

OREGON HEART DISEASE AND STROKE REPORT
2006

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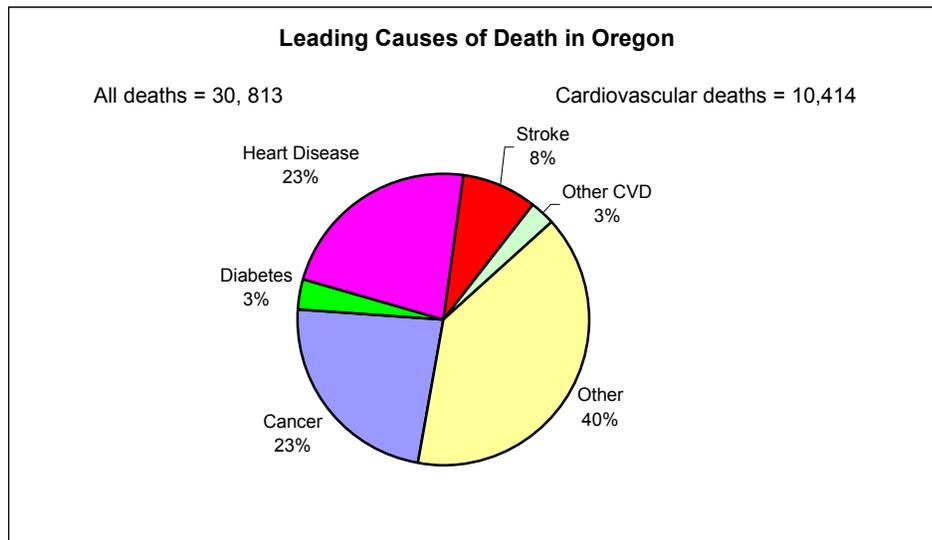
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Introduction

Heart disease and stroke are major causes of death in Oregon, jointly accounting for 31% of all deaths in 2003 (Figure 1). Both conditions are also major causes of hospitalization and disability. During 2003, there were nearly 40,000 hospitalizations for heart disease and stroke in Oregon, resulting in hospital charges of \$1.1 billion.

Figure 1



Source: 2003 Oregon Death Certificates

Death rates for heart disease have been declining in the past decade. Death rates for stroke, however, increased for much of the 90's, and have only recently begun to decline. These trends may reflect changes in the prevalence of risk factors contributing to heart disease and stroke. The decline in heart disease mortality is also, in part, due to advances in medical management of myocardial infarction and other acute heart disease-related events.

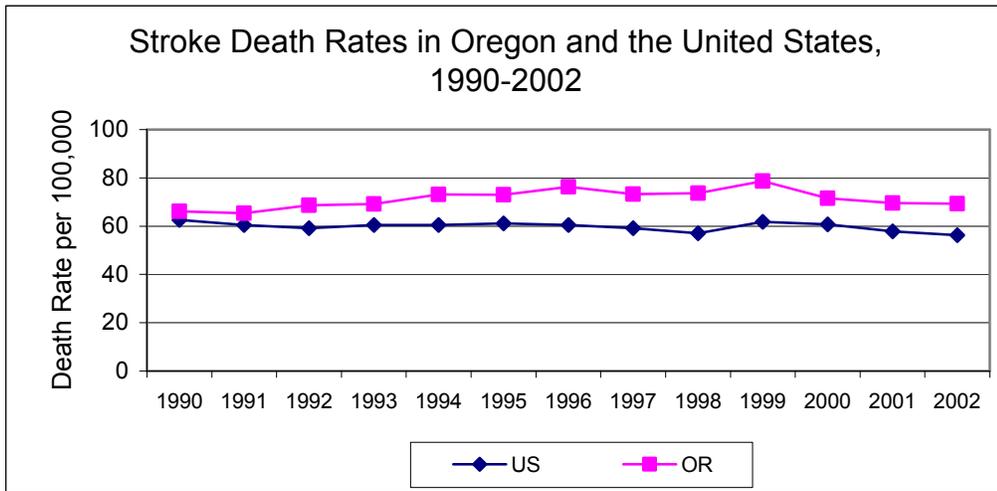
Death and disability from heart disease and stroke are related to a number of modifiable risk factors, including high blood cholesterol, high blood pressure, smoking, lack of regular physical activity, diabetes, and being overweight or obese. Oregonians could reduce much of the burden of death and disability from heart disease or stroke by adopting healthier lifestyles, and by controlling blood pressure and cholesterol levels.

Mortality

Oregon vs. United States

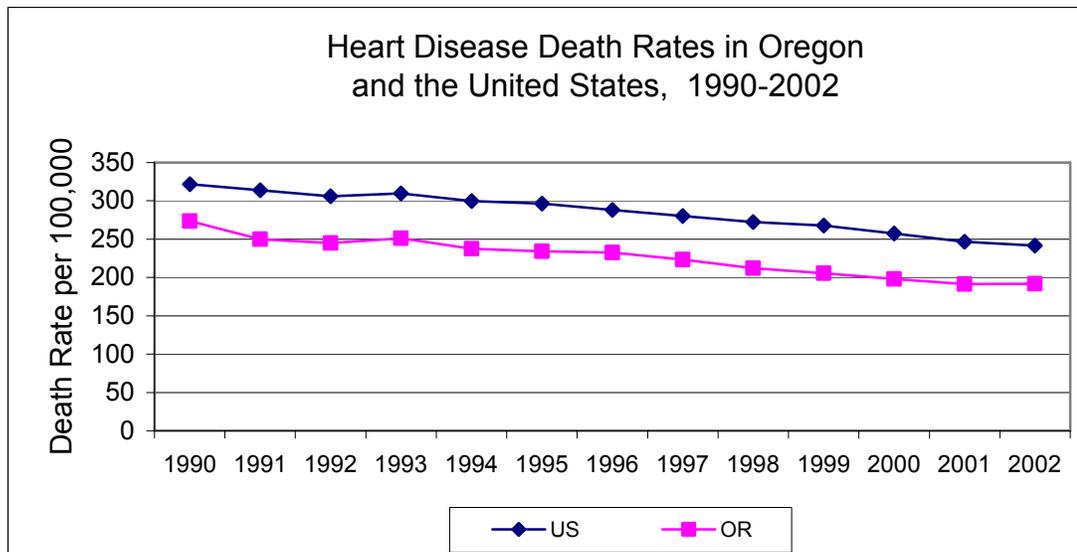
Death rates in Oregon due to stroke have climbed steadily throughout the 1990s. Despite decreases in 2000 and 2001, they remain more than 20% above the national average (Figure 2). Unlike stroke, death rates in Oregon due to heart attack have decreased gradually, reflecting national trends (Figure 3). Mortality rates in this report are age-adjusted and are based on the U.S. Census 2000 standard population. Rates are per 100,000 population.

Figure 2



Source: CDC Wonder

Figure 3

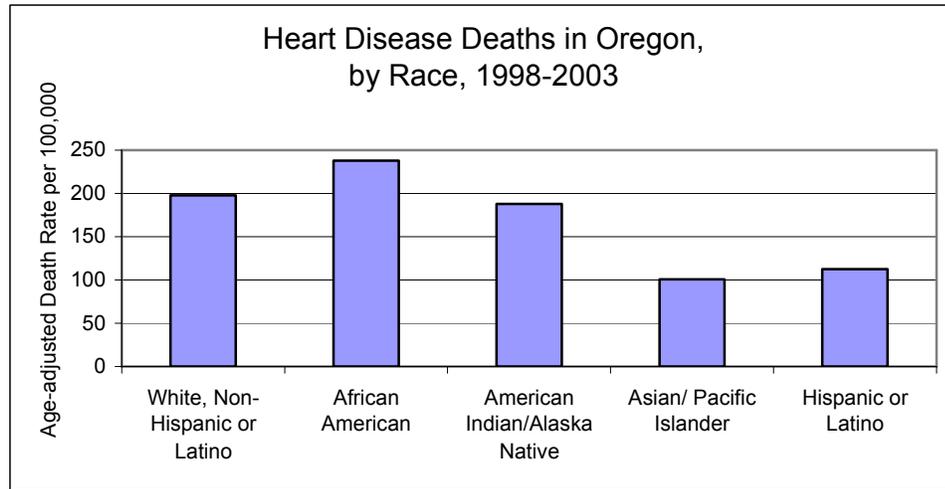


Source: CDC Wonder

Racial Disparities in Mortality

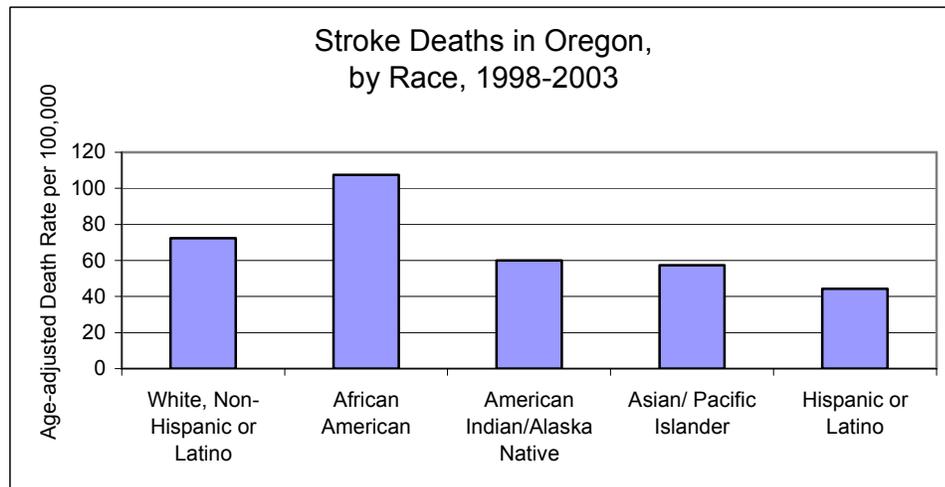
In Oregon, there is a remarkable racial disparity in the risk of dying from heart disease and stroke. African Americans in Oregon have higher death rates from both heart disease and stroke, while Asians/Pacific Islanders and Hispanics/Latinos have heart disease death rates nearly 50% lower than the White, Non-Hispanic population (Figure 4). Asians/Pacific Islanders and Hispanics/Latinos also have lower death rates from stroke (Figure 5), though the difference is not as pronounced as that seen with heart disease.

Figure 4



Source: 1998-2003 Oregon Death Certificates

Figure 5



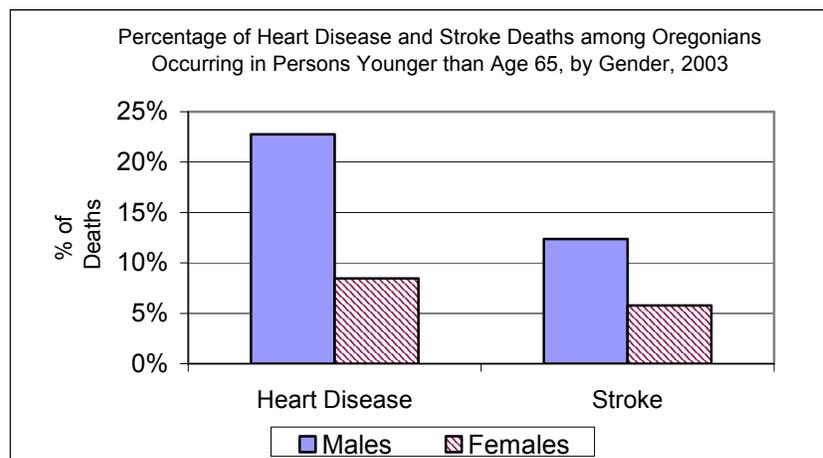
Source: 1998-2003 Oregon Death Certificates

Deaths Among Oregonians Under Age 65

While deaths from both heart disease and stroke are more common among the elderly, a sizable fraction of these deaths occur in younger Oregonians. Men younger than 65 had higher rates of death from heart disease and stroke than did women in that age group (Figure 6). Overall, 16%

of heart disease deaths, and 8% of stroke deaths among Oregonians occurred in persons under age 65.

Figure 6



Source: 2003 Oregon Death Certificates

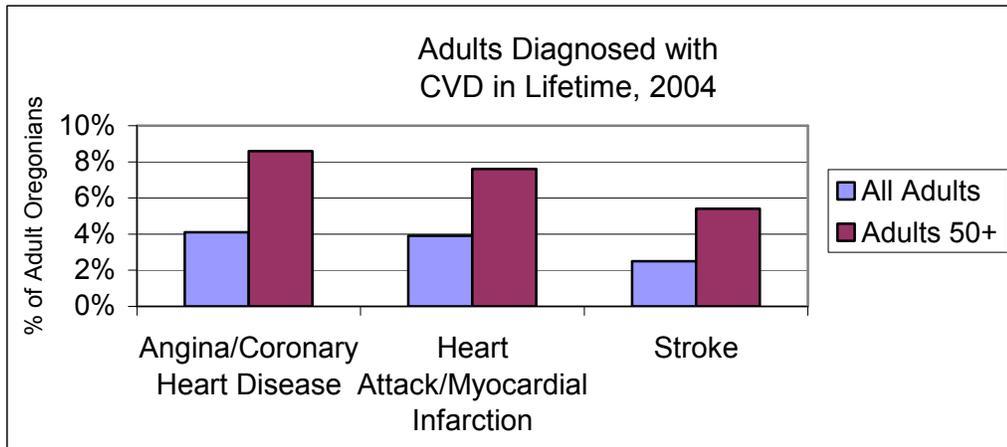
Morbidity

Prevalence of Cardiovascular Disease – Heart Disease and Stroke

The State of Oregon tracks the prevalence of heart disease and stroke, that is, the fraction of people living with these conditions, through the Behavioral Risk Factor Surveillance System Survey (BRFSS). This is a random telephone survey conducted throughout the year among adult Oregonians. (For a more complete description of this survey, see: <http://www.dhs.state.or.us/publichealth/chs/brfssum.cfm>).

Oregonians participating in the 2004 BRFSS were asked whether a health professional had ever told them that they had angina or coronary heart disease, that they had experienced a heart attack/myocardial infarction, or that they'd had a stroke. Within the population of all adult Oregonians, the prevalence rates for heart disease and heart attack are about 4%, while the prevalence of stroke is lower at about 2.5% (see Figure 7). These rates are roughly twice as high among adults age 50 and older, however. 8.6% reported having been told by a health care provider that they had angina or coronary heart disease, while 7.6% had been told that they had experienced a heart attack or myocardial infarction. 5.4% of adults over 50 had been told they had experienced a stroke.

Figure 7

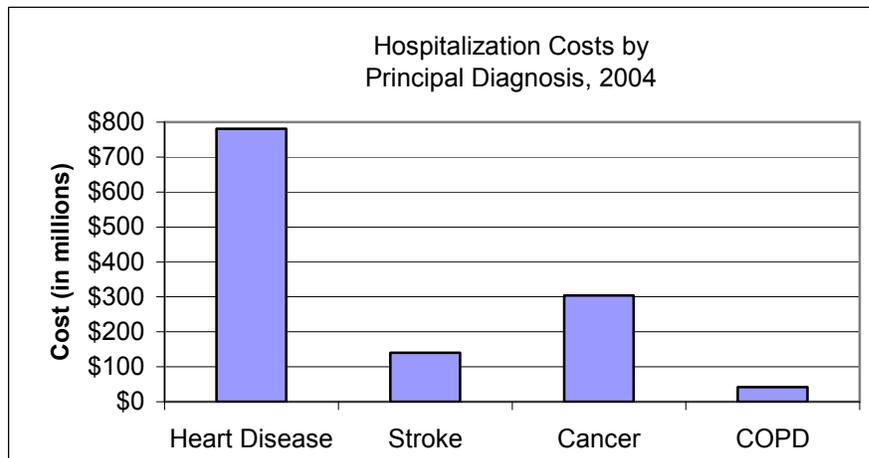


Source: Oregon Behavioral Risk Factor Surveillance System

Cardiovascular Disease Hospitalizations and Costs

In addition to the 10,414 deaths caused annually by all forms of cardiovascular disease, thousands of Oregonians are hospitalized each year from CVD events such as heart attacks or strokes. According to the State Hospital Discharge Index, there were 32,000 hospitalizations of Oregonians for heart disease in 2004, resulting in \$781 million in hospital costs (see Figure 8). 7,600 hospitalizations for stroke cost Oregonians a total of \$140 million. Altogether, there were more than \$1.1 billion in hospital costs for heart disease, stroke, and related diseases. This translates into an average cost of over \$300 for every man, woman, and child in Oregon. The average costs for heart disease and stroke hospitalizations were \$24,727 and \$18,364, respectively. As shown in Figure 8, the costs of heart disease and stroke hospitalizations greatly exceeded the costs of other chronic disease-related causes of hospitalization such as cancer and chronic obstructive pulmonary disease (COPD).

Figure 8



Source: Oregon Hospital Discharge Index

Hospitalization costs, however, reflect only a portion of the full financial burden of cardiovascular disease. Costs related to outpatient care, prescription medications, rehabilitation, long-term care, and loss of productivity are not included in the above totals and would greatly increase the estimates of the economic burden from heart disease, stroke, and related conditions. Data from the State Public Employees Benefit Board (PEBB) bear this out. The board is one of the largest healthcare purchasers in the state, covering more than 131,000 people. PEBB data from 2004 show that the average monthly cost of health care was \$1023 for members with coronary heart disease, and \$2000 for congestive heart failure.

Risk Factors for Cardiovascular Disease

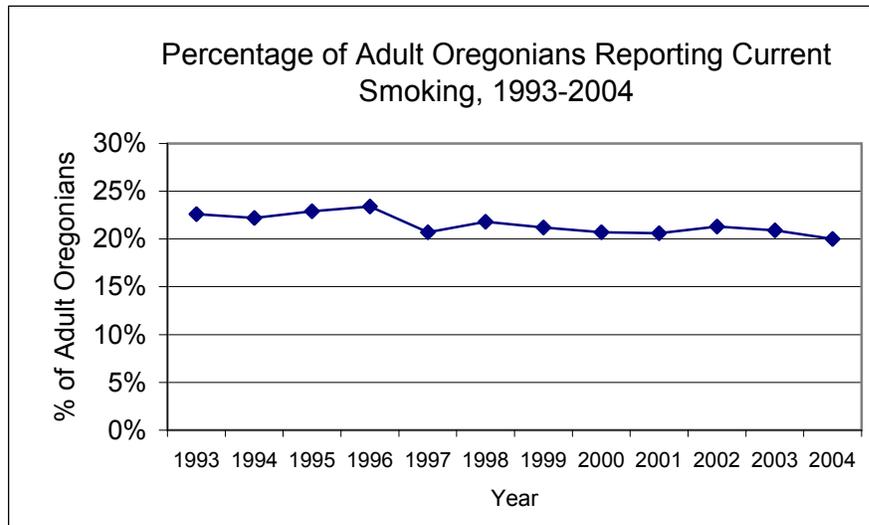
Some cardiovascular risk factors are “modifiable”, meaning that individuals who control these factors can slow, or even reverse, the process of arterial blockage and decrease their risk of having a heart attack or stroke. Modifiable risk factors include smoking, high blood pressure, high blood cholesterol levels, poorly controlled diabetes, being overweight or obese, and lack of regular physical activity. Addressing these risk factors is a crucial strategy in reducing the prevalence of heart disease, stroke, and related conditions.

Other cardiovascular risk factors cannot be changed, such as age, and family history of heart attack or stroke. Individuals with non-modifiable risk factors should be particularly diligent in avoiding or controlling the modifiable risk factors.

Smoking

The prevalence of smoking among adult Oregonians has declined from 23% in 1993 to 20% in 2004 (Figure 9). The association between smoking and heart disease is less recognized than is the association between smoking and cancer. Yet, smoking is linked to more heart disease deaths than cancer deaths. The risk of heart disease for smokers is reversible. A person’s risk of death from heart disease decreases 40% within 1 year of quitting smoking. More than half of current smokers (56%) reported that they were seriously considering quitting within the next 6 months. Of these, 35% planned to quit in the next 30 days (Figure 10).

Figure 9



Source: Oregon Behavioral Risk Factor Surveillance System

Note: The questions on the BRFSS used to measure smoking prevalence changed in 1996. In this figure, the smoking prevalence for 1993 through 1995 have been increased by 1 percentage point to account for the difference in the way the smoking prevalence is measured, as recommended by the Centers for Disease Control and Prevention.

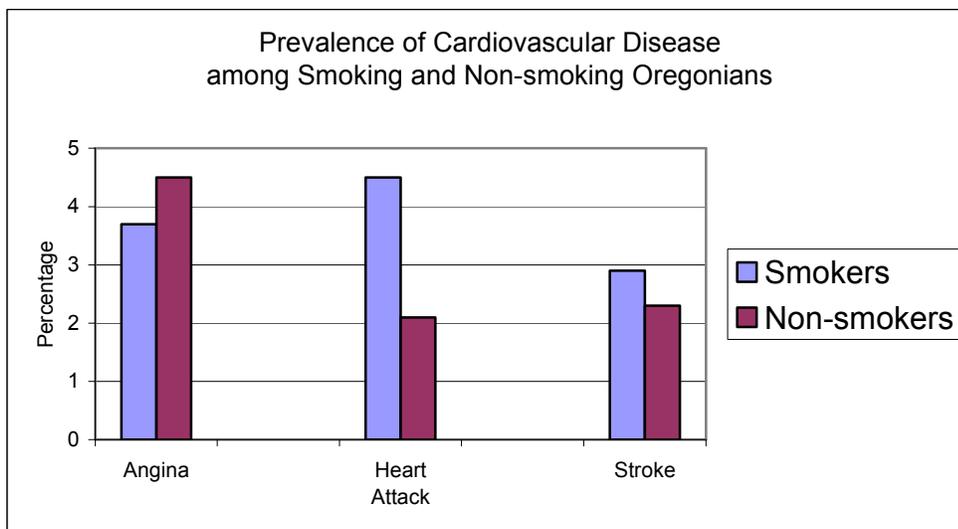
Table 10

Percentage of Smokers Seriously Considering Quitting Within the Next 6 Months	
Yes	56%
Within the next 30 Days	
Yes	35%
No	54%
Unsure	11%
No	39%
Unsure	5%

Source: Oregon Behavioral Risk Factor Surveillance System

As can be seen in Figure 11, Oregonians who smoke have higher rates of heart attack/myocardial infarction (MI) and stroke than Oregonians who do not smoke.

Figure 11

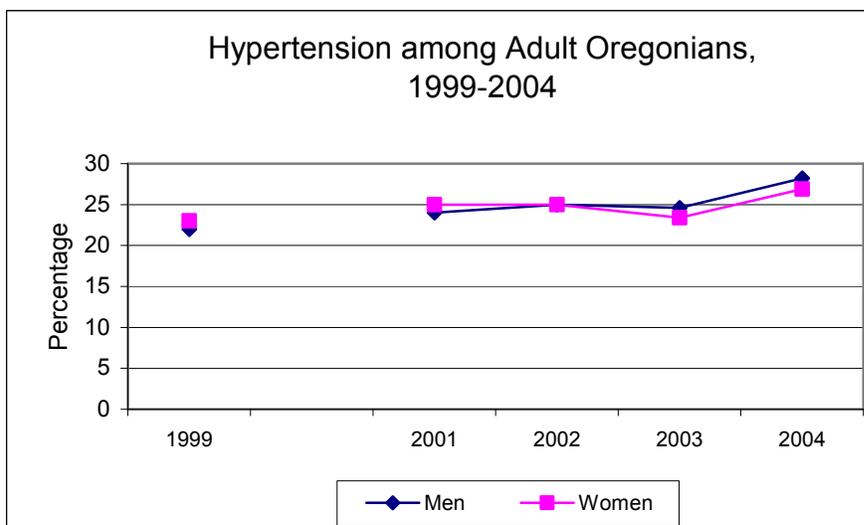


Source: Oregon Behavioral Risk Factor Surveillance System

High Blood Pressure

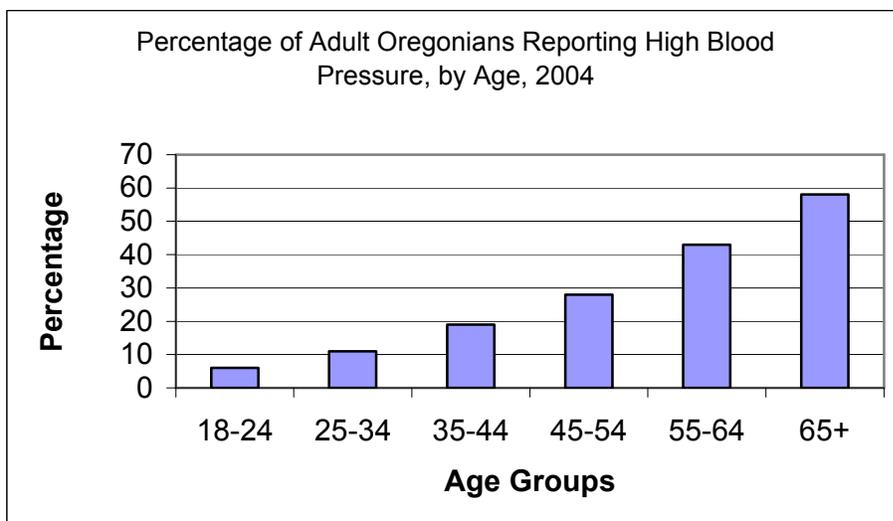
High blood pressure, or hypertension, is a major risk factor for both heart disease and stroke. As can be seen in Figure 12, prevalence of high blood pressure has gradually increased for both men and women in Oregon since 1999. Overall, 28% of adult Oregonians reported having been told by a doctor that they had high blood pressure in 2004. The prevalence of high blood pressure increases with age, exceeding 50% among adults age 65 and older (Figure 13). Many people with high blood pressure can control it by losing weight, engaging in regular physical activity, and through medication.

Figure 12



Source: Oregon Behavioral Risk Factor Surveillance System

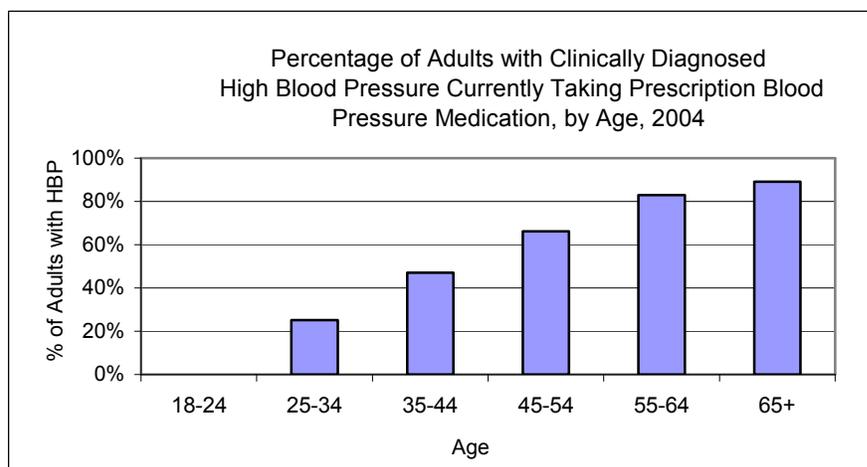
Figure 13



Source: Oregon Behavioral Risk Factor Surveillance System

The percentage of adults with clinically diagnosed high blood pressure who are taking medication to control it increases with age (Figure 14). However, rates of medication use for those with high blood pressure under age 45 are less than 40%.

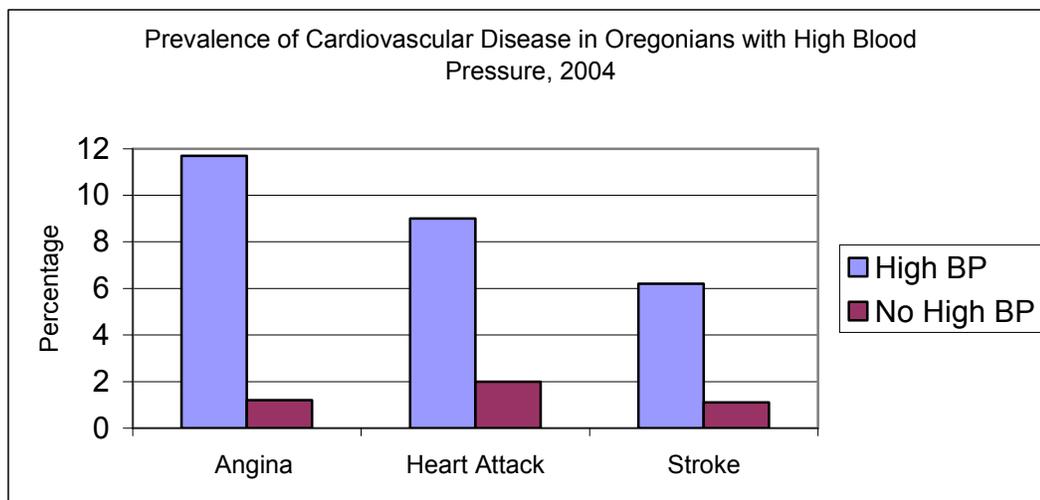
Figure 14



Source: Oregon Behavioral Risk Factor Surveillance System

Oregonians with high blood pressure reported much higher rates of angina, heart attack, and stroke than did other Oregonians (Figure 15).

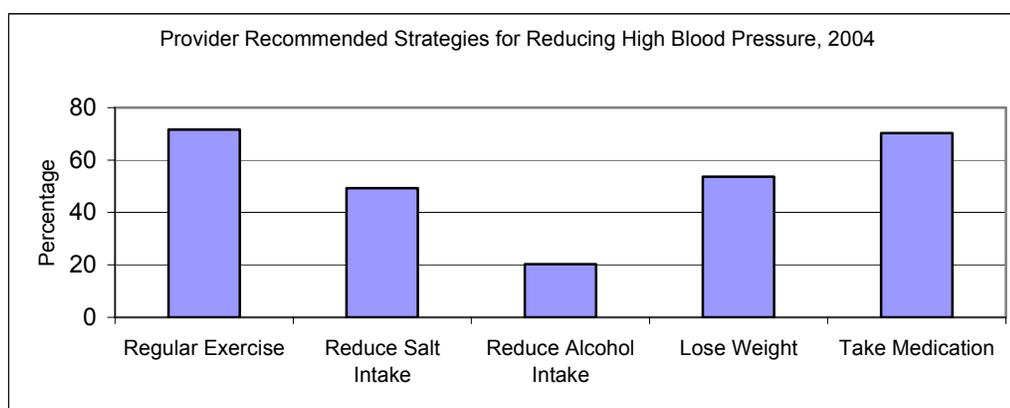
Figure 15



Source: Oregon Behavioral Risk Factor Surveillance System

In the 2004 BRFSS, Oregonians with high blood pressure were asked what strategies their healthcare providers suggested to control the condition. There was wide variation in the frequency with which such strategies were recommended (see Figure 16). More than 70% were prescribed medication. Similarly, about 70% were advised to exercise regularly. Roughly 50% were advised to reduce their salt consumption and/or to lose weight. About 20% of Oregonians with high blood pressure were advised to reduce their alcohol consumption as a means to lower their blood pressure.

Figure 16

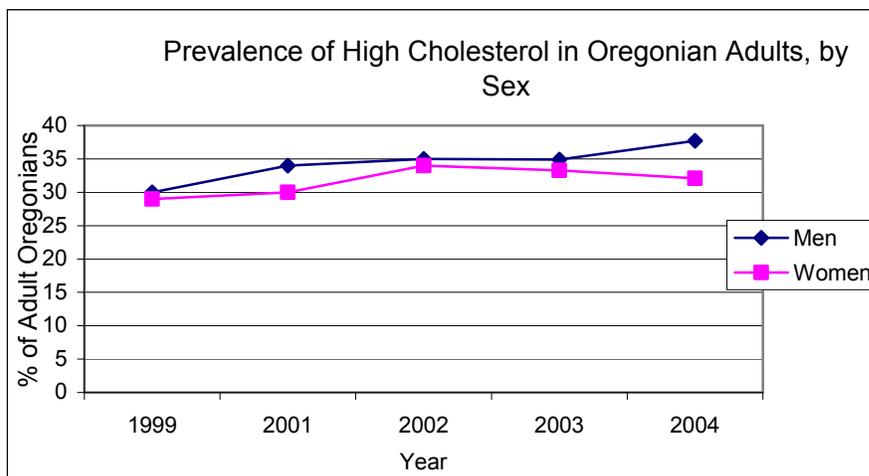


Source: Oregon Behavioral Risk Factor Surveillance System

High Blood Cholesterol

Another risk factor for both heart disease and stroke is high blood cholesterol, which has increased in prevalence among Oregonians over the past five years, particularly among men (see Figure 17).

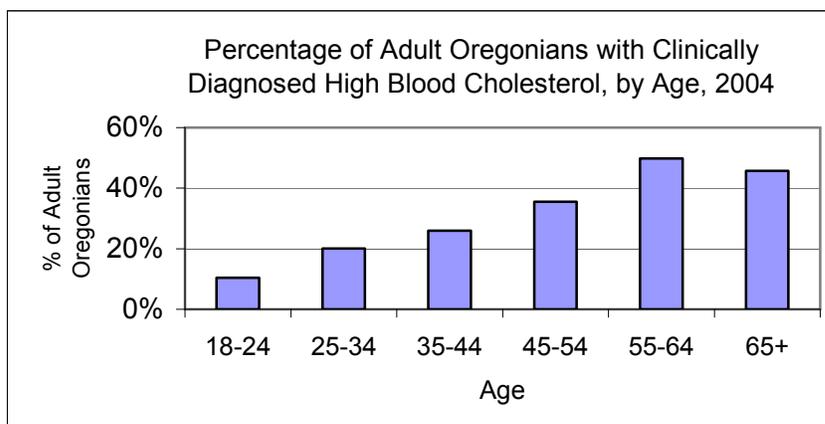
Figure 17



Source: Oregon Behavioral Risk Factor Surveillance System

As with high blood pressure, the proportion of adults who report a history of high blood cholesterol increases with age (Figure 18). Adults age 55 and older are nearly twice as likely to report a history of high blood cholesterol than adults age 35-44 (48% vs. 26%) and nearly a third more likely than adults age 45-54 (36%).

Figure 18

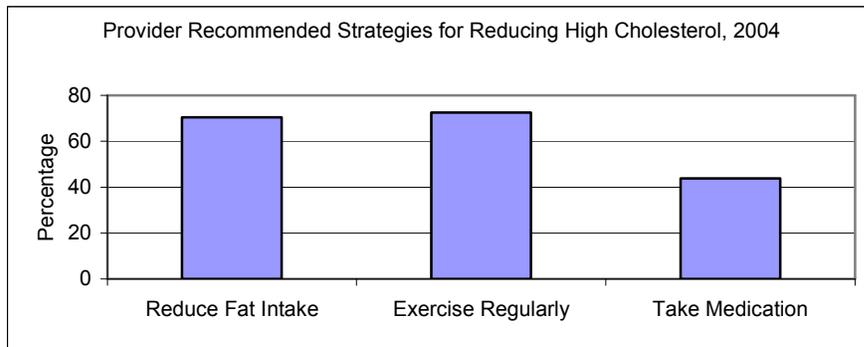


Source: Oregon Behavioral Risk Factor Surveillance System

Identifying and controlling high blood cholesterol is an important strategy in the prevention of CVD. The U.S. Preventive Services Task Force strongly recommends routine screening for high cholesterol among men 35 years of age or older and women 45 years of age or older. This practice is not universal; while 97% of adults over the age of 55 have had their blood cholesterol checked within the past 5 years, 21% of men aged 35-54 report that they have never had their cholesterol checked. In contrast, only 14% of women aged 35- 54 have never had their cholesterol checked. (Source: 2004 BRFSS)

When asked about strategies recommended by their healthcare providers to lower cholesterol, almost 70% of Oregonians with high cholesterol had been encouraged to exercise regularly and/or to reduce fat intake (Figure 19). Fewer than half reported taking cholesterol-lowering medication. Despite the recommendations by their providers, about 42% of these Oregonians said their blood cholesterol levels remained high.

Figure 19

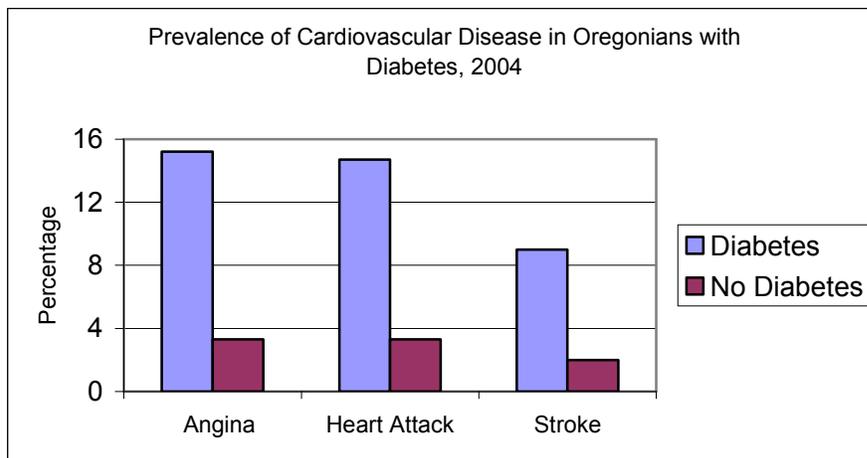


Source: Oregon Behavioral Risk Factor Surveillance System

Diabetes

Diabetes is another risk factor for heart disease and stroke. Overall, 6% of adult Oregonians report they have clinically diagnosed diabetes. Adults with diabetes are nearly four times as likely as those without it to have heart disease or stroke (Figure 20).

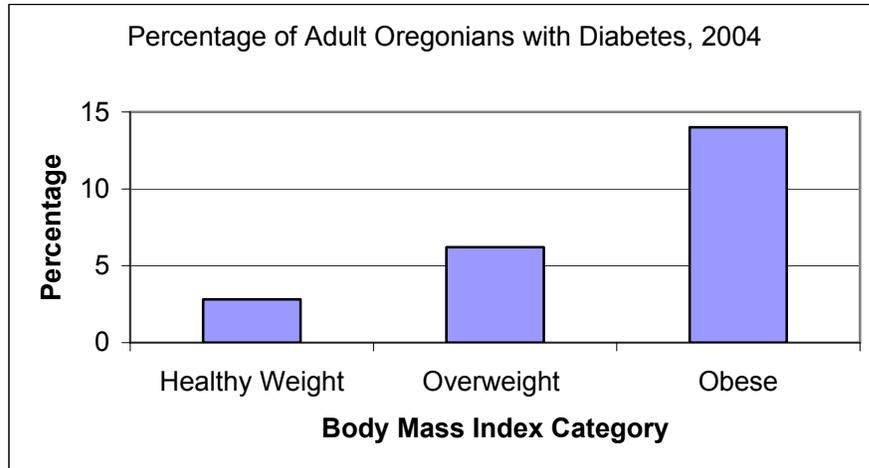
Figure 20



Source: Oregon Behavioral Risk Factor Surveillance System

Controlling body weight can reduce the risk of diabetes. Body mass index (BMI) is a measure of whether a person’s weight is in a healthy range for one’s height, and is obtained by dividing the person’s weight in kilograms by the square of their height in meters (kg/m²). A person with a body mass index between 25 and 30 is classified as overweight. A person with a body mass index of 30 or more is classified as obese. In 2004, overweight Oregonians were twice as likely to report having diabetes as those with a lower body mass index (see Figure 21). Obese individuals were five times more likely to report having diabetes.

Figure 21

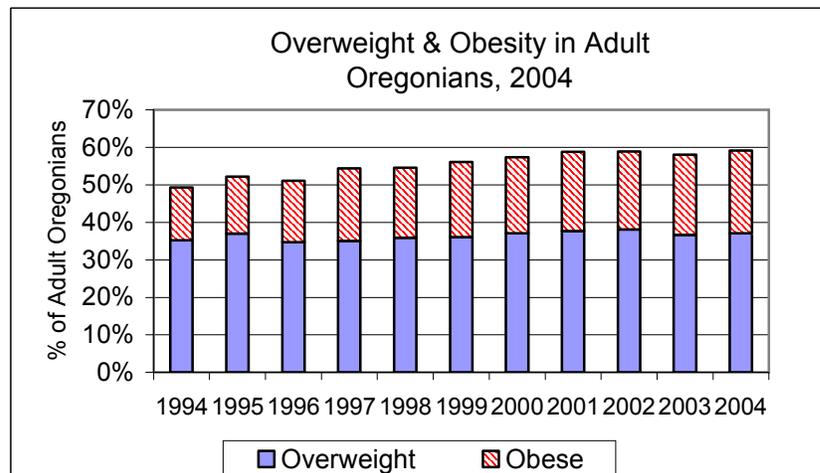


Source: Oregon Behavioral Risk Factor Surveillance System

Physical Activity & Overweight/Obesity

Higher body mass index increases the risk of heart disease and stroke even in people who don’t have diabetes. The percentage of adult Oregonians who are overweight (BMI of 25 to 29.9) or obese (BMI of 30 or greater) has steadily increased over the past decade (Figure 22). The rise in the proportion of obese Oregonians has been particularly rapid, increasing 57% between 1994 and 2004.

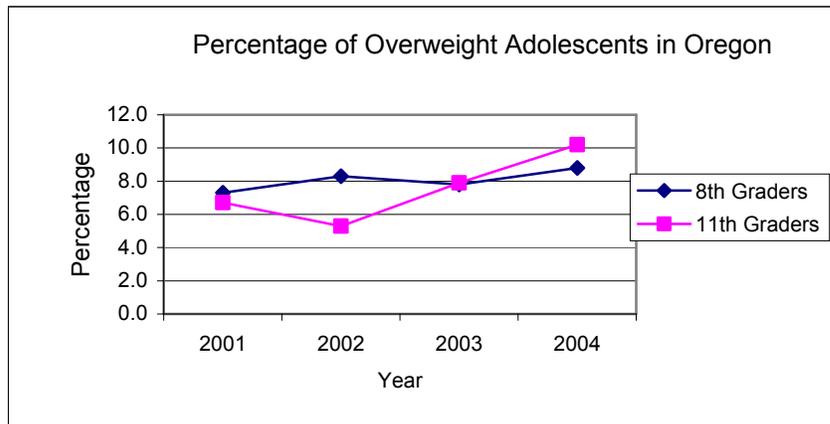
Figure 22



Source: Oregon Behavioral Risk Factor Surveillance System

This trend is not unique to adults in Oregon. The percentage of Oregon adolescents who are overweight has also increased in recent years, as shown in Figure 23.

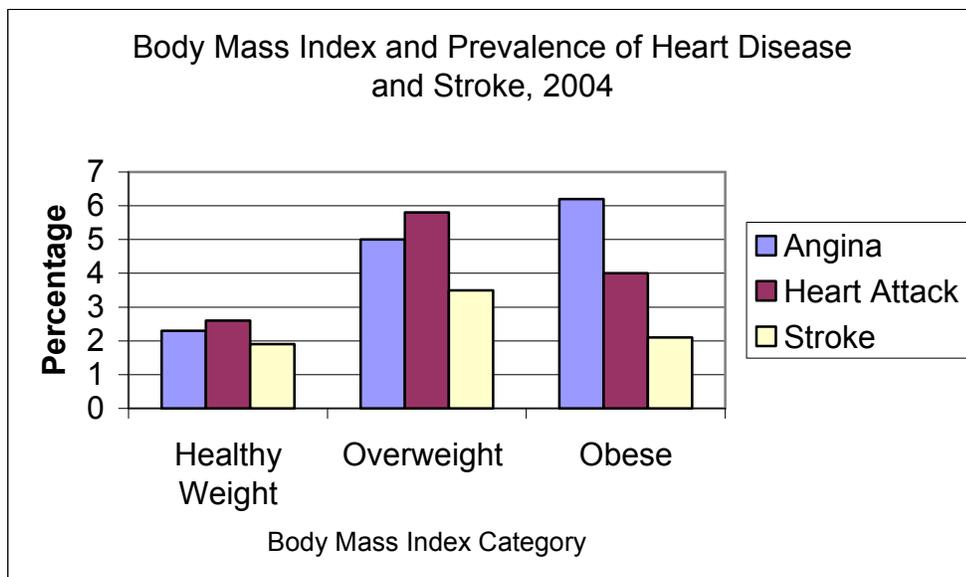
Figure 23



Source: Oregon Healthy Teens

As noted, high body mass index directly increases one's risk for heart disease and stroke. In 2004, Oregonians who were overweight or obese were more than twice as likely to report being diagnosed with some form of cardiovascular disease (see Figure 24).

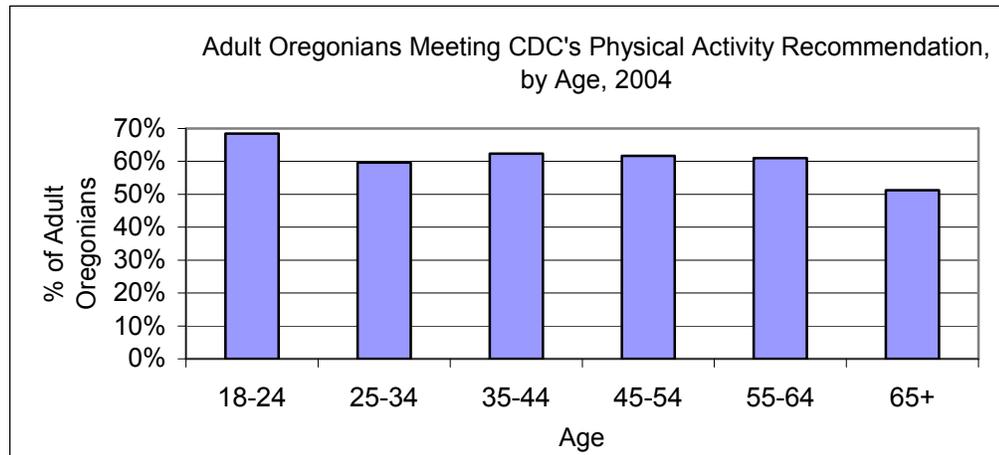
Figure 24



Source: Oregon Behavioral Risk Factor Surveillance System

In addition to the increasing problem of overweight/obesity, many Oregonians are not physically active on a regular basis. Overall, about 40% of Oregon adults do not meet the Center for Disease Control and Prevention's physical activity recommendation. See Figure 25 for the distribution by age group.

Figure 25



Source: Oregon Behavioral Risk Factor Surveillance System

In 2004, adult Oregonians who got the recommended levels of physical activity were less likely to report they had heart disease, stroke, or cardiovascular disease than people who were less physically active (6.1% vs. 9.3%).

CVD Prevalence and Risk Factors for Populations with Disparities

Racial and Ethnic Groups

Data on ethnic and racial disparities come from both Oregon-specific and national sources. Oregon-specific data were obtained by combining Oregon BRFSS data from 2000-2001, with additional surveys done to increase the number of survey responses from African Americans, Asians/Pacific Islanders, Hispanics/Latinos, and American Indians/Alaska Natives. Information about risk factors for heart disease and stroke by race and ethnicity has been reported previously and is available in the publication, *Keeping Oregonians Healthy* (KOH). The website for the KOH report is <http://oregon.gov/DHS/ph/hpcdp/docs/healthor.pdf>.

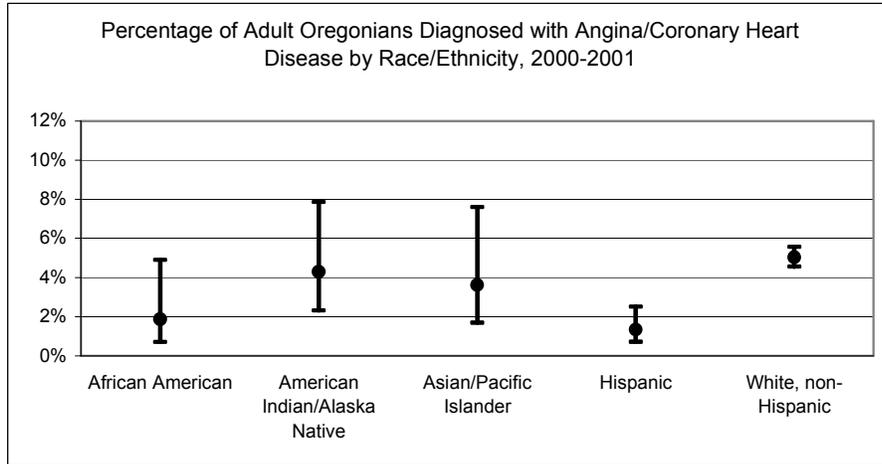
Despite the additional surveys completed among special populations, the total numbers of respondents from each of these groups remained small. Therefore, the Oregon specific results should be interpreted with caution. The figures illustrating these data include margins of error, which reflect the level of uncertainty associated with these estimates because of their small sample sizes. DHS is currently analyzing surveys done in 2005 and will have updated information on heart disease, stroke, diabetes, high blood pressure and cholesterol for next year's report.

In addition to the Oregon-specific data, information about national trends was obtained from the 2004 National Health Interview Survey, a nationally administered door-to-door survey conducted to collect information about health related behaviors, attitudes, and risk factors for

U.S. adults. Detailed reports from this study are publicly available at the following link: http://www.cdc.gov/nchs/about/major/nhis/reports_2004.htm. These data reflect the national trends with respect to cardiovascular disparities, and are more reliable than the Oregon data because of their larger sample sizes.

Within Oregon, both African Americans and Hispanics reported having been diagnosed with angina or coronary heart disease at lower rates than American Indians/Alaska Natives, Asians/Pacific Islanders, and White, non-Hispanics (Figure 26).

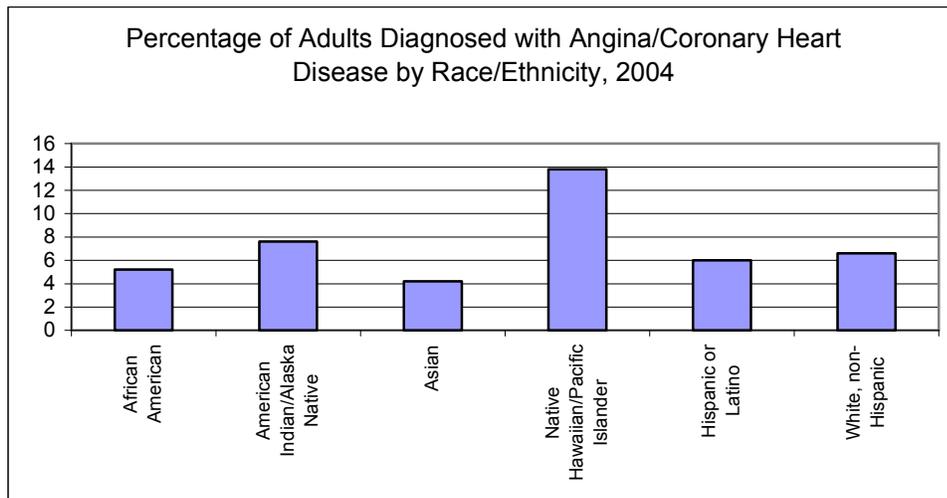
Figure 26



Source: 2000-2001 BRFSS Race/Ethnicity Augment. Note: The lines above and below each point represent the margins of error for each race/ethnic group, as determined by available sample sizes.

These findings are consistent with the national data, which show that African Americans and Asians were less likely to have angina/coronary heart disease than Whites, although American Indians/Alaska Natives had higher rates (Figure 27).

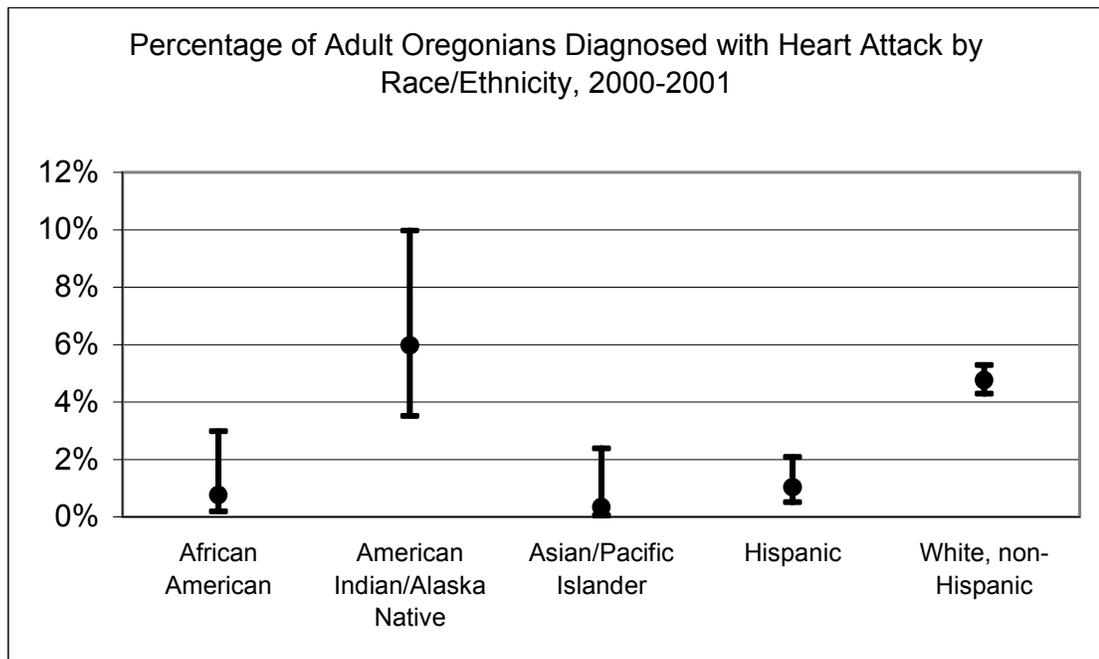
Figure 27



Source: National Health Interview Survey, 2004

In Oregon, American Indians/Alaska Natives report having heart attacks at higher rates than White, non-Hispanic Oregonians. This is similar to findings from the Northwest Tribal BRFSS conducted in 2001 by the Northwest Portland Area Indian Health Board, which found a heart attack prevalence of 6.3% among tribal members aged 40 and over. However, African Americans, Asians/Pacific Islanders, and Hispanics report having had a heart attack in their lifetime at substantially lower rates (Figure 28). For Asians/Pacific Islanders and Hispanics, this is consistent with the lower death rates from heart attacks experienced by these groups. African Americans, however, have higher death rates from heart attack than any other group, in contrast with their lower rates of reported heart attack prevalence.

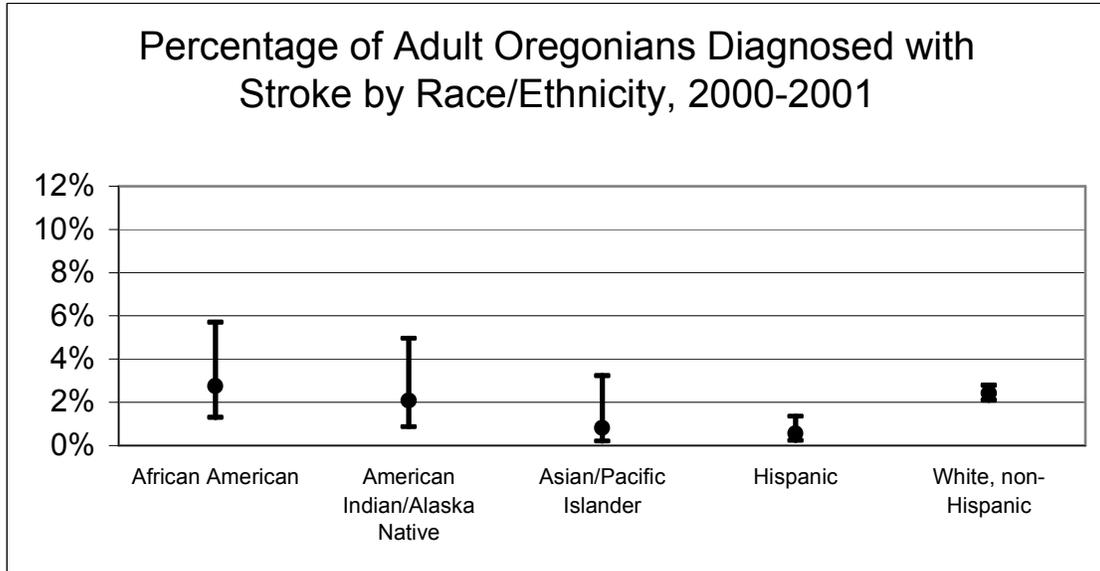
Figure 28



Source: 2000-2001 BRFSS Race/Ethnicity Augment. Note: The lines above and below each point represent the margins of error for each race/ethnic group, as determined by available sample sizes.

Among Oregonians, African Americans report higher rates of stroke than White, non-Hispanics (Figure 29), while Asians/Pacific Islanders and Hispanics report lower rates of stroke.

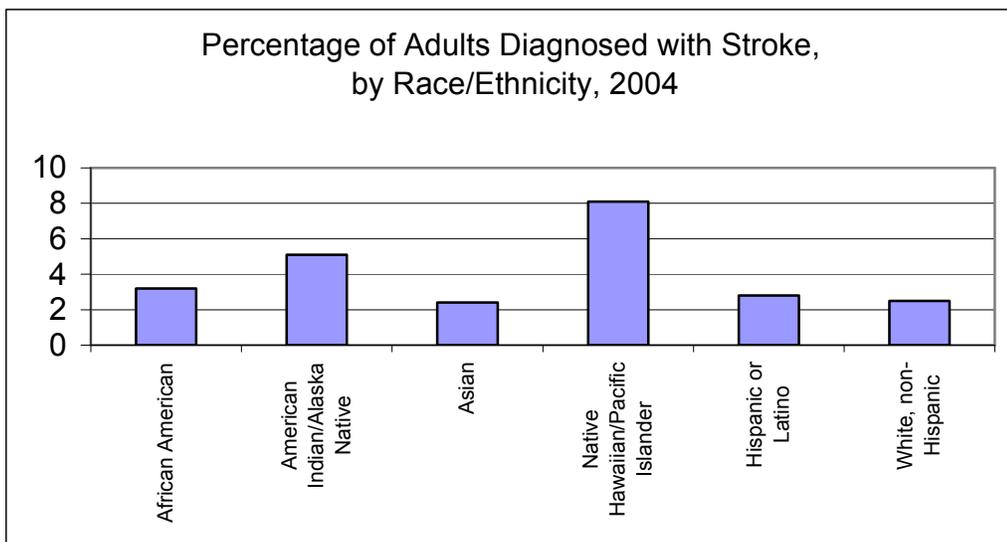
Figure 29



Source: 2000-2001 BRFSS Race/Ethnicity Augment. Note: The lines above and below each point represent the margins of error for each race/ethnic group, as determined by available sample sizes.

These are not entirely consistent with national trends, which show that African Americans, American Indians and Pacific Islanders all report having had a stroke in their lifetime at higher rates than Whites (30).

Figure 30



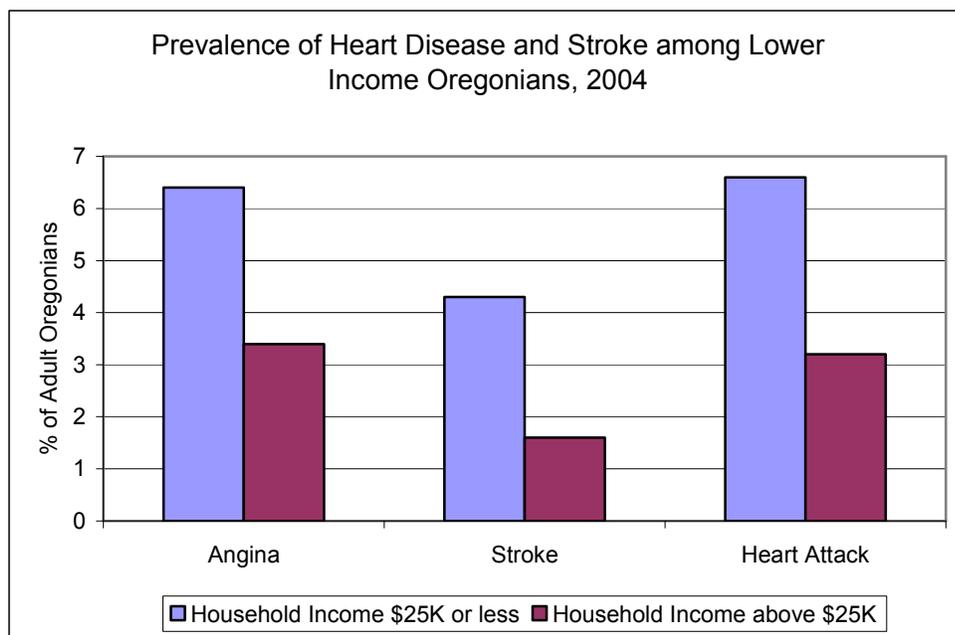
Source: National Health Interview Survey, 2004

Low Income

Health disparities often exist between persons of limited means and those who have access to more resources. The federal poverty guidelines, based on household size and annual income, are one common measure of economic disadvantage. In Oregon currently, the poverty guidelines range from \$20,000 per year to \$30,000 for households with four to seven individuals. In the current report, low household income is defined as \$25,000 per year or less. This reflects the limitation of our survey methods, which do not permit exact incomes to be determined.

Figure 31 shows that Oregonians with lower household incomes (\$25,000 per year or less) experienced heart disease, heart attack and stroke at roughly twice the rates of other Oregonians.

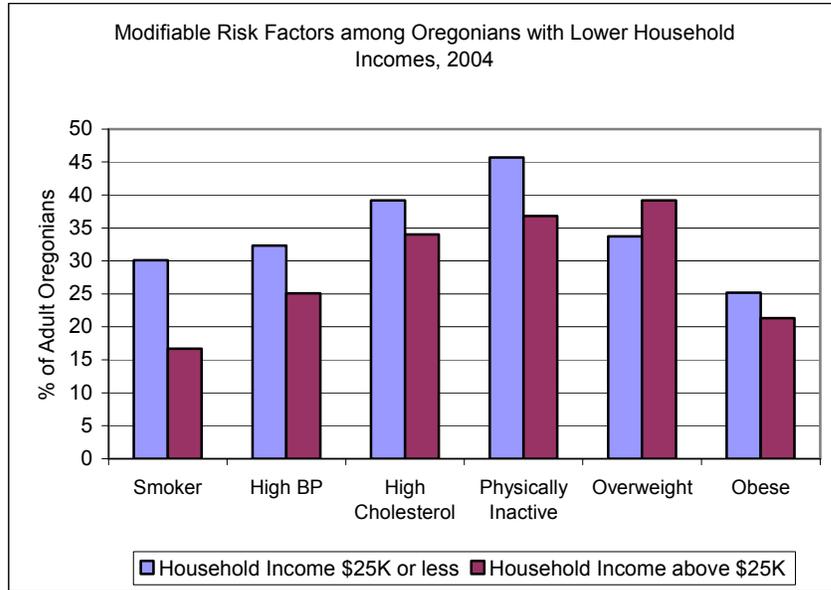
Figure 31



Source: Oregon Behavioral Risk Factor Surveillance System

Figure 32 shows modifiable risk factors for cardiovascular disease among Oregonians with lower household incomes. Among the other disparities, Oregonians with lower incomes are particularly more likely to smoke, have higher blood pressure and cholesterol, and are less physically active.

Figure 32



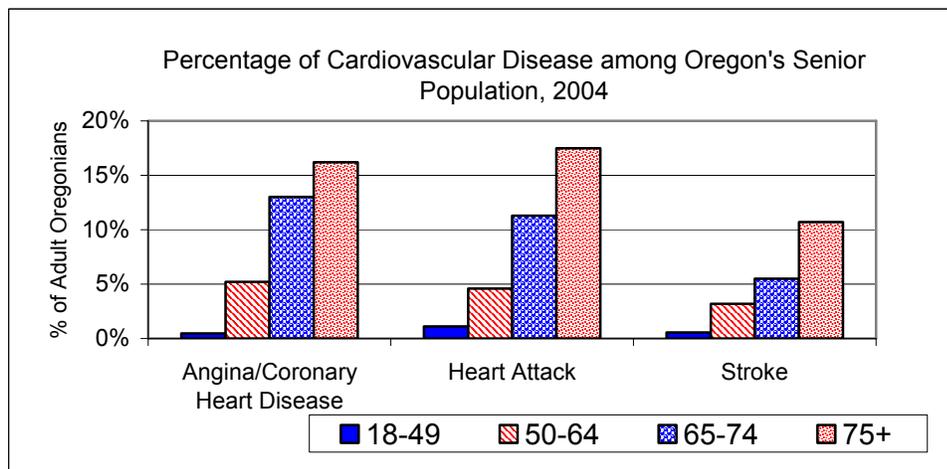
Source: Oregon Behavioral Risk Factor Surveillance System

Additional evidence for heart disease and stroke-related disparities among Oregon’s economically disadvantaged comes from the Medicaid Health Risk and Health Status Survey, conducted in 2004 among a random sample of Oregon Health Plan Recipients. Prevalence estimates for high blood pressure (38%) and high cholesterol (41%) from this survey are higher than those for the general population. The reported frequencies of clinically diagnosed angina/coronary artery disease (9%), heart attack (9%), and stroke (10%) are also higher.

Seniors

Figure 33 shows the prevalence of cardiovascular disease among Oregonians over the age of 50 compared to those less than 50 years old. As expected, people over the age of 50 reported higher prevalence of coronary heart disease, heart attack, and stroke than younger age groups. For Oregonians over 75, the risk of heart disease and stroke is even greater.

Figure 33



Source: Oregon Behavioral Risk Factor Surveillance System

Table 34 shows modifiable risk factors among Oregon’s senior population. While smoking and obesity decrease with age, so does physical activity. High blood pressure increases with age among Oregon seniors. Prevalence of high blood cholesterol and overweight increase up to age 74 and then decrease afterward.

Table 34

Prevalence of Cardiovascular Disease Risk Factors, by Age Group, 2004

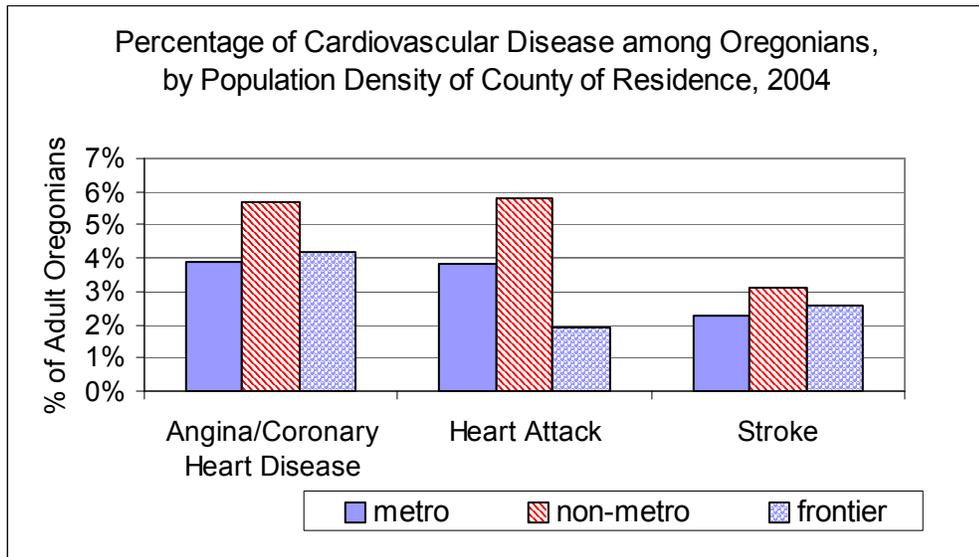
	18-49 years old	50-64 years old	65-74 years old	75+ years old
Current smoker	24%	19%	12%	5%
High blood pressure	15%	38%	53%	62%
High blood cholesterol	24%	44%	50%	42%
Does not meet physical activity guidelines	38%	40%	42%	52%
Overweight	34%	40%	45%	42%
Obese	22%	26%	23%	14%

Source: Oregon Behavioral Risk Factor Surveillance System

Rural Oregonians

Figure 35 shows that heart disease and stroke may vary across regions of different population densities. Specifically, Oregonians living in “non-metropolitan” counties (as defined by the Office of Rural Health) have higher prevalence of coronary heart disease and heart attack. There was no difference in prevalence for stroke.

Figure 35



Source: Oregon Behavioral Risk Factor Surveillance System

In Figure 35, Oregon counties are designated “metropolitan”, “non-metropolitan”, or “frontier” by the Oregon Office of Rural Health. Specific county classifications follow.

<u>Metropolitan</u>	<u>Non-metropolitan</u>	<u>Frontier</u>
Benton	Clatsop	Baker
Clackamas	Coos	Gilliam
Columbia	Crook	Grant
Deschutes	Curry	Harney
Jackson	Douglas	Lake
Lane	Hood River	Malheur
Marion	Jefferson	Morrow
Multnomah	Josephine	Sherman
Polk	Klamath	Wallowa
Washington	Lincoln	Wheeler
Yamhill	Linn	
	Tillamook	
	Umatilla	
	Union	
	Wasco	

Table 36 shows modifiable risk factors for heart disease and stroke by population density of county of residence. Oregonians living in “frontier” counties have the lowest prevalence of smoking and highest rates for hypertension and high cholesterol.

Table 36

Modifiable Risk Factors for Cardiovascular Disease, by Population Density of County of Residence, 2004

	Metro	Non-metro	Frontier
Current smoker	19%	24%	17%
High blood pressure	26%	31%	34%
High blood cholesterol	34%	35%	39%
Does not meet physical activity guidelines	39%	41%	41%
Overweight	37%	38%	35%
Obese	21%	25%	26%

Source: Oregon Behavioral Risk Factor Surveillance System

Table 37**Morbidity of Heart Disease and Stroke by County of Residence, 2000-2001**

County	Heart Attack	Coronary Heart Disease	Stroke
Baker	3%	3%	2%
Benton	<1%	1%	<1%
Clackamas	4%	5%	3%
Clatsop	6%	5%	4%
Columbia	7%	6%	1%
Coos	5%	7%	3%
Crook	5%	3%	2%
Curry	6%	12%	1%
Deschutes	4%	4%	3%
Douglas	8%	4%	3%
Grant	8%	7%	4%
Harney	4%	2%	2%
Hood River	2%	2%	3%
Jackson	6%	4%	3%
Jefferson	5%	5%	5%
Josephine	3%	6%	3%
Klamath	3%	3%	2%
Lake	8%	3%	4%
Lane	5%	6%	3%
Lincoln	5%	5%	<1%
Linn	9%	7%	3%
Malheur	3%	3%	2%
Marion	3%	4%	1%
Morrow	5%	3%	3%
Multnomah	4%	4%	2%
Polk	10%	7%	1%
Tillamook	4%	6%	4%
Umatilla	7%	7%	3%
Union	7%	5%	2%
Wallowa	4%	5%	1%
Washington	3%	4%	1%
Yamhill	3%	3%	2%
Gilliam/Wheeler	4%	6%	2%
Sherman/Wasco	4%	5%	4%
Oregon Total	4%	5%	2%

Source: Oregon Behavioral Risk Factor Surveillance System County Augment, 2000-01

Conclusion

This report summarizes the most recent information available describing the prevalence, mortality and economic costs of cardiovascular disease in Oregon. As it has for more than a decade, the stroke mortality rate in Oregon remains above the national average, while heart disease mortality has continued to decline. The explanation for Oregon's elevated stroke mortality is not clear. Declining death rates from heart disease are due in part to improved acute medical management of this condition.

Large disparities exist between racial and ethnic groups regarding frequency of cardiovascular disease risk factors and resulting mortality. Similar disparities exist based on age, socio-economic status, and region of residence.

Measures that can reduce CVD risk include eating a healthy diet, engaging in regular physical activity, controlling high blood pressure if present, reducing blood cholesterol if it is elevated, managing diabetes among those with this condition, and not smoking. Addressing these risk factors among all Oregonians who have them could greatly reduce the burden of heart disease and stroke in Oregon.

Data Sources

Behavioral Risk Factor Surveillance System (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing random-digit dialed telephone survey of adults concerning health-related behaviors. The BRFSS was developed by the Centers for Disease Control and Prevention (CDC) and is conducted in all states in the U.S. Each year, between 3,000 and 7,000 adult Oregonians are interviewed. The BRFSS includes questions on health behavior risk factors such as seat belt use, diet, weight control, tobacco and alcohol use, physical exercise, preventive health screenings, and use of preventive and other health care services. The data are weighted to represent all adults aged 18 years and older. A core set of questions, which includes the questions on heart disease and stroke prevalence, is asked annually and other topics are surveyed on a rotating basis of two years. Each state may add questions to the CDC survey.

Hospital Discharge Database

The hospital discharge Data Set is a computerized database maintained by the Oregon Association of Hospitals and Health Systems. Variables include: patient characteristics such as age, sex, (although race data is not available); primary reason for hospitalization; additional diagnoses; length of hospitalization; hospitalization costs, etc. These data are used to determine the number of hospitalizations for heart attack and stroke in Oregon and the costs of these hospitalizations.

National Health Interview Survey

The National Health Interview Survey (NHIS) is a continuing, nationwide in-person survey of approximately 40,000 households in the civilian non-institutionalized population. This survey of about 100,000 persons is conducted by the National Center for Health Statistics (NCHS) and administered by the US Census Bureau. The 1982 - 1996 surveys consisted of two parts: a core set of basic health and demographic questions, and one or more sets of supplemental questions on specific health topics. In 1997, the NHIS was revised and now includes three parts: a core module, periodic modules that allow collection of more detailed information on core items, and a topical module that is analogous to the supplements in that it allows investigators to collect information about specific topics.

Northwest Tribal Behavioral Risk Factor Surveillance System (BRFSS) Project

In 2001, the Northwest Portland Area Indian Health Board (NPAIHB) conducted Behavioral Risk Factor Surveillance System (BRFSS)-type surveys in seven (7) tribal communities, to identify attitudes, behaviors and health-related risk factors among American Indians within Oregon, Washington, and Idaho. The seven tribes included in the study (Confederated Tribes of the Umatilla Indian Reservation, Klamath Tribes, Lummi Nation, Makah Tribe, Nez Perce Tribe, Nisqually Tribe, Shoshone-Bannock Tribes) were randomly selected from among all tribes in the region with at least 1000 members. Within each tribe, a random sample of up to 500 adult respondents was surveyed.

Oregon Health Risk Health Status Survey

In 2004, the Oregon Department of Human Services, Health Services, Office of Medical Assistance Programs (OMAP) conducted a survey to measure the health risk and health status of adult Oregon Health Plan (OHP) clients. The telephone survey, conducted in English and Spanish from August through October 2004, sought information regarding health risk behaviors, clinical preventive health practices, and healthcare access, mainly related to chronic disease. The eligible population included adults (age 18 or older as of July 1, 2003) enrolled in OHP at least 137 days during the period of July 1, 2003-June 30, 2004. Enrollment did not have to be continuous. A random sample was pulled, stratifying by six race/ethnicity categories: White, African American, Hispanic, Native American, Asian, and Other. A total of 11,921 adult enrollees were eligible to be surveyed and 2,995 responded to the survey. As a random sample, this data should be interpreted as an estimate of behaviors and practices with confidence levels and margins of error rather than precise prevalence percentages.

Oregon Healthy Teens Survey

Since 2001, the Youth Risk Behavior Survey and the Oregon Public School Drug Use Survey have been combined into a single annual survey, Oregon Healthy Teens. This pen and paper survey examines health and risk behaviors of Oregon 8th and 11th grade students. Specific topics include drug and alcohol use, eating habits, attitudes about smoking and tobacco use, and physical activity levels.

Vital Statistics

The Death Certificate Statistical File includes all deaths occurring in Oregon and deaths occurring out-of-state to Oregon residents. Data are obtained from death certificates that are collected by the State Registrar. The data are used to examine trends in mortality and causes of death. Variables in this database include cause of death, date and place of death, decedent demographic information, whether the death was related to tobacco use, and county, place, and date of injury (if applicable). The mortality data analyzed for this report consist of deaths of Oregon residents.