

Appendix A: Technical Notes

This appendix provides two sets of technical notes for chapters with release dates of 2012 or later. Topics are listed alphabetically under each set.

- General Technical Notes
 - Describe statistical terms and related analytic conventions used in *Health of Washington State (HWS)*.
 - Explain elements of the charts and graphs in *HWS*.
- Section Notes provide details for major sections that occur in multiple chapters.

General Technical Notes

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General Technical Notes

Charts and Graphs

Where possible, authors use line graphs to portray changes in health status or risk and protective factors over time, and bar charts to present differences among subgroups by age and gender, race and Hispanic origin, income, education, and county. On the line graphs, shaded areas around lines represent 95% [confidence intervals](#) for the point estimates represented by the line. Hatch marks indicate discontinuities in trends as explained in [Time Trends](#). On the bar charts, horizontal lines with short vertical lines at either end represent the

95% confidence interval for the point estimate represented by the bar. In the text, authors describe variation depicted in the graphs and charts as differences only if the differences are [statistically significant](#) ($p < .05$). Thus, while two lines or two bars might not look very different, if the text or county charts highlight them as different, the differences are statistically significant. Conversely, sometimes two lines or bars look different, but the differences are not statistically significant. Most often, authors highlight statistically significant differences in the text. Thus, differences that are not discussed are likely not statistically significant. See [Confidence Intervals and Statistical Significance](#) for a general discussion of the use of confidence intervals and statistical testing in *HWS*.

To increase the number of events or survey respondents, where possible bar charts depict data for three years combined. Charts do not depict subpopulations with fewer than 20 events or fewer than about 50 survey respondents. Even when omitting subpopulations with small numbers of events or few survey respondents, rates for some subpopulations might be high or low because of an unusual number of events in one year. In these cases, the bar might not reflect the general pattern. Thus, readers are advised to assess additional data before using the bar charts for policy decisions and resource allocation.

Additional detail on specific charts and graphs is provided in [Section Notes](#), below.

Confidence Intervals and Statistical Significance

Confidence Intervals

Confidence intervals provide a measure of how much a rate, percent or other point estimate might vary due to random factors or chance. They do not account for several other sources of uncertainty, including missing or incomplete data, bias resulting from nonresponse to a survey, or inaccurate data collection.

Confidence intervals are used with survey data to account for the difference between a sample from a population and the population itself. With few exceptions, authors included 95% confidence intervals for all survey data, such as data from the Behavioral Risk Factor Surveillance System, the Pregnancy Risk Assessment Monitoring System,

and the Healthy Youth Survey. A 95% confidence interval captures the true value of the point estimate in 95 out of 100 cases. For ease of reading the line graphs, survey data for the United States do not include confidence intervals. The confidence intervals for U.S. data are often very small because of large national sample sizes. (Confidence intervals are generally large for small sample sizes and decrease as the sample size increases.) Additionally, the reader can observe the amount of annual variation on a line graph showing annual point estimates.

Unlike surveys that select a sample of the population to represent the whole population, population data capture nearly all events in a specified group of people. For example, birth and death certificates record information on almost every birth and death in Washington. Although population data are not subject to random fluctuation due to differences between the sample and the population it represents, confidence intervals can be used with population data to account for uncertainty that arises from natural variation, such as the random variation that occurs when analyzing the continuous phenomenon of time as discrete years.

Chapter authors have discretion about including confidence intervals for population data. Most often, authors do not include confidence intervals on time trend line graphs. The annual point estimates depict year-to-year variation, and the confidence intervals are often small, because these graphs include data for all state residents. In contrast, authors often include confidence intervals on bar graphs, because variation could be large due to the relatively small sizes of some subgroups and variation over time is not evident from the bars themselves.

For ease of data presentation to a nontechnical audience, authors usually present confidence intervals in the text as plus or minus (\pm) the standard error multiplied by 1.96. Authors sometimes use more exact methods to portray confidence intervals in the charts and graphs. The line graphs have shading around the line to portray the 95% confidence interval; the bar charts use horizontal lines with small vertical lines showing the upper and lower limits of the interval.

Data analysts used SAS/SUDAAN or STATA software packages to calculate exact confidence intervals or standard errors that were then used to develop symmetrical confidence intervals.

Methods used to calculate confidence intervals are consistent with the Washington State Department of Health [Guidelines for Using Confidence Intervals for Public Health Assessment](#).

Statistical Testing

Statistical tests can be used to determine whether differences between two rates, percents or other point estimates might have occurred by chance. Unless otherwise noted, authors considered differences to be statistically significant when statistical testing indicated that in 95 cases out of 100, the difference would not be due to chance or coincidence ($p < .05$). Authors report only statistically significant differences as differences. If two estimates are not statistically significantly different, the estimates are treated as similar.

For [time trend](#) analysis, authors used the statistical tests built into the [Joinpoint software](#). For other comparisons, different authors approached significance testing differently, but all authors used statistical tests that assumed independence between groups. This assumption is violated in comparing counties to the state as a whole and Washington State to the United States. Because Washington is relatively small compared to the United States, lack of independence should not substantively affect the findings. For large counties in Washington, especially King County, there could be instances in which these tests failed to find statistical significance even though differences really exist. Contact chapter authors for more information on statistical testing for specific chapters.

Relationship between Confidence Intervals and Statistical Testing

Confidence intervals can sometimes substitute for statistical testing in determining statistical significance. Two estimates are statistically significantly different if the confidence intervals do not overlap. When the confidence intervals overlap and the interval for one estimate includes the other estimate, the two estimates are not statistically significantly different. If the confidence intervals overlap, but neither interval includes the other estimate, a formal test of statistical significance is needed to determine whether the two estimates are statistically significantly different.

Missing Data

Missing data result either when records do not include all of the information required or when entire records are missing, such as when a population-based dataset fails to capture every event or when people selected for a sample do not participate.

Rates estimated from datasets with large amounts of missing data can result in bias, such that the estimated rates do not reflect the true situation. Bias occurs only when the data are not missing completely at random and the amount of missing data is relatively large.

For datasets used in more than two chapters of *HWS*, [Appendix B](#) includes information about completeness of population-based data and response rates for surveys. Other than data for some notifiable infectious diseases, population-based data included in *HWS* capture at least 95% of records. Response rates to major surveys are generally low, with nonresponse as high as about 50%. [Appendix B](#) discusses issues of bias associated with specific surveys. Chapters in *HWS* present survey data only if the data do not have a high likelihood of bias due to nonresponse.

If authors suspected bias due to missing values, they conducted bias analysis. If they concluded that bias was likely, they conducted sensitivity analysis to explore the extent of potential bias. Authors report the ramifications of potential bias or explain that data are not presented because of bias due to missing data.

Rates

Crude Rates

A crude rate is the number of events (such as deaths) in a specified time period divided by the number of people at risk of these events (typically, a state or county population) in that period. This figure is generally multiplied by a constant such as 1,000 or 100,000 to get a number that is easy to read. Thus, rates are reported as “per the multiplier,” such as “per 1,000” or “per 100,000.” A rate per 100 is the same as a percent. *HWS* generally reports rates of infectious diseases as crude rates. Some chapters in the Healthcare Services and Environmental Health sections also report crude rates. Crude rates adjust for differences in population size but not for differences in population characteristics, such as age.

Age-Adjusted Rates

People of different ages are more or less susceptible to different diseases. People of different ages are also more or less likely to engage in healthy or unhealthy behaviors. Adjusting rates for differences in age distributions helps us to understand whether there are differences among groups

independent of their age structures. Age-adjustment also allows us to compare rates in the same population over a period of time during which the population structure might have changed.

Unless otherwise noted, *HWS* uses the direct method and the 2000 U.S. standard population for age-adjustment. With this method, the rate for a specific age group in a given population is multiplied by the proportion of people in the same age group in the 2000 U.S. standard population; adding across age groups yields the final age-adjusted rate.

Unless otherwise noted in chapter technical notes, *HWS* uses the following conventions for age-adjustment:

- For indicators that include people of all ages,
 - Except for chapters on cancer, data analysts used Distribution #1 from the [National Center for Health Statistics Statistical Notes 20, January 2001](#).
 - Cancer data are adjusted using the 19 age groups used by the National Cancer Institute (NCI). The Washington State Department of Health changed from the previous NCI standard of 18 age groups in 2012. The change does not substantively affect rates. The 19 groups and corresponding proportions are shown in the [Guidelines for Using and Developing Rates for Public Health Assessment](#).
- For indicators that include people of selected ages, unless otherwise noted in chapter technical notes, data analysts used
 - Age groupings identical to those used in [Healthy People 2020](#).
 - Consistent with *Healthy People 2010*, distribution #9 from the [National Center for Health Statistics Statistical Notes 20, January 2001](#) for indicators that include people ages 18 and older and use data from the [Behavioral Risk Factor Surveillance Survey](#).
 - A distribution from [National Center for Health Statistics Statistical Notes 20, January 2001](#) that corresponded to the age range needed.

Most national, state and local organizations in the United States adjust to the 2000 U.S. standard population. Documents published in the United States before 2000, however, often used the 1940 or 1970 U.S. standard populations, and documents published outside the United States generally use other standards. When making comparisons, readers must be careful to compare age-adjusted rates that use the same standard population. Moreover, age-adjusted rates should not be

compared to rates that are not age-adjusted. **Age-adjusted rates have no absolute meaning; they are derived from hypothetical populations and are useful only for comparing with other rates calculated in the same manner.** Thus, chapters that provide age-adjusted rates also provide the crude rate for the most recent year for the state as a whole.

For more information on crude and age-adjusted rates, see Washington State Department of Health [Guidelines for Using and Developing Rates for Public Health Assessment](#).

Small Numbers

Statistics developed when there are few events or when the population in which the events occurred is relatively small risk breaching confidentiality. Additionally, interpreting data based on few survey respondents or a small number of events can be difficult, because random fluctuation can be relatively large. As the amount of random fluctuation increases, the predictive value of a statistic generally decreases. For example, with a large annual fluctuation, knowing a rate for one year might not allow us to reliably anticipate the rate for another year. This instability makes it difficult to use rates based on small numbers for program planning or policy development. In fact, considerable caution should be used in interpreting any data where the number of events is small. (See [Confidence Intervals and Statistical Significance](#) and [Charts and Graphs](#).)

To ensure confidentiality and to provide relatively stable estimates, where possible, data analysts combine three years of data to increase the numbers of events or survey respondents for subpopulations, such as when presenting data by race, income, education or county.

Additionally, for population data that capture nearly all events in a population, authors present statistics only for subpopulations (such as county or race group) with a minimum of about 20 events. Survey data, in which a sample of the population represents the population as a whole, are presented only if the relative standard error (RSE) is $\leq 30\%$. The RSE is the standard error of the estimate divided by the estimate and multiplied by 100. For additional information, see the Washington State Department of Health [Guidelines for Working with Small Numbers](#).

Section Notes

Economic Factors

Where possible, authors explain how health or related factors differ by economic resources. Authors measure economic resources in a variety of ways depending on the primary dataset used for the chapter. The three most common measures are:

- Household income in chapters that provide information from the [Behavioral Risk Factor Surveillance System \(BRFSS\)](#). BRFSS asks “Is your annual household income from all sources.....” with the interviewer reading a list of income ranges if needed. *HWS* collapses these ranges to provide data by four categories of annual household income: less than \$25,000, \$25,000–\$49,999, \$50,000–\$74,999 and \$75,000 or more. On the 2011 Washington BRFSS, 25% ($\pm 1\%$) of respondents reported annual household incomes of less than \$25,000, 27% ($\pm 1\%$) reported \$25,000–\$49,999, 17% ($\pm 1\%$) reported \$50,000–\$74,999 and 20% ($\pm 1\%$) reported more than \$75,000.
- Health insurance category in chapters that provide data from the [Birth Certificate System](#) or the [Pregnancy Risk Assessment Monitoring System](#). Mothers with private health insurance generally have the most economic resources, while those who receive both Medicaid and Temporary Assistance to Needy Families (TANF) have the least. Chapter that use this measure provide additional details in the technical notes at the end of the chapter.
- Percent of people in the census tract in which an event occurred who live below the federal poverty level. The percent of the population living in poverty describes the general economic level of people in one’s nearby community and the neighborhood context in which one lives. To some extent, the measure also describes individuals: people living in neighborhoods where a high percentage of residents are poor are more likely to be poor themselves compared to people in neighborhoods where there is less poverty. A census tract is a small area usually having 2,500–8,000 residents. The U.S. Census Bureau uses census tract to collect, tabulate and present census information. The [American Community Survey](#), a part of the U.S. Census, provides information on poverty by census tract. We used this information to group census tracts into four categories: less than 5%, 5%–9.9%, 10%–19.9% and 20% or more of census tract residents living in poverty. (The 2006–2010

American Community Survey showed, about 21% of Washington’s population lived in census tracts with less than 5% of the population in poverty, 32% in the 5%–9.9% category, 30% in the 10%–19.9% category, and 16% in the 20% or more category.) We then developed death rates and rates of cancer incidence by census tract poverty category. (See “[HWS Death Rates 2009-2011](#)” for additional detail.) Chapters that provide information from the [Death Certificate System](#) or the [Washington State Cancer Registry](#) use this measure of economic resources, because records in those systems do not contain information that provides individual-level measures of economic resources. Research has shown that an area-based measure of percent of the population living in poverty at the census tract level is robust for detecting relationships between economic factors and health. (Kreiger N, Chen JT, Waterman PD, Soobader MJ, Subramanian, SV, Carson R. Geocoding and monitoring of US socioeconomic inequalities in mortality and cancer incidence: Does the choice of area-based measure and geographic level matter? *Am J Epidemiol.* 2002; 156(5):471-82.)

Many chapters include bar charts depicting the relationship between economic resources and health or related factors. Generally, a horizontal line with a small vertical line at each end depicts the 95% confidence interval for the rate for each economic category. As discussed under [Confidence Intervals and Statistical Significance](#), authors describe groups as different only if the differences are statistically significant at the $p < .05$ level. Where possible, the bar charts include data for three years combined to increase numbers, and hence, precision and stability of rates. (See [Small Numbers](#) and the caution in [Charts and Graphs](#).)

Education

Where possible, authors explain how health and health-related factors differ by level of formal education. Authors measure education in a variety of ways depending on the primary dataset used for the chapter. The two most common measures are:

- Individual level of educational attainment in chapters that provide information from the

[Behavioral Risk Factor Surveillance System \(BRFSS\)](#). BRFSS asks, “What is the highest grade or year of school you completed?” and groups answers into six categories. Using these categories, *HWS* defines three levels of educational attainment for respondents ages 25 or older: high school graduate or less, at least some post-secondary education but not a four-year college degree, and a four-year college degree or higher. In the 2008–2010 [American Community Survey](#), about one-third of Washington adults ages 25 and older were in each of these groups.

- Percentage of the population in the census tract in which an event occurred who graduated from college in chapters using the [Death Certificate System](#) or the [Washington State Cancer Registry](#). This measure of education describes the educational level of people in one’s nearby community, which contributes to the context in which one lives. To some extent, the measure also describes individuals: an adult living in a neighborhood where a large percentage of adults have completed college is more likely to have a college degree compared to someone who lives in a neighborhood where fewer adults have completed college. A census tract is a small area usually having 2,500–8,000 residents. The U.S. Census Bureau uses census tract to collect, tabulate and present census information. The [American Community Survey](#), a part of the U.S. Census, provides information on educational attainment for people ages 25 and older by census tract. We used this information to group census tracts into five categories: less than 15%, 15%–24.9%, 25%–34.9%, 35%–44.9% and 45% or more of census tract residents having graduated from college. (The 2006–2010 American Community Survey showed, about 18% of Washington residents lived in the census tracts with the lowest proportions completing college; 29% in the next lowest; 19% in the middle; 13% in the second highest; and 21% in the highest category.) We then developed rates of health events by category of percent of the population having graduated from college. (See “[HWS Death Rates 2009-2011](#)” for additional detail.) The Death Certificate System provides information on decedents’ education. However, using this information to develop age-adjusted rates is difficult, because we do not have stable estimates for denominators needed to calculate rates. The Washington State Cancer Registry does not collect information on education.

Unless otherwise indicated, data by education do not include records of people younger than 25 years. This convention is used:

- Because many people younger than 25 years old have not had time to complete their educations.
- For consistency with reporting conventions found in many federal reports, such as those of the U.S. Census Bureau and the Department of Health and Human Services.

Many chapters include bar charts depicting the relationship between education and health or related factors. Generally, a horizontal line with a small vertical line at each end depicts the 95% confidence interval for the rate for each education category. As discussed under [Confidence Intervals and Statistical Significance](#), authors describe educational groups as different only if the differences are statistically significant at the $p < .05$ level. Where possible, the bar charts include data for three years combined to increase numbers, and hence, precision and stability of rates. (See [Small Numbers](#) and the caution in [Charts and Graphs](#).)

Geographic Variation

Many chapters include rates by county and bar charts showing county variation. The dark gray bars indicate counties with rates that are statistically significantly higher than the state rate; the white bars indicate counties with statistically significantly lower rates. Generally, a horizontal line with small vertical line at each end depicts the 95% confidence interval for each county rate, percent or other measure. As discussed under [Confidence Intervals and Statistical Significance](#), authors describe counties as different from the state only if the differences are statistically significant at the $p < .05$ level. The bar charts do not include counties with fewer than 20 events for population data or relative standard errors greater than 30% for surveys. Where possible, county bar charts include data for three years combined to increase numbers, and hence, precision and stability of the rate. (See [Small Numbers](#) and [Charts and Graphs](#).)

The counties with the largest numbers of people (that is, King, Pierce and Snohomish) strongly influence state rates. The impact of these large urban counties needs to be considered when comparing counties to the state as a whole.

Intervention Strategies

In determining what interventions are effective, authors were requested to follow the *Guide to Community Preventive Services (Community Guide)*. The *Community Guide* recommends for or against specific interventions on the basis of systematic reviews of research studies and ranks the suitability of studies as follows:

1. Most suitable: studies with concurrent comparison groups and prospective measurement of exposure and outcome
2. Moderate suitability: studies with retrospective designs or multiple pre or post measurements but no concurrent comparison group
3. Least suitable: single pre and post measurements and no concurrent comparison group OR exposure and outcome measured in a single group at the same point in time

See the [Community Guide](#) for more information.

As a rule, authors needed to identify multiple studies in categories 1 and 2 concluding the intervention was effective to report it as having evidence of efficacy. Authors could also rely on review articles or documents from well-established scientific bodies, such as the *Community Guide*, the U.S. Institute of Medicine or the Cochrane Collaborative. If there were proven interventions from studies in categories 1 and 2, authors needed to consider the extent to which the intervention could be generalized to Washington's population and the cost-effectiveness of the intervention in the real world.

In instances where there were some but not a sufficient number of studies in categories 1 and 2 to make strong statements of effectiveness, authors could cite interventions as promising. If studies fell into category 3 or if there were no formal studies, authors stated that there were not interventions with proven efficacy. But if other public health authorities, such as The U.S. Centers for Disease Control and Prevention, recommended an intervention, or if there were broadly accepted reasons (such as logic models supporting the intervention) for pursuing particular interventions in the absence of empirical proof of effectiveness, the authors summarized the case for such interventions. In these instances, authors were requested to be clear that the recommendations were not evidence-based but rather represented best practices or expert opinion in areas where evidence-based interventions are lacking.

Race and Hispanic Origin

Where possible, *HWS* highlights disparities in health status or risk factors by race and Hispanic origin. The U.S. Census Bureau uses the concepts of race and ethnicity to reflect social and cultural groups with which individuals identify and not to denote clear-cut scientific definitions of biological stock. As with the U.S. Census, race and ethnicity as collected by the systems used to generate data for *HWS* reflect social and cultural groups with which people identify, and differences in health by race and ethnic origin result from interactions of social, cultural, economic and political factors. Where possible, authors present information on what might be the root causes of these disparities, such as disparities in income, education or cultural practices.

For most Washington State Department of Health data collection systems, people report the racial and ethnic groups with which they identify; for some systems, someone else reports. Reports by someone else vary in how well they reflect what the person would have chosen: accuracy is best when those reporting are close to the person, such as when next-of-kin report race on death certificates; accuracy can be poor when someone who does not know the person well makes a judgment, such as when a healthcare worker records race in a medical chart without asking.

[Federal guidelines issued in 1997](#) specify collecting data on Hispanic ethnicity separately from data on race. The guidelines specify a minimum of five racial categories and allow for reporting of more than one race. The five categories are American Indian or Alaska Native (AIAN), Asian, black or African American, Native Hawaiian or other Pacific Islander (NHOPI), and white. Most states, including Washington, adopted these conventions in 2003. Prior to these guidelines, federal guidelines grouped Asians and NHOPIs.

In 2011, the U.S. Department of Health and Human Services issued [guidelines for data collection under the Affordable Care Act](#). These guidelines specify collecting subpopulation detail for Asian and NHOPI groups instead of information on the larger groups. The guidelines also provide direction for aggregating to the larger groups. These new guidelines are consistent data collection approaches for some federal and state data collection systems, but not all. [Appendix B](#) provides detail on how

specific data systems collect race and Hispanic origin.

Where possible, *HWS* chapters present data for people of Hispanic origin and the five minimum racial groups for those reporting non-Hispanic or unknown Hispanic ethnicity. Unless otherwise noted, the racial groups include people reporting a single race only and people reporting more than one racial group who have been allocated to a single group. [Appendix B](#) contains details on allocation methods for specific systems. The Washington State Department of Health's [Guidelines for Using Racial and Ethnic Groupings in Data Analyses](#) discuss the rationale for this approach and methods for allocation.

Some chapters are not able to present data for all groups due to [small numbers](#). Small numbers and lack of population counts needed to develop rates also limit the ability to present data by Asian and NHOPI subgroups and for people reporting more than one racial group.

If Washington data by race and Hispanic origin are not available, authors might provide information from the scientific literature. This information should be interpreted with caution. Racial patterns in Washington might be different from those seen elsewhere. Nonetheless, large differences by race or Hispanic origin seen nationally or elsewhere in the United States are likely to reflect important disparities in Washington.

Many chapters include bar charts depicting rates by race and Hispanic ethnicity. Generally, a horizontal line with small vertical line at each end depicts the 95% confidence interval for each group's rate. As discussed under [Confidence Intervals](#), authors describe groups as different from each other only if the differences are statistically significant at the $p < .05$ level. The bar charts do not include groups with fewer than 20 events for population data or relative standard errors greater than 30% for surveys. Where possible, the bar charts include data for three years combined to increase numbers, and hence, precision and stability of the rate. (See [Small Numbers](#) and [Charts and Graphs](#).)

For more information on the collection and use of race and Hispanic origin in specific data systems, see [Appendix B](#). Also see the Washington State Department of Health's [Guidelines for Using Racial and Ethnic Groupings in Data Analyses](#) for a more detailed discussion of these issues.

Time Trends

Data analysts used the National Cancer Institute's [Joinpoint software](#) to determine if rates and

frequencies are increasing, decreasing or staying the same over time. Trends are discussed as increasing or decreasing only if the changes are [statistically significant](#). Assessing trends is complex.

Trends can vary depending on the years selected as the beginning and ending points for the trend. In general, tests of trend include 1980 (or the earliest year of data available after 1980) through the most recent year of available data. (See [Appendix B](#) for years of availability for specific data sets.) However, when authors have reason to conclude that the earliest or most recent years of data may represent random variation that disproportionately affects trends, they have the option to use different beginning and ending points. Chapter technical notes provide detail in these instances.

Changes in how data are collected can affect comparability across years. Methods used to collect and code data can change over time, potentially affecting comparability of data across years. [Appendix B](#) provides details of such changes for specific datasets. If changes have affected comparability of data, graphs showing trends include hatch marks showing the discontinuity and the chapter's technical notes provide detail on the discontinuity. If a change created discontinuities, data analysts assessed trends before and after the change as two separate series. The same change can affect different indicators differently. For example, the addition of a Spanish-language option beginning with the 2003 Behavioral Risk Factor Surveillance System created discontinuities for some indicators, but not for others.

Different modeling approaches within the Joinpoint software can give different results. Joinpoint offers a number of options for modeling trends. Most often, different options do not affect the conclusion that rates are increasing, decreasing or staying the same. Authors used their best judgment in selecting which options were appropriate for their data. If different options provided different results, authors expressed caution when discussing findings.

2010 and 2020 Goals

[Healthy People 2010](#) and [Healthy People 2020](#) provide national health promotion and disease prevention objectives. These objectives were developed by the U.S. Department of Health and Human Services in collaboration with other

federal, state and local agencies, as well as with public comment. *HWS* covers topics that correspond to objectives in *Healthy People*. Where possible, chapters provide information on whether Washington achieved *Healthy People 2010* targets and whether we are on track for reaching the national 2020 targets.

Readers must be careful to compare apples to apples when assessing Washington's progress toward nationally established targets. Where possible, authors used comparable definitions when assessing progress toward *Healthy People* targets, even if the *Healthy People* definition differed from that of the main indicator used elsewhere in the chapter.

If Washington data do not support definitions comparable to those in *Healthy People*, authors:

- Discuss progress qualitatively if related data approximate or speak to the *Healthy People* indicator.
- Note that Washington lacks data that allows comparison to *Healthy People* targets.

In addition to assessing status related to the national *Healthy People* targets, chapters provide progress toward state and other national targets where these have been established.