

THE BURDEN OF HEART
DISEASE AND STROKE IN
OREGON
2007

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STROKE IN OREGON
2007**

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The Heart Disease and Stroke Prevention Program (HDSP) is part of the Health Promotion and Chronic Disease Prevention (HPCDP) Program. The purpose of HPCDP is to promote the health of Oregonians through programs that prevent chronic diseases from occurring, detect chronic diseases at the earliest stages when they are most treatable, and prevent further complications.

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EXECUTIVE SUMMARY

Heart disease and stroke are leading causes of death in Oregon and they are also major causes of hospitalization and disability. The focus of the Oregon Heart Disease and Stroke Prevention (HDSP) Program is to build capacity for the implementation of population-based interventions for heart disease and stroke prevention. The purpose of this report is to present trends in heart disease and stroke prevalence, mortality, hospitalization and related risk factors.

This report also contains the most recent data available regarding public awareness of the signs and symptoms of heart attack and stroke and emergency actions, quality of cardiovascular care; and related health disparities.

Key findings of the *Oregon Heart Disease and Stroke Report 2007* include:

- Heart disease and stroke are the 2nd and 3rd leading causes of death in Oregon.
- The total cost of hospitalizations for these conditions in 2006 was more than \$1.2 billion in Oregon.
- Age-adjusted stroke death rates in Oregon were higher than the national average and the Healthy People 2010 Target.
- African Americans had higher stroke death rates than all other racial/ethnic populations.
- 65% of Oregon stroke deaths occurred outside of hospital settings.
- 37% of Oregon adults recognized major symptoms of stroke and correctly identified calling 9-1-1 as the appropriate response, should these symptoms occur.
- Age-adjusted death rates from coronary heart disease in Oregon were lower than the national average and the Healthy People 2010 Target.
- In Oregon, coronary heart disease death rates were higher in men than in women. Prevalence of myocardial infarction (heart attack) was higher in men than in women.
- Over time, African Americans have generally had higher coronary heart disease death rates than other racial/ethnic populations.
- While death rates from coronary artery disease among American Indians/Alaska Natives have also been high, these rates now appear to be decreasing.
- 19% of Oregon adults recognized the major symptoms of heart attack and correctly identified calling 9-1-1 as the appropriate response, should these symptoms occur.
- The prevalence of hypertension among Oregon adults has been stable over time.
- The prevalence of high blood cholesterol among Oregon adults has increased slightly in recent years.

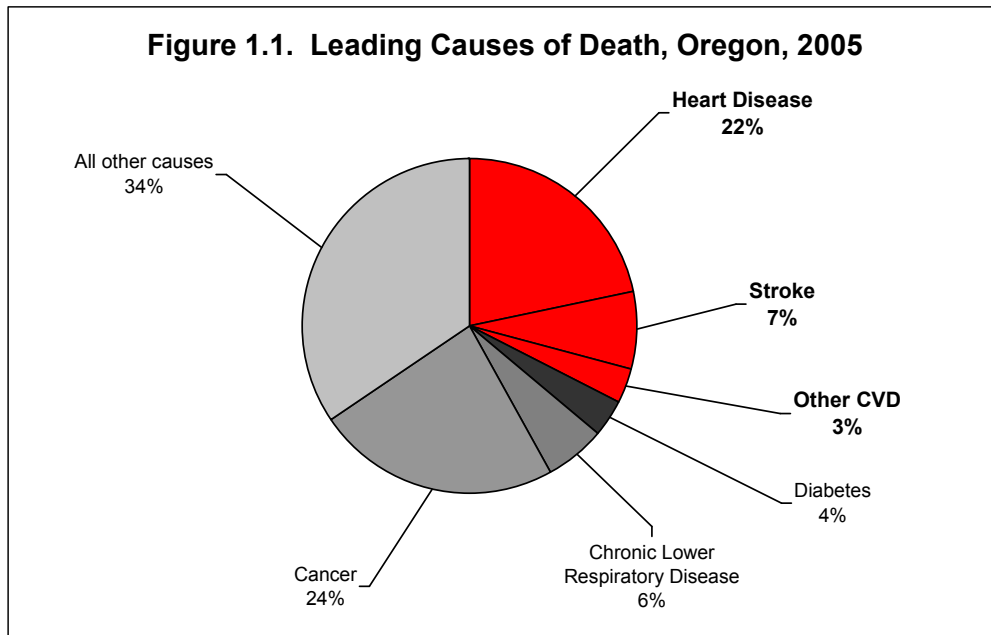
Chapter 1. CARDIOVASCULAR DISEASE

1.1 Cardiovascular Disease Mortality

Major Cardiovascular Disease: A Leading Cause of Deaths in Oregon

Major cardiovascular disease includes heart disease and stroke, high blood pressure, and disease of peripheral blood vessels.

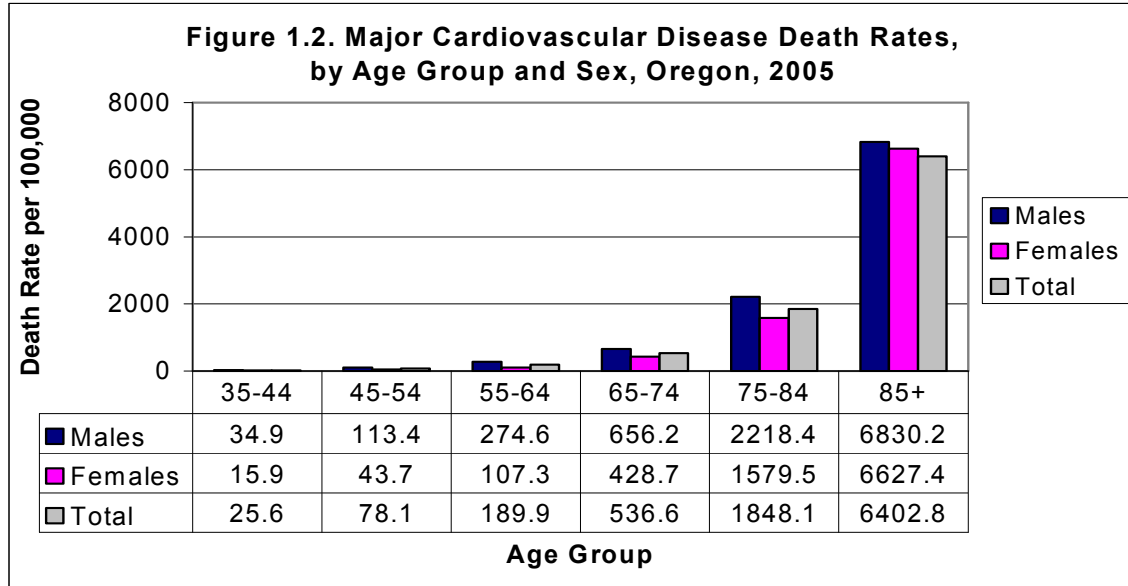
- In 2005, the total number of deaths in Oregon was 30,854. The total number of major cardiovascular deaths in Oregon was 9,918, 32.1% of all deaths for that year (Figure 1.1).
- Heart disease and stroke are the 2nd and 3rd leading causes of death in Oregon, respectively.



Source: 2005 Oregon Death Certificates

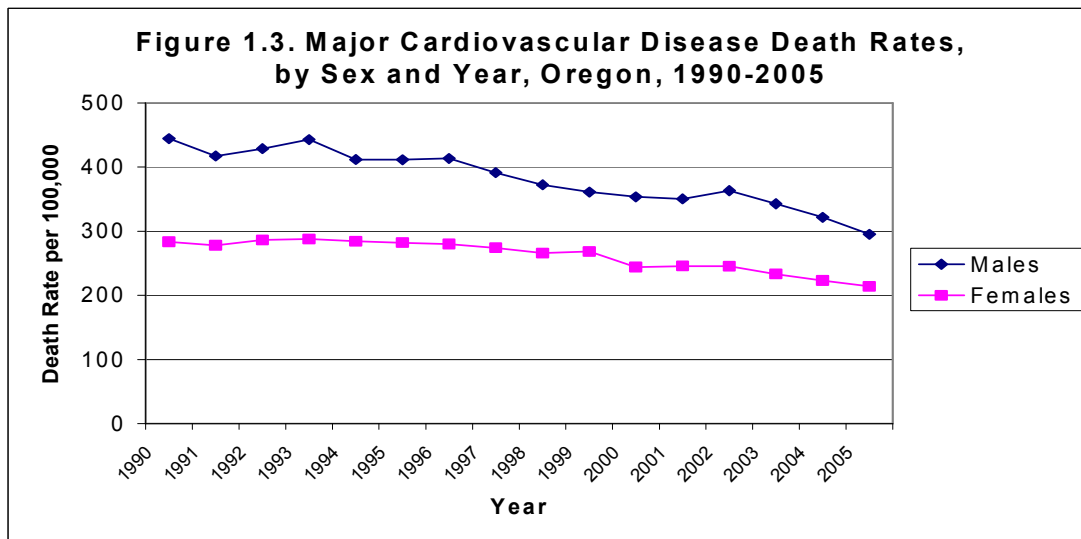
Oregon Major Cardiovascular Disease Death Rates by Sex and Age

- Major cardiovascular disease (CVD) death rates increase rapidly with age, particularly above the age of 65 years (Figure 1.2).
- Major cardiovascular disease death rates were higher in men than in women in all age groups (Figure 1.2).



Source: 2005 Oregon Death Certificates

- From 1990 to 2005, although age-adjusted major cardiovascular disease mortality decreased among men and women, major cardiovascular disease death rates were consistently higher in men than in women in Oregon (Figure 1.3).
- In 2005, the age-adjusted major cardiovascular disease death rate was 295.3 per 100,000 in Oregon men and was 214.0 per 100,000 in Oregon women.

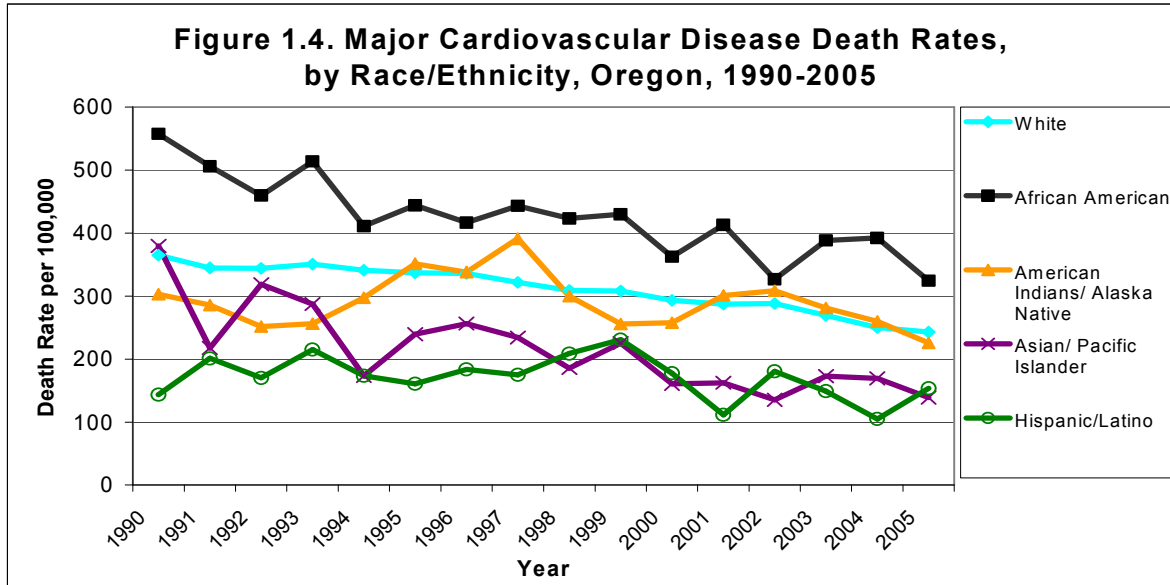


Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Oregon Major Cardiovascular Disease Death Rates by Race/Ethnicity

- From 1990 to 2005, major cardiovascular disease death rates in all racial/ethnic populations decreased over time (Figure 1.4).
- African Americans had higher major cardiovascular disease death rates than all other racial/ethnic populations (Figure 1.4).
- In 2005, age-adjusted major cardiovascular disease death rates were 242.9 per 100,000 for non-Hispanic whites, 324.5 per 100,000 for African Americans, 226.0 per 100,000 for American Indians/Alaska Natives, 139.1 per 100,000 for Asians and Pacific Islanders, and 153.5 per 100,000 for Hispanics/Latinos.

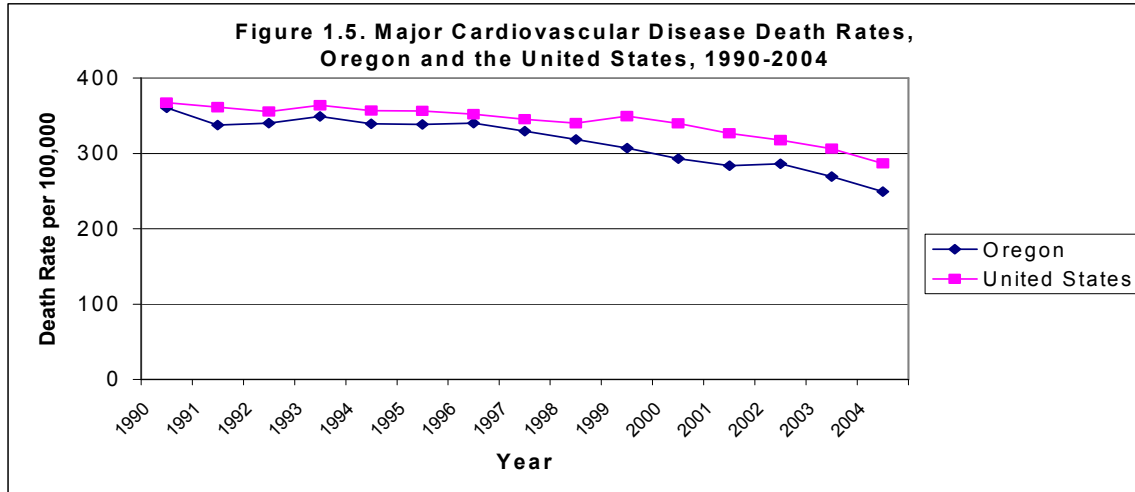


Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Trends in Major Cardiovascular Disease Death Rate, Oregon vs. U.S.

- From 1990 to 2004, major cardiovascular disease death rates declined, both in Oregon and nationally (Figure 1.5).
- Age-adjusted death rates from major cardiovascular disease in Oregon were lower than those seen nationally (Figure 1.5).



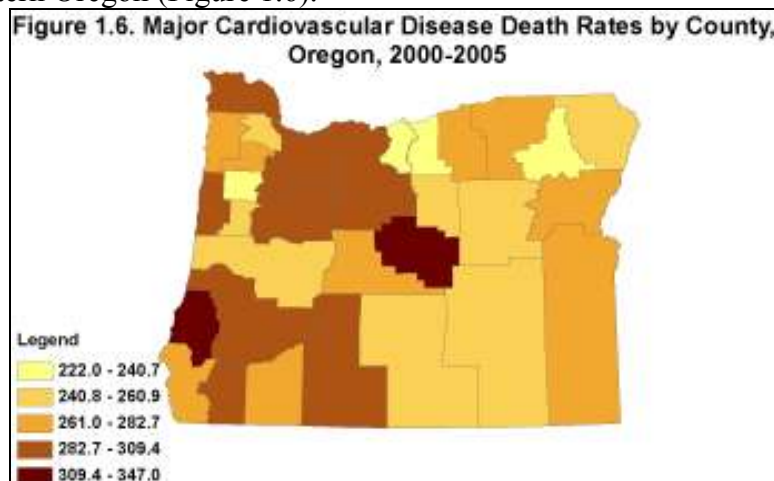
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Death rates before 1999 are adjusted using a comparability ratio.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File, CDC WONDER.

Geographic Differences in Major Cardiovascular Disease Death Rates

- Cardiovascular disease death rates were above average along the lower Columbia, in an area east of the Willamette extending into North Central Oregon, and in Southwestern Oregon (Figure 1.6).

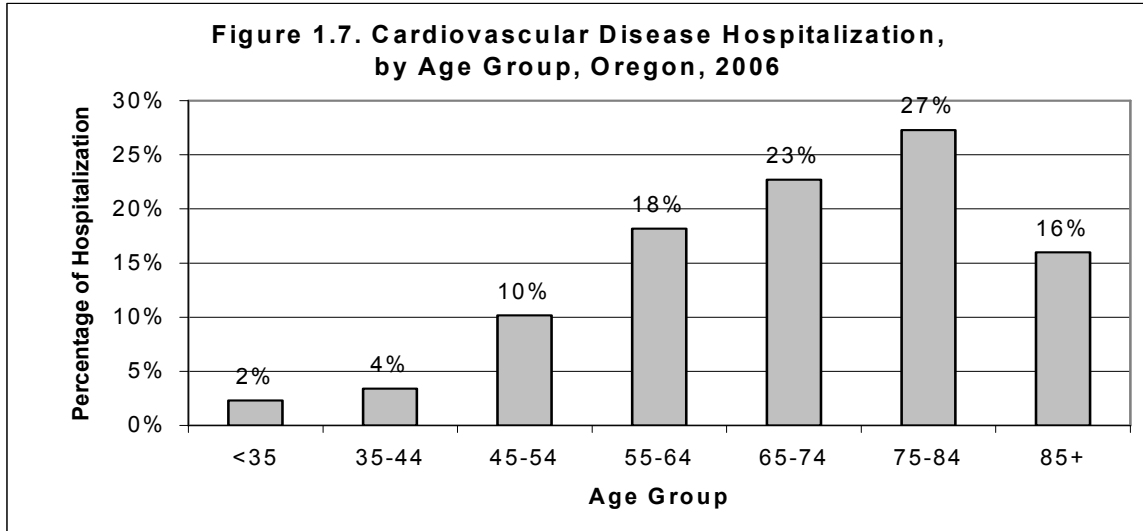


Note: Rates are deaths per 100,000 and are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

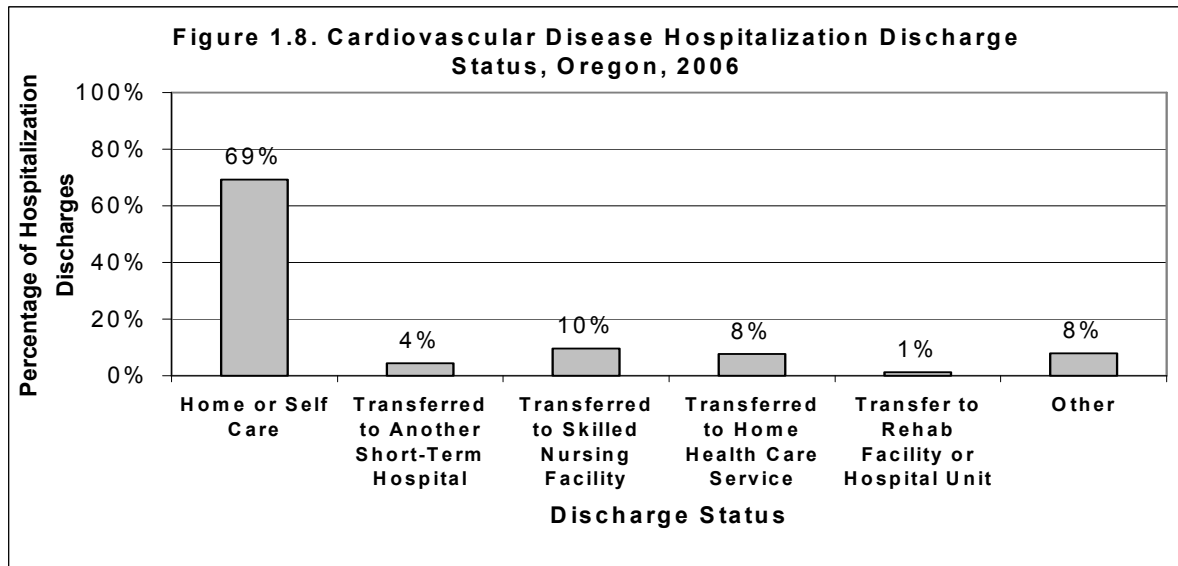
1.2 Cardiovascular Disease Morbidity & Cost

- In 2006, there were 47,256 hospitalizations in Oregon with cardiovascular disease as the principal diagnosis.
- The total cost of these hospitalizations was more than \$1.2 billion. This is a conservative estimate, since several large hospitals in Oregon did not supply cost data.
- The average cost of each cardiovascular disease hospitalization was \$27,611.
- In 2006, 84% of cardiovascular disease hospitalizations in Oregon occurred among people over the age of 55 years (Figure 1.7).



Source: Oregon Hospital Discharge Database

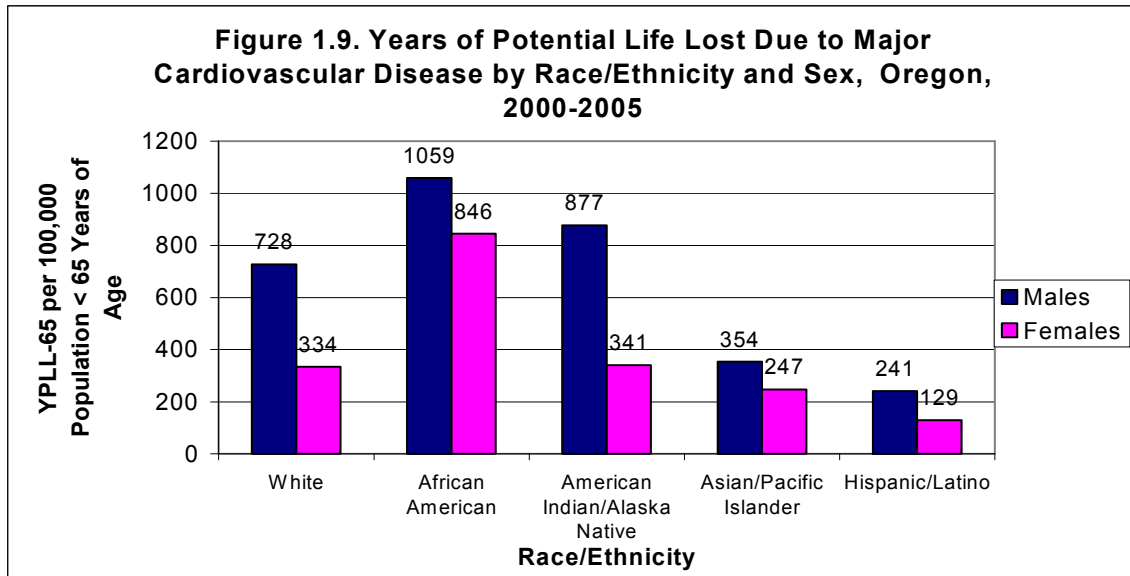
- In 2006, the majority (69%) of cardiovascular disease hospitalizations resulted in discharge to home or self-care. Only 1% of cardiovascular hospitalizations resulted in discharge to a rehabilitation facility or hospital unit (Figure 1.8).



Source: Oregon Hospital Discharge Database

Years of Potential Life Lost Due to Major Cardiovascular Disease

- In 2005, major cardiovascular disease caused a total of 15,341 years of potential life lost based on 65 years of life expectancy (YPLL-65), and it caused 75,506 years of potential life lost based on 85 years of life expectancy (YPLL-85) in Oregon.
- Considering race, ethnicity, and sex, African American men suffered the highest rate for years of potential life lost (YPLL-65) due to major cardiovascular disease, followed by American Indian/Alaska Native men and African American women (Figure 1.9).



Note: 1. Rates are based on per 100,000 corresponding population under 65 years of age.
 2. Above YPLL-65 rate for each racial/ethnic group is the annual average of 6 years.

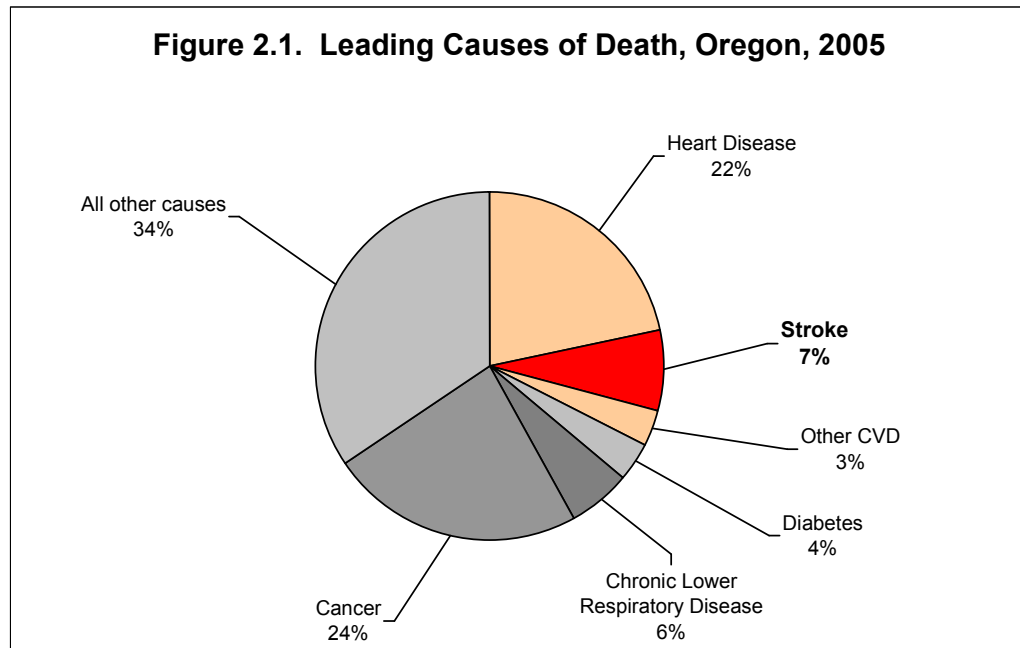
Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Chapter 2. STROKE

2.1 Stroke Mortality

Stroke Deaths in Oregon

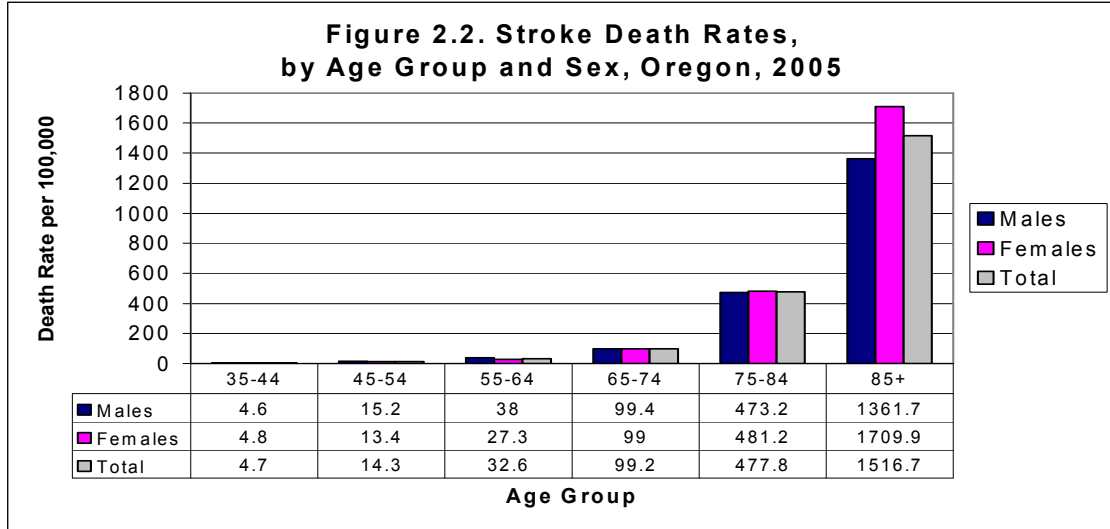
- In 2005, the total number of stroke deaths was 2,268, 7% of all deaths in Oregon.
- Stroke remains the 3rd leading cause of death in Oregon.



Source: 2005 Oregon Death Certificates

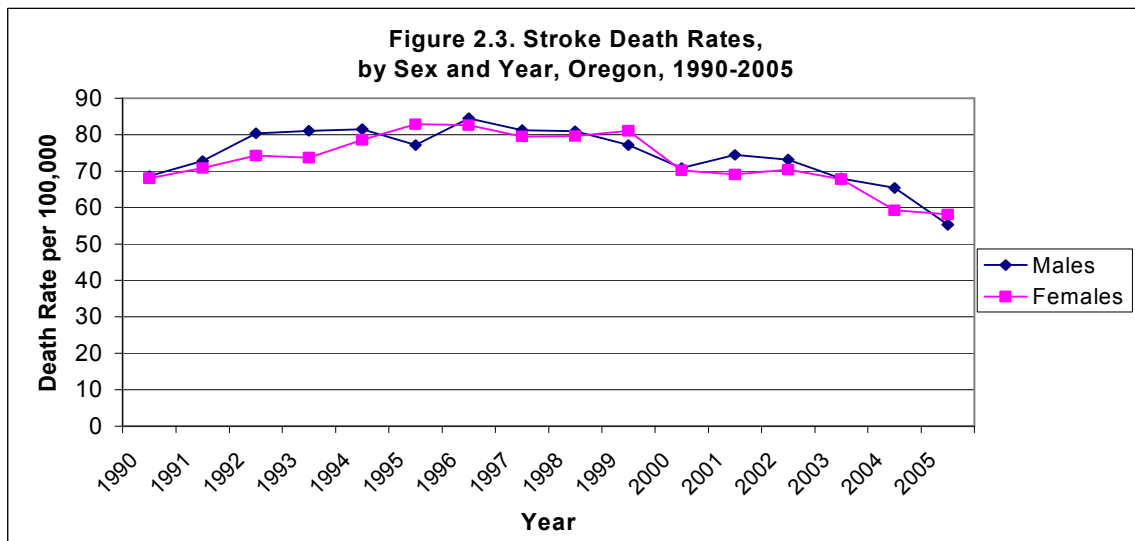
Oregon Stroke Death Rates by Age Group and Sex

- Stroke death rates increase rapidly as age increases, and rise markedly in those age 75 years and older (Figure 2.2).
- Stroke death rates among Oregon men and women were similar for most age groups with the exception of those age 85 years or older, in which women had a higher stroke death rate. (Figure 2.2).



Source: 2005 Oregon Death Certificates

- On the whole, stroke death rates in Oregon climbed during the early 1990s, leveled out for several years, then began falling after 1999.
- There has been no consistent sex disparity in stroke death rates in Oregon (Figure 2.3). In 2005, the age-adjusted stroke death rate for men was 55.3 per 100,000. For women it was 58.1 per 100,000.



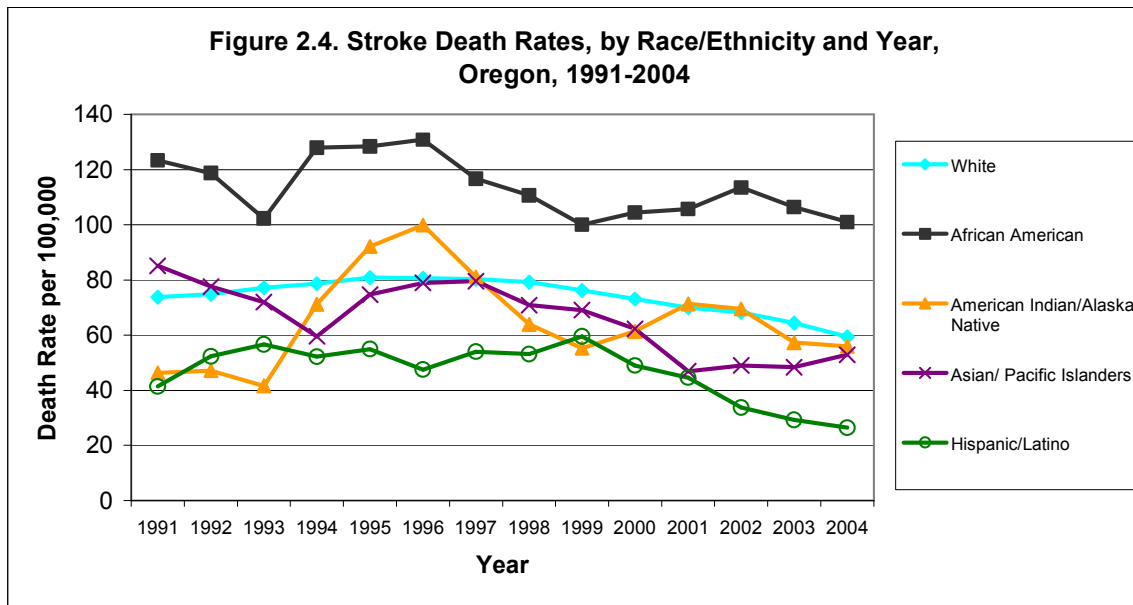
Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data: Oregon Department of Human Services, Center for Health Statistics.

Oregon Stroke Death Rates by Race/Ethnicity

Because of the relatively small number of deaths from heart disease or stroke occurring in a given year among some groups, it can be difficult to calculate reliable rates for these conditions by race and ethnicity. To address this problem, we calculated death rates for each year as an average rate for the year in question, the year immediately before it and the one immediately after it.

- From 1991 to 2004, death rates from stroke trended downward for all racial/ethnic populations except American Indians/Alaska Natives (Figure 2.4).
- African Americans consistently had higher death rates from stroke than did other racial/ethnic populations. (Figure 2.4).
- In 2005, age-adjusted stroke death rates were 54.7 per 100,000 for non-Hispanic whites, 90.4 per 100,000 for African Americans, 69.0 per 100,000 for American Indians/Alaska Natives, 49.5 per 100,000 for Asians and Pacific Islanders, and 33.5 per 100,000 for Hispanics/Latinos.

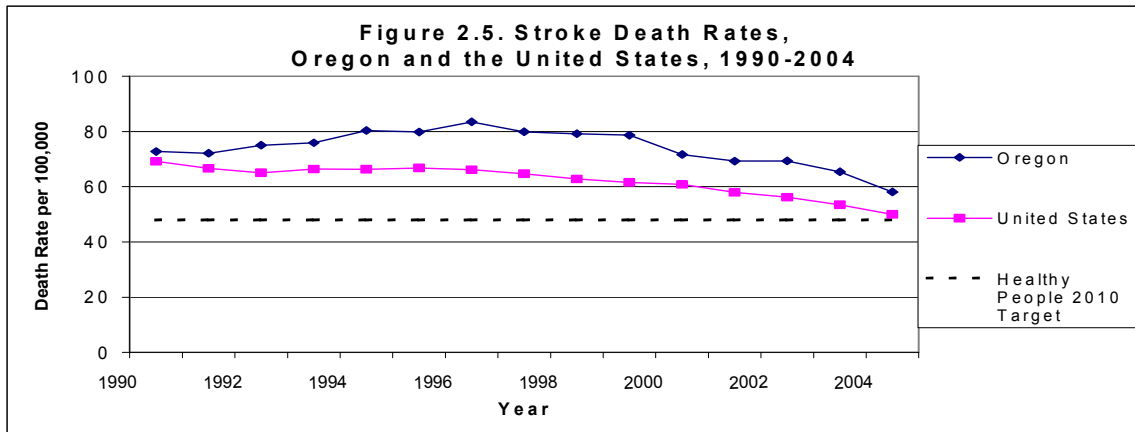


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Calculated death rate for each year is the average of adjacent 3 years due to small numbers, e.g. death rate in 1991 is the average of 1990-1992.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Trends in Stroke Death Rate, Oregon vs. U.S.

- After the mid-1990s, both Oregonian and national stroke death rates declined (Figure 2.5).
- From 1990 to 2004, age-adjusted stroke death rates in Oregon were higher than those seen nationally (Figure 2.5).
- Although the national age-adjusted death rate for stroke in 2004 was close to the Healthy People 2010 Target, death rates for Oregon and nationally remained higher than the target of 48 deaths per 100,000 population (Figure 2.5).



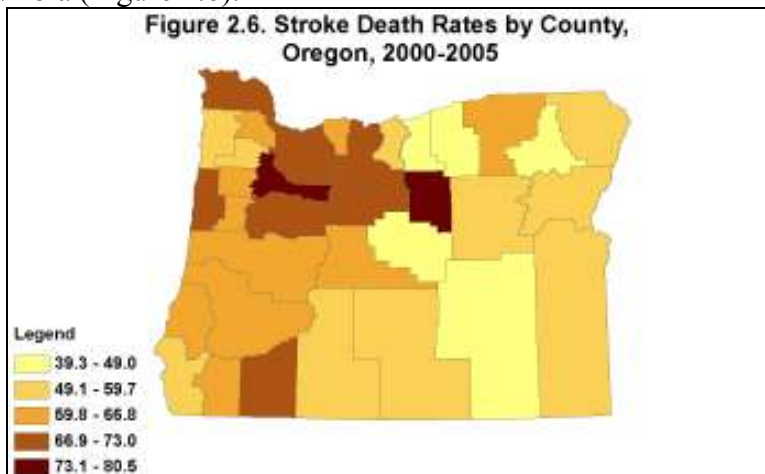
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Death rates before 1999 are adjusted using a comparability ratio.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File, CDC WONDER.

Geographic Differences in Stroke Death Rate

- The highest stroke death rates were clustered in North Central Oregon and along the lower Columbia (Figure 2.6).



Note: 1. Rates are deaths per 100,000 and are age-adjusted to the 2000 U.S. Standard Population.

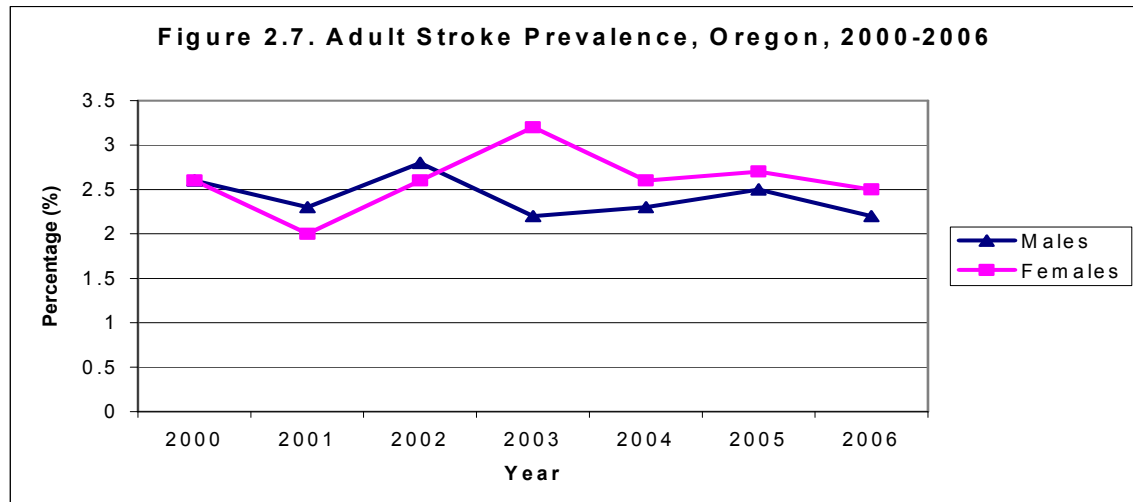
2. Above death rate for each county is the annual average of 6 years.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

2.2 Stroke Prevalence

Oregon Stroke Prevalence by Sex

- In 2006, the prevalence of stroke among adults was 2.4% in Oregon.
- From 2000 to 2006, the stroke prevalence did not decline. There was no apparent pattern of the relationship between the prevalence in women and the prevalence in men (Figure 2.7).

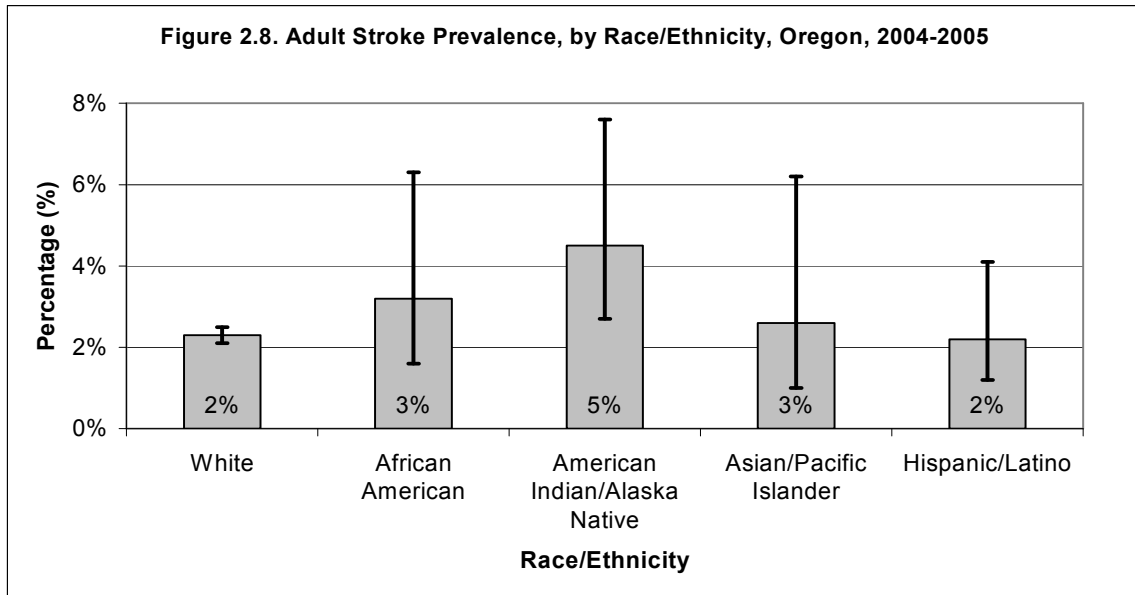


Source: Oregon Behavioral Risk Factor Surveillance System

Oregon Stroke Prevalence by Race/Ethnicity

The stroke prevalence among different racial/ethnic communities was obtained using Oregon BRFSS data for years 2004 and 2005 coupled with additional surveys conducted among African Americans, American Indians/Alaska Natives, and Asian/Pacific Islanders. The additional surveys were done to ensure that there would be a minimum of 250 surveys for each racial/ethnic group. Data for each racial/ethnic group were weighted to represent the group's population by age and sex. Percentages presented have been age-adjusted, to minimize the effects of differences in the age distribution between the various groups.

- The stroke prevalence of American Indians/Alaska Natives was higher than non-Hispanic whites. More detailed information is available in the publication, *Keeping Oregonians Healthy 2007*.



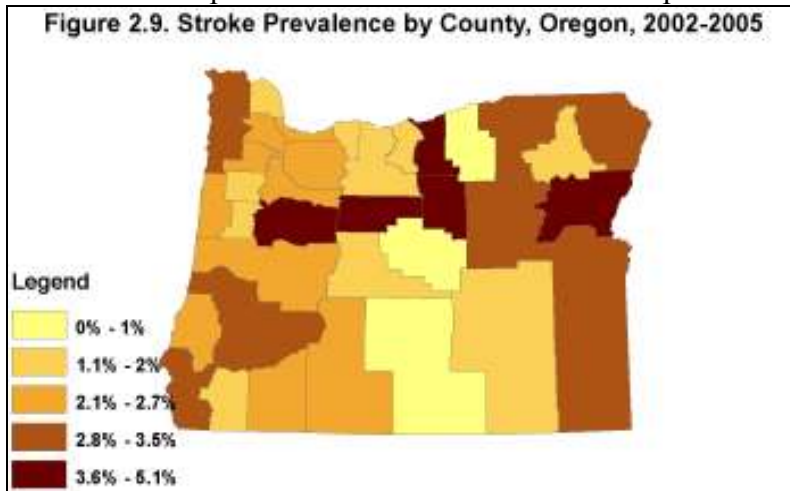
1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System Race/Ethnicity Augment

Oregon Stroke Prevalence Geographic Distribution

- From 2002 to 2005, the stroke prevalence in Oregon counties ranged from 0% to 5.1%. There was no clear pattern to the distribution of stroke prevalence (Figure 2.9).



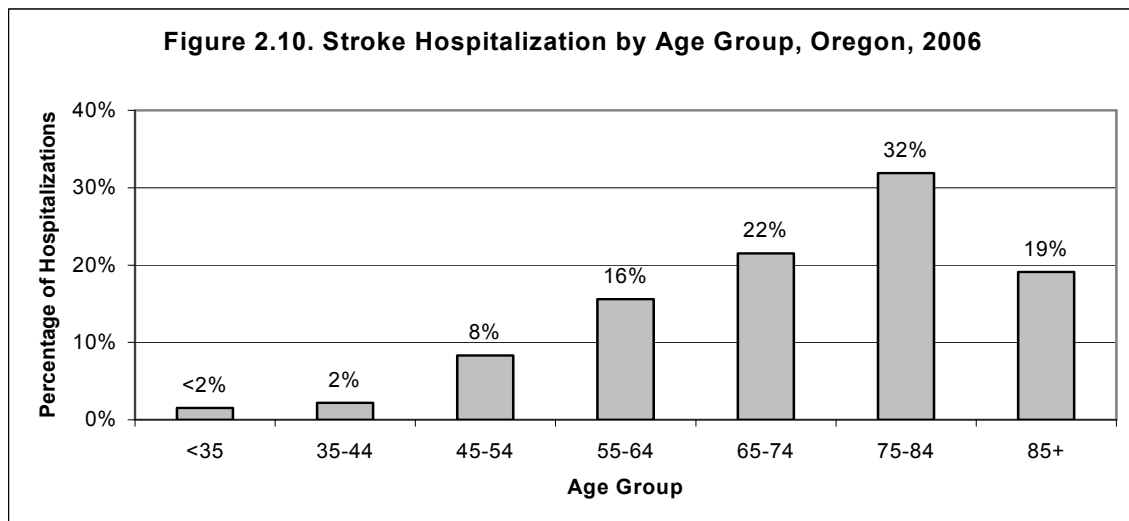
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.

2. Due to small numbers of respondents, Gilliam and Wheeler Counties are combined in the calculations, as are Sherman and Wasco Counties. Results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

2.3 Stroke Cost

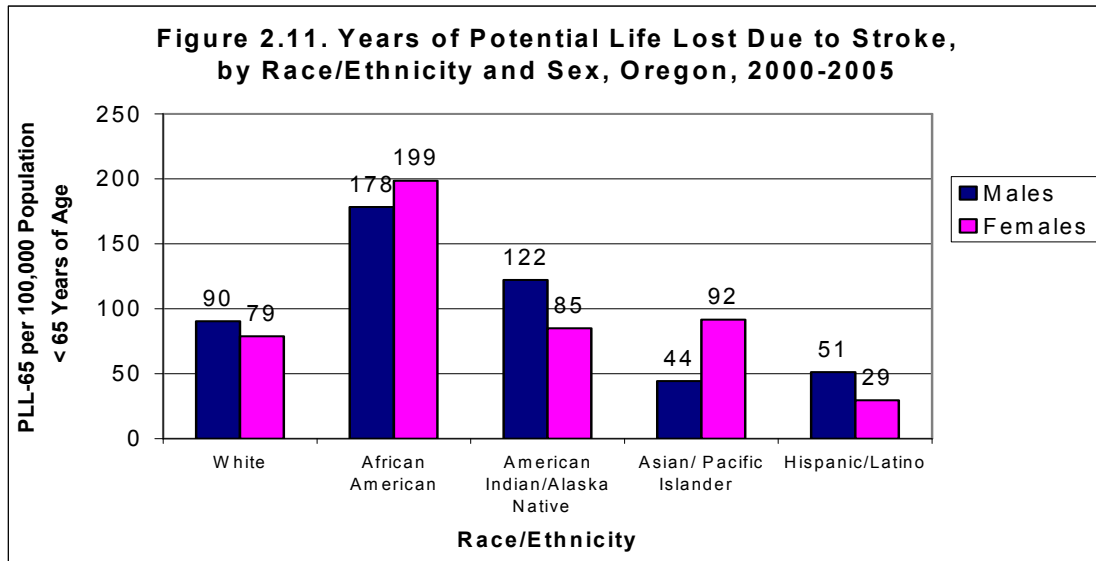
- In 2006, 8,454 hospitalizations in Oregon listed stroke as the principal diagnosis.
- The total cost of stroke hospitalizations in that year was more than 181 million dollars. This is a conservative estimate, since several large hospitals in Oregon did not supply cost data.
- The average cost of each stroke hospitalization was \$22,328.
- In 2006, 88% of Oregon stroke hospitalizations in Oregon occurred among people over the age of 55 years (Figure 2.10).



Source: Oregon Hospital Discharge Database

Years of Potential Life Lost Due to Stroke

- In 2005, stroke caused a total of 2,828 years of potential life lost based on 65 years of life expectancy (YPLL-65) and it caused 14,570 years of potential life lost based on 85 years of life expectancy (YPLL-85) in Oregon.
- Considering race, ethnicity, and sex, female African Americans suffered the highest rate of years of potential life lost (YPLL-65) due to stroke, followed by male African Americans and male American Indians/Alaska Natives (Figure 2.11).

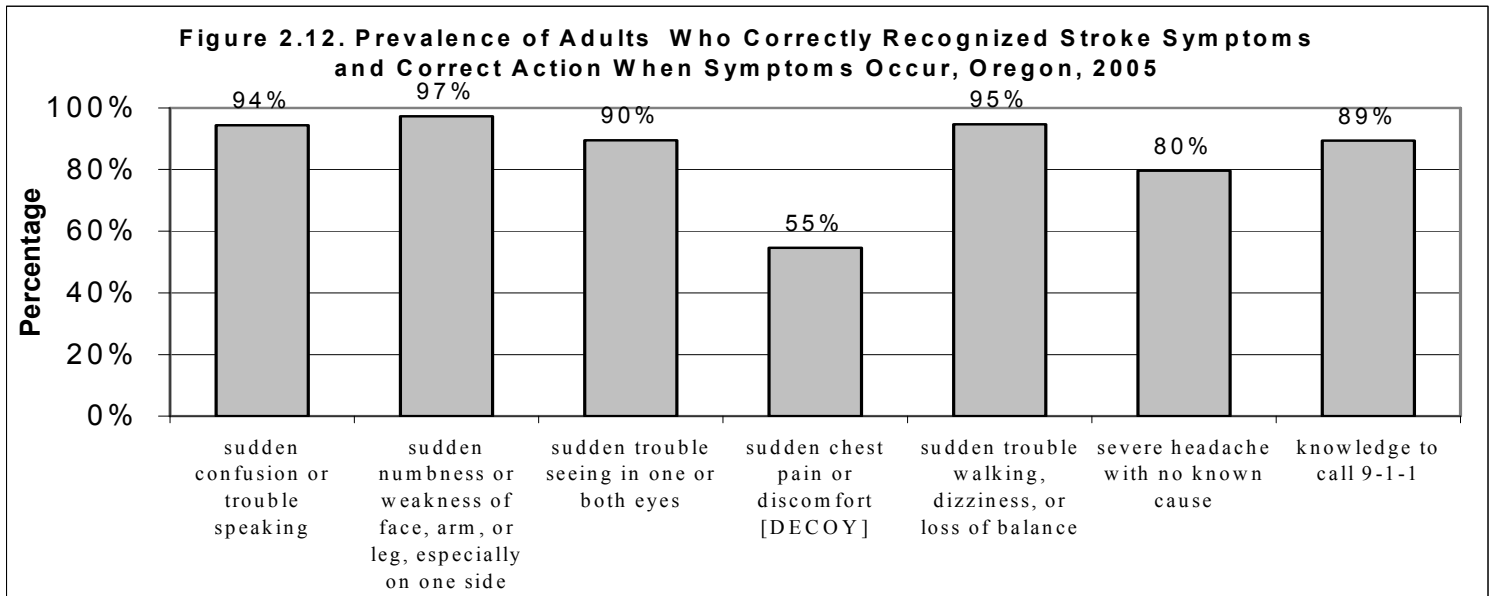


Note: 1. Rates are per 100,000 corresponding population under 65 years of age.
 2. Above YPLL-65 rate for each racial/ethnic group is the annual average of 6 years.
 Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

2.4 Awareness of Stroke Symptoms & Correct Response When Symptoms Occur

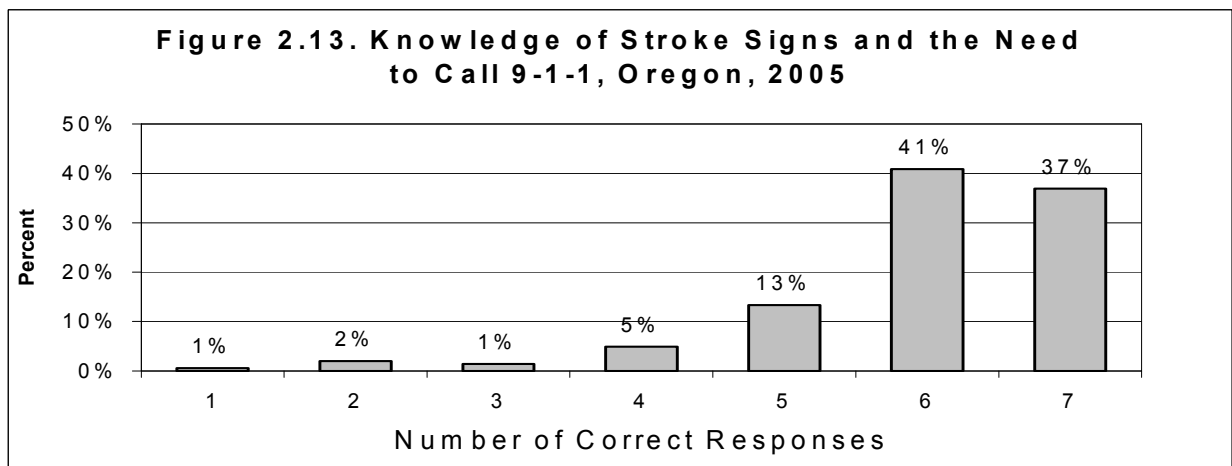
In 2005, Oregon BRFSS asked if respondents recognized a series of signs and symptoms of stroke including sudden confusion, sudden trouble in speaking, seeing and walking, headache, and sudden numbness. A decoy question was asked to test if they truly recognized the correct signs and symptoms. Respondents were also asked about the appropriate action to take if someone had signs and symptoms suggestive of stroke.

- The percentage of respondents correctly recognizing individual stroke signs and symptoms ranged from 80% to 97%. Over half (55%) correctly recognized that the decoy symptom – sudden chest pain or discomfort – was not suggestive of stroke (Figure 2.12).



Source: Oregon Behavioral Risk Factor Surveillance System

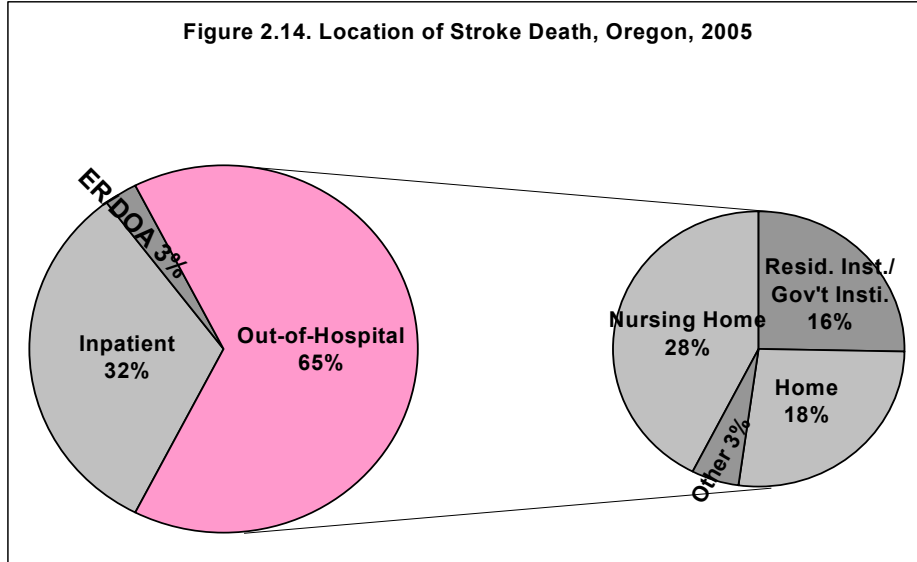
- 41% of Oregon adults responded correctly on six of the seven items listed in the above figure.
- 37% of adults responded correctly on all seven items (Figure 2.13).



Source: Oregon Behavioral Risk Factor Surveillance System

2.5 Location of Stroke Death

- In 2005, there were 2,268 stroke deaths in Oregon. Among them, 65% occurred outside of hospital settings (Figure 2.14).
- Among these out-of-hospital stroke deaths, the majority occurred in nursing homes and decedents' homes (Figure 2.14).

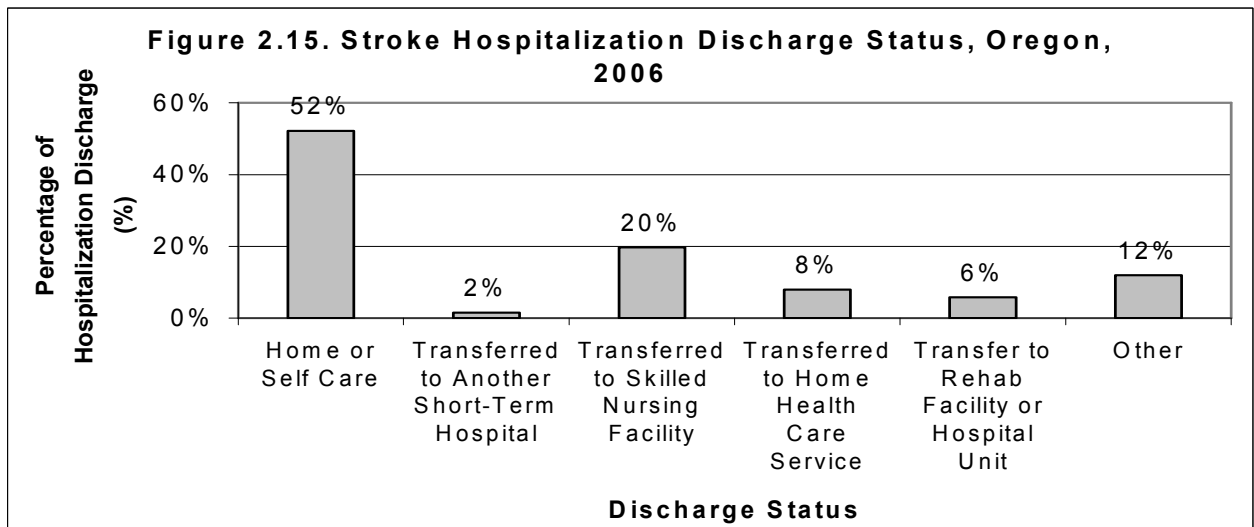


Note: ER/DOA stands for emergency room/dead on arrival.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

2.6 Rehabilitation after Stroke

- In 2003, 40% of Oregonians with previous stroke reported having used outpatient rehabilitation services.
- In 2006, a majority (52%) of stroke hospitalizations resulted in discharge to home or self-care. 6% of stroke hospitalizations resulted in discharge to a rehabilitation facility or hospital unit (Figure 2.15).



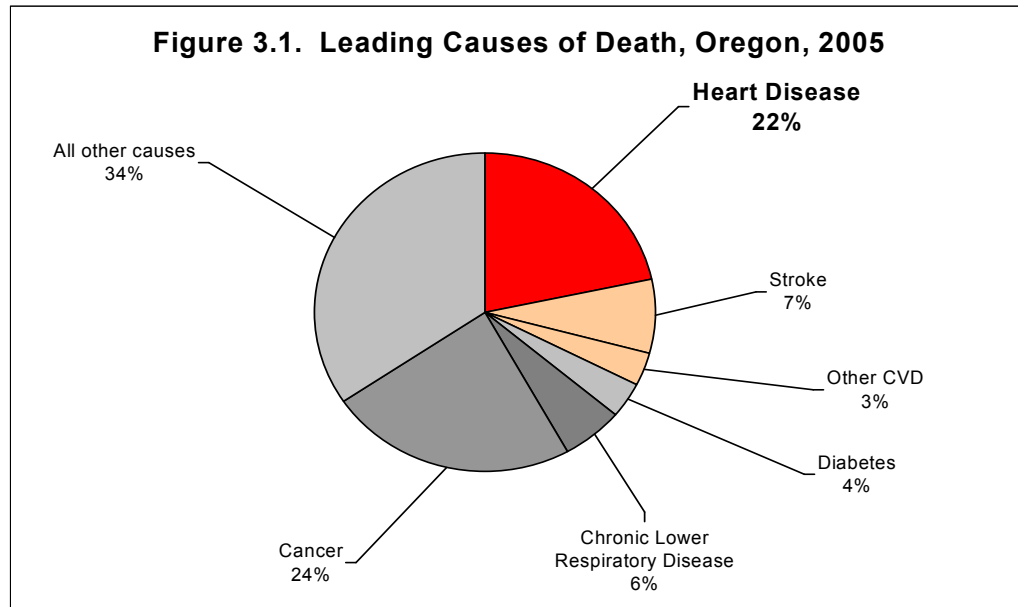
Source: Oregon Hospital Discharge Database

Chapter 3. HEART DISEASE

3.1 Heart Disease Mortality

Leading Causes of Death and Heart Disease Deaths in Oregon

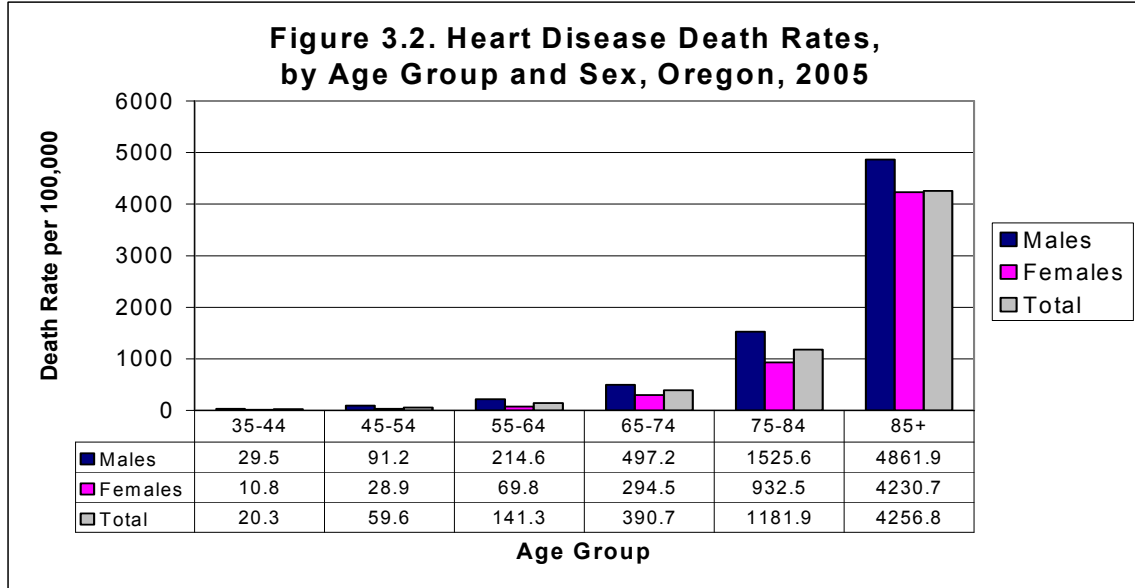
- In 2005, the total number of heart disease deaths was 6,721, comprising 22% of all deaths in Oregon.
- Heart Disease remains the 2nd leading cause of death in Oregon.



Source: 2005 Oregon Death Certificates

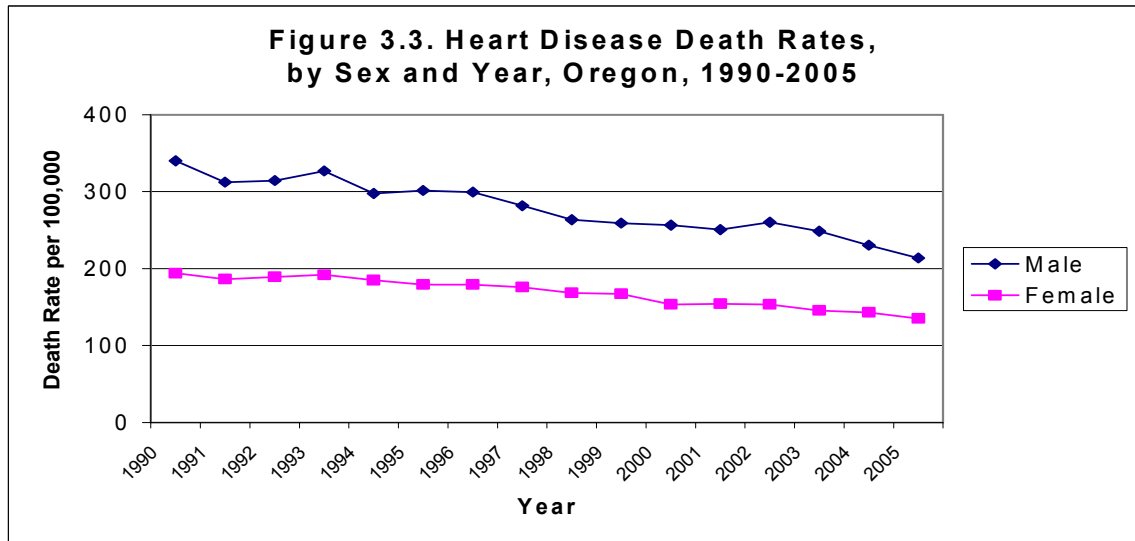
Oregon Heart Disease Death Rates by Age and Sex

- Heart disease death rates increase rapidly as age increases, particularly above the age of 65 years (Figure 3.2).
- Heart disease death rates were higher in men than in women in most age groups (Figure 3.2).



Source: 2005 Oregon Death Certificates

- Although age-adjusted heart disease mortality decreased among both men and women in recent years, heart disease death rates have consistently been higher in men than in women in Oregon (Figure 3.3).
- In 2005, the age-adjusted heart disease death rate in Oregon was 213.8 per 100,000 for men and 135.0 per 100,000 for women.

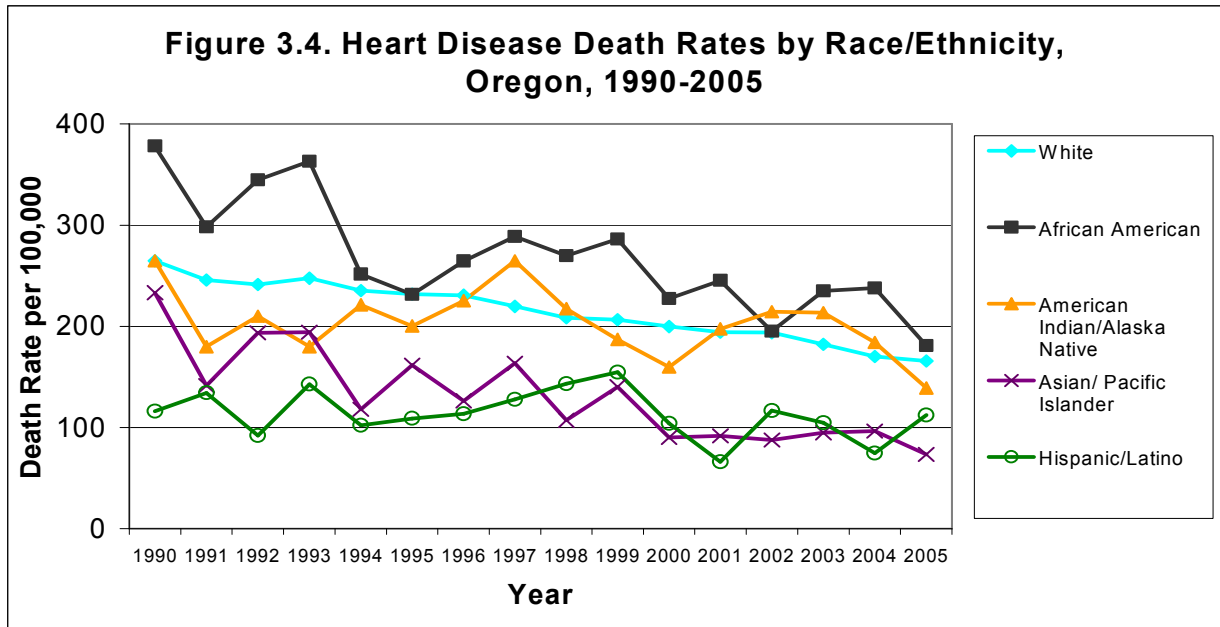


Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Oregon Heart Disease Death Rates by Race/Ethnicity

- From 1990 to 2005, heart disease death rates declined for all racial/ethnic populations (Figure 3.4).
- African Americans consistently had among the highest heart disease death rates (Figure 3.4).
- While heart disease death rates among Hispanics/Latinos are lower than for most other Oregonians, they have not declined as quickly as rates among other groups.
- In 2005, age-adjusted heart disease death rates were 165.6 per 100,000 for non-Hispanic whites, 180.7 per 100,000 for African Americans, 139.1 per 100,000 for American Indians/Alaska Natives, 73.4 per 100,000 for Asians/ Pacific Islanders, and 112.2 per 100,000 for Hispanics/Latinos.

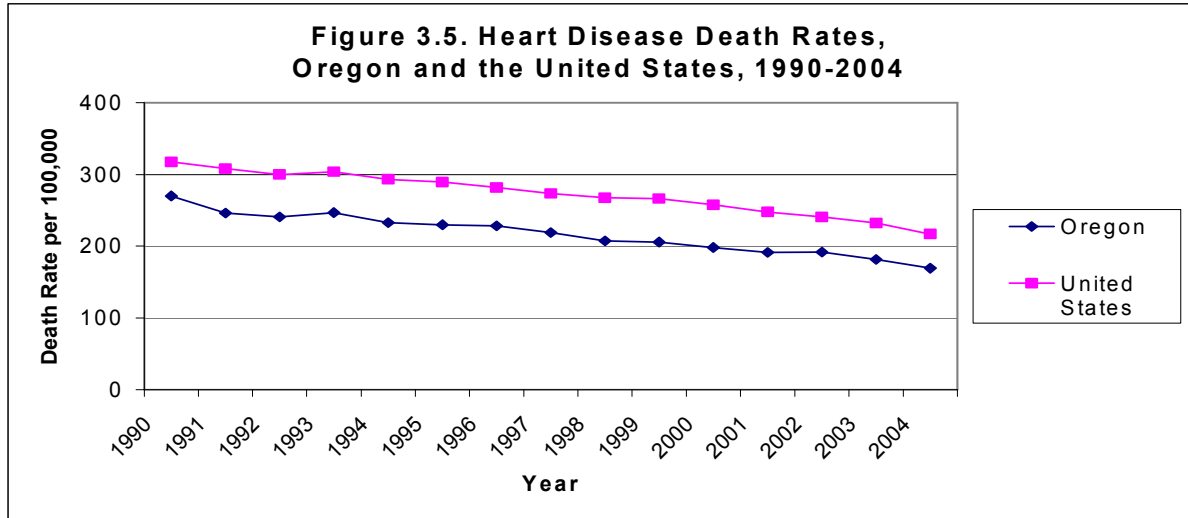


Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Heart Disease Death Rate Trend, Oregon vs. Nation

- From 1990 to 2004, heart disease death rates declined, both in Oregon and the U.S. (Figure 3.5).
- Age-adjusted death rates for heart disease among Oregonians were lower than those seen nationally (Figure 3.5).



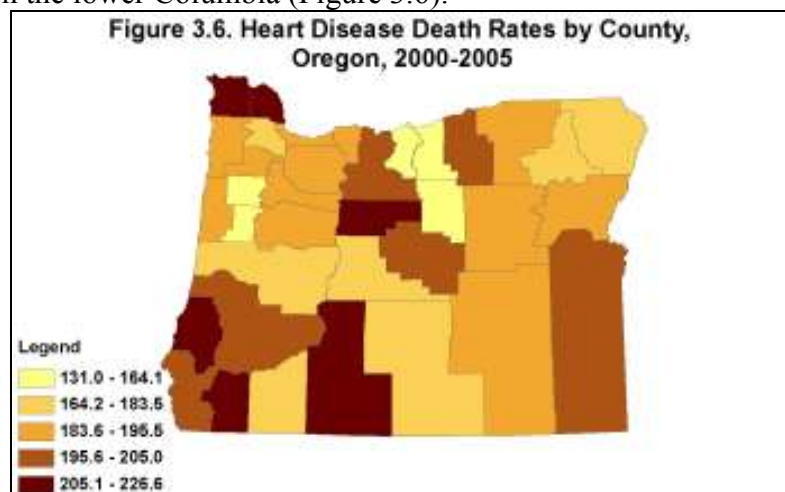
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Death rates before 1999 are adjusted using a comparability ratio.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File, CDC WONDER.

Geographic Differences in Heart Disease Death Rates

- The highest heart disease death rates were in Southwest and North Central Oregon, as well as on the lower Columbia (Figure 3.6).



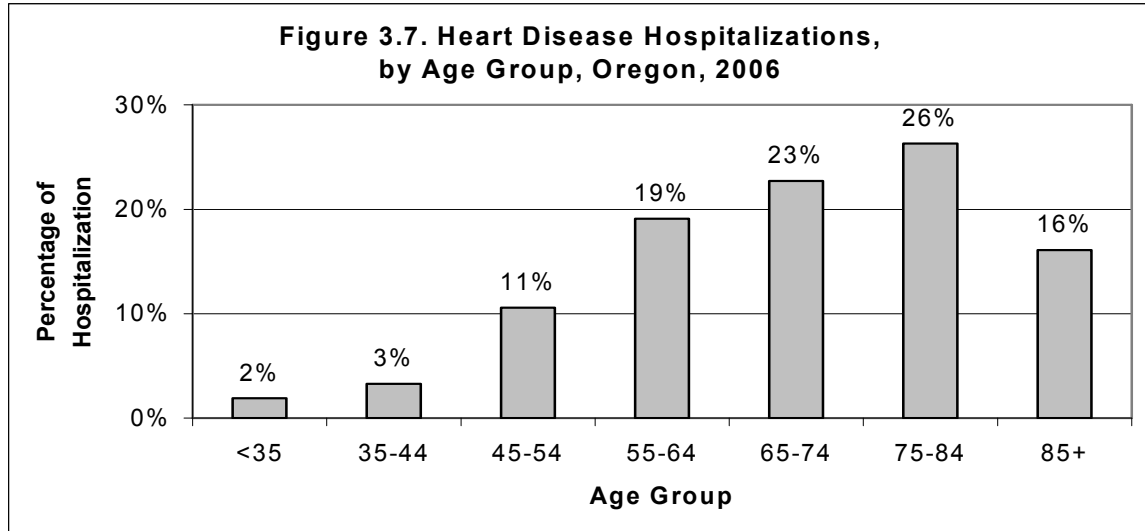
Note: 1. Rates are deaths per 100,000 and are age-adjusted to the 2000 U.S. Standard Population.

2. Above death rate for each county is the annual average of 6 years.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

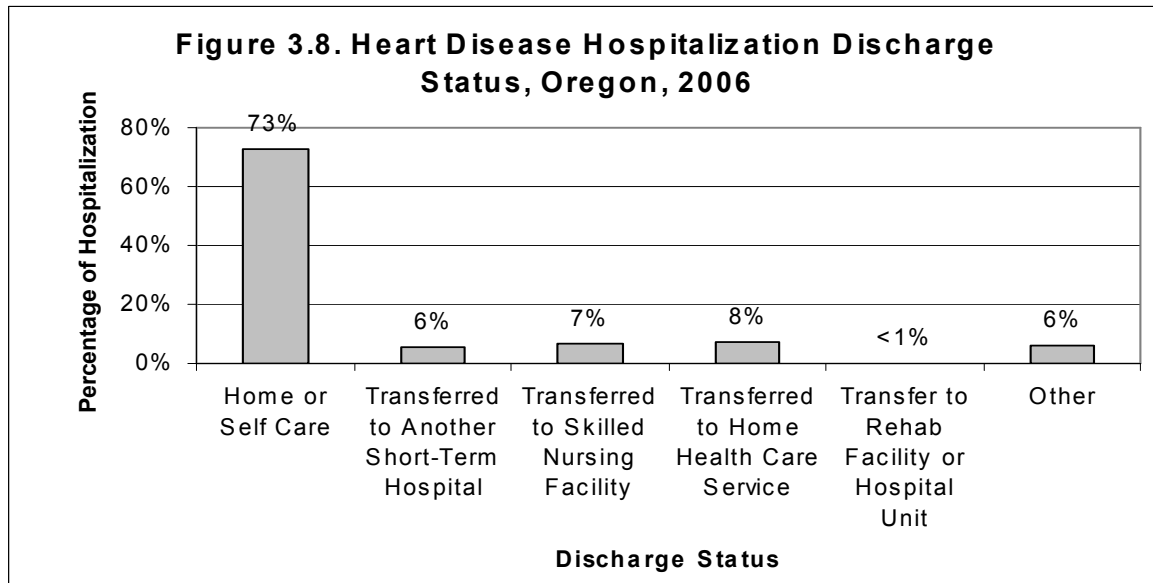
3.2 Heart Disease Morbidity & Cost

- In 2006, there were 32,966 hospitalizations in Oregon with heart disease as the principal diagnosis.
- The total cost of heart disease hospitalizations in Oregon was more than \$904 million. This is a conservative estimate, since several large hospitals in Oregon do not supply cost data.
- The average cost of each heart disease hospitalization was \$28,607.
- In 2006, 84% of heart disease hospitalizations among Oregonians involved people over the age of 55 years (Figure 3.7).



Source: Oregon Hospital Discharge Database

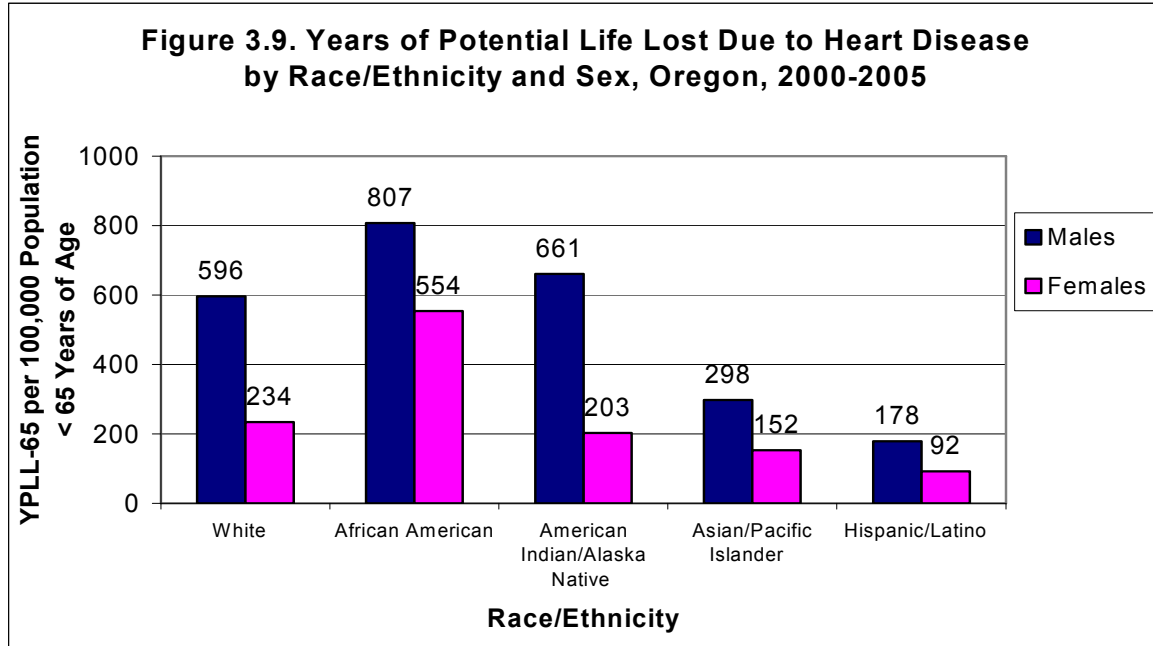
- The majority (73%) of heart disease hospitalizations resulted in discharge to home or self-care. Only 0.3% of hospitalizations resulted in discharge to a rehabilitation facility or hospital unit (Figure 3.8).



Source: Oregon Hospital Discharge Database

Years of Potential Life Lost Due to Heart Disease by Race/Ethnicity and Sex

- In 2005, deaths from heart disease resulted in 11,773 years of potential life lost, based on 65 years of life expectancy (YPLL-65) and 55,201 potential years of life lost based on 85 years of life expectancy (YPLL-85) in Oregon.
- Considering race, ethnicity, and sex, male African Americans suffered the highest rate of years of potential life lost (YPLL-65) due to heart disease, followed by male American Indians/Alaska Natives and male non-Hispanic whites. African American women had a higher rate of years of potential life lost than women of other races or Hispanics/Latinas (Figure 3.9).



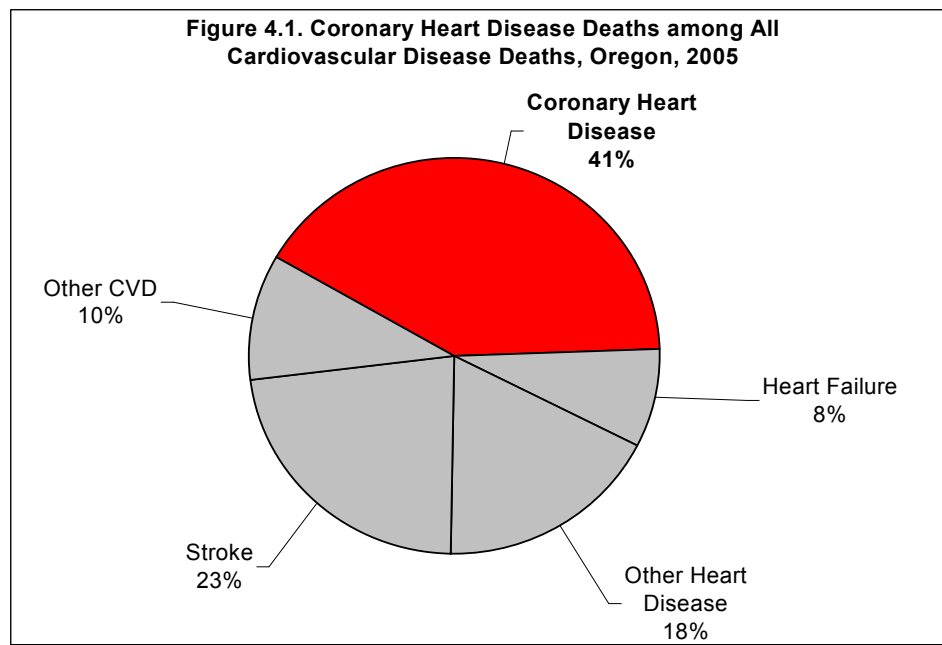
Note: 1. Rates are per 100,000 corresponding population under 65 years of age.
 2. Above YPLL-65 rate for each racial/ethnic group is the annual average of 6 years.
 Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Chapter 4. CORONARY HEART DISEASE

4.1 Coronary Heart Disease Mortality

Coronary Heart Disease Deaths in Oregon

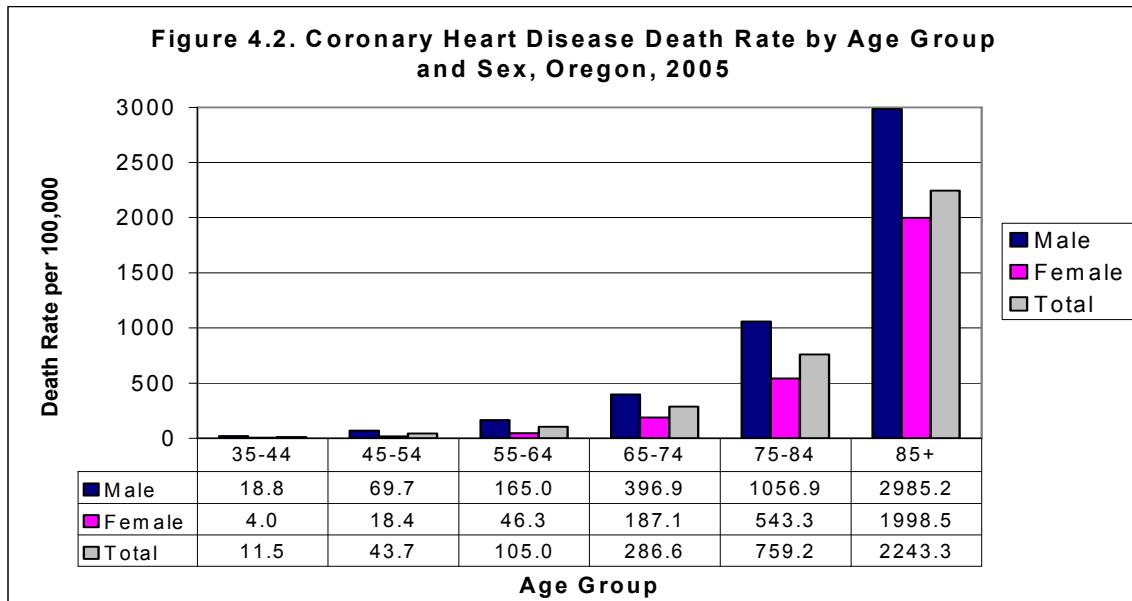
- In 2005, the total number of coronary heart disease deaths was 4,126, 13% of all deaths in Oregon.
- Coronary heart disease (CHD) caused 61% of all heart disease deaths and 41% of all cardiovascular disease (CVD) deaths in Oregon.
- During 2005 in Oregon, 1,409 deaths, 25% of all those caused by coronary heart disease, were due to myocardial infarction (MI).



Source: 2005 Oregon Death Certificates

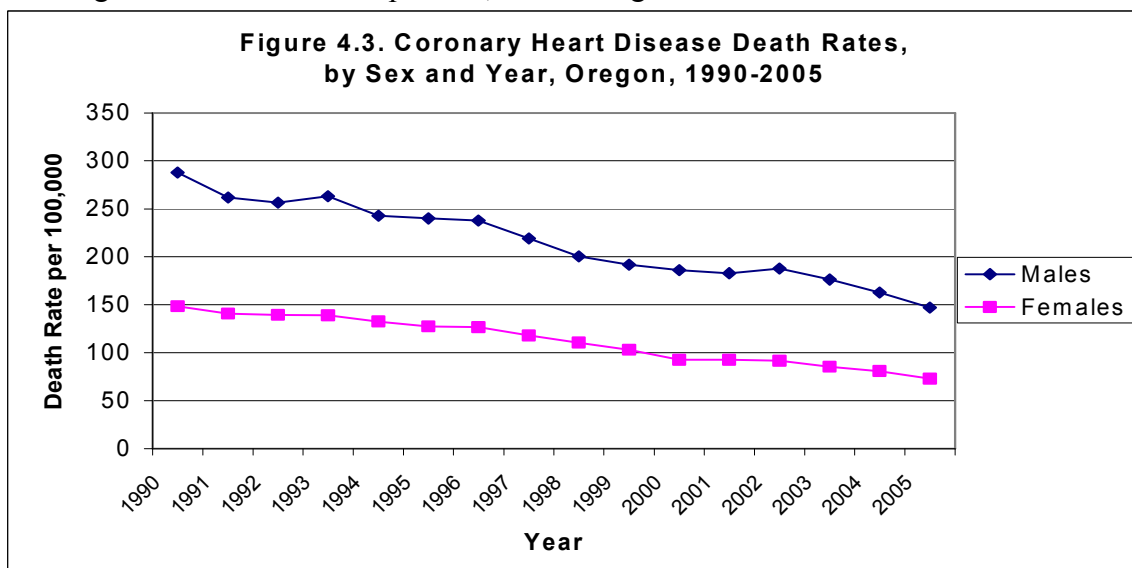
Oregon Coronary Heart Disease Death Rates by Age and Sex

- Coronary heart disease death rates increase rapidly as age increases, particularly above the age of 65 years (Figure 4.2).
- Coronary heart disease death rates were higher in men than in women (Figure 4.2).



Source: 2005 Oregon Death Certificates

- Although age-adjusted coronary heart disease mortality decreased in men and women in recent years, coronary heart disease death rates have consistently been higher among men than women in Oregon (Figure 4.3).
- In 2005, the age-adjusted coronary heart disease death rate was 147.1 per 100,000 in Oregon men and was 72.8 per 100,000 in Oregon women.

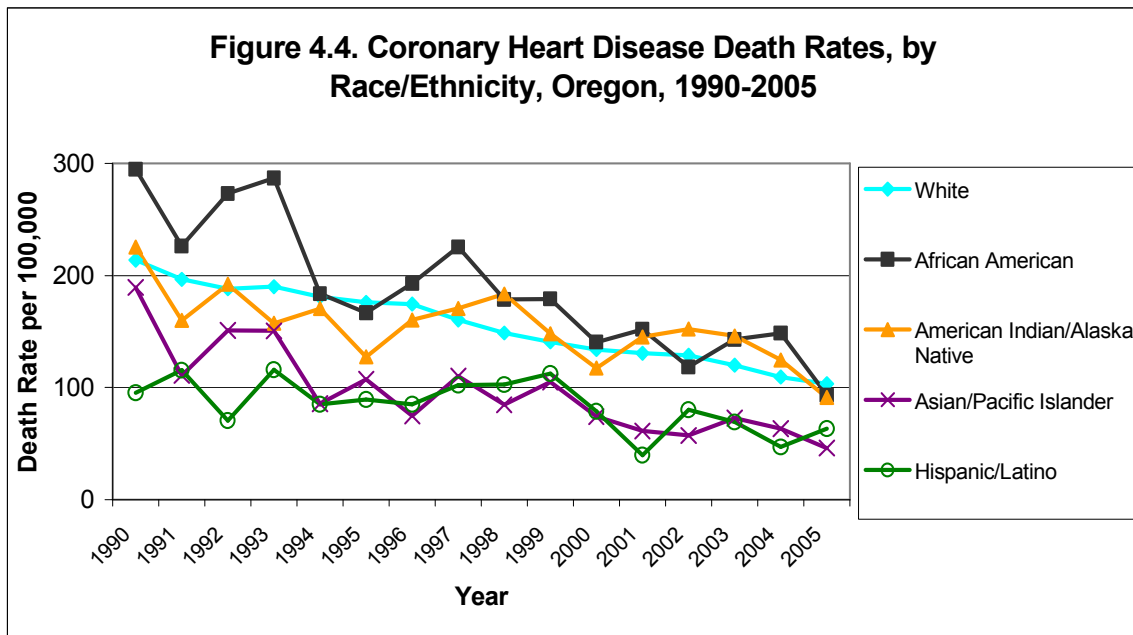


Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Oregon Coronary Heart Disease Death Rates by Race/Ethnicity

- From 1990 to 2005, coronary heart disease death rates declined for all groups (Figure 4.4).
- Coronary heart disease death rates among African Americans have consistently been among the highest, but in recent years have come closer to the state average (Figure 4.4).
- In 2005, age-adjusted coronary heart disease death rates were 103.3 per 100,000 for non-Hispanic whites, 93.3 per 100,000 for African Americans, 91.1 per 100,000 for American Indians/Alaska Natives, 46.1 per 100,000 for Asians and Pacific Islanders, and 63.5 per 100,000 for Hispanics/Latinos.

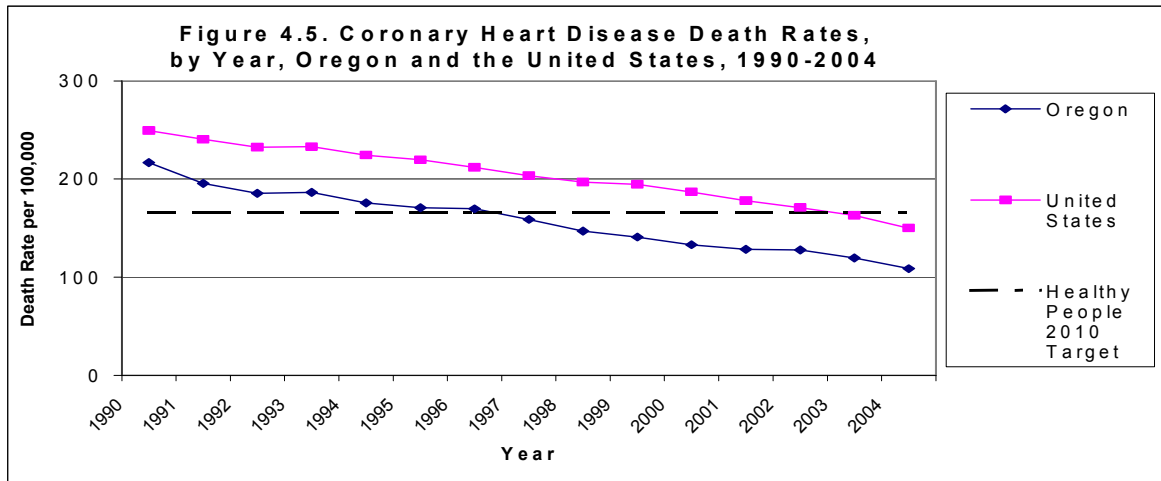


Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Trends in Coronary Heart Disease Death Rate, Oregon vs. the U.S.

- From 1990 to 2004, coronary heart disease death rates declined for both Oregon and the U.S. (Figure 4.5).
- Age-adjusted death rates for coronary heart disease in Oregon were lower than those seen nationally (Figure 4.5).
- In 2004, age-adjusted coronary heart disease death rates for Oregon and the U.S. had fallen below the Healthy People 2010 target of 166 deaths per 100,000 population (Figure 4.5).

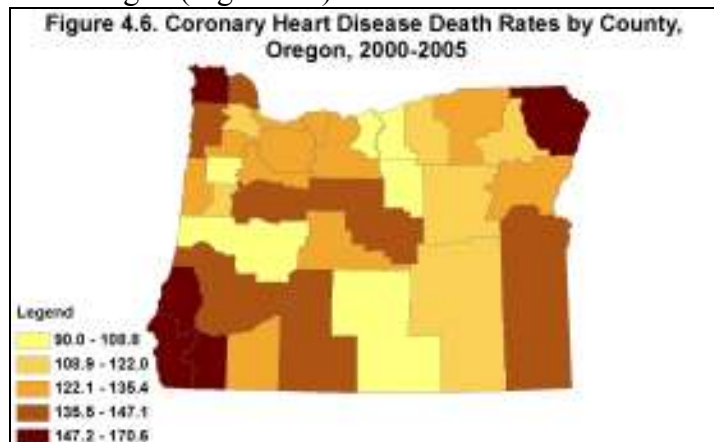


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Death rates before 1999 are adjusted using a comparability ratio.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File, CDC WONDER.

Coronary Heart Disease Death Rate Geographic Distribution

- There was no clear pattern in the geographic distribution of coronary heart disease death rates within Oregon (Figure 4.6).



Note: 1. Rates are deaths per 100,000 and are age-adjusted to the 2000 U.S. Standard Population.

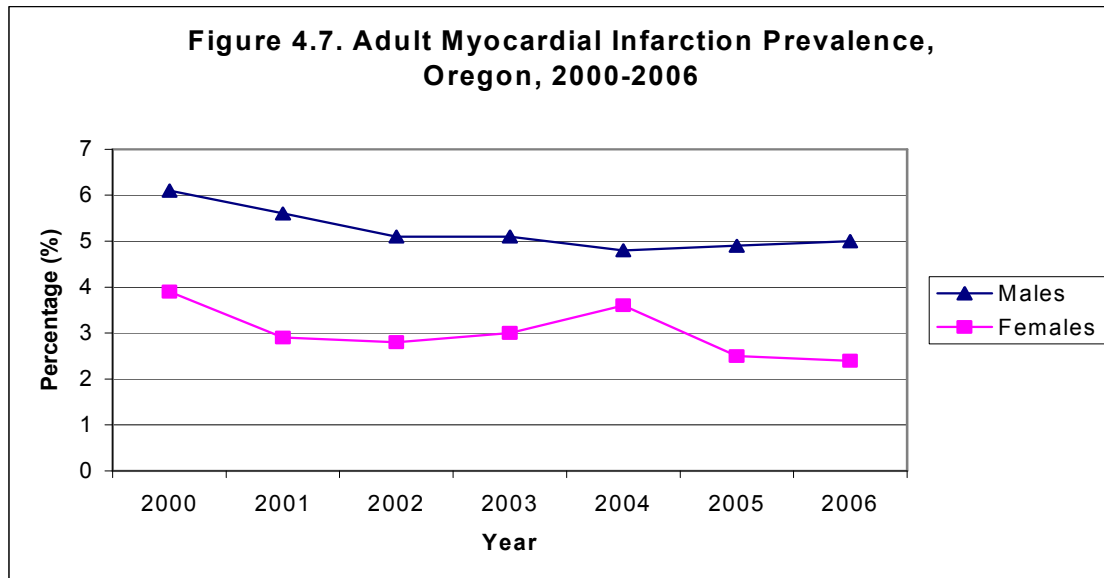
2. Above death rate for each county is the annual average of 6 years.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

4.2 Oregon Coronary Heart Disease Prevalence

Myocardial Infarction (Heart Attack) Prevalence in Oregon

- In 2006, the prevalence of myocardial infarction among adults was 3.7% in Oregon.
- From 2000 to 2006, the reported prevalence of myocardial infarction (MI) declined. However, MI prevalence was consistently higher in men than in women (Figure 4.7).

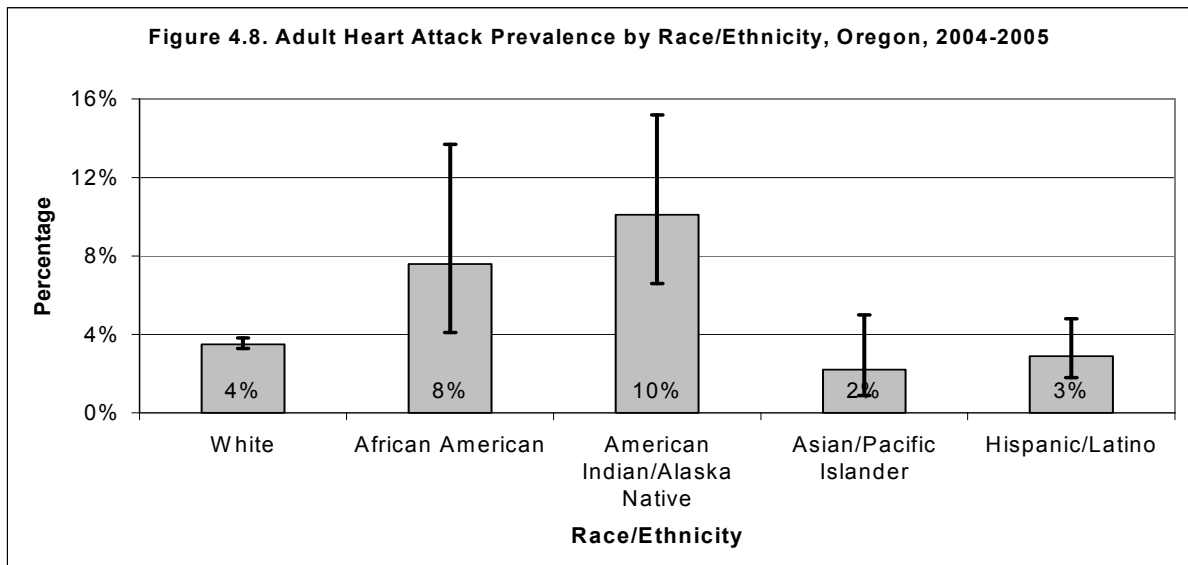


Source: Oregon Behavioral Risk Factor Surveillance System

Oregon Myocardial Infarction (Heart Attack) Prevalence by Race/Ethnicity

Prevalence of heart attack among different racial/ethnic communities was obtained using Oregon BRFSS data for years 2004 and 2005 coupled with additional surveys conducted among African Americans, American Indians/Alaska Natives, and Asian/Pacific Islanders. The additional surveys were done to ensure that there would be a minimum of 250 surveys for each racial/ethnic group. Data for each racial/ethnic group were weighted to represent the group's population by age and sex. Percentages presented have been age-adjusted to minimize the effect caused by differences in the age distribution between the various groups.

- Prevalence of heart attack was highest among American Indians/Alaska Natives, followed by African Americans. Rates were statistically significantly higher for both of these populations than for non-Hispanic whites.

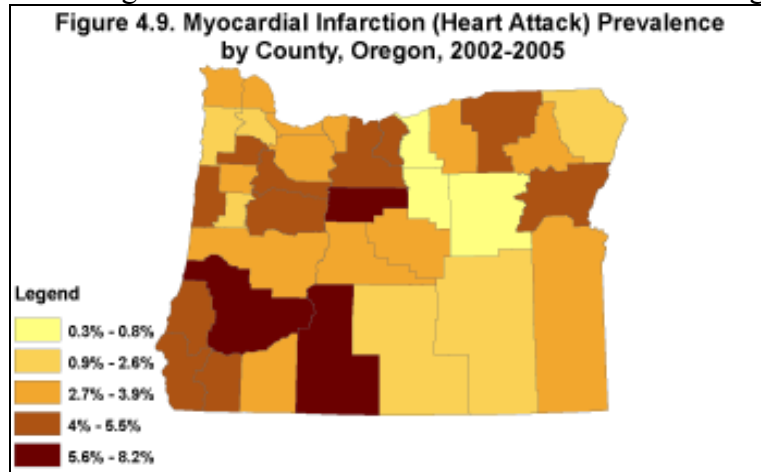


1. Rates are age-adjusted to the 2000 U.S. Standard Population.
2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System Race/Ethnicity Augment

Oregon Myocardial Infarction (Heart Attack) Prevalence Geographic Distribution

- Counties with the highest heart attack rates were scattered across Oregon (Figure 4.9).



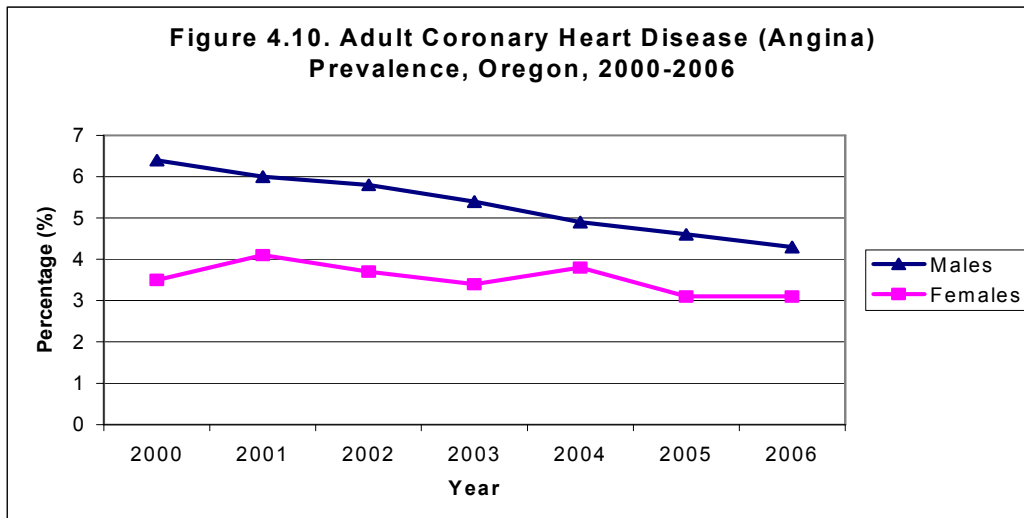
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.

2. Gilliam and Wheeler counties were combined in the calculation, as were Sherman and Wasco, due to small numbers of respondents. Results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

Oregon Coronary Heart Disease (Angina) Prevalence

- In 2006, the prevalence of coronary heart disease among adults was 3.7% in Oregon.
- Between 2000 and 2006, the prevalence of coronary heart disease declined more among men than women, but prevalence remained higher among men (Figure 4.10).

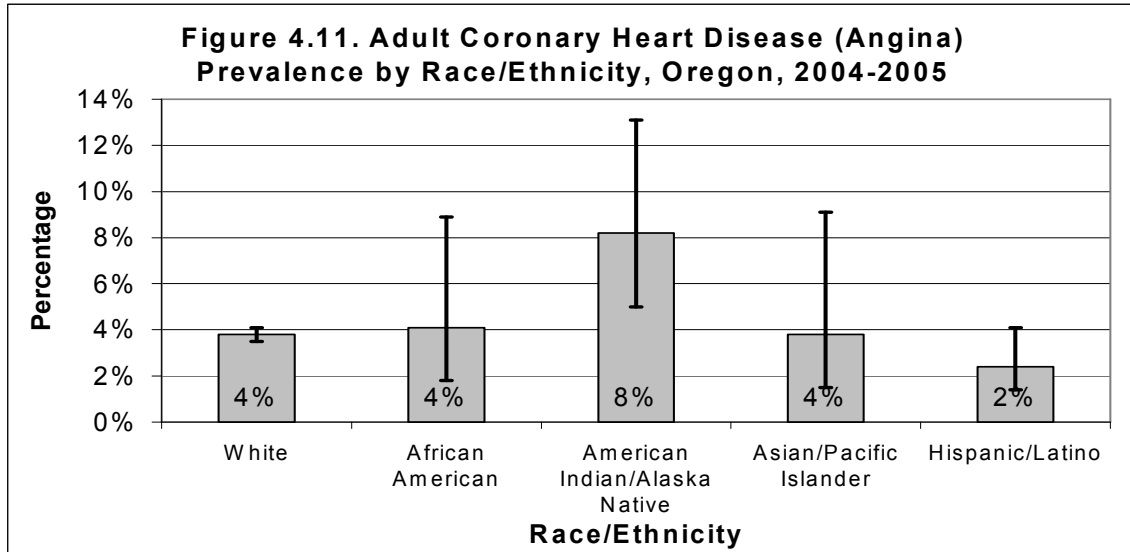


Source: Oregon Behavioral Risk Factor Surveillance System

Oregon Coronary Heart Disease Prevalence by Race/Ethnicity

Prevalence of coronary heart disease among different racial/ethnic communities was obtained using Oregon BRFSS data for years 2004 and 2005 coupled with additional surveys conducted among African Americans, American Indians/Alaska Natives, and Asian/Pacific Islanders. The additional surveys were done to ensure that there would be a minimum of 250 surveys for each racial/ethnic group. Data for each racial/ethnic group were weighted to represent the group's population by age and sex.

- American Indians/Alaska Natives had higher prevalence of coronary heart disease than did Hispanics/Latinos or non-Hispanic whites. More detailed information is available in the publication, *Keeping Oregonians Healthy 2007*.



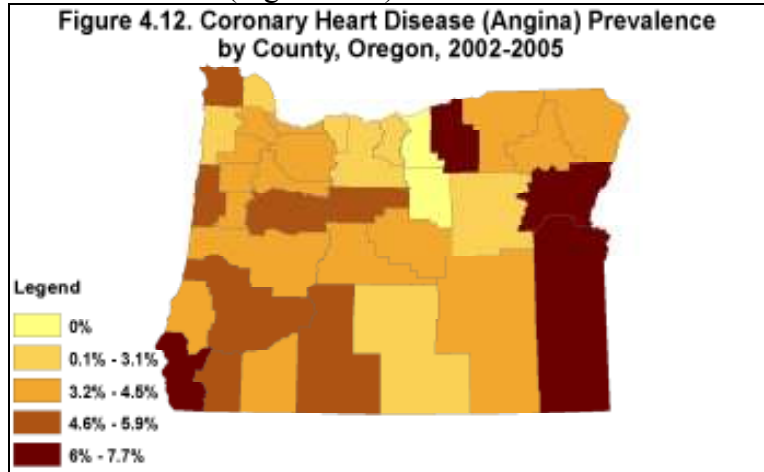
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System Race/Ethnicity Augment

Oregon Coronary Heart Disease (Angina) Prevalence Geographic Distribution

- There was no clear geographic pattern in the distribution of counties with the highest coronary heart disease rates (Figure 4.12).

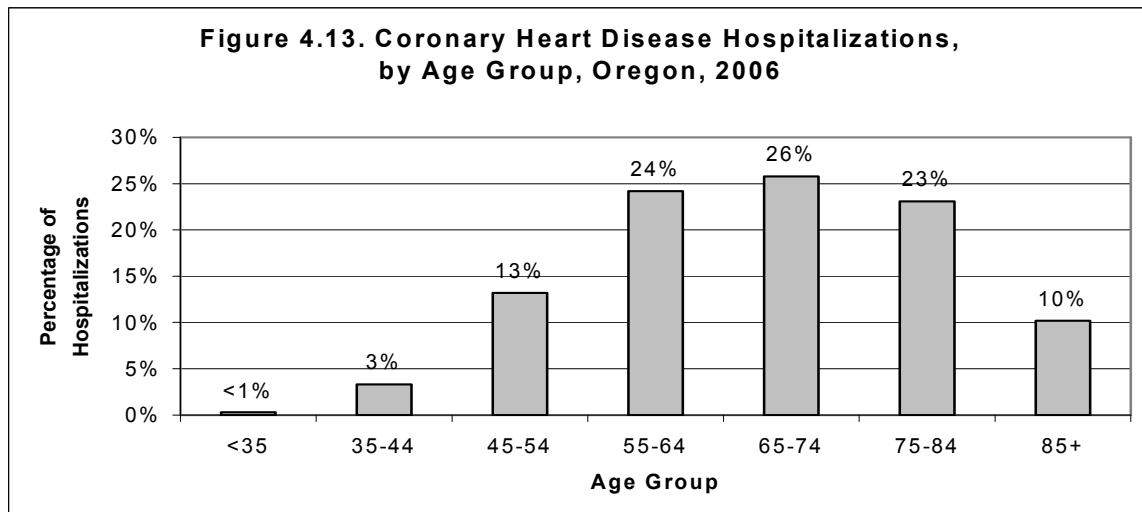


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.
 2. Gilliam and Wheeler counties were combined in the calculation, as were Sherman and Wasco, due to small numbers of respondents. Results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

4.3 Coronary Heart Disease Cost

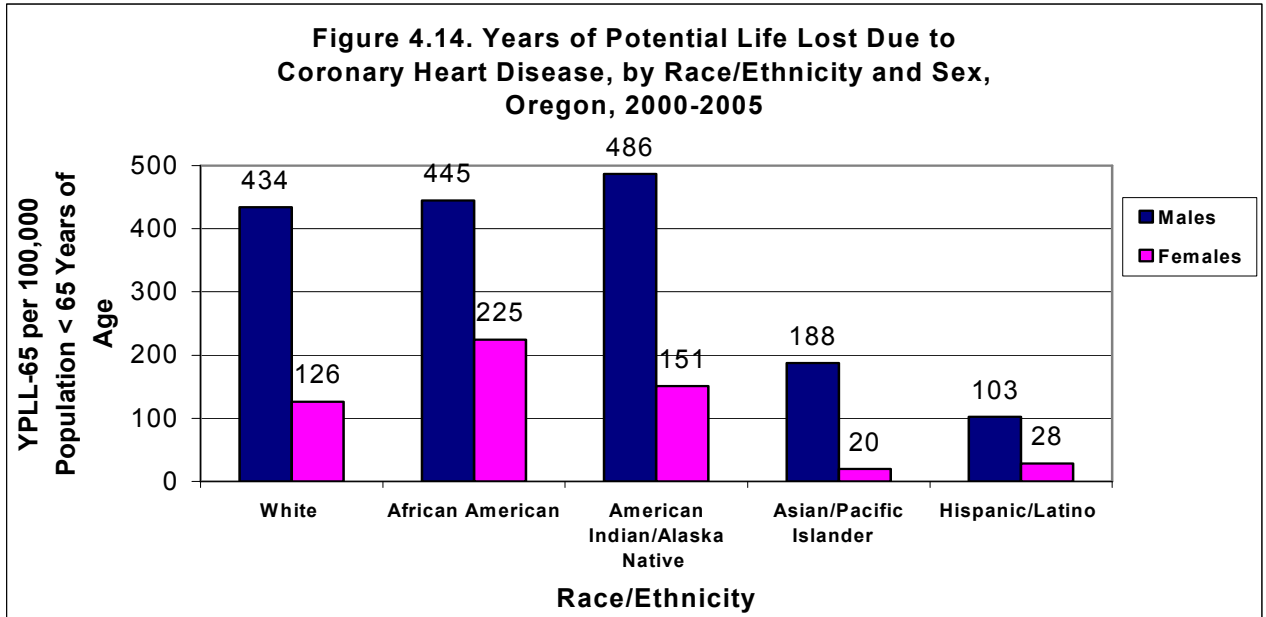
- In 2006, 14,596 hospitalizations in Oregon had heart disease as the primary diagnosis.
- The total cost of coronary heart disease hospitalizations in Oregon was more than 477 million dollars. This is a conservative estimate, since several large hospitals in Oregon do not supply cost data.
- The average cost of each coronary heart disease hospitalization was \$33,743.
- In 2006, 83% of Oregon all coronary heart disease hospitalizations occurred among people over the age of 55 years (Figure 4.13).



Source: Oregon Hospital Discharge Database

Years of Potential Life Lost Due to Coronary Heart Disease Rates, by Race/Ethnicity and Sex

- In 2005, coronary heart disease caused a total of 7,629 years of potential life lost (YPLL-65) based on 65 years of life expectancy, and it caused 39,107 years of potential life lost based on 85 years of life expectancy (YPLL-85) in Oregon.
- Considering race, ethnicity, and sex, male American Indians/Alaska Natives have the highest rate of years of potential life lost due to coronary heart disease, followed by male African Americans and male non-Hispanic whites (Figure 4.14).

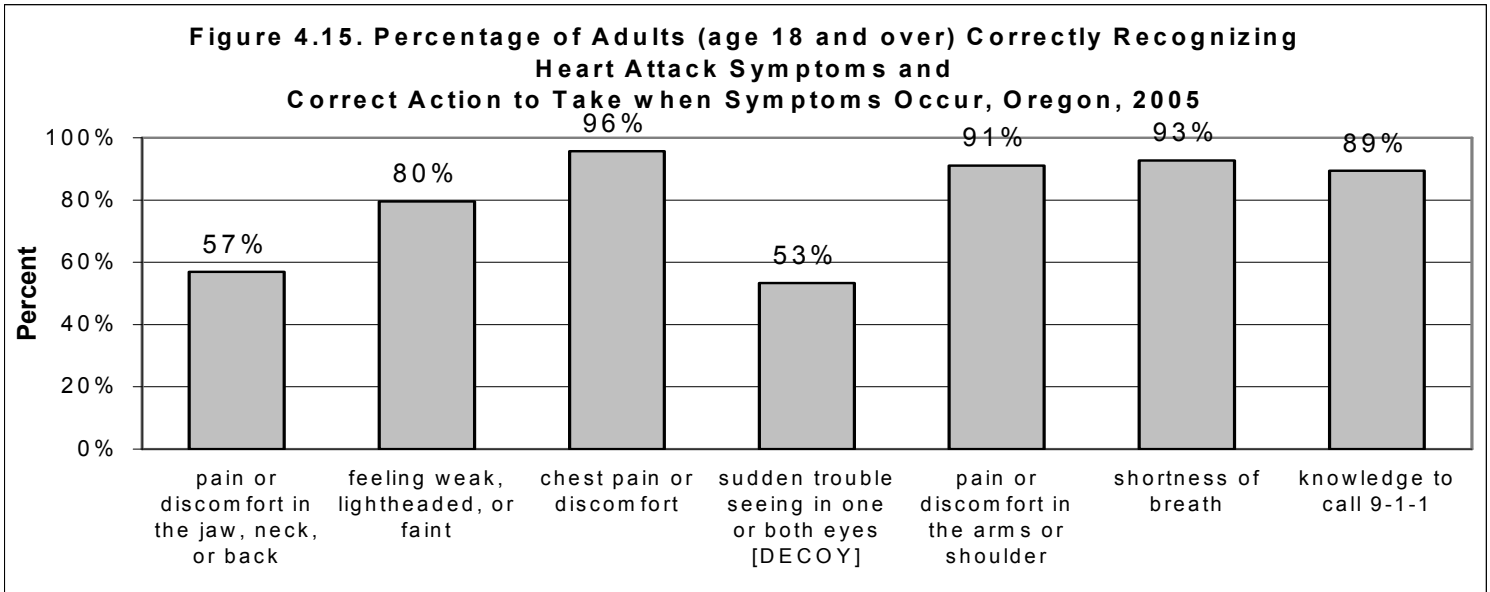


Note: 1. Rates are per 100,000 corresponding population under 65 years of age.
 2. Above YPLL-65 rate for each racial/ethnic group is the annual average of 6 years.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

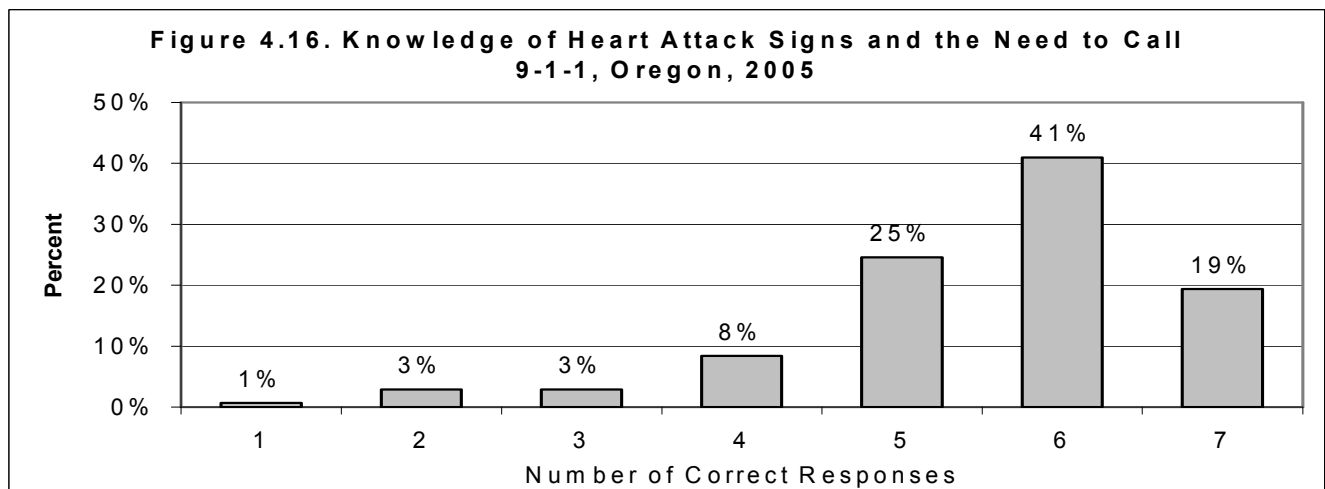
4.4 Awareness of Heart Attack Symptoms & Correct Response When Symptoms Occur

- In 2005, Oregon BRFSS asked if respondents recognized a series of signs and symptoms of heart attack including pain in the jaw, neck, back, chest and shoulder, shortness of breath, and feeling weak or faint. A decoy question was asked to test if they truly recognized the correct signs and symptoms. Respondents were also asked about the appropriate action to take if someone had signs and symptoms suggestive of heart attack.
- The percentage of respondents correctly recognizing various heart attack signs and symptoms ranged from 57% to 96%, while 53% correctly recognized that the decoy sign – sudden trouble seeing in one or both eyes – was not a symptom of heart attack.



Source: Oregon Behavioral Risk Factor Surveillance System.

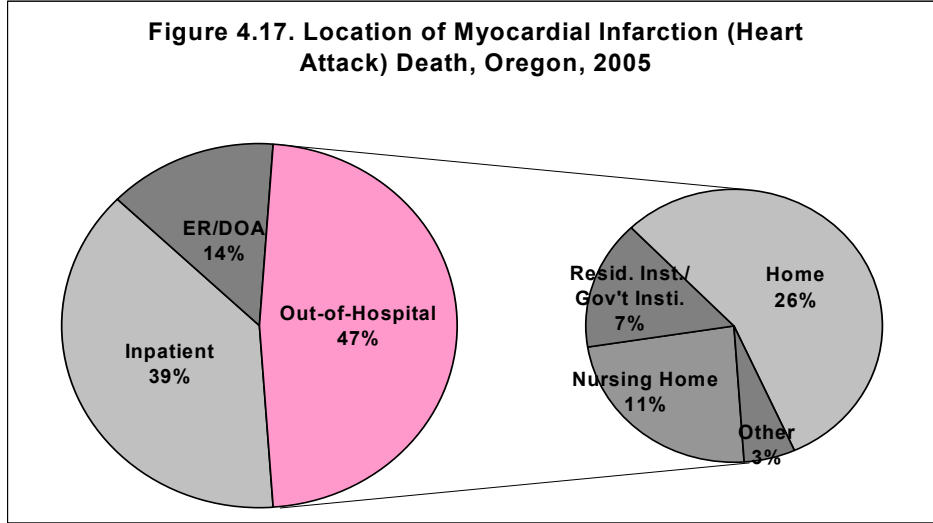
- 41% of Oregon adults responded correctly on six of the seven items listed in the above figure.
- Only 19% of adults responded correctly on all seven items (Figure 4.16).



Source: Oregon Behavioral Risk Factor Surveillance System

4.5 Location of Heart Attack Death

- In 2005, there were 1,409 deaths in Oregon due to myocardial infarction. Among them, 47% occurred outside a hospital setting (Figure 4.17).
- The majority of out-of-hospital myocardial infarction deaths occurred in decedents' homes and nursing homes (Figure 4.17).

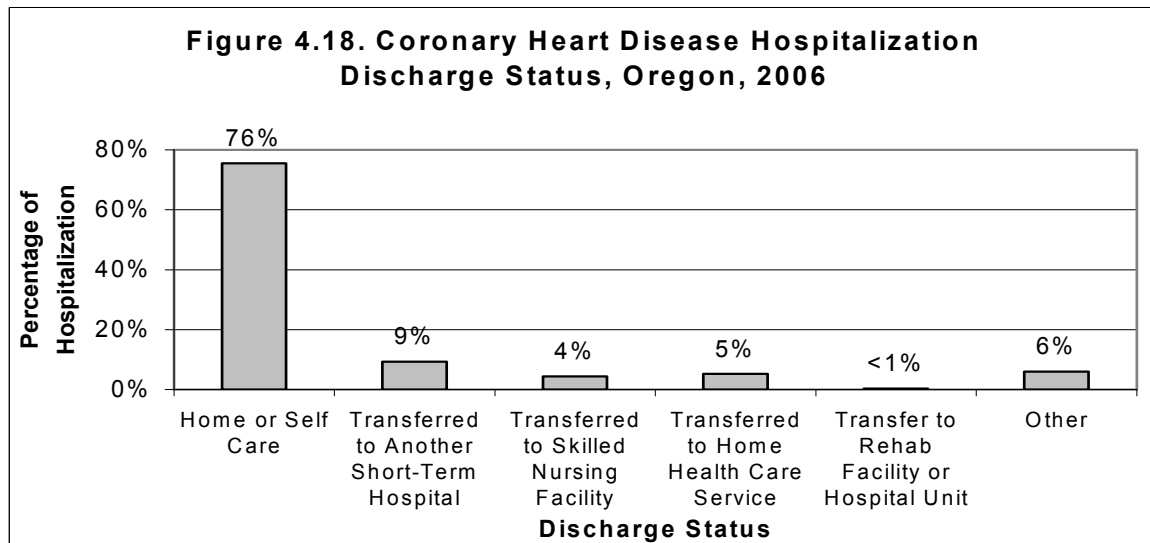


Note: ER/DOA stands for emergency room/dead on arrival.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

4.6 Rehabilitation after Heart Attack/ Coronary Heart Disease

- In 2003, 29% of people with previous heart attack reported using outpatient rehabilitation services.
- In 2006, the majority (76%) of coronary heart disease hospitalizations resulted in discharge to home or self-care. 0.3% of coronary heart disease hospitalizations resulted in discharge to a rehabilitation facility or hospital unit (Figure 4.18).

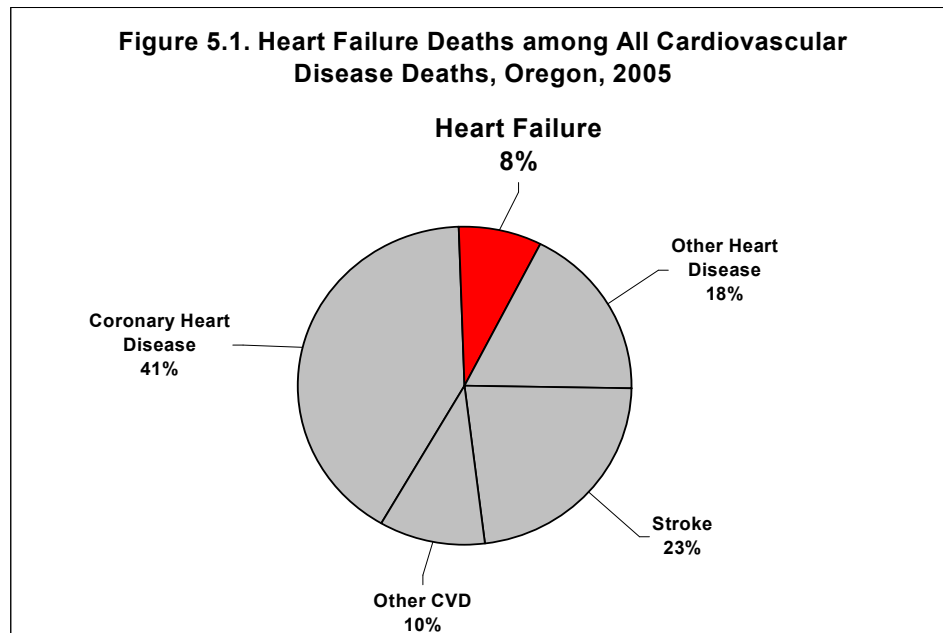


Source: Oregon Hospital Discharge Database

Chapter 5. HEART FAILURE

5.1 Heart Failure Mortality

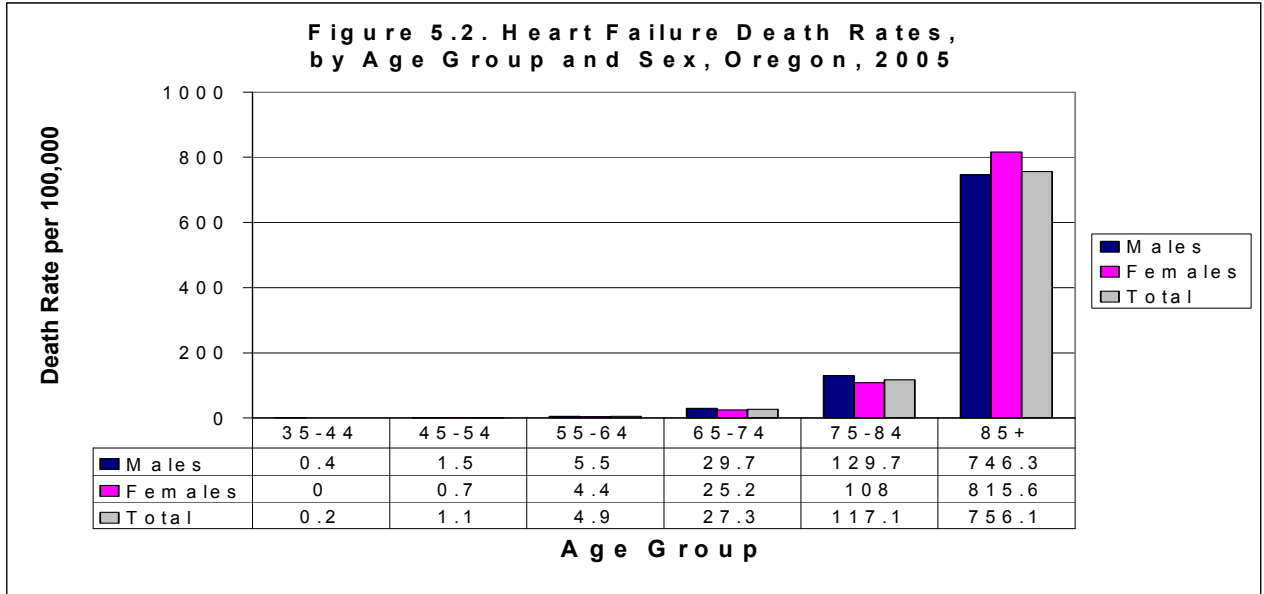
- In 2005, heart failure caused 794 deaths, 3% of all deaths in Oregon.
- Heart failure was responsible for one out of every eight heart disease deaths in Oregon.



Source: 2005 Oregon Death Certificates

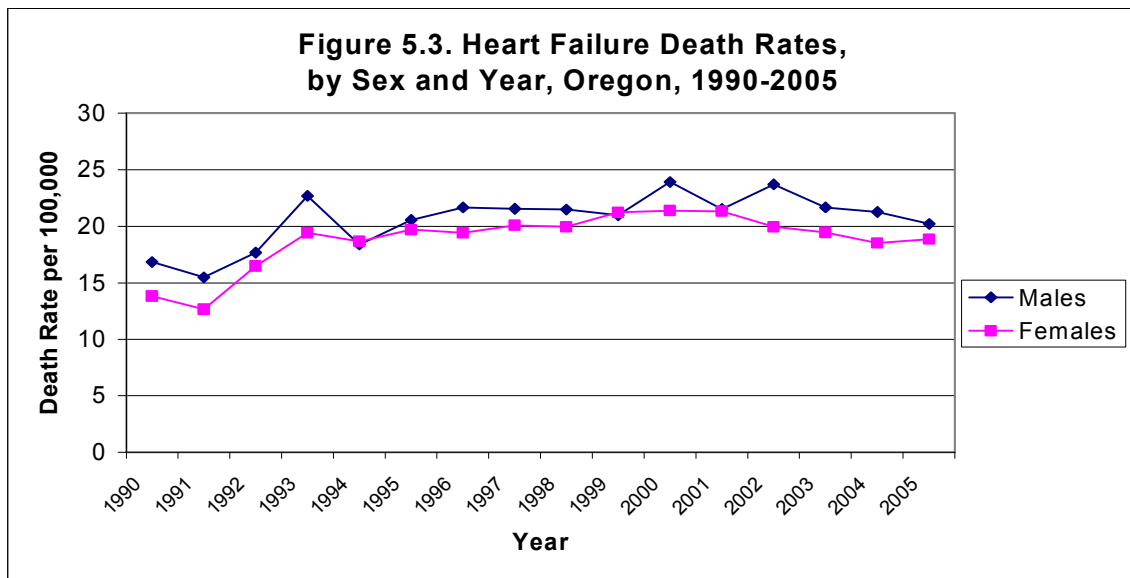
Oregon Heart Failure Death Rates by Age and Sex

- In 2005, heart failure death rates increased rapidly with age, particularly above the age of 65 years (Figure 5.2).
- Heart failure death rates were higher in men than in women in most age groups (Figure 5.2).



Source: 2005 Oregon Death Certificates

- Since 1990, age-adjusted heart failure mortality has increased for Oregon men and women, with rates higher for men than women in most years (Figure 5.3).
- In 2005, the age-adjusted heart failure death rate was 20.2 per 100,000 in Oregon men and 18.9 per 100,000 in Oregon women.

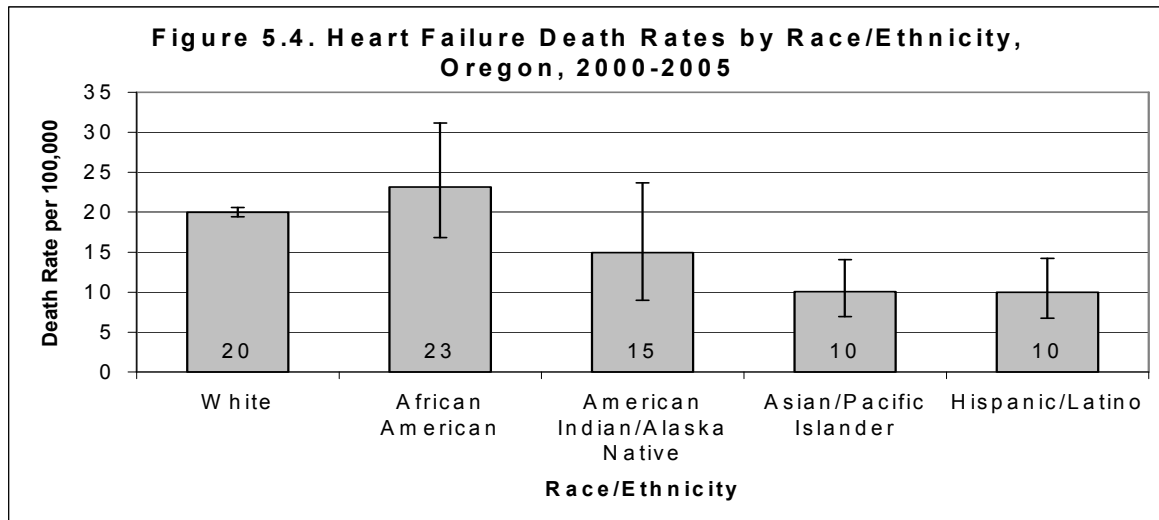


Note: Rates are age-adjusted to the 2000 U.S. Standard Population.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Oregon Heart Failure Death Rates by Race/Ethnicity

- African Americans had a somewhat higher death rate from heart failure than did non-Hispanic whites, although the difference was not statistically significant.
- Death rates from heart failure were lower for Asians/Pacific Islanders and Hispanics/Latinos than they were for African Americans and non-Hispanic whites (Figure 5.4).

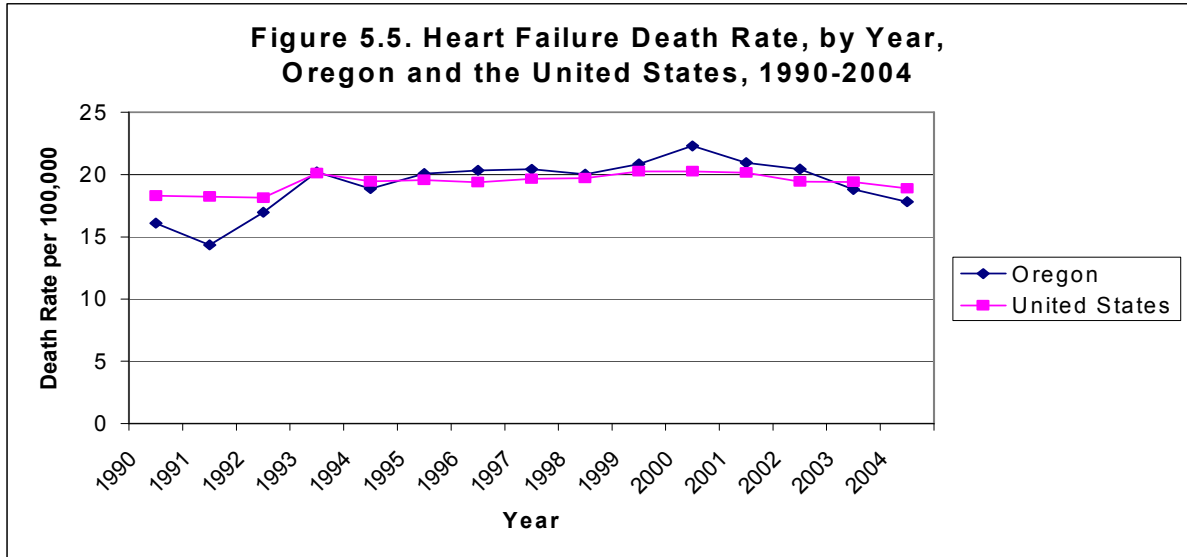


- Note:
1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Above death rate for each racial/ethnic group is calculated as the average of 6 years due to small numbers.
 3. Above error bars represent 95% confidence intervals.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

Heart Failure Death Rate Trend, Oregon vs. the U.S.

- While death rates from heart failure in the U.S. have been fairly stable since 1990, Oregon’s death rate from heart failure rose steadily until 2000 and has declined since (Figure 5.5).



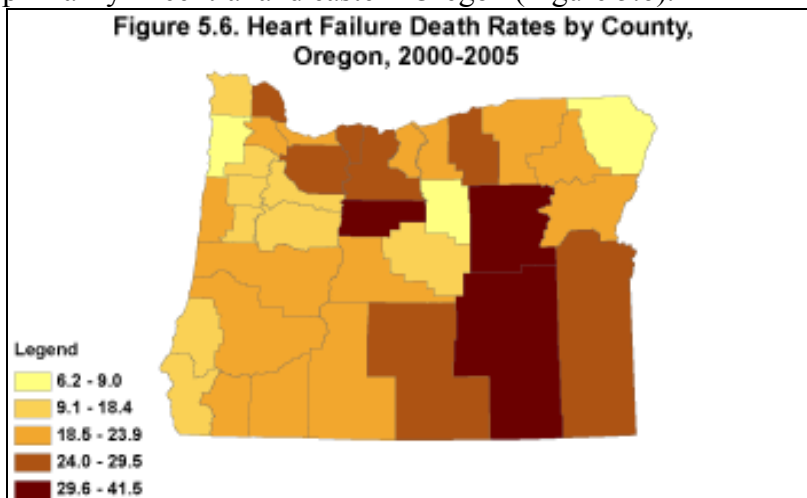
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Death rates before 1999 are adjusted using a comparability ratio.

Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File, CDC WONDER.

Geographic Differences in Heart Failure Death Rates

- The highest heart failure death rates were mostly in nonmetro and micropolitan counties, primarily in central and eastern Oregon (Figure 5.6).



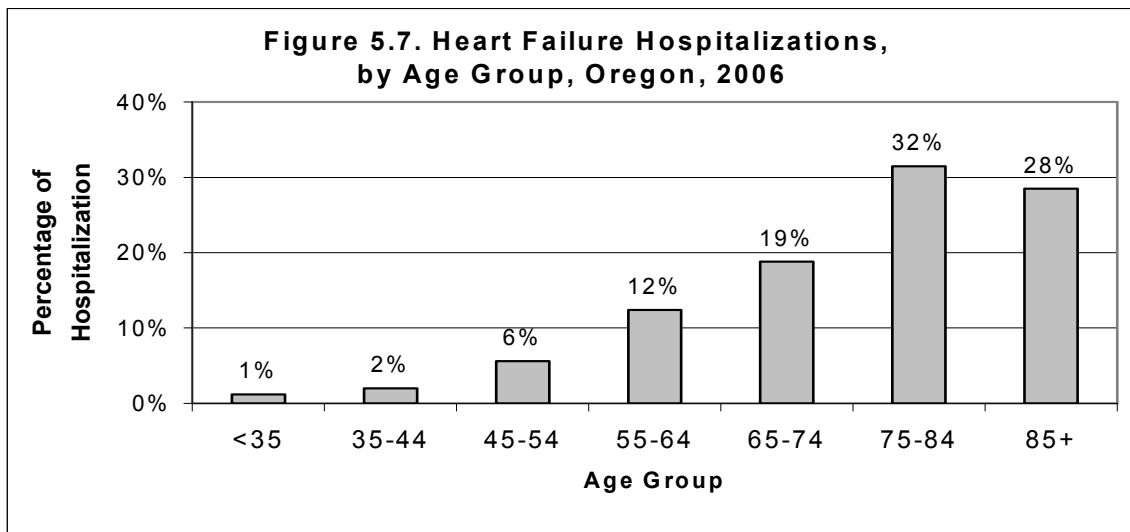
Note: 1. Rates are deaths per 100,000 and are age-adjusted to the 2000 U.S. Standard Population.

2. Above death rate for each county is the annual average of 6 years.

Source: Death Certificate Data, Oregon Department of Human Services, Center for Health Statistics.

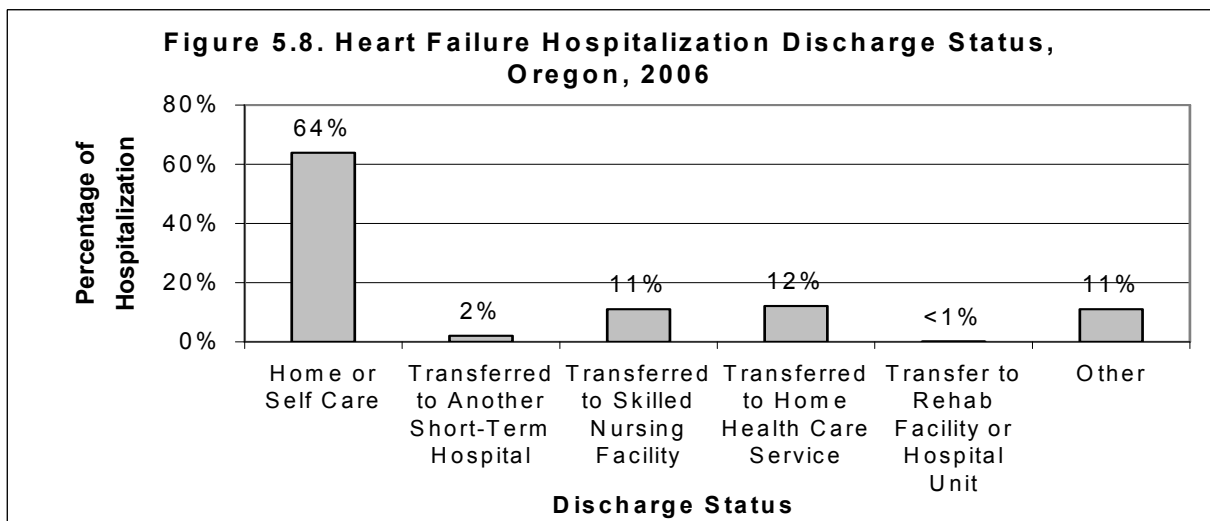
5.2 Heart Failure Morbidity & Cost

- In 2006, 7,297 hospitalizations in Oregon had heart failure as the principal diagnosis.
- The total cost of heart failure hospitalizations in Oregon was more than 135 million dollars. This is a conservative estimate, since several large hospitals in Oregon do not supply cost data.
- In 2005, Oregon Public Employees' Benefit Board reported that the cost per member with chronic heart failure per month was \$2,112, compared with the cost of \$230 per member without chronic heart failure per month.
- The average cost of heart failure hospitalizations was \$19,531.
- In 2006, 91% of heart failure hospitalizations in Oregon occurred among people over the age of 55 years (Figure 5.7).



Source: Oregon Hospital Discharge Database

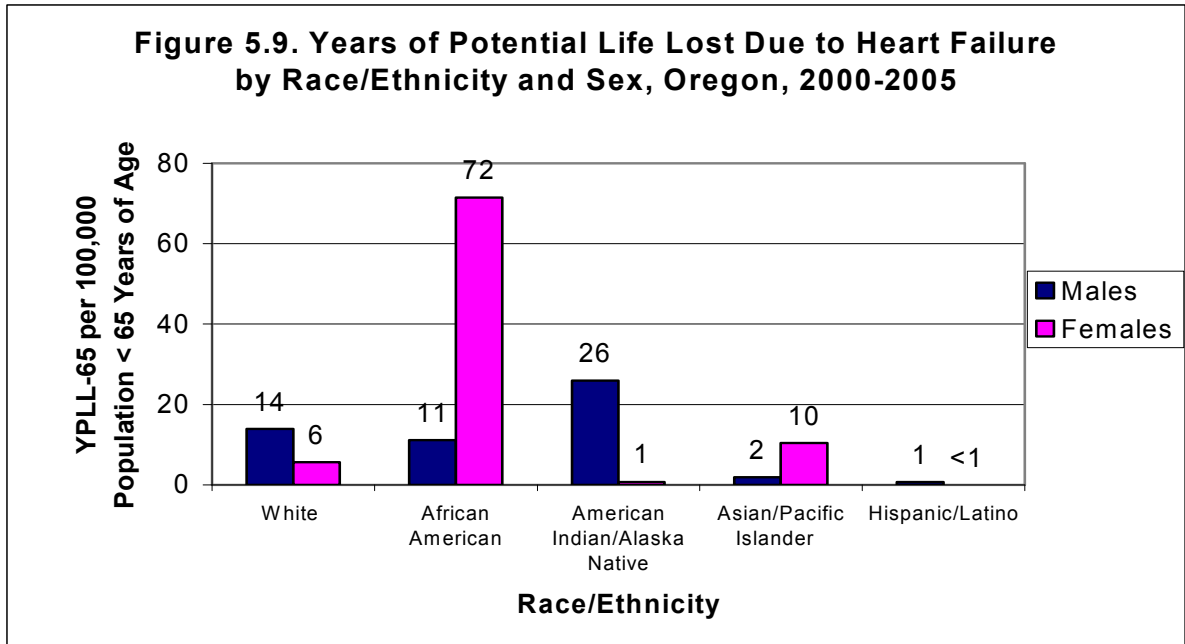
- In 2006, the majority (64%) of heart failure hospitalizations resulted in discharge to home or self-care. 0.1% of hospitalizations for heart failure resulted in discharge to a rehabilitation facility or hospital unit (Figure 5.8).



Source: Oregon Hospital Discharge Database

Years of Potential Life Lost Due to Heart Failure, by Race/Ethnicity and Sex

- In 2005, heart failure caused a total of 326 years of potential life lost based on 65 years of life expectancy (YPLL-65) and it caused 2,672 years of potential life lost based on 85 years of life expectancy (YPLL-85) in Oregon.
- Considering race, ethnicity, and sex, female African Americans and male American Indians/Alaska Natives had the highest rate for years of potential life lost due to heart failure than other groups (Figure 5.9).



Note: 1. Rates are per 100,000 corresponding population under 65 years of age.
 2. YPLL-65 rate for each racial/ethnic group is the annual average of 6 years.
 Source: Death Certificate Data, Oregon DHS, Center for Health Statistics.

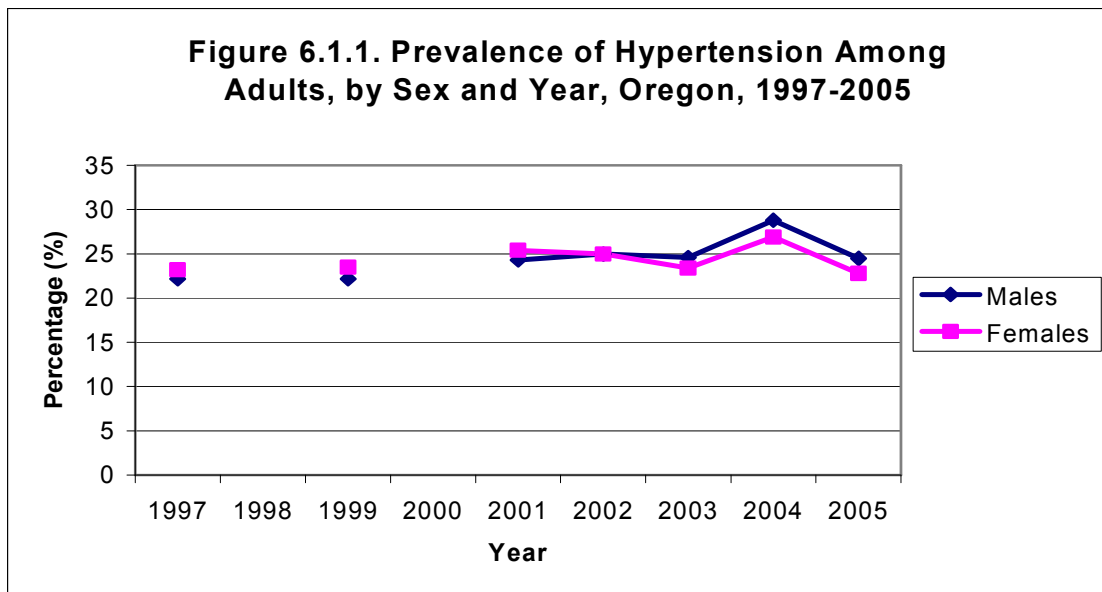
Chapter 6. RISK FACTORS

6.1 HYPERTENSION

Hypertension Prevalence

Oregon Hypertension Prevalence by Sex

- Prevalence of hypertension in Oregon was similar among men and women. Overall, the prevalence of hypertension among Oregon adults appears to be stable over time (Figure 6.1.1).

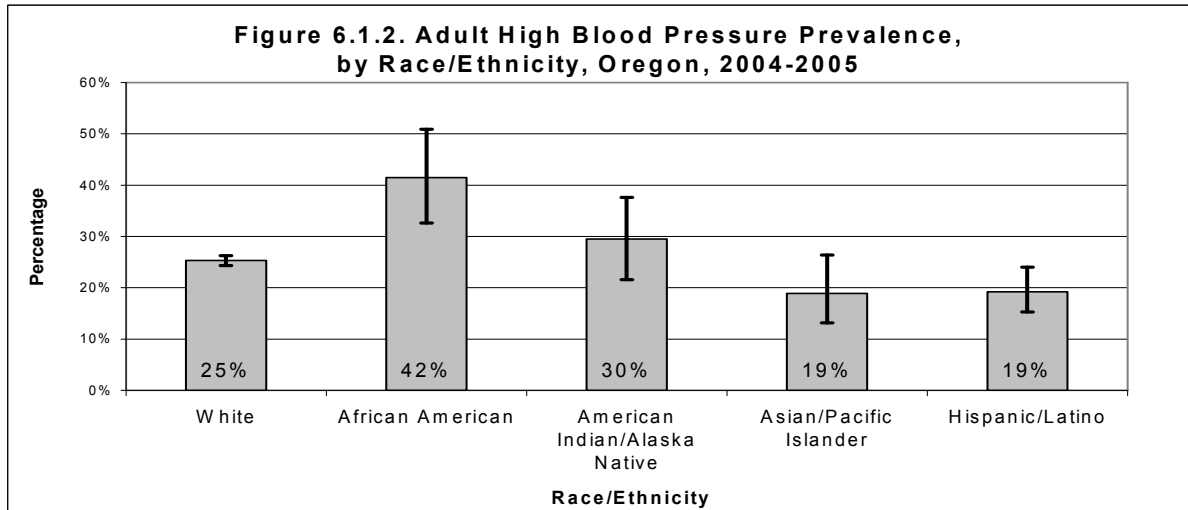


Note: Prevalence was not assessed in 1998 or 2000.

Source: Oregon Behavioral Risk Factor Surveillance System

Hypertension Prevalence by Race/Ethnicity

- The prevalence of hypertension was significantly higher for African Americans than it was for all other racial/ethnic groups except American Indians/Alaska Natives.

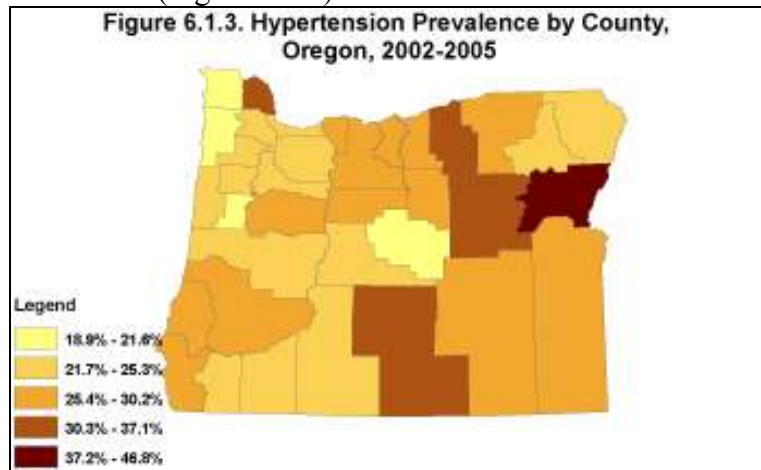


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Geographic Differences in Hypertension Prevalence

- Higher rates of hypertension were seen mainly in a number of nonmetro and metropolitan counties (Figure 6.1.3).



Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used were 18-34, 35-54, and 55+ years.

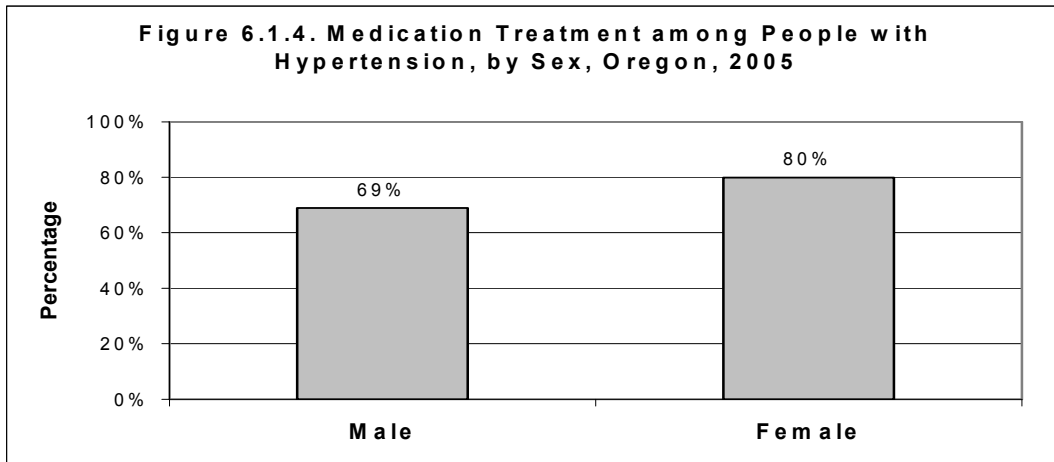
2. Gilliam and Wheeler Counties were combined in the calculation due to small numbers of respondents, as were Sherman and Wasco Counties.

3. Due to small numbers of respondents in Grant, Gilliam, Harney, Lake, Wallowa and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

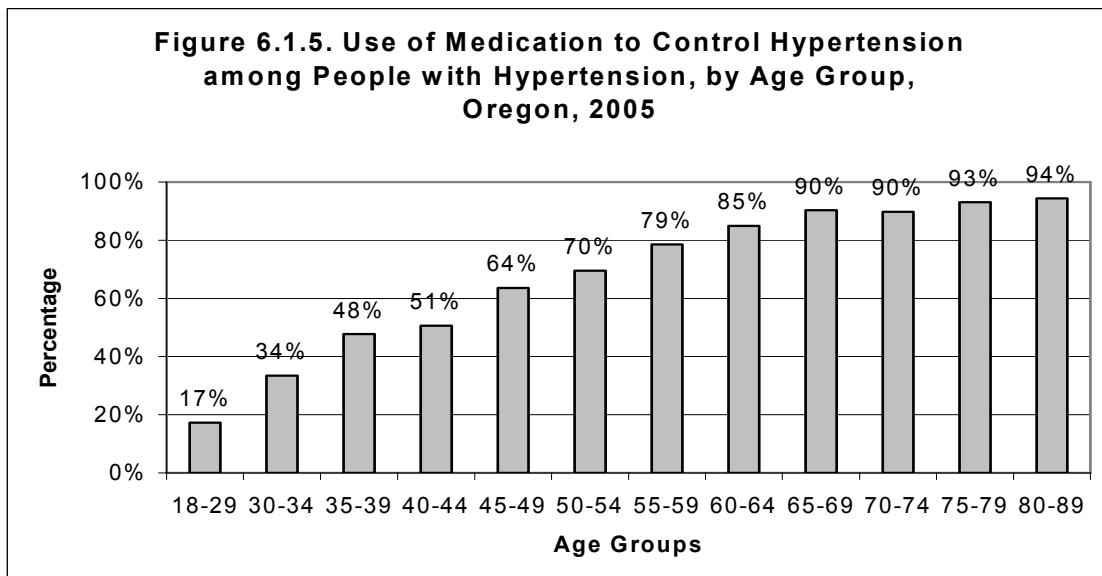
Management of Hypertension

- In 2005, 74% of Oregonians with hypertension were taking medication for it. Among people with hypertension, women had a higher rate of medication treatment than men (Figure 6.1.4).



Source: Oregon Behavioral Risk Factor Surveillance System

- The percentage of hypertensive patients taking medication for hypertension increased with age (Figure 6.1.5).



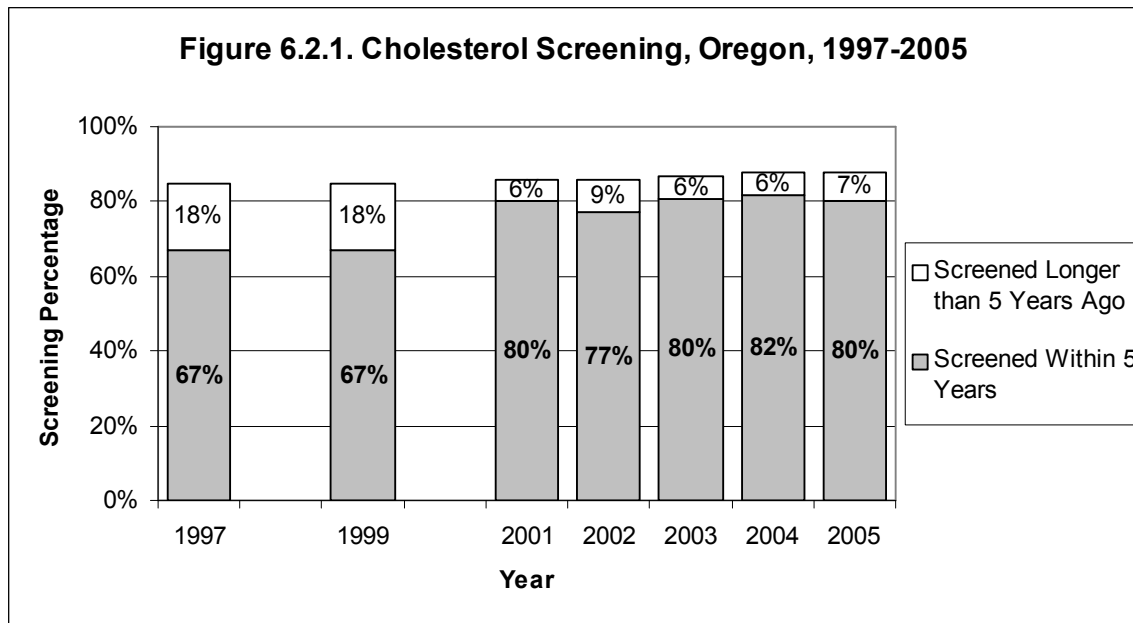
Source: Oregon Behavioral Risk Factor Surveillance System

- In 2004, a majority (68%) of people with previously diagnosed hypertension reported that their blood pressure was back in the normal range.

6.2 HIGH BLOOD CHOLESTEROL

Trends in Blood Cholesterol Screening

- From 1997 to 2005, the percentage of people in Oregon age 35 years and older that reported having their cholesterol checked at some point remained stable. Among the screened population, the proportion that reported screening within the preceding 5 years has increased (Figure 6.2.1).
- In 2005, 88% of Oregonians age 35 or older reported having their cholesterol checked at some point. Of those who'd had it done, 92% reported testing in the past 5 years.

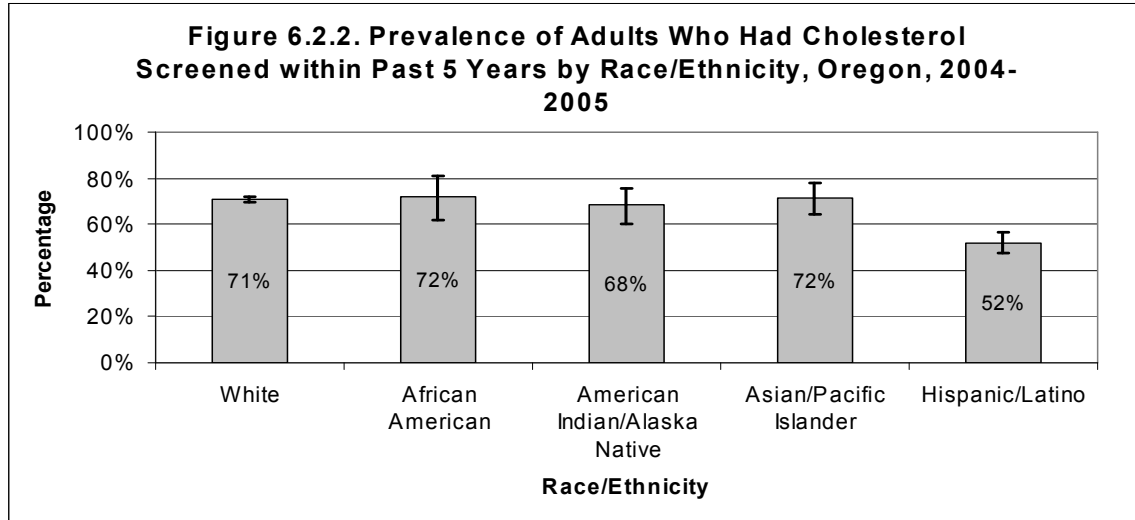


Note: Patterns of cholesterol screening were not assessed in 1998 and 2000.

Source: Oregon Behavioral Risk Factor Surveillance System

Cholesterol Screening by Race/Ethnicity

- Cholesterol screening rates among Hispanics/Latinos were lower than among all other groups.
- Hispanics/Latinos were less likely to report having cholesterol screening within the past 5 years.

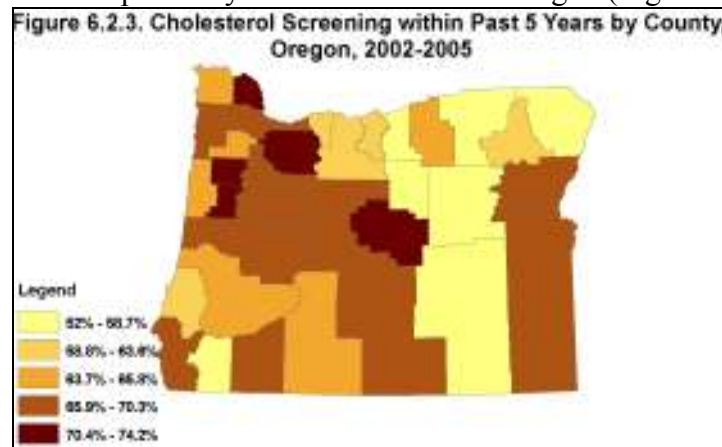


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Geographic Differences in Rates of Cholesterol Screening

- Counties with the lowest percentage of people who had cholesterol screening within the past 5 years were primarily clustered in eastern Oregon (Figure 6.2.3).

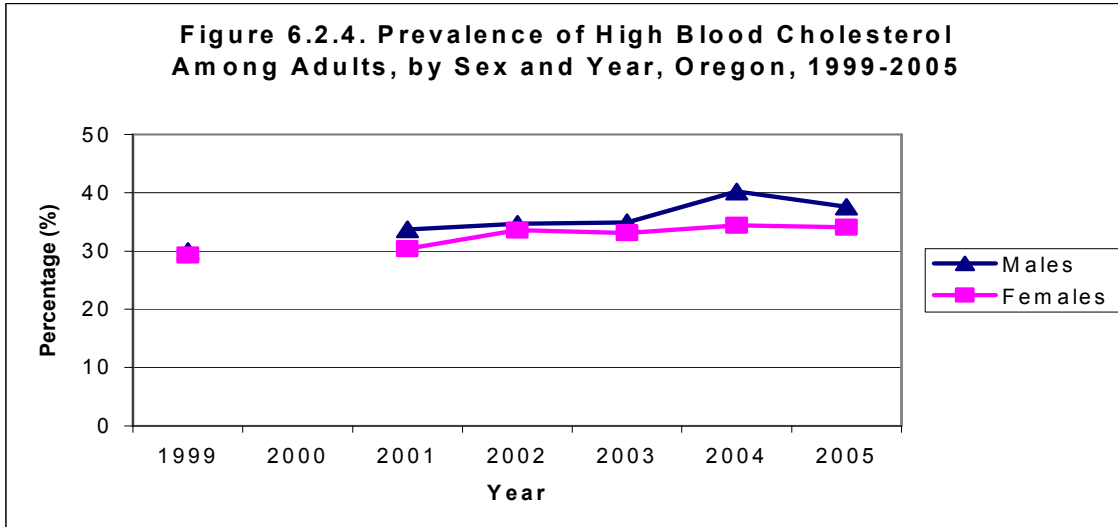


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used were 18-34, 35-54, and 55+ years.
 2. Gilliam and Wheeler Counties were combined in the calculation due to small numbers of respondents, as were Sherman and Wasco Counties.
 3. Due to small numbers of respondents in Gilliam, Grant, Harney and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

High Blood Cholesterol Prevalence

- In 2005, 36% of adults in Oregon had high blood cholesterol.
- Prevalence of high blood cholesterol among adult men was slightly higher than that in adult women (Figure 6.2.4).

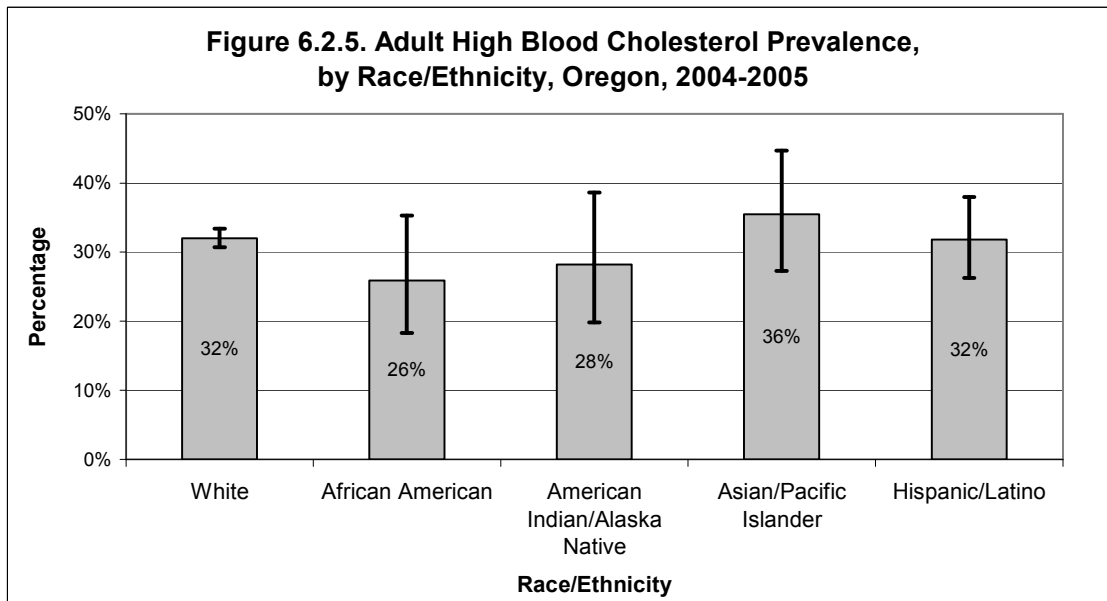


Note: Prevalence was not assessed in 2000.

Source: Oregon Behavioral Risk Factor Surveillance System

High Blood Cholesterol Prevalence by Race/Ethnicity

- While Asians and Pacific Islanders reported the highest prevalence of high cholesterol, there were not statistically significant differences between groups.



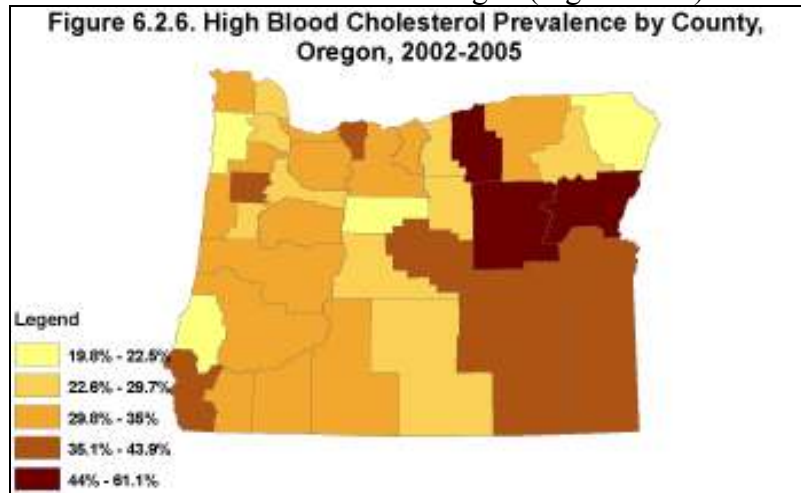
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Geographic Differences in Prevalence of High Blood Cholesterol

- High blood cholesterol prevalence ranged from 20% to 61% in Oregon counties. The highest rates were clustered in the eastern Oregon (Figure 6.2.6).



Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.

2. Gilliam and Wheeler Counties were combined in the calculation due to small numbers of respondents, as were Sherman and Wasco Counties.

3. Due to small numbers of respondents in Crook, Curry, Gilliam, Grant, Harney, Hood River, Lake, Morrow, Wallowa, and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

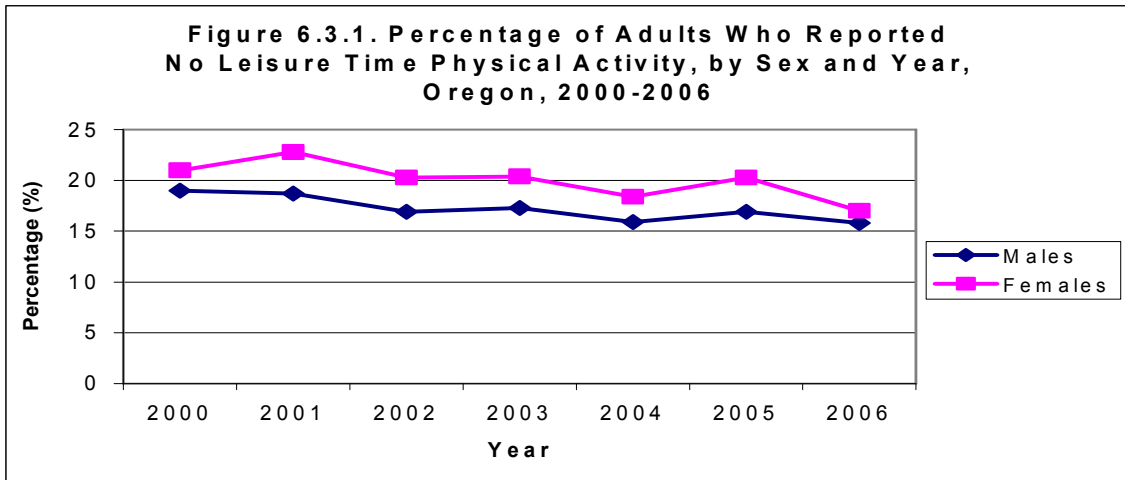
Management of High Blood Cholesterol

- In 2004, 58% of people with previously diagnosed high blood cholesterol reported that their blood cholesterol was back in the normal range.

6.3 Low Physical Activity

Absence of Leisure Time Physical Activity

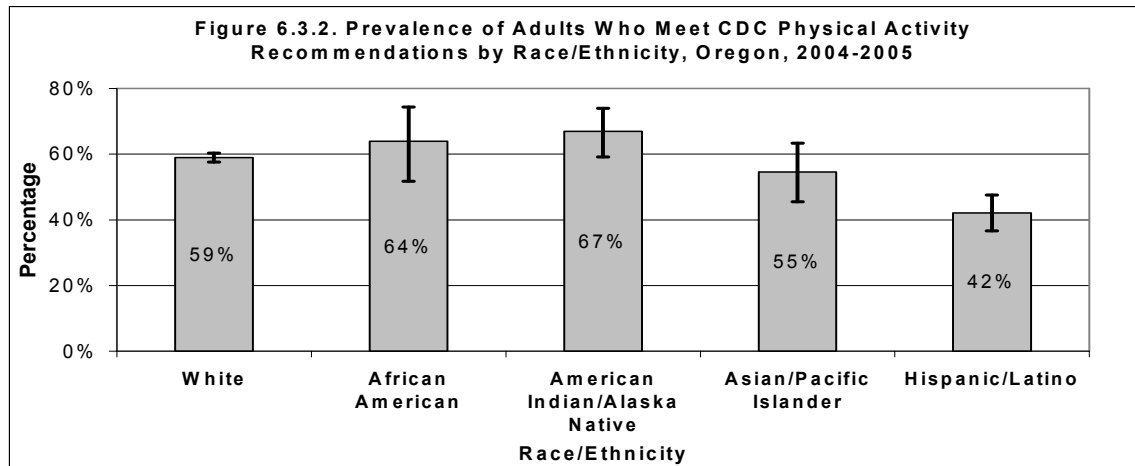
- In 2006, 16% of adults in Oregon were at increased risk for heart disease and stroke due to absence of leisure time physical activity.
- Over time, the percentage of adults reporting no leisure time physical activity has declined slightly. However, women reported higher rates of physical inactivity than men (Figure 6.3.1).



Source: Oregon Behavioral Risk Factor Surveillance System

Prevalence of Adults Who Met CDC Physical Activity Recommendations by Race/Ethnicity

- Among Oregonians, Hispanics/Latinos were less likely to report meeting CDC recommendations for physical activity than other populations.

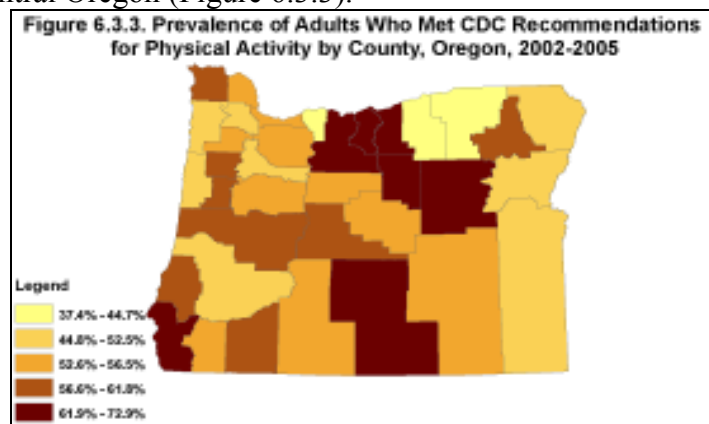


- Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Above error bars represent 95% confidence intervals.
 3. CDC physical activity recommendations: moderate-intensity activity for 30 or more minutes on 5 or more days per week; or vigorous-intensity activity for 20 or more minutes on 3 or more days per week.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Geographic Differences in the Prevalence of Adults Who Met CDC Physical Activity Recommendations

- The highest rates of meeting CDC physical activity recommendations were in north and south central Oregon (Figure 6.3.3).



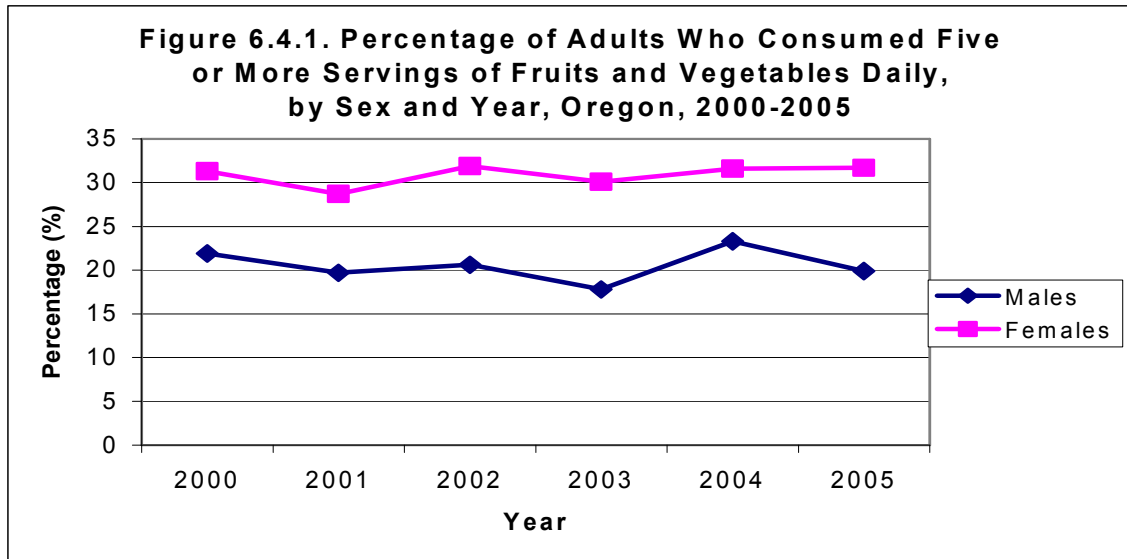
- Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.
 2. Gilliam and Wheeler Counties were combined in the calculation due to small numbers of respondents, as were Sherman and Wasco Counties.
 3. Due to small numbers of respondents in Curry, Gilliam, Grant, Harney, Hood River, Lake, Wallowa and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

6.4 Low Consumption of Fruits and Vegetables

Percentage of Adults Who Consumed Five or More Servings of Fruits and Vegetables Daily

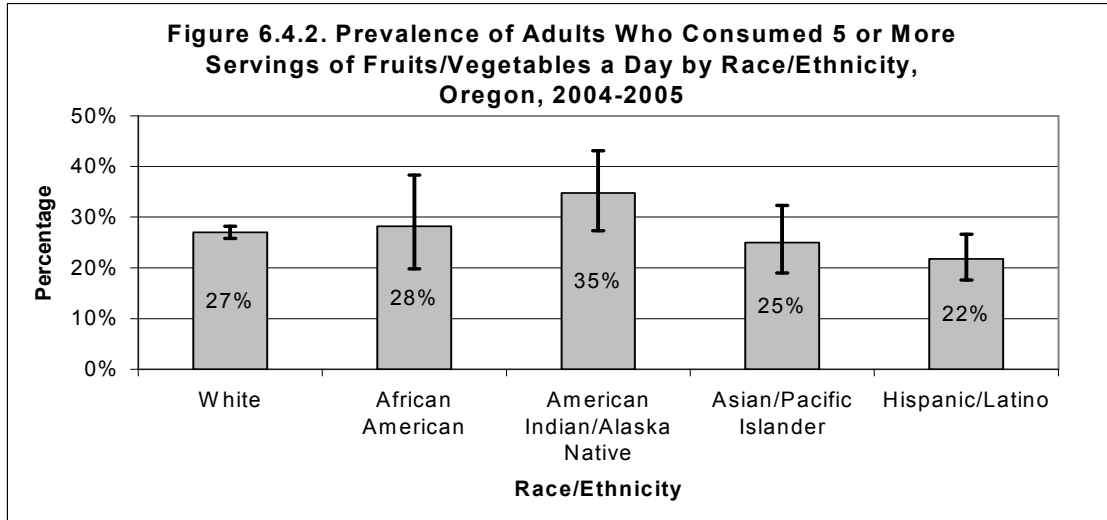
- In 2005, only 26% of Oregon adults consumed 5 or more servings of fruits and vegetables each day.
- Over time, the percentage of adults who consumed 5 or more servings of fruits and vegetables was stable. However, the percentage among men was lower than that in women (Figure 6.4.1).



Source: Oregon Behavioral Risk Factor Surveillance System

Prevalence of Adults Who Consumed Five or More Servings of Fruits and Vegetables Daily by Race/Ethnicity

- A higher percentage of American Indians/Alaska Natives reported eating five or more servings than seen among non-Hispanic whites, although the difference was not statistically significant.



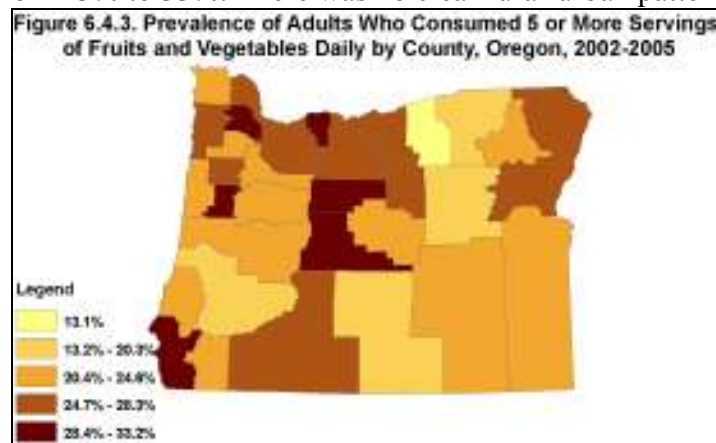
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment.

Percentage of Adults Who Consumed Five or More Servings of Fruits and Vegetables Daily, Geographic Distribution

- County prevalence for consuming five or more servings of fruits and vegetables per day ranged from 13% to 33%. There was no clear rural-urban pattern (Figure 6.4.3).



Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.

2. Gilliam and Wheeler Counties were combined in the calculation due to small numbers of respondents, as were Sherman and Wasco Counties.

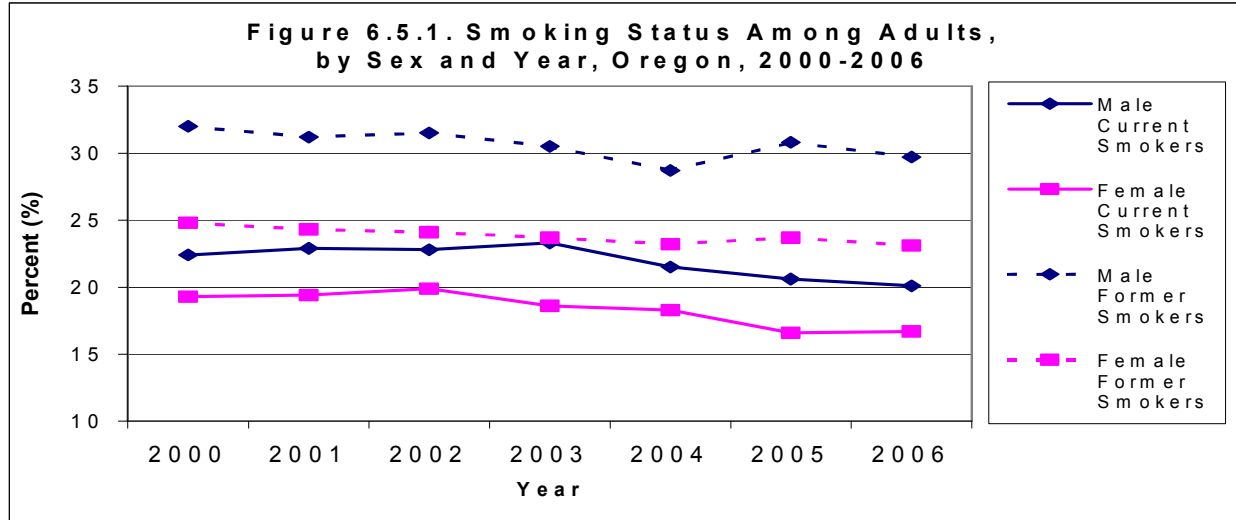
3. Due to small numbers of respondents in Gilliam, Grant, Harney, Lake and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

6.5 Tobacco Use

Oregon Smoking Prevalence by Sex

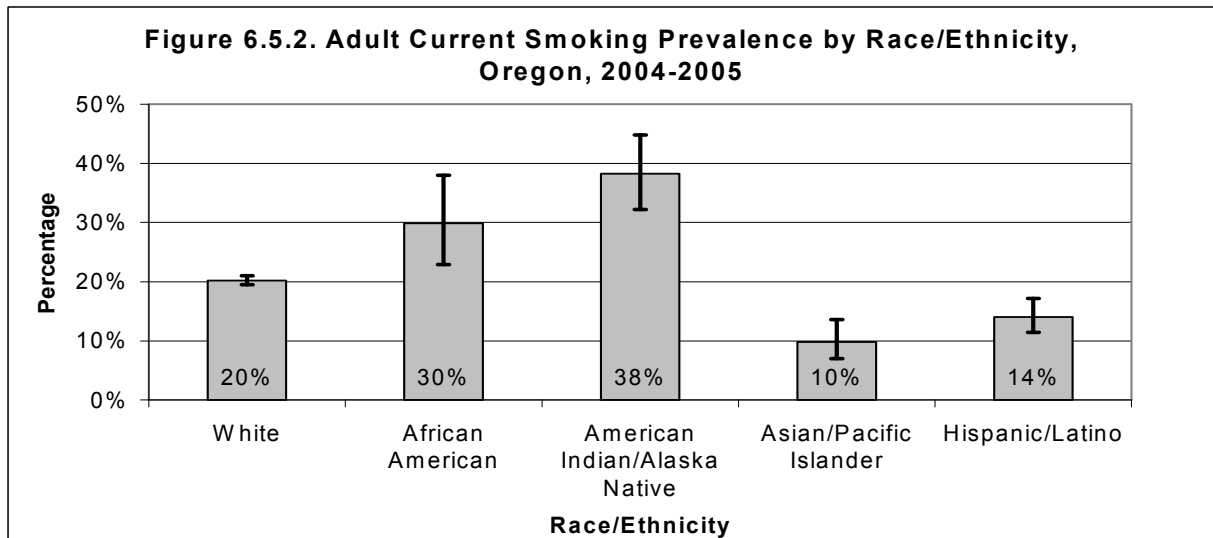
- From 2000 to 2006, prevalence of current smoking among both men and women dropped, although prevalence remained higher among men than women.



Source: Oregon Behavioral Risk Factor Surveillance System

Current Smoking Status Prevalence by Race/Ethnicity

- American Indians/Alaska Natives, as well as African Americans, had smoking rates that were significantly higher than the rate for non-Hispanic whites.
- Rates of smoking among Hispanics and Asians/Pacific Islanders were lower than the rate for non-Hispanic whites.

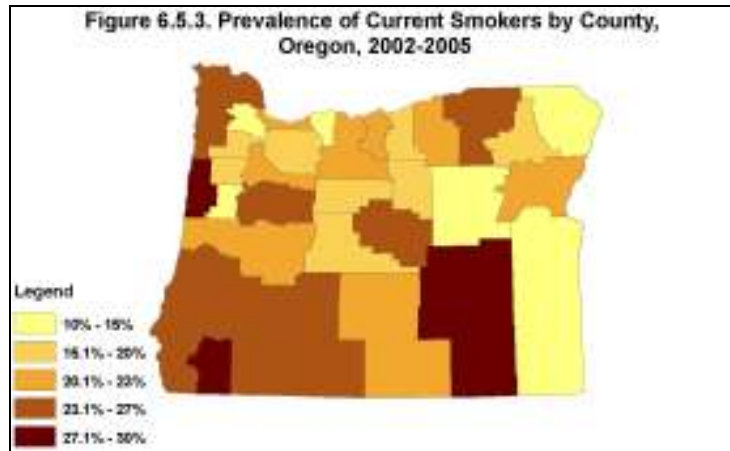


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Prevalence of Current Smoking, Geographic Distribution

- The highest smoking rates were not in Metropolitan Statistical Area counties (Figure 6.5.3).

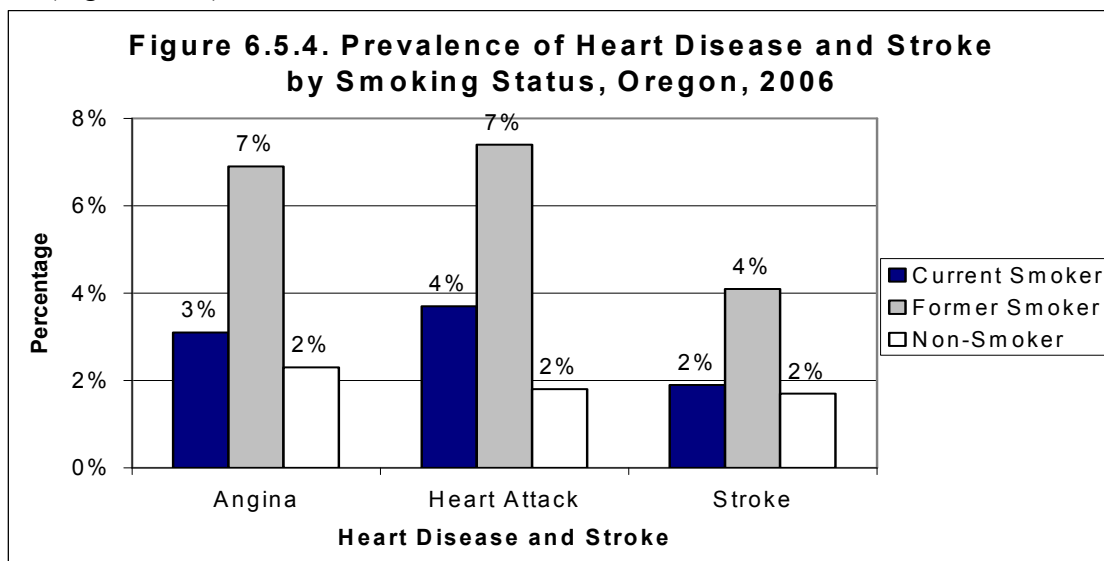


- Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.
2. Due to small numbers of respondents, Gilliam and Wheeler Counties were combined in the calculation, as were Sherman and Wasco.
3. Because of the small numbers of respondents in Gilliam and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

Smoking as a Risk Factor for Heart Disease and Stroke

- In 2006, among current smokers, former smokers, and non-smokers, the prevalence of angina, heart attack and stroke was the highest among former smokers (Figure 6.5.4).

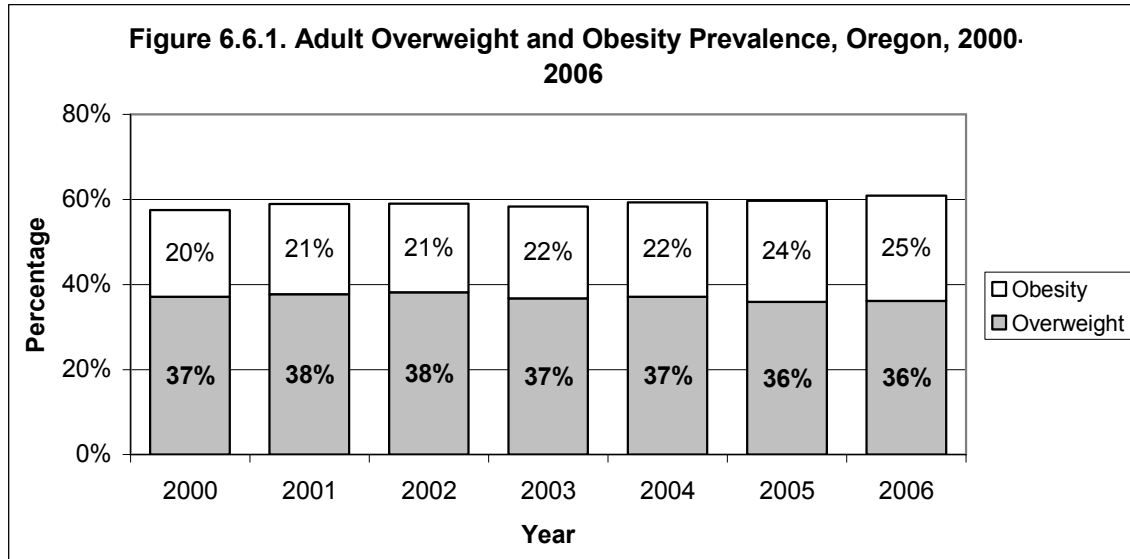


Source: Oregon Behavioral Risk Factor Surveillance System

6.6 Overweight & Obesity

Oregon Overweight and Obesity Prevalence

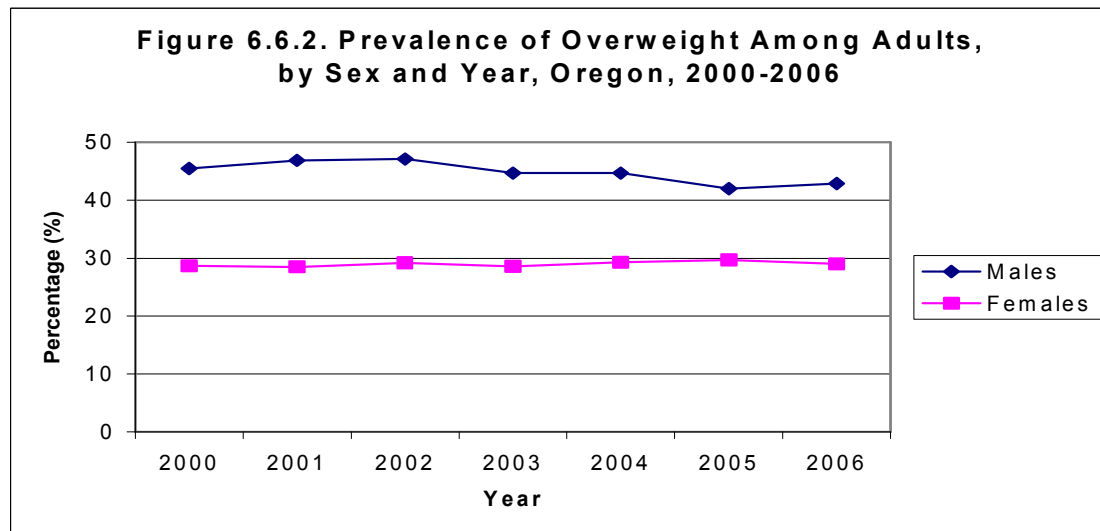
- In 2006, 36% of adults were overweight (BMI 25 to less than 30) and 25% of adults were obese (BMI 30 or more).
- The prevalence of overweight was stable between 2000 and 2006, while there was a slight increase in obesity prevalence (Figure 6.6.1).



Source: Oregon Behavioral Risk Factor Surveillance System

Prevalence of Overweight by Sex

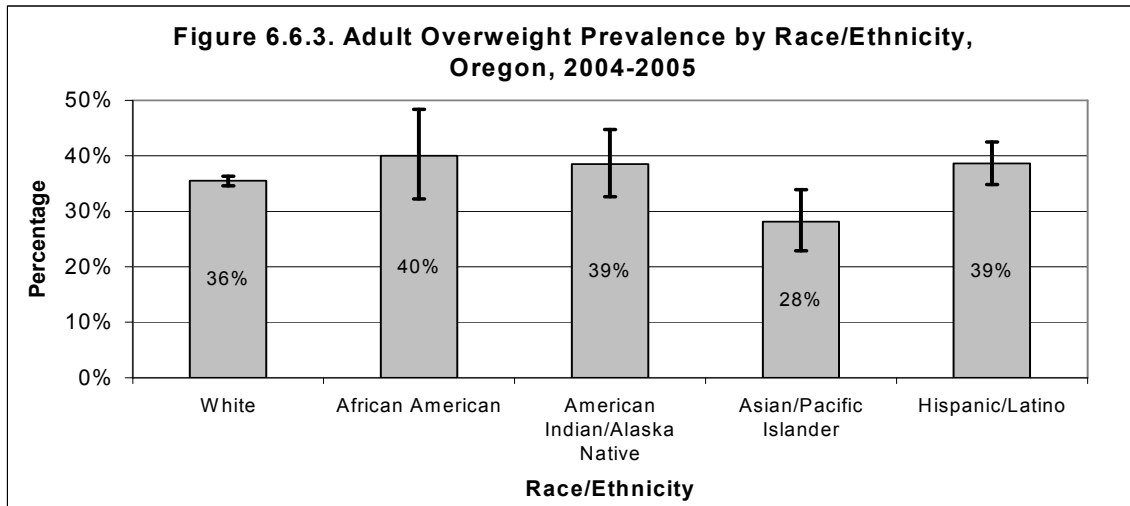
- From 2000 to 2006, the prevalence of overweight was relatively stable among both males and females. However, the prevalence of overweight was higher among men than among women (Figure 6.6.2).



Source: Oregon Behavioral Risk Factor Surveillance System

Prevalence of Overweight, by Race/Ethnicity

- Asians /Pacific Islanders had lowest prevalence of being overweight.
- There were no statistically significant differences in rates of overweight between other communities by race or ethnicity.

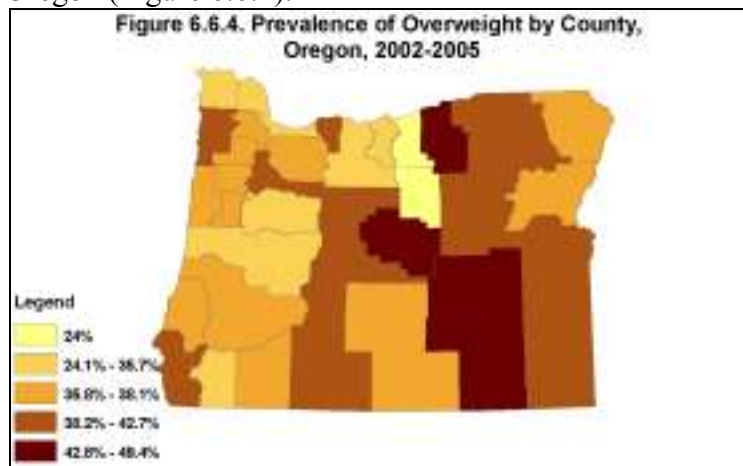


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Geographic Differences in Prevalence of Overweight

- The highest rates of overweight were clustered in nonmetro and micropolitan eastern and central Oregon (Figure 6.6.4).

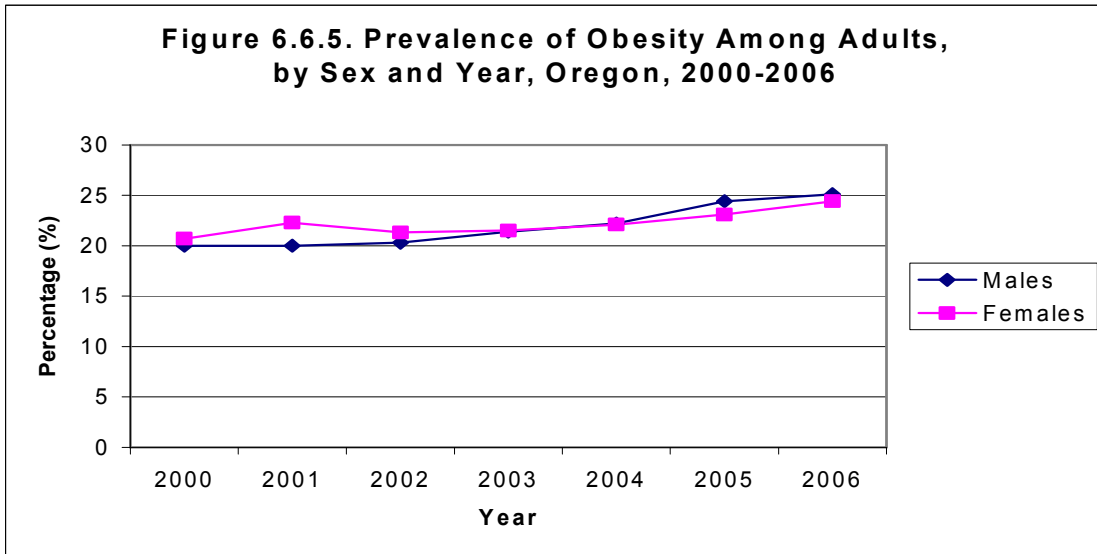


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.
 2. Due to small numbers of respondents, Gilliam and Wheeler Counties were combined in the calculation, as were Sherman and Wasco.
 3. Because of the small numbers of respondents in Gilliam and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

Obesity Prevalence by Sex

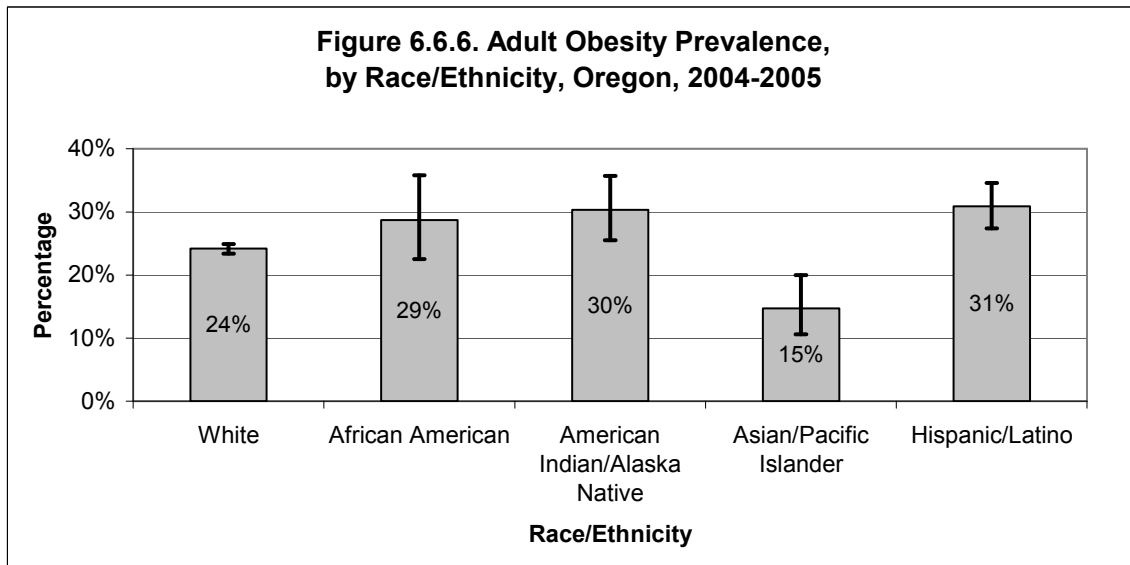
- From 2000 to 2006, while the prevalence of obesity did not differ markedly between men and women, it increased for both (Figure 6.6.5).



Source: Oregon Behavioral Risk Factor Surveillance System

Obesity Prevalence by Race/Ethnicity

- Asians /Pacific Islanders had lower prevalence of being obese than other racial/ethnic groups.
- Rates of obesity among American Indians/Alaska Natives and Hispanics/Latinos were significantly higher than they were among non-Hispanic whites and Asians/Pacific Islanders.

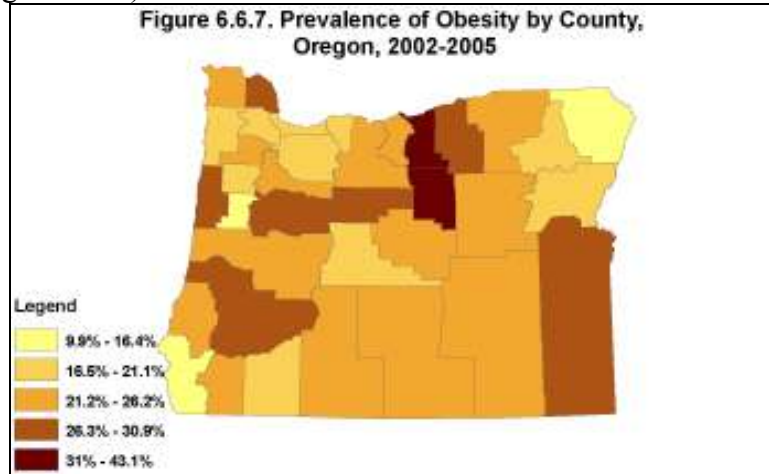


Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.
 2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Obesity Prevalence: Geographic Distribution

- Counties with the highest obesity rates were scattered across Oregon with no apparent pattern (Figure 6.6.7).

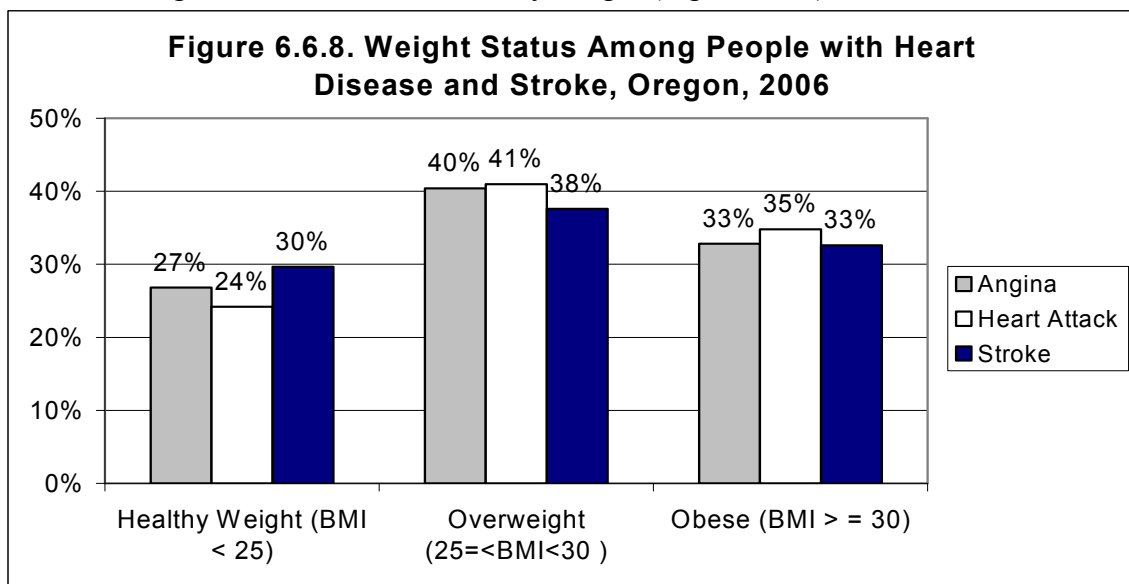


- Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+ years.
2. Due to small numbers of respondents, Gilliam and Wheeler Counties were combined in the calculation, as were Sherman and Wasco.
3. Because of the small numbers of respondents in Gilliam and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

Overweight and Obesity as Risk Factors for Heart Disease and Stroke

- In 2006, Oregonians with a history of angina, heart attack, or stroke were more likely to be overweight or obese than at a healthy weight (Figure 6.6.8).

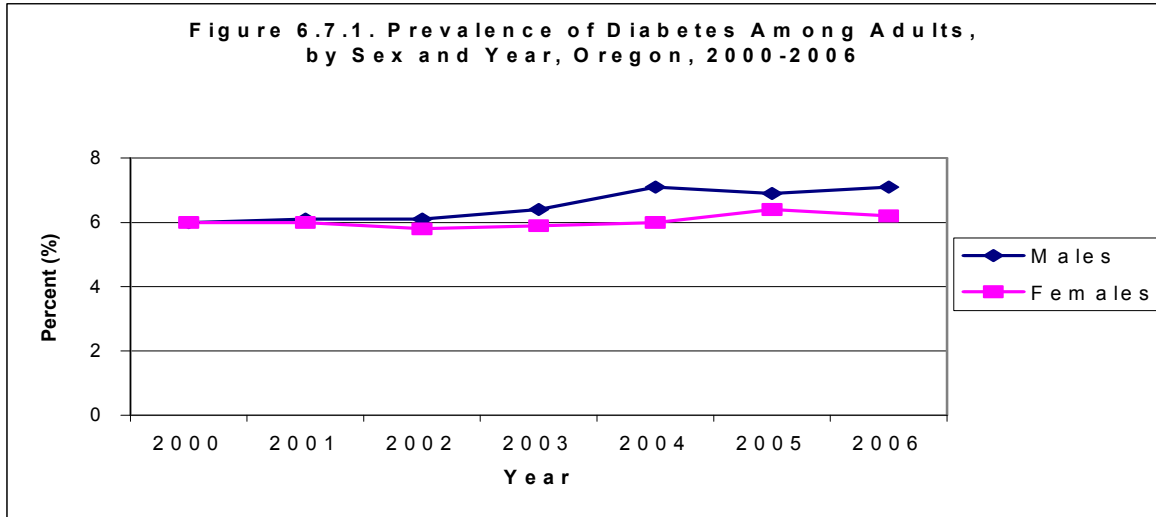


Source: Oregon Behavioral Risk Factor Surveillance System

6.7 Diabetes

Diabetes Prevalence by Sex

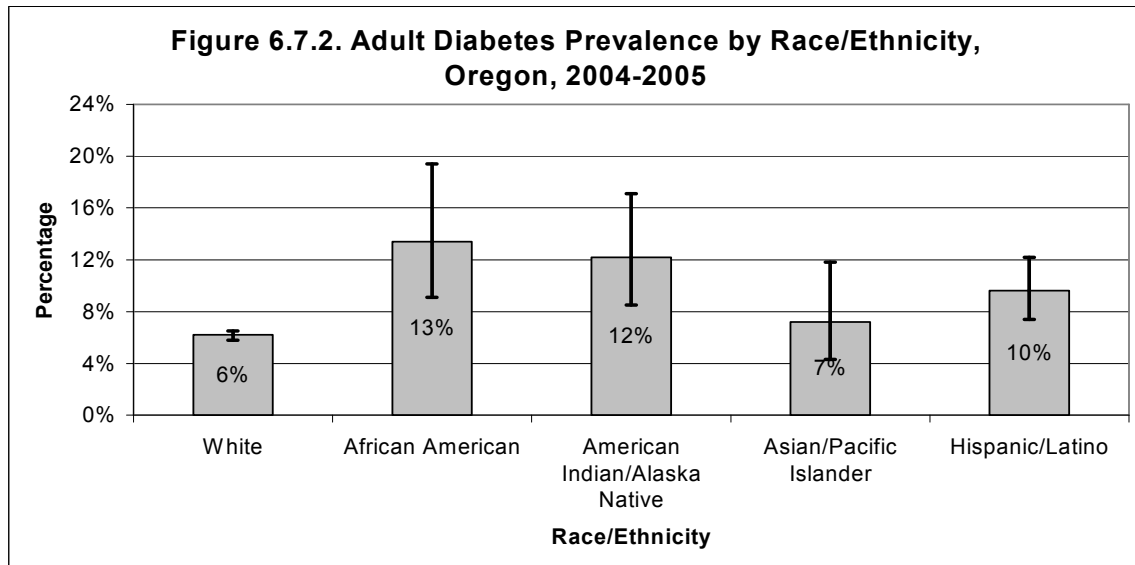
- In 2006, 7% of all adults, 7% of men and 6% of women reported having been diagnosed with diabetes in Oregon.
- While diabetes prevalence among Oregon women has been relatively stable since 2000, there has been a slight increase in prevalence among men (Figure 6.7.1).



Source: Oregon Behavioral Risk Factor Surveillance System

Diabetes Prevalence by Race/Ethnicity

- African Americans, American Indians/Alaska Natives, and Hispanics/Latinos had significantly higher rates of diabetes than did non-Hispanic whites.



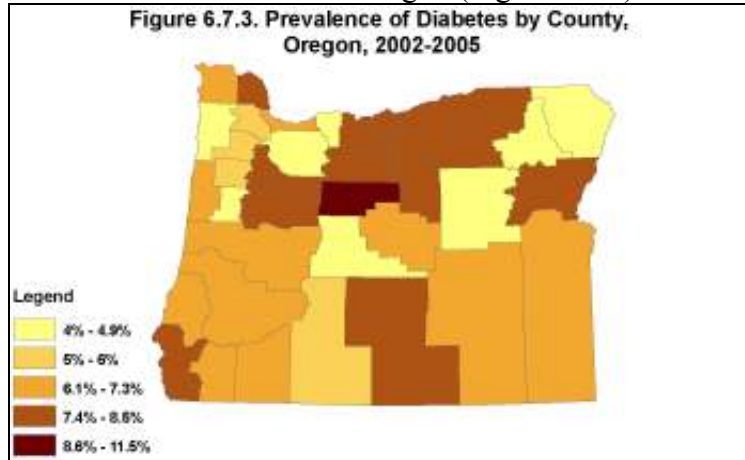
Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population.

2. Above error bars represent 95% confidence intervals.

Source: Oregon Behavioral Risk Factor Surveillance System 2004-2005 Race/Ethnicity Augment

Geographic Differences in the Prevalence of Diabetes

- A number of counties with higher diabetes rates are in nonmetro and micropolitan areas of north central and northeastern Oregon (Figure 6.7.3).



Note: 1. Rates are age-adjusted to the 2000 U.S. Standard Population. Age groups used for age adjusting are 18-34, 35-54, and 55+.

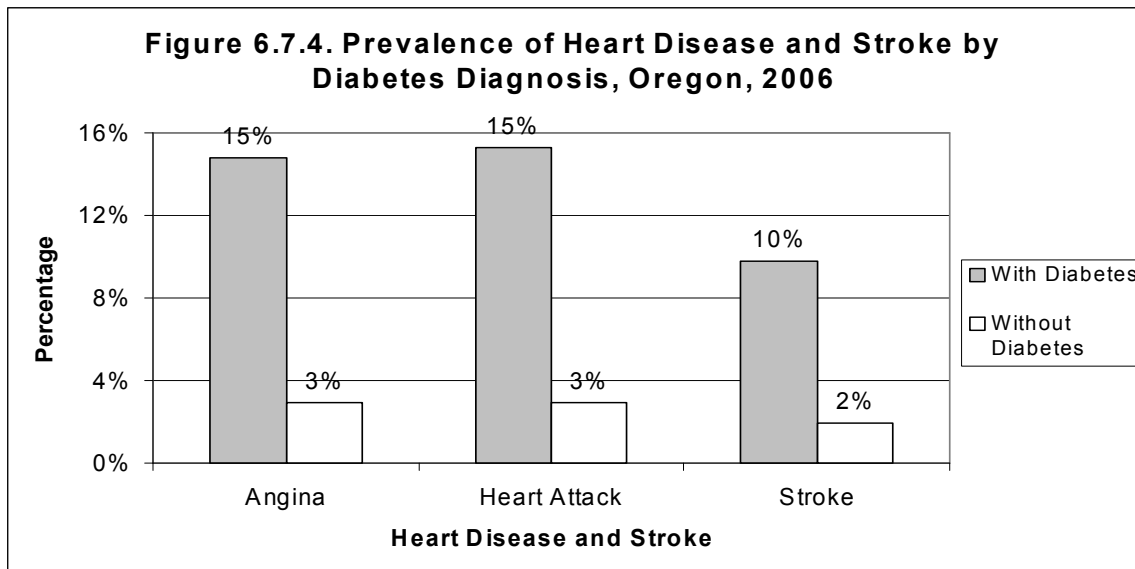
2. Due to small numbers of respondents, Gilliam and Wheeler Counties were combined in the calculation, as were Sherman and Wasco.

3. Because of the small numbers of respondents in Gilliam and Wheeler, results for these counties should be interpreted with caution.

Source: Oregon Behavioral Risk Factor Surveillance System 2002-2005

Diabetes as a Heart Disease and Stroke Risk Factor

- In 2006, the prevalence of angina, heart attack and stroke was much higher among Oregonians with diabetes than among those without it (Figure 6.7.4).



Source: Oregon Behavioral Risk Factor Surveillance System

Appendix A

Description of 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. The BRFSS was developed by the Centers for Disease Control and Prevention (CDC) in 1984. It is a state-based system and is conducted in all 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and Guam. The BRFSS includes questions on health behavioral risk factors such as cardiovascular prevalence, blood pressure awareness, cholesterol awareness, weight control, tobacco and alcohol use, physical exercise and diabetes prevalence. The data are weighted to represent all adults age 18 years and older. A core set of questions, which includes the questions on heart disease and stroke prevalence, is asked annually in Oregon. Other topics are surveyed on a rotating basis.

Oregon also periodically conducts additional BRFSS surveys among under-represented racial/ethnic communities to better understand the burden of disease in these communities. The state also combines data from several years to develop county-level estimates. Additional information about BRFSS can be found at <http://www.cdc.gov/brfss/> or <http://www.dhs.state.or.us/dhs/ph/chs/brfs/index.shtml>

Hospital Discharge Database

The hospital discharge dataset is a computerized database maintained by the Oregon Association of Hospitals and Health Systems. All Oregon hospitals, except two Veteran's Administration Hospitals, are included in this system. Information collected in this database includes primary reason for hospitalization, additional diagnoses, length of hospitalization and hospitalization costs. These data are used to determine the number of hospitalizations caused by heart disease and stroke in Oregon and the costs of these hospitalizations.

Vital Statistics

The Death Certificate Statistical File includes all deaths occurring in Oregon, and Oregon residents' deaths that occurred out of state. Data are collected by the State Registrar. The data are used to examine heart disease and stroke mortality trends. Information from Oregon vital statistics includes cause of death, date and place of death, and decedent demographic information. The mortality data analyzed for this report are limited to deaths among Oregon residents.

Appendix B

Technical Notes

The International Classification of Diseases code definitions used in this report are:

	ICD-10	ICD-9
Major cardiovascular disease	I00-I78	390-434, 436-448
Stroke	I60-I69	430-438
Heart disease	I00-I09, I11, I13, I20-I51	390-398, 402, 404-429
Coronary heart disease	I20-I25	410-414
Heart Failure	I50	428

All mortality data prior to 1999 in the trend graphs in this report are adjusted to *International Classification of Diseases 10th Revision*, using methods from *National Vital Statistics Reports*; vol 49 no 2.

Based on U.S. Office of Management and Budget (OMB) December 2006 metropolitan and micropolitan definitions, Oregon's 36 counties are divided into three categories:

- Metropolitan Statistical Area (MSA): A county with at least one Census Bureau-defined Urbanized Area (UA) of 50,000 or more population; Outlying counties that have a commuting rate of 15% or over to central counties.
- Micropolitan Statistical Area: A county that has at least one Census Bureau-defined Urban Cluster (UC) of at least 10,000 but less than 50,000 population; Adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.
- Nonmetro: Counties not MSAs or Micropolitan are Nonmetro.



For more rural/urban classification information, please refer to Oregon Office of Rural Health <http://www.ohsu.edu/ohsuedu/outreach/oregonruralhealth/index.cfm>.