

The Health of Pierce County



Tacoma | Pierce County
Health Department

Healthier. Safer. Smarter.

2004

The Health of Pierce County 2004

Pierce County, Washington

December 2004

Tacoma-Pierce County Health Department
Office of Community Assessment

Acknowledgements

The following staff in the Office of Community Assessment at the Tacoma-Pierce County Health Department compiled data and wrote the sections for *The Health of Pierce County—2004* report:

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Our thanks to Nina Rogozen, who served as a technical editor and provided much of the graphic design and layout of this report. Thanks also to Darlyne Reiter, who produced the cover for this report, and Robert Lewis, who provided assistance with the design, editing, layout, and production of the report.

Much of the data presented in this report come from the Vista PHw software program, which provides population-based health data. Our thanks go to staff, both at the Washington State Department of Health and Public Health—Seattle & King County, who maintain this valuable tool for community health assessment. Other data come from several surveys conducted by the Washington State Department of Health; our thanks go to the many people at DOH who provided analysis of or helpful information about these data.

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Suggested citation: Tacoma-Pierce County Health Department, Office of Community Assessment. *The Health of Pierce County—2004*, December 2004.

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Executive Summary

The Health of Pierce County—2004 is a portrait of health status in Pierce County. It addresses the following three questions by analyzing a number of health-related indicators:

1. How healthy is our community today, as compared with Washington State and in relation to national objectives outlined by the U.S. Department of Health and Human Services in *Healthy People 2010*?
2. How has the health of Pierce County changed since 1990?
3. Are some sub-groups within our communities less healthy than others?

The findings of this report will assist public health stakeholders in assessing the public health needs of their communities and in setting priorities and goals during program planning. This information will help guide and evaluate efforts in protecting and improving the health of Pierce County residents.

The following is an overview of notable findings about the key health-related indicators in this report. We welcome the opportunity to address any comments or questions regarding this report and encourage you to look to the Tacoma-Pierce County Health Department as a source of information on health promotion and disease prevention.

Population

The health of a population is closely associated with its demographic characteristics such as race, age, and income. The demographic profile of Pierce County, and how it changes over time, will impact its health profile. An older population with high rates of poverty will have poorer health outcomes than a younger, more affluent population. The connection between race and health is more complex. Health disparities in different race groups likely reflect social, cultural, and economic differences and not biological differences among races. In some cases, race or ethnicity is used as a proxy for socioeconomic status when economic data are not available.

Pierce County continues to rank as the second most-populated county in Washington State, with an estimated 2002 total population of 725,168. Between 1990 and 2000, the Pierce County population increased 20%. More than half of this growth was attributed to net migration into Pierce County.

Within this same period, the population of each principal race/ethnicity group increased as well. From 1990 to 2000, growth was 62.5% for Asian or Pacific Islanders, 40.6% for American Indians or Alaska Natives, 36.9% for African Americans, and 15.2% for whites.

The proportion of the county's Hispanic population grew 87.9% between 1990 and 2000, and was 5.5% of the total in 2000. Although less than in the state (7.5%) and the nation (12.5%), this represents a significant and rapidly growing ethnic group in the county.

Pierce County is also aging. This is consistent with similar trends observed at the state and national levels. The median age of Pierce County residents climbed from 31 years in 1990 to about 35 years in 2000, with 10% of the total population being 65 years or older.

In 2000, the median income of Pierce County households was \$45,204, \$572 below that of all Washington State households. Household income may be more equitably distributed within Pierce County, with the state having greater proportions of households at each extreme of the income distribution. Nonetheless, 8% of Pierce County households reported income below the Federal Poverty Level in 2000; this is comparable to figures for Washington State. In Pierce County, 84% of these households included one or more children under the age of 18, a rate above that for all of Washington State.

Pregnancies & Births

Total fertility rate—the average number of births per woman—declined in Pierce County from 2.2 in 1990 to 2.1 in 2000. Age-specific birth rates also dropped over this period for all women under 30 years of age, including adolescents. The birth rate for 15- to 17-year olds fell from 32 births per 1,000 in 1990 to 17 per 1,000 in 2002. Although birth rates among women 18-29 years have also declined in Pierce County, they remain significantly higher compared with Washington State.

Infant mortality is the number of deaths within the first year of life per 1,000 live births. It is considered a key indicator of overall population health. Infant mortality in Pierce County declined significantly from 8.6 per 1,000 in 1990-1992 to 6.0 per 1,000 in 1998-2000. Subsequently, it climbed back up to 7.3 in 2000-2002. This exceeds the rate of 5.6 for Washington State as well as the Healthy People 2010 objective.

Over the last decade, infant mortality rates in Pierce County among white infants and Asian or Pacific Islander infants have remained largely comparable. Rates among African American infants remain significantly higher as compared with white infants, and consistently higher compared with Asian or Pacific Islander infants.

Mortality

Mortality (death) rates are generally reported as the number of deaths per 100,000 residents and are an important indicator of overall population health. From a peak of 929.7 deaths for 1993-1995, death rates over the last decade in Pierce County have declined significantly. The most current three-year average of 884.5 is for 2000-2002. However, over this same decade, Pierce County death rates have remained consistently and significantly higher as compared with those of all of Washington State. Averaged death rates among African Americans remain significantly higher as compared with whites, who have significantly higher mortality compared with Asians or Pacific Islanders. These later two groups consistently have the lowest death rates of any race or ethnicity group. As mentioned before, health disparities among races are likely due, in part, to economic disparities.

For the period 2000-2002, unintentional injuries were responsible for more deaths than any other cause among 1- through 44-year-olds. With increasing age, chronic diseases—mainly cancer and heart disease—emerged as the leading causes of death. Among those 45 through 64 years, cancer was the leading cause of death, causing 219 deaths per 100,000. Among those 65 years and older, heart disease was the leading cause of death, with a rate of 1,586 per 100,000.

Birth Outcomes & Selected Maternal Risk Factors

Birth outcomes—including infant mortality or long-term disability—are influenced by multiple risk factors. Principal among these risk factors is low birth weight (LBW), itself associated with preterm birth. Since 1990, the percent of LBW infants (defined as weighing less than 2,500 grams or 5 lb 8 oz) has changed little within Pierce County. An estimated 6% of 2002 live births were LBW—about the same as for all of Washington State. Both rates are above the Healthy People 2010 objective of 5%.

Since 1990, both Pierce County and Washington State experienced an increase in the percentage of preterm births. In 2002, 14% of births in Pierce County were preterm, as compared with 13% for Washington State. African American women in Pierce County continue to be at highest risk for preterm birth, for reasons that remain unclear.

Rates of maternal smoking and of delayed prenatal care, each a risk factor for preterm delivery and LBW, have declined in Pierce County since 1990. In 2002, about 15% of mothers reported smoking during pregnancy while about 78% began prenatal care in the first trimester.

Behaviors Affecting Health

Between 1995 and 2003, the percent of Pierce County adults who smoke declined slightly but exceeded the Healthy People 2010 objective of 12% for prevalence of adult cigarette smoking. In contrast, the percent of adolescents reporting smoking decreased significantly between 1998 and 2002 among 6th, 8th, and 10th grade students.

The percentage of Pierce County adults reporting binge drinking in 2003 remained above the Healthy People 2010 objective of 6% for adults even though there were significant reductions in binge drinking since 1995. Among adolescents, binge drinking decreased significantly among 8th graders from 1998-2002; other grades showed less significant decreases. In 2002, 57% of 8th graders, 34% of 10th graders, and 24% of 12th graders had never used alcohol.

In 2003, 81% of Pierce County adults reported engaging in some leisure-time physical activity. With 31% of youth participating in moderate physical activity in 2002, Pierce County met the Healthy People 2010 objective of 30%. With 50% of youth participating in vigorous physical activity, Pierce County remained short of the Healthy People 2010 objective of 85%.

In 2003, 37% of Pierce County adults were at a healthy weight. This is significantly below the Healthy People 2010 objective of 60%. Twenty-four percent of Pierce County adults were obese in 2003, a significant increase from 12% in 1990-1992 and above the Healthy People 2010 objective of 15%. About 10% of Pierce County adolescents were overweight in 2002, again above the Healthy People 2010 objective of 5%.

In 2000, 12% of Pierce County residents lived in a home where a loaded, unlocked firearm was present. This meets the Healthy People 2010 objective of 16%. In 2002, about 6% of 10th and 12th grade students in Pierce County reported carrying weapons on school property, above the Healthy People 2010 objective of 4.9%.

Access to Quality Health Care

In 2003, 86% of Pierce County adults reported some kind of health coverage. In 2000, 9% reported not being able to afford a doctor within the previous year. This same year, 96% of Pierce County children had some sort of health insurance.

Life Expectancy & Years of Healthy Life

Life expectancy at birth for someone born in Pierce County from 2000 –2002 was 79.5 years for white females and 74.7 years for white males. Life expectancies were about four years lower for both male and female African Americans. Such disparities likely reflect socioeconomic, cultural, and social rather than biological differences. Eighteen-year-old women of Pierce County could expect living to age 80, while being free of disease or disability for about 52 of these years. Their 18-year-old male counterparts could anticipate living to about age 76 and expect 50 of these years to be free of disease or disability. Between 1988-1990 and 2000-2002, the years of healthy life expectancy for 18-year-olds increased by almost four years.

Conclusions

We have seen many indicators of improved population health in Pierce County since 1990. Years of healthy life—a global measure of community health and wellbeing—have also shown improvement over the previous decade. A young adult in 2000-2002 could look forward to almost four additional years of healthy life than he or she could in 1988-1990. Despite these successes, however, we face persistent racial and socioeconomic disparities, and we are on track for meeting only a few of the objectives delineated in Healthy People 2010.

Our challenge is two-fold: how to effectively apply prevention efforts and how to make affordable and appropriate health care services available to Pierce County residents.

Introduction

Over the years, it has become clear that individual health is closely linked to community health—the health of a community and environment in which we live and play. Likewise, community health is profoundly affected by the collected beliefs, attitudes, and behaviors of everyone who lives in the community.

Healthy People 2010
Understanding and Improving Health

Healthy People 2010 (1) outlines specific, attainable health-related objectives for the nation. Communities use these objectives to track their health status and plan health-related initiatives. In *The Health of Pierce County - 2004* we use selected health indicators to illustrate local progress toward achieving Healthy People 2010 objectives.

Healthy People 2010 goals include a broad spectrum of health indicators that reflect the many factors contributing to individual and community health status. These indicators include behavioral, social, economic, environmental, and health care system factors. We include and focus on the following selected subset of indicators in this report:

1. Demographics, population change, socioeconomic, and sociopolitical factors that help define our community and provide focus for population-based public health prevention efforts;
2. Traditional public health indicators collected through the vital records system; leading causes of death and their race and age-specific impact, and maternal risk factors influencing certain birth outcomes and infant health;

3. Health-related behaviors around tobacco use, violence, nutrition, and physical activity gathered from adolescent and adult surveys;
4. Access to health care information gathered from adolescent and adult surveys;
5. Years of Healthy Life in Pierce County, a measure that integrates "quality of life" measures with life expectancy measures (2).

The data and information presented in this report is intended to stimulate discussions about methods for evaluating, improving, or implementing public health programs aimed at increasing the quality and years of healthy life and eliminating health disparities.

Endnotes: Introduction

1. U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd Ed. Washington DC: U.S. Government Printing Office, 2000.
2. **Centers for Disease Control and Prevention. *Measuring Healthy Days*. Atlanta, Georgia: CDC, 2000.**

How To Read This Report

The following information may help readers better understand and use the data in this report.

Data Concepts

Health Event

In this report, a health event is something that occurs that is a measurement or indicator of people's health. For example, pregnancies, births, and deaths are health events.

County Level Data

Values for Pierce County describe health events for county residents. This report does not include residents of other counties who experience health events while in Pierce County (e.g., deaths from motor vehicle collisions). This report does include health events that Pierce County residents experienced elsewhere.

Health Event Rates

Throughout *The Health of Pierce County—2004* report we use rates to quantify the frequency of occurrence of different health events. A health event rate is the number of times a particular health event occurs, divided by the population at risk for that event, then multiplied by a number like 1,000 or 100,000.

For example, in 2000 there were 5,174 deaths in Pierce County and the total county population was 700,823 according to that year's census. The crude death rate for the county would be $5,174/700,823 \times 100,000$ or 738.3 deaths per 100,000. (See "age-adjusted rates" on page 8.)

Confidence Intervals

Health event rates in a population, however accurately measured, are subject to uncertainty. Two populations, identical in all respects, would most likely have different death rates in any given year. In the long run, however, average death rates might be the same. This is because the number of deaths in any year is a result of unpredictable events as well as of stable population characteristics.

When available data come from a sample of people rather than an entire population, additional uncertainty arises when the sample data are used to represent the population. In either case, an observed event rate must be considered an imperfect estimate of the theoretical "true" event rate that is free of uncertainty.

A confidence interval is a range of "true" event rates consistent with the rate actually observed. On graphs, these are represented as error bars and in tables they follow the event rate in parentheses separated by a comma, e.g., 9.4 (7.6,11.2). We can interpret these values to mean that the observed rate of 9.4 per 100,000 would not be unusual if the "true" rate was anywhere between 7.6 and 11.2 per 100,000.

The width of the confidence interval reflects the variability in the data; wide confidence intervals are common for estimates based on small numbers.

Comparing Event Rates

In public health, we are frequently interested in comparing rates across time, among populations, or among localities. How can we recognize which differences in observed event rates are meaningful and which are just due to the uncertainty inherent in any measurement?

Generally, when comparing two rates, if the confidence intervals do not overlap (that is, if one confidence interval does not contain any value included in the other) the difference between observed rates exceeds what would be expected from uncertainty alone. Such differences are called “statistically significant.” Statistical significance alone does not imply that a difference is large or that it is of public health importance.

For example, the 1999-2001 death rate for African Americans in Pierce County was 1055.9 with a 95% confidence interval of 968.3 to 1151.2. The comparable rate for American Indians or Alaska Natives was 979.3 with a confidence interval of 792.1 to 1212.4. Since the confidence intervals overlap, we cannot say that the two groups are significantly different from each other, even though the rate for African Americans is larger than the American Indian or Alaska Native rate.

Age-Adjusted Rates

Some health events, such as death, are strongly related to age. If the death rate in 1990 were higher than in 2000, it would be tempting to conclude that the health of the county had improved over time. Another possibility, however, would be that the population in 2000 was younger and less likely to experience deaths than in 1990.

To overcome this ambiguity in interpretation, we report death rates adjusted to the age distribution of the U.S. population in 2000 rather than crude (unadjusted) rates. These age-adjusted rates represent what the crude death rate would be if the age distribution of the Pierce County population in any year were identical to what the U.S. population was in 2000. Pierce County was somewhat younger than the U.S. population in 2000, and so would have a lower crude death rate for this reason alone. Age-adjustment eliminates this age effect. The age-adjusted death rate for the county (885.8 per 100,000) is somewhat higher than the crude death rate (738.3 per 100,000).

Rare Events & Small Populations

Some health events, such as infant deaths, are relatively rare. A small fluctuation in the number of times a rare event occurs (from one year to the next, for example) can produce a large fluctuation in event rates that is not truly meaningful. These large fluctuations make it difficult to discern overall trends.

For example, the stroke death rate for American Indians or Alaska Natives went from 56.8 per 100,000 in 2000 to 231.7 per 100,000 in 2001—seemingly a large increase. However, this increased rate corresponded to an increase of only five deaths (three in 2000 and eight in 2001).

Combining data across time, populations, or geographical units often reduces this problem. In this report, we frequently combine data over three-year periods to avoid the wide fluctuations that arise with small numbers. Some figures show three-year moving averages over the period 1990 to 2000. In these, each data point represents a three-year average, with data from each year contributing to three averaged data values.

For example on page 22, Figure 2.1 shows three-year average rates for infant mortality. The first three-year period is for 1990 to 1992, followed by 1991 to 1993 and 1992 to 1994. The rate shown for each three-year period is an average using the number of infant deaths that occurred during those three years in the numerator and an average of the population during those three years in the denominator.

We followed Washington Department of Health guidelines (1) and did not calculate rates when the number of events was less than five.

Life Expectancy

Life expectancy is the projected remaining years of life a person of a particular age has at a particular time. At birth, life expectancy is equal to how many total years a person is expected to live. When that same person reaches an age later in life, based on the current mortality data, the remaining years she or he is expected to live becomes that person's new life expectancy.

Hypothetical example: Claire was born in 1945. At the time, her life expectancy was 72 years. However, in 2003 when she was 58, modern medicine and other factors had made it possible for people to live longer. Based on 2003 data, Claire is expected to live until she is about 86. Her life expectancy (remaining years) is now 28 years.

Race and Ethnicity

In this report, the following words are used to identify the principal race groups: African Americans, American Indians or Alaska Natives (AIAN), Asians or Pacific Islanders, and Whites. Where data are available, the

Asian or Pacific Islander population is divided into two groups: 1) Asians and 2) Native Hawaiians or Other Pacific Islanders.

In addition, Hispanic is used to describe people whose origin or ancestry is traced to a Spanish-speaking country. Hispanic is an ethnicity, not a race. A person of any race can be Hispanic.

We recognize that some local groups prefer to be called by different race and ethnicity labels than what we have selected for this report. While we would like to be sensitive to local preferences, we chose these labels because they follow the U.S. Census definitions and are generally accepted for data comparisons.

Data Sources

Much of the data in this report come from a few key sources. These sources and their limitations are briefly described below.

Behavioral Risk Factor Surveillance System

The Behavioral Risk Factor Surveillance System (BRFSS) is an ongoing national telephone survey conducted by the Centers for Disease Control and Prevention. The survey includes adults age 18 years and older and provides state- and county-level data for each calendar year. In some years, there was not a large enough sample size in Pierce County to analyze the county-level data for one year alone, so data were combined from several years to generate one estimate.

Like any telephone survey, BRFSS is inherently biased as it typically underreports responses from people with lower incomes

and education. Since BRFSS is conducted in English only, it also underreports responses from non-English speakers.

BRFSS data have not been age-adjusted, so differences in frequency of an age-dependent behavior, such as physical activity, between population groups may reflect differences in the age structure of the populations and not differences in behavior. BRFSS excludes people in institutions such as hospitals and nursing homes and so may underreport responses from people who are ill or in poor health. Specifically, because those who are institutionalized are likely to have poorer health-related quality of life, the values presented in Section Seven of this report are likely to overestimate years of healthy life.

Birth Certificate Data

Birth certificate data are collected by hospitals and birthing centers where births occur and are compiled by the Washington State Department of Health, Center for Health Statistics. Several items on the birth certificate, such as maternal smoking, are self-reported and most likely underestimate the true frequency of the behavior or event. In addition, several variables on the birth certificate have a high percentage of missing data, which could bias the results presented in this report since those records with missing data are excluded from the analysis.

Death Certificate Data

For death certificates, funeral directors collect information about the deceased person, including race and ethnicity, from an informant who is usually a family member or close personal friend of the deceased person. A certifying physician, medical examiner, or

coroner generally provides cause-of-death information. Cause-of-death data come from underlying causes of death and not immediate causes. For example, if a person dies of kidney failure, but the kidney failure was a result of the person having diabetes, then diabetes would be the underlying cause of death. Data are compiled by the Washington State Department of Health, Center for Health Statistics.

Healthy Youth Survey

The Healthy Youth Survey is a biannual, self-reported survey conducted in Washington State public schools for 6th, 8th, 10th, and 12th grade students during even-numbered years. Local data for Pierce County come from schools that are selected for participation in a county-level sample and that agree to participate. The Healthy Youth Survey, first conducted in 2002, was preceded by similar self-reported surveys conducted in schools beginning in 1995. The most recent one is the 2000 Washington State Survey of Adolescent Health Behaviors.

Since the Healthy Youth Survey is school-based, it underreports responses from youth who dropped out of school. More of these youth may be engaging in high-risk behaviors compared with youth remaining in school. The survey also does not include students who attend private schools, which also may bias the results.

U.S. Census

U.S. Census data are collected only in the first year of each decade and are estimated for non-census years. Race reporting between 1990 and 2000 census years changed from using mutually exclusive to non-exclusive

race categories, thus limiting comparison of these data. In 2000, people could select more than one race, whereas in 1990 they could select only one race.

For data in this report, race categories defined by the 2000 census were re-coded into the mutually exclusive categories of the 1990 census in order to make comparisons over time. It is possible that apparent differences in the race composition of the county between 1990 and 2000 are due in part to differences in reporting.

Glossary

Estimate

The single-value result that has been calculated from data observed in a population being studied or assessed. Due to variation in the data, population sampling, and/or health phenomena under consideration, this calculated value is always taken to be an estimate of the actual true value existing in the population.

Health Disparities

Differences in health-related measures observed across distinct groups as defined by characteristics such as gender, race or ethnicity, income level, or occupation. Health disparities observed among distinct groups are most commonly the result of a complex interaction between various factors and forces—societal, socioeconomic, and behavioral—that are associated with a defining characteristic such as race.

Health Indicators

Health-related measures widely observed or believed to represent, or be associated with, general population health status. Such health indicators are frequently used in the on-going assessment of population health, or in defining objectives to guide our interventions and monitor their success. Widely referenced health indicators are the national objectives defined in the U.S. Department of Health and Human Services publication, *Healthy People 2010*.

Morbidity

The state or event of disease. In public health literature, the term morbidity is frequently used to refer to rates of a given disease within a specified population. This is called a "morbidity rate."

Mortality

The event of death. "Mortality rate" is synonymous with "death rate."

Overweight and Obese

Classifications of body weight relative to body height used to identify individuals at increased risk for a disease and/or disability that may be associated with excess body size. Classification as "overweight" or "obese" depends upon the individual's body mass index (BMI).

Adults 21 years of age or older—regardless of age or gender—with a BMI of 25.0 to 29.9 are classified as "overweight." Those with a BMI of 30.0 or greater are classified as "obese." Classification is made by BMI specific to age and gender among children and adolescents

from 2 through 20 years of age because their body compositions change rapidly with normal development. They also differ between boys and girls. Children and adolescents with a BMI within the 85th to 95th percentile of the norm for their age and gender are considered as "at-risk for overweight." Those with a BMI within the 95th percentile are classified as "overweight."

Quality of Life

Used in the context of a medical condition, quality of life refers to the overall status of a combination of factors: a person's health, symptoms, and level of physical and social functioning. If illness and its treatment have a negative impact on people's sense of wellbeing and ability to perform daily activities, then their quality of life may be poor.

Subgroup

A number of individuals sharing a selected, distinct characteristic that is not shared by a larger population of which they are a part. For example, if race were the characteristic selected, African Americans would constitute a subgroup of the larger U.S. population. Comparison between defined subgroups is frequently used in public health to determine if differences exist in health status or disease risk among various segments of the population.

Endnotes: How To Read This Report

1. Assessment Operations Group, Washington State Department of Health. Data Guidelines. Olympia, WA: WA DOH, 2002. (<http://www.doh.wa.gov/Data/Guidelines.htm>).

Section One: Population

The two primary goals of Healthy People 2010 are to increase the quality and years of healthy life and to eliminate health

Understanding the county and its people provides a first step toward achieving the Healthy People 2010 goals in Pierce County.

Age, gender, income, race, and education are examples of traditional population characteristics. Combining them with data from available birth, death, and morbidity records may reveal health disparities among population subgroups. This can, in turn, influence public health policy decisions directed toward eliminating sources of health inequalities (e.g., water fluoridation or banning tobacco smoking in enclosed public places). These public health policy decisions not only have community impact, but also affect an individual's perception of their health-related quality of life.

Pierce County has the second largest population of all counties in Washington State. As in other coastal counties, population density is highest near Puget Sound and decreases with distance inland. About 40% of the population is concentrated in Tacoma and adjacent municipalities; just over half the population lives in unincorporated areas. Health care facilities follow a similar geographic gradient; of the eight non-federal hospitals in the county, only one is in the eastern part of Pierce County.

Table 1.1 shows preliminary population estimates for Pierce County since 1990.

- The Pierce County population grew by 19.6% between 1990 and 2000. This growth rate is similar to the 21.1% growth experienced by the entire state over the same period.

Table 1.1. Population estimates, births, and deaths, Pierce County—1990 to 2002

Year	Population	Births	Deaths	Net migration
1990*	586203	10555	4337	6413
1991	603137	10300	4269	10903
1992	617122	10349	4432	8068
1993	629133	10210	4631	6432
1994	639779	9759	4690	5577
1995	649071	9391	4883	4784
1996	657989	9603	4944	4259
1997	668106	9704	4717	5130
1998	680272	9766	4971	7371
1999	691561	9854	5146	6581
2000*	700820	10148	5174	4285
2001	713401	10036	5386	7931
2002	725168	10001	5430	7196

* US Census Years.

Sources: 1990-2001 Population Estimates: EPE Unit, Public Health – Seattle & King County, June 2003.

and Death Certificate Data: Washington State Department of Health. Center for Health Statistics.

Population change is determined by the numbers of births, deaths, persons moving into the county, and people moving out of the county. In Pierce County, the difference between births and deaths can account for 46% of this 10-year increase. Net migration into the county accounts for the rest.

Pierce County contains two military installations—Ft. Lewis Army Base and McChord Air Force Base. In 2002, approximately 17,000 active duty personnel were assigned to these bases. The active duty population declined in size from 1990 to 2000, but estimates in recent years find the numbers growing. Just over half of active duty personnel live on base. There are also approximately 29,000 dependents of active duty military personnel in the area (1).

Race & Ethnicity

In the census (and for most public health data collection systems) race and ethnicity are self-reported and so indicate personal social identification. Although race defined in this way is a social rather than biological construct, it is associated with a wide variety of health outcomes.

The connection between race and health is complex. Disparities between whites and non-white minorities result from the effects of social, cultural, economic, and other factors on the health of populations (2). Race or ethnicity is sometimes used as a proxy for socioeconomic status when economic data are not available. Health disparities among races are likely due, in part, to economic disparities.

Table 1.2 shows race categories used in the 2000 census of Pierce County and Washington State. Compared to the state, Pierce County has a greater proportion of African Americans, Native Hawaiian or other Pacific Islanders, and multi-racial residents and a smaller proportion of white residents.

Table 1.3 on the next page shows the population distribution of Pierce County according to race and ethnicity in the years 1990 and 2000 (3). In these data, people in the “2+ races” category in 2000 were redistributed among the race categories used in 1990, so percentages for all races are slightly higher than in Table 1.2.

Table 1.2. Population and percent (%) race distribution using revised race categories, Pierce County and Washington State—2000

Total Population	Pierce County 700,820	Washington State 5,894,121
White only	78.4%	81.8%
African American only	7.0	3.2
American Indian or Alaska Native only	1.4	1.6
Asian only	5.1	5.5
Native Hawaiian or other Pacific Islander only	0.8	0.4
Other race	2.2	3.9
2+ races	5.1	3.6

Source: 2000 U.S. Census

Table 1.3. Race and ethnic distribution by count and percent of total population, Pierce County —1990 and 2000

Year	White	African American	AIAN ¹	Asian or Pacific Islander	Hispanic as Ethnicity
1990	505044 (86.2)	42876 (7.3)	8662 (1.5)	29621 (5.1)	20556 (3.5)
2000	581800 (83.0)	58702 (8.4)	12178 (1.7)	48140 (6.9)	38621 (5.5)

Sources: 1990 and 2000 U.S. Census

¹ American Indian or Alaska Native

- Pierce County's predominantly white population became more diverse over this decade.
- Between 1990 and 2000, growth was 62.5% for Asian or Pacific Islanders, 40.6% for American Indians or Alaska Natives, 36.9% for African Americans, and 15.2% for whites.
- The proportion of the county's Hispanic population grew 87.9% between 1990 and 2000, and was 5.5% of the total in 2000. Although less than in the state (7.5%) and the nation (12.5%), this represents a significant and rapidly growing ethnic group in the county.

Age & Gender

The age profile of a community is an indicator of both the physical, social, and health-related needs of that community and the resources and support available for addressing those needs.

Figures 1.1 and 1.2 on the next page show the age and gender distributions of Pierce County in 1990 and 2000. The county's age profile is very similar to Washington State's.

These “population pyramids” show trends in population structure and how it changed over time.

- The symmetry of each pyramid shows that males and females were about equal in number in all age groups except the very oldest, where females outnumbered males.
- In 1990 the pyramid had the bottom-heaviness indicative of a young population.
- The bulge of 25- to 34-year-olds represents the baby boom cohort (4). By 2000, this cohort had aged 10 years, and the bulge shifted to 35- to 44-year-olds.

Figures 1.1 and 1.2. Population distributions by age and gender, Pierce County —1990 and 2000

Figure 1.1 Pierce County Population, 1990
total population: 586,203

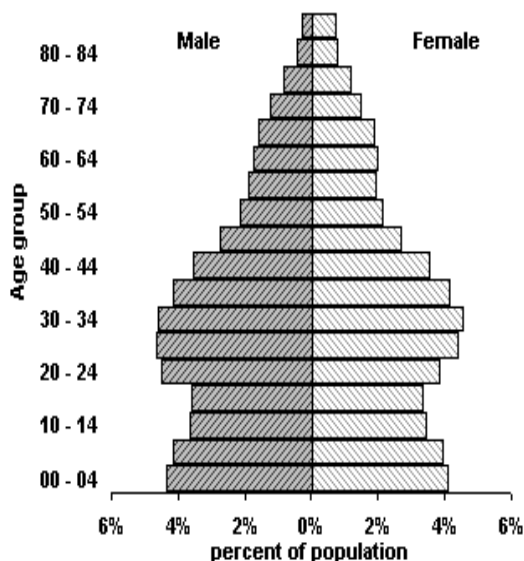
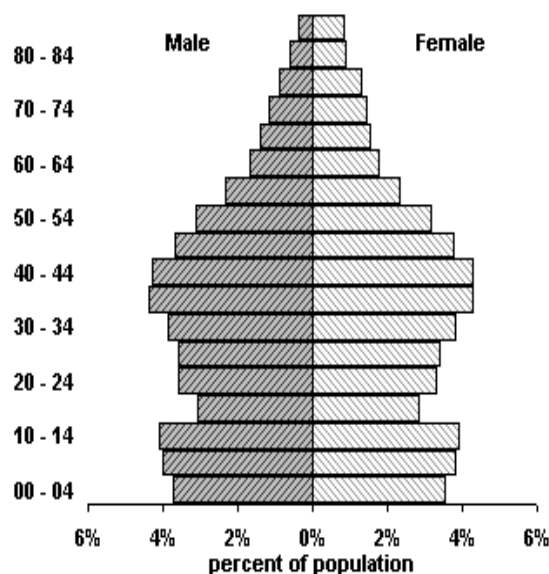


Figure 1.2 Pierce County Population, 2000
total population: 700,820



Sources: 1990 and 2000 U.S. Census

Households, Income, & Poverty

Socioeconomic status is associated with many health-related outcomes including health-related quality of life (5). The causal relationship between socioeconomic status and health is complex. For example, disease or disability often limits employment and educational opportunities. Conversely, lack of education can impair health and limit employment, which can decrease access to health care.

Table 1.4 on the next page compares county and state annual household incomes as determined in the 1990 census for 1989 and the 2000 census for 1999.

- Of the 181,466 family households (43.7% of all households) in Pierce County in 2000, 7.5% had a household income below the federally established poverty level.

Table 1.5 on the next page shows the composition of those Pierce County family households living in poverty.

- Eighty-four percent of families below the federal poverty level included one or more related children under 18 years old. This is about 3% higher than Washington State and 6% higher than the United States.
- Half of the families living below the federal poverty level reported a woman as head of household with related children under 18—about 6% higher than Washington State.

Table 1.4. Household income, Pierce County and Washington State—1989 and 1999

Household Income	1989		1999	
	Pierce County (n=214,795)	Washington State (n=1,875,508)	Pierce County (n=260,897)	Washington State (n=2,272,261)
Less than \$ 15,000	21.8%	21.4%	12.4%	13.1%
\$ 15,000 - \$ 34,999	36.1	34.7	24.9	24.2
\$ 35,000 - \$ 49,999	20.1	19.6	17.8	17.1
\$ 50,000 - \$ 99,999	19.3	20.6	34.4	33.0
\$ 100,000 and above	2.7	3.7	10.4	12.6
Median Household Income	\$30,412	\$31,183	\$45,204	\$45,776
Average Household Size (in persons)	2.62	2.53	2.60	2.53

Sources: 1990 and 2000 U.S. Census.

Table 1.5. Families below Federal Poverty Level and presence of related minor children, Pierce County and Washington State—1999

Family Classification	Pierce County (n=13,574)	Washington State (n=110,663)
All Families		
With children under 18 years of age	84.0	80.3
With children less than 5 years old	42.7	41.8
Female-headed Families		
With children under 18 years of age	49.6	43.7
With children less than 5 years old	24.5	21.8

Source: 2000 U.S. Census

Education

Education has clear ties to earning power. In 2000, a high school dropout was twice as likely as a high school graduate, five times as likely as a person with an associate degree, and over nine times as likely as a college graduate to be among the working poor.

High school dropouts typically had annual incomes below the federal poverty level although working at least half a year (6).

Table 1.6 on the following page shows education attainment for people 25 years of age and older in 2000. About 13% of Pierce County residents did not hold a high school diploma. Although this graduation rate (about 87%) was about the same as for the state, further education among high school graduates was lower in Pierce County. Only 20.6% of Pierce County residents had a bachelor's degree, compared to the state level.

Table 1.6. Education of population aged 25 years and older, Pierce County and Washington State—2000

Education Level	Pierce County (n=442,665) Percent	Washington State (n=3,827,507) Percent
No High School Diploma	13.1	12.9
High School Grad or Higher	86.9	87.1
High school grad or GED	29.8	24.9
Some college, no degree	28.4	26.4
Associate degree	8.1	8.0
Bachelor's degree	13.7	18.4
Graduate or professional degree	6.9	9.3

Source: 2000 U.S. Census

Endnotes: Population

1. Fort Lewis, April 2000 (http://lewis.army.mil/About_FL_sdtml).
2. Washington State Department of Health. Guidelines for Using Racial and Ethnic Groups in Data Analyses. July 2003. (<http://www.doh.wa.gov/Data/Guidelines/Raceguide1.htm>).
3. The 2000 census has been “bridged” to race categories used from 1990 through 1999. This adjustment was then applied to estimates.
4. A cohort is a well-defined group of people who have had a common experience or exposure and are then followed up for the incidence of new diseases or events, as in a cohort or prospective study. In this example, the cohort is a group whose commonality occurs naturally, i.e., they are all the same age.
5. Centers for Disease Control and Prevention. Health-Related Quality of Life Among Low Income Persons Aged 45-64 Years – United States, 1995-2001. MMWR 2003;52:1120-1124.
6. U.S. Department of Labor, Bureau of Labor Statistics. A Profile of the Working Poor, 2000; Report 957. Washington DC: U.S. Government Printing Office. March 2002.

Section Two: Pregnancies & Births

Pregnancy (1) and birth have public health implications for health-related quality of life and have an impact on community resources.

Rates of Pregnancy & Birth

The total fertility rate (TFR) is the average number of live births a woman would be expected to have over her reproductive lifetime—if she experienced the age-specific fertility rates across that period. TFR is used by demographers as an indicator of population growth over time, where 2.1 average births per woman indicates “population replacement.” Less than 2.1 indicates population decline, while more than 2.1 indicates population increase.

- Pierce County's TFR in 1990 was 2.21, above that of Washington State (2.06) and above the replacement rate of 2.1.
- In 2000, Pierce County's TFR (2.06) remained above Washington State's (1.97) but fell below replacement level.

Table 2.1 below shows age-specific birth rates in Pierce County and Washington State for 1990, 2000, and 2002. Reproductive patterns differed between women less than 30 years and those over 30.

- For women under 30, including adolescents, birth rates decreased over this period; rates were consistently higher for women in Pierce County than for women in Washington State.
- For women 30 and older, birth rates increased during the period; rates were consistently lower for women in Pierce County than for women in Washington State.

Table 2.1. Age-specific birth rates (per 1,000 females), Pierce County and Washington State—1990, 2000, and 2002

Age	1990		2000		2002	
	Pierce County	Washington State	Pierce County	Washington State	Pierce County	Washington State
15-19	63.6	53.4	45.7	39.1	40.7	33.0
15-17	32.0	29.8	23.5	20.4	17.0	16.8
18-19	103.5	85.1	79.8	67.6	77.0	57.7
20-24	145.5	119.8	122.4	104.5	113.2	96.3
25-29	127.9	122.2	121.0	111.0	119.7	111.1
30-34	75.4	80.7	83.1	91.0	81.6	89.7
35-39	27.5	31.7	33.0	39.6	34.6	41.1
40-44	4.4	5.4	5.6	8.0	6.1	8.7

Source: Birth Certificate Data, Washington State Department of Health, Center for Health Statistics.

Table 2.2. Estimated percent of pregnancies unintended, Pierce County and Washington State (WA)—1993-1994, 1998, and 2002

	1993-1994		1998		2002	
	Pierce County	WA	Pierce County	WA	Pierce County	WA
Estimated pregnancy count	13,900	104,900	13,400	105,300	13,938	104,883
% pregnancies unintended	56.0	55.0	55.0	53.0	n/a	n/a
% births from unintended pregnancies	40.0	39.0	39.0	38.0	n/a	n/a

Sources: Washington State Department of Social and Health Services, February, 2001. Birth Certificate Data and Induced Abortion Data: Washington State Department of Health, Center for Health Statistics

Healthy People 2010 objective: Reduce the level of unintended pregnancies to 30% or less.

Local progress: Table 2.2 above shows pregnancy and birth data for Pierce County and Washington State for 1993-1994, 1998, and 2002. It's estimated that 56% of pregnancies in Pierce County and 55% of pregnancies in Washington State were unintended in 1998.

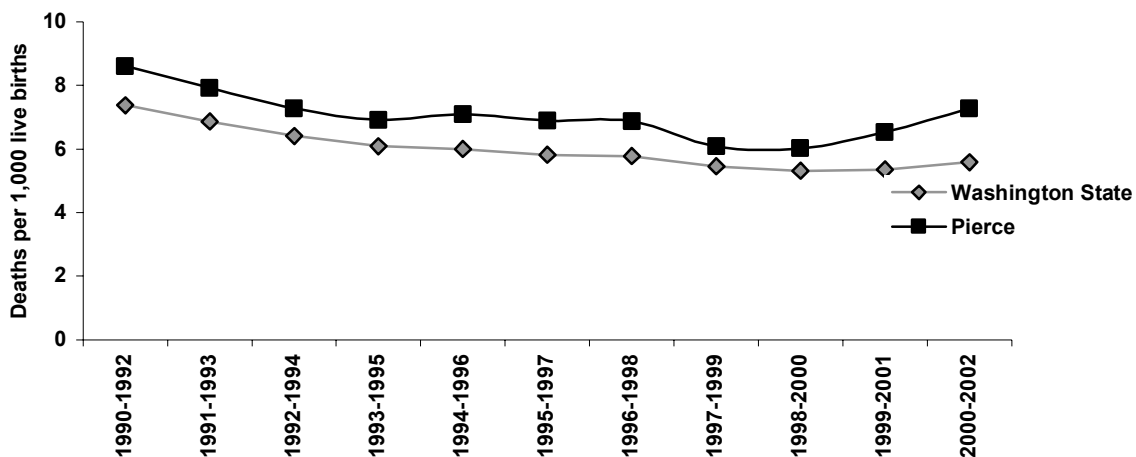
Infant Mortality

The proportion of infants born who die within their first year of life is the infant mortality rate.

Healthy People 2010 objective: Reduce infant deaths to 4.5 per 1,000 live births.

Local progress: Figure 2.1 compares infant mortality in Pierce County and Washington State for 1990-2002 using three-year moving averages. Infant mortality is consistently higher in Pierce County than Washington State.

Figure 2.1. Average infant mortality rates, Pierce County and Washington State—1992 to 2002

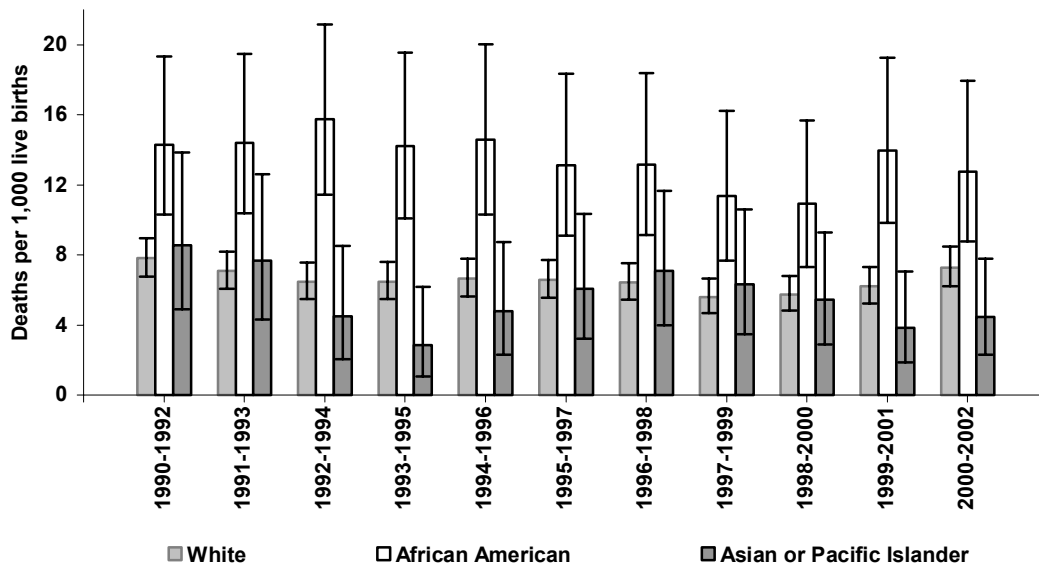


Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Figure 2.2 shows the infant mortality rate using a three-year moving average for Pierce County by race (2). Mortality rates for white infants and Asian or Pacific Islander infants were similar, and were consistently lower than those for African American infants. (See Chapter 4, Maternal and Child Health.) There were too few American Indian or Alaska Native infant deaths to include in this analysis.

In order to reach the Healthy People 2010 infant mortality objective, Pierce County would require, on average, a 38% reduction in the number of white infant deaths and a 64% reduction in the number of African American infant deaths.

Figure 2.2. Average infant mortality rates by race, Pierce County—1992 to 2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Endnotes: Pregnancy & Birth

1. Pregnancy rates are estimated by adding documented abortions to certified births. Early term miscarriages or “spontaneous” abortion data are not included in pregnancy rate calculation because reliable data are unavailable.
2. Infant race is recorded as declared race of mother.

Section Three: Mortality

A population's mortality experience is traditionally one of the most critical indicators used to assess its health status.

Mortality, or death, is the determinant of overall life expectancy, frequently preceded by morbidity and decline in health status. It directly impacts the years of healthy life experienced by a population. Comparing death rates—across time, between subgroups, and for leading causes of death—provides valuable information about a population's overall health and helps identify health disparities.

Differences in total and cause-specific death rates across subgroups may reflect disparity in the distribution of disease burden across these groups. These mortality differences can also indicate disparities in subgroups' levels of exposure to both risk and protective factors associated with disease and death. Several issues may lie at both the root cause and the resolution of such disparities, including access to quality health care, the promotion of healthy lifestyles, and exposure to environmental factors.

Deaths due to intentional injury such as homicide and suicide may indicate the need to address underlying social/political issues. A high rate of unintentional injury deaths may indicate a need for targeted prevention education programs.

Deaths From All Causes

Figure 3.1 on the next page presents three-year moving averages for death rates from all causes for Pierce County and Washington State from 1990-1992 through 2000-2002. Data show a decrease in total deaths.

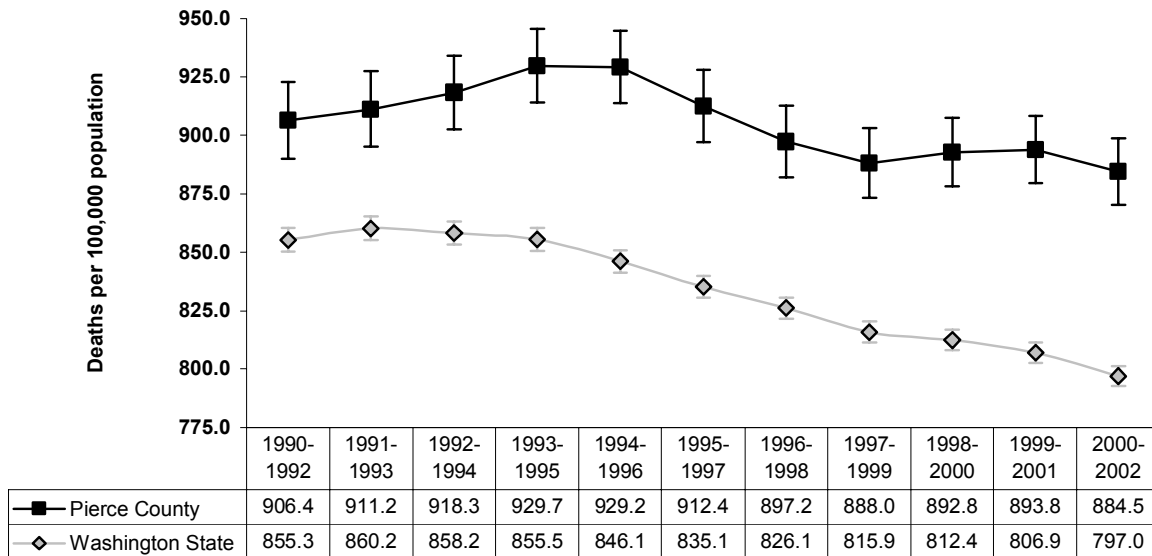
- From a peak of 929.7 deaths per 100,000 for 1993-1995, Pierce County's overall death rate significantly decreased to 884.5 deaths per 100,000 for 2000-2002.
- Declining all-cause death rates also dropped for all age-specific subgroups in Pierce County, except 5 through 14 and 35 through 54.

The observed decline in death rates for the Pierce County population is encouraging. However, these and supplemental data found in Appendix A show that this decline has not kept pace with comparative decreases in mortality for Washington State.

- All-cause death rates in Pierce County have remained significantly higher in the last decade compared with those for Washington State.

- Data show a gradually increasing disparity in average death rates between Pierce County and Washington State across time. 2000-2002 data represent the greatest difference in this county-state mortality gap observed throughout the period from 1990 through 2002.

Figure 3.1. All-cause averaged death rates age-adjusted to the 2000 U.S. population, Pierce County and Washington State—1992 to 2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Deaths From All Causes by Race/Ethnicity

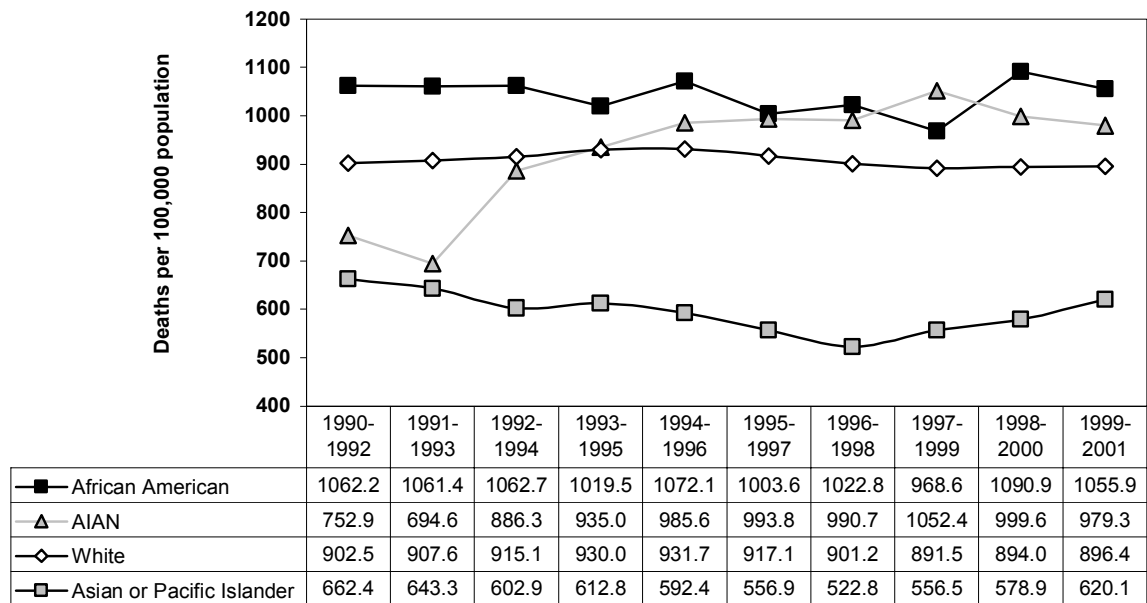
Investigating deaths by subgroups in Pierce County helps us better understand the health of the population as a whole.

Figure 3.2 presents three-year moving average rates for death from all causes among principal race groups in Pierce County from 1990-1992 through 1999-2001. These findings, along with supplemental data found in Appendix B, present a number of key findings.

- Death rates for African Americans have consistently been higher than death rates for whites and for Asians or Pacific Islanders.

- Those of any race who reported Hispanic ethnicity also experienced significantly lower mortality as compared to either non-Hispanic whites or non-Hispanic African Americans.
- Although Asians or Pacific Islanders consistently demonstrate significantly lower death rates compared to the other race subgroups, these rates appear to be progressively increasing after a decline during the first part of the decade (1).
- Due to the small size of the American Indian and Alaska Native population in Pierce County, trends in their death rates cannot be accurately assessed. However, Washington State data suggest this group does have a higher death rate compared to Whites or Asians or Pacific Islanders (2).

Figure 3.2. All-cause averaged death rates by race age-adjusted to the 2000 U.S. population, Pierce County—1992 to 2001



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

¹ American Indian or Alaska Native

Advancing our understanding and resolution of health disparities is a directive founded in the mission, principles, and goals of public health practice (3, 4).

Cause-Specific Deaths

Effectively reducing the risk of premature death within a population, while extending healthy years of life, also requires knowledge around the prevailing causes of death.

Table 3.1 shows the leading causes of death in 2002 for Pierce County residents. Heart disease and cancer are the top two causes of death in Pierce County—consistent with all of Washington State. Combined, heart disease and cancer accounted for almost half of all deaths in Pierce County for 2002.

Healthy People 2010 objective: Reduce the number of deaths caused by heart disease to 166.0 per 100,000 people.

Local progress: In 2002, the rate of heart disease deaths in Pierce County was 231.9. This does not meet the Healthy People 2010 objective. Reaching this objective requires a 28.4% decrease in Pierce County heart disease deaths.

Healthy People 2010 objective: Decrease the rate of cancer-caused deaths to 159.9 per 100,000 people.

Local progress: From a rate of 222.3 deaths per 100,000 in 1990, the cancer death rate in Pierce County has decreased to 199.3 in 2002. However, this still does not meet the Healthy People 2010 objective.

Table 3.1. Leading causes of death¹, Pierce County—2002

Cause of death	Count	Rate per 100,000 population	Percent of all deaths
Heart disease	1416	231.9	26.1
Cancer	1256	199.3	23.1
Stroke	452	76.1	8.3
Chronic lower respiratory disease	332	54.6	6.1
Alzheimer's Disease	257	44.1	4.7
Unintentional injury	242	35.2	4.5
Diabetes	193	30.9	3.6
Atherosclerosis	83	14.1	1.5
Suicide	94	13.4	1.7
Influenza/pneumonia	79	13.1	1.5
Deaths from all causes	5430	871.6	100.0

¹ Death rates are age-adjusted to the year 2000 U.S. population.

Source: Death certificate data: Washington State Department of Health, Center for Health Statistics.

Healthy People 2010 objective: Reduce the rate of deaths caused by stroke to 48.0 per 100,000 people.

Local progress: In 2002, the rate of stroke deaths in Pierce County was 76.1 per 100,000. This does not meet the Healthy People 2010 Objective. Reaching this objective would require a 37% decrease in the current rate in Pierce County.

Healthy People 2010 objective: Reduce the rate of deaths caused by firearms to 4.1 per 100,000 people.

Local progress: From a rate of 15.4 in 1990, the current rate of 10.2 per 100,000 shows a 34% decrease in Pierce County firearm-related deaths—a statistically significant decline. However, the Healthy People 2010 Objective has still not been met.

2000-2002 Data by Age & Gender

The leading risks of death typically change throughout the course of a person's life, as health-related behaviors, risks, and exposures change with age.

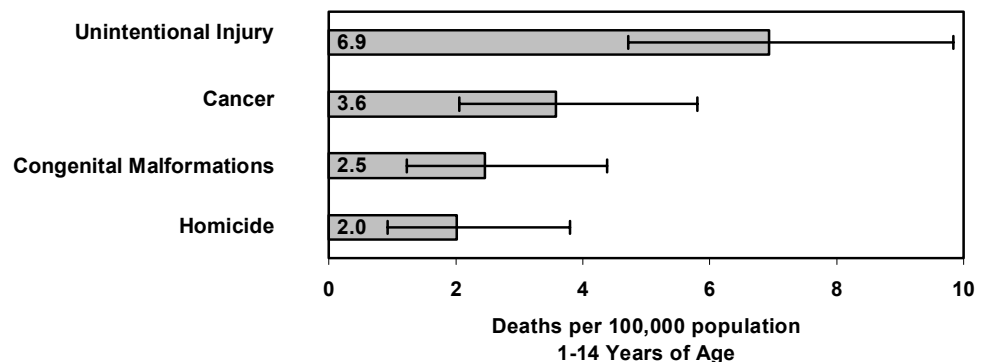
Figures 3.3 through 3.7 on pages 29 to 33 present three-year average death rates for 2000-2002 for the leading causes of death among selected age groups of Pierce County residents.

1- Through 14-Year-Olds & 15- Through 24-Year-Olds

Data for 1- through 14-year olds are presented in Figure 3.3. Data for 15- through 24-year olds are presented in Figure 3.4 on the next page. Key findings for both age groups include:

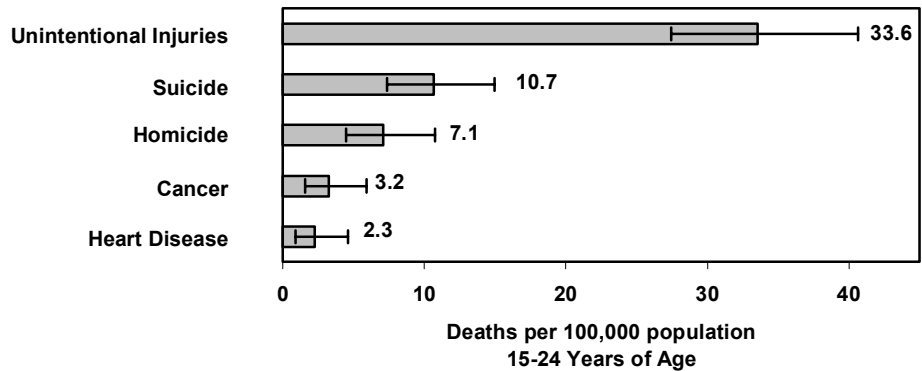
- **Unintentional Injury** – Motor vehicle collisions and other forms of unintentional injuries are the leading cause of death among 1- through 14-year-olds and 15- through 24-year-olds in Pierce County.
- **Suicide and Homicide** – As age increases, so does the death rate for suicide and homicide in these age groups.
- **Firearms** – Firearms are used in 73% of suicides and 95% of homicides in these two age groups.

Figure 3.3. Averaged death rates for leading causes among those 1 through 14 years of age, Pierce County—2000-2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Figure 3.4. Averaged death rates for leading causes among those 15 through 24 years of age, Pierce County—2000-2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

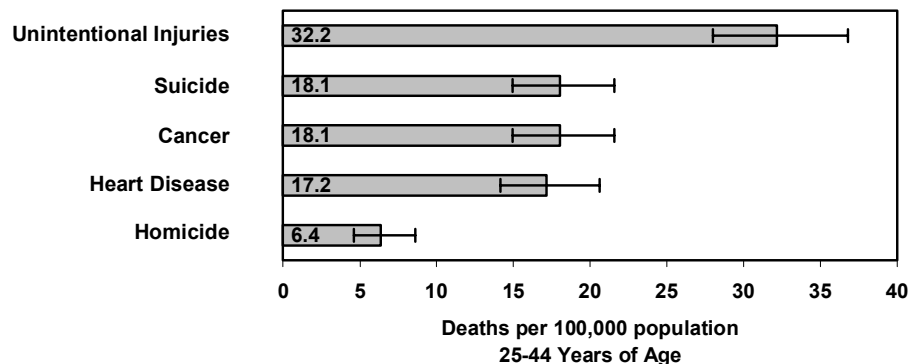
25- Through 44-Year-Olds

The aggregate effect of physical and social environments and poor health behaviors become increasingly apparent as people get older. The leading causes of death among Pierce County residents continue to shift with their increasing age (Figure 3.5).

- **Unintentional Injury** — This category of injury is the leading cause of death for this age group, responsible for about one-third of all deaths.

- **Heart Disease** – Among people in this age category, heart disease is the fourth leading cause of death.
- **Cancer** – Cancer deaths significantly increase from the 15 through 24 years of age range (3.2 deaths per 100,000 people) to the 25 through 44 years of age range (18.1 per 100,00).

Figure 3.5. Averaged death rates for leading causes among those 25 through 44 years of age in Pierce County—2000-2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

A Comparison of Men & Women, 25- Through 44-Years of Age

As accompanying data in Appendix C suggest, the leading causes of death are different for Pierce County men and women, 25 through 44 years of age.

- **Unintentional injury and suicide** — Among men of this age group, these are the first and second leading causes of death, respectively. They rank second and fourth among women in this age group. These two causes of death are both significantly more frequent among men than women.
- **Heart disease** — This is the second leading cause of death for both men and women in this age group. However, the heart disease death rate for men in this age group is significantly higher than for women in this age group.

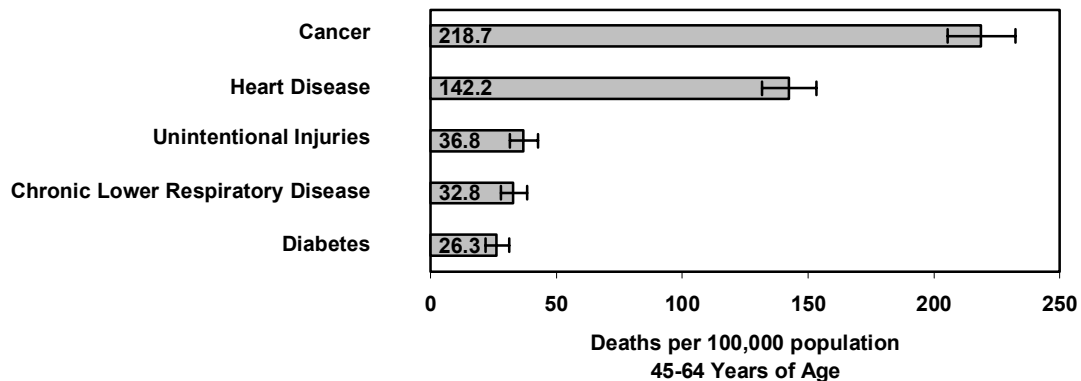
- **Cancer** — This is the leading cause of death among women in this age group and the sixth leading cause among men. However, cancer death rates are not significantly different between men and women.

45- Through 64-Year-Olds

Findings presented in Figure 3.6 and Appendix D show the prominent roles that chronic diseases begin to play among leading causes of death for people in this age group in Pierce County.

- **Cancer and heart disease** — Cancer and heart disease are the first and second leading causes of death, respectively, for this age group—together accounting for more than 55% of all deaths.
- **Chronic lower respiratory disease (e.g., bronchitis, asthma, emphysema) and diabetes** — Deaths from these diseases are more common beginning in this age group.

Figure 3.6 Averaged death rates for leading causes among those 45 through 64 years of age in Pierce County—2000-2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

A Comparison Of Men & Women 45- Through 64-Years of Age

Findings presented in Appendix D detail the similarities and differences in leading causes of death among men and women of this age group.

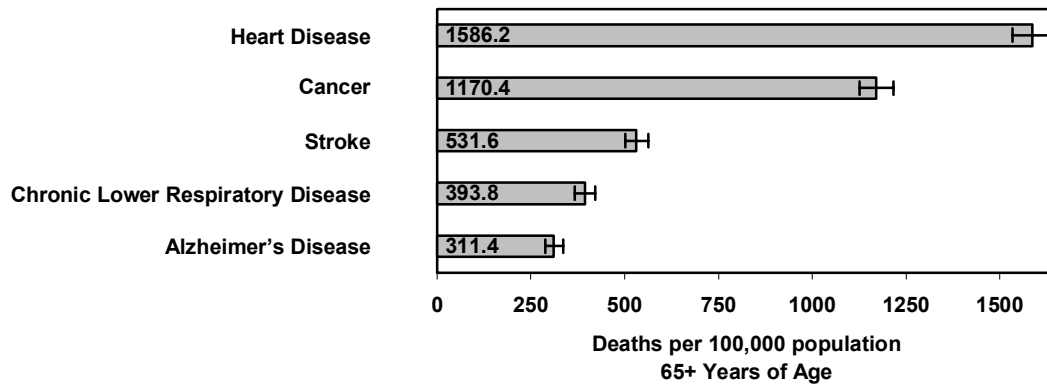
- **Cancer** — This is the leading cause of death for both men and women in this age group. Cancer causes 31.4% of all deaths among men and 39.8% of all deaths among women. Lung cancer is the most frequent cause of cancer-related death for both men (34.8% of all cancer-related deaths) and women (32.6% of all cancer-related deaths). Among women, breast cancer is the second leading cause of cancer-related deaths. It accounts for 18.3% of all cancer-related deaths among women of this age group.
- **Heart disease** — Heart disease is the second leading cause of death in both men and women of this age group. However, men in this age group have a significantly higher rate of heart disease deaths than women in this age group have.
- **Chronic lower respiratory disease and diabetes** — These two illnesses continue to rank high among the leading causes of death for both men and women in this age group.

65-Year-Olds & Older

Figure 3.7 on the following page shows heart disease and cancer continuing to be the two leading causes of death among Pierce County men and women 65 years of age and older.

- **Heart disease and cancer** — Heart disease surpasses cancer as the leading cause of death in this age group. Heart disease accounts for 29.8% of all deaths, while cancer accounts for 22.0% of all deaths.
- **Stroke** — As the main type of cerebrovascular disease, stroke is the third leading cause of death among this age group, accounting for 10.0% of all deaths. It displaces both chronic lower respiratory disease and diabetes in mortality burden (5).
- **Alzheimer's disease** — The impact of Alzheimer's disease becomes evident in this age group—it is the sixth leading cause of death.

Figure 3.7. Averaged death rates for leading causes among those 65+ years of age, Pierce County—2000-2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

A Comparison of Men and Women, 65- Years of Age and Older

Men and women in this age group continue to have similar leading causes of death. Data in Appendix E show that the rankings are identical; however, the death rates for these leading causes significantly differ between genders.

Heart disease and cancer – Death rates from these two diseases are significantly greater for men than they are for women. Each disease represents a larger proportion of all deaths among men than women.

Alzheimer's disease – In contrast, the Alzheimer's disease death rate is significantly greater for women than for men. Alzheimer's disease also accounts for a greater proportion of all deaths for this age group compared to all other age groups.

Stroke – Although the stroke death rate is not significantly different for men and women, strokes are responsible for a greater proportion of all deaths among women as compared to men.

Endnotes: Mortality

1. Current data cannot yet confirm that this observation actually represents statistically significant existence of, or change in, mortality trends within this subgroup.
2. Death Certificate Data: Washington State Department of Health, Center for Health Statistics.
3. McGinnis, J.M., and Maiese, D.R. Defining mission, goals, and objectives. In: Scutchfield, F.D., and Keck, C.W., eds. *Principles of Public Health Practice*. Albany, NY: Delmar Publishers, 1997, 140-141.
4. U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With *Understanding and Improving Health and Objectives for Improving Health*. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.
5. Mortality burden is the number of deaths experienced by a defined risk group or attributable to a given risk factor. (Similarly, morbidity burden or disease burden refers to the prevalence of a disease within a defined risk group or attributable to a given risk factor.)

Section Four: Birth Outcomes & Selected Maternal Risk Factors

Low birth weight and very low birth weight are risk factors associated with poor infant health outcomes, including long-term disabilities and death.

Local health departments issue birth certificates for all live infant births. Public health staff record and analyze information related to each mother's and infant's characteristics, such as prenatal care, length of pregnancy, and infant birth weight. This provides important information about pregnancy and birth outcomes.

Low Birth Weight

Low birth weight (LBW) is defined as a weight below 2,500 grams (5 lb 8 oz). Very low birth weight (VLBW) includes infants born below 1,500 grams (3 lb 4 oz). The risk of LBW infants dying in their first year of life is five times greater than an infant of normal birth weight. The risk of death for VLBW infants is 100 times greater (1).

Possible causes of LBW include:

- Premature birth.
- Intrauterine growth restriction (2).
- Multiple births, including twins and triplets.
- Genetic or inherited abnormalities.

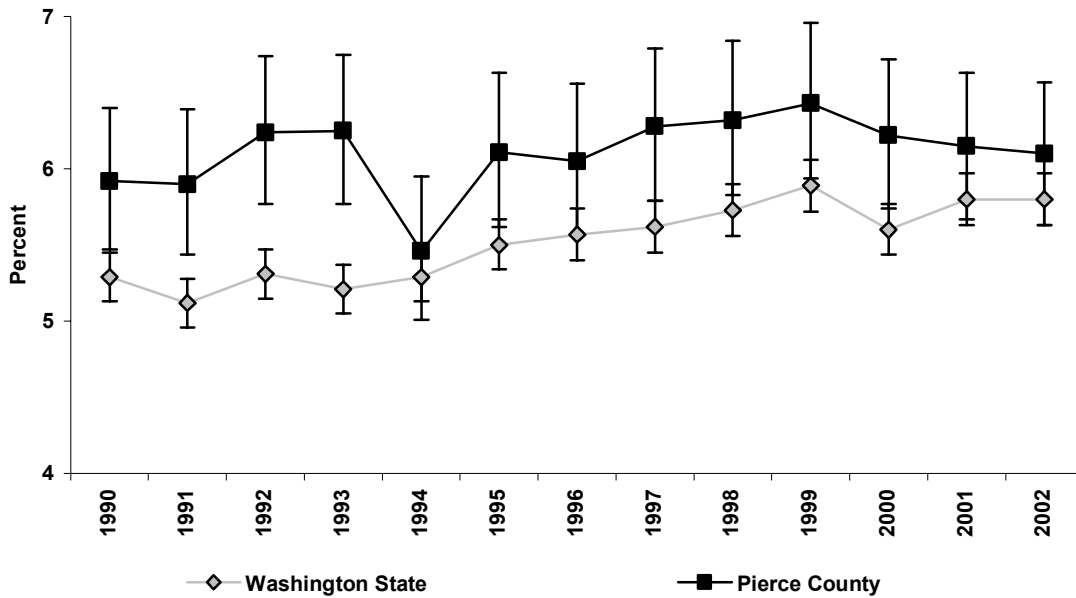
- Maternal conditions such as high blood pressure and poor weight gain during pregnancy.
- Maternal behaviors such as smoking, alcohol use, and poor nutrition (e.g., too little food, unhealthy food) during pregnancy.

In addition, socioeconomic factors, such as low income and low education levels, are associated with LBW, though the mechanisms of influence are not clearly understood (3)

Healthy People 2010 objective: Reduce the LBW rate to 5.0 per 100 live births.

Local progress: Figure 4.1 on the next page shows the Washington State and Pierce County rates for LBW infants between 1990 and 2002. The percent of LBW infants is consistently higher in Pierce County than in Washington State, but the gap is growing smaller. The percent of LBW births in the state rose, in part due to an increase in multiple births (4). A similar rise did not occur in Pierce County. LBW rates for both Pierce County and Washington State do not meet the Healthy People 2010 objective.

Figure 4.1. Rates of low birth-weight births per 100 live births, Pierce County and Washington State—1990 to 2002



Source: Birth Certificate Data: Washington State Department of Health, Center for Health Statistics.

Preterm Births

Full term infants are those born between 37 and 42 weeks gestation. Infants born before 37 weeks are "preterm" (premature). Premature babies commonly have a low birth weight or very low birth weight and are at risk for serious health problems such as respiratory or breathing difficulties and neurological disorders (5).

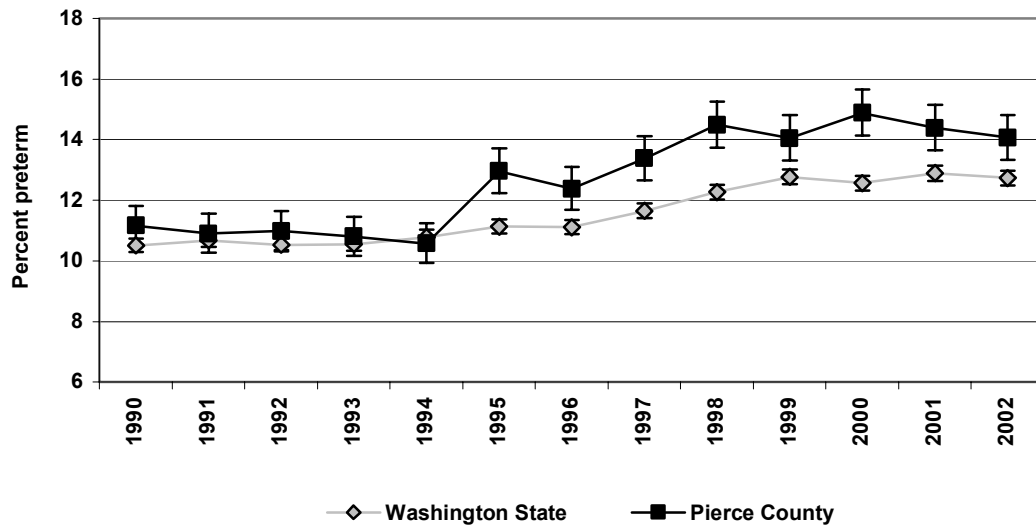
Though not always well understood, possible causes of preterm delivery include the following characteristics of the mother:

- Pregnant with more than one baby
- Abnormalities of the uterus or cervix
- Younger than 17 years
- Older than 35 years
- African American
- History of preterm delivery (6)

- Maternal behavioral factors associated with premature labor or birth include:
 - Late (3rd trimester) start for prenatal care
 - No prenatal care
 - Smoking
 - Alcohol or illegal drug use
 - High levels of stress (7).

In addition, women who are in a violent relationship or who do not have adequate social support are more likely to give birth to a premature infant (8).

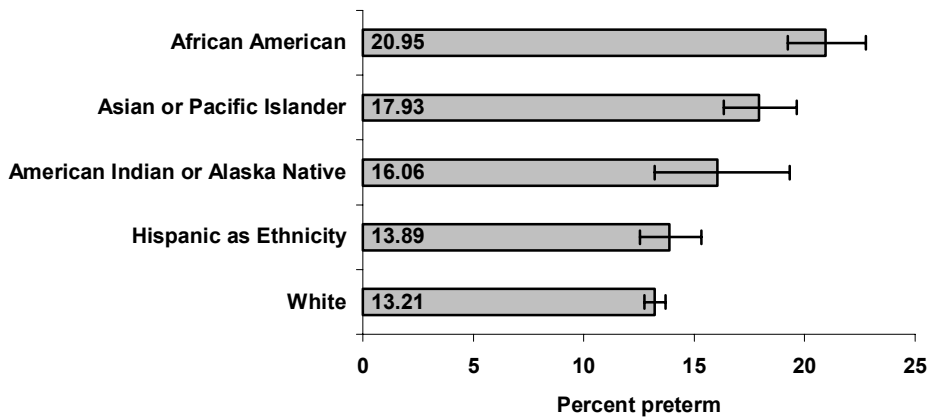
Figure 4.2. Preterm births¹ (< 37 weeks), Pierce County and Washington State—1990 to 2002



Source: Birth Certificate Data: Washington State Department of Health, Center for Health Statistics.

¹ Data are based on a calculated gestational age.

Figure 4.3. Preterm births¹ by race/ethnicity, Pierce County—1999-2001



Source: Birth Certificate Data: Washington State Department of Health, Center for Health Statistics.

¹ Data are based on a calculated gestational age.

Healthy People 2010 objective: Decrease the preterm birth rate to 7.6%.

Local progress: Since 1990, both Pierce County and Washington State have experienced increases in preterm births (Figure 4.2). In 2002, 14.1% of Pierce County births were preterm. This rate exceeds the Healthy People 2010 objective.

Figure 4.3 shows the preterm birth rates for Pierce County by mother’s race/ethnicity for 1999-2001. African American women and Asian or Pacific Islander women in Pierce County, as in Washington State, had a significantly higher rate of preterm birth than white women had.

Timely Prenatal Care

Early and regular prenatal care can identify and sometimes prevent problems in pregnancy that may lead to preterm and low birth weight infants.

Measures to prevent premature births include access to early and regular prenatal care for all pregnant women, especially those with known medical conditions, such as diabetes or high blood pressure (9).

There is a positive association between prenatal care beginning in the first trimester (weeks one through 13) of pregnancy and improved health outcomes for both mother and baby (10).

Factors associated with late prenatal care include mother's limited access to health care providers and age less than 15 years.

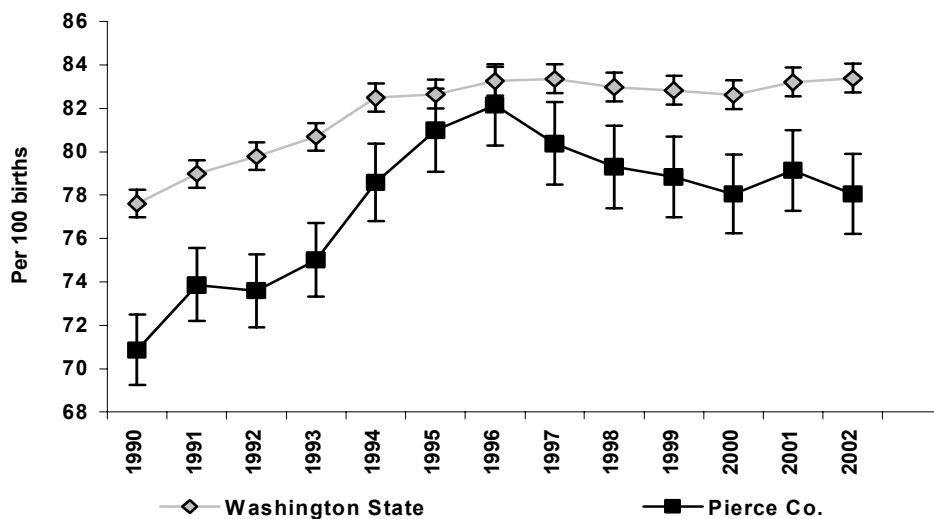
Healthy People 2010 objective: Increase the proportion of pregnant women who receive early and adequate prenatal care to 90%.

Local progress: Rates for first trimester prenatal care increased in both Washington State and Pierce County since 1990 (Figure 4.4). In 2002, the rate was 78.0% for Pierce County and 83.4% for Washington State—a statistically significant difference. Both Pierce County and Washington fall short of the Healthy People 2010 objective.

Maternal Smoking

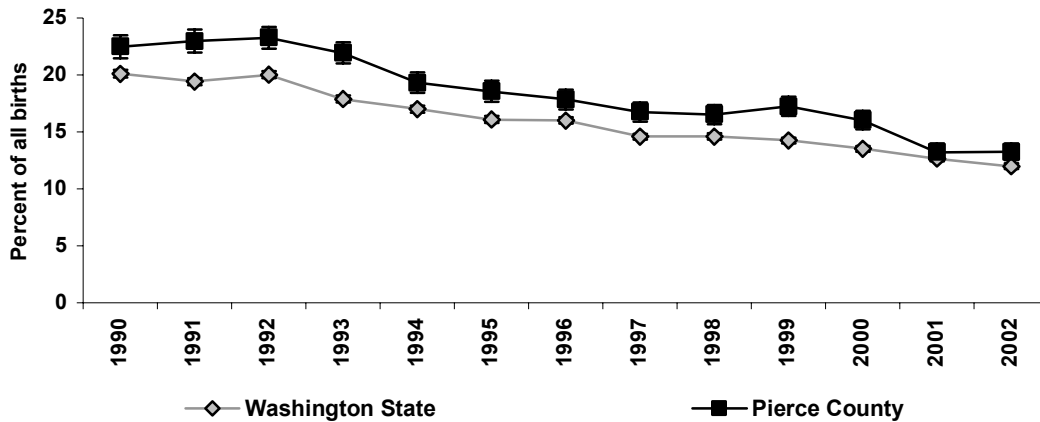
Maternal smoking is also associated with LBW births, as well as miscarriage (11). Nationally, rates of tobacco use are highest among pregnant women who are 15 to 19 years old, American Indian or Alaska Natives, or non-high school graduates.

Figure 4.4. Percent of births (per 100 births) in which prenatal care was initiated in the first trimester, Pierce County and Washington State—1990 to 2002



Source: Birth Certificate Data: Washington State Department of Health, Center for Health Statistics.

Figure 4.5. Rates of reported maternal smoking among all births, Pierce County and Washington State—1990 to 2002



Source: Birth Certificate Data: Washington State Department of Health, Center for Health Statistics

Healthy People 2010 objective: Decrease the percent of women who smoke during pregnancy to 1%.

Local progress: Figure 4.5 shows that maternal smoking rates decreased in Pierce County from 1990 (22.5%) to 2002 (13.2%). Washington State saw a similar downward trend. Nevertheless, maternal smoking during pregnancy remained above the Healthy People 2010 objective for both Pierce County and Washington State.

Although both Washington State and Pierce County have seen an increase in early prenatal care, a decrease in maternal smoking, and a reduction in teen births from 1990 to 2002, overall preterm birth rates have not declined and racial disparities persist.

Sudden Infant Death Syndrome

Sudden Infant Death Syndrome (SIDS) is the unexplained death of an infant who is less than 1 year old. This determination follows a thorough case investigation—an autopsy, death scene examination, and review of the infant’s medical history (12). Although the cause remains unclear, sleeping on their stomachs is the factor most associated with babies dying from SIDS.

Healthy People 2010 objective: Increase the percent of healthy infants who are placed on their backs for sleep to 70%.

Local progress: For 1996-2000, only 52.8% of mothers in Pierce County reported putting their new babies to sleep on their backs most of the time (13). Sixty percent of the infants who died of SIDS in Pierce County in 1999-2002 were discovered on their stomachs or sides (14).

Healthy People 2010 objective: Decrease the rate of SIDS to 0.25 per 1,000 births.

Local progress: Both Pierce County and Washington State SIDS rates significantly declined after the American Academy of Pediatrics initiated the “Back to Sleep” campaign in 1992 (Figure 4.6). However, neither Pierce County nor Washington State meets the Healthy People 2010 objective.

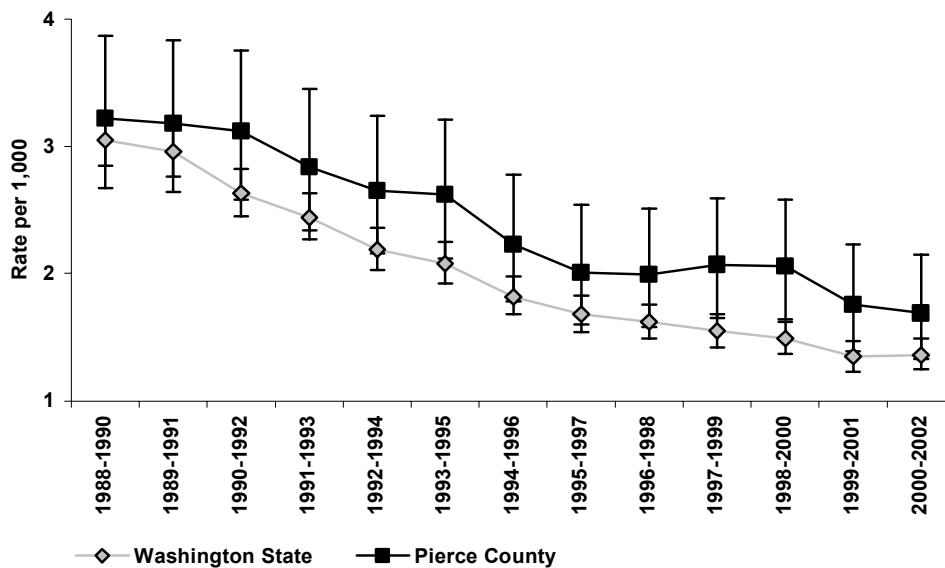
- Smoking cessation programs for pregnant women.
- Home visits by a public health nurse and/or social worker to help families learn how infants and children learn and grow.
- SIDS prevention education.
- Education around good nutrition and health during pregnancy, breast feeding, and infant development.
- Linking women to available resources for health care during pregnancy.

Public Health Response

Section Four addressed several maternal risk factors that can result in poor birth outcomes, including infant mortality. Some of these risk factors are behavioral issues (maternal smoking), while others are related to access to health care (early prenatal care)—both of which can be addressed by public health efforts. In Pierce County, public health programs around improving maternal health include:

These public health services strive to improve the quality of life for mothers-to-be and the health status of infants and children in Pierce County.

Figure 4.6. Averaged rates of SIDS, Pierce County and Washington State—1990 to 2002



Source: Birth Certificate Data: Washington State Department of Health, Center for Health Statistics.

Endnotes: Birth outcomes & selected maternal risk factors

1. Martin, JA, Hamilton, BE, & Sutton, PD, et al. Births: Final data for 2002. National vital statistics report; vol 52 no 10. Hyattsville, MD: National Center for Health Statistics. 2003. http://www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_10.pdf
2. Intrauterine growth restriction (IUGR) is a condition in which the weight of a fetus is abnormally low for a given gestational age. Specifically, the term IUGR is assigned to a fetus whose estimated weight is less than the tenth percentile of gestational weight according to fetal weight norms.
3. March of Dimes
http://www.marchofdimes.com/professionals/681_1153.asp
4. Washington State Department of Health. Maternal and Child Health Data Report. December 2003.
5. Martin, JA. National Center for Health Statistics. 2003.
6. March of Dimes
http://www.marchofdimes.com/professionals/681_1157.asp
7. Ibid.
8. Ibid.
9. Ibid.
10. Martin, JA. National Center for Health Statistics. 2003.
11. Ibid.
12. Daley, KC. Update on sudden infant death syndrome. *Current Opinions in Pediatrics*. 2004.16:227-232
13. Pregnancy Risk Assessment Monitoring System. 1996-2000.
14. Tacoma-Pierce County Health Department. Child Death Review Team.

Section Five: Behaviors Affecting Health

People make choices about their health behaviors; choices that often have serious implications for their quality of life.

Unhealthy behaviors such as tobacco use, alcohol misuse, and physical inactivity are associated with several diseases and disabilities. Risk-taking behaviors and violence are associated with multiple injuries and even death.

Conversely, healthy behaviors such as eating a low-fat, high-fiber diet and exercising regularly are associated with the prevention of disease and disability. Health behaviors often vary among population subgroups, such as groups with different income levels or various race/ethnic groups. Variations reported in health behavior data help identify health disparities from group to group.

Tobacco Use

Tobacco accounts for approximately 435,000 deaths or 18.1% of all U.S. deaths in 2000 (1). Smoking and/or chewing tobacco is linked to a wide range of serious health problems such as heart disease, cancer, various respiratory diseases, and low birth weight in babies (2). Many of these health problems occur not only in people who use tobacco but also among individuals exposed to secondhand smoke (3, 4), such as those in homes, workplaces, and restaurants where people smoke.

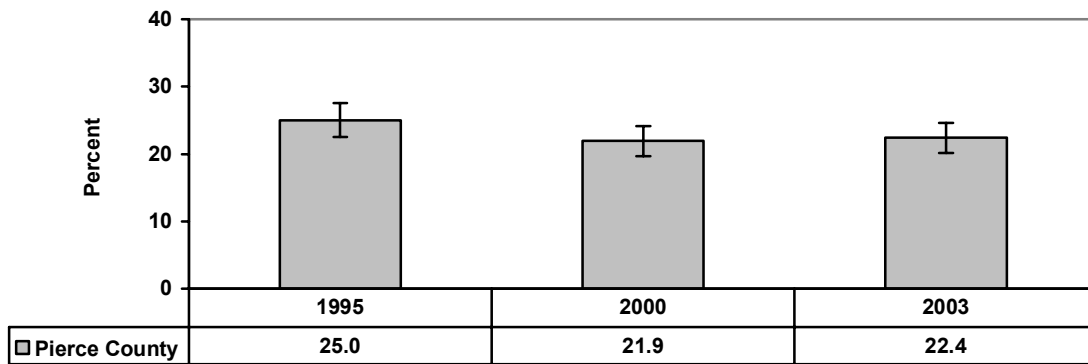
According to the Centers for Disease Control and Prevention (CDC), tobacco use is the leading cause of illness and premature death in the United States.

Of the 435,000 U.S. deaths attributed to smoking, 35,000 were from secondhand smoke (5). One thousand of these deaths were infant deaths due to maternal smoking (6).

Adults & Tobacco

In 1998, the Tacoma-Pierce County Board of Health established a goal of 40% reduction in tobacco use (from 25% to 15% in adults) as part of its long-term health strategies. The data in this section show that this goal for adults has not been met; however, adolescent smoking has declined significantly—by more than 40% in 6th and 8th grade students.

Figure 5.1. Prevalence of cigarette smoking, Pierce County—1995 to 2003



Source: Behavioral Risk Factor Surveillance System.

Healthy People 2010 objectives: Reduce the percent of adult cigarette smokers to 12%.

Local progress: The percent of Pierce County adults who smoke declined slightly between 1995 and 2003, although this difference is not statistically significant (Figure 5.1). Smoking prevalence in Washington State was 19.5% in 2003. Both state and county values remain well above the Healthy People 2010 objective.

Healthy People 2010 objective: Increase quit attempts (for one day or longer) by adult smokers to 75%.

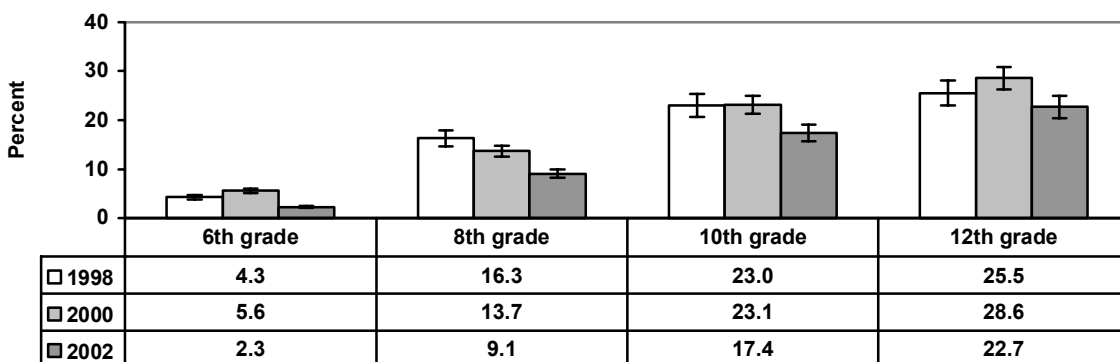
Local progress: In 2003, 49.9% of adult smokers in Pierce County quit smoking for at least one day. This falls short of the Healthy People objective.

Table 5.1 on the next page shows cigarette smoking and quit attempts in 2003 by sex, age, education, income, and race.

Youth & Tobacco

In contrast to adult smoking rates, self-reported 30-day cigarette use by students in all but the 12th grade significantly decreased from 1998 to 2002 (Figure 5.2). In 2002, adolescent cigarette use in Pierce County was very similar to that in Washington State.

Figure 5.2. Adolescent use of cigarettes within past thirty days, Pierce County—1998 to 2002



Sources: Healthv Youth Survey. Washington State Survey of Adolescent Health Behaviors.

Table 5.1. Cigarette smoking status and quit attempts by sex, age, education, income and race, Pierce County—2003

	Current Cigarette Smoker Percent (95%CI)	Smokers Quitting at Least One Day in Past Year Percent (95% CI)
All adults	22.4 (20.5, 24.3)	49.9 (45.0, 54.7)
Sex		
Male	21.3 (18.3, 24.3)	46.7 (38.4, 54.9)
Female	23.5 (21.0, 25.9)	52.7 (46.6, 58.8)
Age		
18-29	27.9 (23.0, 32.8)	67.2 (57.5, 76.8)
30-44	26.7 (22.9, 30.5)	40.7 (32.6, 48.8)
45-64	19.6 (16.5, 22.6)	46.8 (38.2, 55.4)
65+	10.2 (7.1, 13.3)	40.0 (22.9, 57.1)
Education		
Less than high school	34.1 (26.3, 42.0)	43.0 (28.8, 57.2)
High school	29.3 (25.3, 33.2)	50.6 (42.5, 58.7)
Some college	22.7 (19.6, 25.9)	54.4 (46.4, 62.5)
College degree	11.6 (8.9, 14.3)	42.5 (29.2, 55.9)
Income		
Less than \$15,000	34.4 (26.9, 41.8)	53.3 (39.7, 66.9)
\$15,000-24,999	31.9 (26.5, 37.4)	53.9 (43.2, 64.7)
\$25,000-49,999	23.0 (19.6, 26.3)	55.8 (47.0, 64.6)
\$50,000-74,999	18.6 (14.4, 22.9)	39.0 (26.4, 51.6)
\$75,000+	15.6 (11.6, 19.6)	28.7 (14.3, 43.2)
Race		
White	21.7 (19.7, 23.7)	47.8 (42.4, 53.1)
Non-white	29.1 (22.5, 35.6)	57.3 (44.2, 70.4)

Source: Behavioral Risk Factor Surveillance System.

Healthy People 2010 Objective: Reduce cigarette smoking by adolescents (grades 9 through 12) to 16%.

Local progress: Students in both the 10th and 12th grades have reduced their cigarette use from 1998 to 2002 (Figure 5.2 on the previous page). However, the rate for 12th grade students was not a consistent or significant decrease. Neither 10th nor 12th grade students met the Healthy People 2010 objective.

Alcohol Misuse

Although some studies suggest that moderate drinking is associated with psychological and cardiovascular benefits in men and women (7,8,9), the magnitude of the effect of alcohol misuse on health offsets the benefits (10). Deaths attributed to alcohol consumption include:

- Alcohol-induced deaths
- Alcohol-related motor vehicle collisions
- Cancer
- Stroke
- Certain types of heart disease
- Other chronic liver diseases such as cirrhosis (11).

An estimated 3.5% (approximately 85,000 people) of all 2000 deaths in the United States were attributed to alcohol consumption (12).

The impact of alcohol on health, social and economic consequences extends beyond mortality statistics (13) and is likely underestimated because of the way in which data are collected.

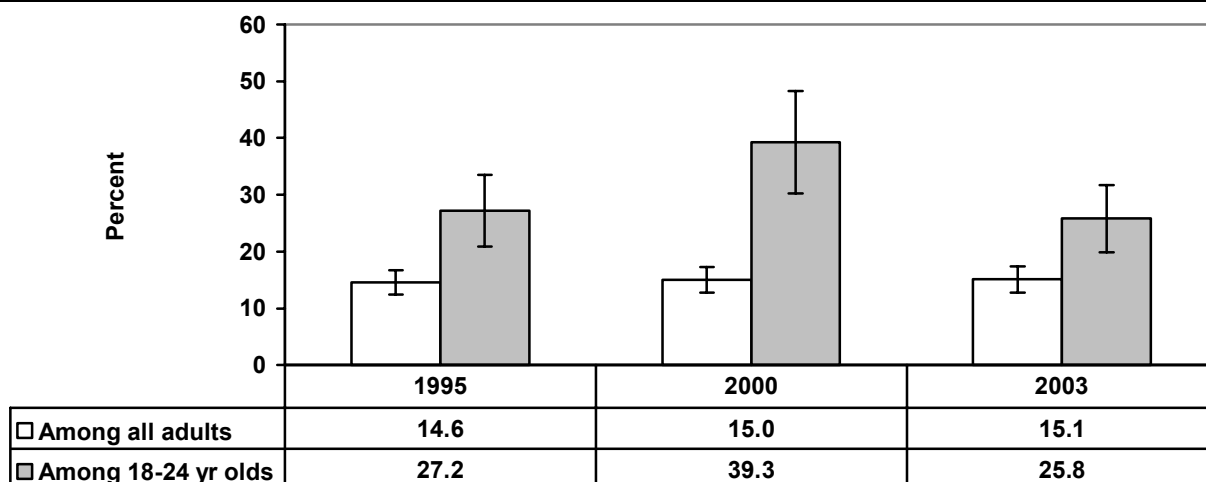
Binge Drinking

Binge drinking is defined as having five or more alcoholic drinks on one occasion. In 1998, the Tacoma-Pierce County Board of Health established a goal to reduce binge drinking by 20% as part of its long-term strategies for health. The data in this section show that this goal was partially met. Binge drinking by adults remained stable from 1995 to 2003, while adolescents decreased their binge drinking (although only 8th grade students decreased by 20% or more).

Adults & binge drinking

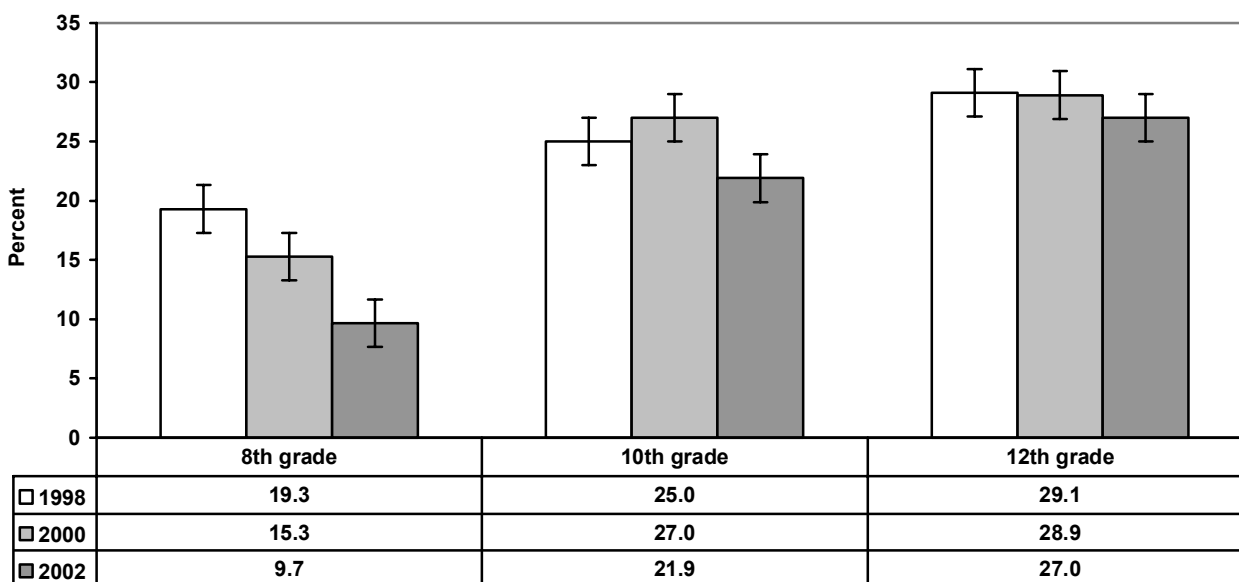
Healthy People 2010 objective: Reduce the proportion of adults engaging in binge drinking to 6%.

Figure 5.3. Adults reporting binge drinking in past month, Pierce County—1995, 2000, and 2003



Source: Behavioral Risk Factor Surveillance System.

Figure 5.4. Adolescents reporting binge drinking in past two weeks, Pierce County—1998 to 2002



Source: Healthy Youth Survey, Washington State Survey of Adolescent Health Behaviors.

Local progress: In 2003, 15.1% of Pierce County adults engaged in binge drinking (see Figure 5.3 on the previous page), compared with 15.2% for all of Washington State (14). Both county and state values are above the Healthy People 2010 objective.

- In 2003, significantly more Pierce County males (22.2%) reported binge drinking in the past month compared to females (8.1%) (15).

Youth & binge drinking

The Tacoma-Pierce County Department of Health’s prevention efforts focus primarily on decreasing the availability of alcohol to the county’s underage population in an attempt to decrease their high prevalence of binge drinking.

Healthy People 2010 objective: Reduce the proportion of high school seniors who engage in binge drinking to 11%

Local progress: Both state (27.3%) and county (27.0%) values for 2002 exceed the Healthy People 2010 objective. While 12th grade students in Pierce County showed a slight decrease in binge drinking from 29.1% in 1998 to 27.0% in 2002, this decrease was not statistically significant (Figure 5.4).

- Binge drinking among Pierce County 8th grade students dropped significantly from 1998 (19.3%) to 2002 (9.7%). Decreases for were smaller for 10th grade students during the same time period (Figure 5.4).
- In Washington State in 2002, 10% of 8th grade students had engaged in binge drinking, while 18.7% of 10th grade students did the same (16).

Adolescent Drinking in General

Healthy People 2010 objective: Increase the proportion of high school seniors who have never used alcohol to 29%.

Local progress: In Pierce County there was a significant increase from 1998 (17.6%) to 2002 (24.0%) in the percent of 12th grade students reporting they had never used alcohol (Figure 5.5). This falls somewhat short of the Healthy People 2010 objective.

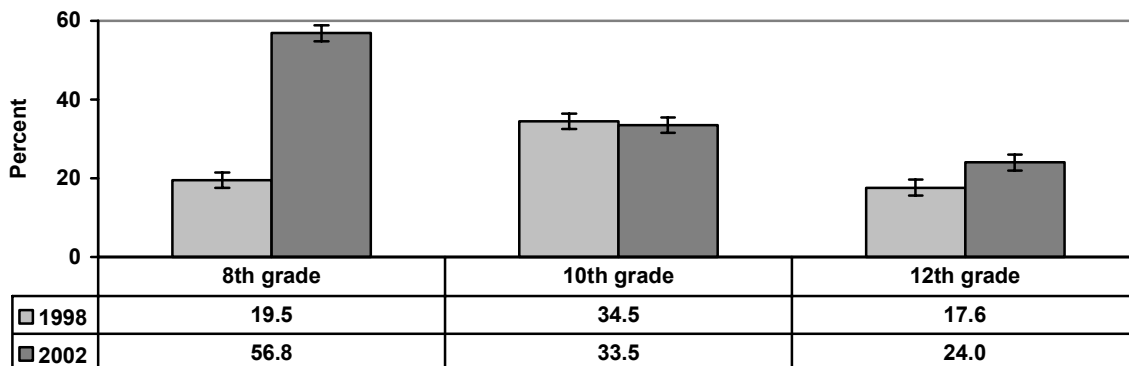
- The percent of Pierce County 8th grade students who never used alcohol almost tripled from 19.5% in 1998 to 56.8% in 2002—a dramatic and significant increase.
- There was no significant change from 34.5% in 1998 to 33.5% in 2002 among 10th grade students who had never used alcohol, although the rate did decrease slightly.
- In Washington State in 2002, 55.9% of 8th graders, 40.0% of 10th graders and 25.1% of 12th graders had never used alcohol (17).

Physical Activity & Healthy Weight

The combination of poor diet and physical inactivity is the second most-preventable cause of diseases leading to death (18).

Physical activity and nutrition are both very important in preventing and managing obesity. Physical inactivity is associated with an increased risk for coronary artery disease, high blood pressure, obesity, diabetes, and certain types of cancer (19).

Figure 5.5. Adolescents who have never used alcohol, Pierce County—1998 and 2002



Sources: Healthy Youth Survey, Washington State. Survey of Adolescent Health Behaviors.

Adults & Physical Activity

Healthy People 2010 objective: Reduce the proportion of adults who engage in no leisure-time physical activity to 20%.

Local progress: The percentage of Pierce County adults who participated in any leisure time physical activity in the past month remained stable from 2000 (80.0%) to 2003 (80.9%). This meets the Healthy People 2010 objective.

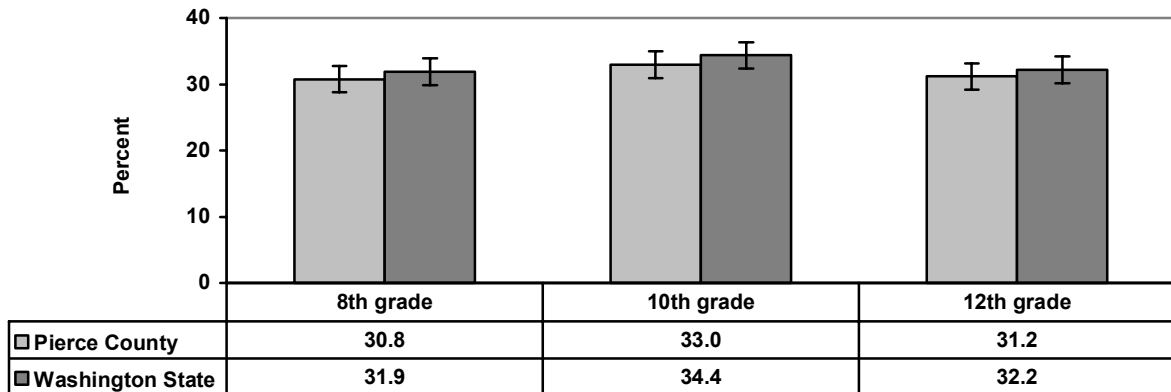
Table 5.2 shows leisure-time physical activity for groups defined by gender, age, education, income, and race. Increased leisure-time physical activity is associated with younger age, higher education, and higher income.

Table 5.2. Leisure-time physical activity by gender, age, education, income, and race, Pierce County—2003

	Reported Physical Activity of Any Kind in the Past Month % (95% CI)
All adults	80.9 (79.2, 82.7)
Sex	
Male	83.9 (81.2, 86.6)
Female	78.1 (75.7, 80.4)
Age	
18-29	85.2 (81.3, 89.0)
30-44	84.5 (81.4, 87.6)
45-64	78.8 (75.7, 81.9)
65+	71.1 (66.4, 75.7)
Education	
Less than high school	65.1 (57.2, 73.0)
High school	75.4 (71.7, 79.1)
Some college	83.5 (80.7, 86.3)
College degree	87.9 (85.2, 90.7)
Income	
Less than \$15,000	59.8 (52.1, 67.6)
\$15,000-24,999	75.6 (70.6, 80.6)
\$25,000-49,999	84.2 (81.3, 87.1)
\$50,000-74,999	84.5 (80.6; 88.5)
\$75,000+	89.0 (85.6; 92.4)
Race	
White	81.7 (79.8; 83.6)
Non-white	76.9 (70.9; 83.0)

Source: Behavioral Risk Factor Surveillance System.

Figure 5.6. Adolescents engaging in moderate physical activity for thirty minutes five or more of past seven days, Pierce County and Washington State—2002



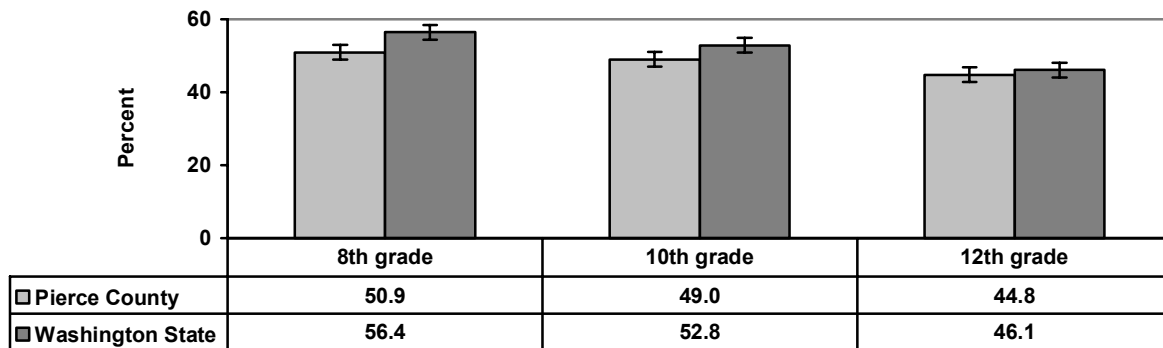
Source: Healthy Youth Survey.

Youth & Physical Activity

Healthy People 2010 objectives: 1) Increase the proportion of youth who engage in moderate physical activity (following recommended guidelines) to 30%. 2) Increase the proportion of youth who engage in vigorous physical activity (following recommended guidelines) to 85% (20).

Local progress: Pierce County youth are similar to those in Washington State in their participation in 30 minutes of moderate physical activity five or more days per week (Figure 5.6). Both county and state values meet the Healthy People 2010 objective for moderate exercise. However, they fall far short of the objective for vigorous exercise (Figure 5.7).

Figure 5.7. Adolescents engaging in vigorous physical activity for twenty minutes on three or more of the past seven days, Pierce County and Washington State—2002



Source: Healthy Youth Survey.

Adults & Weight

Adult obesity is on the rise throughout the nation (21); 64% of U.S. adults are overweight or obese (22). Weight status for adults is based on Body Mass Index (weight/height² with weight in kilograms and height in meters), following these definitions:

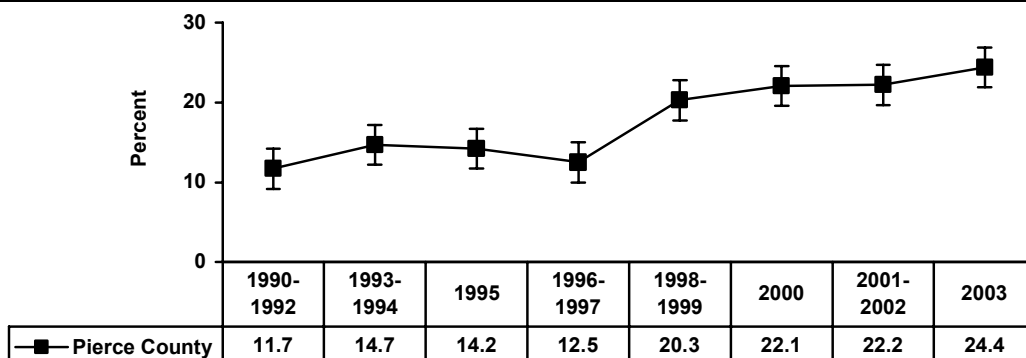
- Healthy weight—Body Mass Index between 18.5 and 25 kg/m²
- Overweight—Body Mass Index between 25 and 30 kg/m²
- Obesity—Body Mass Index equal to or greater than 30 kg/m².

Healthy People 2010 objectives: 1) Increase the proportion of adults who are at a healthy weight to 60%. 2) Reduce the proportion of adults who are obese to 15%.

Local progress: Among Pierce County adults 20 years and older, 37.0% were at a healthy weight in 2000 and 36.7% in 2003. This change is not significant. In 2003, the prevalence of obesity among Pierce County adults was 24.4%, which reflects a more than 100% increase since 1990-1992 when the obesity prevalence was 11.7%—a significant increase (Figure 5.8). Pierce County falls far short of meeting both Healthy People 2010 objectives.

The significant rise of obesity prevalence in Pierce County adults over the past decade was not accompanied by an increase of overweight prevalence. This means that the transition of people from “overweight” to “obese” was compensated by the transition of people from “normal weight” to “overweight”. In other words, the more overweight people became obese, the more normal-weight people became overweight.

Figure 5.8. Averaged prevalence of obesity among adults, Pierce County—1990-1992 to 2003



Source: Behavioral Risk Factor Surveillance System.

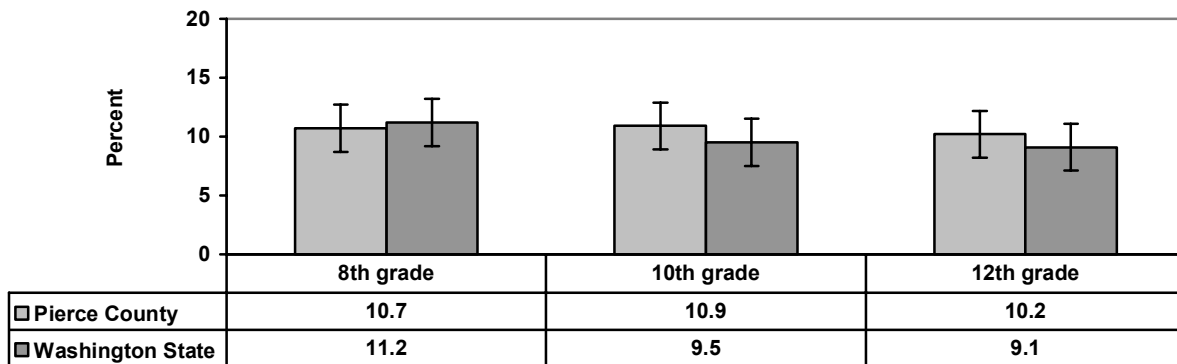
Childhood Obesity

The rate of obese children in the United States grows steadily as well; nationally, 15% of children under 18 years old are overweight (23). As with adults, weight status for children is based on Body Mass Index data, but specific to age and sex. Children are considered to be overweight if they are in the top 5% for age and sex.

Healthy People 2010 objective: Reduce the proportion of overweight or obese youth to 5%.

Local progress: In 2002 in Pierce County about 10% of students in 8th, 10th, and 12th grades were overweight or obese (Figure 5.9). There was not a significant difference in 2002 between Pierce County and Washington State adolescents—both are far above the Healthy People 2010 objective.

Figure 5.9. Prevalence of overweight or obesity among adolescents by grade level, Pierce County and Washington State—2002



Source: Healthy Youth Survey.

Behaviors Related to Violence & Injuries

Violence and injuries are significant public health problems throughout the nation.

Nationally, injuries—both unintentional and intentional—are the leading cause of death in people under age 45 (24).

Violence takes many forms, occurring within families and between strangers. Specific behaviors often increase the likelihood of violence or injury occurring. For example:

- Unsafe firearm storage
- Adolescents carrying weapons
- Physical fighting among adolescents.

Reducing these behaviors is essential for developing a healthy community. In 1998, the Tacoma-Pierce County Board of Health established a goal to reduce violent behaviors as part of its long-term strategies for health. The health event selected to measure this goal was firearm-related deaths. Data on firearm-related deaths are presented in the Mortality Section.

Firearms in the Home

Firearms are a major factor in deaths and injuries by suicide, homicide, assaults, and accidents. People with firearms in their homes are more likely to commit suicide or homicide (25).

Healthy People 2010 objective: Reduce the percentage of people living in homes with loaded and unlocked guns to 16%.

Local progress: In 2000, 12% of Pierce County residents lived in a home with an unlocked and loaded firearm (26). This meets the Healthy People 2010 objective.

Adolescents Carrying Weapons

Weapon carrying by adolescents often precedes violence and injury.

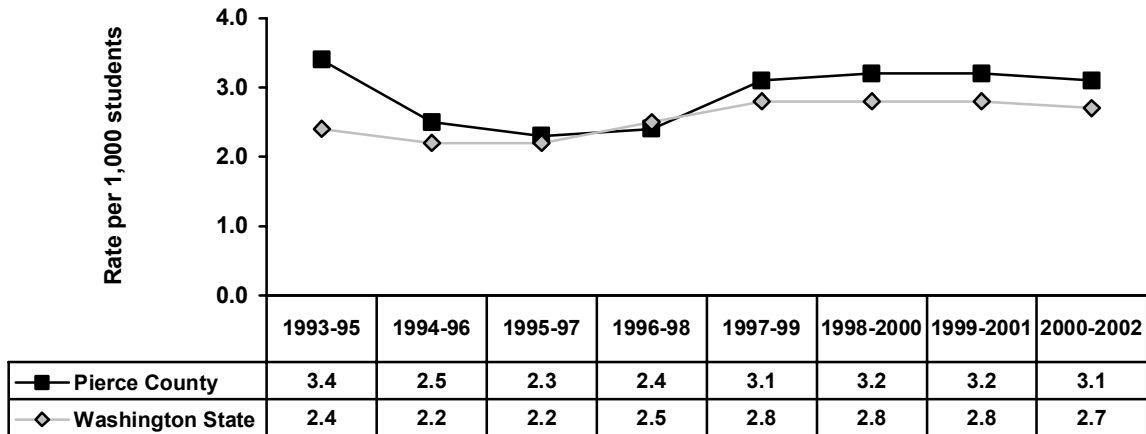
Healthy People 2010 objective: Reduce adolescents (grades 9 through 12) carrying weapons on school property to 4.9% (based on self-reported data).

Local progress: In 2002, 6.0% of 10th grade students and 6.1% of 12th grade students in Pierce County reported taking a weapon to school (27). This does not meet the Healthy People 2010 objective.

Figure 5.10 on the next page shows that the rate of reported weapon incidents at schools in Pierce County is relatively unchanged since the mid-1990s (28).

- During the most recent three years of available data (2000-2002), Pierce County's rate of reported weapons incidents at schools (3.1 per 1,000 students) was not significantly higher than the state average (2.7 per 1,000 students).

Figure 5.10. Average rates of reported weapons incidents at school, Pierce County—1993-1995 to 2000-2002



Source: Office of Superintendent of Public Schools. Weapons in Schools Report, 1993/1994 to 2001/2002.

Fighting Among Adolescents

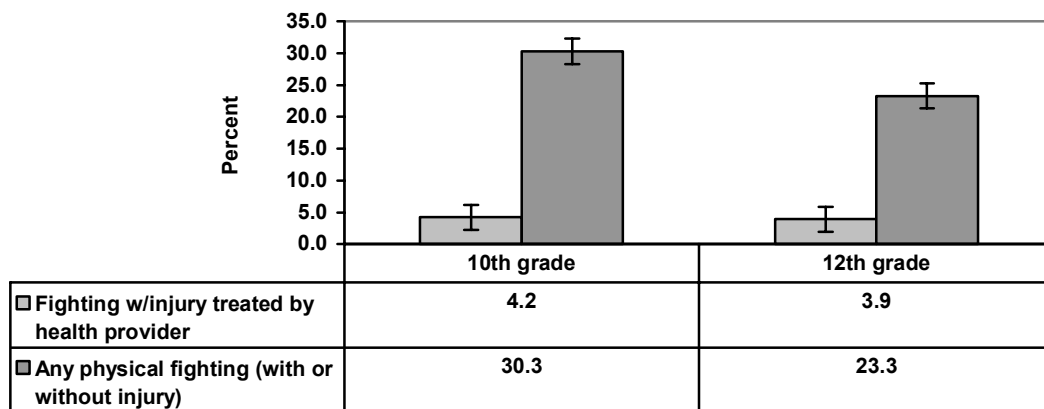
Healthy People 2010 objective: Reduce physical fighting among adolescents (in grades 9 through 12) to 32%.

Local progress: Pierce County meets this Healthy People 2010 objective. Values for Pierce County and Washington State were not significantly different. About one in four 12th grade students and one in three 10th grade students in Pierce County in 2002 reported

having been in a physical fight in the past month (Figure 5.11).

- Less than one in 20 Pierce County students in 2002 reported fighting in the past month to the extent that injuries needed treatment by a health care provider.

Figure 5.11. Adolescents engaging in physical fighting within the past month, Pierce County—2002



Source: Healthy Youth Survey

Public Health Response

Section Five addressed various public health behavioral issues. Many of these issues result from individual decisions to engage in a specific behavior, such as smoking, drinking alcohol, physical fighting, and exercising. Public health efforts to influence people's decisions can be regulatory, educational, or both. In Pierce County these public health efforts include:

- Regulations and plans—Smoking bans in public places; promoting city planning designs that include walking and bicycle paths, sidewalks, and neighborhood parks; and other policies that encourage healthy behaviors.

- Education—School- and community-based tobacco prevention programs; violence prevention programs for adolescents; and campaigns to increase people's physical activity levels.

The programs public health designs or supports are meant to enhance local populations' health-related quality of life by promoting healthy behaviors.

Endnotes: Behaviors affecting health

1. Mokdad AH, Marks JS, Stroup DF and Gerberding JL. Actual causes of death in the United States, 2000. *JAMA*. 2004; 291: 1238-1245.
2. McGinnis JM and Foege WH. Actual causes of death in the United States. *JAMA*. 1993;270:2201-2212.
3. Secondhand smoke is tobacco smoke exhaled by a smoker or smoke from the tip of a burning cigarette, cigar, or pipe. Nonsmokers inhale secondhand smoke when in an enclosed environment—such as a house, car, restaurant, or bar—where people are smoking.
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9. Stampfer MJ, et al. A prospective study of moderate alcohol consumption and the risk of coronary disease and stroke in women. *New England Journal of Medicine*. 1988; 319(2): 267-273.
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11. Mokdad AH, Marks JS, Stroup DF and Gerberding JL. Actual causes of death in the United States, 2000. *JAMA*. 2004; 291: 1238-1245.
12. Ibid.
13. McGinnis JM and Foege WH. Actual causes of death in the United States. *JAMA*. 1993; 270: 2207-2212.
14. Behavioral Risk Factor Surveillance System.
15. Ibid.
16. Healthy Youth Survey.
17. Ibid.
18. Mokdad AH, Marks JS, Stroup DF and Gerberding JL. Actual causes of death in the United States, 2000. *JAMA*. 2004; 291: 1238-1245.
19. US Department of Health and Human Services. *Physical activity and health: a report of the Surgeon General*. 1996.
20. Healthy People 2010 defines moderate physical activity as activities that use large muscle groups and are at least equivalent to brisk walking. In addition to walking, activities may include swimming, cycling, dancing, gardening and yard work, and various domestic and occupational activities. Vigorous physical activity is defined by Healthy People 2010 as rhythmic, repetitive physical activities that use large muscle groups at 70 % or more of maximum heart rate for age. An exercise heart rate of 70 % of maximum heart rate for age is about 60 % of maximal cardiorespiratory capacity and is sufficient for cardiorespiratory conditioning. Maximum heart rate equals roughly 220 beats per minute minus age. Examples of vigorous physical activities include jogging/running, lap swimming, cycling, aerobic dancing, skating, rowing, jumping rope, cross-country skiing, hiking/backpacking, racquet sports, and competitive group sports (for example, soccer and basketball).
21. Healthy People 2010 defines obesity in adults as a Body Mass Index of 30 kg/m² or more and overweight as a Body Mass Index of 25 kg/m² or more. Body mass index (Body Mass Index) is calculated as weight in kilograms (kg) divided by the square of height in meters (m²) (Body Mass Index = weight [kg]/height[m²]). To estimate Body Mass Index using pounds (lbs) and inches (in), divide weight in pounds by the square of height in inches. Then multiply the resulting number by 704.5 (Body Mass Index = weight [lbs]/height [in²] X 704.5).
22. Flegal KM, Carroll MD, Ogden CL, Johnson CL. Prevalence and trends in obesity among US adults, 1999-2000. *JAMA* 288:1723-7. 2002
23. Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA* 288:1728-32. 2002.

24. U.S. Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.
25. Kellerman AL et al. Protection or peril? An analysis of firearm-related deaths in the home. *New England Journal of Medicine*. 1986; 314(24): 1557-60.
26. Behavioral Risk Factor Surveillance System, 2000.
27. Healthy Youth Survey 2002.
28. Washington State Office of Superintendent of Public Instruction. Report to the Legislature on Weapons in Schools: RCW 28A.320.130.

Section Six: Access to Quality Health Care

Access to quality health care is an important aspect of eliminating health disparities and increasing quality of life for all people. The nation's public health system plays a crucial role in this effort. Public health agencies:

- Educate people about disease and disability prevention
- Address health status disparities by easing access to preventive services for people less able to use existing health services.
- Work to ensure availability of primary care through directly funding clinics and providers or making public health insurance available to many who need it.

Health Insurance

One way to measure access to quality health care is to examine the proportion of people who have health insurance.

Healthy People 2010 objective: Increase the proportion of adults who have health insurance to 100%.

Local progress: In 2003, 85.8% of Pierce County adults reported having some form of health insurance—down from 90.0% in 2000 (Table 6.1). Washington State had similar results, with 85.6% of adults having health insurance. Both county and state levels fall short of the Healthy People 2010 objective.

- Pierce County adults at greatest risk of being uninsured are those under age 30, those without a high school diploma, those who are not white, and those earning less than \$25,000 annually (Table 6.2 on the next page).
- In 2003, 12.7% of Pierce County adults reported they could not afford to see a doctor the previous year. This was a significant increase from 2000 (9.4%)(1).

Table 6.1. Percent of adults with health insurance, Pierce County and Washington State—1995 to 2003

Year	Pierce County %	Washington State %
1995	87.9	88.5
2000	90.0	90.2
2003	85.8	85.6

Source: Behavioral Risk Factor Surveillance System.

Table 6.2. Prevalence of adults lacking health insurance, Pierce County—2003

	% Reported Having No Health Insurance (95% CI)
All adults	14.2 (12.6, 15.8)
Sex	
Male	15.3 (12.6, 17.9)
Female	13.2 (11.2, 15.1)
Age	
18-29	25.3 (20.6, 30.0)
30-44	16.5 (13.4, 19.7)
45-64	10.0 (7.8, 12.3)
65+	0.4 (0.0, 1.0)
Education	
Less than high school	37.0 (29.0, 45.0)
High school	18.4 (15.1, 21.8)
Some college	12.5 (10.0, 15.0)
College degree	5.5 (3.6, 7.4)
Income	
Less than \$15,000	36.4 (28.8, 43.9)
\$15,000-24,999	29.0 (23.7, 34.3)
\$25,000-49,999	12.8 (10.2, 15.5)
\$50,000-74,999	5.7 (3.1, 8.2)
\$75,000+	4.8 (2.5, 7.2)
Race	
White	12.1 (10.5, 13.6)
Non-white	23.6 (17.5, 29.8)

Source: Behavioral Risk Factor Surveillance System.

Usual Source of Care

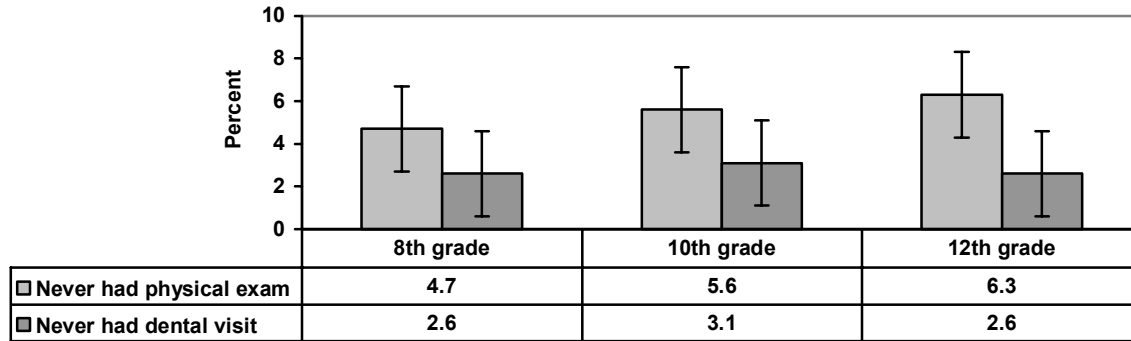
Access to care depends in part on having an ongoing source of care.

People with a usual source of health care are more likely than those without one to receive preventive health care services (2, 3).

About 15% of U.S. adults lack a usual source of care, having no particular doctor's office, clinic, health center, or other place where they go for health care advice—not including emergency departments (4).

- In 2003, 21.6% of Pierce County adults did not have a personal health care provider. The rate was significantly higher for males (27.6%) than females (15.9%) and for people with less than a high school degree (37.2%) compared with people with some college (20.1%) or a college degree (16.6%) (5).

Figure 6.1. Adolescents never having had a physical exam or dental visit, Pierce County—2002



Source: Healthy Youth Survey.

Use of Health Care Services

Another indicator of access to health care is the frequency of routine physical exams or check-ups.

- About one in twenty Pierce County adolescents reported never having had a check-up or physical exam, while about one in forty reported never having had a dental visit (Figure 6.1). These results were about the same as for all of Washington State.

Endnotes: Access to Quality Health Care

1. Behavioral Risk Factor Surveillance System, 2000 and 2003.
2. Moy, E.; Bartman, B.A.; and Weir, M.R. Access to hypertensive care: Effects of income, insurance, and source of care. *Archives of Internal Medicine* 155(14):1497-1502, 1995.
3. Ettner, S.L. The timing of preventive services for women and children: The effect of having a usual source of care. *American Journal of Public Health* 86:1748-1754, 1996.
4. U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.
5. Behavioral Risk Factor Surveillance System, 2003.

Section Seven: Life Expectancy & Years of Healthy Life

Life Expectancy

Life expectancy summarizes the mortality experience of a population by estimating the average number of years a person can expect to live if the age-specific death rates of the population remain unchanged.

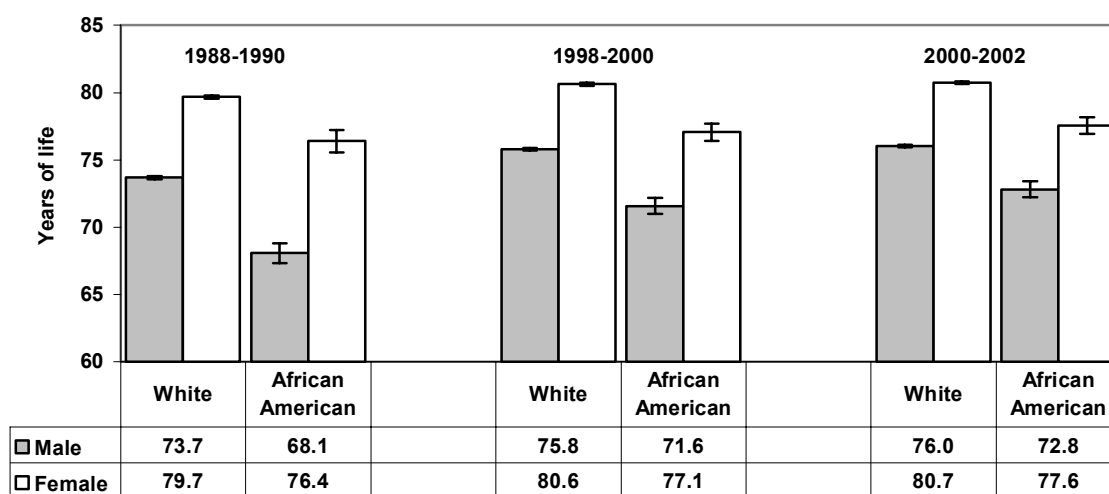
For instance, a Pierce County African American male born in 1990 had a life expectancy of 67.8 years. African American men age 65 in that same year had a life expectancy of 12.9 (more) years, with an estimated death at around 77.9 years.

Life expectancy for Pierce County residents of any age is longer for women than for men.

Due to decreases in the age-specific death rates in 2000, life expectancy is higher for African American males now: If born in 2000, a man's life expectancy at birth was 70.5 years; A man who was 65 in 2000, had a life expectancy of 13.6 (more) years.

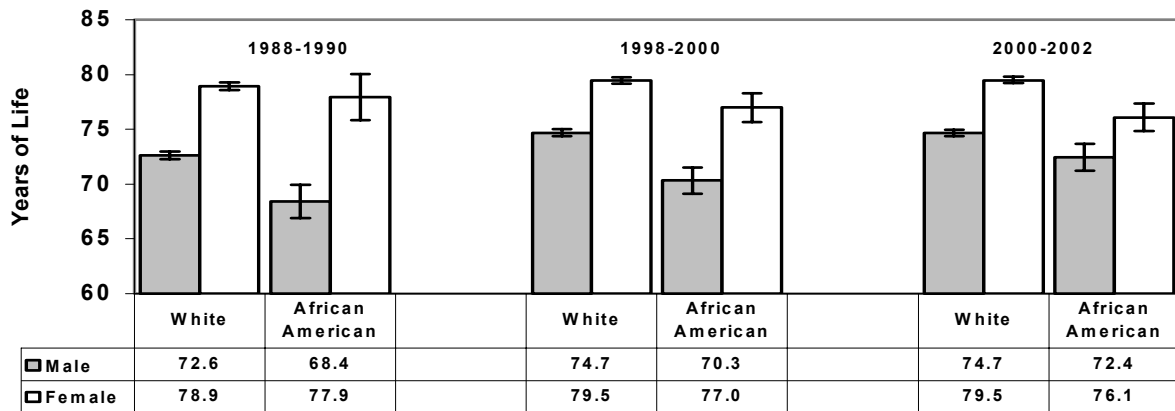
Figures 7.1 below and 7.2 on the next page show (averaged) life expectancy at birth for African Americans and whites in Pierce County and Washington State, 1988-1990, 1998-2000, and 2000-2002. Life expectancy for white males was significantly higher than for African American males in each period in both Pierce County and Washington State. Life expectancy for white males was significantly lower in Pierce County than in Washington State during all periods.

Figure 7.1. Comparative averaged life expectancy from birth for Whites and African Americans by gender, Washington State—1990-1990, 1998-2000, and 2000-2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Figure 7.2. Comparative averaged life expectancy from birth for Whites and African Americans by gender, Pierce County—1990-1990, 1998-2000, and 2000-2002



Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Years of Healthy Life

As more and more Americans survive to old age, public health shifts its emphasis toward improving the quality as well as length of life by preventing disability, activity limitations, and discomfort.

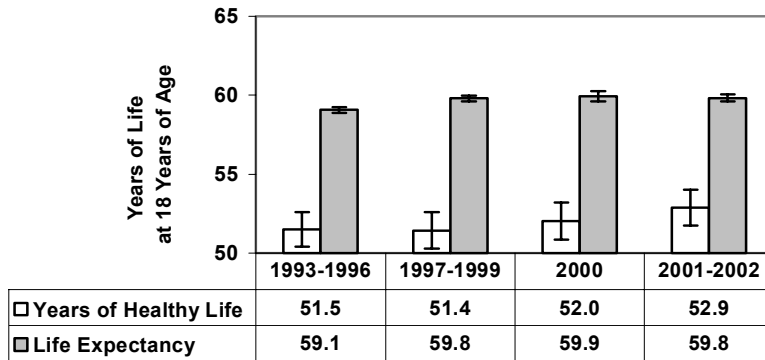
Years of healthy life (1) is a global measure of a population's health closely related to life expectancy. However, it also considers health-related quality of life.

Life expectancy for people of a particular age is the number of additional years they can expect to live. Years of healthy life is the number of those additional expected years of life that will be free of physically or mentally debilitating conditions.

Many of the health indicators discussed in this report (e.g., death rates and healthy behaviors) contribute to years of healthy life. Thus, years of healthy life is a measure of the combined effects of many factors affecting an individual's health and is a broad indicator of general population health.

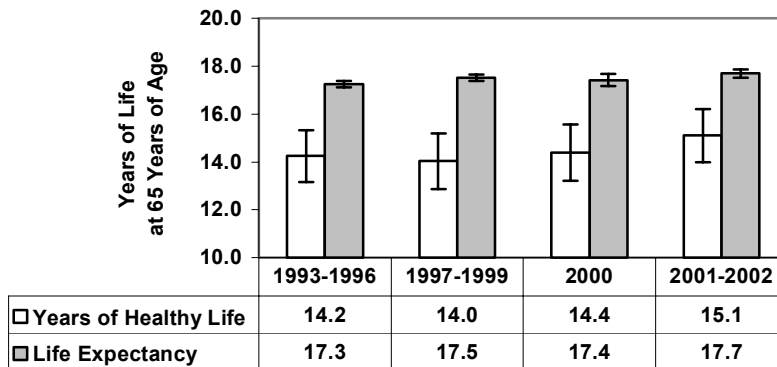
We calculated life expectancy and years of healthy life for Pierce County during four periods: 1993-1996, 1997-1999, 2000, and 2001-2002 (2). Figures 7.3 and 7.4 on the next page show years of healthy life and life expectancy for 18-year-olds and for 65-year-olds in Pierce County.

Figure 7.3. Years of healthy life and life expectancy among 18-year-olds, Pierce County—1993-1996 to 2001-2002



Sources: 1) Death Certificate Data: Washington State Department of Health, Center for Health Statistics.
2) Behavioral Risk Factor Surveillance System.

Figure 7.4. Years of healthy life and life expectancy among 65-year-olds, Pierce County—1993-1996 to 2001-2002



Sources: 1) Death Certificate Data: Washington State Department of Health, Center for Health Statistics.
2) Behavioral Risk Factor Surveillance System.

- Years of healthy life for 18-year-olds in Pierce County grew noticeably (3.9 years) from 1993-1996 (50.0 years) to 2001-2002 (53.9). The difference is statistically significant and was primarily due to improvements in population health-related quality of life and not longevity.
- Increased years of healthy life for Pierce County residents at the age of 65 from 14.25 (1993-1996) to 15.1 (2001-2002) was not statistically significant.

Years of Healthy Life & Gender

Table 7.1 shows life expectancy and years of healthy life for men and women in Pierce County for 2000-2002. 18-year-old females can expect to live 4.7 years longer than their male counterparts (62.2 years vs. 57.5 years).

- Women's advantage in longevity decreases with attained age. For men and women who survive to age 80, the difference in life expectancy is only 1.7 years.
- Women less than 75 years old can expect more years of healthy life than men of the same age.
- For people who survived to age 75 or more, men can expect more years of healthy life than women, despite having lower life expectancy.

Table 7.1. Averaged life expectancy and years of healthy life by gender, Pierce County—2000-2002

Age Attained	Life Expectancy Estimated Years (95% CI)		Years of Healthy Life Estimated Years (95% CI)	
	Males	Females	Males	Females
18	57.5 (56.9, 58.0)	62.19 (61.7, 62.7)	50.09 (47.3, 52.9)	52.36 (49.5, 55.2)
20	55.6 (55.1, 56.1)	60.24 (59.7, 60.7)	48.29 (45.5, 51.1)	50.5 (47.7, 53.3)
25	50.9 (50.4, 51.4)	55.3 (54.8, 55.8)	44.15 (41.4, 46.9)	45.98 (43.2, 48.7)
30	46.2 (45.7, 46.7)	50.49 (50.0, 51.0)	39.79 (37.1, 42.4)	41.3 (38.6, 44.0)
35	41.43 (40.9, 41.9)	45.65 (45.2, 46.1)	35.58 (33.0, 38.2)	36.95 (34.3, 39.6)
40	36.74 (36.3, 37.2)	40.87 (40.4, 41.3)	31.08 (28.5, 33.6)	32.46 (29.8, 35.1)
45	32.17 (31.7, 32.6)	36.21 (35.7, 36.7)	27.01 (24.5, 29.5)	28.26 (25.6, 30.9)
50	27.8 (27.3, 28.3)	31.68 (31.2, 32.1)	23.67 (21.2, 26.1)	24.14 (21.5, 26.8)
55	23.58 (23.1, 24.0)	27.29 (26.8, 27.7)	20.07 (17.7, 22.4)	20.23 (17.6, 22.8)
60	19.5 (19.1, 19.9)	23.08 (22.6, 23.5)	16.54 (14.3, 18.8)	16.91 (14.4, 19.4)
65	15.89 (15.5, 16.3)	19.09 (18.7, 19.5)	13.23 (11.0, 15.4)	14.05 (11.7, 16.4)
70	12.68 (12.3, 13.1)	15.39 (15.0, 15.7)	10.64 (8.6, 12.7)	10.89 (8.6, 13.2)
75	9.96 (9.6, 10.3)	12.07 (11.8, 12.4)	8.54 (6.6, 10.5)	8.36 (6.2, 10.6)
80	7.59 (7.3, 7.9)	9.33 (9.1, 9.6)	7.14 (5.4, 8.8)	6.58 (4.3, 8.9)
85	5.67 (-)	6.92 (-)	5.12 (2.6, 7.6)	4.75 (1.9, 7.6)

Source: 1) Death Certificate Data: Washington State Department of Health, Center for Health Statistics. 2) Behavioral Risk Factor Surveillance System.

Endnotes: Life expectancy and years of healthy life

1. Molla MT, Wagener DK, Madans JH. Summary measures of population health: methods for calculating healthy life expectancy. *Healthy People 2010: Statistical notes #21*, 2001. CDC, Atlanta, Georgia. August 2001.
2. These time periods were selected to maximize the necessary sample size for calculation of life expectancy and years of healthy life. Shorter time periods reflect larger sample sizes in a single year.

Appendices

Appendix A. All-cause averaged death rates age-adjusted to the 2000 U.S. population, Pierce County and Washington State—1990-1992 to 2000-2002

	Pierce County	Washington State
	Rate per 100,000 (95% CI)	Rate per 100,000 (95% CI)
1990-1992	906.4 (890.7, 922.4)	855.3 (850.3, 860.4)
1991-1993	911.2 (895.6, 927.0)	860.2 (855.2, 865.2)
1992-1994	918.3 (902.8, 934.0)	858.2 (853.3, 863.2)
1993-1995	929.7 (914.3, 945.3)	855.5 (850.6, 860.3)
1994-1996	929.2 (914.0, 944.6)	846.1 (841.4, 850.9)
1995-1997	912.4 (897.5, 927.5)	835.1 (830.5, 839.8)
1996-1998	897.2 (882.7, 912.0)	826.1 (821.6, 830.7)
1997-1999	888.0 (873.7, 902.5)	815.9 (811.4, 820.4)
1998-2000	892.8 (878.7, 907.2)	812.4 (808.0, 816.9)
1999-2001	893.8 (879.8, 908.0)	806.9 (802.6, 811.3)
2000-2002	884.5 (870.7, 898.4)	797.0 (792.8, 801.3)

Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Appendix B. All-cause averaged death rates by race/ethnicity age-adjusted to the 2000 U.S. population, Pierce County—1990-1992 to 1999-2001

	Rate per 100,000 population (95% CI)				
	White	African American	American Indian or Alaska Native	Asian or Pacific Islander	Hispanic As Ethnicity
1990-1992	902.5 (886.3, 918.9)	1062.2 (954.3, 1182.3)	752.9 (584.5, 969.8)	662.4 (568.0, 774.6)	498.2 (392.4, 632.6)
1991-1993	907.6 (891.5, 924.0)	1061.4 (955.1, 1179.2)	694.6 (533.8, 904.2)	643.3 (559.1, 741.8)	462.5 (366.5, 584.9)
1992-1994	915.1 (899.1, 931.3)	1062.7 (960.7, 1175.5)	886.3 (694.7, 1127.8)	602.9 (526.5, 691.3)	533.1 (426.7, 665.3)
1993-1995	930.0 (914.0, 946.2)	1019.5 (921.8, 1127.5)	935.0 (744.5, 1174.4)	612.8 (538.0, 698.3)	614.3 (499.9, 753.4)
1994-1996	931.7 (915.9, 947.7)	1072.1 (973.9, 1180.2)	985.6 (792.0, 1226.9)	592.4 (520.0, 674.6)	597.0 (485.6, 732.2)
1995-1997	917.1 (901.5, 932.8)	1003.6 (911.3, 1105.2)	993.8 (805.9, 1227.7)	556.9 (490.9, 631.4)	570.5 (463.5, 700.4)
1996-1998	901.2 (886.0, 916.7)	1022.8 (933.4, 1120.8)	990.7 (791.7, 1238.0)	522.8 (462.5, 590.7)	487.4 (391.2, 605.8)
1997-1999	891.5 (876.6, 906.7)	968.6 (882.8, 1062.5)	1052.4 (847.1, 1305.9)	556.5 (497.4, 622.3)	517.6 (421.6, 634.3)
1998-2000	894.0 (879.2, 909.0)	1090.9 (1000.1, 1189.7)	999.6 (798.5, 1249.3)	578.9 (520.3, 643.8)	511.8 (416.7, 627.0)
1999-2001	896.4 (881.7, 911.2)	1055.9 (968.3, 1151.2)	979.3 (792.1, 1212.4)	620.1 (560.7, 685.4)	580.3 (479.2, 700.9)

Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Appendix C. Averaged death rate and percent (%) of all deaths for leading causes among those 25 through 44 years of age by gender, Pierce County—2000-2002

	Men			Women	
	% All Deaths	Rate per 100,000 (95% CI)		% All Deaths	Rate per 100,000 (95% CI)
Unintentional Injuries	27.0	43.6 (36.8, 51.3)	Cancer	21.1	21.8 (17.0, 27.5)
Suicide	18.0	29.2 (23.7, 35.6)	Unintentional Injuries	19.9	20.6 (15.9, 26.1)
Heart Disease	13.8	22.2 (17.5, 27.9)	Heart Disease	11.6	12.0 (8.5, 16.4)
Cancer	8.9	14.4 (10.7, 19.1)	Suicide	6.5	6.8 (4.2, 10.2)
Homicide	6.3	10.2 (7.1, 14.3)	Chronic Lower Respiratory Disease	4.7	4.9 (2.8, 8.0)

Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Appendix D. Averaged death rate and percent (%) of all deaths for leading causes among those 45 through 64 years of age by gender, Pierce County—2000-2002

	Men			Women	
	% All Deaths	Rate per 100,000 (95% CI)		% All Deaths	Rate per 100,000 (95% CI)
Cancer	31.4	236.7 (217.4, 257.3)	Cancer	39.8	201.1 (183.5, 219.9)
Heart Disease	26.1	196.8 (179.2, 215.7)	Heart Disease	17.6	89.0 (77.5, 101.8)
Unintentional Injuries	7.0	52.7 (43.9, 62.9)	Chronic Lower Respiratory Disease	6.5	33.0 (26.2, 41.1)
Chronic Lower Respiratory Disease	4.3	32.6 (25.7, 40.8)	Stroke	4.8	24.3 (18.4, 31.3)
Diabetes	4.0	30.0 (23.4, 37.9)	Diabetes	4.5	22.6 (17.0, 29.4)

Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.

Appendix E. Averaged death rate and percent (%) of all deaths for leading causes among those 65 years of age and older by gender, Pierce County—2000-2002

	Men		Women	
	% All Deaths	Rate per 100,000 (95% CI)	% All Deaths	Rate per 100,000 (95% CI)
Heart Disease	30.6	1794.0 (1708.6, 1882.6)	Heart Disease	29.1 1434.3 (1369.0, 1502.0)
Cancer	24.3	1420.9 (1345.0, 1500.0)	Cancer	20.0 987.4 (933.3, 1043.8)
Stroke	8.3	485.9 (442.0, 533.1)	Stroke	11.5 565.0 (524.3, 608.1)
Chronic Lower Respiratory Disease	7.4	430.6 (389.3, 475.1)	Chronic Lower Respiratory Disease	7.4 366.9 (334.3, 401.9)
Alzheimer's Disease	4.3	249.5 (218.3, 283.9)	Alzheimer's Disease	7.2 356.6 (324.4, 391.1)

Source: Death Certificate Data: Washington State Department of Health, Center for Health Statistics.