Keeping Oregonians Healthy:

Preventing Chronic Diseases by Reducing Tobacco Use, Improving Diet, and Promoting Physical Activity and Preventive Screenings

DHS
Oregon Department
of Human Services

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Data for this report were compiled from a number of published and unpublished Oregon Department of Human Services sources.

Many of these data and reports are available at the Oregon Department of Human Services website: www.healthoregon.org

Data sets and methodology are more fully described in Appendix B.

For additional information about this report, contact the Health Promotion and Chronic Disease Prevention Program at (503) 731-4273.

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Oregon Department of Human Services
Health Services
Health Promotion and Chronic Disease Prevention Program
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Table of Contents

Executive Summary

Chronic diseases, including cardiovascular disease, cancer, lung disease, diabetes, and arthritis, are the major causes of disability and death for Oregonians, claiming the lives of over 20,079 Oregonians and costing over $984 million in hospitalization costs in 2000.

- The number one killer of Oregonians is cardiovascular disease accounting for 35.7% of all deaths in 2000.
- Cancer is the second leading cause of death in Oregon. During 2000, 18,121 total new cancer cases were diagnosed in Oregonians and 6,989 people died from cancer-related causes. Cancer accounted for 24% of all deaths.
- Lung cancer is the leading cause of cancer death in Oregon. In 2000, 2,078 Oregonians died from lung cancer, representing nearly 30% of all cancer deaths. Lung cancer is the second most frequently reported cancer, with 2,354 Oregonians diagnosed in 2000.
- In 2000, 482 Oregon women died from breast cancer. A total of 3,219 new cases of female breast cancer were reported, and it continued to be the most common cancer occurring in women and the second leading cause of cancer death among Oregon women.
- Chronic Lower Respiratory Diseases (CLRD), including emphysema and bronchitis are now the fourth leading cause of death for both men and women. In addition to the 1,696 Oregonians whose deaths were due to chronic lung diseases, hospital costs exceeded $44 million in 2000 for those treated for CLRD.
- In 2000, asthma was listed as the primary diagnosis for over 2,291 hospitalizations in Oregon, costing over $13 million.
- Diabetes was the seventh leading cause of death among Oregonians in 2000. Over 156,000 Oregonians report having been diagnosed with diabetes, and perhaps as many as another 68,000 adults have diabetes but have not been diagnosed.
- An estimated 36% of Oregonians are affected by one of the most common forms of arthritis, osteoarthritis. In 2000, the hospitalization costs of 3,170 knee replacements for Oregonians with osteoarthritis or rheumatoid arthritis exceeded $60 million.
- Elevated blood cholesterol is a common condition among Oregon adults. Over

30% of Oregonians over age 45 have been diagnosed with elevated blood cholesterol.
- Between 1994 and 2001, obesity has increased by 59% in Oregon, which is one of only four states west of the Rocky Mountains with adult obesity rates over 20%. Most adult Oregonians (60%) are overweight or obese.

Many of the aforementioned chronic diseases can be detected through preventive screenings, resulting in early treatment, reduced disease burden, and increased survival rates. Early disease detection activities such as cholesterol screening, mammography and colon cancer screening can maximize treatment options and improve the health of Oregonians.

Deaths from these chronic diseases account for 68% of deaths in Oregon and are related to three primary modifiable factors: tobacco use, physical inactivity and poor diet.

- During 2001, tobacco use contributed to nearly 22% of all deaths in Oregon, causing more than 4 times as many deaths as motor vehicle crashes, suicide, AIDS and homicide combined.
- Over 20% of Oregon adults smoke tobacco and 60,000 Oregon youth use some form of tobacco.
- More than 11% of Oregonians lead sedentary lives and only 39% of Oregonians are physically active for 30+ minutes per day at least 5 days per week.
- Only 1 in 4 Oregonians eat the recommended daily servings of fruits and vegetables.

Over the next 20 years, as our age distribution changes, the proportion of older Oregonians will increase and those affected by chronic diseases will escalate rapidly. In order to reduce the burden of chronic diseases and avoid premature death as the population ages, communities can foster "successful aging" by supporting healthy lifestyles. Communities that encourage people to be tobacco-free, make healthy eating choices, sustain daily physical activity, and receive preventive screenings can reduce the impact of chronic diseases.

Introduction

All age-adjusted rates in this document are based on the U.S. Census 2000 estimates (the Year 2000 Standard Population). The Year 2000 Standard has a higher percentage of individuals in the middle and older age groups. Age-adjusted rates in this document are not comparable to rates presented in previous reports that used a different standard for calculating age-adjusted rates.

Chronic diseases including cardiovascular disease, cancer, lung disease, diabetes, and arthritis are among the major causes of disability and death for Oregonians, claiming the lives of over 20,079 Oregonians during 2000.

Together, cardiovascular diseases, cancers, diabetes, and chronic lower respiratory diseases account for over 68% of deaths in Oregon. The hospitalization costs of these diseases were over $984 million in 2000.

Chronic diseases and their associated disabilities increase with age. As the "baby boomer" population ages, the number of Oregonians affected by these chronic diseases will escalate and significantly impact the population's health status and resultant health care needs. Figures 1 and 2 show that Oregon's population will have a greater proportion of seniors by 2025. Over the first two decades of the new millennium, Oregon's population of people 65 years and older is projected to increase by 76%. This aging of the population will result in increased need and demand for health care, particularly for chronic diseases.

In order to reduce the burden of chronic diseases and avoid premature death as the population ages, communities can foster "successful aging" by supporting healthy lifestyles. Community conditions that promote tobacco abstention, healthy eating, and physical activity can help delay the onset of disease and prolong active, healthy lives. Disease and disability can be compressed into the years right before death and the need for costly medical care can decrease.

While facing this impending escalation of chronic disease, the public health community is both celebrating the decline in tobacco use and reeling from the explosion of obesity throughout the United States and Oregon. Between 1994 and 2001, obesity has increased 59% in Oregon, one of only four states west of the Rocky Mountains with 20% or more of the population obese (*Figure 3*). Parallel to this increase in obesity is a decline in physical activity and healthy diet. Together, tobacco use, physical activity, diet and obesity play a significant role in the health of Oregonians.

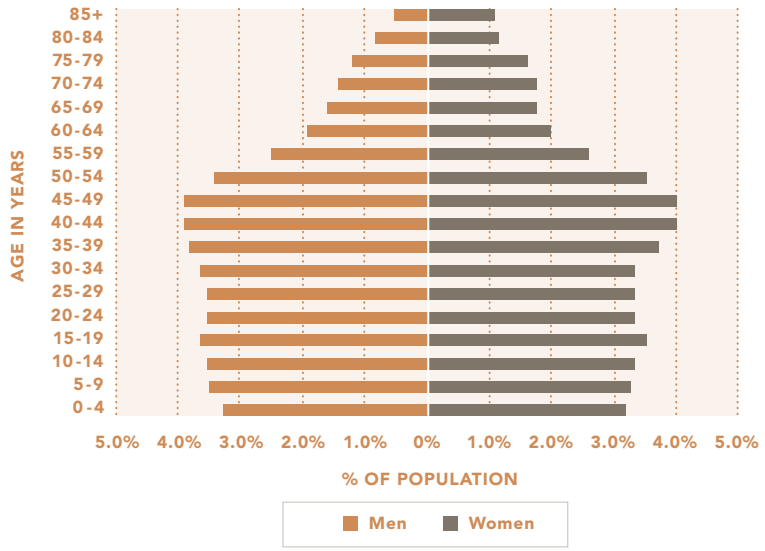
Oregonians who use tobacco, are physically inactive, and eat diets high in fat, sugar and calories, and low in fiber are at a higher risk

for many chronic diseases than those who maintain healthier lifestyles by avoiding tobacco use, being regularly active, and eating a balanced low-fat diet. Because these lifestyle behaviors increase an individual's likelihood of developing disease, the behaviors are considered risk factors.

Our behaviors with regard to tobacco use, sedentary lifestyle and poor nutrition not only put us at risk for chronic diseases, but also can lead to a number of additional risk factors, such as high blood pressure, elevated cholesterol and obesity. In addition to affecting our risk of developing certain chronic diseases, these same behaviors can impact the quality of life for those living with chronic diseases.

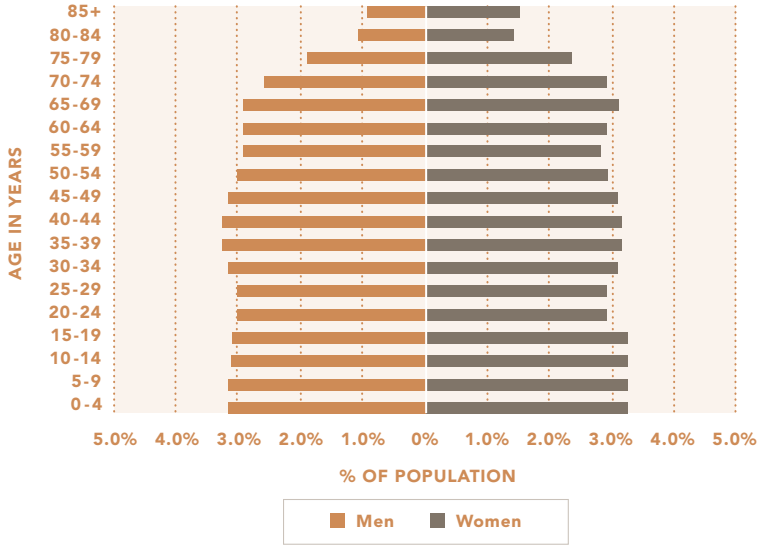
Early detection and screening for chronic diseases is a preventive measure that reduces the burden of the disease by leading to early treatment. The medical community has developed screening tools to help identify some chronic diseases in their early stages so that medical treatment might reduce the chances of premature disability and death. Screenings for high blood pressure and high cholesterol can alert patients and their medical providers to the risk of heart disease.

Figure 1
POPULATION PYRAMID FOR OREGON, 2000



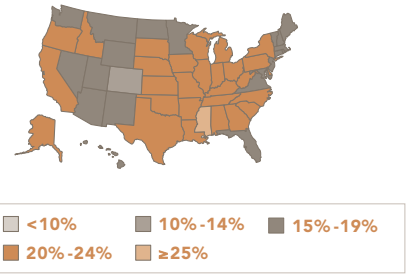
Source: U.S. Census 2000

Figure 2
POPULATION PYRAMID FOR PROJECTED POPULATION, OREGON, 2025



Source: U.S. Census 2000

Figure 3
OBESITY AMONG ADULTS, U.S., 2001



Source: CDC

Mammography, PAP tests, and sigmoidoscopy (examination of the large intestine lining) are cancer screening tests. Lack of screening is considered a risk factor for selected chronic diseases.

Because chronic diseases have a disproportionate impact on some populations, we examine selected populations, their increased risk of chronic diseases and associated modifiable factors.

Community-level indicators provide a measure of a community's support for healthy behaviors. Examples include smoke-free worksites and school nutrition guidelines. In the final section of this report, we examine community conditions and policies that support healthy behaviors and appropriate preventive screenings. The public health community working in concert with community partners (such as businesses, health care delivery systems, faith organizations, and civic organizations) can influence these community conditions. These efforts can yield various results including the creation of conditions conducive to people making healthy choices; the improvement of early disease detection (maximizing treatment options and survival rates); and the establishment of environments supporting self-care of chronic conditions.

We hope this document provides information that will lead to increased opportunities to implement effective interventions, focused on modifiable risk factors and engaging our entire community in creating conditions that promote and support healthy lifestyle choices for Oregonians.

The goals of this chronic disease assessment include:

- To describe the burden of selected chronic diseases in Oregon, including groups of people affected by these diseases, selected behaviors and screenings that affect these diseases, and community conditions that support healthy lifestyles.
- To provide data for use in monitoring the effectiveness of selected interventions.
- To identify systems and policies that promote healthy lifestyles.

Section 1

Selected Chronic Diseases and Risk Conditions in Oregon

Together, cardiovascular disease, cancer, chronic lung diseases, and diabetes claimed the lives of over 20,000 Oregonians during 2000. These diseases accounted for over 68% of deaths in Oregon (TABLE 1).

Table 1
DEATHS AND HOSPITALIZATIONS DUE TO SELECTED CHRONIC DISEASES, OREGON, 2000

Disease	Total deaths*	% of all deaths	Total hospitalizations†	Cost of hospitalizations†
Cardiovascular Disease	10,547	35.7%	44,843	$699,109,784
Cancer	6,989	23.7%	12,218	$210,559,415
Chronic Lung Diseases	1,696	5.7%	5,823	$44,846,159
Diabetes	847	2.9%	3,090	$30,242,846
Total	20,079	68.0%	65,974	$984,758,204

* Source: Oregon resident death certificates, 2000
† Source: Oregon Hospital Discharge Database, 2000
Hospitalization numbers and cost are reflected only where the disease was the first-listed diagnosis.

Nearly $1 billion in costs were incurred treating 65,974 hospitalizations for these chronic diseases in 2000. The hospitalization numbers are conservative because they reflect only hospitalizations where the disease was the first-listed diagnosis. For example, if someone was hospitalized for cancer and pneumonia, but pneumonia was listed first on the hospital discharge summary, the cancer case would not be counted in the table.

Total hospitalization costs for Oregonians with any mention of the above diseases listed on the hospital discharge summary sheet exceeded $3 billion in 2000. These costs do not reflect the additional charges for office visits, medications, rehabilitation or extended care.

Arthritis, asthma, cardiovascular disease and diabetes affect the lives of over one-third of Oregon adults. Table 2 shows the percentage of adult Oregonians who reported having a diagnosis of one of these chronic diseases.

The burden of these chronic diseases goes beyond premature death and healthcare costs. Oregonians with these chronic diseases are more likely to report overall poorer health status as shown in Figure 4.

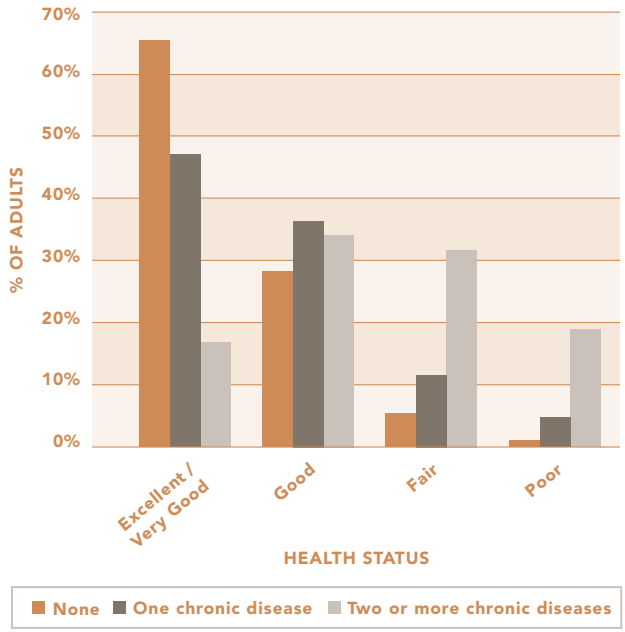
Adults with chronic diseases have higher rates of depression than the general population of adults.[5,9] Feeling sad, blue or

Table 2
PREVALENCE OF SELECTED CHRONIC DISEASES, OREGON, 2000-2001

Prevalence	% of Oregon Adults
Arthritis	35%
Asthma	9%
Heart Attack	4%
Coronary Heart Disease	5%
Stroke	2%
Diabetes	6%

Source: BRFSS County Augment, 2000 & 2001

Figure 4
HEALTH STATUS AMONG ADULTS WITH CHRONIC DISEASES, OREGON, 2001



Source: BRFSS, 2001

depressed can impact motivation for self-care or self-management of chronic diseases. For example, from 1998-2000, Oregonians with diabetes reported feeling sad, blue or depressed an average of 4.8 days per month compared to those without diabetes who reported only 3.4 days. People living with chronic diseases who learn to address emotional issues as well as management of their disease and symptoms, report increased ability to cope with their disease.[10]

Oregonians with chronic diseases such as cardiovascular disease, arthritis, diabetes and asthma report that their health impeded their usual activities 2-3 times more than Oregonians without chronic diseases, as shown in Table 3.

Oregon data regarding a diagnosis of depression in addition to other chronic diseases are lacking because the Department of Human Services (DHS) does not currently collect information on chronic diseases and depression. This is an area for further study.

By working with a medical provider, Oregonians can watch for early signs of risk conditions and chronic diseases. Clinical preventive services or screenings can help medical providers recognize early warning signs of disease in their patients and provide the opportunity to delay onset of the disease. For many chronic diseases, early detection, leading to early treatment, can decrease the effects of the disease and/or reduce the chance of early death due to the disease.

Table 3
MEAN NUMBER OF "GOOD" PHYSICAL AND MENTAL HEALTH DAYS AND DAYS HEALTH PREVENTED USUAL ACTIVITIES, DURING THE PRECEDING 30 DAYS, OREGON, 2001

	AVERAGE NUMBER OF DAYS IN PAST MONTH		
	Good physical health days	Good mental health days	Days health prevented usual activities
None of these chronic diseases	27	25	2
One of these chronic diseases	22	23	5
Two or more of these chronic diseases	15	22	9

Source: BRFSS, 2001

In this section, we describe the health impact of five chronic diseases and their associated preventive services or screenings:

1. Cardiovascular Disease
   (Heart Disease and Stroke)
2. Cancer
3. Chronic Lung Disease
4. Diabetes
5. Arthritis and Osteoporosis

We also describe three risk conditions that lead to the above chronic diseases. They include:

1. High Blood Pressure
2. Elevated Blood Cholesterol
3. Obesity

Heart disease is the leading cause of death for both men and women. Although men have a higher heart disease death rate than women, heart disease and stroke killed more than ten times as many women as breast cancer in 2000.

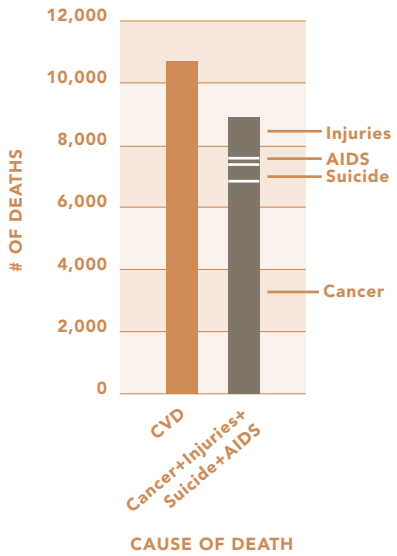
Cardiovascular Disease
(Heart Disease and Stroke)

More Oregonians die each year from cardiovascular disease than from all forms of cancer, AIDS, suicides and injuries combined (FIGURE 5).

Cardiovascular disease (CVD) accounted for 10,547 deaths, or 35.7% of all deaths, in Oregon during 2000. Over 91% of these deaths are due to the two most common forms of CVD: heart disease and stroke.

Over 39,872 Oregonians were hospitalized for heart disease and stroke costing our state nearly $594 million in hospitalization costs in 2000. While Oregon's heart disease death rate ranked 46th in the nation, our stroke death rate ranked 3rd among the 50 states and the District of Columbia in 1999.

Figure 5
CARDIOVASCULAR DISEASE AS A MAJOR CAUSE OF DEATH, OREGON, 2000



Source: Oregon resident death certificates, 2000

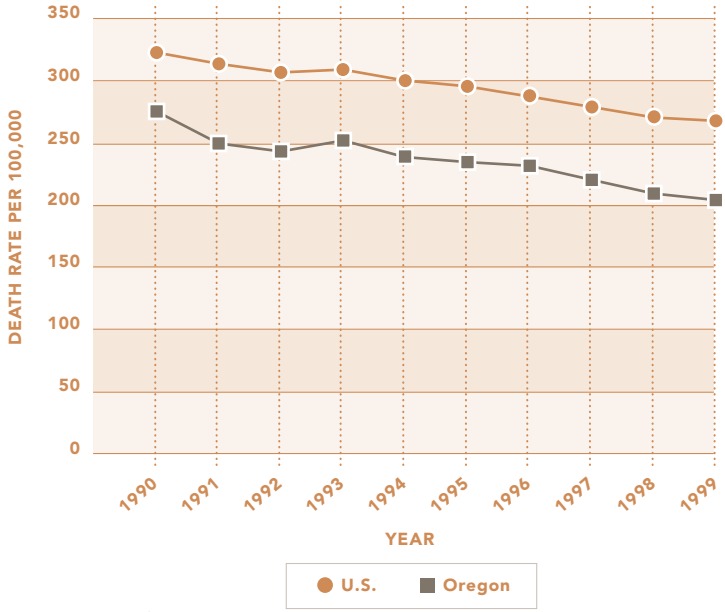
Heart Disease

Figure 6 shows that for the past 10 years, Oregon death rates from heart disease have remained below the rate for the United States and continue to decline gradually.

Heart disease death rates are slightly higher for men than women and rates increase significantly with age. Death rates more than double between the 55-64 year age group and the 65-74 year age group. Rates then increase more than nine times between the 65-74 year age group and the 85+ year age group.

Figure 6

HEART DISEASE DEATH RATES, U.S. & OREGON, 1990-1999



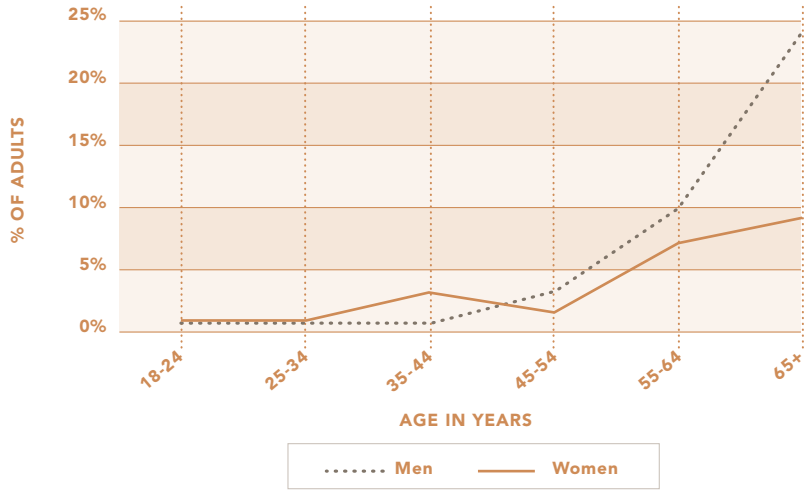
Source: CDC Wonder

Much of the heart disease burden is preventable. Risk factors for heart disease include cigarette smoking, obesity, high blood pressure, elevated cholesterol and diabetes. Eating a healthy diet, being physically active, and refraining from tobacco use are modifiable behaviors that greatly impact the risk of developing heart disease.

Oregon men report significantly higher diagnoses of heart disease or angina after age 55 (*Figure 7*). This diagnosis increases with age for women as well, but not at as high a rate.

Figure 7

CORONARY HEART DISEASE OR ANGINA PREVALENCE BY AGE GROUP AND SEX, OREGON, 2001.



Source: BRFSS, 2001

EARLY DETECTION OF DISEASE

High blood pressure increases the risk of heart attack and heart disease. When high blood pressure exists with obesity, smoking, high blood cholesterol levels or diabetes, the risk of heart attack or stroke increases several times.[3] Regular screening for high blood pressure can decrease the risk of developing heart disease.

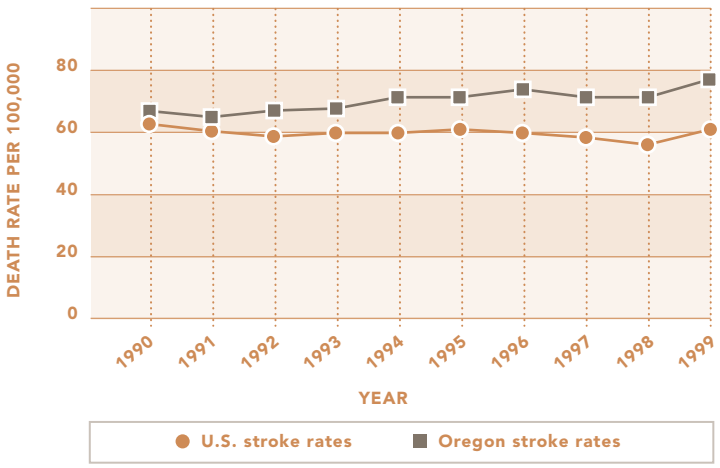
The risk of cardiovascular disease increases as blood cholesterol levels increase. Regular screening for elevated blood cholesterol can decrease the risk of developing heart disease.

Diabetes seriously increases the risk of heart disease. More than 80 percent of people with diabetes die of some form of heart or blood vessel disease. Regular health care and control of blood pressure, blood cholesterol and obesity are critical for people with diabetes.

Regular screening for these risk factors can help identify those at increased risk for heart disease and stroke. Once identified, individuals can work with their health care provider to bring blood pressure and cholesterol levels into a healthy range, thus decreasing their risk of heart disease and stroke.

Figure 8

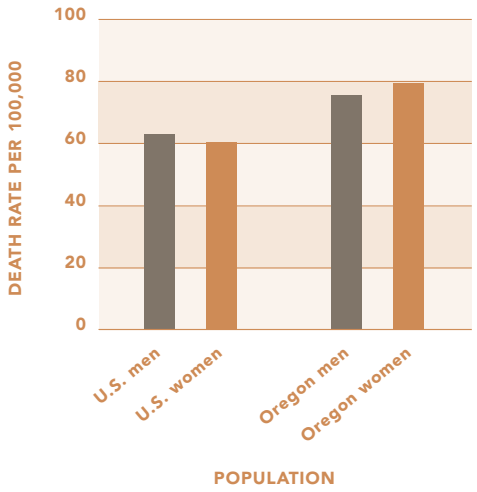
STROKE DEATH RATES, U.S. & OREGON, 1990-1999



Source: CDC Wonder

Figure 9

STROKE DEATH RATES BY SEX, U.S. & OREGON, 1999



Source: CDC Wonder

Stroke

In 2000, 2,567 people in Oregon died of stroke or cerebrovascular disease, representing over 24% of cardiovascular disease deaths. While Oregon's death rates due to stroke have been higher than the United States' rates for over 30 years, the disparity has grown wider since 1990 (*Figure 8*). Since 1990, the stroke death rate has increased 34% in Oregon, which for unknown reasons, now has the 3rd highest stroke death rate in the nation.

Although stroke death rates are similar for men and women in the U.S., Oregon women have a higher stroke death rate than Oregon men. (*Figure 9*)

Reports of non-fatal strokes increase significantly after age 55. Figure 10 shows the percentage of Oregon men and women reporting the occurrence of non-fatal strokes by age and gender.

EARLY DETECTION OF DISEASE

Risk factors for stroke are similar to those for heart disease. The greatest modifiable risk factor for stroke is high blood pressure.

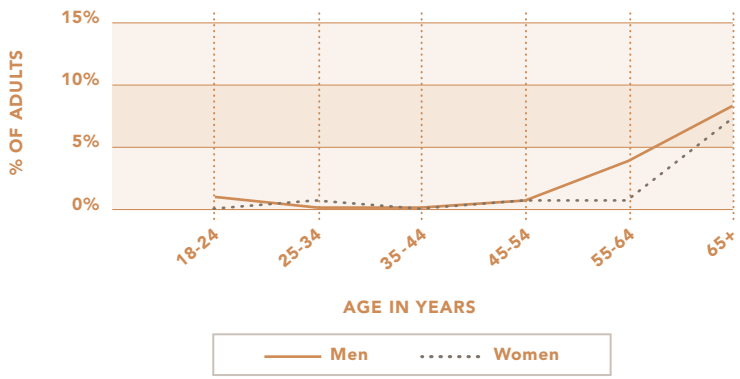
The risk of stroke increases as blood cholesterol levels increase.

Regular screening for these risk factors can help identify those at increased risk for stroke. Once identified, individuals can work with their health care provider to bring blood pressure and cholesterol levels into a healthy range, thus decreasing their risk of stroke.

Diabetes seriously increases the risk of stroke. Regular health care and control of blood pressure, blood cholesterol and obesity are critical for people with diabetes.

Figure 10

STROKE PREVALENCE BY AGE GROUP AND SEX, OREGON, 2001



Source: BRFSS, 2001

Regular, moderate-to-vigorous physical activity plays a significant role in preventing cardiovascular disease. Even modest levels of low-intensity physical activity are beneficial if done daily, year after year.

Avoiding Disease

Cigarette smoking, poor nutrition and physical inactivity all contribute to the risk of cardiovascular disease.

Smoking is a major risk factor for sudden death from heart attack, with smokers having 2 to 4 times the risk of nonsmokers.[3] Cigarette smoking is also increasingly recognized as a risk factor for stroke.

Lack of physical activity is a risk factor for heart disease. Exercise can help control body weight, blood cholesterol and diabetes, as well as help to lower blood pressure in some people.

A healthy diet and daily physical activity are key factors in maintaining ideal body weight and preventing obesity. People who have excess body fat are more likely to develop heart disease and stroke even if they have no other risk factors. Obesity is directly linked with coronary heart disease because it influences blood pressure, blood cholesterol levels, and makes diabetes more likely to develop.

Consuming a diet rich in fresh fruits and vegetables and low in saturated fat is important for keeping blood cholesterol levels within normal limits and for controlling weight.

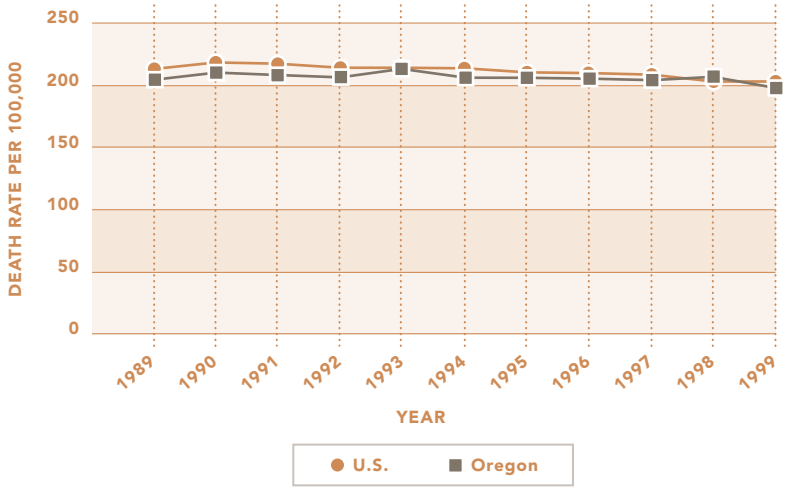
Cancer

Cancer is the second leading cause of death in Oregon. During 2000, 18,121 total new cancer cases were diagnosed in Oregonians and 6,989 people died from cancer-related causes. Cancer accounted for 24% of all deaths.

Oregon's mortality rates for cancer have remained very similar to those for the United States over the past 10 years (*Figure 11*).

Figure 11

CANCER DEATH RATES, U.S. & OREGON, 1989-1999

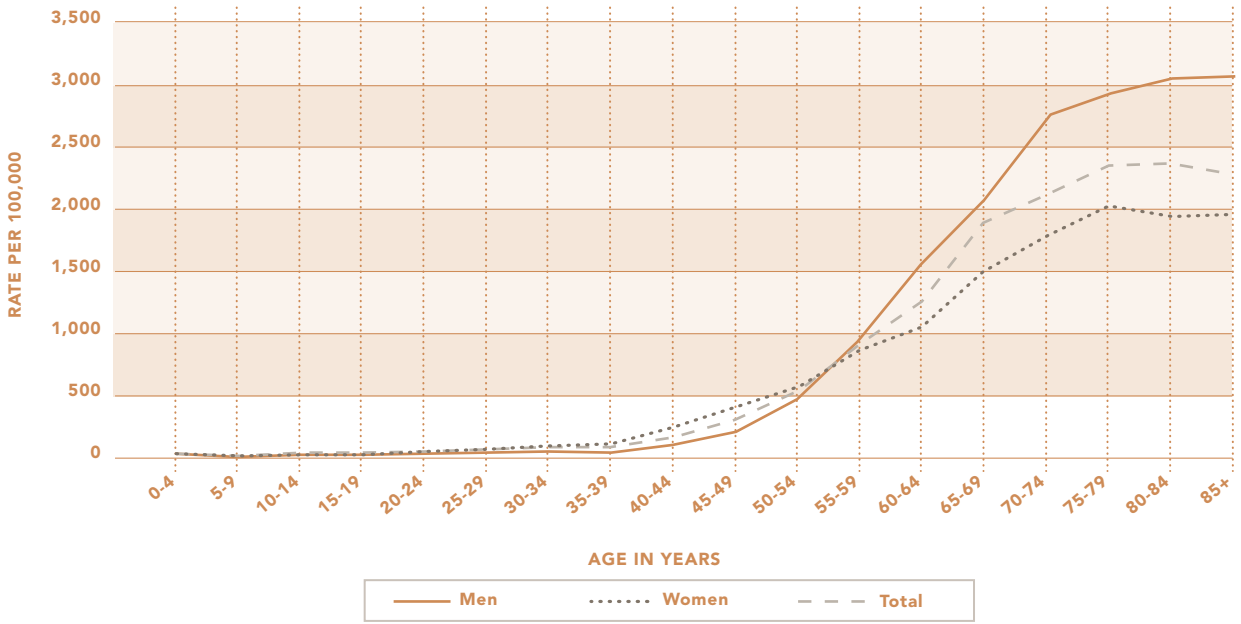


Source: CDC Wonder

The risk of developing cancer increases with age. Figure 12 shows that Oregon's age-specific incidence rate sharply increases after age 50. The age-specific incidence rate for Oregonians, ages 50-54 is four times greater than that of Oregonians ages 35-39. The incidence of cancer is slightly higher among women than men up to age 54, after which cancer incidence is greater among men.

Figure 12

CANCER INCIDENCE RATES BY AGE GROUP AND SEX, OREGON, 2000

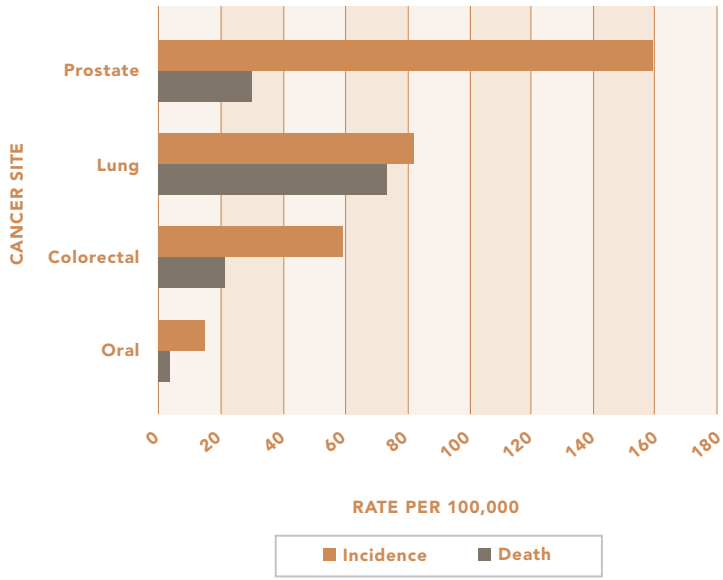


Source: Oregon State Cancer Registry

Oregon men had a 24% higher age-adjusted cancer incidence rate than Oregon women, and a 41% higher age-adjusted cancer mortality rate than women in 2000. Figure 13 shows the incidence and mortality of selected cancer sites for men. Among Oregon men, prostate cancer is the most common type of cancer followed by lung cancer.

Figure 13

INCIDENCE AND DEATHS AMONG MEN BY SELECTED CANCER SITES, OREGON, 2000

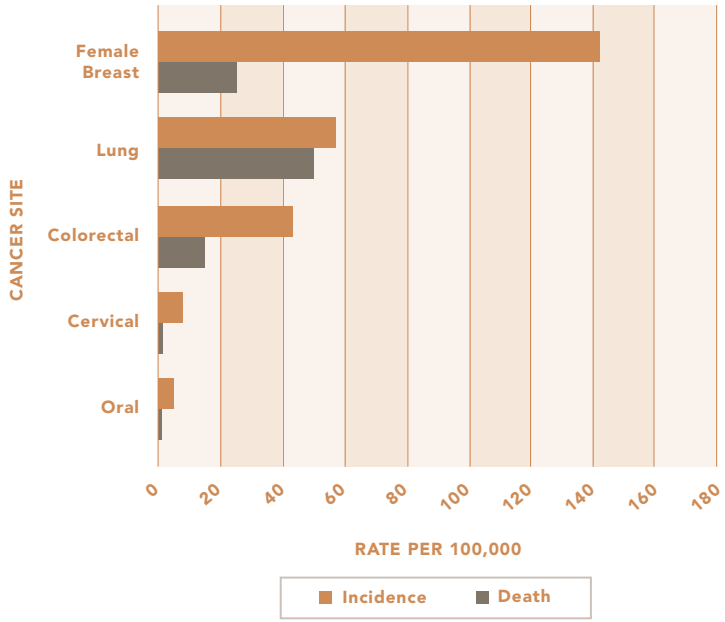


Source: Oregon State Cancer Registry

Figure 14 shows the incidence and mortality of selected cancer sites for Oregon women. Among Oregon women, breast cancer is the most common type of cancer, followed by lung cancer. Lung cancer is the leading cause of cancer-related deaths for both men and women in Oregon.

Figure 14

INCIDENCE AND DEATHS AMONG WOMEN BY SELECTED CANCER SITES, OREGON, 2000



Source: Oregon State Cancer Registry

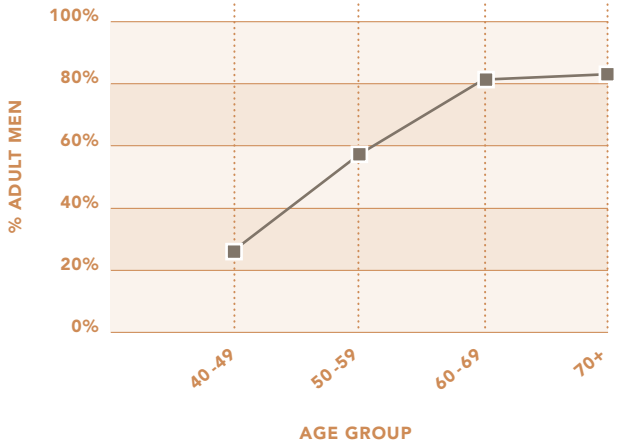
Prostate Cancer

Prostate cancer is the most common cancer diagnosed among men, exceeding lung cancer.

In 2000, Oregon had 420 deaths due to prostate cancer and 2,499 total new cases of prostate cancer. The majority (71%) of prostate cancers were diagnosed at the early (localized) stage.

Figure 15

MEN RECEIVING A PSA TEST AND DIGITAL RECTAL EXAM AT ANYTIME BY AGE GROUP, OREGON, 2001



Source: BRFSS, 2001

PROSTATE CANCER SCREENING

Screening for prostate cancer, with a blood test for the prostate-specific antigen (PSA), has increased in the United States over the past 10 years.

Routine screening for prostate cancer is controversial. Most prostate cancers occur in older men, grow slowly and do not affect survival.

Due to lack of scientific evidence, the U.S. Preventive Services Task Force does not recommend routine screening for prostate cancer with digital rectal examinations, serum tumor markers (e.g. prostate-specific antigen or PSA), or transrectal ultrasound.

The American Cancer Society recommends that men consider a yearly PSA blood test and digital rectal exam starting at age 50, or at age 45 for men at high risk (African-American men or men with a father or brother diagnosed with prostate cancer at a young age), and that all men talk to their doctor about prostate cancer screening.

Figure 15 shows that approximately 80% of Oregon men 60 years and older have ever had a PSA test and a digital rectal exam.

Breast Cancer

In 2000, 482 Oregon women died from breast cancer. A total of 3,219 new cases of female breast cancer were reported in Oregon and it continued to be the most frequently reported cancer (16 Oregon men also developed breast cancer). Similar to the U.S., breast cancer was the most common cancer occurring in women and was the second leading cause of cancer death among women in Oregon. Oregon's female breast cancer incidence rate was 6% higher than the national rate; however Oregon's mortality rate was 9% lower than the national rate. Because early detection of cancer is thought to improve survival, this variation may be a reflection of more mammography screening, resulting in earlier detection in Oregon relative to the rest of the nation. In 2000, 16% of the breast cancer cases were detected in the earliest stage, 55% were diagnosed in the localized stage, and 27% were diagnosed in later stages.

BREAST CANCER SCREENING

For most women, breast cancer takes years to develop. Early in the disease, most cancers of the breast cause no symptoms. The goal of screening mammography is to detect cancer when it is still too small to be felt by the medical provider or the woman. Early detection of small breast cancers by screening mammography greatly improves a woman's chances for successful treatment.

The U.S. Preventive Services Task Force recommends screening mammography, alone or with clinical breast examination (CBE), every 1-2 years for women aged 40 and older.

The American Cancer Society guidelines for the detection of breast cancer in asymptomatic women are:

Age 20-39:

- Breast self examination each month
- Clinical breast examination by health care professional every three years

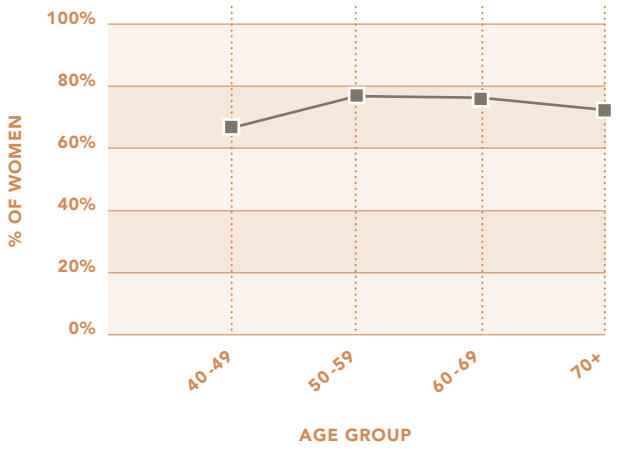
Age 40 and over

- Yearly mammogram
- Yearly clinical breast examination by a health care professional, near the time of the mammogram
- Breast self exam every month

In Oregon, 77% of women, age 40 and above, report having a mammogram and breast exam within the past two years. However, as Figure 16 shows, over 20% of women, 50 years and older, are not receiving this important screening. Of greater concern, even fewer women 70 years of age and older report having had a mammogram within the past two years. Because cancer incidence increases with age, it is important that all women over 40 years of age receive regular mammogram screenings.

Figure 16

WOMEN RECEIVING MAMMOGRAM AND BREAST EXAM WITHIN PAST 2 YEARS BY AGE GROUP, OREGON, 2001



Source: Oregon BRFSS, 2001

Lung Cancer

Lung cancer is the leading cause of cancer death in Oregon. In 2000, 2,078 Oregonians died from lung cancer, representing nearly 30% of all cancer deaths. The prognosis for lung cancer is less favorable than for other cancers. Within 5 years of a lung cancer diagnosis, 70% of men and 50% of women will have died from their disease. In Oregon, lung cancer is the second most frequently reported cancer, with 2,354 diagnosed in 2000. The incidence of lung cancer among Oregon women is significantly higher than the national rate.

LUNG CANCER SCREENING

While there is no known screening for lung cancer, the primary prevention strategy is the avoidance of tobacco use.

Oral Cancer

In 2000, Oregon had 91 deaths due to oral cancer and 398 new cases of oral cancer. In Oregon, almost 60% of oral cancer deaths were linked to tobacco in 2000. Incidence and mortality rates for men are more than twice as high as those for women. Almost half (44%) of the cancers were diagnosed at an early stage.

ORAL CANCER SCREENING

Oral cancer is best prevented through the avoidance of tobacco use. Although there is no known screening for oral cancer, periodic examination of the mouth by a health professional can detect early pre-cancerous lesions which could lead to oral cancer.

Colorectal Cancer

Together, the colon and rectum make up the large intestine. Malignancies occurring in these areas are often grouped together and referred to as colorectal cancer. Colorectal cancer is the third most common cause of cancer related death for men and women in Oregon. In 2000, 629 Oregon adults died from colorectal cancer. Both incidence and mortality rates were greater among men than women and increased significantly over the age of 50 years. Oregon had 1,918 new cases of colorectal cancer. The stage at diagnosis is an important factor in cancer prognosis. Cancers diagnosed in the earliest stages have the best chance for successful treatment. Among Oregon colorectal cancer cases in 2000, 42% were detected in early stages.

COLORECTAL CANCER SCREENINGS

Several screening tests are available for the identification of colorectal cancer. A digital rectal exam is performed by a health care provider to palpate for tumors. A fecal occult blood test (FOBT) examines stool for traces of blood that could indicate disease in the colon. Sigmoidoscopy is exploration of the lower intestine with a lighted scope for the purpose of detecting disease. A colonoscopy is an examination of the large intestine with a fiber optic scope for the purpose of detecting disease.

The U.S. Preventive Services Task Force recommends annual FOBT or sigmoidoscopy, or both for all persons age 50 and older.

The American Cancer Society recommends that women and men, beginning at age 50, should have one of the five screening options below:

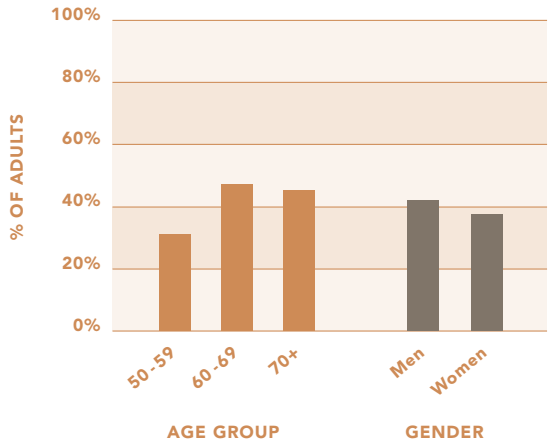
- Yearly FOBT
- Flexible sigmoidoscopy every 5 years
- Yearly FOBT plus flexible sigmoidoscopy every 5 years (preferred method)
- Double contrast barium enema every 5 years
- Colonoscopy every 10 years

Health care providers may recommend more stringent screening beginning at an earlier age for those with a strong family history of colorectal cancer or a personal history of chronic inflammatory bowel disease.

Figure 17 shows that barely one-third of Oregonians aged 50-59 are receiving screening, with screening more common in the older age groups. Overall, approximately 40% of men and women over age 50 have been screened for colon cancer.

Figure 17

ADULTS REPORTING SIGMOIDOSCOPIC OR COLONOSCOPIC EXAM BY AGE GROUP AND SEX, OREGON, 2001



Source: Oregon BRFSS, 2001

Cervical Cancer

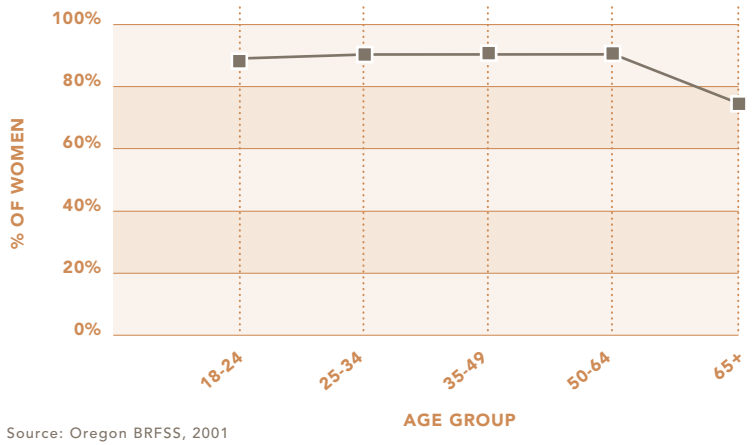
In 2000, Oregon had 36 deaths due to cervical cancer and 146 new cases of cervical cancer.

Oregon's age-adjusted incidence rate for this cancer has been increasing slightly over the last four years. However, Oregon's age-adjusted mortality rate for this cancer (2.0 deaths per 100,000) is below the national rate (2.9 deaths per 100,000) and declining annually.

In 2000, 48% of cervical cancer cases were diagnosed in the early (localized) stage.

Figure 18

WOMEN RECEIVING A PAP TEST WITHIN 3 YEARS BY AGE GROUP, OREGON, 2001



Source: Oregon BRFSS, 2001

Older women (age 60 and over) in Oregon with cervical cancer are more likely to be diagnosed at a later stage of disease than younger women. This fact demonstrates the need for ongoing outreach and education promoting screening for older women.

CERVICAL CANCER SCREENING

Used for cervical cancer screening, the Papanicolaou (PAP) test can detect human papilloma virus (HPV) infection and precancerous conditions. Once detected, these conditions can often be treated and the precancerous condition can be stopped from developing into cervical cancer.

The U.S. Preventive Services Task Force recommends routine screening for cervical cancer for all women who are or have been sexually active and who have a cervix:

- Papanicolaou (PAP) testing should begin with the onset of sexual activity.
- PAP testing should be repeated at least every 3 years.

Similarly, the American Cancer Society recommends that all women begin yearly PAP tests at age 18 or when they become sexually active, whichever occurs earlier. If a woman has had 3 normal annual PAP tests in a row,

this test may be done less often at the judgment of a woman's health care professional.

In Oregon, over 10% of women report not having had a PAP test within the past 3 years. As Figure 18 shows, the percentage of women reporting screening for cervical cancer decreases after age 64. Cervical cancer incidence continues to increase with age; therefore it is important for all Oregon women to continue receiving PAP tests beyond the childbearing years.

Summary

Table 4 summarizes the incidence and mortality of selected cancers in Oregon. Overall, 18,121 new cancer cases were diagnosed among Oregonians and 6,989 Oregonians died from cancer in 2000.

Table 4

INCIDENCE AND MORTALITY OF SELECTED CANCERS, OREGON AND U.S., 1999 AND 2000

Cancer	Total new cases*	Oregon incidence rate*	U.S. incidence rate**	Oregon deaths†	Oregon death rate*	U.S. death rate††
Overall	18,121	473.3	468.9	6,989	197.5	202.7
Prostate (men)	2,499	159.6	168.2	420	30.4	30.9
Breast (women)	3,219	142.3	134.1	482	24.7	27.0
Lung	2,354	67.2	62.8	2,078	59.2	56.0
Colorectal	1,918	50.6	53.6	629	17.7	21.1
Oral	398	10.7	10.9	91	2.6	2.8
Cervical (women)	146	8.2	9.8	36	2.0	2.9

Note: All rates are per 100,000 populations and are age-adjusted to the 2000 population.

* Source: OSCaR (Oregon State Cancer Registry), 2000

** Source: SEER, 1995-1999

† Source: Oregon resident death certificates, 2000

†† Source: CDC Wonder, 1999

The American Cancer Society provides the following nutrition and physical activity recommendations for cancer prevention:

* *Eat a variety of healthful foods, with an emphasis on plant sources.*
* *Adopt a physically active lifestyle.*
* *Maintain a healthful weight throughout life.*
* *If you drink alcoholic beverages, limit consumption.*

Avoiding Disease

Smoking accounts for about 1 in every 5 deaths in the U.S. and is one of the most important modifiable risk factors in reducing premature death. Approximately 85% of lung cancers are related to smoking. A smoker faces between 12 and 22 times the risk of dying from lung cancer than a nonsmoker faces. After 10 years of abstinence from smoking, the ex-smoker's risk of lung cancer is reduced to half that of a continuing smoker.[6] At 20 years, the risk approaches that of a nonsmoker.

Tobacco and alcohol use account for approximately three-quarters of all oral cancers in the United States. The single most important risk factor for oral cancers is using tobacco, both smoked and the various forms of smokeless or spit tobacco.

Smoking is also a risk factor for cervical cancer. Smoking can produce chemicals that may damage the DNA in cells of the cervix and make cancer more likely to develop.

The risk of developing many cancers is also related to diet. Population studies have shown that persons who consume a high fiber, low-fat diet have a lower risk of developing colorectal cancer. Diets high in vegetables and fruits are associated with lower cancer risk.

Several studies have demonstrated that physical activity reduces the risk of colorectal, breast, and lung cancer.

For cervical cancer, the most important risk factor is infection with human papilloma virus, which is transmitted by sexual activity. Having unprotected sex, especially at a young age, makes HPV infection more likely. Most cervical cancer can be prevented through routine PAP tests, and the avoidance of tobacco use and unprotected sex.

Regular cancer screenings allow for early diagnosis and treatment that will improve the long-term outcome of the disease and result in fewer deaths.

Chronic Lower Respiratory Diseases

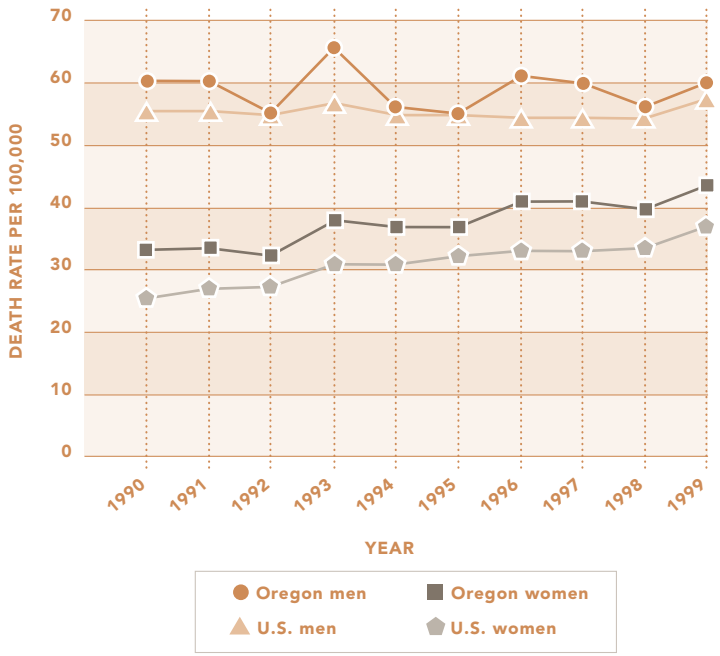
Chronic Lower Respiratory Diseases (CLRD), including emphysema, bronchitis and asthma have become an increasingly common killer of Oregonians over the past several decades and are now the fourth leading cause of death for both men and women.*

CLRD (previously referred to as Chronic Obstructive Pulmonary Disease or COPD) includes chronic bronchitis, emphysema, asthma and chronic airway obstruction. In addition to the 1,696 Oregonians whose deaths were due to chronic lung diseases, hospital costs exceeded $44 million in 2000 for those treated for CLRD.

Over the past ten years, CLRD death rates have steadily increased among women, reflective of higher smoking rates among women over the last 2-3 decades. Figure 19 shows that the CLRD death rates in the U.S. and Oregon have increased over the past 10 years. The death rate among Oregon women rose from 31.0 to 44.1 per 100,000 population (a 42% increase) and the death rate for both Oregon men and women remain above the rates for the U.S. population.

Figure 19

CLRD DEATH RATES BY SEX, U.S. & OREGON, 1990-1999



Source: CDC Wonder

* Note: Although asthma is coded as one of the chronic lower respiratory diseases, very few deaths occur due to asthma. However, the non-fatal burden is high as described in the following section.

Avoiding Disease

The strongest risk factor for chronic lower respiratory disease is cigarette smoking, responsible for nearly 90% of chronic lung disease. The American Lung Association estimates that a smoker is 10 times more likely than a nonsmoker to die of a chronic lower respiratory disease.

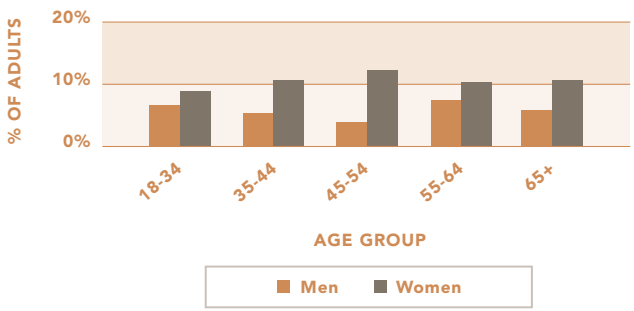
Asthma

Asthma is a serious lung disease that causes inflammation and constriction of the airways, making breathing difficult. There is no cure for asthma, but asthma can be controlled. Although people can die from asthma, death from asthma is relatively rare. However, uncontrolled asthma has severe consequences such as hospitalization, emergency department visits, and unscheduled office visits. Furthermore, asthma that is not optimally controlled can lead to decreased time spent at school and work, and often results in diminished quality of life.

During the past 20 years, asthma has increased throughout Oregon and the U.S., though there are indications that this trend is leveling off. In 2001, approximately 8% of Oregonians reported currently having asthma. Figure 20 shows the percentage of adult Oregonians with asthma by age and sex. Asthma is more commonly reported by women, although this trend is the reverse of the time prior to puberty, when more boys than girls have asthma.

Figure 20

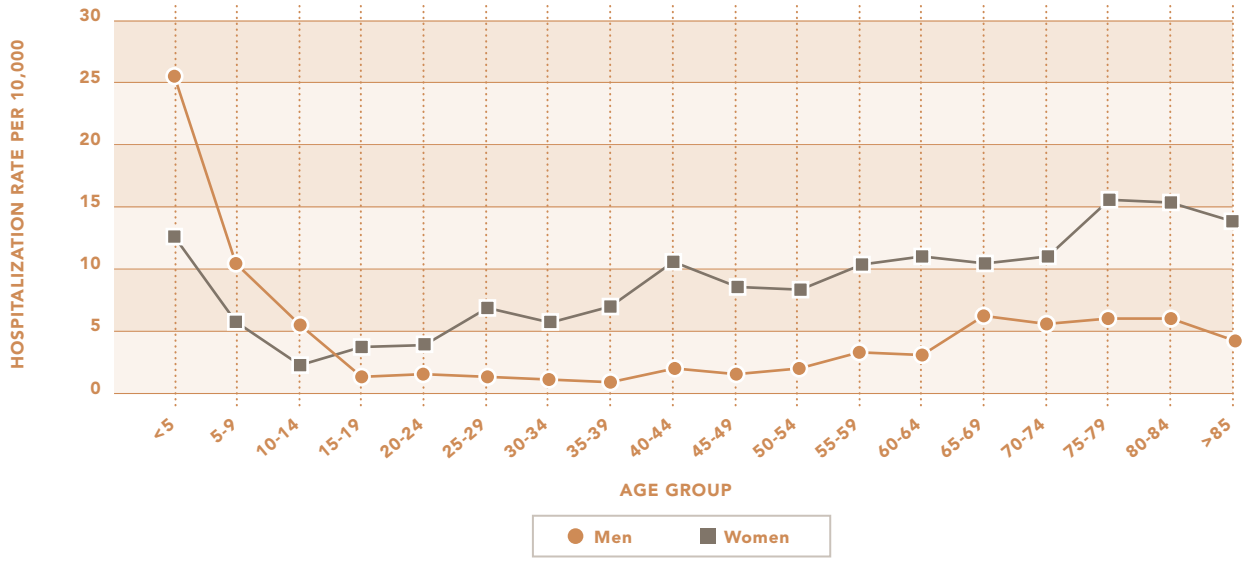
PERCENTAGE OF ADULTS WITH ASTHMA BY AGE GROUP AND SEX, OREGON, 2001



Source: BRFSS, 2001

Figure 21

HOSPITALIZATIONS FOR ASTHMA BY AGE GROUP AND SEX, OREGON, 2000



Source: Oregon Hospital Dischange Database, 2000

In 2000, asthma was listed as the primary reason for over 2,291 hospitalizations in Oregon, costing over $13 million. Figure 21 shows the highest asthma hospitalization rates are among young children and older adults. Until around age 14, these rates are highest among males. However, after age 14, hospitalization rates are higher among women, and remain so throughout the remaining life span.

Avoiding Disease

Although there is no known cure for asthma, certain "triggers" such as cigarette smoke, cold air, dust, and pollen, cause symptoms to increase. Good management of asthma, including quality health care, correct medication and good self-management, is essential to controlling the disease.

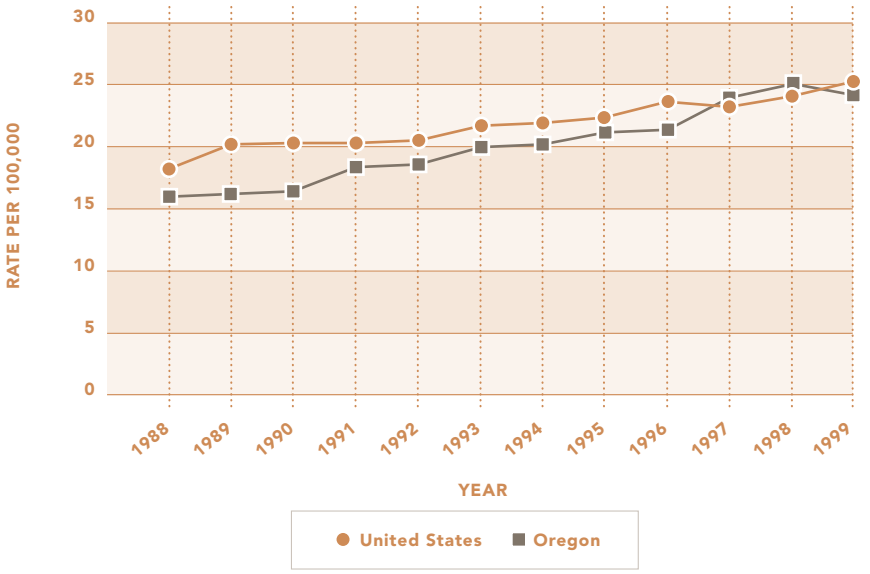
While Oregon's heart disease death rate has declined and cancer death rate has remained steady, the diabetes death rate has more than doubled over the past 20 years.

Diabetes

Since 1988, the death rate due to diabetes has been steadily increasing. In 2000, diabetes was the seventh leading cause of death among Oregonians. The increase has occurred across all age groups and both sexes.

Figure 22

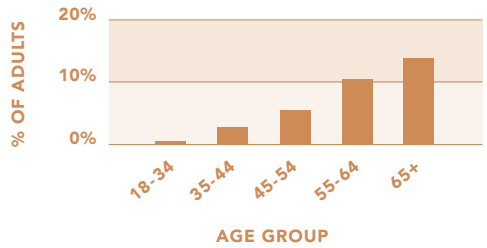
DIABETES DEATH RATES, U.S. & OREGON, 1988-1999



Source: CDC Wonder

Figure 23

PERCENTAGE OF ADULTS WITH DIABETES BY AGE GROUP, OREGON, 2001



Source: BRFSS, 2001

Historically, Oregon's diabetes death rate has been markedly lower than the nation's, but with the increases during recent years, the gap has been eliminated. Figure 22 shows the age-adjusted mortality rates from diabetes for Oregon and the United States.

While diabetes was the underlying cause of death for 847 Oregonians in 2000, many people die of complications of diabetes rather than the disease itself, resulting in underreporting of diabetes as the underlying or even contributing cause of death.

In 2000, diabetes cost $30 million in direct medical costs for over 3,090 hospitalizations with a primary diagnosis of diabetes. Almost 36,000 hospitalizations with any mention of diabetes cost Oregonians over $380 million during 1999.

Over 156,000 Oregonians report having been diagnosed with diabetes. Perhaps as many as another 68,000 adult Oregonians have diabetes but have not been diagnosed. Older adults are at an increased risk for type 2 diabetes. Figure 23 shows that the percentage of Oregonians with diabetes increases with age, especially after age 45.

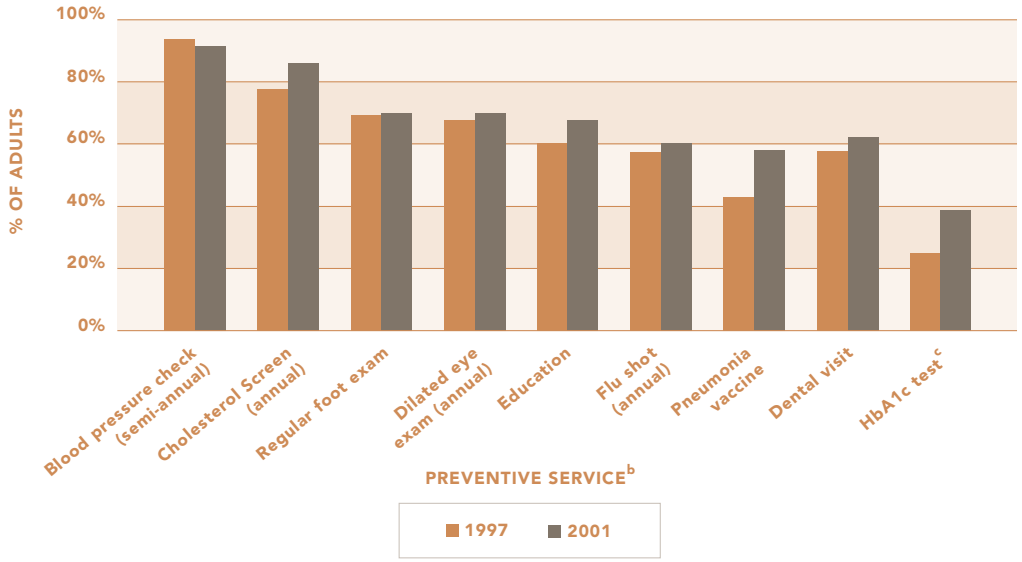
Obesity and lack of physical activity are important factors that increase the risk of type 2 diabetes, therefore lifestyle choices and behaviors can impact the diabetes burden.

EARLY DETECTION OF DISEASE

The U.S. Preventive Services Task Force does not recommend routine screening of the general population due to insufficient evidence that early detection of diabetes improves long-term outcomes. However, health care providers may consider obesity and advancing age as important risk factors that would indicate screening for diabetes could be appropriate. Other factors include elevated cholesterol levels, high blood pressure, family history, and identification with a high-risk group such as American Indians/Alaskan Natives, Hispanics, African-Americans, and Asian/Pacific Islanders.

Figure 24

RECEIPT OF PREVENTIVE SERVICES FOR ADULTS WITH DIABETES, OREGON, 1997[a] AND 2001



[a] Baseline for all services established in 1997, except for sensory foot exams and dental visits, which were established in 1998.

[b] All services required at least once in the past year, except blood pressure screening which should be done at least twice a year, and pneumonia vaccine and education, which have no time requirement.

[c] Only those who reported knowing Hemoglobin A1c (HbA1c) were asked the number of times they had been tested in the past year. Those who were not aware of Hemoglobin A1c were considered not to have been tested.

Source: BRFSS, 1997 & 2001

Clinical Preventive Services for People with Diabetes

Oregonians with diabetes are at risk of suffering from the complications of diabetes including blindness, end-stage kidney disease, heart disease, stroke, and lower extremity amputations. Many of the adverse outcomes associated with diabetes are preventable, or at least can be delayed. Good diabetes medical care is an essential component of a strategy to reduce the onset and severity of complications and improve the quality of life for people with diabetes.

Guidelines for preventive services have been developed to define appropriate measures for monitoring the quality of medical care provided to a population of people with diabetes. Figure 24 shows the increase in receipt of the recommended clinical preventive services for Oregonians with diabetes from 1997 to 2001. These preventive services can help reduce the impact of heart disease, stroke, and other adverse complications of diabetes.

Avoiding Disease

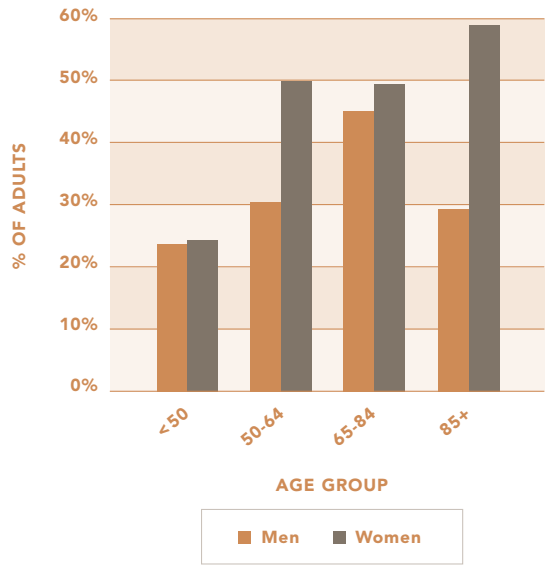
Obesity, measured through body mass index (BMI) and weight gain are major risk factors for diabetes. Maintaining a healthy weight by eating a healthy diet and getting regular physical activity will decrease the risk of obesity and diabetes by up to 60%.[2] Approximately 80% of people with type 2 diabetes are obese at the time of diagnosis.[6]

Among people with diabetes, a variety of factors, such as smoking and hypertension, interact to increase the risk of complications, including stroke and heart disease. People with diabetes face a risk of cardiovascular disease two to twelve times that of the population without diabetes. Diabetes is a risk factor for stroke. Much of the burden of diabetes could be prevented with improved delivery of care and diabetes self-management education.

Arthritis and Osteoporosis

Although 257 Oregonians died from musculoskeletal diseases in 2000, the majority of the considerable disease burden is usually non-fatal. Arthritis and musculoskeletal diseases such as osteoporosis are the most common causes of physical disability in Oregon.

Figure 25
PERCENTAGE OF ADULTS WITH ARTHRITIS BY AGE GROUP AND SEX, OREGON, 2001



Source: BRFSS, 2001

The term "arthritis" encompasses more than 100 diseases and conditions affecting joints, the surrounding tissues, and other connective tissues. An estimated 36% of Oregonians are affected by one of the most common forms of arthritis, osteoarthritis. Osteoarthritis, also known as degenerative joint disease, is a condition that leads to impaired joint function. In 2000, the hospitalization costs of 3,170 knee replacements for Oregonians with osteoarthritis or rheumatoid arthritis exceeded $60 million.

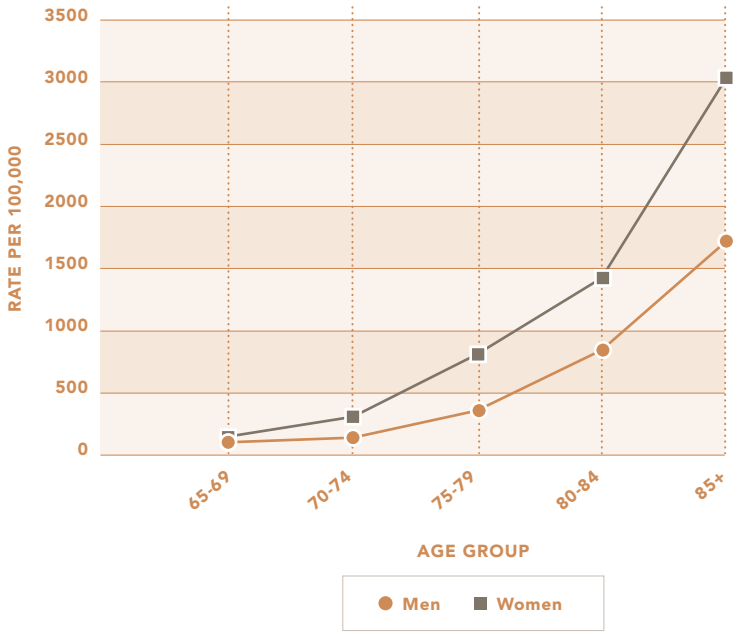
Figure 25 shows the prevalence of arthritis increases with advancing age and is more prevalent among women. Nearly 900,000 adult Oregonians report symptoms of some form of arthritis. Groups with higher rates of arthritis and disability include elderly people, women, and people of some racial or ethnic groups.

Osteoporosis is a bone disorder in which loss of bone density weakens the skeleton, making it much more prone to fractures. Weakened bone density often results in fractures, particularly hip fractures among the elderly. In 2000, 2,504 hip fractures occurred among those ages 65 and older. Hip fractures are often life-changing events that can lead to inability to live independently, restriction of activity or even death. The National Osteoporosis Foundation has estimated that because osteoporosis affects primarily the elderly, the direct medical costs of osteoporosis will increase 20 fold by the year 2040.

Although osteoporosis is usually considered a woman's disease, both men and women lose bone mass with aging. Women experience an accelerated rate of bone loss after menopause. As shown in Figure 26, hip fractures are more prevalent among women than men and increase significantly with age. During 2000, hip fractures cost Oregonians over $56 million in hospitalization costs.

Figure 26

HIP FRACTURE HOSPITALIZATIONS BY AGE GROUP, OREGON, 2000



Source: Oregon Hospital Discharge Database, 2000

Avoiding Disease

While a history of joint trauma is the primary risk factor for osteoarthritis, obesity has been demonstrated to have a causal role in osteoarthritis of the knee. Weight loss decreases the risk of developing symptomatic knee osteoarthritis in women. Moderate daily physical activity and a high-fiber, low-fat diet (with plenty of fruits and vegetables) are key components to weight loss.

While the primary risk factor for developing osteoporosis is prolonged periods of immobility, physical inactivity, low calcium intake, and heavy alcohol consumption can also contribute to development of the disease. Daily physical activity and a healthy diet, including appropriate calcium intake, can strengthen the musculoskeletal system, reduce obesity and influence the prevalence of both osteoarthritis and osteoporosis.

Cigarette smoking is also a risk factor for osteoporosis. Approximately 10% of hip fractures can be attributed to cigarette smoking.[6]

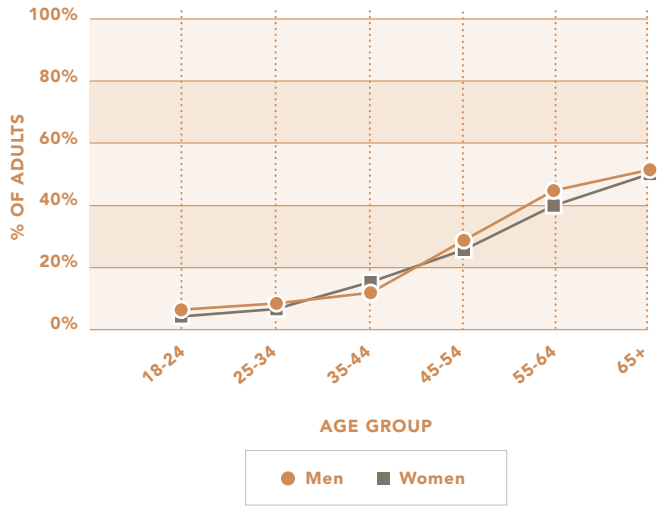
The importance of resistance exercise (to increase muscle strength, such as by lifting weights) is increasingly being recognized as a means to preserve and enhance muscular strength and endurance and to prevent falls and improve mobility in the elderly.[21]

"Screening for those chronic diseases that can be effectively treated in their early stages should be considered an essential element in any American health care system... High blood pressure and elevated cholesterol are among the conditions for which screening is known to save lives as well as money."

—CDC's UNREALIZED PREVENTION OPPORTUNITIES: REDUCING THE HEALTH AND ECONOMIC BURDEN OF CHRONIC DISEASE, November 2000

Figure 27

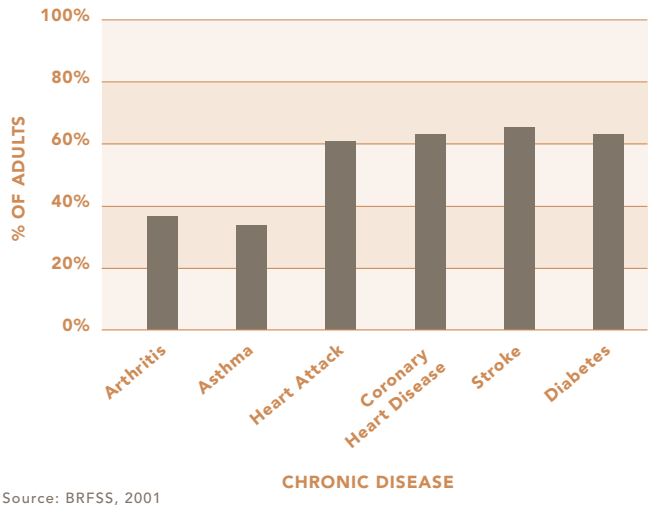
ADULTS EVER TOLD THEY HAVE HIGH BLOOD PRESSURE BY AGE GROUP AND SEX, OREGON, 2001



Source: BRFSS, 2001

Figure 28

ADULTS WITH SELECTED CHRONIC DISEASES REPORTING HIGH BLOOD PRESSURE, OREGON, 2001



Source: BRFSS, 2001

High Blood Pressure

High blood pressure is a risk factor for heart disease and stroke among all adults, and for kidney disease and eye damage among people with diabetes.

Figure 27 shows that Oregonians over age 44 are more likely to report high blood pressure than younger Oregonians.

Daily physical activity reduces the risk of developing high blood pressure and reduces blood pressure in people who already have high blood pressure. By controlling high blood pressure, individuals can decrease the risk of developing diseases such as heart disease and stroke, and decrease the risk of further complications once a chronic disease is present. Figure 28 shows the proportion of Oregon adults with selected chronic diseases who have high blood pressure. More than 60% of those with cardiovascular disease and diabetes report high blood pressure.

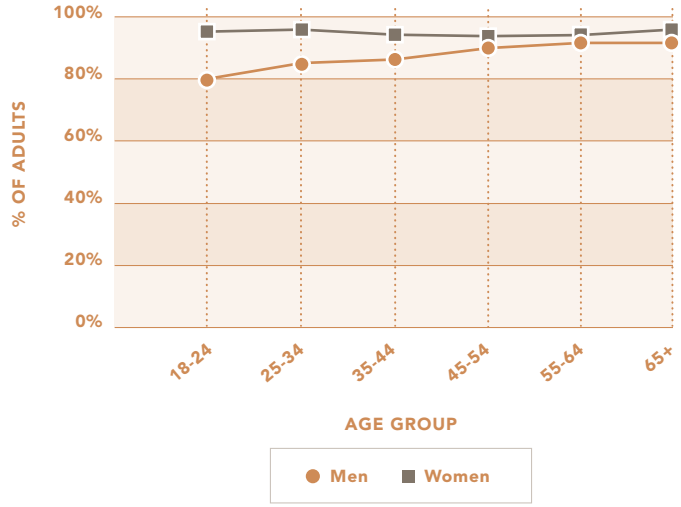
HIGH BLOOD PRESSURE SCREENING

Regular screening for high blood pressure can help identify those at risk and get them into treatment in a timely manner. The U.S. Preventive Services Task Force recommends screening for high blood pressure for all children and adults.

Figure 29 shows that almost all Oregon adults report being screened for high blood pressure.

Figure 29

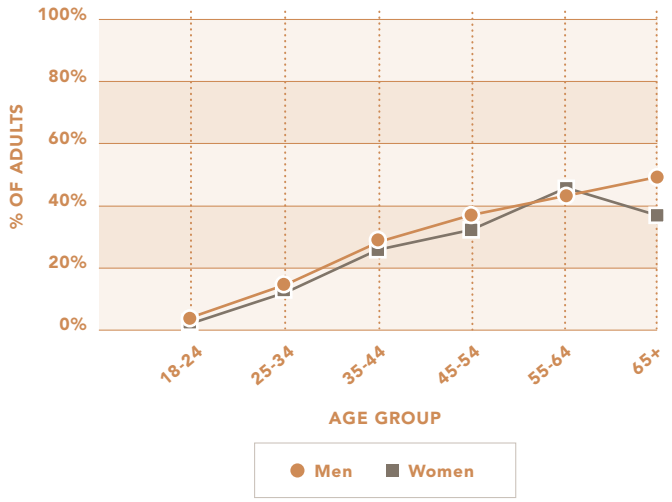
ADULTS REPORTING BLOOD PRESSURE CHECK WITHIN PAST 2 YEARS BY AGE GROUP AND SEX, OREGON, 1999



Source: BRFSS, 1999

Figure 30

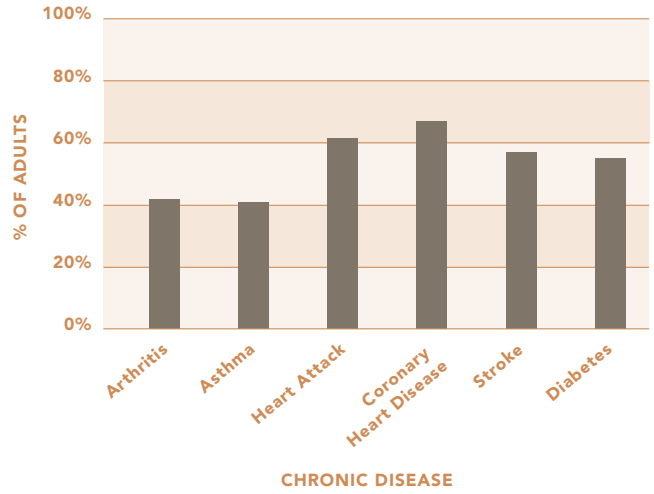
ADULTS EVER TOLD THEY HAVE HIGH BLOOD CHOLESTEROL BY AGE GROUP AND SEX, OREGON, 2001



Source: BRFSS, 2001

Figure 31

ADULTS WITH SELECTED CHRONIC DISEASES REPORTING HIGH BLOOD CHOLESTEROL, OREGON, 2001



Source: BRFSS, 2001

Elevated Cholesterol

Elevated blood cholesterol is a risk factor for heart disease among adults. A diet low in saturated fats and high in fresh fruits and vegetables is one component of preventing and managing high cholesterol.

Additionally, daily physical activity can help increase high-density lipoproteins (HDL or "good cholesterol"). Refraining from tobacco use also helps keep cholesterol at a healthy level.

Elevated blood cholesterol is a common condition among Oregon adults. Figure 30 shows that over 30% of Oregonians age 45 and older have been diagnosed with elevated blood cholesterol.

Figure 31 shows the percentage of adult Oregonians with selected chronic diseases who have ever been told that they have elevated blood cholesterol. More than 50% of those with cardiovascular disease and diabetes report elevated blood cholesterol.

CHOLESTEROL SCREENING

Regular measurement of serum blood cholesterol levels can help identify those at risk for cardiovascular disease.

The U.S. Preventive Services Task Force recommends periodic screening for all men ages 35-64 and women ages 45-65.

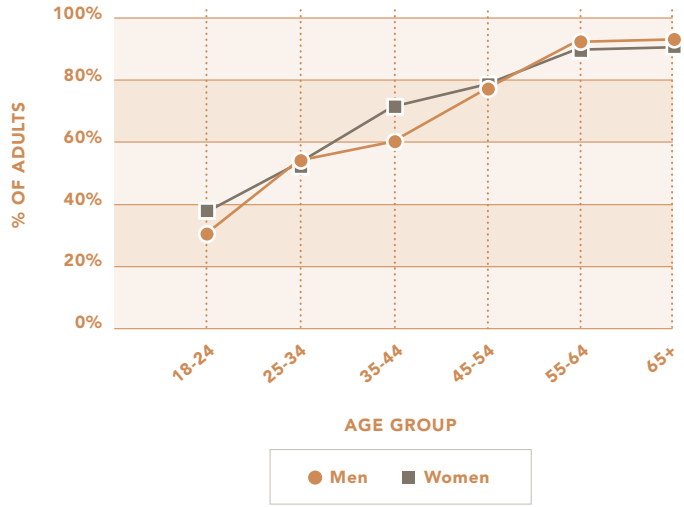
The American Heart Association recommends all adults age 20 years and older should have a fasting lipoprotein test (total cholesterol and triglyceride) once every 5 years. Additional screenings are recommended for those with elevated cholesterol or additional cardiovascular risk factors.

Figure 32 shows the percentage of Oregonians who report having had their cholesterol checked within the past 5 years.

The American Heart Association recommends that cholesterol intake be limited to 330mg/day.

Figure 32

ADULTS REPORTING BLOOD CHOLESTEROL SCREENING WITHIN 5 YEARS BY AGE GROUP AND SEX, OREGON, 2001



Source: BRFSS, 2001

Obesity

The prevalence of obesity is increasing worldwide and is reaching epidemic proportions in industrialized countries.

Recent studies demonstrate that 60% of American adults are overweight or obese.† It is estimated that 300,000 deaths in the U.S. each year are currently associated with overweight and obesity, which are mostly due to poor nutrition and physical inactivity.[14,15]

The increase in overweight young people is equally troubling. During the past two decades, the percent of U.S. children aged 6-11 years who are overweight has nearly doubled (7% to 13%), while the percent of teens aged 12-19 years who are overweight has almost tripled (5% to 14%). Overweight children are at risk for developing obesity-related disorders that previously were seen almost exclusively in adults, such as type 2 diabetes.[11]

† Obesity is defined in the Glossary of Terms.

Obesity & Oregon Adults

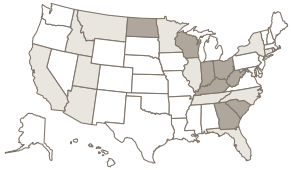
The maps to the right (*Figure 33*) show the significant increase in obesity among the U.S. adult population since 1985. Between 1994 and 2001, obesity has increased by 59% in Oregon, which is one of only four states west of the Rocky Mountains with adult obesity rates over 20%.

As shown in Figure 34, many adult Oregonians are overweight or obese (60%).

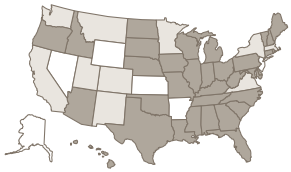
Figure 33

OBESITY TRENDS* AMONG U.S. ADULTS

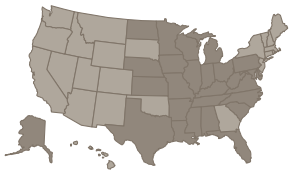
BRFSS, 1985



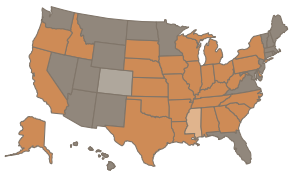
BRFSS, 1990



BRFSS, 1995



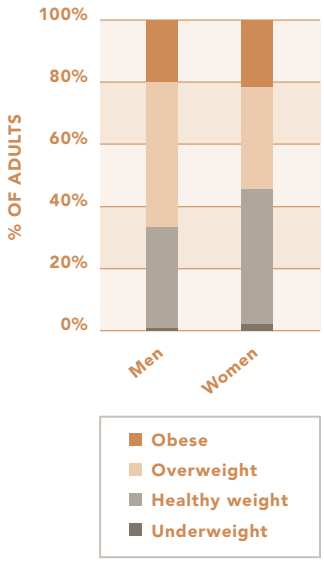
BRFSS, 2001



Source: Mokdad A.H., et al.
* BMI ≥ 30 or ~ 30 lbs. overweight for 5'4" woman

Figure 34

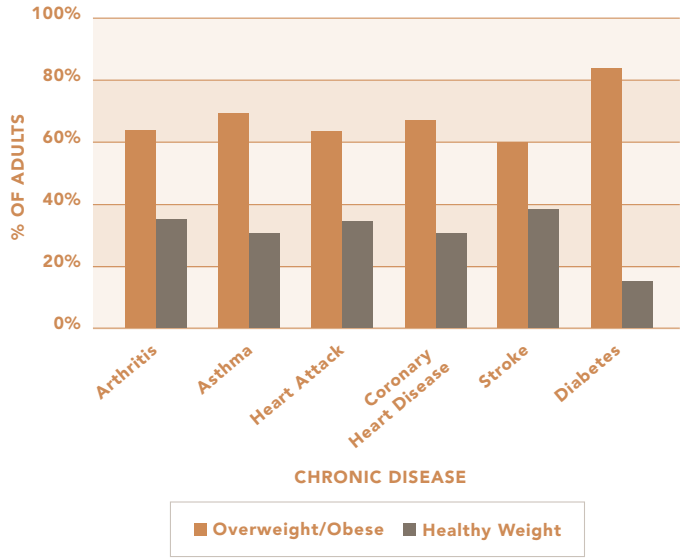
ADULTS BY WEIGHT STATUS AND SEX, OREGON, 2001



Source: BRFSS, 2001

Figure 35

WEIGHT STATUS OF ADULTS WITH SELECTED CHRONIC DISEASES, OREGON, 2001



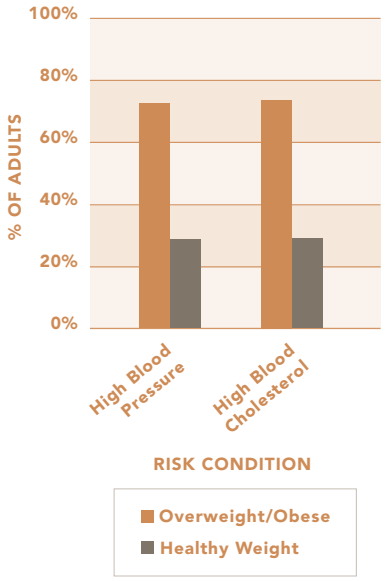
Source: BRFSS, 2001

Obesity increases the risk for many chronic diseases, including diabetes, cardiovascular diseases, cancer, asthma and osteoarthritis. Figure 35 shows that Oregonians with selected chronic diseases are more likely to be overweight or obese.

Additionally, obesity is associated with high blood pressure and elevated cholesterol. Figure 36 shows that Oregonians with high blood pressure or high cholesterol are more likely to be overweight or obese.

Figure 36

WEIGHT STATUS OF ADULTS WITH SELECTED RISK CONDITIONS, OREGON, 2001



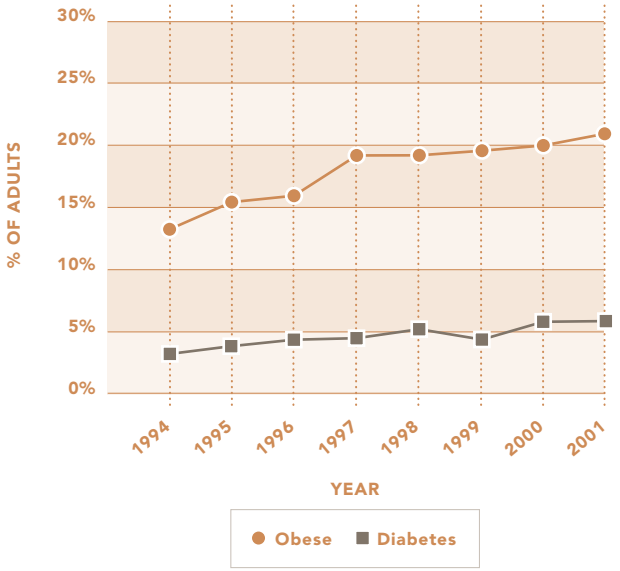
Source: BRFSS, 2001

Obesity & Diabetes

Obesity and weight gain are closely associated with an increased risk of diabetes.[14] It is estimated that 85% of type-2 diabetes is associated with obesity. Figure 37 shows the pattern of diabetes and obesity among Oregonians over the past eight years. Since 1994, obesity has increased 59% (from 13.8% to 21.9%) and the prevalence of diabetes has increased 62% (from 3.7% to 6.0%).

Figure 37

PREVALENCE OF OBESITY AND DIAGNOSED DIABETES AMONG ADULTS, OREGON, 1994-2001



Source: BRFSS, 1994-2001

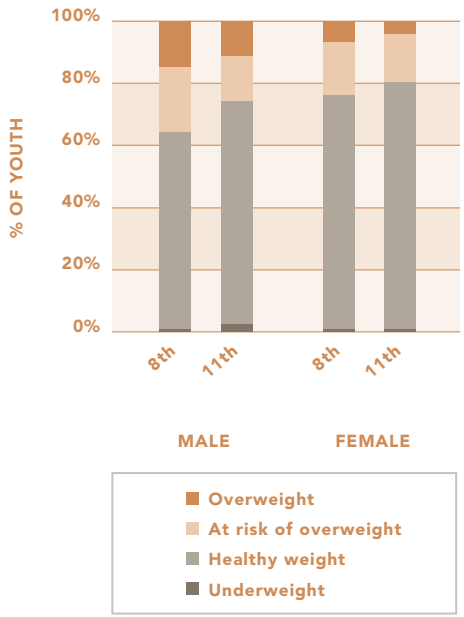
Obesity & Oregon Youth

As the adult obesity epidemic is sweeping the U.S. and Oregon, the percentage of Oregon students who are overweight is also increasing. Figure 38 shows the proportion of Oregon youth who are overweight and at risk of being overweight.

Daily physical activity and a diet low in fat and sugar and rich in vegetables, fruits, whole grains, legumes, lean meats and low-fat diary products can reduce obesity.

Figure 38

YOUTH BY WEIGHT STATUS AND SEX, OREGON, 2001

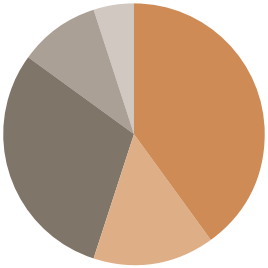


Source: Oregon Healthy Teens, 2001

Section 2 Modifiable Risk Factors

Many factors contribute to the development of chronic diseases. Figure 39 shows the distribution of factors that contribute to death. In addition to each of these factors, the intersection of these domains impacts health outcomes. For example, genetic predisposition affects the health care needed and social circumstances affect the health care received.[13] The two areas that provide optimal opportunity for public health intervention are modifiable behaviors and social or community conditions. Community conditions affect modifiable behaviors; in other words they impact individual decisions about health behaviors.

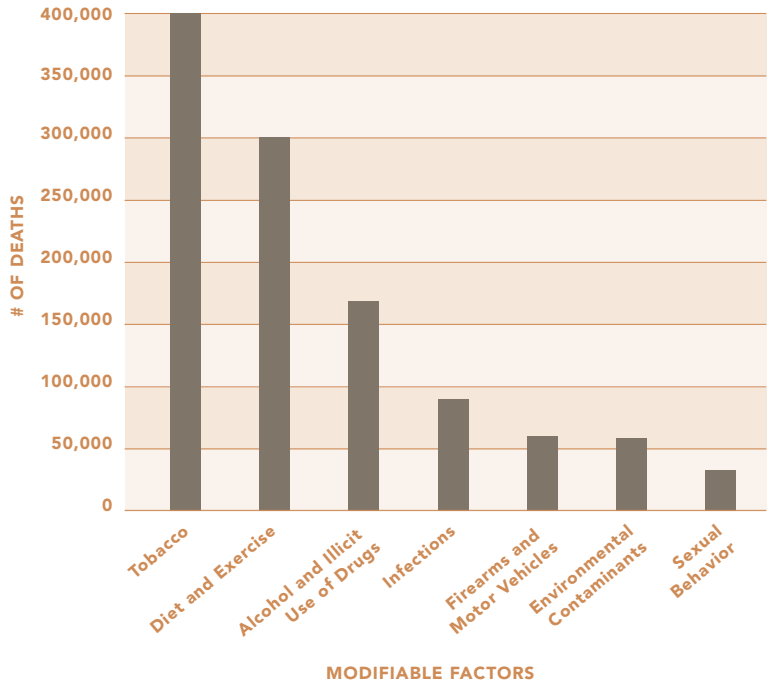
Figure 39
FACTORS THAT CONTRIBUTE TO DEATH, U.S., 1999



Source: McGinnis, Williams-Russo & Knickman, 2002

Figure 40

MODIFIABLE FACTORS ASSOCIATED WITH DEATHS, U.S., 1990



Source: McGinnis & Foege, 1993

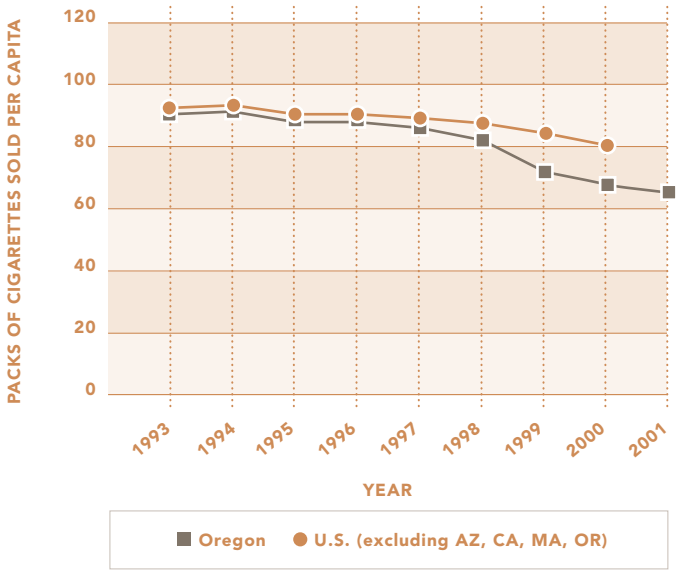
Figure 40 shows that tobacco use, poor diet and physical inactivity are the leading modifiable factors associated with deaths in the United States. The most common diseases from which Americans die, heart disease, stroke, and cancer, are associated with the leading modifiable factors of tobacco, diet, and exercise. These are the factors we address in this section.

Tobacco Use

Tobacco accounts for approximately 400,000 deaths each year in the U.S. As the number one preventable cause of death, tobacco contributes substantially to premature deaths from cancer, cardiovascular disease, stroke, and chronic lung disease.[12]

Figure 41

ANNUAL PER CAPITA CIGARETTE SALES, U.S. & OREGON, 1993-2001



Note: AZ, CA, MA, OR have had state-funded tobacco prevention programs in place since at least 1997.

Source: Oregon Department of Revenue cigarette tax receipts and the Research Triangle Institute

During 2001, tobacco use contributed to nearly 22% of all deaths in Oregon, causing more than 4 times as many deaths as motor vehicle crashes, suicide, AIDS and homicide combined. Over 6,500 premature deaths could have been prevented by abstention from tobacco use.

Tobacco & Adults

While per capita consumption of tobacco in Oregon has decreased by 30% since 1996 due to a successful statewide tobacco prevention program, over 500,000 Oregon adults still use tobacco. Figure 41 shows declining per capita cigarette sales in Oregon and the United States.

A greater proportion of younger adults use tobacco than older adults. Those with less education and lower incomes are more likely to smoke as Table 5 shows. Oregonians with higher education and those with higher incomes are least likely to smoke.

Continuing to smoke after developing a chronic disease places a person at high risk for further complications and death. Figure 42 shows the percentage of Oregonians with chronic diseases who are current smokers.

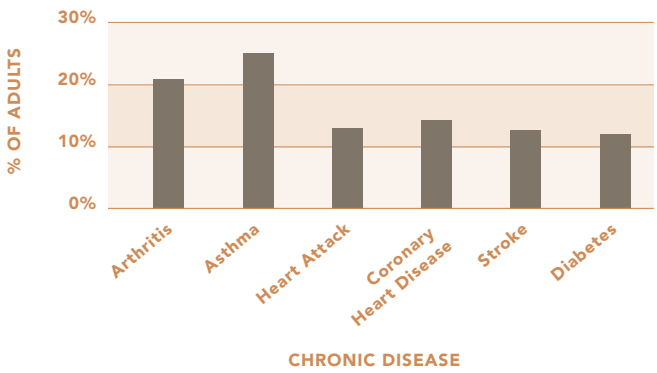
Table 5
ADULT TOBACCO USE BY EDUCATION AND HOUSEHOLD INCOME, OREGON, 2001

Education	18+ years old
< High school grad	31%
High school grad or GED	26%
College (1-3 years)	20%
College grad	12%

Household Income	18+ years old
< $15,000	30%
$15,000 - 24,999	27%
$25,000 - 49,999	21%
$50,000 +	14%

Source: BRFSS, 2001

Figure 42
ADULTS WITH SELECTED CHRONIC DISEASES REPORTING SMOKING, OREGON, 2001



Source: BRFSS, 2001

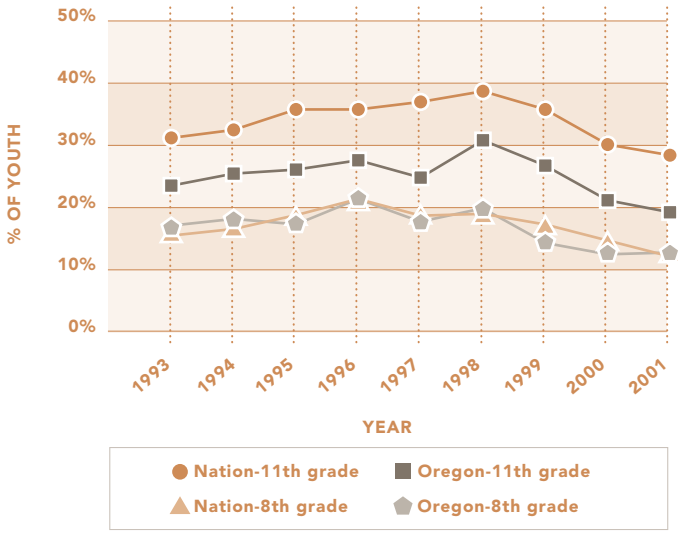
Tobacco & Youth

Tobacco use among Oregon youth has also declined significantly in the last several years. Figure 43 shows the decline of smoking among youth in grades 8 and 11. Approximately 12% of both U.S. and Oregon 8th graders smoke; while 19.6% of Oregon 11th graders smoke compared to 29.8% of U.S. 11th graders. Since 1996, smoking among 8th graders has declined 44% and smoking among 11th graders has declined 30%. Still, 60,000 Oregon youth use some form of tobacco. Slightly more girls smoke cigarettes than boys, but far more boys use smokeless tobacco. Students in the North Coast counties and in Central and Eastern Oregon counties smoke and chew more tobacco than students in the tri-counties (Multnomah, Clackamas and Washington), Willamette Valley and Southern Oregon.

Although the sale of tobacco to minors is illegal, during the year 2000, 33% of 11th grade smokers reported buying tobacco from a store within the past 30 days and 70% of those were sold cigarettes every time they tried to purchase them.

Figure 43

YOUTH WHO SMOKE CIGARETTES BY SEX AND YEAR, U.S. & OREGON, 1993-2001



Source: U.S.-Youth Risk Behavior Survey, Youth Tobacco Survey and Monitoring the Future, Oregon-Public School Drug Use Survey, Youth Risk Behavior Survey, and Oregon Healthy Teens Survey

Physical Activity

Daily physical activity and a healthy diet are the keys to maintaining a healthy weight, which reduces the risk of developing or dying from cardiovascular disease, some cancers and other chronic diseases.

In order to maintain a healthy weight, there must be a balance between calories consumed and calories expended through metabolic and physical activity. Although overweight and obesity are caused by many factors, weight gain typically results from a combination of excess caloric consumption and inadequate physical activity.[21]

While most people agree that being physically active is important, not enough of us include physical activity in our daily lives.[20]

Daily physical activity reduces:

- Dying prematurely from heart disease and other conditions
- The risk of developing diabetes
- The risk of developing high blood pressure and reduces blood pressure in people who already have high blood pressure
- The risk of developing colon or breast cancer
- Feelings of depression and anxiety

Daily physical activity helps:

- Maintain a healthy weight
- Build and maintain healthy bones, muscles and joints
- Older adults become stronger and better able to move without falling
- Promote psychological well-being

The U.S. Surgeon General recommends moderate physical activity (such as brisk walking) 30 minutes on most, if not all, days of the week.

Physical Activity & Adults

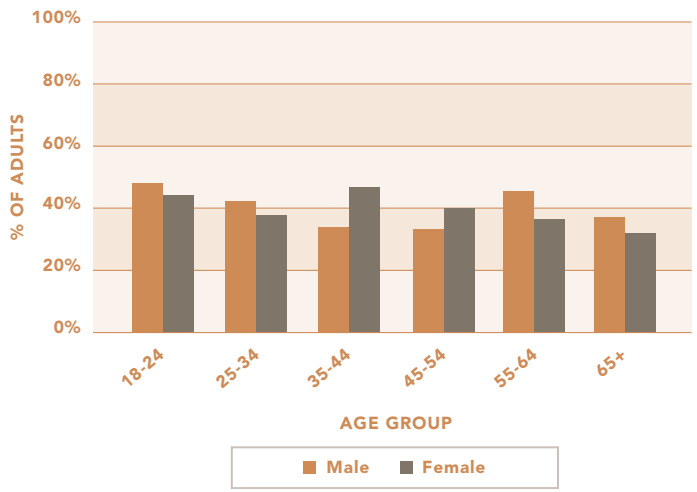
While the recommendations for physical activity have changed over the past decade, more than 11% of Oregonians lead sedentary lives (defined as engaging in no leisure-time physical activity in a one-week period) and only 39% of Oregonians are physically active for 30+ minutes per day at least 5 days per week.

Figure 44 shows the percentage of Oregonians who are physically active 30+ minutes at least 5 days per week. Younger and older men are slightly more physically active than women, while women ages 35-54 are more physically active than their male peers.

Daily physical activity plays an essential role in maintaining a healthy weight. Among those who are overweight or obese, physical activity exceeding the recommendation is necessary to reach a healthy weight. Among overweight or obese Oregonians, only 37% meet the current recommendation for physical activity. Meeting or exceeding the physical activity recommendation will reduce the risk for chronic diseases and other risk factors, such as obesity, that lead to chronic diseases.

Figure 44

PERCENTAGE OF PHYSICALLY ACTIVE ADULTS BY AGE GROUP AND SEX, OREGON, 2001

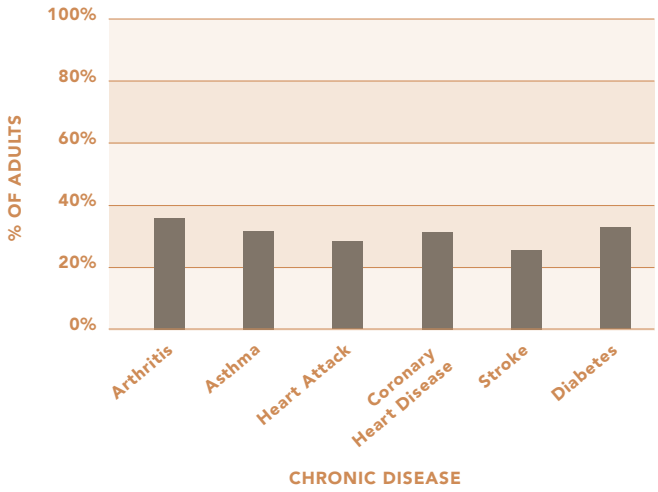


Source: BRFSS, 2001

Daily physical activity is important to reduce further complications once a chronic disease is present. Physical activity improves circulation, keeps joints healthy and helps control blood sugar. Figure 45 shows physical activity among Oregonians who report having chronic diseases.

Figure 45

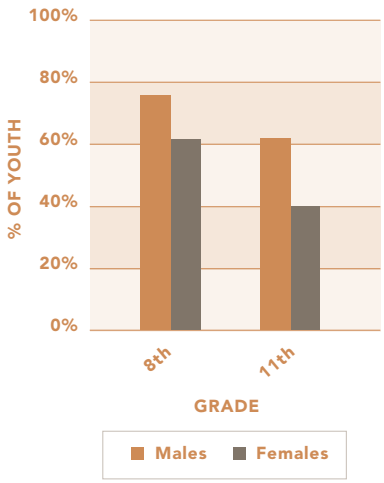
PERCENTAGE OF ADULTS WITH CHRONIC DISEASES WHO ARE PHYSICALLY ACTIVE, OREGON, 2001



Source: BRFSS, 2001

Figure 46

PERCENTAGE OF PHYSICALLY ACTIVE OREGON YOUTH BY SEX AND GRADE, 2001



Source: Oregon Healthy Teens, 2001

Physical Activity & Youth

Participation in daily physical activity and sports can promote good physical and mental health. Establishing regular physical activity habits in adolescence can lead to healthy physical activity patterns during adulthood.

Among youth, students in 8th grade report more vigorous and moderate physical activity than students in 11th grade. Figure 46 shows that physical activity decreases as the students get older and that girls are less physically active than boys.The decrease in activity may be due in part to the significant drop in daily attendance in physical education classes between 8th and 11th grades.

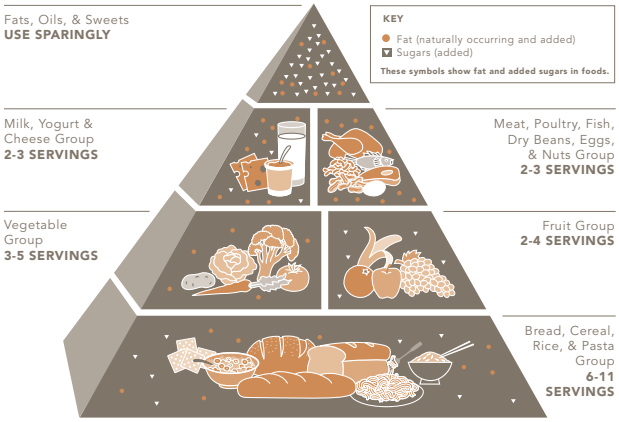
Healthy Eating

Good nutrition lowers a person's risk for many chronic diseases, including coronary heart disease, stroke, some types of cancer, diabetes and osteoporosis. A healthy diet is one that consists of:

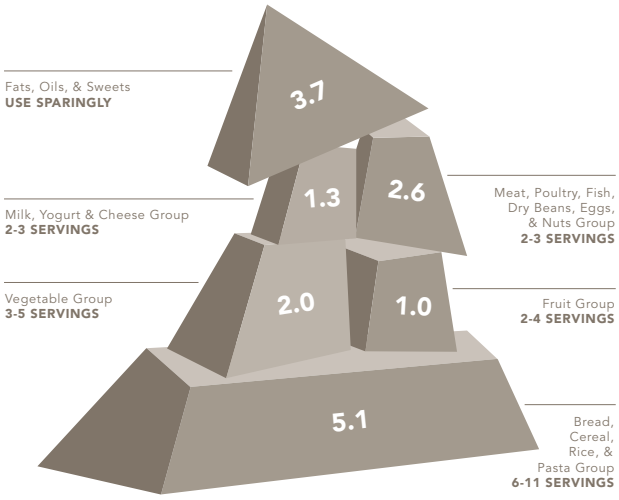
- Fruits
- Vegetables
- Whole grain products that are high in vitamins and minerals, carbohydrates (starch and dietary fiber) and low in saturated fat
- Lean meats
- Low-fat dairy products
- Legumes

The United States Department of Agriculture (USDA) and the Department of Health and Human Services (DHHS) provide recommended servings of food based on the USDA's Food Guide Pyramid. However, as the figures to the right show, Americans continue to topple the pyramid with excess consumption of fats and sweets and inadequate servings of fruits, vegetables, whole grains and low-fat dairy products.

Food Guide Pyramid
A Guide to Daily Food Choices



Source: U.S. Department of Agriculture/U.S. Department of Health and Human Services



TOTAL U.S. POPULATION, AGES 4 AND UP

Source: Adapted from National Livestock and Meat Board and MRCA Information Services

In 2000, the USDA Center for Nutrition Policy and Promotion released the most recent dietary guidelines for Americans, 10 guidelines clustered into 3 groups.

AIM FOR FITNESS

- Aim for a healthy weight
- Be physically active each day
- Let the Pyramid guide your food choices

BUILD A HEALTHY BASE

- Choose a variety of grains daily, especially whole grains
- Choose a variety of fruits and vegetables daily
- Keep food safe to eat

CHOOSE SENSIBLY

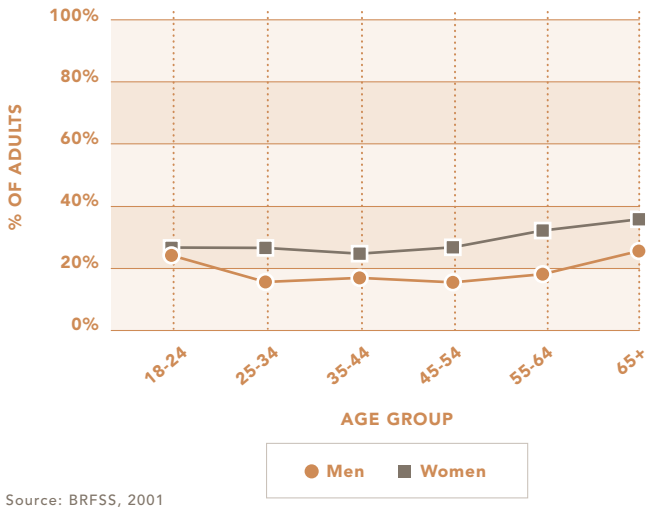
- Choose a diet that is low in saturated fat and cholesterol and moderate in total fat
- Choose beverages and foods to moderate your intake of sugars
- Choose and prepare foods with less salt
- If you drink alcoholic beverages, do so in moderation

Diets with higher intakes of fruits and vegetables are associated with a variety of health benefits, including a decreased risk for cardiovascular disease and some types of cancers. Consumption of fruits and vegetables is a good marker of an overall healthy diet. Only 1 in 4 Oregonians eat the recommended daily servings of fruits and vegetables. Figure 47 shows that Oregon men of all ages report consuming fewer fruits and vegetables than Oregon women.

Vegetables and fruits provide lots of vitamins, minerals and fiber for relatively few calories. They are a key part of a healthy diet, especially for those who need to reduce fat and calorie intake. Figure 48 shows less than one-third of Oregonians with chronic diseases consume at least 5 fruits and vegetables on a daily basis.

Figure 47

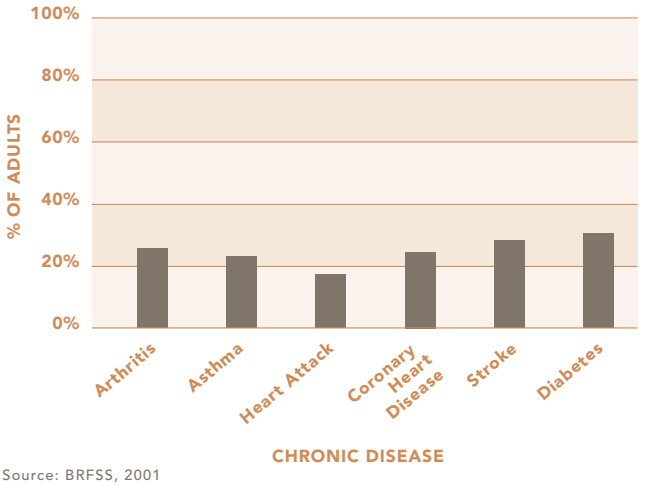
PERCENTAGE OF ADULTS CONSUMING 5 OR MORE FRUITS AND VEGETABLES PER DAY BY AGE GROUP AND SEX, OREGON, 2001



Source: BRFSS, 2001

Figure 48

PERCENTAGE OF ADULTS WITH SELECTED CHRONIC DISEASES CONSUMING 5 OR MORE FRUITS AND VEGETABLES PER DAY, OREGON, 2001



Source: BRFSS, 2001

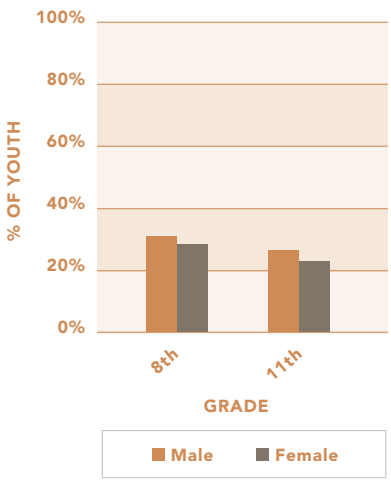
Youth & Diet

Instilling healthy nutrition habits during childhood will support Oregonians in carrying healthy eating behaviors through adolescence and into adulthood.

Figure 49 shows that similar to Oregon adults, barely one-quarter of young people in Oregon are eating the recommended number of fruit and vegetable servings per day.

Figure 49

PERCENTAGE OF YOUTH CONSUMING 5 OR MORE SERVINGS OF FRUITS AND VEGETABLES PER DAY BY SEX AND GRADE, OREGON, 2001



Source: Oregon Healthy Teens, 2001

Section 3 Selected Populations

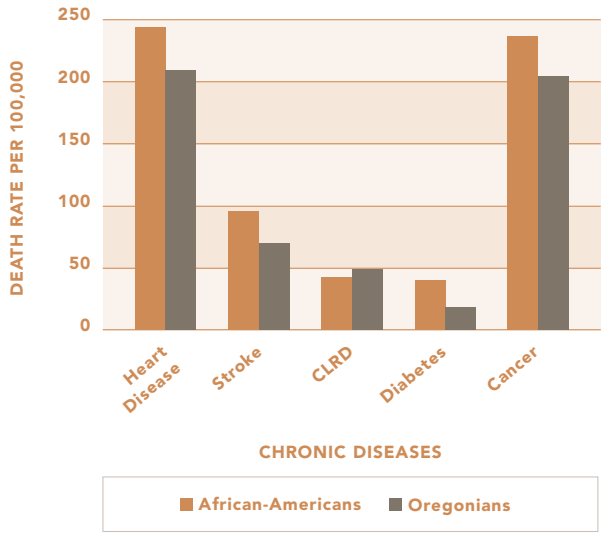
Healthy People 2010, the national health promotion and disease prevention plan, sets forth the goal to "eliminate health disparities among segments of the population, including differences that occur by gender, race or ethnicity, education or income, disability, geographic location, or sexual orientation." [20]

The following section describes the mortality of selected chronic disease rates (age-adjusted) for several population groups from 1996-2001 and the morbidity of selected chronic diseases and modifiable factors for those groups from 2000-2001.

Oregon's population is primarily white. In order to provide meaningful health data for population groups in Oregon, it is necessary to combine several years of data. Due to the combining of data from two years, the numbers for the comparison group "all Oregonians" may be different than numbers found in other sections of this report. It is our hope that this information will be useful in planning appropriate and culturally relevant chronic disease prevention and intervention efforts.

Figure 50

CHRONIC DISEASE DEATHS AMONG AFRICAN-AMERICANS AND OREGONIANS, 1996-2001



Source: Oregon Resident Death Certificates, 1996-2001

Table 6

PREVALENCE OF SELECTED CHRONIC DISEASES AMONG AFRICAN-AMERICANS AND OREGONIANS, 2000-2001

Prevalence	% of African-Americans	% of Oregonians
Arthritis	31%	36%
Asthma	10%	9%
Heart Attack	1%	4%
Coronary Heart Disease	2%	5%
Stroke	3%	2%
Diabetes	7%	6%

Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

African-Americans

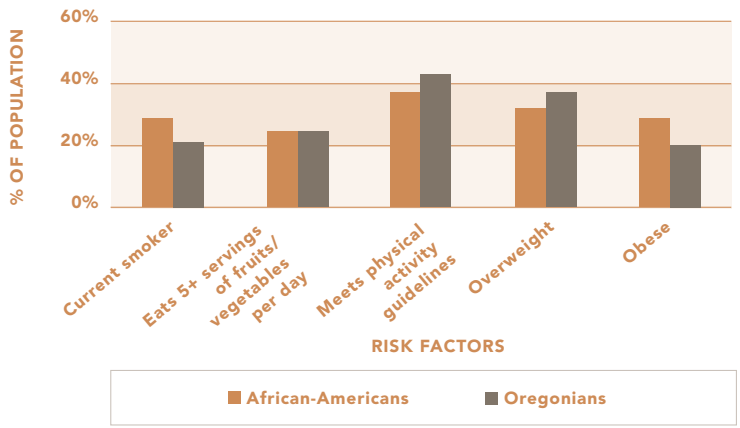
Figure 50 shows that African-Americans in Oregon were significantly more likely than Oregonians of any race to die from nearly all chronic diseases with the exception of Chronic Lower Respiratory Diseases (CLRD). The leading causes of death for African-Americans (1996-2001) were heart disease, cancer and stroke, as they were for all Oregonians.

Table 6 shows that almost one-third of the African-American population reports symptoms of arthritis and 10% of the population currently has asthma. Seven percent (7%) has been diagnosed with diabetes, increasing the risk of heart disease and other health conditions.

Figure 51 shows the prevalence of modifiable risk factors among Oregon's African-American community and all Oregon adults. More than one-quarter of this population smokes and 63% of African-Americans in Oregon are overweight or obese, increasing the risks of high blood pressure, stroke, heart disease, and diabetes. Only 38% of the population meets current physical activity guidelines.

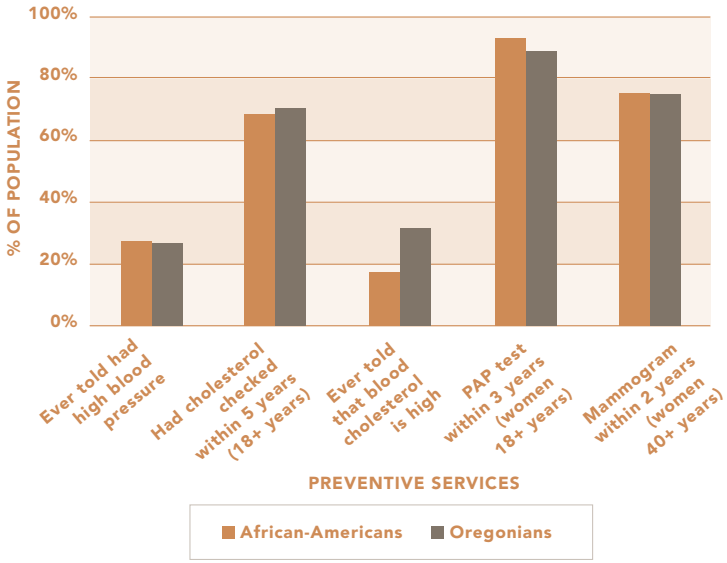
As shown in Figure 52, African-Americans are less likely to have been told that their blood cholesterol is high than the general Oregon population. African-American women are more likely to have received a PAP test within the past 3 years.

Figure 51
MODIFIABLE RISK FACTORS AMONG AFRICAN-AMERICANS AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

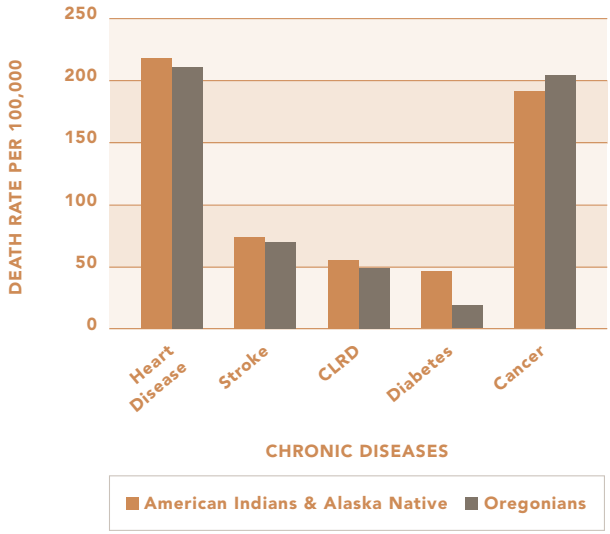
Figure 52
PREVENTIVE SERVICES AMONG AFRICAN-AMERICANS AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Figure 53

CHRONIC DISEASE DEATH RATES AMONG AMERICAN INDIANS & ALASKAN NATIVES AND OREGONIANS, 1996-2001



Source: Oregon Resident Death Certificates, 1996-2001

Table 7

PREVALENCE OF SELECTED CHRONIC DISEASES AMONG AMERICAN INDIANS & ALASKAN NATIVES AND OREGONIANS, 2000-2001

Prevalence	% of American Indians & Alaskan Natives	% of Oregonians
Arthritis	44%	36%
Asthma	13%	9%
Heart Attack	6%	4%
Coronary Heart Disease	4%	5%
Stroke	2%	2%
Diabetes	9%	6%

Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

American Indians & Alaskan Natives

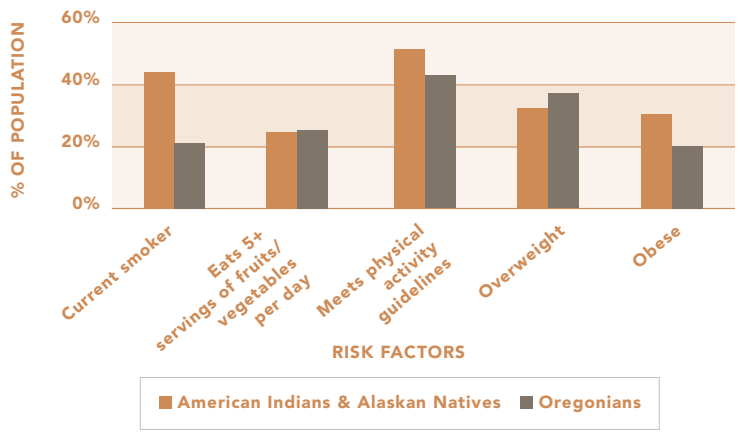
Figure 53 shows that American Indians and Alaskan Natives in Oregon were more likely than Oregonians to die from nearly all chronic diseases with the exception of cancer. The diabetes death rates for American Indians and Alaskan Natives is nearly triple the rate for Oregonians.

Table 7 shows that 44% of American Indians and Alaskan Natives report symptoms of arthritis, compared to 36% of the Oregon population. One in eleven has been diagnosed with diabetes, significantly increasing the risk of heart disease and other complications.

Figure 54 shows the percentage of American Indians and Alaskan Natives in Oregon with modifiable risk factors. Four of every ten people within the population smoke, and while over half meet current physical activity guidelines, only one in four eat 5+ servings of fruits/vegetables per day. Sixty-seven percent (67%) are overweight or obese.

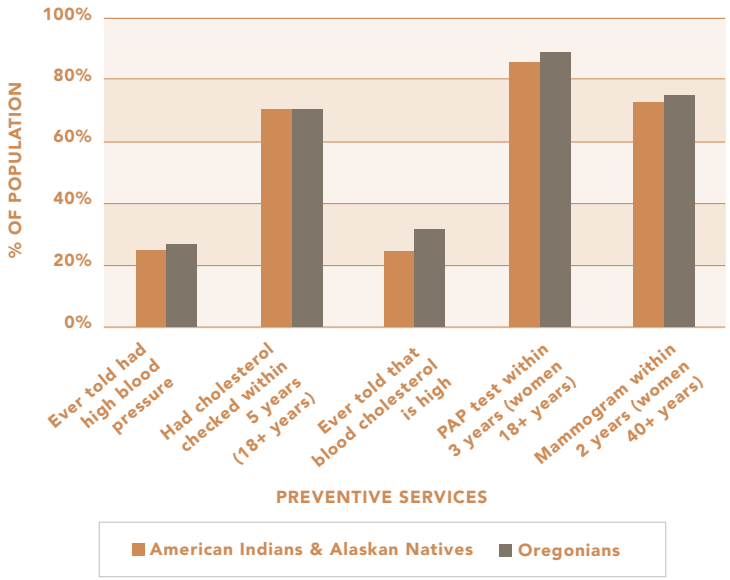
As shown in Figure 55, the same proportion of American Indians and Alaskan Natives report receiving preventive services as the general Oregon population. American Indians and Alaska Natives are less likely to have been told that they have high cholesterol.

Figure 54
MODIFIABLE RISK FACTORS AMONG AMERICAN INDIANS & ALASKAN NATIVES AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

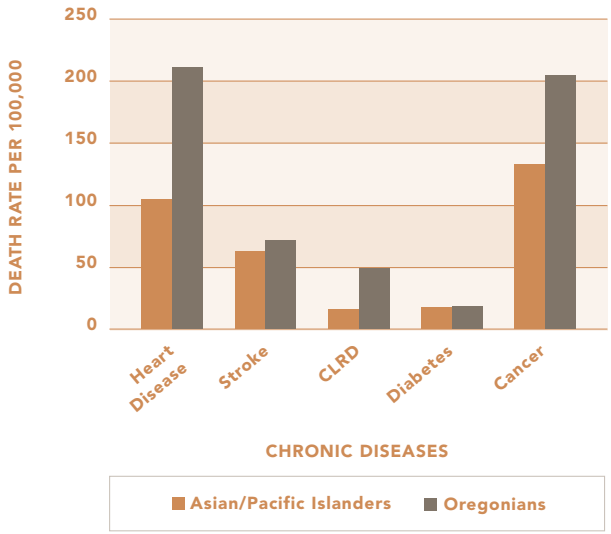
Figure 55
PREVENTIVE SERVICES AMONG AMERICAN INDIANS & ALASKAN NATIVES AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Figure 56

CHRONIC DISEASE DEATH RATES AMONG ASIAN/PACIFIC ISLANDERS AND OREGONIANS, 1996-2001



Source: Oregon Resident Death Certificates, 1996-2001

Table 8

PREVALENCE OF SELECTED CHRONIC DISEASES AMONG ASIAN/PACIFIC ISLANDERS AND OREGONIANS, 2000-2001

Prevalence	% of Asian & Pacific Islanders	% of Oregonians
Arthritis	18%	36%
Asthma	6%	9%
Heart Attack	<1%	4%
Coronary Heart Disease	4%	5%
Stroke	1%	2%
Diabetes	6%	6%

Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Asian/Pacific Islanders

The Asian/Pacific Islander population has a more favorable mortality profile for these chronic diseases than Oregonians overall. Figure 56 shows heart disease, CLRD and cancer death rates as being significantly lower than the rates for Oregonians.

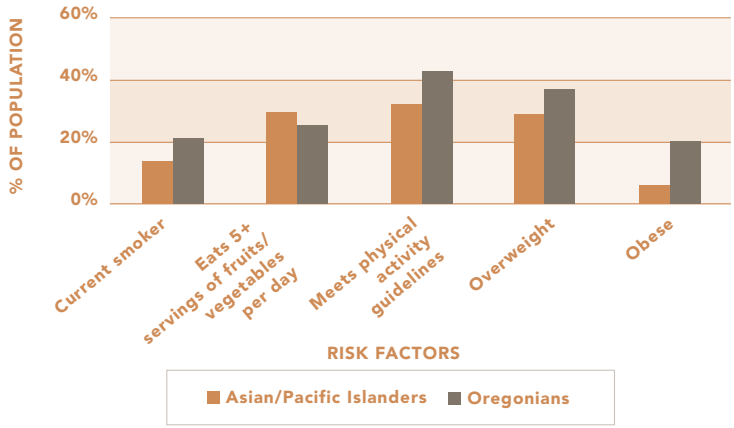
Table 8 shows that 18% of the population report symptoms of arthritis. While 4% have been diagnosed with coronary heart disease, 6% have been diagnosed with diabetes, increasing the risk of heart disease.

Figure 57 shows the modifiable risk factors for Asian/Pacific Islanders. About one-third of the population eats 5+ servings of fruits and vegetables each day and 34% meet the current physical activity guidelines. The rate of obesity is very low in this population.

While the Asian/Pacific Islander population is more likely to have had their cholesterol checked within the past 5 years, Asian/Pacific Islander women are less likely than Oregon women to have received a PAP test within the past 3 years (*Figure 58*).

Figure 57

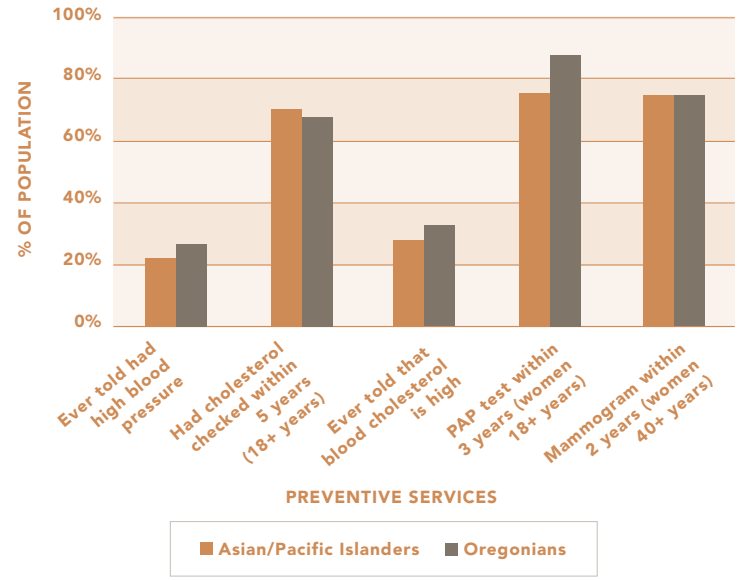
MODIFIABLE RISK FACTORS AMONG ASIAN/PACIFIC ISLANDERS AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Figure 58

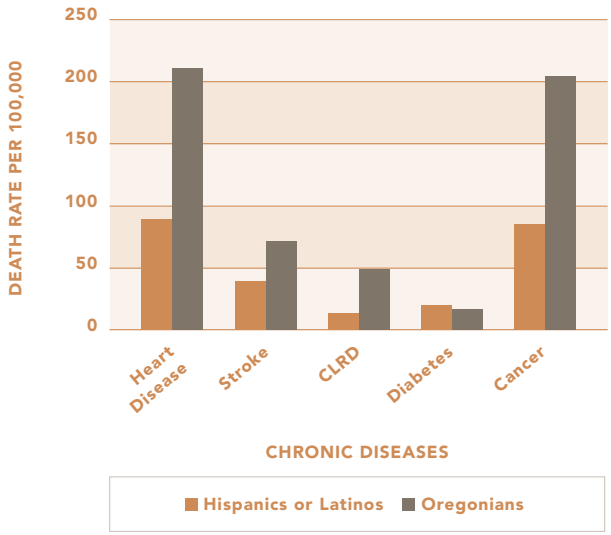
PREVENTIVE SERVICES AMONG ASIAN/PACIFIC ISLANDERS AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Figure 59

CHRONIC DISEASE DEATH RATES AMONG HISPANICS OR LATINOS AND OREGONIANS, 1996-2001



Source: Oregon Resident Death Certificates, 1996-2001

Table 9

PREVALENCE OF SELECTED CHRONIC DISEASES AMONG HISPANICS OR LATINOS AND OREGONIANS, 2000-2001

Prevalence	% of Hispanic or Latino	% of Oregonians
Arthritis	17%	36%
Asthma	6%	9%
Heart Attack	1%	4%
Coronary Heart Disease	1%	5%
Stroke	1%	2%
Diabetes	4%	6%

Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Hispanics or Latinos

Figure 59 shows that the Hispanic death rate is lower than the death rate for Oregonians overall, with the exception of diabetes.

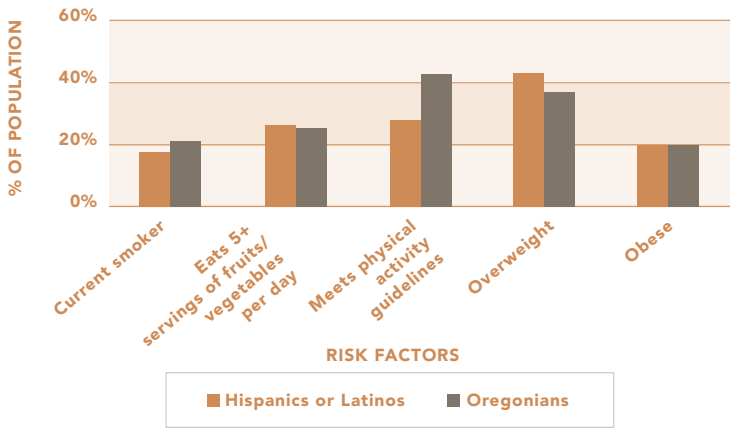
Table 9 shows that 17% of Hispanics in Oregon report symptoms of arthritis. While only 1% have been diagnosed with cardiovascular disease, 4% have been diagnosed with diabetes, putting these individuals at increased risk for a heart attack or coronary heart disease.

Figure 60 shows the modifiable risk factors with less than one-third of the Hispanic population meeting current physical activity guidelines. About 63% of the Hispanic population is overweight or obese.

Figure 61 shows that except for PAP tests, the Hispanic or Latino population is less likely to have received preventive services than the Oregon population; only 41% of the population reported a cholesterol screening within the past 5 years.

Figure 60

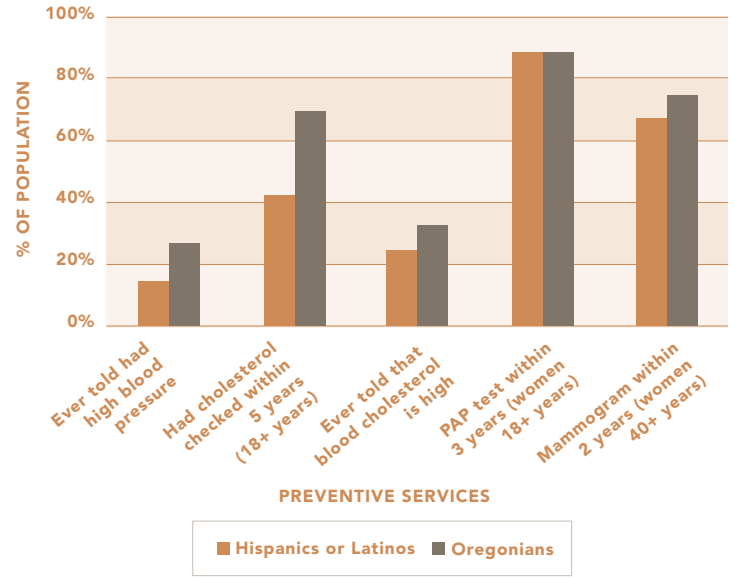
MODIFIABLE RISK FACTORS AMONG HISPANICS OR LATINOS AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Figure 61

PREVENTIVE SERVICES AMONG HISPANICS OR LATINOS AND OREGONIANS, 2000-2001



Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Table 10

PREVALENCE OF SELECTED CHRONIC DISEASES AMONG LOW SES POPULATION AND OREGONIANS BETWEEN 25 AND 64 YEARS OF AGE, 2001

Prevalence	% of Low SES	% of Oregonians
Arthritis	40%	34%
Asthma	10%	8%
Heart Attack	3%	2%
Coronary Heart Disease	4%	3%
Stroke	1%	1%
Diabetes	6%	5%

Source: BRFSS Race/Ethnicity Augment, 2000 & 2001

Low Socio-Economic Status

In addition to disparities among racial and ethnic groups, health disparities often exist between the poor and those who have access to more resources. To discuss the impact of poverty on health, it is useful to look at health disparities by socio-economic status (SES).

For this report, we define Low SES status as an individual who is not a college graduate or lives in a household with an annual income of less than $50,000 and meets one of the following criteria:

- Not a high school graduate
- Annual household income of less than $25,000
- Eligible for Medicaid
- Does not have medical insurance coverage

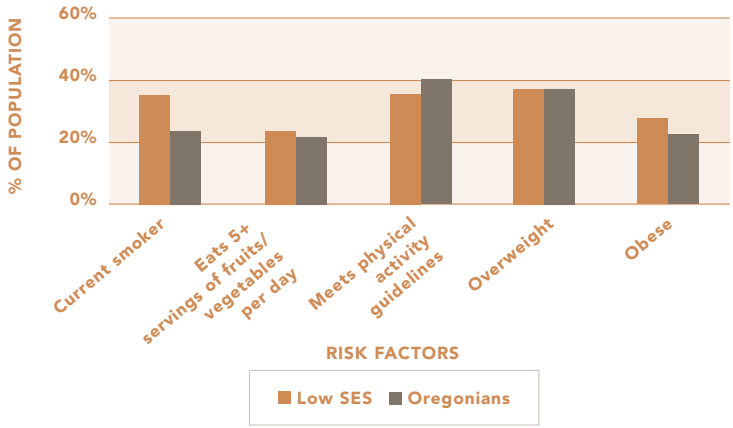
The population of Oregon adults between the ages of 25-64 is used for comparison because adults 65 years and older have Medicare coverage.

Figure 62 shows the modifiable risk factors by SES. Among the most significant differences are the percentage of people who are obese and those who are current smokers.

Figure 63 shows that those with a lower SES are less likely to receive preventive services than the general Oregon population. Only 51% of people with a low SES report having had a cholesterol screening within the past 5 years, compared to 71% of the general population.

Figure 62

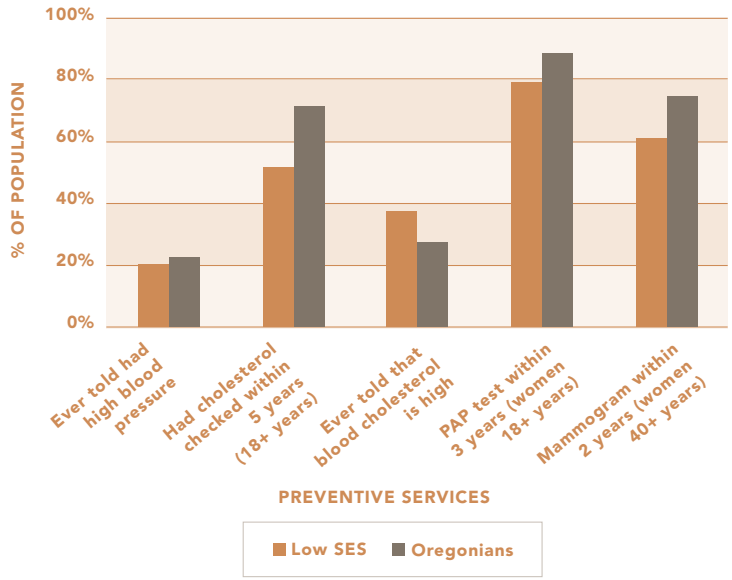
MODIFIABLE RISK FACTORS AMONG LOW SES POPULATION AND OREGONIANS BETWEEN 25 AND 64 YEARS OF AGE, 2001



Source: BRFSS, 2001

Figure 63

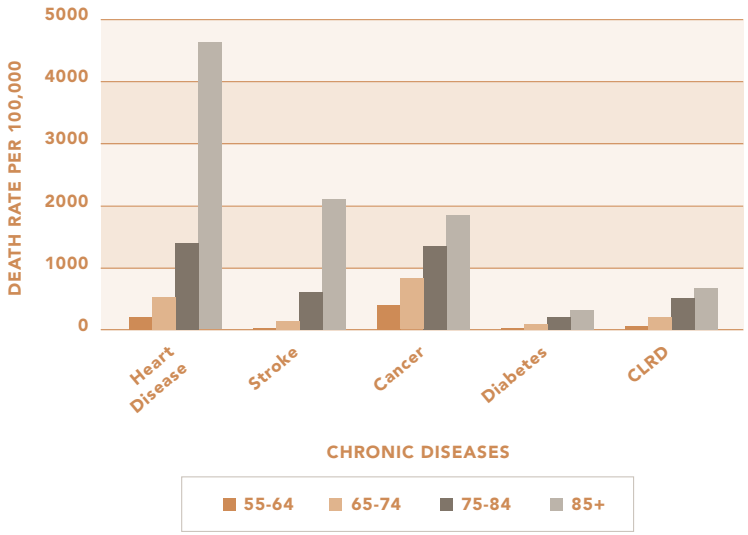
PREVENTIVE SERVICES AMONG LOW SES POPULATION AND OREGONIANS BETWEEN 25 AND 64 YEARS OF AGE, 2001



Source: BRFSS, 2001

Figure 64

CHRONIC DISEASE DEATH RATES AMONG SENIOR POPULATION BY AGE GROUP, OREGON, 1996-2001



Source: Oregon resident death certificates, 2000

Table 11

MODIFIABLE RISK FACTORS IN SENIOR POPULATION, OREGON, 2001

	50-64 years years old	65-74 years years old	75+ years years old
Current smoker	18%	11%	5%
Eats 5+ servings of fruits/ vegetables per day	24%	27%	37%
Meets physical activity guidelines	38%	36%	32%
Overweight	39%	46%	36%
Obese	29%	19%	17%

Source: BRFSS, 2001

Seniors

Figure 64 shows the death rates of selected chronic diseases among Oregonians over the age of 55. As expected, people over the age of 85 have significantly higher death rates for all selected diseases. Because the baby boomer population is aging, the chronic disease burden will increase in the future. Prevention efforts focusing on modifiable risk factors can help reduce the impact of chronic diseases on the elderly population.

Table 11 shows modifiable risk factors among Oregon's senior population. While smoking and obesity decline with age, so does physical activity. Fruit and vegetable consumption increases with age among Oregon seniors.

Table 12 shows the preventive services received by Oregon's senior population. While 90% of those 75 years and older report having had a cholesterol check within the past 5 years, only 68% of women report having had a PAP test within 3 years.

Table 12
PREVENTIVE SERVICES IN SENIOR POPULATION, OREGON, 2001

	50-64 years old	65-74 years old	75+ years old
Ever told had high blood pressure	36%	48%	56%
Had cholesterol check within 5 years	89%	94%	90%
Ever told that blood cholesterol is high	41%	45%	40%
PAP test within 3 years (women)	90%	84%	68%
Mammogram within 2 years (women)	82%	87%	76%

Source: BRFSS, 2001

Section 4

Community Conditions that Support Health

Virtually all Oregon adults (97%) are affected by or at risk for chronic diseases due to one or more modifiable risk factors. Given that these risk factors affect so many Oregonians, prevention must occur in a broader context than the physician's office. Community conditions that promote health and prevent disease are essential.

Community conditions affect the choices that people make regarding health behaviors. Communities can adopt policies and create environments that are supportive of healthy behaviors. For example, adopting smoke-free policies protects the health of those who would otherwise be exposed to secondhand smoke; it also helps smokers quit and remain smoke-free. Sidewalks and bike paths, and quality physical education in schools are examples of ways to make being physically active on a daily basis much easier.

Community conditions also influence children's attitudes and behaviors related to tobacco use, physical activity, and diet. Childhood attitudes set the stage for lifelong healthy or unhealthy behaviors.

Oregon data on community conditions are limited. This section describes existing or proposed policies and guidelines for creating environments that support healthy choices regarding tobacco use, physical activity, and healthy eating.

Tobacco Prevention

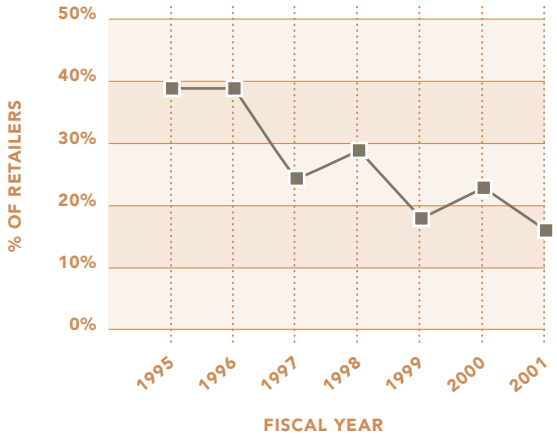
In November 1996, Oregon voters passed Ballot Measure 44, increasing the tax on tobacco products and dedicating 10% of the new revenues to reducing tobacco use. Some of the prevention efforts have focused on individual behavior (i.e. assisting those who use tobacco to quit). Other efforts have been invested in creating community conditions in Oregon that support and promote abstinence of tobacco. Several important strategies include:

- Reducing retail sales to minors
- Improving school policies
- Increasing smoke-free workplaces, homes, and cars
- Increasing cessation benefits, resources, and assessment tools

Since the inception of the Oregon Tobacco Prevention and Education Program, per capita cigarette consumption has decreased 30%; the number of adults who smoke has decreased by 75,000; and smoking among Oregon's youth continues to rapidly decline.

Figure 65

PERCENTAGE OF RETAILERS WHO SOLD TOBACCO TO MINORS, OREGON, 1995-2001



Source: Oregon Sales to Minors Inspection Results (SYNAR), 1995-2001

Retail Sales to Youth

Many youth can be prevented from forming a tobacco habit by restricting their access to tobacco products. Under Oregon law, it is illegal for retail clerks to sell tobacco products to any individual under the age of 18. Figure 65 shows that although sales to minors have decreased, 16% of Oregon's retail outlets continue to sell tobacco to minors.

Reducing tobacco sales to minors may be addressed through merchant and clerk education as well as placement of tobacco products behind counters.

School Policies

DHS' Tobacco Prevention and Education Project's School Policy Project supports the expansion of tobacco free Oregon schools by building state-level and local support for school district tobacco policies. While the scope and strength of policies vary between districts, vast improvements have been made to many district policies since the initiation of the project in April 2001.

When the school policy project began in 2001, a total of 92 of Oregon's 198 school districts had a basic tobacco policy prohibiting tobacco use by anyone at any time on school grounds. Since then:

- 12 districts have passed and implemented a new policy prohibiting tobacco use by anyone, at any time, on school grounds
- 34 districts have expanded and strengthened their district tobacco policies to include more elements such as the prohibition of smoking at any school event (whether on school grounds or not), or the prohibition of any tobacco company marketing at schools

While the scope and strength of school policies across Oregon vary, the DHS promotes the adoption of a model comprehensive policy. Many districts are working toward this standard.

Elements of a model comprehensive policy are: prohibiting all tobacco use (including smokeless tobacco) on all school property and at all school sponsored events and functions on or off campus, by all people (including students, employees, visitors, contractors, delivery drivers, etc.); students receiving age-appropriate education about tobacco prevention; prohibiting tobacco industry marketing and sponsorship; and prohibiting exhibition of tobacco-related gear or paraphernalia.

Some benefits of a comprehensive school tobacco policy include:

- no exposure to secondhand smoke
- no exposure to tobacco advertising, marketing, or promotion
- modeling of a health message that reinforces no-tobacco-use prevention instruction received in the classroom
- the establishment of a healthy environment supportive of no-tobacco-use, for both nonusers and those trying to quit
- the establishment of model no-tobacco-use standards for the surrounding community

Smoke-free Environments

In addition to providing our children with smoke-free environments at schools, Oregon lawmakers and businesses are working together to protect Oregonians from the effects of exposure to secondhand smoke.

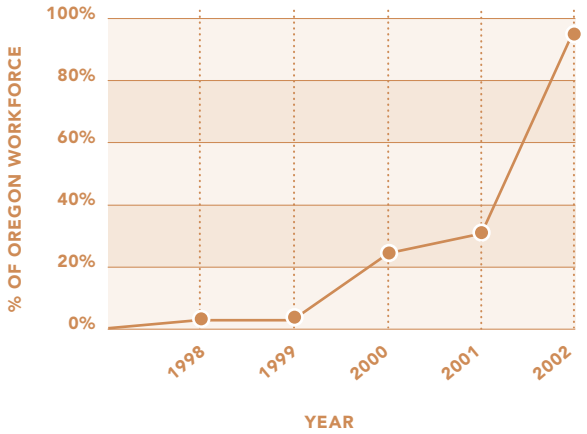
Studies demonstrate the following consequences of secondhand smoke:

- Non-smoking food service workers experience 45-50% higher risk of lung cancer
- Children face greater incidence of asthma, ear infections, chronic cough and decreased lung growth
- Workers have about a 30% percent increased risk of developing heart disease, similar to the risk demonstrated by exposure in the household

Through the work of local tobacco prevention coalitions, approximately 12 Oregon communities passed local ordinances providing smoke-free workplaces between 1998 and 2001 (*Figure 66*). As of January 1, 2002, Oregon's statewide clean indoor air law requires with few exceptions that "an employer shall provide a place of employment that is free of tobacco smoke for all employees."

Figure 66

PERCENTAGE OF OREGON'S WORKFORCE PROTECTED BY INDOOR SMOKEFREE WORKPLACE LAWS, 1998-2002



Source: Oregon Department of Human Services and Oregon Employment Department

The benefits of smoke-free workplaces include:

- Decreased exposure to secondhand smoke
- Supportive environments for cessation attempts
- Supporting environments for former smokers to remain smokefree
- Modeling tobacco-free environments for youth

The percentage of Oregon children living in homes where smoking has occurred in the past 30 days has declined 42% since 1996. Currently the percentage is 14%.

Cessation Support

While making the decision to quit using tobacco is an individual choice, conditions in our environment can help. Smokefree environments motivate quitting and make it easier to stay quit. The likelihood of success in quitting also increases with phone counseling, classes, support groups, nicotine patches and certain drugs. Community programs, such as the Oregon Tobacco Quit Line and voluntary agencies, offer introductory assistance to all Oregon tobacco users. Medical insurance coverage for more in-depth cessation assistance, including patches and drugs, is an important part of community support for quitting tobacco.

Currently, Oregon Health Plan members are assured access to help in quitting. Some employers offer programs to help their employees quit. People who have insurance from five of Oregon's ten largest health plans can get help for less than $60. Most insurers, however, either require large co-pays or offer no benefit. Only about one-third of Oregonians have medical insurance that will help them quit tobacco use.

Active Community Environments

Active Community Environments (ACEs) are places where people of all ages and abilities can easily enjoy walking, bicycling, and other forms of recreation.

These areas:

- Support and promote physical activity.
- Have sidewalks, on-street bicycle facilities, multi-use paths and trails, parks, open space, and recreational facilities.
- Promote mixed-use development and a connected grid of streets allowing homes, work, schools, and stores to be close together and accessible by walking and bicycling.[19]

ACEs support and promote a lifestyle that enables adults and youth to easily achieve the Surgeon General's recommendation of 30 minutes of moderate activity most, if not all, days of the week.

One-fourth of all trips people make are one mile or less, yet three-fourths of these short trips are made by car.

— CDC ACTIVE COMMUNITY ENVIRONMENTS, JUNE 2000

Promoting Physical Activity among Adults

Creating physically active communities will make it easier to be active every day. In Oregon, 82% of adults report commuting to work at least three days per week. Only 9% walk part or all of the way to work and only 4% bike part or all of the way to work.

The following strategies are examples of a multi-faceted approach to creating an environment that supports physical activity.

AMONG EMPLOYERS:

Expand the proportion of worksites that encourage alternative modes of transportation, including walking and bicycling to and from work and providing covered bicycle parking and shower facilities. Reduced-price transit passes are examples of incentives to promote transportation options.

AMONG CITY PLANNERS AND COMMUNITY DEVELOPERS:

Incorporate community and transportation design that facilitates walking and bicycling including paths to connect dead-end and cul-de-sac streets, lighting for safety, frequent and safe pedestrian and bicycle crossings, traffic calming techniques, and mixed-use neighborhood designs.

AMONG POLICYMAKERS:

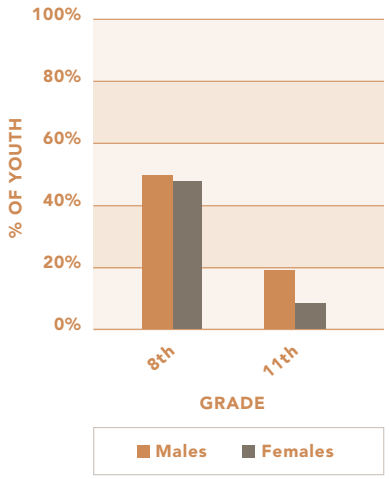
Increase funding to improve bicycling and walking infrastructure (bike lanes, sidewalks, paths) and to expand parks, open- and green-space acquisition and development in communities.

Promoting Physical Activity among Youth

Physical activity among Oregon youth declines with age. It is essential that we create community and school settings conducive to establishing lifelong habits of physical activity for our youth. The percentage of school-aged youth who engage in daily Physical Education (PE) is under 50% for 8th grade students and declines significantly by 11th grade (*Figure 67*).

Increasing the proportion of school districts with policies that require quality, daily PE for all students Kindergarten - Grade 12 is an example of creating community or school conditions supportive of active Oregon youth. In 1999, Oregon legislators passed a bill to reinstate PE standards in schools. These PE standards represent policies supporting quality PE in Oregon schools.

Figure 67
PERCENTAGE OF YOUTH ATTENDING DAILY P.E. CLASS BY SEX AND GRADE, OREGON, 2001



Source: Oregon Healthy Teens, 2001

Another approach to promoting physical activity among youth is to encourage students to walk and bike to school. In 2001, the Oregon Legislature passed Safe Routes to School legislation requiring cities, counties and schools to work together to identify hazards that prevent children from safely walking and biking to school. Several schools across Oregon are assessing barriers to walking and bicycling, establishing designated walking and bicycling routes, adding sidewalks and bike lanes, and creating safe crossings for students.

Daily physical activity helps students become and continue to be *fit, healthy and ready to learn*.

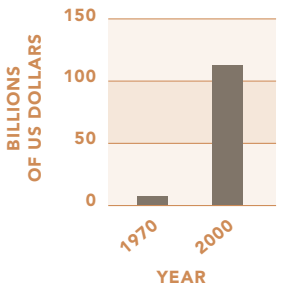
The changes in eating and exercise behaviors that are driving the obesity epidemic are largely due to an environment that encourages the former and discourages the latter.

—JO HILL & JC PETERS, 1998. *Environmental contributions to the obesity epidemic.*

Healthy Eating

During the 1990's, obesity has sky-rocketed among adults and children in the U.S. and Oregon. Parallel to this epidemic, the food industry contributes to community conditions that favor consuming more foods from the top of the USDA's Food Guide Pyramid (those containing excess fat and sugar) and consuming larger and larger portions. The fast food industry offers a variety of highly palatable, inexpensive food that is available nearly everywhere, and advertising that encourages us to eat more food, especially food high in fat, sugar, and salt. The increase in expenditures on fast food in the past thirty years is substantial (*Figure 68*). Some suggest that we are living in a "toxic environment" when it comes to food.

Figure 68
EXPENDITURES ON FAST FOOD, U.S., 1970 & 2000



Source: Schlosser, 2002

Facing the obesity epidemic, we must affect significant change in our environment to create conditions that encourage a healthy, well-balanced diet. Strategies to increase the availability of healthy food choices for Oregonians and increase public awareness of the importance of healthy eating include:

- Fast food and chain restaurants with calorie information on menu boards and in menus.
- Community-wide healthy eating events and media campaigns.
- Neighborhood farmers' markets and grocery stores with affordable fruits and vegetables.
- Worksite vending machines stocked with competitively priced and attractive fruits, vegetables, low-fat dairy products and whole grain snacks.

Food advertising does affect individual food choices. The Food Industry spent $11 billion in food advertising in 1997 compared to $1 million spent in the promotion of eating the recommended 5 servings of fruits and vegetables each day (the *National Cancer Institute*'s and *Produce for a Better Health Foundation*'s "Eat 5 a Day for Better Health" Campaign).

Promoting Healthy Eating among Youth

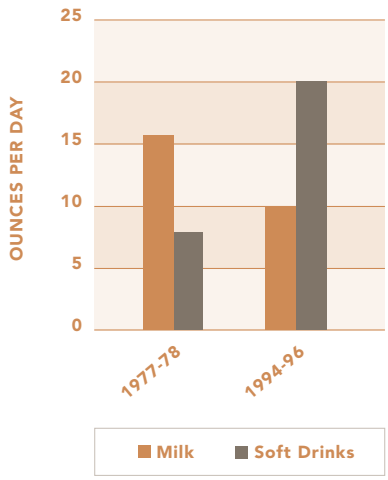
Children have long numbers of "purchasing years" in front of them and are still establishing their tastes and habits. The promotion and availability of food and drink products high in fat and sugar have led American's youth to a diet where 50% of their daily calories come from added fat and sugar.[16]

Figure 69 shows that youth today drink more soda than milk. Twenty years ago, the reverse was true; soda is only sugar and water, milk provides important nutrients including calcium. Advertising soft drink consumption to children has been a major priority of the beverage industry.

Strategies to support healthy eating environments for youth include:

- Increasing the number of elementary and middle schools with variety (salad) bars offering fruits and vegetables purchased locally whenever possible.
- Developing school district policies to eliminate sponsorship and/or sales contracts with soda companies and fast food vendors.
- Restricting youth-targeted television advertising of foods with minimal nutritional value. This may have a similar effect of reducing "junk food" consumption as the restrictions put on tobacco advertising had on decreasing tobacco consumption.

Figure 69
TEENS' CONSUMPTION OF MILK AND SOFT DRINKS, U.S.



Source: USDA, Nationwide Food Consumption Survey, 1977-1978 and 1994-1996

The blatant exploitation by food companies of even the youngest children raises questions about the degree to which society at large needs to be responsible for protecting children's health in a free-market economy.

—MARION NESTLE, *Food Politics*

Chronic Care Model

With so many people living with chronic illness and the projected increases, our health care system must respond with change. Previously, our biggest challenge was reacting to infectious diseases. We now face the challenge of supporting people living with chronic conditions.

To address chronic illness as a primary health care need, three areas offer opportunity for focused strategies.

- **HEALTH SYSTEMS**
- **SELF-MANAGEMENT**
- **THE COMMUNITY**

Health Systems

The Robert Wood Johnson Foundation's *Improving Chronic Illness Care*, is a national program working to transform what is currently a reactive health care system into one that keeps its patients as healthy as possible through planning, proven strategies and management.

Aspects of the existing model that can be addressed through the Chronic Care Model include:

- Rushed practitioners not following established practice guidelines
- Lack of care coordination
- Lack of active follow-up to ensure the best outcomes
- Patients inadequately trained to manage their illnesses

The following sample strategies may be engaged to address the deficiencies in the existing health care systems:

- *Health Systems* can create policies and administrative structures that make it convenient and affordable for patients to receive care before their illness creates a health crisis.
- *Clinical Information Systems* can track services provided, guidelines for care and risk of developing additional chronic conditions or complications.
- *Decision Support* for both the patients and providers can assure that evidence-based guidelines provide solid principles to guide care decisions.
- *Delivery System Design* can be revamped to assure that patients are receiving appropriate follow-up and services while they are healthy, rather than only responding once they are ill.

Self-Management

As medical technology and knowledge continue to improve, chronic diseases can be detected at earlier stages, eliminating or delaying poor health outcomes, including premature death. All chronic diseases or conditions require daily self-care or monitoring to delay or prevent associated poor health outcomes. A reformed health care system will provide an opportunity for practitioners to support individuals in self-management of chronic conditions. Self-management support brings the patient to the table as a member of the care team. The provision of education and resources assists the patient in effective self-management of their condition.

People living with a chronic disease face three common self-management tasks.[10] They need to understand the medical nature of their condition so that they can better care for themselves (e.g., checking blood sugar levels, being physically active, planning healthy meals). They need to carry out their normal daily activities as much as they are able to (e.g., going to work, maintaining social contacts). And they need to manage the emotions that can accompany a chronic disease (e.g., anger, fear, frustration, depression).

Sample strategies to support self-management include:

- Maintaining up-to-date medical references for laypeople at the local library
- Providing a clean, private place at a worksite where people with diabetes can test their blood sugar
- Scheduling warm water aquatics programs at a local swimming pool for people living with arthritis

The Community

Finally, a community's response to the increase in chronic conditions is essential to support both changes to the health systems as well as self-management.

Community resources can be created and maintained to support people in their individual behavior choices as well as self-management tasks. The provision of a Tobacco Quit Line, the prevalence of safe walking and bicycling routes, the availability of exercise classes to keep people at risk for heart disease physically active, or the variety of healthy nutritional choices in worksite cafeterias and schools are all examples of ways in which the broader community must be involved in the creation of a healthier society.

Many people believe that overweight and obesity is a personal responsibility. To some degree they are right, but it is also a community responsibility. When there are no safe, accessible places for children to play or adults to walk, jog, or ride a bike, that is a community responsibility. When school lunchrooms and office cafeterias do not provide healthy and appealing food choices, that is a community responsibility. When new or expectant mothers are not educated about the benefits of breastfeeding, that is a community responsibility. When we do not require daily physical education in our schools, that is also a community responsibility. There is much that we can and should do together.

— DAVID SATCHER, "The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity," 2001

Summary and Recommendations

Chronic diseases, including heart disease, stroke, cancer, lung disease, diabetes and arthritis, are the major causes of disability and death for Oregonians. Chronic diseases account for 68% of deaths in Oregon and are related to three primary modifiable factors: tobacco use, physical inactivity and poor diet. While tobacco use is declining rapidly, obesity (resulting from physical inactivity and poor diet) among adults and youth is escalating at an alarming rate. Oregon is one of only four states west of the Rocky Mountains with 20% or more of the population considered obese.

Over the next 20 years, as the age distribution of our population changes, the proportion of older Oregonians will increase and those affected by chronic diseases will escalate rapidly. As we face an aging society, we cannot prevent death; however we can strive for successful aging, where an average, active and healthy life is prolonged and most disability is compressed to the years right before death.

Successful aging requires the creation of environments that promote healthy behaviors and lifestyles. The community plays an essential role in supporting people in choosing healthy lives: lives characterized by being tobacco-free, making healthy eating choices and sustaining daily physical activity. These behaviors can reduce risk for developing selected chronic diseases, delay the onset of these diseases, as well as improve the quality of life for those living with these diseases. Early disease detection provides the opportunity for early medical intervention and treatment, prolonging life and/or improving quality of life for those with selected chronic diseases. Lastly, shifting perspective to a chronic disease model can improve health care delivery systems' responsiveness to preventing, screening, and managing chronic diseases as well as create community conditions supporting self-management of chronic conditions, improving the overall quality of life for Oregonians.

The following recommendations may assist in creating an Oregon that supports healthy lifestyles:

- Improve health and reduce chronic diseases through implementing proven population-based strategies to reduce tobacco use, and increase physical activity and healthy eating.
- Support a comprehensive, coordinated statewide effort to create communities that promote healthy lifestyles.
- Involve members of selected population groups (such as racial/ethnic groups, seniors, low-income) in planning and implementing culturally appropriate health services and outreach programs.
- Continue to measure the disease burden of chronic diseases in Oregon, including death, disability and changes over time.
- Continue to measure the modifiable factors most closely linked with selected chronic diseases.

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Appendix A Glossary of Terms

Age-adjusted Rate
A rate that controls for the age structure of different populations. Age-adjustment allows rates to be compared between population groups with different age distributions. All age-adjusted rates are expressed per 100,000 individuals per year using the Census 2000 population.

Body Mass Index
BMI is based on a mathematical formula that takes into account both a person's height and weight. BMI equals a person's weight in kilograms divided by height in meters squared (BMI=kg/m^2).

Chronic Disease
Chronic disease can be defined as a disease that has a prolonged course, that does not resolve spontaneously, and for which a complete cure is rarely achieved.

Crude Rate
A fraction expressing the total number of events occurring in a population over a period of time; the numerator is the number of events and the denominator is the size of the population.

Diabetes
Diabetes is a disease that occurs when the body is not able to use glucose (a type of sugar that our cells use as fuel) as it should. The two types of diabetes are type 1 and type 2. In type 1 diabetes, the pancreas does not produce insulin needed to process glucose in the blood. In the past, type 1 diabetes has been called juvenile-onset diabetes or insulin-dependent and usually develops among children and young adults. Type 2 is the most common type, affecting 90-95% of people with diabetes. In type 2 diabetes, often called adult-onset diabetes, the body does not respond properly to the insulin being produced.

Elevated Cholesterol
Elevated cholesterol levels are defined as 200-239 mg/dL (borderline high) and ≥240 mg/dL (high).

High Blood Pressure
High blood pressure is defined as a systolic reading ≥140 mm Hg and/or diastolic blood pressure ≥90 mm Hg.

Incidence / Incidence Rate

The number of new cases of a given disease during the year. The incidence rate is the number of new cases of the disease expressed as a rate per 100,000 persons in the population.

Morbidity

The relative incidence of a particular disease.

Mortality Rate

Mortality refers to the number of deaths attributed to a particular cause. The mortality rate is the number of deaths during the year expressed as a rate per 100,000 persons in the population.

Obesity

The World Health Organization defines obesity as a body mass index (BMI) greater than or equal to 30 kg/m^2. The BMI is a simple index of weight to height.

Overweight

The World Health Organization defines overweight for adults as a body mass index (BMI) between 25 kg/m^2 and 29.9 kg/m^2. Overweight for youth is defined as over the 85th percentile of BMI by age and sex. The BMI is a simple index of weight to height.

Prevalence

The total number of cases of a disease in a given population at a specific time.

Regular Physical Activity

Moderate or vigorous physical activity for 30 or more minutes per day for a minimum of 5 days per week.

Risk Factor

Behavior or characteristic that increases an individual's likelihood of developing a disease or condition.

Appendix B Data Sources

Behavioral Risk Factor Surveillance System (BRFSS)

The 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 is asked annually and other topics are surveyed on a rotating basis of two years.

CDC Wonder

Database maintained by the National Centers for Disease Control and Epidemiology that provides data collected by the National Center for Health Statistics (NCHS) for statistical reporting and analysis.

Death Certificate Statistical File

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; decedent's identifying information, date and place of death; occupation of the decedent; whether the death was related to tobacco use; education of decedent; marital status of decedent; and county, place and date of injury (if applicable).

Hospital Discharge Database

The Hospital Discharge Database includes all discharges from acute care hospitals in Oregon. The database consists of data abstracted from medical records. Variables include admission and discharge dates; principal and additional diagnoses; principal and additional procedures; disposition; charges; and primary payer. Information on the prevalence of chronic disease admissions is available through analysis of the discharge diagnoses. Since unique personal identifiers are not available, we cannot distinguish between multiple hospitalizations for one person and a single hospitalization for many people.

Oregon Healthy Teens (formerly Youth Risk Behavior System or YRBS)

Oregon Healthy Teens (OHT) is Oregon's effort to monitor the health and well-being of adolescents. In 2001, the Oregon Department of Human Services, the Department of Education, and other state agencies collaborated with the Oregon Research Institute to produce a single student survey (the OHT), as part of a 3-year National Cancer Institute grant. The OHT combines the topic areas of the previous two surveys conducted by DHS — the Youth Risk Behavior Survey (conducted by the former Health Division) and the Student Use Survey (conducted by the former Office of Alcohol and Drug Abuse Prevention). An anonymous and voluntary research-based survey, the OHT was conducted among approximately one third of all 8th and 11th graders statewide, as well as among a smaller sample of youth in grades 9-12, in order to compare against national YRBS data. In 2001, the random sample included over 11,000 8th graders and 7,500 11th graders from 79 high schools and 102 feeder middle schools in 33 counties. The 9-12th grade sample included over 7,700 students from 29 high schools in 15 counties.

Appendix C

Table I: Deaths Due to Selected Causes by County of Residence, Oregon, 2000

County	Population	Total Deaths	Total Death Rate*	Heart Disease Deaths	Heart Disease Death Rate*	Stroke Deaths	Stroke Death Rate*
OREGON	3,421,399	29,541	859.6	7,104	207.6	2,567	75.0
Baker	16,741	186	1111.0	45	268.8	13	77.7
Benton	78,153	440	563.0	106	135.6	53	67.8
Clackamas	338,391	2,634	778.4	660	195.0	241	71.2
Clatsop	35,630	375	1052.5	110	308.7	35	98.2
Columbia	43,560	385	883.8	92	211.2	32	73.5
Coos	62,779	812	1293.4	209	332.9	71	113.1
Crook	19,182	205	1068.7	50	260.7	8	41.7
Curry	21,137	346	1636.9	87	411.6	34	160.9
Deschutes	115,367	916	794.0	235	203.7	72	62.4
Douglas	100,399	1,155	1150.4	280	278.9	84	83.7
Gilliam	1,915	21	1096.6	7	365.5	1	52.2
Grant	7,935	101	1272.8	29	365.5	12	151.2
Harney	7,609	80	1051.4	22	289.1	5	65.7
Hood River	20,411	177	867.2	35	171.5	16	78.4
Jackson	181,269	1,877	1035.5	471	259.8	190	104.8
Jefferson	19,009	168	883.8	43	226.2	12	63.1
Josephine	75,726	964	1273.0	278	367.1	84	110.9
Klamath	63,775	649	1017.6	149	233.6	50	78.4
Lake	7,422	89	1199.1	25	336.8	10	134.7
Lane	322,959	2,844	880.6	647	200.3	215	66.6
Lincoln	44,479	541	1216.3	111	249.6	43	96.7
Linn	103,069	928	900.4	237	229.9	81	78.6
Malheur	31,615	292	923.6	74	234.1	28	88.6
Marion	284,834	2,429	852.8	636	223.3	233	81.8
Morrow	10,995	72	654.8	18	163.7	5	45.5
Multnomah	660,486	5,711	864.7	1,248	189.0	500	75.7
Polk	62,380	487	780.7	145	232.4	49	78.6
Sherman	1,934	18	930.7	5	258.5	1	51.7
Tillamook	24,262	262	1079.9	65	267.9	17	70.1
Umatilla	70,548	573	812.2	126	178.6	33	46.8
Union	24,530	217	884.6	48	195.7	12	48.9
Wallowa	7,226	82	1134.8	21	290.6	9	124.6
Wasco	23,791	281	1181.1	64	269.0	23	96.7
Washington	445,342	2,577	578.7	556	124.8	250	56.1
Wheeler	1,547	23	1486.7	6	387.8	1	64.6
Yamhill	84,992	624	734.2	164	193.0	44	51.8

Note: The above rates are *Crude Death Rates* and not intended for comparison between counties. *Rates per 100,000 population.
Source: 2000 Oregon Resident Death Certificates

County	Cancer Deaths	Cancer Death Rate*	Chronic Lung Disease (CLRD) Deaths	CLRD Death Rate*	Diabetes Deaths	Diabetes Death Rate*	Tobacco-Related Deaths
OREGON	6,989	204.3	1,696	49.6	847	24.8	6,542 (22%)
Baker	47	280.7	18	107.5	5	29.9	39 (21%)
Benton	116	148.4	25	32.0	12	15.4	90 (21%)
Clackamas	679	200.7	136	40.2	71	21.0	565 (22%)
Clatsop	100	280.7	18	50.5	10	28.1	94 (25%)
Columbia	87	199.7	24	55.1	12	27.5	105 (27%)
Coos	193	307.4	53	84.4	26	41.4	228 (28%)
Crook	46	239.8	12	62.6	4	20.9	57 (28%)
Curry	94	444.7	23	108.8	12	56.8	67 (19%)
Deschutes	230	199.4	64	55.5	19	16.5	215 (24%)
Douglas	266	264.9	87	86.7	46	45.8	291 (25%)
Gilliam	8	417.8	1	52.2	0	0.0	2 (10%)
Grant	23	289.9	8	100.8	0	0.0	29 (29%)
Harney	15	197.1	7	92.0	2	26.3	29 (36%)
Hood River	31	151.9	10	49.0	5	24.5	41 (23%)
Jackson	457	252.1	109	60.1	49	27.0	404 (22%)
Jefferson	33	173.6	14	73.6	9	47.3	49 (29%)
Josephine	223	294.5	58	76.6	27	35.7	239 (25%)
Klamath	150	235.2	48	75.3	18	28.2	171 (26%)
Lake	24	323.4	4	53.9	0	0.0	18 (20%)
Lane	622	192.6	151	46.8	102	31.6	618 (22%)
Lincoln	141	317.0	37	83.2	20	45.0	145 (27%)
Linn	227	220.2	65	63.1	19	18.4	224 (24%)
Malheur	68	215.1	20	63.3	5	15.8	51 (18%)
Marion	590	207.1	127	44.6	70	24.6	520 (21%)
Morrow	24	218.3	2	18.2	2	18.2	18 (25%)
Multnomah	1,268	192.0	275	41.6	179	27.1	1,144 (20%)
Polk	99	158.7	26	41.7	11	17.6	90 (19%)
Sherman	4	206.8	0	0.0	1	51.7	5 (28%)
Tillamook	69	284.4	19	78.3	8	33.0	58 (22%)
Umatilla	150	212.6	43	61.0	10	14.2	154 (27%)
Union	52	212.0	15	61.1	5	20.4	50 (23%)
Wallowa	17	235.3	6	83.0	0	0.0	26 (32%)
Wasco	63	264.8	23	96.7	9	37.8	75 (27%)
Washington	616	138.3	128	28.7	62	13.9	469 (18%)
Wheeler	5	323.2	0	0.0	0	0.0	4 (17%)
Yamhill	152	178.8	40	47.1	17	20.0	158 (25%)

Note: The above rates are *Crude Death Rates* and not intended for comparison between counties. *Rates per 100,000 population.
Source: 2000 Oregon Resident Death Certificates

Table II: Morbidity of Selected Chronic Diseases by County of Residence, Oregon, 2000-2001

County	Arthritis	Asthma	Heart Attack	Coronary Heart Disease	Stroke	Diabetes
OREGON	35%	9%	4%	5%	2%	6%
Baker	35%†	13%	3%	3%	2%	7%
Benton	34%	9%	< 1%	1%	<1%	3%
Clackamas	36%	8%	4%	5%	3%	4%
Clatsop	42%	6%	6%	5%	4%	5%
Columbia	41%	8%	7%	6%	1%	7%
Coos	48%	12%	5%	7%	3%	8%
Crook	33%†	8%	5%	3%	2%	6%
Curry	55%	7%	6%	12%	1%	6%
Deschutes	40%	6%	4%	4%	3%	4%
Douglas	40%	9%	8%	4%	3%	9%
Grant	47%†	5%	8%	7%	4%	9%
Harney	28%†	10%	4%	2%	2%	6%
Hood River	23%†	3%	2%	2%	3%	10%
Jackson	39%	10%	6%	4%	3%	6%
Jefferson	37%†	7%	5%	5%	5%	12%
Josephine	38%	8%	3%	6%	3%	6%
Klamath	43%	9%	3%	3%	2%	7%
Lake	22%†	8%	8%	3%	4%	3%
Lane	37%	10%	5%	6%	3%	6%
Lincoln	41%	9%	5%	5%	<1%	8%
Linn	36%	9%	9%	7%	3%	7%
Malheur	33%†	10%	3%	3%	2%	6%
Marion	31%	8%	3%	4%	1%	6%
Morrow	40%†	10%	5%	3%	3%	9%
Multnomah	32%	8%	4%	4%	2%	5%
Polk	35%	9%	10%	7%	1%	6%
Tillamook	41%†	9%	4%	6%	4%	11%
Umatilla	41%	12%	7%	7%	3%	8%
Union	40%	11%	7%	5%	2%	5%
Wallowa	31%†	10%	4%	5%	1%	7%
Washington	28%	8%	3%	4%	1%	5%
Yamhill	31%	12%	3%	3%	2%	7%
Gilliam/Wheeler	*	7%	4%	6%	2%	6%
Sherman/Wasco	32%†	7%	4%	5%	4%	7%

* Fewer than 10 responses † % based on less than 50 respondents; may not accurately reflect behavior of entire county
Source: 2000 - 2001 BRFSS County Augment

Table III: Selected Modifiable Risk Factors by County of Residence, Oregon, 2000-2001

County	% of adults who currently smoke cigarettes	% of adults who currently meet the recommended physical activity levels*	% of adults classified as overweight	% of adults classified as obese
OREGON	21%	40%	37%	20%
Baker	22%	53%	40%	20%
Benton	15%	43%	35%	14%
Clackamas	19%	43%	40%	18%
Clatsop	24%	44%	37%	23%
Columbia	26%	52%	35%	26%
Coos	27%	43%	41%	23%
Crook	23%	46%	41%	20%
Curry	20%	48%	38%	24%
Deschutes	15%	44%	39%	13%
Douglas	29%	23%	37%	28%
Grant	22%	50%	37%	18%
Harney	16%	52%	43%	24%
Hood River	12%	43%	42%	21%
Jackson	19%	41%	35%	24%
Jefferson	22%	45%	40%	30%
Josephine	33%	37%	36%	20%
Klamath	20%	44%	35%	28%
Lake	17%	49%	42%	19%
Lane	21%	44%	36%	20%
Lincoln	29%	43%	38%	21%
Linn	24%	35%	40%	21%
Malheur	20%	46%	40%	19%
Marion	22%	35%	38%	21%
Morrow	21%	44%	37%	31%
Multnomah	21%	37%	35%	19%
Polk	11%	52%	40%	24%
Tillamook	23%	50%	40%	20%
Umatilla	23%	43%	36%	27%
Union	19%	51%	42%	19%
Wallowa	12%	51%	40%	17%
Washington	19%	37%	38%	19%
Yamhill	22%	31%	30%	27%
Gilliam/Wheeler	19%	46%	43%	24%
Sherman/Wasco	21%	54%	45%	23%

* Meets recommended physical activity defined as moderate or vigorous for 30+ minutes at least 5 days per week.
† % based on less than 50 respondents; may not accurately reflect behavior of entire county
Source: 2000 - 2001 BRFSS County Augment

County	% of adults who consume at least 5 fruits and vegetables per day	Had cholesterol check within 5 years (18+ years old)	Had mammogram within past 2 years (women 40+ only)	Had PAP test within past 3 years (women 18+ only)
OREGON	25%	92%	85%	85%
Baker	18%	90%	84%	71%
Benton	26%	94%	84%	82%
Clackamas	25%	94%	88%	86%
Clatsop	30%	95%	80%	79%
Columbia	29%	90%	86%	85%
Coos	26%	87%	82%	75%
Crook	23%	88%	78%	79%
Curry	29%	94%	76%	70%
Deschutes	23%	87%	83%	85%
Douglas	28%	89%	85%	79%
Grant	30%	93%	66% †	78%
Harney	25%	91%	63% †	77%
Hood River	35%	89%	76% †	84%
Jackson	25%	93%	84%	84%
Jefferson	23%	93%	87% †	86%
Josephine	28%	89%	84%	80%
Klamath	17%	92%	86%	77%
Lake	18%	89%	81% †	76%
Lane	26%	92%	85%	84%
Lincoln	26%	92%	82%	76%
Linn	23%	92%	82%	78%
Malheur	25%	99%	77%	67%
Marion	26%	94%	94%	79%
Morrow	27%	95%	73% †	79%
Multnomah	27%	90%	87%	83%
Polk	27%	98%	88%	83%
Tillamook	27%	92%	75%	73%
Umatilla	20%	98%	85%	78%
Union	25%	87%	77%	73%
Wallowa	35%	91%	82% †	77%
Washington	23%	91%	85%	84%
Yamhill	24%	96% †	83%	83%
Gilliam/Wheeler	11%	89%	78% †	73%
Sherman/Wasco	27%	91%	81%	69%

* Meets recommended physical activity defined as moderate or vigorous for 30+ minutes at least 5 days per week.
† % based on less than 50 respondents; may not accurately reflect behavior of entire county
Source: 2000 - 2001 BRFSS County Augment