were too small to provide accurate results if reported separately.

**Figure III-14**

**Adults Reporting Diagnosed CVD, US and Oklahoma, 1997-2005**




* No data for 1998, 2002 and 2003; U.S. data only for 2005

The prevalence of reported diagnosed CVD in Oklahoma has increased over 4.2% from 9.4% in 1999 to 9.8% in 2005 (Figure III-14). For the past years, the national CVD averages could not be determined because only a few states included this item in their survey as an optional module. In 2005, however, these three items were shifted to the core module. Hence, a national CVD average was made possible as a baseline for comparison.

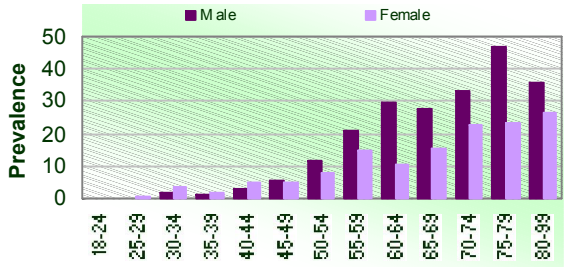
In 2005, the Oklahoma's 9.8% was nearly 21.0% higher than national median, 8.1%. Oklahoma ranked 7th highest in the nation and DC for the prevalence of CVD diagnosis in the adult population.

**CVD and Gender**

The prevalence of CVD was 33% higher among males, 11.3%, as compared to females, 8.4%. In addition, males were substantially more at risk for CVD than females after age 50+ (Figure III-15). Females, however, had a slightly higher prevalence of CVD than males prior to 45 years of age.

**Figure III-15**

**Males and Females Reporting Diagnosed CVD, by Age, Oklahoma 2005**




### CVD and Age

Age is a risk factor for CVD. At ages 45-50, one in 20 adults reported diagnosed CVD; rates then rapidly increased. One in six adults ages 55-60 were diagnosed with CVD; by the ages 75-80, one in three adults reported CVD. In addition, the rates for older males were substantially higher than older females (Figure III-15).

### CVD, Education and Household Income

The risk for CVD was over two times higher among Oklahoma adults with the lowest education level, 15.7%, compared to the college graduates, 6.7%. Adults with the least household income were over three times more likely to report CVD, 17.6%, than their wealthiest peers, 4.8% (Figure III-16).

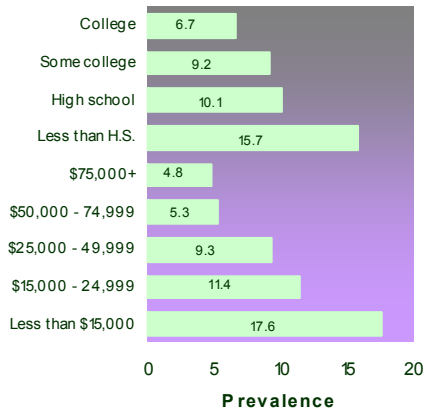
Detailed Report on Cardiovascular Diseases in Oklahoma can be found at: http://www.health.state.ok.us/program/cds/cvd.html

### CVD and Race/ Ethnicity

Disparities existed among race/ ethnic groups for diagnosed CVD. Multicultural NH adults reported the highest prevalence

**Figure III-16**

**Adults with CVD by Education and Annual Household Income Level, Oklahoma 2005**




Males were more at risk for CVD than females after age 50+. Females, however, had a higher prevalence of CVD than males prior to ages 45.

of diagnosed CVD, 16.6%, and Hispanics reported the lowest, 4.1%. These rates were influenced by age as Hispanics had a larger proportion of young adults aged 18-34 than Multicultural NH, 56.9% vs. 23.9%, respectively. In addition, Multicultural NH were nearly twice as likely to report diagnosed CVD than Caucasian NH (Figure III-17).

Multicultural NH adults reported the highest prevalence of diagnosed CVD, 16.6%, and Hispanics reported the lowest, 4.1%

### CVD and Marital Status

Widows, consisting of 75.9% elders aged 65+, reported the largest proportion of diagnosed CVD, followed by one in eight divorcees, and one in 11 married adults in Oklahoma in 2005 (Figure III-18). Adults who had 'never been married' had the least CVD diagnosis likely because 82.8% of them were young adults aged 18-34.

### CVD and Employment Status

Prevalence of diagnosed CVD was highest among adults who self-reported that they were unable to work, 33.4%, followed by the retired persons, 25.9% (Figure III-19). In addition, nearly 76% of the former group were between ages 35-64, while nearly 80% of the latter group were in ages 65+.

**Adults Reporting Diagnosed CVD, Oklahoma 2005**

**Figure III-17**

- **By Race / Ethnicity**

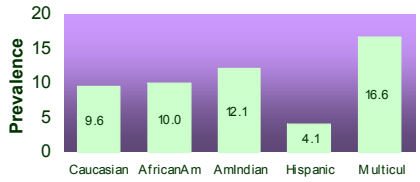



**Figure III-18**

- **By Marital Status**

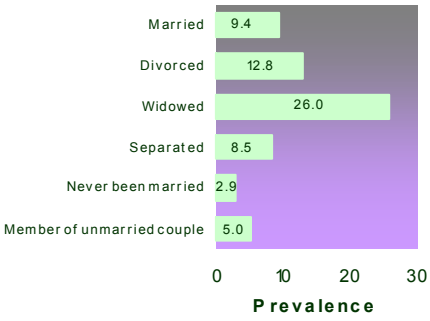
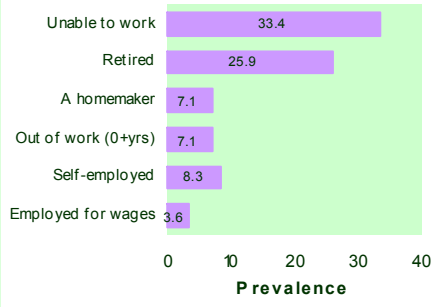



**Figure III-19**

- **By Employment Status**



**CVD and Geographical Regions**

CVD differences existed by geographical locations. The highest proportions of adults reporting diagnosed CVD were in the Eastern regions: Southeast, 12.8% and Northeast, 11.5% (Figure III-20).

**CVD among adults ages 50+, Risk Factors and Lifestyle Habits***

The following section examines the prevalence of diagnosed CVD among adults ages 50+ by risk factors, such as obesity, alcohol consumption, and smoking. Doctors suggest a balanced diet and nutrition, exercise and routine medical check-ups as good lifestyle habits for CVD prevention and management. Daily moderate to vigorous physical activity up to 30 minutes helps strengthen the heart and keep the body healthy.[7]

- ***Weight Categories***

Overweight and obesity are important risk factors for CVD. In 2005, Oklahoma adults ages 50+ with diagnosed CVD were slightly more likely to be overweight or obese, 69.4% than those without CVD, 65.7% (Figure III-21).

- ***Drinking***

Adults ages 50+ with diagnosed CVD were slightly lower in reported drinking than those without CVD. Adults ages 50+ with no CVD were 9.1% higher in reported binge drinking, and 50.0% higher in reported chronic drinking than adults with CVD (Figure III-22).

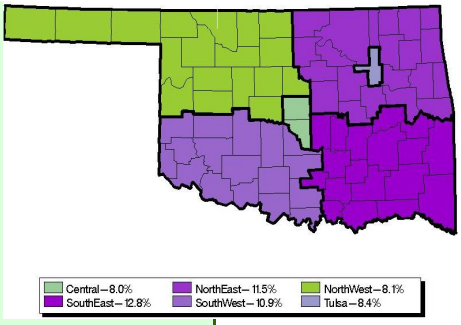
- ***Smoking***

The prevalence of currently smoking (daily or some day) were slightly higher for adults ages 50+ with CVD than those without CVD, 18.6% vs. 17.8%, respectively (Figure III-23).

* Please note that it is not possible to know if some risk factors reported for CVD were present prior to CVD or if they have been modified as a result of CVD. The results should be interpreted with caution.

**Figure III-20**

**Adults with Diagnosed CVD by Region, Oklahoma 2005**




**Risk Factors by CVD among Adults Ages 50+, Oklahoma 2005**

**Figure III-21**

- **Weight Category by CVD**

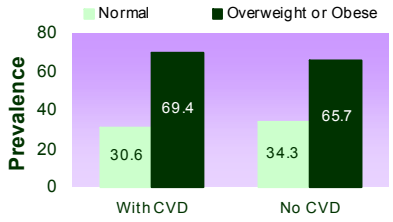
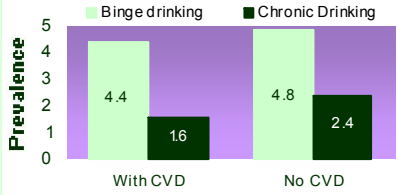



**Figure III-22**

- **Prevalence of Drinking by CVD**



- ***Exercise***

Oklahoma BRFSS 2005 data suggested that adults ages 50+ with CVD were two times more likely to report no leisure time physical activity, 66.8%, compared to those with no CVD, 33.2% (Figure III-24).

- ***Fruits and Vegetable Intake***

Adults ages 50+ with CVD were almost similar in percentage of fruits and vegetables consumption of five or more servings daily than those without CVD (Figure III-24).

**CVD and Health Issues**

CVD is also associated with high blood pressure, high cholesterol and diabetes.[5] In 2005, the prevalence of diabetes was twice as high among adults ages 50+ with CVD than those without CVD; the prevalence of diagnosed high blood cholesterol and high blood pressure were over 50% higher among the former group than the latter (Figure III-25).

**CVD and Aspirin intake**

When this item *"Do you take aspirin daily or every other day?"* was asked in 2005, 68.1% of adults with diagnosed CVD took an aspirin, compared to adults without CVD, 21.7%. Based on the criteria recommended by the US Preventive Services Task Force (2002), 42.9% of men over 40 years of age took an aspirin, compared to women over 50 years, 41.7%.

Oklahoma BRFSS 2005 data suggested that adults ages 50+ with CVD were two times more likely to report no leisure time physical activity, 66.8%, compared to those with no CVD, 33.2%.

**Figure III-23**

**Prevalence of Current Smoking by CVD, Oklahoma 2005**

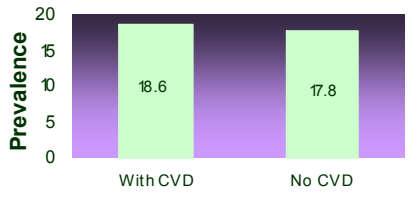
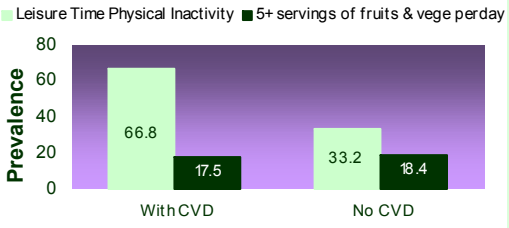



**Figure III-24**

**Prevalence of Modifiable Risk Behaviors by CVD, Oklahoma 2005**



**CVD and Rehabilitation**

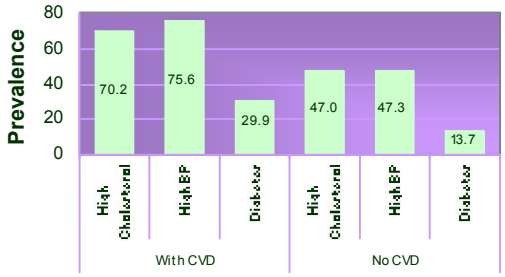
The following items were only asked to adults with heart attack and stroke, to determine if they received outpatient rehabilitation.

When Oklahoma adults who reported a heart attack were asked: *"After you left the hospital following your heart attack, did you go to any kind of outpatient rehabilitation?"* Nearly one in four, 23.2%, said they did.

When Oklahoma adults who had a stroke were asked: *"After you left the hospital following your stroke did you go to any kind of outpatient rehabilitation?"* One-fourth, 24.6%, said they did.

**Figure III-25**

**Prevalence of Diagnosed Health Diseases among Adults Ages 50+ by CVD, Oklahoma 2005**




Nearly half, 42.9%, of men over 40 years of age took an aspirin, compared to women over 50 years, 41.7%.

# High Blood Pressure

High blood pressure (HBP), or hypertension, is a condition in which the arterial pressure is higher than a standard measure, i.e., systolic blood pressure of ≥ 140 in millimeters of mercury (mm Hg) or a diastolic blood pressure of ≥ 90 mm Hg.[8]

The prevalence of diagnosed high blood pressure among Oklahoma adults was 29.8%, as compared to 25.5% in the US.

It is necessary to prevent, screen, manage and control HBP because this disorder greatly increases the risks for cardiovascular diseases.[9] HBP is often termed the "silent killer" because uncontrolled high blood pressure can lead to stroke, heart attack, heart failure or kidney failure.[10]

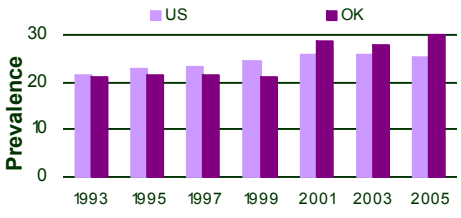
Doctor diagnosed HBP in this report is based on the BRFSS question: *"Have you ever been told by a doctor, nurse, or other health professional that you have high blood pressure?"* Oklahoma monitored this disorder each year since 1988, except for 2000 and 2002. In the past decade, the prevalence of diagnosed HBP in Oklahoma remained below the national median, ranging from 20.4%-26.0%. However, in 2001-2005, Oklahoma rates, 28.1%-29.8%, were higher than the national medians, 25.5%-25.8% (Figure III-26).

*Readers should note that since 2001, Oklahoma sampling scheme has been modified to more accurately represent the population. It is strongly possible that the sudden increase in the prevalence of diagnosed HBP was closely associated with the changes in survey methodology.*

The following section reports the prevalence of diagnosed HBP in Oklahoma for Year 2005. Oklahoma ranked 7th worse in the nation, DC and U.S. territories for the population

**Figure III-26**

**Adults Reporting Diagnosed High Blood Pressure, US and Oklahoma, 1993-2005**



diagnosed with HBP. The prevalence of diagnosed HBP among Oklahoma adults was 29.8%, as compared to 25.5% in the US.

### HBP and Regions

Diagnosed HBP disparities existed by region in Oklahoma. The prevalence of diagnosed HBP was highest in the Southeast region, 34.1%, as compared to the lowest prevalence in the Central, 25.7%, or the Northwest region, 26.5% (Figure III-27).

### HBP, Gender and Age

Age was associated with increased risk for high blood pressure. The proportion of adults aged 65+ reporting diagnosed HBP was 60.8%, as compared to adults aged 35-64, 32.4% (Figure III-28).

The prevalence of reported HBP, overall, was similar between male-female groups, 29.4% vs. 30.2%, respectively (Figure III-28). While males below 65 years reported slightly higher prevalence of HBP, 24.3%, compared to females, 21.9%, females 65+ years of age reported higher HBP rates than males, 62.9% vs. 57.8%, respectively.

### HBP, Education and Annual Household Income

One in three adults who had high school education or less reported diagnosed HBP as compared to one in four at the college level. The largest proportion of adults reporting diagnosed HBP was in the lowest annual household income level, 40.9% (Figure III-29).

**Adults Reporting Diagnosed High Blood Pressure, Oklahoma 2005**

**Figure III-27**
- **By Region**

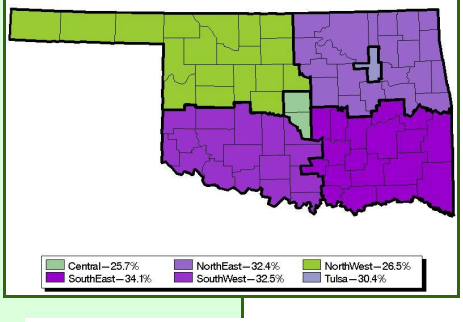



**Figure III-28**
- **By Gender and Age**

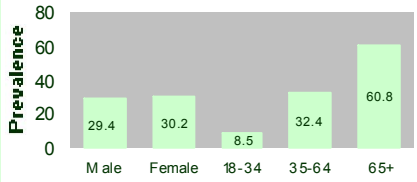
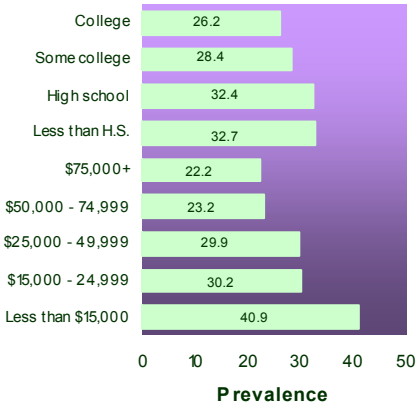



**Figure III-29**
- **By Education and Annual Household Income Level**



Adults who were currently divorced were 17.6% more likely to report diagnosed high blood pressure than married adults, 35.4% vs. 30.1%, respectively.

### HBP, Race and Ethnicity

African American NH had the highest prevalence of HBP in the youngest and oldest ages, 19.3% and 75.2%, respectively, while American Indian NH had the highest rates among adults ages 35-64 years, 43.5% (Figure III-30).

### HBP and Marital Status

Adults who were widowed were twice as likely to report diagnosed HBP than married adults, 59.9% vs. 30.1%, respectively (Figure III-31). Adults who were currently divorced were 17.6% more likely to report diagnosed HBP than married adults, 35.4% vs. 30.1% respectively.

### HBP and Employment Status

The prevalence of diagnosed HBP was highest among adults who identified themselves as “unable to work,” 60.2%, and “retired,” 58.7%, and were three times more likely to report HBP as adults employed for wages (Figure III-32).

**Adults Reporting Diagnosed High Blood Pressure, Oklahoma 2005**

**Figure III-30**

- **By Race / Ethnicity**

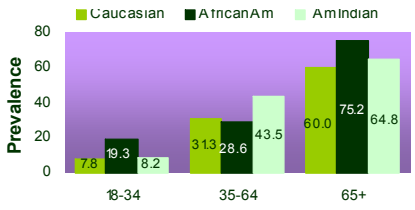



**Figure III-31**

- **By Marital Status**

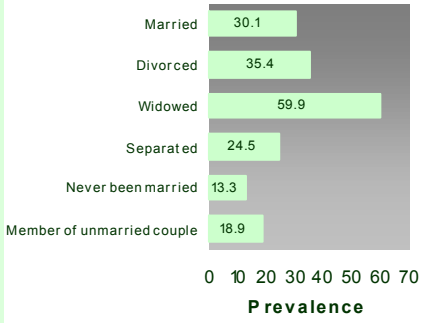
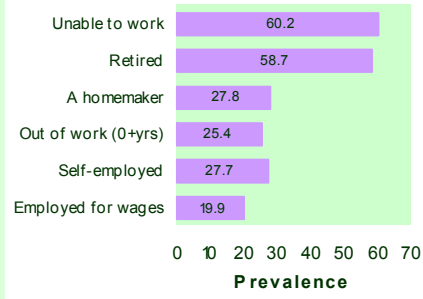



**Figure III-32**

- **By Employment Status**



# High Blood Cholesterol

Blood cholesterol is a fat-like substance in the body that is necessary for building membrane cells, hormones and digestive substances.[11] High blood cholesterol usually refers to a total blood cholesterol level at 240 mg/dL and above, or the bad cholesterol level (LDL) at 160 mg/dL and above.[11] There is a national health objective to reduce the prevalence of total cholesterol levels ≥ 240 mg/dL among adults aged ≥ 20 to 17.0% in year 2010 (Objective 12-14).[2]

High blood cholesterol increases the risk for heart diseases and heart attack.[12] Diagnosed high blood cholesterol was monitored in BRFSS by asking respondents the question *"Have you ever been told by a doctor, nurse, or other health professional that you have high blood cholesterol?"*

In the late 80's and early 90s, the prevalence of diagnosed high blood cholesterol among Oklahoma adults ranged from 22.9% to 28.1%. The numbers decreased and fluctuated between 1996-1999, and slowly increased again in 2000 from 28.8% to 37.8% in 2005, a number nearly 6% higher than the national median (Figure III-33).

***HBC, Gender and Age***

The prevalence of diagnosed high blood cholesterol among females and males was similar, 38.1% vs. 37.5%, respectively. The high blood cholesterol prevalence

**There are two types of Cholesterol:**

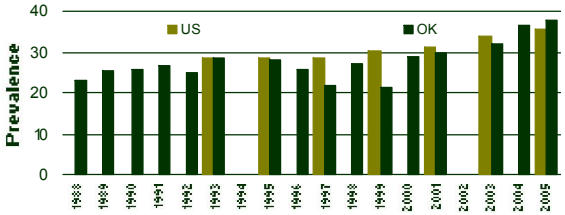
- Low-density lipoprotein (LDL) cholesterol is also known as **bad cholesterol.** High LDL cholesterol causes buildup in arteries resulting in blockages to the arteries. Higher level of LDL in the bloodstream increases the chance for heart disease and stroke.
- High-density lipoprotein (HDL) cholesterol is often called **good cholesterol.** HDL delivers cholesterol from other parts of the body back to the liver to be removed from the body. Higher level of HDL cholesterol lowers the risk of getting heart disease.

The prevalence of diagnosed high blood cholesterol among Oklahoma is nearly 6% higher than the US rate.

Adults with the lowest education reported the highest prevalence of diagnosed high blood cholesterol, 46.9%, followed by adults with high school education, 39.9%, as compared to those who had college education, 33.5%.

**Figure III-33**

**Adults Reporting Diagnosed High Blood Cholesterol, US and Oklahoma, 1988-2005**




increased with age. More than half (56%) of the adults aged 65+ reported diagnosed high blood cholesterol, as compared to adults aged 35-64, 49.9% (Figure III-34).

***HBC, Education and Gender***

Adults with the lowest education reported the highest prevalence of diagnosed high blood cholesterol, 46.9%, followed by adults with high school education, 39.9%, as compared to those who had college education, 33.5%. In addition, female adults who had high school or less education were more likely to report diagnosed high blood cholesterol than females who had college education (49.2%, 42.6% vs. 30.3%, respectively). No significant differences for diagnosed HBC existed among males by education levels (Figure III-35).

***HBC and Household Income***

Doctor-diagnosed high blood cholesterol was associated with annual household income. Nearly half of the adults with the lowest household income reported diagnosed high blood cholesterol, as compared to one in three adults with the highest incomes (Figure III-36).

**Adults Reporting Diagnosed High Blood Cholesterol, Oklahoma 2005**

**Figure III-34**

- **By Gender and Age**

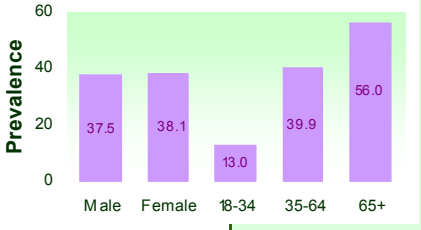



**Figure III-35**

- **By Gender and Education Level**

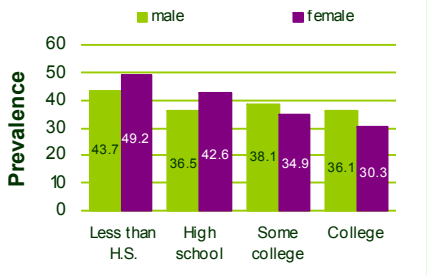
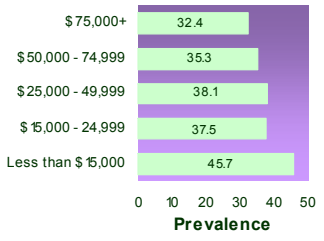



**Figure III-36**

- **By Annual Household Income Level**



### *HBC, Race and Ethnicity*

The prevalence of reported diagnosed HBC was highest among Multicultural NH adults, 48.1%, as compared to Caucasian NH and African American NH adults, 38.7% and 36.6%, respectively (Figure III-37). The lowest prevalence of diagnosed high blood cholesterol was Hispanics, 18.7%. In addition, African American had the highest prevalence of diagnosed high blood cholesterol after age 65+, 62.4%.

### *HBC and Marital Status*

The highest prevalence of diagnosed high blood cholesterol by marital status was among widows, 51.1%, and was nearly three times higher than the lowest prevalence among adults who had never been married, 17.7% (Figure III-38). The prevalence of reported high blood cholesterol among married adults were similar to divorced adults.

### *HBC and Employment Status*

The largest prevalence of reported diagnosed high blood cholesterol was among adults who were "unable to work" or "retired," 57.5% and 54.7%, respectively. (Figure III-39). Adults who were "unable to work" were nearly twice as likely to report diagnosed HBC as adults who were "employed for wages."

The prevalence of reported diagnosed HBC was highest among Multicultural NH adults, 48.1%, as compared to Caucasian NH and African American NH adults, 38.7% and 36.6%, respectively.

**Adults Reporting Diagnosed High Blood Cholesterol, Oklahoma 2005**

**Figure III-37**
- **By Race / Ethnicity**

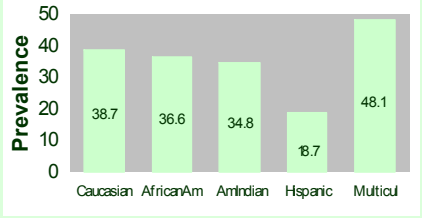



**Figure III-38**
- **By Marital Status**

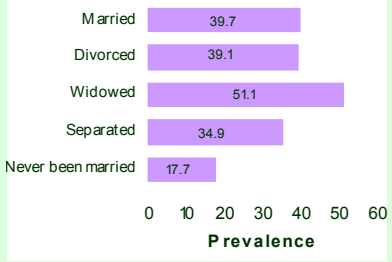



**Figure III-39**
- **By Employment Status**

# Arthritis and Osteoporosis

Arthritis is a general term for over 100 rheumatic diseases and conditions affecting the joints, the surrounding tissues and other connective tissues. Among these conditions are osteoarthritis, rheumatoid arthritis, gout, lupus, fibromyalgia, scleroderma, and carpal tunnel syndrome.[13]

In 2005, Oklahoma ranked 10th highest in the nation, DC and U.S. territories for the population prevalence of diagnosed arthritis. Nearly one-third of Oklahoma adults reported diagnosed arthritis.

Arthritis is a leading cause of disability in America, affecting an estimated 43 million (20.8%) adults, and 1 million Oklahomans.[14] It is estimated that 60 million adults in the United States and 1.4 million Oklahomans will be affected by arthritis by year 2010.[15]

Since 1999, BRFSS included an item in its core survey, asking respondents *"Have you ever been told by a doctor that you have arthritis?"* In 2002, the question was modified to include *"other health professional"* and forms of arthritis including *"rheumatoid arthritis, gout, lupus, or fibromyalgia."*

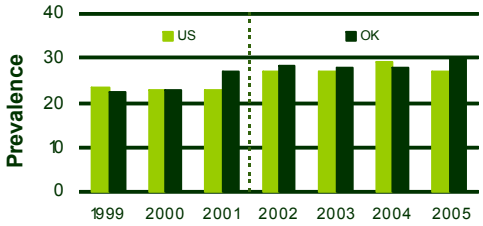
The overall diagnosed arthritis prevalence has increased both nationally and in Oklahoma from 1999 to 2005, though the Oklahoma rate increased more rapidly than the national rate, 34.7% vs. 15.9%, respectively. Oklahoma prevalence of diagnosed arthritis increased from 22.5% to 30.3% from 1999-2005, while the national median increased from 23.2% to 26.9% (Figure III-40).

In 2005, Oklahoma ranked 10th highest in the nation, DC and the U.S. territories for the population prevalence of diagnosed arthritis. Nearly one-third of Oklahoma adults reported diagnosed arthritis.

Arthritis Prevention and Education Program Information in Oklahoma are available at: http://www.health.state.ok.us/program/apep/.

**Figure III-40**

**Adults Reporting Diagnosed Arthritis, US and Oklahoma, 1999-2005**



### *Arthritis, Gender and Age*

Doctor-diagnosed arthritis was significantly higher among females, 34.2%, than males, 26.1%. The prevalence among adults ages 65+ was 1.8 times higher than adults ages 34-64, and over six times higher than adults ages 18-34 (Figure III-41).

### *Arthritis, Education and Household Income*

The proportion of adults reporting doctor-diagnosed arthritis among those who had less than high school education, 36.2%, was significantly higher than among those with college or some college education (Figure III-42).

The lower the annual household income, the higher the rate of diagnosed arthritis. The prevalence of diagnosed arthritis among adults with annual income of less than $15,000, 43.4%, was over two times higher than adults with the highest incomes, 20.5% (Figure III-42).

### *Arthritis, Race and Ethnicity*

There were significant disparities for diagnosed arthritis among race / ethnic groups. Nearly half of the adults who identified themselves as Multicultural reported diagnosed arthritis, 46.9%. The prevalence of diagnosed arthritis was significantly lower among African-Americans NH, 24.9% than Caucasian NH, 31.2%, or American Indian NH, 35.8% (Figure III-43).

### *Arthritis and Marital Status*

The highest prevalence of diagnosed arthritis was among widowed adults, 60.7%. Divorced adults were 41.4% more likely than married adults to report diagnosed arthritis (Figure III-44).

### *Arthritis and Employment Status*

The prevalence of diagnosed arthritis was highest among adults who were unable to work, 67.4%, followed by retired adults, 57.1%. These two groups reported significantly higher prevalence of diagnosed arthritis than homemakers, self-employed, out of work adults, or adults employed for wages (Figure III-45).

**Adults with Diagnosed Arthritis, Oklahoma 2005**

**Figure III-41**

- **By Gender and Age**

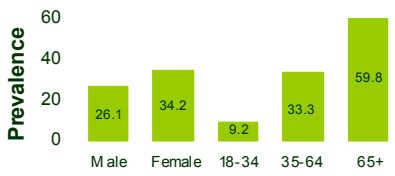
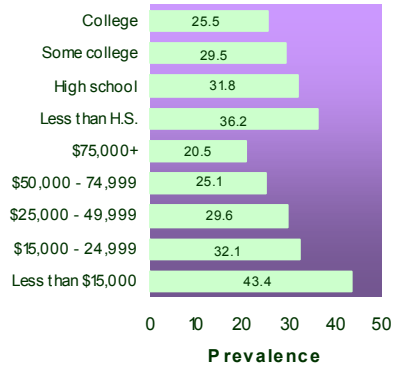



**Figure III-42**

- **By Education and Annual Household Income Level**



**Adults with Diagnosed Arthritis, Oklahoma 2005**

**Figure III-43**

- **By Race / Ethnicity**

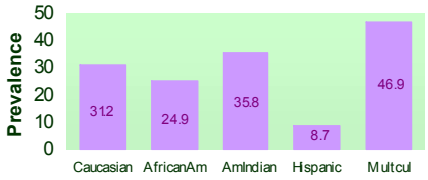



**Figure III-44**

- **By Marital Status**

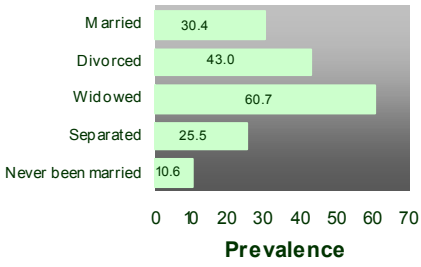
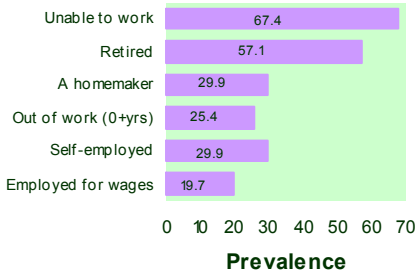



**Figure III-45**

- **By Employment Status**




***Arthritis and Geographical Region***

The prevalence of Oklahoma adults reporting diagnosed arthritis was highest in Southeast region, 38.6%, followed by Northeast, 34.2%, and Southwest regions, 32.9%. These regions had significantly higher reported diagnosed arthritis prevalence than in Tulsa, 26.5%, and the Central region, 24.5% (Figure III-46).

***Arthritis and Weight***

Diagnosed arthritis is highly associated with weight and physical activities. Obese adults were 25.2% more likely to report arthritis, 38.3%, than overweight adults, 30.6%; and 60.9% higher than normal weight adults, 23.8% (Figure III-47).

***Arthritis and Physical Activity***

Adults who were physically inactive in their leisure time were nearly 1.5 times more likely to report doctor-diagnosed arthritis than those who were physically active (Figure III-48).

## Symptoms of Arthritis

Apart from doctor-diagnosed arthritis, BRFSS 2005 also asked the following questions in the survey. *"During the past 30 days, have you had any symptoms of pain, aching, or stiffness in or around a joint?"* Nearly half of Oklahoma adults, 43.1%, indicated that they did.

In addition, among these adults who had joint pain in 30 days, they were asked two questions: first, *"Did your joint symptoms first begin more than 3 months ago?"* Majority of the 6,782 adults, 87.0%, responded "Yes." Second, *"Have you ever seen a doctor or other health professional for these joint symptoms?"* Nearly three-quarter of the 6,088 adults, 72.7%, said "Yes."

Among adults who were diagnosed with arthritis or those who had joint pain in past 30 days, they were asked, *"Are you now limited in any way in any of your usual activities because of arthritis or joint*

*symptoms?"* One in three of the 7,443 adults responded that their usual activities were limited by their arthritis or joint symptoms.

**Adults Reporting Diagnosed Arthritis, Oklahoma 2005**

**Figure III-46**
- **By Region**

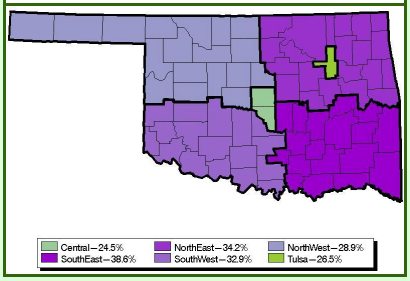



**Figure III-47**
- **By Weight Status**

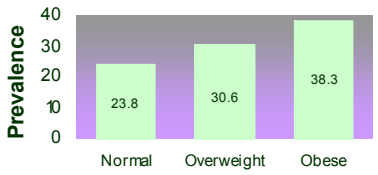
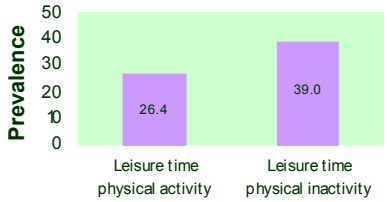



**Figure III-48**
- **By Leisure Time Physical Activity**




Doctor-diagnosed arthritis was significantly higher among females than males, 34.2% vs. 26.1%, respectively.

# Diagnosed Current Asthma

Asthma is a chronic disease of the airways, characterizes by the inflammation and swelling of the inside walls of the airways that bring air in and out of the body.[16] In 2004, it was estimated that 20.5 million Americans had asthma.[17] In the same year, 3,780 deaths in the nation were attributed to asthma. Close to 64.0% of these deaths occurred in women.[18]

In 2005, 8.5% Oklahoma adults reported diagnosed current asthma, which was 6.3% higher than the nation's 8.0%.

An asthma attack is an episode in which the airways tighten up and excrete extra mucus due to a reaction to allergens. These changes cause wheezing (a whistling sound when you breathe), coughing, chest tightness, and trouble breathing.[16]

Since 2000, BRFSS included two asthma questions in its core questionnaire, *"Have you ever been told by a doctor, nurse, or other health professional that you had asthma?"* and *"Do you still have asthma?"* The term in this report, "diagnosed current asthma" is a combination of these two questions.

For the past six years, the Oklahoma current asthma rate increased by 36.2% as compared to the nation's, 11.4%. The prevalence of reported diagnosed current asthma among adults aged 18+ in Oklahoma was lower than the national median from 2000-2003. However, for the past two years, our numbers have exceeded the national statistics. In 2005, 8.5% of Oklahoma adults reported diagnosed current asthma, 6.3% higher than the nation's 8.0% (Figure III-49).

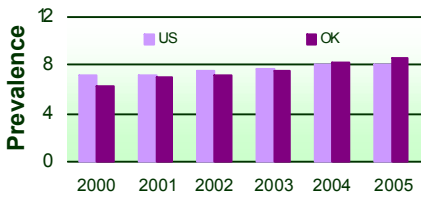
In the same year, 28,981 Oklahomans were discharged from inpatient services, and 6,449 were discharged from outpatient services with asthma. Oklahoma ranked 18th highest in the nation, DC and U.S. territories for the population reporting diagnosed current asthma. In 2005, 1.6% of deaths in Oklahoma were due to asthma.

***Asthma, Gender and Age***

According to 2000-2005 BRFSS, the prevalence of current asthma among

**Figure III-49**

**Adults with Diagnosed Current Asthma, US and Oklahoma, 2000-2005**



female adults have been consistently higher than male adults in Oklahoma (Figure III-50). In addition, the prevalence of current asthma among female adults have increased 45.5% in six years, as compared to male adults, at 19.3%.

There were no significant asthma differences among the age groups although the prevalence of diagnosed current asthma was slightly higher among adults aged 65 and above, as compared to the other age groups (Figure III-51).

### *Asthma, Education and Household Income*

Disparities for current diagnosed asthma existed by annual household income levels but not by education. Adults with high school or less education reported 13.6%-20.8% higher prevalence of diagnosed current asthma than adults with some college or a college degree (Figure III-52). Young adults under 35 years old with current asthma were more likely to be high school graduates. Older adults aged 35-64 who reported current asthma were more likely to have had less than a high school education.

Adults with the lowest annual household income were 1.6 times more likely to report diagnosed current asthma than their peers with incomes $25,000-$50,000 (Figure III-52). In addition, the largest proportion of adults under age 35 with

The prevalence of current asthma among female adults have increased 45.5% in six years, as compared to male adults, at 19.3%.

**Adults with Diagnosed Current Asthma, Oklahoma 2005**

**Figure III-50**
- **By Gender and Year**

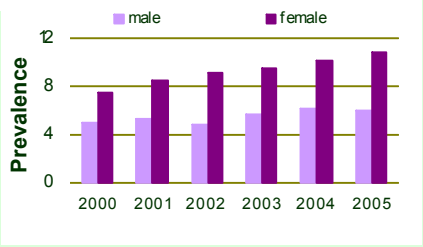
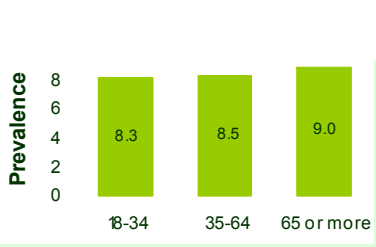



**Figure III-51**
- **By Age**



diagnosed asthma were among those with annual incomes $50,000-less than $75,000, 12.2%. For adults aged 35+, the largest prevalence of current asthma was reported by adults in the lowest two income levels, 12.6% and 11.5%, respectively.

For adults aged 35+, the largest prevalence of current asthma were reported by adults in the lowest two income levels.

***Asthma, Race and Ethnicity***

Multicultural NH adults were 1.6 times more likely than Caucasian NH, and twice as likely as African American NH and American Indian NH to report diagnosed current asthma in 2005 (Figure III-53). In addition, the lowest prevalence of diagnosed current asthma reported was among the Hispanics, 3.7%.

Multicultural NH adults were 1.6 times more likely than Caucasian NH, twice as likely as African American NH and American Indian NH to report diagnosed current asthma in 2005.

***Asthma and Marital Status***

The highest prevalence of diagnosed current asthma reported was among separated adults, 14.0%. Widowed adults, 12.1%, were nearly twice as likely to report asthma than persons married, 7.7%, or "never been married," 7.2% (Figure III-54).

**Adults with Diagnosed Current Asthma, Oklahoma 2005**

**Figure III-52**

- **By Education and Annual Household Income**

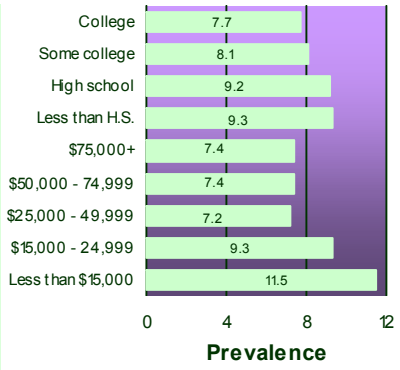
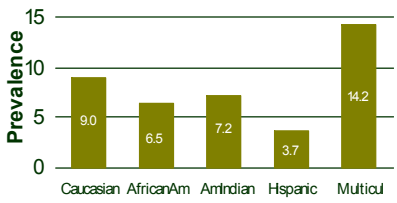



**Figure III-53**

- **By Race / Ethnicity**



***Asthma and Employment Status***

The largest proportion of adults reporting diagnosed current asthma were among the "unable to work," 19.8%, nearly twice the prevalence of that of the homemakers, 10.7%, and "out of work adults," 10.6% (Figure III-55). Multicultural NH adults who were "unable to work" reported the highest prevalence of asthma, 29.2%.

***Asthma and Geographical Regions***

Current asthma prevalence varied by Oklahoma regions. The highest prevalence of diagnosed current asthma was in Northeast region, 10.3%, as compared to Northwest and Tulsa regions, 6.7% and 7.1%, respectively (Figure III-56).

**Adults with Diagnosed Current Asthma, Oklahoma 2005**

**Figure III-54**

- **By Marital Status**

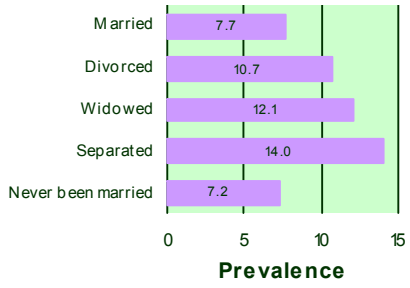



**Figure III-55**

- **By Employment Status**

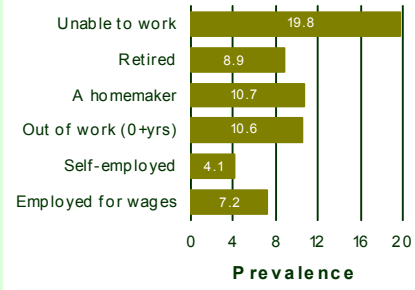
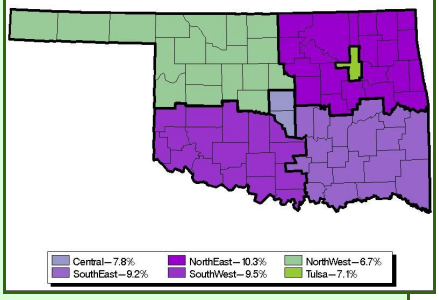



**Figure III-56**

- **By Region**




The highest prevalence of diagnosed current asthma was in Northeast region, 10.3%, as compared to Northwest and Tulsa regions, 6.7% and 7.1%, respectively.

### *Asthma and Weight*

Obese adults who reduce their weight report feeling better with their asthma conditions.[19] Current asthma was associated with body weight. In 2005, obese adults were twice as likely to report current asthma, 12.1%, as overweight adults, 7.4%, or normal weight adults, 6.9% (Figure III-57).

In 2005, obese adults were twice as likely to report current asthma, 12.1%, as overweight adults, 7.4%, or normal weight adults, 6.9%

### *Asthma and Smoking Status*

Current everyday smokers 10.8%, and former smokers, 10.6%, were highest in diagnosed current asthma. These groups were 50%-80% higher in diagnosed asthma than adults who were "current some day smoker" and "never smoker" (Figure III-58).

Current everyday smokers 10.8%, and former smokers, 10.6%, were highest in diagnosed current asthma.

**Adults with Diagnosed Current Asthma, Oklahoma 2005**

**Figure III-57**

- **By Weight Category**

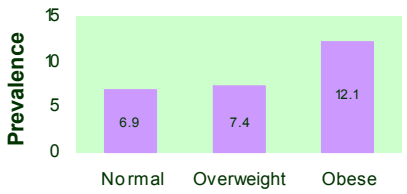
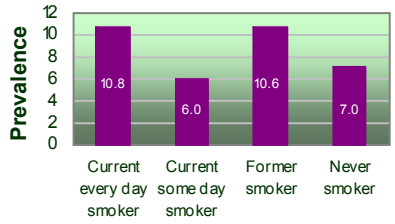



**Figure III-58**

- **By Smoker Category**



# Section IV: Modifiable Individual Risk Behaviors

## Tobacco Use

Tobacco use is the leading preventable cause of death in the United States.[20] Cigarette smoking causes deaths from cancer, cardiovascular diseases, respiratory diseases, and infant deaths related to mothers smoking during pregnancy.[21] The *Healthy People* national objective is to reduce cigarette smoking to 12.0% by 2010 (Objective 27-1a).[2]

In this BRFSS report, "current smokers" consist of respondents whose answer was "Yes" to *"Smoking 100 cigarettes in their life and are currently smoking everyday or some day"*. The national trends of current smokers have been stable at around 23.0% for the last decade (the 90's), but since 2001, there was approximately 5.0% decline each year to 20.5% in 2005.

The Oklahoma trends have been higher than the national averages. In the 90's, Oklahoma current smoker rates ranged from 21.7-26.6%. In the new millennium, the current smoker rates have seen a 14.3% decline from 28.7% in 2001 to 25.1% in 2005 (Figure IV-1).

Tobacco Use Prevention Service Information in Oklahoma are available at: http://www.health.state.ok.us/program/tobac/index.html.

In 2005, Oklahoma ranked 5th highest in the nation and DC for the population percentage of reported current smokers. More than half of Oklahoma adults never smoked; one in five adults had "smoked at least 100 cigarettes during their lifetimes and currently smoke every day;" and, one in four Oklahoma adults were former smokers (Figure IV-2).

### *Tobacco, Gender and Age*

In 2005, the prevalence of current male smokers, 26.5%, was 12.5% higher than female smokers, 23.8%. Current smokers were more common among young adults ages 18-34, 30.5%, as compared to adults in older age groups (Figure IV-3).

In the new millennium, the current smoker rates have seen a 14.3% decline from 28.7% in 2001 to 25.1% in 2005.

**Types of tobacco use include:**

- cigarette smoking including low-tar cigarettes, and other tobacco products
- smokeless tobacco, cigars, and pipes,
- spit tobacco

One in five adults had "smoked at least 100 cigarettes during their lifetimes and were currently smoking every day."

In 2005, the prevalence of current male smokers were 12.5% higher than female smokers, 26.5% vs. 23.8%, respectively.

### *Tobacco, Education and Household Income*

In 2005, current smokers were more likely to be adults with lower education and lower incomes (Figure IV-4). Adults with less than high school education, 35.3%, were three times more likely to report currently smoking than their peers with college education, 10.7%. Adults with annual household income below $25,000 were twice as likely to report currently smoking than their peers with incomes above $50,000, 34.1% vs. 16.0%, respectively.

**Figure IV-2**
**Adults by Smoking Status, Oklahoma 2005**

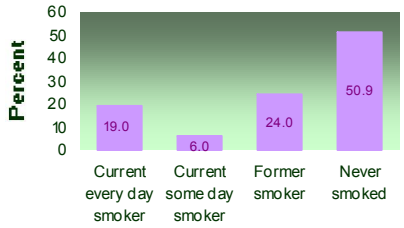



**Figure IV-3**
**Adult Current Smokers by Gender and Age, Oklahoma 2005**

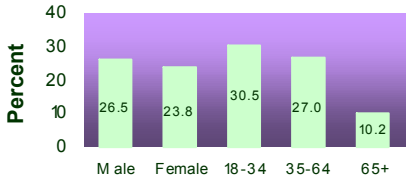
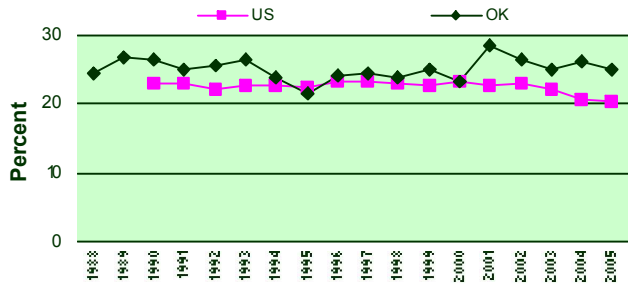



**Figure IV-1**

**Adult Current Smokers, US and Oklahoma, 1988-2005**




* No U.S. data in 1988 and 1989

### *Tobacco, Race and Ethnicity*

In an effort to yield meaningful results, data from three years (2003-2005) were combined to increase sample sizes. The largest proportion of current smokers was among American Indian NH, 34.1% (Figure IV-5). Multicultural NH group was 33.7% more likely to report current smoking than Caucasian NH, 32.9% vs. 24.6%. The lowest prevalence of current smokers was among Hispanics, 20.9%.

### *Smoker Status and Asthma*

Oklahoma adults who were "current everyday smokers" or "former smokers" were about 35.0% more likely to report having asthma than those who "never smoked" in their lifetimes in 2005 (Figure IV-6).

### *Smoker Status and Job Types*

Smoking differences also existed among the type of jobs in Oklahoma. The proportion of current smokers was 1.5 times higher among Oklahoma adults whose jobs involved "heavy labor" than "mostly walking," 40.2% vs. 27.0%, respectively; and nearly doubled those with jobs mainly involving sitting or standing, 22.3% (Figure IV-7).

**Adult Current Smokers, Oklahoma 2005**

**Figure IV-4**

- **By Education and Annual Household Income Level**

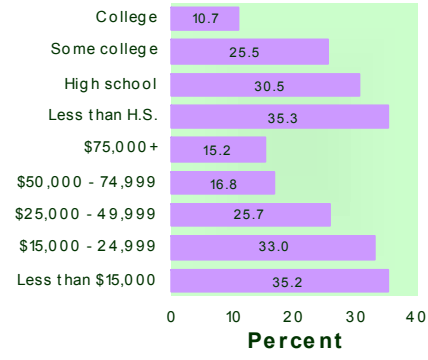



**Figure IV-5**

- **By Race / Ethnicity**

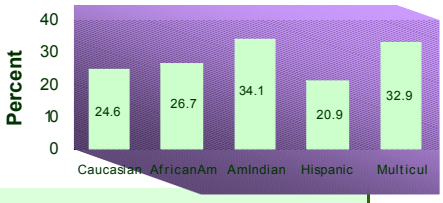
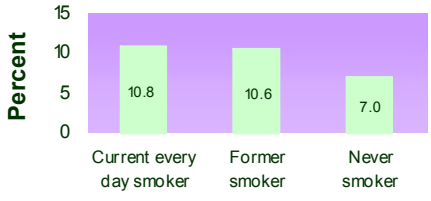



**Figure IV-6**
**Prevalence of Asthma By Smoking Status, Oklahoma 2005**



The largest proportion of current smokers was among American Indian NH, 34.1%.

Adults who were "unemployed," 45.3%, and those "unable to work," 41.7%, were the highest in reported current smokers.

***Tobacco and Employment Status***

Adults who were "unemployed," 45.3%, and those "unable to work," 41.7%, were the highest in reported current smokers (Figure IV-8). The lowest prevalence of current smoking was among retired adults, 11.3%.

***Smokers and Geographical Regions***

Smoking disparities also existed by geographical regions in Oklahoma. The prevalence of current smokers was significantly higher in the Southeast region than Northwest, Central or Tulsa regions (Figure IV-9).

**Prevalence of Adult Current Smokers, Oklahoma 2005**

**Figure IV-7**

- **By Job Type**

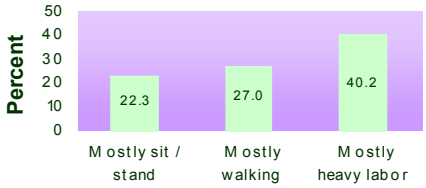



**Figure IV-8**

- **By Employment Status**

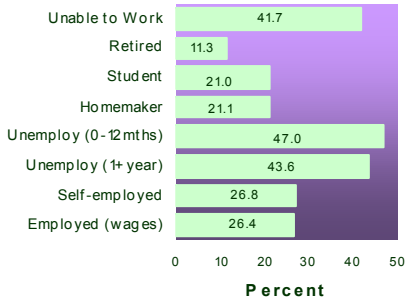
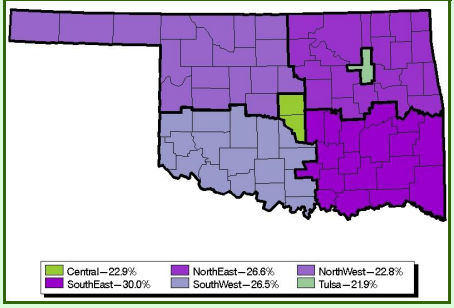



**Figure IV-9**

- **By Oklahoma Region**



# Alcohol Consumption

Approximately 85,000 deaths in the United States were caused by alcohol consumption in 2000.[22] It is a *Healthy People* national objective to reduce the population prevalence of binge drinking to 13.4% by year 2010 among adults in the United States (Objective 26-11c).[2]

## Binge Drinking

Binge drinking has many reported adverse health effects, including accidental injuries (e.g., motor vehicle crashes, burns, falls, drownings, and hypothermia); violence (e.g., homicide, suicide, child abuse, domestic violence); alcohol poisoning; hypertension; heart attack; gastritis; pancreatitis; sexually transmitted diseases; meningitis; and poor control of diabetes.[23]

According to BRFSS, respondents who answered at least "one episode" to the following question, *"Considering all types of alcoholic beverages, how many times during the past 30 days did you have 5 or more drinks on one occasion?"* were considered at risk for binge drinking.

*A standard drink is 12 grams of pure alcohol, which is equal to one 12-ounce bottle of beer or wine cooler, one 5-ounce glass of wine, or 1.5 ounces of 80-proof distilled spirits.[24]

National trends of binge drinking among American adults have been at 14.1% - 15.3%, except for 2002 (16.1%) and 2003 (16.5%) (Figure IV-10).

Oklahoma binge drinking trends have been consistently lower than the national averages across the years. The prevalence

**Two of the most common measures for alcohol consumption are:**

- **Binge drinking** – defined as having five drinks* or more in a row in the month preceding the survey.[24]
- **Chronic drinking** – Since the year 2000, definition for chronic drinking has changed from "having 60 or more drinks per month" to "having excess of 1 drink per day on average for women and greater than 2 drinks per day on average for men."[24]

Since 2002, binge drinking among Oklahoma adults have decreased nearly 6.0% from 13.3% to 12.6% in 2005.

of reported binge drinking declined in the 1990s. Since 2002, binge drinking among Oklahoma adults has decreased nearly 6.0% from 13.3% to 12.6% in 2005 (Figure IV-10).

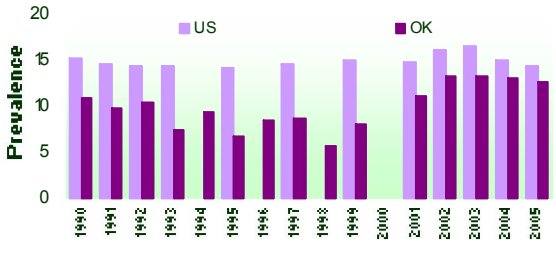
As the sample size was too small to yield meaningful results, data from the last three years (2003-2005) were combined to provide demographic estimates for binge and chronic drinking.

### *Binge Drinking, Gender and Age*

Male adults in Oklahoma were four times more likely to report binge drinking than females, and young adults ages 18-34 were over two times more likely than their middle-age peers (Figure IV-11).

**Figure IV-10**

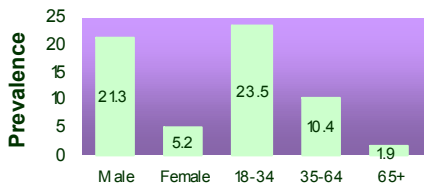
**Adults Reporting Binge Drinking in Past Month, US and Oklahoma, 1990-2005**




* No U.S. or Oklahoma data for 2000.

**Figure IV-11**

**Adults Reporting Binge Drinking by Gender and Age, Oklahoma 2003-2005**




### *Binge Drinking, Education and Household Income*

Education levels are inversely associated with binge drinking behaviors in Oklahoma from 2003-2005. Adults with the lowest education were 40.4% more likely to report binge drinking than adults with the highest education, 15.3% vs. 10.9%, respectively.

Binge drinking was associated with annual household incomes. More adults with incomes over $15,000 reported binge drinking, 13.4-15.1%, as compared to 9.9% with the lowest incomes (Figure IV-12).

Information for substance abuse prevention and treatment services in Oklahoma are available at: http//www.odmhsas.org/subab.htm, Reach-Out hotline, 1-800-522-9054

***Binge Drinking, Race and Ethnicity***

Binge drinking disparities also existed among race/ ethnic groups. In 2003-2005, Hispanics were nearly two times more likely to report binge drinking than Caucasian NH, 22.6% vs. 12.0% (Figure IV-13). When binge drinking and age group were examined under each ethnic group, the highest prevalence of binge drinking was among African American NH and Multicultural NH in 18-34 age group, 27.2% and 27.1%, respectively.

***Binge Drinking and Marital Status***

From 2003-2005, adults who have "never been married" or "members of unmarried couple" reported the highest prevalence of binge drinking, 26.6% and 23.2%, respectively (Figure IV-14). These higher drinking rates were greatly influenced by the fact that 81.5% of the single and 67.3% of "members of unmarried couple" were young adults ages 18-34. Adults who were separated from their spouse were more likely to report binge drinking than married couples (21.8% vs. 10.1%, respectively).

***Binge Drinking and Employment Status***

Large disparities of binge drinking existed among employment groups in 2003-2005. Adults who were most likely to report binge drinking

**Adults Reporting Binge Drinking, Oklahoma 2003-2005**

**Figure IV-12**

- **By Education and Annual Household Income Level**

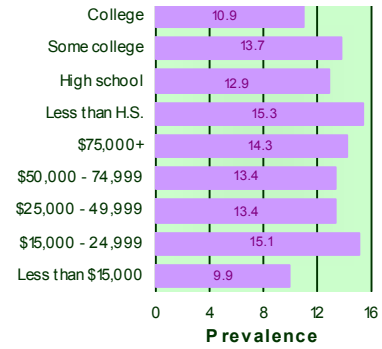



**Figure IV-13**

- **By Race / Ethnicity**

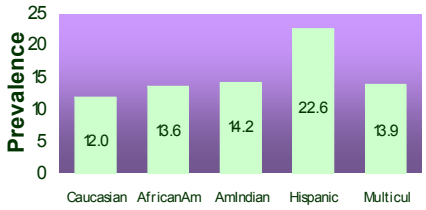
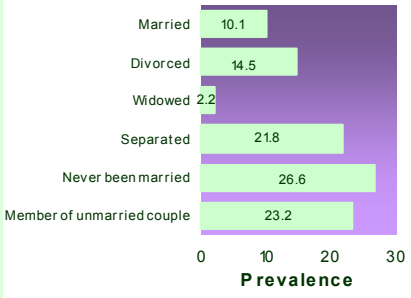



**Figure IV-14**

- **By Marital Status**



identified themselves as students, 19.2%, out of work, 18.2%, and employed for wages, 17.3% (Figure IV-15). The retired group had the lowest binge drinking rate, 3.0%.

In 2003-2005, Hispanics were nearly two times more likely to report binge drinking than Caucasian NH, 22.6% vs. 12.0% .

### *Binge Drinking and Job Types*

Binge drinking was also associated with physical activity of jobs. In 2003-2005, adults whose jobs involved mostly heavy labor, 24.7%, were nearly two times more likely to report binge drinking than adults mostly sitting or standing at their jobs, 14.3% (Figure IV-16).

### *Binge Drinking and Geographical Regions*

In 2003-2005, Oklahoma adults from metropolitan cities, such as Central and Tulsa regions, 15.3% and 14.8%, respectively, were more likely to report binge drinking than Northeast or Southwest regions, 11.9% and 11.2%, respectively (Figure IV-17).

Adults who were most likely to report binge drinking identified themselves as students, 19.2%, out of work, 18.2%, and employed for wages, 17.3%.

**Adults Reporting Binge Drinking, Oklahoma 2003-2005**

**Figure IV-15**

- **By Employment Status**

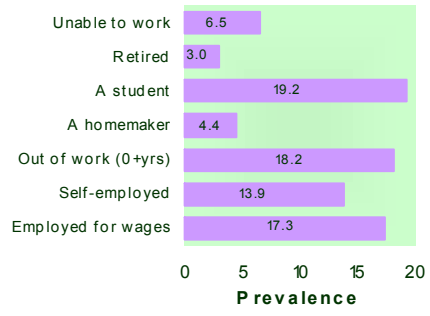



**Figure IV-16**

- **By Job Types**

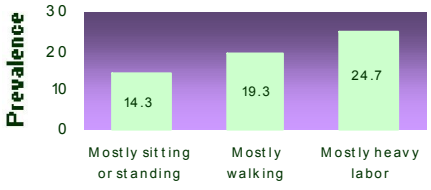
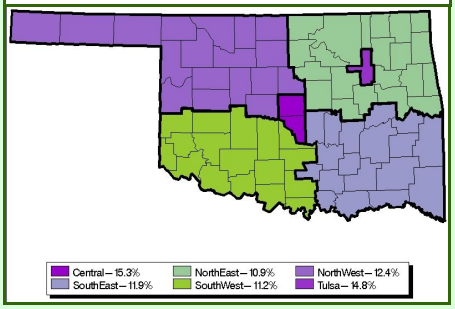



**Figure IV-17**

- **By Region**



## Chronic Drinking

Long-term chronic drinking is associated with chronic diseases such as high blood pressure, heart rhythm irregularities, stroke, chronic liver disease and cirrhosis, gastrointestinal cancers, depression, and a variety of injuries and deaths.[23]

The national prevalence of chronic drinking remained at 3% in the 90's. However, since the modification of chronic drinking criteria to "two drinks or more per day for men and one drink or more for women,"[14] the prevalence of chronic drinking for the nation increased nearly 30% from 3.6% in 1999 to 5.1% in 2001. The number kept increasing in the following year to 5.9% and then declined to 4.9% in 2005 (Figure IV-18).

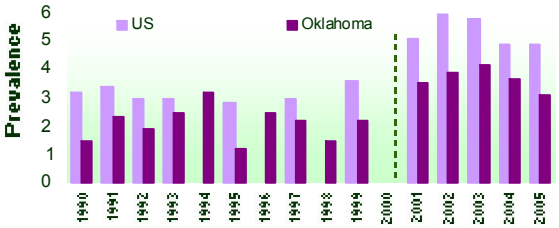
In Oklahoma, the trends for chronic drinking have been fluctuating from 1.5% to 2.5% in the 90's. In 2001, the chronic drinking rate was 3.5% and peaked at 4.2% in 2003, before declining to 3.1% in 2005 (Figure IV-18).

### *Chronic Drinking, Gender and Age*

From 2003-2005, the proportion of Oklahoma male adults reporting chronic drinking was 5.6%, nearly three times higher than their female counterparts, 2.0% (Figure IV-19). In addition,

**Figure IV-18**

**Adults Reporting Chronic Drinking, US and Oklahoma, 1990-2005**

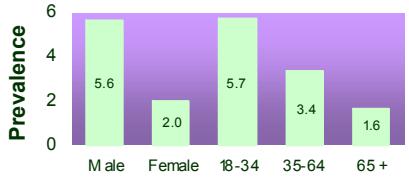



*No US data for 1994, 1996, 1998; No data for 2000.

Since the year 2000, definition for **chronic drinking** have changed from "having 60 or more drinks per month" to "having excess of 1 drink per day on average for women and greater than 2 drinks per day on average for men".[24]

**Figure IV-19**

**Adults Reporting Chronic Drinking by Gender and Age, Oklahoma 2003-2005**



**Adults Reporting Chronic Drinking, Oklahoma 2003-2005**

**Figure IV-20**

- **By Education and Household Income level**

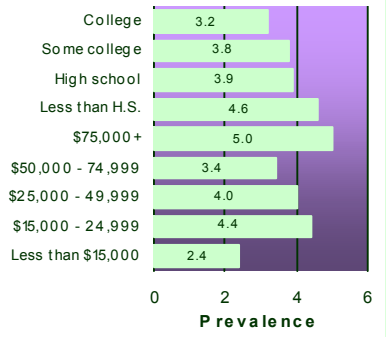



**Figure IV-21**

- **By Race / Ethnicity**

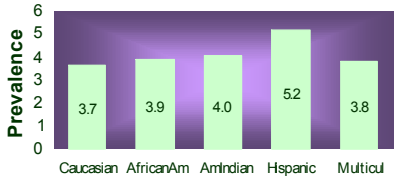
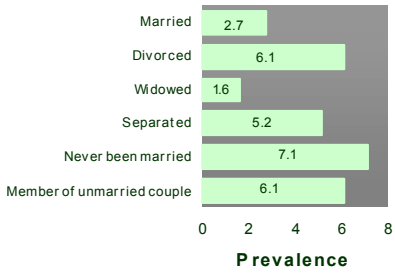



**Figure IV-22**

- **By Marital Status**




young adults, 5.7%, were two times more likely to report chronic drinking than the middle-age adults, 3.4%.

### *Chronic Drinking, Education and Household Income*

Adults with lower education levels were more likely to report chronic drinking than their peers with higher education (Figure IV-20). Adults with the lowest annual household income were the least likely to report chronic drinking, 2.4%, while adults with the highest incomes reported the highest prevalence, 5.0% (Figure IV-20).

### *Chronic Drinking, Race and Ethnicity*

The largest proportion of adults reporting chronic drinking was among Hispanics, 5.2% (Figure IV-21). However, the largest proportions of adults ages 18-34 reporting chronic drinking were among African American NH, 10.3% and Multicultural NH, 6.6%.

### *Chronic Drinking and Marital Status*

The highest prevalence of reported chronic drinking was among adults who had never been married, 7.1%. In addition, the prevalence of chronic drinking among divorced adults was twice that of married adults, 6.1 % vs. 2.7% (Figure IV-22).

### *Chronic Drinking and Employment Status*

The highest prevalence of reported chronic drinking was among self-employed adults, 5.8%, followed by out of work adults, 5.7%, and students, 4.8% (Figure IV-23). In addition, the prevalence of chronic drinking nearly tripled among the self-employed compared to adults unable to work.

### *Chronic Drinking and Job Types*

Chronic drinking is also associated with job activities. Adults whose jobs involved heavy labor were nearly two times more likely to report chronic drinking than their peers with jobs involving mostly sitting or standing, 7.3% vs. 3.6%, respectively (Figure IV-24).

### *Chronic Drinking and Geographical Regions*

The highest prevalence of chronic drinking was reported among adults from Tulsa and Central regions in 2003-2005, 4.5% and 4.2%, respectively (Figure IV-25).

**Adults At Risk For Chronic Drinking, Oklahoma 2003-2005**

**Figure IV-23**

- **By Employment Status**

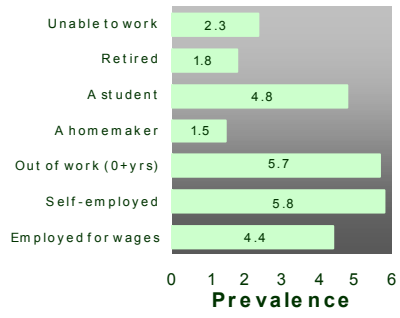



**Figure IV-24**

- **By Job Types**

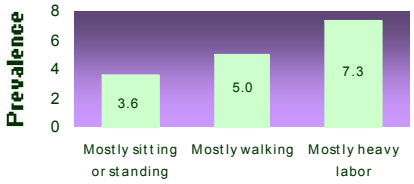
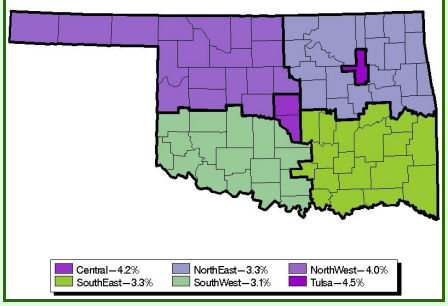



**Figure IV-25**

- **By Region**




Adults with the lowest annual household income were the least likely to report chronic drinking, 2.4%, while adults with the highest incomes reported the highest prevalence, 5.0%.

# Physical Activity

Regular physical activity substantially reduces risks for chronic diseases (e.g. stroke, heart attack, colon cancer, diabetes, etc.), body fat, and controls weight and strengthens bones, muscles and joints.[25] A national objective of *Healthy People 2010* is to achieve the prevalence of vigorous activity to 30.0% (Objective 22.3) and moderate activity to 50.0% (Objective 22.2).[2]

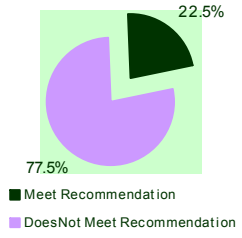
Traditionally, regular vigorous activities are recommended to stay healthy. However, given that more than half of adults in the United States are not vigorously active at the recommended level, the guidelines have been modified to include a combination of vigorous or moderate-intensity physical activity to be integrated into one's life span.[25]

Current recommendations for physical activity include:[26]

- Vigorous-intensity physical activity for 3 or more days per week for 20 or more minutes per occasion; OR,
- Moderate-intensity physical activities for more than 30 minutes on 5 or more days of the week.

**Figure IV-26**

**Adults by Vigorous Physical Activity Recommendation, Oklahoma 2005**

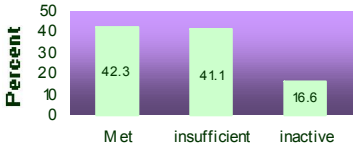



Vigorous physical activity results in an increase in the heart and breathing rate, (e.g., running, aerobics, heavy yard-work, etc). Moderate physical activities result in a small increase in the heart and breathing rate, (e. g., brisk walking, bicycling, vacuuming, and gardening, etc).

22.5% of adults were vigorously active at the recommended level (Figure IV-26), and less than half, 42.3%, were physically active at the recommended level (Figure IV-27).

**Figure IV-27**

**Adults Reporting Recommended Physical Activity Levels, Oklahoma 2005**




In 2005, Oklahoma adults were below the national objectives. Only

***Physical Activity, Gender and Age***

Sixty-one percent of female adults did not meet the recommended physical activity compared to male adults, 54.4%. Nearly two-thirds of the adults ages 65+ reported not

meeting the recommended activity level, as compared to nearly half of their younger peers ages 18-34 years (Figure IV-28).

### *Physical Activity, Education and Household Income*

Oklahoma adults with lower annual household incomes and lower education were less likely to report recommended physical activities than their peers with higher incomes and education (Figure IV-29). The largest proportion of adults reporting no physical activities at the recommended level was among those with less than high school education, 67.6%, and with the lowest incomes, 65.7%.

### *Physical Activity, Race and Ethnicity*

Physical activity differences also existed among race and ethnic groups. Oklahoma adults who identified themselves as Multicultural NH were less likely to meet the recommended physical activity than all other race / ethnicities (Figure IV-30).

### *Comments*

In 2005, nearly 60% of adults in Oklahoma reported dealing with jobs that required mostly sitting or standing. Given the nature of their jobs, it becomes necessary for an individual to exercise when they are not at work. In the next section, BRFSS has an item that focuses specifically on the prevalence of Leisure Time Physical Inactivity.

**Adults Not Meeting the Recommended Physical Activities Levels, Oklahoma 2005**

**Figure IV-28**

- **By Gender and Age Group**

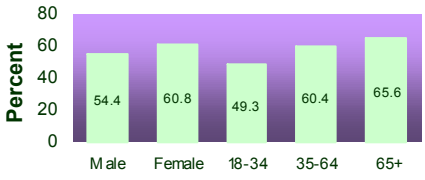



**Figure IV-29**

- **By Education and Annual Household Income Level**

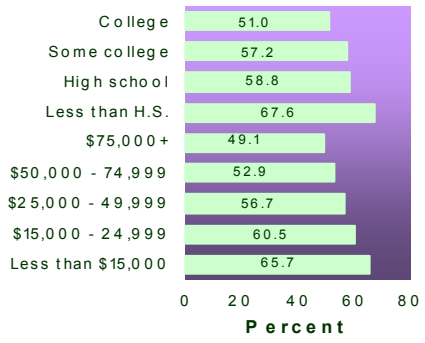
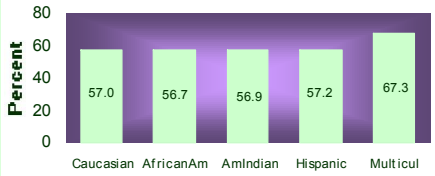



**Figure IV-30**

- **By Race/ Ethnicity**



# Leisure Time Physical Activity

Leisure time physical activity involves physical activities or exercises other than their regular job, such as running, calisthenics, golf, gardening, or walking for exercise. This type of activity can be a combination of moderate and /or vigorous activities. A national health objective for 2010 is to reduce the prevalence of no leisure time physical activity to 20.0%.[2]

The average prevalence of no leisure time physical activity for the past 15 years has been higher than the national median, 35% vs. 28%, respectively.

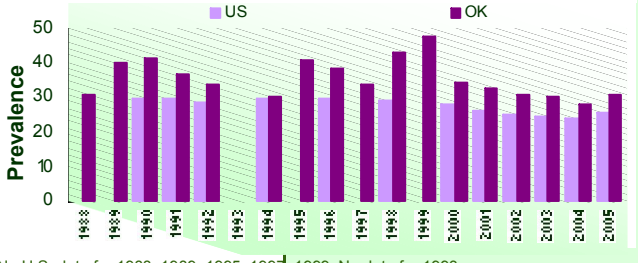
For the past 15 years (1990-2005), adult Americans have been taking more actions to increase their leisure time physical activities. The national trends indicated that the prevalence of no leisure time physical activity among adults was somewhat constant at 30% prior to 1997 and began to decline from 29.1% in 1998 to 25.5% in 2005 (Figure IV-31).

The highest prevalence of no leisure time physical activity reported was predominantly in the eastern, mid-west and southern parts of the US, at 24.0%-34.9% (Figure IV-32). The average prevalence of no leisure time physical activity in Oklahoma for the past 15 years has been higher than the national average, 35.5% vs. 27.5%, respectively.

Although Oklahoma ranked 5th highest in the nation and DC for the population prevalence of no leisure time physical activity in 2005, the prevalence of reported no leisure time physical activity in Oklahoma declined each year since 1999 from 47.7% to 30.6% in 2005.

**Figure IV-31**

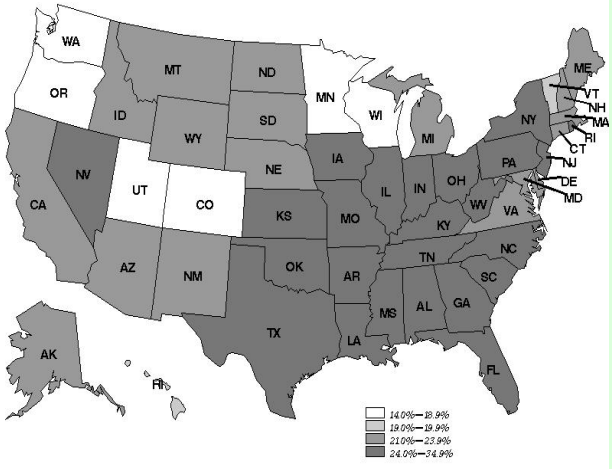
**Adults Reporting No Leisure Time Physical Activities in the Past Month, US and Oklahoma, 1988 - 2005**




*No U.S. data for 1988, 1989, 1995, 1997, 1999; No data for 1993.

**Figure IV-32**

**Adults Reporting No Leisure Time Physical Activity by State, US 2005**



### *Leisure Time Physical Activity, Gender and Age*

Differences for no leisure time physical activity existed among gender and age groups in 2005 (Figure IV-33). The proportion of female adults reporting no leisure time physical activity, 33.2%, was significantly higher than male adults, 27.8%. Older Oklahoma adults were significantly more likely to report no leisure time physical activity than their younger peers. The highest prevalence of no leisure time physical activity was among the elders, 38.9%, as compared to younger adults ages 35-64, 31.0%, and adults ages 18-34, 25.4%.

### *Leisure Time Physical Activity, Education and Household Income*

Leisure time physical activity is highly associated with education levels and annual household income. In 2005, nearly half of the adults with the lowest education, 46.8%, and lowest household incomes, 43.9%, reported no leisure time physical activity (Figure IV-34). High school graduates were over twice as likely to report no leisure time physical activity as college graduates, 37.5% vs. 17.3%, respectively.

### *Leisure Time Physical Activity, Race and Ethnicity*

Among race and ethnic groups, Hispanics were significantly more likely to report no leisure time physical activity than all other races (Figure IV-35). In addition, African American NH ages 65+ reported the highest prevalence of no leisure time physical activity, 51.5%, as compared to their cohort in other races / ethnic groups.

### *Leisure Time Physical Activity, and Health Issues*

Physical activity is highly associated with health conditions. Oklahoma adults who reported no leisure time physical activity reported significantly *higher* health issues than adults who had leisure time physical activity (Figure IV-36): stroke, 2.4 times; angina, 2.0 times; heart attack, 2.1 times; high blood pressure, 1.4 times; high cholesterol, 1.3 times; diabetes, 1.9 times; and arthritis, 1.5 times.

**Adults Reporting No Leisure Time Physical Activities in the Past Month, Oklahoma 2005**

**Figure IV-33**

- **By Gender and Age**

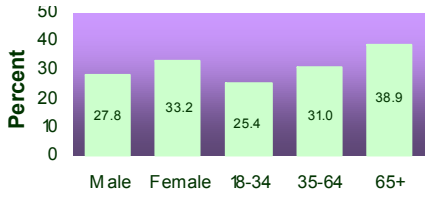



**Figure IV-34**

- **By Education and Annual Household Income Level**

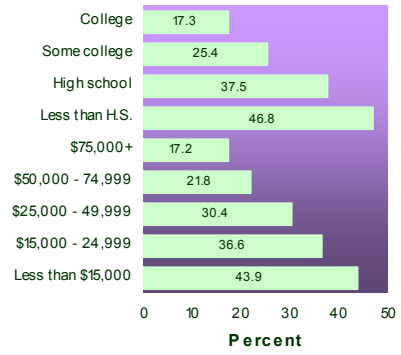



**Figure IV-35**

- **By Race / Ethnicity**

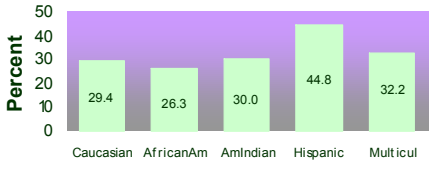
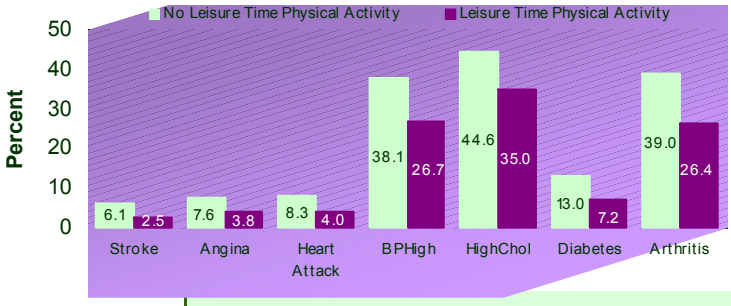


**Figure IV-36**

**Adults Reporting Health Issues by Leisure Time Physical Activity Status, Oklahoma 2005**




### *Leisure Time Physical Activity and Job Types*

Oklahoma adults whose jobs mostly involved heavy labor were 27.5%-33.2% more likely to report no leisure time physical activity than their peers whose jobs involve sitting, standing or walking at work in 2005 (Figure IV-37).

### *Leisure Time Physical Activity and Employment Status*

The highest prevalence of no leisure time physical activity was among adults unable to work, 57.4%, 66.4% more likely than retired workers to report no leisure time physical activity, 34.5% (Figure IV-38).

### *Leisure Time Physical Activity and Geographical Regions*

The highest proportion of adults reporting no leisure time physical activity was from the southwest region of Oklahoma, 32.9%, which was 31.6% higher than the Tulsa region, 25.0% (Figure IV-39).

The highest prevalence of no leisure time physical activity was among adults "unable to work," 57.4%, 66.4% more likely than retired workers to report no leisure time physical activity, 34.5%.

**Adults Reporting No Leisure Time Physical Activity, Oklahoma 2005**

**Figure IV-37**

- **By Job Type**


**Figure IV-38**

- **By Employment Status**

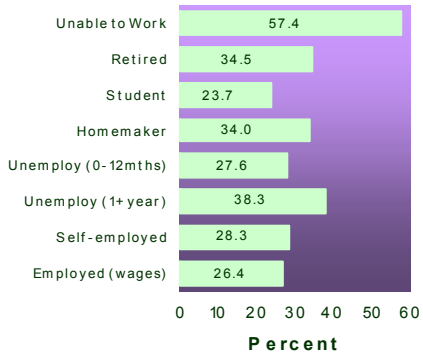
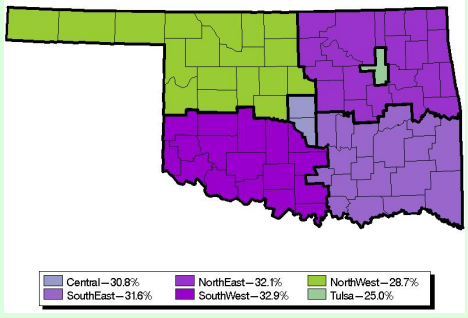



**Figure IV-39**

- **By Region**



# Overweight and Obesity

Obesity in the United States cost about $117 billion in 2000,[27] and is associated with increased risk for morbidity from high blood pressure, diabetes, heart diseases, stroke, and certain cancers.[28] The national objective of *Healthy People 2010* is to reduce the prevalence of obesity among adults in the United States to 15.0% (Objective 19.2).[2]

Overweight and obesity are measured by body mass index (BMI). This is an indicator that incorporates weight and height in adults and correlates to body fat.[29]

There is a serious health threat from overweight or obesity in the US. Several actions have been suggested to fight overweight or obesity. Americans, adults and children alike, are encouraged by their physicians and workplace to join fitness programs, and to become more aware of their food choices and caloric intake. Schools are delivering low-fat snacks and smaller portions to their students in an effort to fight overweight or obesity.

In 1990, nearly half of adults in 22 states, 45.0-49.9%, were in the overweight or obese category (Figure IV-40). In 1995, 15 states had 55.0-59.9% of adults who were overweight or obese. These states were mainly in the Midwest and Southern regions.

In 2000, *every* state, except Colorado, had overweight or obese issues among half of their adult population. In addition, the highest prevalence of overweight or obese in the nation was among six states with 60.0%-64.9% adults who were overweight or obese.

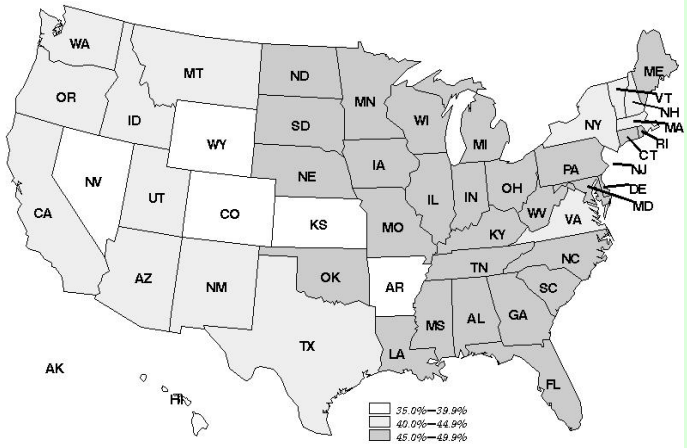
By the year 2005, 32 states reported a overweight or obese prevalence of 60.0 - 64.9%; 2 states, Mississippi and West Virginia, reported the highest overweight or obese prevalence, at 65.0%-69.9% of adults (Figure IV-40).

A BMI calculator is available at http://www.cdc.gov/nccdphp/dnpa/bmi/index.htm.

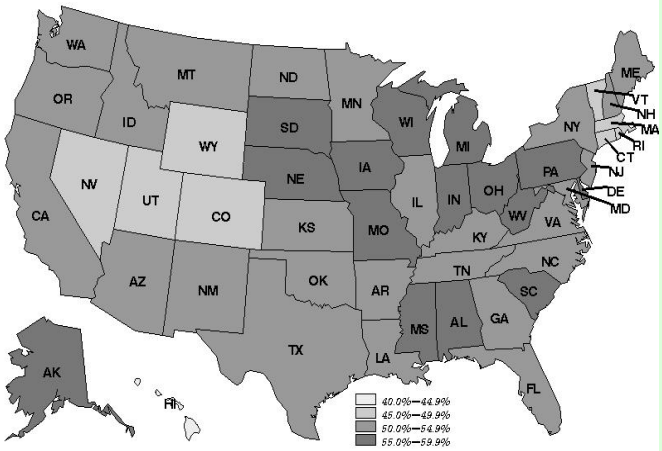
BMI classifications are as follows: Adults with BMI greater than or equal to 30 are classified as obese; BMI between 25 to less than 30 are overweight; and BMI below 25 are considered normal or underweight.[30]

**Figure IV-40**

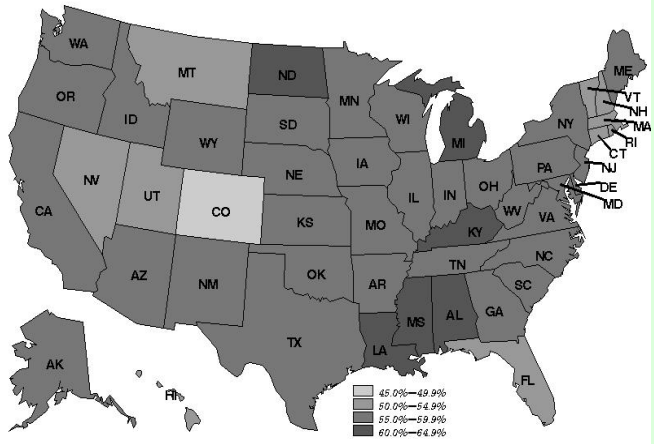
*Percent of Overweight/Obese Adults, US 1990*



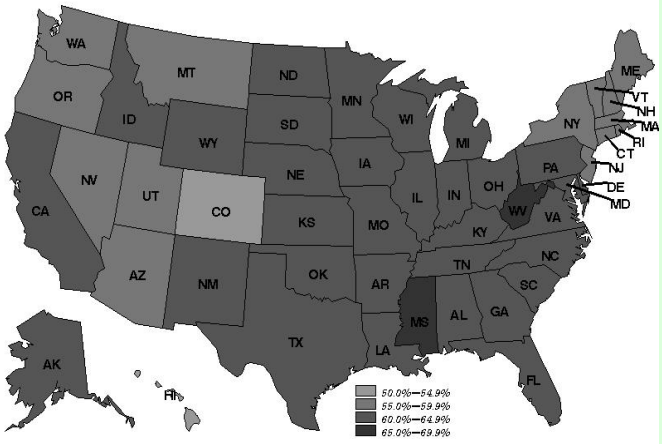

*Percent of Overweight/Obese Adults, US 1995*




*Percent of Overweight/Obese Adults, US 2000*




*Percent of Overweight/Obese Adults, US 2005*



Adults with a BMI of 25-29 are considered overweight. The national trends of overweight prevalence have remained stable at roughly 35.0% since 1994 (Figure IV-41). The proportions of Oklahoma adults who were overweight have remained stable and consistent with the national trends.

Adults with a BMI ≥ 30 are considered obese. The national obesity trend, however, has more than doubled since 1990 (Figure IV-42). Since 1998, the proportions of Oklahoma adults who were obese have exceeded the national averages 6.0%-10.0% each year except for 2000.

For the past 5 years (2001-2005), the proportions of Oklahoma adults who were overweight or obese have increased 2.1% (Figure IV-43). In addition, within a single year (from 2004 to 2005), an additional estimated 57,800 Oklahoma adults were classified into the obese category.

***Overweight / Obesity, Gender and Age***

In 2005, the prevalence of overweight or obesity was lower among females, 55.6%, than males adults, 70.2%. The prevalence of obesity by gender was similar, 27.1% vs. 26.4%, while male adults were significantly more likely to be overweight than female adults, 43.1% vs. 29.2% (Figure IV-44). For the past three years (2003-

**Figure IV-41**
**Prevalence of Adults who are Overweight, US and Oklahoma, 1988-2005**

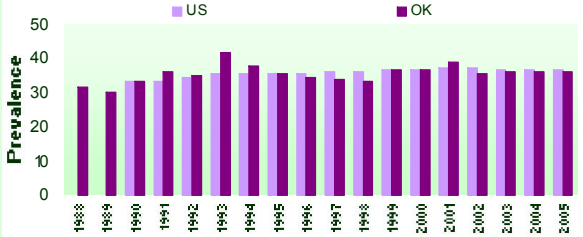



**Figure IV-42**
**Prevalence of Adults who are Obese, US and Oklahoma, 1988 - 2005**

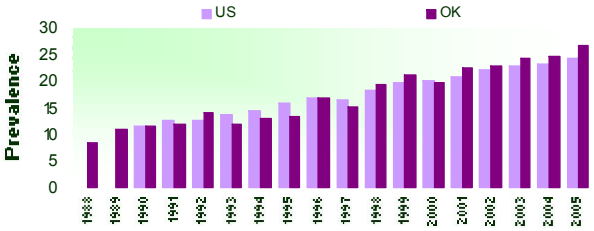



**Figure IV-43**
**Oklahoma Adults by Weight Status and Year, 2001 - 2005**

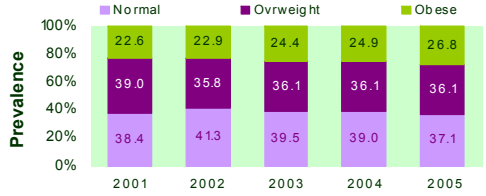



**Figure IV-44**
**Oklahoma Adults by Weight Status, Gender and Age, 2005**

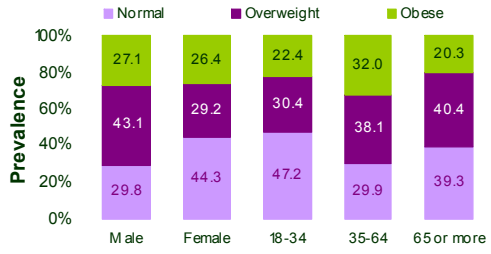


Figure IV-45

**Oklahoma Adults by Weight Status and Education, 2005**

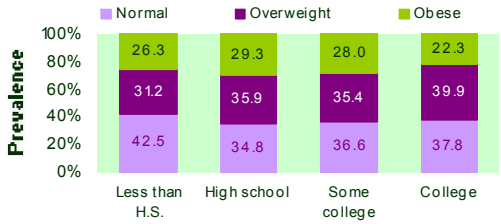



Figure IV-46

**Oklahoma Adults by Weight Status and Annual Household Income, 2005**

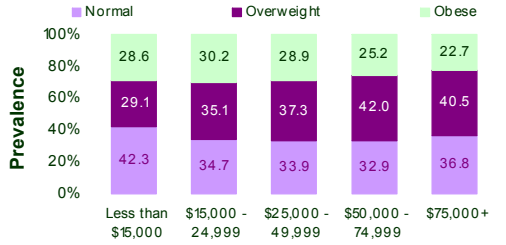
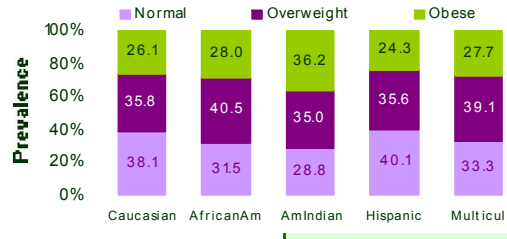



Figure IV-47

**Oklahoma Adults by Weight Status and Race / Ethnicity, 2005**




2005), these weight disparities have remained consistent between gender.

In 2005, Oklahoma adults ages 35-64 were more likely to be overweight or obese than persons ages 65 and above, 70.1% vs. 60.7%, respectively, or young adults ages 18-34, 52.8% (Figure IV-44). In addition, one in three adults ages 35-64 was obese, as compared to one in five young adults or elders.

### *Overweight / Obesity, Education and Household Income*

Weight differences existed by education and annual household income levels. Oklahoma adults with high school education were more obese, 29.3%, than their peers with other education levels combined, 25.5% (Figure IV-45). In addition, the highest prevalence of obesity was among adults ages 35-64 with high school or less education, 36.1%.

Similar trends existed by household incomes (Figure IV-46). Obesity was most prevalent among adults with the lowest three income levels, while higher income adults were more likely to be overweight. Furthermore, adults ages 35-64 with incomes less than $50,000 had the highest prevalence of obesity.

### *Overweight / Obesity, Race and Ethnicity*

African Americans had the highest prevalence of overweight, 40.5%, while the obesity prevalence was highest among American Indians NH, 36.2% (Figure IV-47). In addition, the largest proportions of adults who were obese were among American Indians NH ages 18-34 and 35-64, 31.0% and 44.4%, respectively.

### *Overweight / Obesity, Employment Status and Job Types*

Adults who were unable to work were more likely to report obesity, 40.8%, than overweight, 27.4%. The proportion of adults reporting overweight was significantly larger

than obesity among the following groups: the employed for wages (36.9% vs. 28.7%, respectively), the self-employed (41.3% vs. 21.1%, respectively), the homemaker (33.0% vs. 23.3%, respectively), and the retired, (40.2% vs. 22.8%, respectively). Figure IV-48 only shows the obesity prevalence.

The highest prevalence of obesity was among adults whose jobs involve mostly sitting or standing, 29.2%. This was especially true among African American NH and American Indian NH, 34.4% and 33.5%, respectively, as compared to other racial / ethnic groups.

### *Overweight / Obesity and Geographical Region*

In 2003-2005, the largest proportions of adults who were obese were in the Southeast, Northeast and Southwest regions, 27.1%-27.8%. Adults in these regions were significantly more likely to be obese than adults in the Tulsa region, 22.3% (Figure IV-49).

Obesity is an important factor for many chronic diseases. We may improve the health of Oklahomans by fighting obesity. In order to combat obesity, it is important to examine the modifiable health risk factors that are commonly believed to also help with weight management, such as leisure time physical inactivity, smoking, drinking, and fruit and vegetable intake.

### *Overweight / Obesity and Physical Inactivity*

Obesity is highly associated with physical inactivity. In 2005, obese adults were 27.2%-27.7% more likely to report no leisure-time physical activity than normal or overweight adults in Oklahoma (Figure IV-50).

### *Overweight / Obesity and Smoking*

In 2005, overweight or obese adults were significantly more likely to have smoked in the past (former smokers) than normal weight adults, 27.1%-27.5% vs. 19.1% (Figure IV-51). However, normal weight persons were more likely to be current smokers than overweight and obese

**Figure IV-48**

**Adult Obesity by Employment Status, Oklahoma 2005**

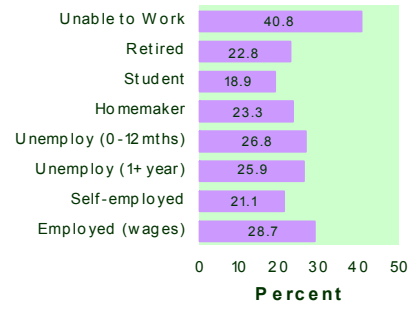



**Figure IV-49**

**Adults Who Are Obese, by Region, Oklahoma 2003 - 2005**

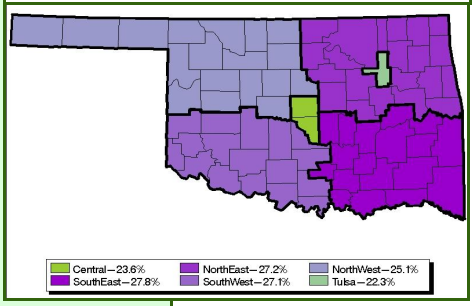
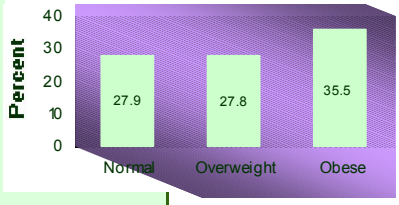



**Figure IV-50**

**Adults Reporting Leisure Time Physical Inactivity by Weight, Oklahoma 2005**



persons because this group of persons was more likely to be younger adults who were more likely to involve in current smoking.

Adults who were unable to work were more likely to report obesity, 40.8%, than overweight, 27.4%.

### *Overweight / Obesity and Drinking*

Although alcoholism has been reported to be associated with obesity,[31] Oklahoma BRFSS data did not demonstrate the association. The prevalence of binge drinking or chronic drinking was similar between the weight categories (Figure IV-52).

African Americans had the highest prevalence of overweight, 40.5%, while the obesity prevalence was highest among American Indians NH, 36.2%.

### *Overweight / Obesity, Fruits and Vegetable Intake*

Adults who were obese were the least likely to report taking five servings of fruits and vegetables per day, 14.3%, as compared to the overweight and normal weight adults, 15.2% and 16.8%, respectively.

**Figure IV-51**

**Adults Reporting Formerly or Currently Smoking by Weight, Oklahoma 2005**

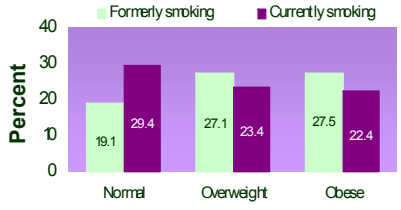



**Figure IV-52**

**Adults Reporting Alcohol Drinking by Weight, Oklahoma 2005**