

INDICATOR DEFINITIONS AND MEASUREMENT CRITERIA

The indicators are listed by category, in the order in which they appear on the website. Please see the bookmarks to the left for direct access to specific indicators.

COMMUNITY CONTEXT

Indicator: **Poverty**

Definition

Population living at or below 100% of the U.S. Federal Poverty Level

Unit of measure

Crude percent

Years of reporting

- **Baseline (Update 1):** posted 2011
 - State and local data: 2008
 - National data: 2008
- **Update 2:** posted 2011
 - State and local data: 2009
 - National data: 2009
- **Update 3:** Discontinued: available from the [County Health Rankings](#)

Sources

- **State and local data:** Small Area Income and Poverty Estimates ([SAIPE](#)), U.S. Census Bureau, accessed 8/12/2011.
- **National data:** Small Area Income and Poverty Estimates ([SAIPE](#)), U.S. Census Bureau, accessed 10/12/2011

Rationale for inclusion

People living in poverty are more likely to have poorer health status and die at younger ages than people with more financial resources. The health impacts of poverty can begin before birth and build up over time. Those living in poverty are more likely than others to have difficulty accessing health care for prevention and early treatment of disease, to face stresses that can alter immune function, to find it difficult to buy and prepare nutritious food and to be physically active, to be exposed to relatively high levels of toxins in the environment, and to be victims of violence. There is a stepwise relationship between economic resources and health. While those with fewest resources have the shortest life expectancies, those in middle ranges of economic resources have shorter life expectancies than those with the most economic resources.

Missing and suppressed data

- **Baseline (Update 1):** none
- **Update 2:** none

COMMUNICABLE DISEASE

Indicator: **Reported Chlamydia Infections**

Definition

Cases of Chlamydia diagnosed and reported for females ages 15–24

Unit of measure

Age-specific rate per 100,000 females ages 15–24

Years of reporting

- **Baseline:** posted 2007; revised 2012 using population estimates adjusted to the 2010 U.S. Census
 - State and local data: cases diagnosed during 2004–2006 and reported to the Washington State Department of Health (DOH) as of 4/12/07
 - National data: 2005
- **Update 1:** posted 2009; revised 2012 using population estimates adjusted to the 2010 U.S. Census
 - State and local data: cases diagnosed during 2007–2008 and reported to DOH as of 3/9/09
 - National data: 2007
- **Update 2:** posted 2012
 - State and local data: cases diagnosed during 2009–2010 and reported to DOH as of 3/2010
 - National data: 2009
- **Update 3:** Not yet available; awaiting receipt of CHAT-compatible population denominators.

Sources

- **State and local data:** Compiled using Community Health Assessment Tool (CHAT) January 2012
 - WA-DOH, Public Health Issues Management System (PHIMS), Sexually Transmitted Disease
 - Washington State Office of Financial Management, Forecasting Division, single year intercensal estimates 2001–2011, February 2013
- **National data:** CDC Division of Sexually Transmitted Disease Prevention

Rationale for inclusion

Chlamydia infection is the most commonly reported sexually transmitted infection in Washington State. Undetected and untreated chlamydia is a major cause of reproductive health problems for women of childbearing age. Females ages 15–24 have the highest chlamydia rates. State and national screening recommendations target females 15–24.

Missing and suppressed data

- **Baseline**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Lincoln (small numbers), Wahkiakum (small numbers)
- **Update 1**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Lincoln (small numbers), Wahkiakum (small numbers)
- **Update 2**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), San Juan (small numbers), Wahkiakum (small numbers)

Indicator: **Treated Chlamydia Infections**

Definition

Cases of Chlamydia treated and reported for females ages 15–24

Unit of measure

Crude percent

Years of reporting

- **Baseline:** posted 2007
 - State and local data: cases diagnosed during 2004–2006 and reported to the Washington State Department of Health (DOH) as of 4/12/2007
- **Update 1:** posted 2009
 - State and local data: cases diagnosed during 2007–2008 and reported to DOH as of 3/9/2009
- **Update 2:** posted 2011
 - State and local data: cases diagnosed during 2009–2010 and reported to DOH as of 3/2011
- **Update 3:** posted 2014
 - State and Local data: cases diagnosed during 2011–2012 and reported to DOH as of 9/2013

Sources

- **State and local data:**
 - WA-DOH, Public Health Issues Management System (PHIMS), Sexually Transmitted Disease
 - Washington State Office of Financial Management, Forecasting Division, single year intercensal estimates 2001–2011, February 2013
- **National data:** Not available

Rationale for inclusion

Chlamydia infection is the most commonly reported sexually transmitted infection in Washington State. Undetected and untreated chlamydia is a major cause of reproductive health problems for women of childbearing age. Females ages 15–24 have the highest chlamydia rates. State and national screening recommendations target females 15–24.

Missing and suppressed data

- **Baseline**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Lincoln (small numbers), Wahkiakum (small numbers)
- **Update 1**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Lincoln (small numbers), Wahkiakum (small numbers)
- **Update 2**
 - Suppressed for Columbia (small numbers), Grant (small numbers), Skagit (small numbers), Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Wahkiakum (small numbers)

Indicator: **Adult Influenza Vaccination**

Definition

Adults who respond “yes” to the question, “During the past 12 months have you had a flu shot?”

Unit of measure

Weighted, age-adjusted percent

Years of posting and reporting

- **Baseline:** posted 2007; revised 2011 to reflect change in definition
 - State and local data: 2004–2006
 - National data: 2004–2006
- **Update 1:** posted 2009; revised 2011 to reflect change in definition
 - State and local data: 2007–2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data are for 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Influenza affects people of all ages and can cause severe illness resulting in hospitalization and death. Vaccination is effective in preventing influenza. It is 90% effective in people younger than 65. Vaccination of people ages 6 months and older helps to protect children younger than 6 months who are too young to be vaccinated; older people for whom the vaccine is less effective; and people at high risk of complications who might not be vaccinated, such as pregnant women and people with certain chronic medical conditions. Annual vaccination is needed since immunity from the vaccine is estimated to be less than one year.

Public Health Indicator cycles before 2011 presented information on adults ages 65 and older. For the 2011 posting, this indicator was changed to include all adults (ages 18 and older). This change is consistent with the Center for Disease Control and Prevention's 2010 recommendations of annual influenza vaccination for persons ages 6 months or older. Data from previous KHI releases were updated to reflect this change.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Child Immunizations Reported to the Washington State Immunization Information System**

Definition

Percent of children ages 19–35 months registered in the Washington State Immunization Information System with complete vaccination records on file in the Registry. A complete vaccination record includes 4-DTP, 3-Polio, 1-MMR, 3-Hib, 3-HepB, 1-Varicella and 4-PCV.

Unit of measure

Crude percent

Years of posting and reporting

- **Baseline (Update 1):** posted 2009
 - State and local data: 2008
- **Update 2:** posted 2011
 - State and local data: 2010
- **Update 3:** posted 2014
 - State and local data: 2012

Sources

- **State and local data:** WA-DOH, Washington State Immunization Information System
- **National data:** Not available

Rationale for inclusion

Childhood immunizations have provided one of the greatest improvements in public health by controlling serious conditions such as measles, polio, diphtheria, and tetanus. Caution is needed when interpreting this indicator because vaccination data in the Washington State Immunization Information System are not complete. The data are currently useful for tracking participation in the Immunization system, but not for assessing the percentage of children who have received all necessary vaccines. (See [Washington State Immunization Information System](#).)

Missing and suppressed data

- **Baseline (Update 1)**
 - Suppressed for Garfield (small numbers)
- **Update 2**
 - Suppressed for Garfield (small numbers)
- **Update 3**
 - None

PREVENTION AND HEALTH PROMOTION

Indicator: **Years of Healthy Life Expected at Age 20**

Definition

Additional years a 20 year-old is expected to live in good, very good, or excellent health. "Years of healthy life" is calculated by adjusting life expectancy derived from death certificate data with health status measured by the question, "Would you say your health in general is excellent, very good, good, fair, or poor?" Information on the method used to compute years of healthy life expectancy is available at:

www.doh.wa.gov/Portals/1/Documents/1200/LPHI-HealthLife.pdf

Unit of measure

Number of years

Years of reporting

- **Baseline:** posted 2007; revised 2012 using population estimates adjusted to the 2010 U.S. Census
 - State and local data: 2003–2005
 - National data: 2003
- **Update 1:** posted 2009; revised 2012 using population estimates adjusted to the 2010 U.S. Census
 - State and local data: 2006–2007
 - National data: 2005
- **Update 2:** posted 2012
 - State and local data: 2008–2009
 - National data: 2007
- **Update 3:** posted 2014 (See [BRFSS caveats](#).)
 - State and local data: 2011–2012
 - National data: 2009

Sources

- **State and local data**
 - WA-DOH, Behavioral Risk Factor Surveillance System
 - WA-DOH, Death Certificate System
 - Washington State Office of Financial Management, Forecasting Division, single year intercensal estimates 2001–2009, December, 2011
- **National data:**
 - CDC, Behavioral Risk Factor Surveillance System
 - U.S. life expectancy tables from annual CDC National Center for Health Statistics National Vital Statistics Reports.

Rationale for inclusion

Public health aims to improve health status and extend life by preventing and controlling disease. This indicator reflects the value of extending the years of healthy life, not just delaying death.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adult Cigarette Smoking**

Definition

Adults who respond “yes” to the question, “Have you smoked at least 100 cigarettes in your entire life?” AND answer, “Some days or every day” to the question, “Do you now smoke cigarettes every day, some days, or not at all?”

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2004–2006
 - National data: 2004–2006
- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2007–2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

NOTE: Stata coding for the original baseline and update 1 included some records with age coded to missing or refused. For this indicator, the error did not change the state rate or the rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Tobacco use is one of the main leading causes of preventable of disease and death in Washington and the United States. Cigarette smoking is the most common type of tobacco use. Other forms of tobacco use and exposure to second-hand tobacco smoke also have detrimental effects on health.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adult Physical Activity**

Definition

- **Baseline, Update 1, Update 2:** Adults ages 18 and older who report
 - Moderate physical activity for at least 30 minutes a day on five or more days a week in response to the questions, "In a usual week, do you do moderate activities for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes small increases in breathing or heart rate?" If yes, "How many days per week do you do these moderate activities for at least 10 minutes at a time?" and "On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?" OR
 - Vigorous physical activity for at least 20 minutes a day on three or more days a week in response to the questions, "In a usual week, do you do vigorous activities for at least 10 minutes at a time, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate?" If yes, "How many days per week do you do these vigorous activities for at least 10 minutes at a time?" and "On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?" OR
 - "Mostly walking" or "mostly heavy labor or physically demanding work" in response to the question, "When you are at work, which of the following best describes what you do?"
- **Update 3:** Adults ages 18 and older who report meeting moderate and vigorous physical activity guidelines specified in the U.S. Department of Health and Human Services [2008 Physical Activity Guidelines for Americans](#). Guidelines are at least 150 minutes of moderate physical activity, 75 minutes of vigorous

physical activity, or 150 minutes of combined moderate and vigorous physical activity with minutes of vigorous activity counting double. This indicator classifies people reporting sufficient activity during leisure time, and those reporting mostly walking or doing heavy physical labor at work, as meeting guidelines.

- BRFSS uses the following questions to calculate total minutes of leisure time physical activity:
 - § During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?
 - § What type of physical activity or exercise did you spend the most time doing during the past month?
 - § How many times per week or month did you take part in this activity during the past month?
 - § And when you took part in this activity, for how many minutes or hours did you usually keep at it?
 - § What other type of physical activity gave you the next most exercise during the past month?
 - § How many times per week or month did you take part in this activity during the past month?
 - § And when you took part in this activity, for how many minutes or hours did you usually keep at it?
- People meeting guidelines for moderate or vigorous physical activity while at work are those who respond “mostly walking” or “mostly heavy labor or physically demanding work” in response to the question, “When you are at work, which of the following best describes what you do?”

NOTE: In addition to changes in 2011 BRFSS methods that affect all BRFSS indicators (explained in [BRFSS caveats](#)), the wording of the leisure time physical activity questions and the method of compiling responses to assess meeting recommendations also changed with the 2011 survey. The new questions and compilation method is more consistent with the 2008 Physical Activity Guidelines for Americans than the previous method, because it combines amounts of moderate and vigorous physical activity.

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting (Data are collected biannually in odd-numbered years.)

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2003 and 2005
 - National data: 2003 and 2005
- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2007
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009
 - National data: 2009
- **Update 3:** posted 2014 (See [BRFSS caveats](#).)
 - State and local data: 2012

- National data: N/A

NOTE: Stata coding for the original baseline and update 1 included some records with age coded to missing or refused. For this indicator, the error did not change the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Physical activity improves life expectancy, functional independence, quality of life, and reduces the risk for developing or dying from chronic conditions such as heart disease, diabetes and high blood pressure. Unlike data presented at the National Behavioral Risk Factor Surveillance website, this indicator includes work-related physical activity. The 2008 Physical Activity Guidelines for Americans do not specify where the activity takes place and some people get enough physical activity on the job to meet the guidelines. For example, national 2007 BRFSS data showed that 6.5% of adults likely met guidelines through activity while at work. About 14% of Hispanic men and about 16% of men with less than a high school education met guidelines through work-related physical activity. ([CDC. Contribution of occupational physical activity toward meeting recommended physical activity guidelines: United States 2007. MMWR 2011; 60\(20\):656-60.](#))

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adult Obesity**

Definition

Adults ages 18 and older who have a body mass index (BMI) of 30 kg/m² or more based on their answers to the following BRFSS questions: "About how much do you weigh without shoes?" and "About how tall are you without shoes?" Body mass is calculated by dividing weight in kilograms by height in meters squared.

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

- **Baseline:** posted 2007; revised 2011 to reflect change in definition
 - State and local data: 2004–2006
 - National data: 2004–2006
- **Update 1:** posted 2009; revised 2011 to reflect change in definition

- State and local data: 2007–2008
- National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Unhealthy weight resulting from an imbalance between caloric intake and energy expenditure is a leading cause of premature, preventable mortality. Public Health Indicator cycles before 2011 presented information on overweight and obese adults (body mass index [BMI] ≥ 25 kg/m²). For the 2011 posting, this indicator was changed to include obesity only, because negative health impacts have been more consistently associated with BMIs ≥ 30 kg/m² than with BMIs in the 25 to 29.9 kg/m² range. Data from previous Public Health Indicator releases were updated to reflect this change.

Missing and suppressed data

- **Baseline**
 - Missing data for Adams (10%–19%)
- **Update 1**
 - None
- **Update 2**
 - Missing data for Yakima (10%–19%)
- **Update 3**
 - Missing data for Adams (10%–19%), Grant (10%–19%), Yakima (10%–19%)

Indicator: **Adult Fruit/Vegetable Consumption**

Definition

Adults ages 18 and older who report that they eat fruits or vegetables five or more times per day. This indicator is a composite of six questions that ask how many times the respondent drinks fruit juice and eats fruit, potatoes, carrots, green salad, and other vegetables. The respondent can answer as the number of times each day, week, month, or year.

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting (Data are collected biannually in odd-numbered years.)

- **Baseline:** posted 2007

- State and local data: 2003 and 2005
 - National data: 2003 and 2005
- **Update 1:** posted 2009
 - State and local data: 2007
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009
 - National data: 2009
- **Update 3:** The centers for Disease Control and Prevention (CDC) changed the BRFSS questions for fruits and vegetables in 2011. We are awaiting CDC's recommendations for compiling the new questions into meaningful indicators.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

A nutritious diet, including sufficient consumption of fruits and vegetables, can reduce major risk factors for chronic disease such as obesity, high blood pressure, and high blood cholesterol. Sufficient intakes of fruits and vegetables can also reduce risk for some types of cancer. The *2010 Dietary Guidelines for Americans* recommends from 4–13 daily servings of fruits and vegetables depending on caloric need.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None

Indicator: **Adult Binge Drinking**

Definition

Adults ages 18 and older who report binge drinking in the past 30 days. Binge drinking is defined as five or more drinks for men and four or more drinks for women on one occasion.

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2006 only. Data on binge drinking are collected annually, but data collected prior to 2006 used a definition of binge drinking that is not comparable to the definition adopted in 2006.
 - National data: 2006
- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2007–2008
 - National data: 2007

- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

NOTE: Stata coding for the original baseline and update 1 included some records with age coded to missing or refused. For this indicator, the error did not change the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Binge drinking defined as 5 drinks for men and 4 drinks for women on one occasion approximates a .08 blood alcohol level. This level of drinking is related to increased risk of morbidity and mortality due to trauma, such as alcohol-related motor vehicle deaths. Other health effects (such as liver disease and some cancers) are due to long-term excessive drinking. People who also report heavy drinking (≥ 2 drinks/day for men; ≥ 1 drink/day for women) are at increased risk for both immediate and long-term morbidity and mortality; about three-quarters of heavy drinkers also reported binge drinking.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adults with Diabetes**

Definition

Adults ages 18 and older who answer “yes” in response to the question, “Have you even been told by a doctor that you have diabetes?” This definition does not include people who have been told that they are pre-diabetic or borderline diabetic and women who experienced diabetes only during pregnancy.

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

- **Baseline:** posted 2007; ; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2004–2006
 - National data: 2004–2006

- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2007–2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

NOTE: Stata coding for the original baseline and update 1 releases included some records with age coded to missing or refused. For this indicator, the error did not change the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Diabetes is one of the top 10 causes of death. Most adult onset diabetes can be prevented through healthy ways of living, such as maintaining a healthy weight, being physically active, and eating a healthy diet.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adults with Poor Mental Health**

Definition

Adults ages 18 and older who answer “14 or more days” in response to the question, “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?”

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2004–2006
 - National data: 2004–2006
- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2007–2008

- National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

NOTE: Stata coding for the original baseline and update 1 included some records with age coded to missing or refused. For this indicator, the error did not change the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Poor mental health is a major source of distress, disability, and social burden. The Public Health Indicator has yielded similar results to more complex measures of recent mental health (CDC. Self-Reported Frequent Mental Distress among Adults – United States, 1993–1996. MMWR 1998; 47:326-331).

Missing and suppressed data

- **Baseline**
 - None
- **Update 1**
 - Suppressed for Jefferson (small numbers)
- **Update 2**
 - Suppressed for Columbia (small numbers), Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for San Juan (RSE>30)

Indicator: **Hospitalizations for Falls among Older Adults**

Definition

Hospitalizations of Washington residents ages 65 and older whose hospital discharge record in the Comprehensive Hospital Abstract Recording System (CHARS) or in the Oregon State Inpatient Dataset (OR-SID) contains a diagnosis of ICD9 E880–E886 or E888 as the first diagnosis. (**NOTE:** Federal military and Veterans Administration (VA) hospitals no longer provide data to WA-DOH. Data from 2005–2007 for Veterans Administration hospitals, Madigan Army Hospital, and Naval Hospital Oak Harbor suggests that not including hospitalizations from these facilities would not substantively affect rates for any counties except, perhaps, Pierce County. In Pierce County about 6% of hospitalizations for falls among older adults occurred at one or more of these facilities. Data for 2003–2005 from Naval Hospital Bremerton indicates that omitting hospitalization data from this facility would not substantively affect rates for this indicator.)

Unit of measure

Age-adjusted rate for Washington residents age 65 or older (age groups 65–69, 70–74, 75–79, 80–84, 85+) (See NOTE below)

Years of reporting

- **Baseline:** posted 2012; revised 2014 (recalculated using age-adjusted rates for ages 65+) (See NOTE below)
 - State and local data: 2003–2005
- **Update 1:** posted 2012; revised 2014 (recalculated using age-adjusted rates for ages 65+) (See NOTE below)
 - State and local data: 2006–2007
- **Update 2:** posted 2012; revised 2014 (recalculated using age-adjusted rates for ages 65+) (See NOTE below)
 - State and local data: 2008–2009
- **Update 3:** posted 2014
 - State and local data: 2010–2011

NOTE: In 2011 “baby boomers” born between 1946 and 1964 began aging into the 65 years and older age group. As large numbers age into this group and as life expectancy changes, the age distribution within the 65 years and older age group might change. Because falls among older adults increase with age, changes in age distribution could obscure underlying trends. To mitigate this problem and more clearly delineate trends, beginning with update 3, we age-adjusted this indicator and recalculated rates for previous postings to reflect this change.

Sources

- **State and local data:** Compiled using Community Health Assessment Tool (CHAT) February 2014
 - WA-DOH, Comprehensive Hospitalization Abstract Reporting System (CHARS)
 - Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project State Inpatient Databases (Oregon) (OR-SID)
 - Washington State Office of Financial Management, Forecasting Division, single year intercensal estimates 2001–2011, February 2013
- **National data:** Not available

Rationale for inclusion

Falls among older adults are the leading cause of injury-related hospitalizations in Washington. One of every three people age 65 and older living in the community falls each year. Fall-related injuries cause significant mortality, morbidity, disability, loss of independence, and early admission to nursing homes. Most falls are preventable.

Missing and suppressed data

- **Baseline**
 - Suppressed for Asotin (missing records due to hospitalizations in Idaho), Garfield (missing records due to hospitalization in Idaho)
- **Update 1**
 - Suppressed for Asotin (missing records due to hospitalizations in Idaho), Garfield (missing records due to hospitalization in Idaho)

- **Update 2**
 - Suppressed for Asotin (missing records due to hospitalizations in Idaho), Garfield (missing records due to hospitalization in Idaho)
- **Update 3**
 - Suppressed for Asotin (missing records due to hospitalizations in Idaho), Garfield (missing records due to hospitalization in Idaho)

ENVIRONMENTAL HEALTH

Indicator: **Food Service Safety**

Definition

Permanent food service establishments that received a routine inspection and were found to have fewer than 36 critical violation points. (Follow-up inspections and temporary food service establishments are excluded).

Unit of measure

Crude percent (of total number of inspections)

Years of reporting

- **Baseline (Update 1):** posted 2009
 - State and local data: 2008
- **Update 2:** posted 2011
 - State and local data: 2010
- **Update 3:** posted 2014
 - State and local data: 2012

Sources

- **State and local data:** WA-DOH, Office of Public Health Systems Development data collected for the Washington State Public Health Improvement Partnership (PHIP) Activities and Services Inventory
- **National data:** Not available

Rationale for inclusion

Inspection of food service establishments has been shown to reduce the risk factors associated with food-borne illness. Critical violations involve important food safety items such as proper heating and cooling, cross contamination, hand washing and proper food storage. Food service establishments with a high level of violations pose the highest risk for causing food-borne outbreaks. Caution is needed when interpreting this indicator because inspection practices, staff training and workloads can influence inspection scores, and these factors vary between health jurisdictions. A higher percent of violations may be a result of new training, standardization or increased focus on identification and documentation of critical violations. More information is available at www.doh.wa.gov/YouandYourFamily/FoodSafety.aspx

Missing and suppressed data

- **Baseline (Update 1)**

- Missing for Pacific (10%–19%), Skamania (20%–30), Wahkiakum (10%–19%)
- Suppressed for Columbia (small numbers), Island (small numbers)
- **Update 2**
 - None
- **Update 3**
 - None

Indicator: **On-site Sewage System Corrections**

Definition

On-site sewage system failures for which corrective action was initiated within two weeks.

Unit of measure

Crude percent

Years of reporting

- **Baseline (Update 1):** posted 2009
 - State and local data: 2008
- **Update 2:** posted 2011
 - State and local data: 2010
- **Update 3:** posted 2014
 - State and local data: 2012

Sources

- **State and local data:** WA-DOH, Office of Public Health Systems Development data collected for the Washington State Public Health Improvement Partnership (PHIP) Activities and Services Inventory
- National data: Not available

Rationale for inclusion

On-site sewage systems (OSS), commonly called septic systems, treat and dispose of sewage on the site where it is created. It is important to correct OSS failures when first detected to prevent surface and ground water contamination and risk to public health. For a variety of reasons, OSS repairs sometimes take a long time to complete. The indicator measures percent of documented failing on-site systems for which the repair process is started promptly. The on-site sewage system permits and inspections are handled by the local health jurisdiction and not by the State Department of Health.

Missing and suppressed data

- **Baseline (Update 1)**
 - Missing for Kittitas (10%–19%), Pacific (10%–19%), Skamania (10%–19%), Wahkiakum (20%–30%)
 - Suppressed for Columbia (>30% missing), Garfield (small numbers), Island (>30 missing), Klickitat (small numbers), Lincoln (small numbers) Walla Walla (small numbers)
- **Update 2**

- Missing for Adams (>30%), Asotin (>30%), Cowlitz (>30%), Garfield (>30%)
- Suppressed for Klickitat (small numbers), Lincoln (small numbers), Whitman (small numbers)
- **Update 3**
 - Suppressed for Cowlitz (RSE>30), Lewis (small numbers), Wahkiakum (small numbers)

Indicator: **Air Quality**

Definition

Days meeting the Washington State Department of Ecology 24-hour average healthy air goal of $\leq 20\mu\text{g}/\text{m}^3$ for particulate matter 2.5 microns in diameter or less (PM_{2.5})

Unit of measure

Crude percent

Years of reporting

- **Baseline (Update 1):** posted 2011
 - Local data: 2009
- **Update 2:** posted 2011
 - Local data: 2010
- **Update 3:** posted 2014
 - Local data: 2012

Sources

- **Local data:** WA-DOH Washington Tracking Network, compiled from data received from Washington State Department of Ecology
- **State and National data:** Not available

Rationale for inclusion

Studies show serious health effects from short term and long term exposure to PM_{2.5} (particulate matter of 2.5 microns or less). Those at risk from breathing PM_{2.5} are people with heart and lung disease, diabetes, and infants and children. The Department of Ecology has established a daily healthy air goal of $20\mu\text{g}/\text{m}^3$. However, some people can experience health effects below this level.

Missing and suppressed data

- **Baseline (Update 1)**
 - Missing for Garfield, Island, Klickitat, Lewis, Lincoln, Pacific, San Juan, Skamania, Wahkiakum due to no air monitors in these counties
- **Update 2**
 - Missing for Garfield, Island, Klickitat, Lincoln, Pacific, San Juan, Skamania, Wahkiakum due to no air monitors in these counties
- **Update 3**
 - Missing for Kitsap (10%–19%)

MATERNAL AND CHILD HEALTH

Indicator: **First Trimester Prenatal Care**

Definition

Women giving birth who received prenatal care starting in the first trimester of pregnancy.

Unit of measure

Crude percent of all live births

Years of reporting

- **Baseline:** posted 2007; revised 2014 for consistency with NCHS calculation methods. **(See NOTE below.)**
 - State and local data: 2003–2005
 - National data: 2005
- **Update 1:** posted 2009; revised 2014 for consistency with NCHS calculation methods. **(See NOTE below.)**
 - State and local data: 2006–2007
 - National data: 2007
- **Update 2:** posted 2011; revised 2014 for consistency with NCHS calculation methods. **(See NOTE below.)**
 - State and local data: 2008–2009
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2010–2012
 - National data: 2010

NOTE: The trimester prenatal care began is calculated from the reported menses date and the date of the first prenatal care visit. In 2003, the U.S. Standard birth certificate changed from collecting month of pregnancy prenatal care began to the month, day, and year of the first prenatal care visit. Subsequent to this change, NCHS changed their method of calculating month of pregnancy prenatal care began. Washington also changed their method to use the new field but calculated the month of pregnancy in which prenatal care began differently. Since that time more states have begun using the 2003 revised form. Now, with more states using the revised birth certificate and availability of revised data for more years, the birth certificate analytic files include data for the NCHS method of calculating the month of pregnancy prenatal care began. All LPHI cycles have been recalculated using the NCHS method.

Sources

- **State and local data:** WA-DOH, Birth Certificate System; data compiled using Community Health Assessment Tool (CHAT) February 2014
- **National data:** CDC, National Vital Statistics Reports

Rationale for inclusion

Early and continuous prenatal care is important for preventing adverse birth outcomes and improving the health of mothers.

Missing and suppressed data

- **Baseline**
 - Missing data for Washington State (10%–19%), Clark (10%–19%), Columbia (10%–19%), Grays Harbor (10%–19%), Klickitat (20%–30%), Lewis (10%–19%), Lincoln (10%–19%), Mason (10%–19%), Seattle-King (20%–30%), Skamania (20%–30%), Snohomish (20%–30%), Tacoma-Pierce (20%–30%), Thurston (20%–30%), Wahkiakum (10%–19%), Yakima (10%–19%)
 - Suppressed for Asotin (>30% missing), Garfield (>30% missing), Pacific (>30% missing)
- **Update 1**
 - Missing data for Washington State (10%–19%), Clark (10%–19%), Columbia (10%–19%), Seattle-King (10%–19%), Snohomish (10%–19%), Tacoma-Pierce (10%–19%), Wahkiakum (10%–19%)
 - Suppressed for Asotin (>30% missing), Garfield (small numbers), Klickitat (>30% missing), Pacific (>30% missing), Skamania (>30% missing)
- **Update 2**
 - Missing data for Asotin (10–19%), Garfield (10–19%), Seattle-King (10–19%), Snohomish (10–19%)
- **Update 3**
 - Missing data for Snohomish (10%–19%)

Indicator: **Maternal Smoking**

Definition

Women giving birth who report that they smoked cigarettes anytime during the first, second, or third trimester of pregnancy

Unit of measure

Crude percent of all live births

Years of reporting

- **Baseline:** posted 2007
 - State and local data: 2003–2005
 - National data: 2005
- **Update 1:** posted 2009
 - State and local data: 2006–2007
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2008–2009
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2010–2012
 - National data: 2010

Sources

- **State and local data:** WA-DOH, Birth Certificate System; data compiled using Community Health Assessment Tool (CHAT) February 2014
- **National data:** CDC, National Vital Statistics Reports

Rationale for inclusion

Tobacco smoking during pregnancy is the most important preventable cause of low birth weight. Smoking is also associated with spontaneous abortion, impaired fertility, preterm delivery, and sudden infant death syndrome (SIDS). This indicator uses data from the birth certificate because this is the only source of data for most counties. Self-reports such as birth certificate data may underestimate smoking during pregnancy. Additionally, compared to the Pregnancy Risk Assessment Monitoring System (PRAMS), the birth certificate underestimates smoking early in pregnancy. In 2007–2009, 12% of women in Washington reported smoking in the three months before pregnancy and 8% reported smoking in the third trimester on the birth certificate. PRAMS data for the same years showed 21% of women reporting smoking in the three months before pregnancy and 10% in the third trimester. (Washington State Department of Health unpublished data. For more information contact Prevention and Community Health, Surveillance and Evaluation.)

Missing and suppressed data

- **Baseline**
 - Missing data for State (10%–19%) Clark (10%–19%), Wahkiakum (10%–19%), Pacific (20%–30%), Klickitat (20%–30%), Skamania (20%–30%)
 - Suppressed for Garfield (small numbers)
- **Update 1**
 - Missing data for Wahkiakum (10%–19%)
 - Suppressed for Garfield (small numbers), Klickitat (>30% missing values), Pacific (>30% missing values), Skamania (>30% missing values)
- **Update 2**
 - Missing data for Island (20%–30%)
 - Suppressed for Garfield (small numbers)
- **Update 3**
 - Suppressed for Garfield (small numbers)

Indicator: **Teen Pregnancy Rate**

Definition

Pregnancies among teens ages 15–17. The mother’s age is computed from the mother’s date of birth and the date of birth, fetal death, or abortion.

Unit of measure

Age-specific rate per 1,000 teens ages 15–17

Years of reporting

- **Baseline:** posted 2007; revised 2012 to reflect change in definition from birth rate to pregnancy rate
 - State and local data: 2003–2005

- **Update 1:** posted 2009; revised 2012 to reflect change in definition from birth rate to pregnancy rate
 - State and local data: 2006–2007
- **Update 2:** posted 2012
 - State and local data: 2008–2009
- **Update 3:** posted 2014
 - State and local data: 2010–2011

Sources

- **State and local data:** Compiled using Community Health Assessment Tool (CHAT) January 2012
 - WA-DOH, Birth Certificate System
 - WA-DOH, Abortion Registry
 - WA-DOH, Fetal Death Certificate System
 - Washington State Office of Financial Management, Forecasting Division, single year intercensal estimates 2001–2009, December, 2011
- **National data:** Not available

Rationale for inclusion

Teen pregnancy rates are used to evaluate teen pregnancy prevention efforts and access to services across Washington. About 60% of teen pregnancies result in a live birth. Teen mothers are less likely to complete their education. Children born to teen mothers are more likely to live in poverty and to suffer adverse birth outcomes than children born to older women.

Missing and suppressed data

- **Baseline**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Lincoln (small numbers), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers)
- **Update 1**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Lincoln (small numbers), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers), Whitman (small numbers)
- **Update 2**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Lincoln (small numbers), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers), Whitman (small numbers)
- **Update 3**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Jefferson (small numbers), Lincoln (small numbers), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers), Whitman (small numbers)

Indicator: **Low Birth Weight**

Definition

Live born singleton infants with a reported birth weight of less than 2,500 grams

Unit of measure

Crude percent of all singleton live births

Years of reporting

- **Baseline:** posted 2007
 - State and local data: 2003–2005
 - National data: 2004
- **Update 1:** posted 2009
 - State and local data: 2006–2007
 - National data: 2005
- **Update 2:** posted 2011
 - State and local data: 2008–2009
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2010–2012
 - National data: 2010

Sources

- **State and local data:** WA-DOH, Birth Certificate System; data compiled using Community Health Assessment Tool (CHAT) July 2011
- **National data:** CDC, National Vital Statistics Reports

Rationale for inclusion

Low birth weight is a major contributor to infant morbidity and mortality. Low birth weight infants include infants who grow normally but are born too early (preterm) and infants with inadequate growth. Preterm infants are at risk for respiratory, gastrointestinal, immunologic, and neurological problems. Newborns with inadequate fetal growth are prone to birth asphyxia, hypoglycemia, temperature instability, infection, and circulatory problems. This indicator is restricted to singleton births, excluding twins and other multiple births. Multiple births tend to be born much smaller than singletons. Limiting analysis to singleton births highlights factors related to low birth weight separate from factors related to multiple birth.

Missing and suppressed data

- **Baseline**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Wahkiakum (small numbers)
- **Update 1**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers)
- **Update 2**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), Klickitat (small numbers), Lincoln (small numbers), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for Columbia (small numbers), Garfield (small numbers), San Juan (small numbers), Wahkiakum (small numbers)

Indicator: **Teen Physical Activity**

Definition

10th grade students who answer "5," "6," or "7" in response to the question, "In the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? (Add up all the time you spent in any kind of physical activity that increases your heart rate or makes you breathe hard some of the time.)"

Unit of measure

Crude percent

Years of reporting

- **Baseline:** posted 2007
 - State and local data: 2006
 - National data: 2005
- **Update 1:** posted 2009
 - State and local data: 2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2012
 - National data: N/A

Sources

- **State and local data:** WA-DOH, Healthy Youth Survey
- **National data:** CDC, Youth Risk Behavior Surveillance System

Rationale for inclusion

U.S. Dietary Guidelines for Americans recommend that children and adolescents participate in at least 60 minutes of moderate-intensity physical activity most days of the week and preferably every day. Young people who make exercise part of their daily routine will likely continue this behavior into adulthood. Some immediate effects of physical activity include building and maintaining healthy bones and lean muscles, controlling weight, reducing feelings of depression and anxiety, and promoting psychological well-being. Physical activity can also lower high blood pressure and cholesterol levels in youth.

Local Public Health Indicators based on Healthy Youth Survey use 10th grade data. For some indicators, reporting by 10th grade students is more reliable than reporting by 8th grade students. Students in grade 10 represent the high school population better than those in grade 12, because fewer have dropped out of high school.

Missing and suppressed data

- **Baseline**
 - Suppressed for Clallam (response rate <40%), Grant (response rate <40%), Northeast Tri-County (response rate <40%)
- **Update 1**

- Suppressed for Garfield (small numbers), Wahkiakum (small numbers), Clallam (response rate <40%)
- **Update 2**
 - Suppressed for Clallam (response rate <40%)
- **Update 3**
 - Suppressed for Adams (response rate <40%), Benton-Franklin (response rate <40%), Columbia (response rate <40%), Northeast Tri-County (response rate <40%), Walla Walla (response rate <40%)

Indicator: **Teen Cigarette Smoking**

Definition

10th grade students who answer one or more to the question, "During the past 30 days, on how many days did you smoke cigarettes?"

Unit of measure

Crude percent

Years of reporting

- **Baseline:** posted 2007
 - State and local data: 2006
 - National data: 2005
- **Update 1:** posted 2009
 - State and local data: 2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2012
 - National data: N/A

Sources

- **State and local data:** WA-DOH, Healthy Youth Survey
- **National data:** CDC, Youth Risk Behavior Surveillance System

Rationale for inclusion

Tobacco use is an unhealthy practice that may begin in childhood. Tobacco use is an important cause of some cancers, cardiovascular disease, and other serious health problems. Local Public Health Indicators based on Healthy Youth Survey use 10th grade data. For some indicators, reporting by 10th grade students is more reliable than reporting by 8th grade students. Students in grade 10 represent the high school population better than those in grade 12, because fewer have dropped out of high school.

Missing and suppressed data

- **Baseline**

- Suppressed for Clallam (response rate <40%), Columbia (small numbers), Garfield (small numbers), Grant (response rate <40%), Northeast Tri-County (response rate <40%), Wahkiakum (small numbers)
- **Update 1**
 - Suppressed for Clallam (response rate <40%), Columbia (small numbers), Garfield (small numbers), San Juan (small numbers), Wahkiakum (small numbers)
- **Update 2**
 - Suppressed for Clallam (response rate <40%), Columbia (small numbers), Garfield (small numbers), and Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for Adams (response rate <40%), Benton-Franklin (response rate <40%), Columbia (response rate <40%), Garfield (small numbers), Northeast Tri-County (response rate <40%), Wahkiakum (small numbers), Walla Walla (response rate <40%)

Indicator: **Teen Overweight and Obesity**

Definition

Teens overweight and obesity is computed from responses to "How tall are you without your shoes on?" and "How much do you weigh without your shoes on?" It includes overweight and obese 10th grade students, who are in the top 15% for body mass index by age and gender based on growth charts developed by the Centers for Disease Control and Prevention (2000).

Unit of measure

Crude percent

Years of reporting

- **Baseline:** posted 2007
 - State and local data: 2006
 - National data: 2005
- **Update 1:** posted 2009
 - State and local data: 2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2012
 - National data: N/A

Sources

- **State and local data:** WA-DOH, Healthy Youth Survey
- **National data:** CDC, Youth Risk Behavior Surveillance System

Rationale for inclusion

Unhealthy weight resulting from an imbalance between caloric intake and energy expenditure is a leading cause of premature, preventable mortality. Diet and weight patterns established in youth often continue into adulthood. Overweight and obese adolescents are at increased risk of obesity as adults. The earlier the age at which an individual becomes obese the higher the risk of premature death.

Local Public Health Indicators based on Healthy Youth Survey use 10th grade data. For some indicators, reporting by 10th grade students is more reliable than reporting by 8th grade students. Students in grade 10 represent the high school population better than those in grade 12, because fewer have dropped out of high school.

Missing and suppressed data

- **Baseline**
 - Missing for Benton-Franklin (10%–19%), Lewis (10%–19%), Okanogan (10%–19%), Skamania (10%–19%)
 - Suppressed for Clallam (response rate <40%), Columbia (small numbers), Garfield (small numbers), Grant (response rate <40%), Northeast Tri-County (response rate <40%), Wahkiakum (small numbers)
- **Update 1**
 - Missing for Adams (10%–19%), Cowlitz (10%–19%), Mason (10%–19%), Pacific (10%–19%), Skagit (10%–19%) Yakima (10%–19%)
 - Suppressed for Clallam (response rate <40%), Wahkiakum (small numbers)
- **Update 2**
 - Suppressed for Clallam (response rate <40%), Columbia (small numbers), Garfield (small numbers), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for Adams (response rate <40%), Benton-Franklin (response rate <40%), Columbia (response rate <40%), Jefferson (RSE>30), Northeast Tri-County (response rate <40%), San Juan (RSE>30), Skamania (RSE>30), Wahkiakum (small numbers), Walla Walla (response rate <40%)
 - Missing for Kittitas (10%–19%), Skagit (10%–19%), Yakima (10%–19%)

Indicator: **Teen Alcohol Use**

Definition

10th grade students who answer one or more to the question, “During the past 30 days, on how many days did you drink a glass, can or bottle of alcohol (beer, wine, wine coolers, hard liquor)?”

Unit of measure

Percent

Years of reporting

- **Baseline:** posted 2007
 - State and local data: 2006

- National data: 2005
- **Update 1:** posted 2009
 - State and local data: 2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2012
 - National data: N/A

Sources

- **State and local data:** WA-DOH, Healthy Youth Survey
- **National data:** CDC, Youth Risk Behavior Surveillance System

Rationale for inclusion

For 2010–2012 combined, the four leading causes of death among 15–19-year-olds are vehicle crashes, homicides, suicides, and other unintentional injuries; alcohol is a factor in many of these deaths. Also, heavy alcohol consumption in late adolescence appears to persist into adulthood and is associated with alcohol problems. (Marshall EJ. Adolescent alcohol use: risks and consequences. *Alcohol and Alcoholism*; 2014, 49:160-4.) Local Public Health Indicators based on Healthy Youth Survey use 10th grade data. For some indicators, reporting by 10th grade students is more reliable than reporting by 8th grade students. Students in grade 10 represent the high school population better than those in grade 12, because fewer have dropped out of high school.

Missing and suppressed data

- **Baseline**
 - Suppressed for Clallam (response rate <40%), Garfield (small numbers), Grant (response rate <40%), and Northeast Tri (response rate <40%)
 - .
- **Update 1**
 - Suppressed for Clallam (response rate <40%), Garfield (small numbers)
- **Update 2**
 - Suppressed for Clallam (response rate <40%), Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for Adams (response rate <40%), Benton-Franklin (response rate <40%), Columbia (response rate <40%), Northeast Tri-County (response rate <40%), Wahkiakum (small numbers), Walla Walla (response rate <40%)

Indicator: **Teen Sad and Hopeless**

Definition

10th grade students who answer “yes” to the question, “During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?”

Unit of measure

Crude percent

Years of reporting

- **Baseline:** Posted 2011
 - State and local data: 2006
 - National data: 2005
- **Update 1:** Posted 2011
 - State and local data: 2008
 - National data: 2007
- **Update 2:** Posted 2011
 - State and local data: 2010
 - National data: 2009
- **Update 3:** posted 2014
 - State and local data: 2012
 - National data: N/A

Sources

- **State and local data:** WA-DOH, Healthy Youth Survey
- **National data:** CDC, Youth Risk Behavior Surveillance System

Rationale for inclusion

Youth who reported feeling sad and hopeless are more likely than others to engage in high risk behaviors, such as drinking alcoholic beverages, abusing prescription pain killers, and carrying weapons. They are also more likely to report considering suicide, being abused by an adult, and having a low quality of life. This measure should not be interpreted as reflecting depression because the rates of depression in youth are much lower than the percentages who report feeling sad and hopeless. Local Public Health Indicators based on Healthy Youth Survey use 10th grade data. For some indicators, reporting by 10th grade students is more reliable than reporting by 8th grade students. Students in grade 10 represent the high school population better than those in grade 12, because fewer have dropped out of high school.

Missing and suppressed data

- **Baseline**
 - Suppressed for Clallam (response rate <40%), Columbia (small numbers), Garfield (small numbers), Grant (response rate <40%), Northeast Tri-County (response rate <40%), Wahkiakum (small numbers),
- **Update 1**
 - Suppressed for Clallam (response rate <40%), Columbia (small numbers), Garfield (small numbers), Wahkiakum (small numbers)
- **Update 2**
 - Suppressed for Clallam (response rate <40%), Columbia (small numbers), Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for Adams (response rate <40%), Benton-Franklin (response rate <40%), Columbia (response rate <40%), Garfield (RSE>30),

Northeast Tri-County (response rate <40%), Walla Walla (response rate <40%)

Indicator: **Childhood Unintentional Injury Hospitalizations**

Definition

Unintentional injury hospitalizations for Washington residents ages 0–17 whose hospital discharge record in the Comprehensive Hospital Abstract Recording System (CHARS) or in the Oregon State Inpatient Dataset (OR-SID) contains a diagnosis with ICD-9-CM external cause of injury codes E800–E869 or E880–E929.

Unit of measure

Age-specific rate per 100,000 population ages 0–17

Years of reporting

- **Baseline:** posted 2007; revised 2012 using population estimates adjusted to the 2010 U.S. Census and omitting federal hospitals for consistency across postings (**See NOTE below**)
 - State and local data: 2003–2005
- **Updated 1:** posted 2009; revised 2012 using population estimates adjusted to the 2010 U.S. Census and omitting federal hospitals for consistency across postings (**See NOTE below**)
 - State and local data: 2006–2007.
- **Update 2:** posted 2012
 - State and local data: 2008–2009
- **Update 3:** posted 2014
 - State and local data: 2010–2011

NOTE: Federal military and Veterans Administration hospitals no longer provide data to WA-DOH. Children of active military can be hospitalized in military hospitals. Data from 2003–2005 showed that about 7% of children with unintentional injury hospitalizations in Kitsap County were hospitalized in Naval Hospital Bremerton. Data from 2005–2007 indicated that about 8% of unintentional childhood injury hospitalizations in Pierce and 10% in Thurston Counties were in Madigan Army Hospital. Proportions of these hospitalizations for all other counties were less than 1% with most counties having no hospitalizations at this facility. Data from 2005–2007 also show no counties being substantively impacted by hospitalization in Naval Hospital Oak Harbor.

Sources

- **State and local data:** Compiled using Community Health Assessment Tool (CHAT) January 2012
- WA-DOH, Comprehensive Hospital Abstract Reporting System
- Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project State Inpatient Databases (Oregon) (OR-SID)
- Washington State Office of Financial Management, Forecasting Division, single year intercensal estimates 2001–2011, February 2013.
- **National data:** Not available.

Rationale for inclusion

Unintentional injury is a leading cause of hospitalization and mortality among children ages 0–17. This indicator includes in-patient hospitalizations from all causes of unintentional injury, including motor vehicle crashes, falls, poisoning, drowning, firearms, and others causes. Unintentional injury can often be prevented. If rates of unintentional injury are high or increasing, public health and other stakeholders need additional data about the specific causes and risk groups to plan prevention activities.

Missing and suppressed data

- **Baseline**
 - Suppressed for Asotin (small numbers, missing records due to hospitalizations in Idaho), Columbia (small numbers), Garfield (small numbers, missing records due to hospitalizations in Idaho), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers)
- **Update 1**
 - Suppressed for Asotin (small numbers, missing records due to hospitalizations in Idaho), Columbia (small numbers), Garfield (small numbers, missing records due to hospitalizations in Idaho), San Juan (small numbers), Wahkiakum (small numbers)
- **Update 2**
 - Suppressed for Asotin (small numbers, missing records due to hospitalizations in Idaho), Columbia (small numbers), Garfield (small numbers, missing records due to hospitalizations in Idaho), Skamania (small numbers), Wahkiakum (small numbers)
- **Update 3**
 - Suppressed for Asotin (RSE>30, missing records due to hospitalizations in Idaho), Columbia (small numbers), Garfield (small numbers, missing records due to hospitalizations in Idaho), San Juan (small numbers), Skamania (small numbers), Wahkiakum (small numbers)

ACCESS TO CARE

Indicator: **Adults with Unmet Medical Need**

Definition

Adults who respond “yes” to the question, “Was there a time in the past 12 months when you needed to see a doctor but could not because of the cost?”

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2004–2006
 - National data: 2004–2006

- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2007–2008
 - National data: 2007
- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

NOTE: Stata coding for the original baseline and update 1 releases included some records with age coded to missing or refused. For this indicator, the error did not substantively affect the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Inability to cover costs of health care may result in health concerns not being addressed in a timely or comprehensive manner. Many health conditions have less serious consequences for long term health when treated in a timely manner.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adults with Personal Health Care Provider**

Definition

Adults who respond “yes, only one” or “more than one” to the question, “Do you have one person (or more than one person) you think of as your personal doctor or health care provider?”

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2004–2006
 - National data: 2004–2006
- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2007–2008
 - National data: 2007

- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2009
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2011–2012
 - National data: 2012

NOTE: Stata coding for the original baseline and update 1 releases included some records with age coded to missing or refused. For this indicator, the error did not change the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Having a personal doctor or health care provider establishes the link to primary health care services that support prevention, early detection and treatment of disease.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adult Dental Care**

Definition

Adults ages 18 and older who respond “within the past year” to the question, “How long has it been since you last visited a dentist or a dental clinic for any reason?”

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64, 65+)

Years of reporting

Dental care data are collected biannually in even-numbered years.

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2004 and 2006
 - National data: 2004 and 2006
- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2008
 - National data: 2008
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))

- State and local data: 2012
- National data: 2012

NOTE: Stata coding for the original baseline and update 1 releases included some records with age coded to missing or refused. For this indicator, the error did not substantively change the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Preventive dental care can reduce the development of disease and facilitate early diagnosis and treatment. Annual dentist visits indicate routine dental care and preventive behavior.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adult Preventive Cancer Screening – Breast**

Definition

Baseline, Update 1, Update 2: Women ages 50 and older who respond “yes” to the question, “Have you ever had a mammogram?” AND respond “within the past year” or “within the past two years” to the question, “How long has it been since you had your last mammogram?”

Update 3: Same as above limited to women ages 50–74 years.

NOTE: The November 2009 U.S. Preventive Services Task Force (USPSTF) recommendations limited mammography screening to women ages 50–74. We incorporated this change into update 3. We did not recalculate the baseline or previous updates because independent of definition, there is a discontinuity between BRFSS data collected prior to 2011 and data collected in 2011 or later. (See [BRFSS caveats](#).)

Unit of measure

Baseline, Update 1, Update 2: Weighted, age-adjusted percent (age groups used for age adjustment: 50–64, 65+)

Update 3: Weighted, age-adjusted percent (age groups used for age adjustment: 50–64, 65–74)

Years of reporting

Cancer screening data are collected biannually in even-numbered years.

- **Baseline:** posted 2007
 - State and local data: 2004 and 2006
 - National data: 2004 and 2006

- **Update 1:** posted 2009
 - State and local data: 2008
 - National data: 2008
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2012
 - National data: 2012

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Breast cancer is a significant cause of death for women. Breast cancer screening allows early detection and improved survival for this disease. The November 2009 USPSTF recommends biennial screening mammography for women ages 50–74 years.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** Suppressed for Lincoln (RSE>30%)

Indicator: **Adult Preventive Cancer Screening – Cervical**

Definition

- **Baseline, Update 1, Update 2:** Women ages 21 and older with and without a uterine cervix who respond “yes” to the question, “Have you ever had a Pap test?” AND respond “within the past year,” “within the past two years,” or “within the past three years” to the question, “How long has it been since you had your last Pap test?”
- **Update 3:** Same as above, but limited to women ages 21–65 with a uterine cervix (i.e. respond “no” to the question “Have you had a hysterectomy?”)

NOTE: The March 2012 U.S. Preventive Services Task Force (USPSTF) recommendations limited cervical cytology (Pap smear) every 3 years for women ages 21–65 with a uterine cervix. The 2012 recommendations also included an option for cytology and human papilloma virus (HPV) testing every 5 years for women ages 30–65. The BRFSS does not currently collect data on HPV testing. For Update 3, we incorporated the changed age range and limited the analysis to women with a uterine cervix. We concluded that the option for cytology and HPV testing every 5 years would be unlikely to introduce large inaccuracies in the 2012 data used in update 3, because of the short time interval between the changes in recommendations and the 2012 BRFSS data collection. We did not recalculate the baseline or previous updates because independent of definition, there is a discontinuity between BRFSS data collected prior to 2011 and data collected in 2011 or later. (See [BRFSS caveats.](#))

Unit of measure

- **Baseline, Update 1, Update 2:** Weighted, age-adjusted percent (age groups used for age adjustment: 21–34, 35–44, 45–65, 66+)
- **Update 3:** Weighted, age-adjusted percent (age groups used for age adjustment: 21–34, 35–44, 45–65)

Years of reporting

Cancer screening data are collected biannually in even-numbered years.

- **Baseline:** posted 2007; revised 2011 to reflect change from 18 to 21 as lower age limit)
 - State and local data: 2004 and 2006
 - National data: 2004 and 2006
- **Update 1:** posted 2009; revised 2011 to reflect change from 18 to 21 as lower age limit)
 - State and local data: 2008
 - National data: 2008
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2012
 - National data: 2012

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Cervical cancer screening allows for early detection and improved survival for this disease.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adult Preventive Cancer Screening – Colorectal**

Definition

- **Baseline, Update 1, Update 2:** Adults ages 50 and older who report that they had a blood stool test in the past year, a sigmoidoscopy in the past five years, or a colonoscopy in the past 10 years. This is a calculated variable based on responses to the following five colorectal screening questions: “Have you ever had a blood stool test using a home kit?”; “How long has it been since you had your last blood stool test using a home kit?”; “Have you ever had a sigmoidoscopy or a colonoscopy?”; “How long has it been since you had your last sigmoidoscopy or colonoscopy?”; and “Which test (sigmoidoscopy or colonoscopy) have you had most recently?”

- **Update 3:** Same as above with age range changed to adults ages 50–75 and those reporting a sigmoidoscopy in the past 5 years must also report a FOBT in the past 3 years.

NOTE: The October 2008 U.S. Preventive Services Task Force (USPSTF) recommendations limited screening for colorectal cancer to adults ages 50–75. It also recommended sigmoidoscopy be accompanied by a FOBT every 3 years. These recommendations were in effect in previous LHPI cycles, but the LHPI steering committee did not suggest changes. We changed this indicator to be consistent with the USPSTF. We did not recalculate the baseline or previous updates because independent of definition, there is a discontinuity between BRFSS data collected prior to 2011 and data collected in 2011 or later. (See [BRFSS caveats.](#))

Unit of measure

- **Baseline, Update 1, Update 2:** Weighted, age-adjusted percent (age groups used for age-adjustment: 50–64, 65+)
- **Update 3:** Weighted, age-adjusted percent (age groups used for age adjustment: 50–64, 65–75)

Years of reporting

Cancer screening data are collected biannually in even-numbered years.

- **Baseline:** posted 2007; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2004 and 2006
 - National data: Not available
- **Update 1:** posted 2009; revised 2011 for minor corrections (**See NOTE below**)
 - State and local data: 2008
 - National data: 2008
- **Update 2:** posted 2011
 - State and local data: 2010
 - National data: 2010
- **Update 3:** posted 2014 (See [BRFSS caveats.](#))
 - State and local data: 2012
 - National data: 2012

NOTE: Stata coding for the original baseline and Update 1 included some records with age coded to missing or refused. For this indicator, the error did not substantively change the state rate or rates for most counties. Smaller counties might see small discrepancies between the original postings and the current data.

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for inclusion

Colorectal cancer is the second leading cause of cancer death in Washington. Screening allows for prevention, early detection, and improved survival for this disease.

Missing and suppressed data

- **Baseline:** None

- **Update 1:** None
- **Update 2:** None
- **Update 3:** None

Indicator: **Adults with Health Insurance**

Definition

Adults ages 18–64 who respond “yes” to the question. “Do you have any kind of health care coverage including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?”

Unit of measure

Weighted, age-adjusted percent (age groups used for age-adjustment: 18–24, 25–34, 35–44, 45–64)

Years of reporting

- **Baseline:** posted 2007
 - State and local data: 2004–2006
 - National data: 2004–2006
- **Update 1:** posted 2009
 - State and local data: 2007–2008
 - National data: 2007–2008
- **Update 2:** posted 2011
 - State and local data: 2009–2010
 - National data: 2010
- **Update 3:** Discontinued: available from the [County Health Rankings](#)

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System
- **National data:** CDC, Behavioral Risk Factor Surveillance System

Rationale for Inclusion

People with health insurance are more likely to receive preventive health care services and see a health care provider for early diagnosis and treatment of disease. Preventive care and early detection and treatment of disease helps people live longer, healthier lives. This indicator includes adults ages 18–64 because most people ages 65 and older have Medicare.

Missing and suppressed data

- **Baseline:** None
- **Update 1:** None
- **Update 2:** None

Indicator: **Children with Health Insurance**

Definition

Adults that answer “yes” to the following question about one randomly selected child in their household “Does this child currently have some health care plan?”

Unit of measure

Weighted percent

Years of reporting

- **Baseline (Update 1):** posted 2009
 - State and local data: 2008
- **Update 2:** posted 2011
 - State and local data: 2009–2010
- **Update 3:** Discontinued: available from the [County Health Rankings](#)

Sources

- **State and local data:** WA-DOH, Behavioral Risk Factor Surveillance System, modified to include child weights (see description of the Behavioral Risk Factor Surveillance System, Child Weights Section, for additional information.)
- **National data:** Not available

Rationale for inclusion

Children with health insurance are more likely to have access to primary care and a variety of preventive health care services.

Missing and suppressed data

- **Baseline (Update 1):** None
- **Update 2:** None

DATA ANALYSIS

Units of Measure

Crude percent

Crude percent reflects the number of events per 100 of the population. It is calculated by dividing the number of events by the total population who could experience the event and multiplying by 100. All events are equally weighted. Crude percent is a simple, useful measure for many local public health indicators such as low birth weight and maternal cigarette smoking. Crude percent is also used for the environmental indicators as the number of times an event met or exceeded a threshold per 100 times the event was measured. Healthy Youth Survey data are also reported as crude percents (the number providing a particular response divided by the number answering the question and multiplied by 100).

Weighted percent

A weighted percent is a percentage that is based on data that have been weighted by the inverse of the sampling probabilities and adjusted to be similar to the state population by age and sex. Weighting is done for survey data from the Behavioral Risk Factor Surveillance System so that sample data are representative of the total population of interest.

Age-Adjusted Percent or Rate

Age-adjustment is used to allow comparisons of the frequency with which an age-related health event occurs between populations that may vary in age. An age-adjusted percent or rate is based on data that have been weighted to a standard population. Except for the child health insurance indicator, data from the Behavioral Risk Factor Surveillance System are age-adjusted as well as weighted to facilitate local, state, and national comparisons. *Healthy People 2010* goals for health indicators generally use age-adjusted data.

Age-adjusted rates in this website are adjusted to the 2000 U.S. standard population, using age groups as shown in the following table. The specific grouping used depends on the age group targeted by the Indicator, such as mammography screening for women ages 50 and older.

Readers should be aware that an age-adjusted percent has no absolute meaning; it is an artificial number based on a reference population and is useful only for comparing with other percents calculated in the same manner.

Age groups used to age-adjust data for local health indicators					
Age Grouping					
Ages 18+	Ages 18-64	Ages 21-65	Ages 50-74 (75)	Ages 50+	Ages 65+
18-24	18-24	21-34	50-64	50-64	65-69
25-34	25-34	35-44	65-74 (75)	65+	70-74
35-44	35-44	45-65			75-79
45-64	45-64				80-84
65+					85+

Age-specific rate

An age-specific rate is a number of events in a specified age group and time period divided by the total number of people in that age group and time period. This figure is multiplied by a constant such as 1,000 or 100,000 to produce a number that is easy to read and compare and thus, the rate is reported as “per 1,000” or “per 100,000.” Age-specific rates are used with population-based datasets to measure age-dependent health indicators, such as the pregnancy rate for teens ages 15–17.

Years of Reporting

The Public Health Indicators website uses the most current data available at time of release for each indicator. To the extent possible, multiple years of data are combined to increase sample size and improve stability of the estimates. Multiple years of data are not always available because the website is updated every two years and some indicators, such as breast, cervical, and colorectal cancer screening, are not collected every year.

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 non-response to a survey, or poor data collection.

Confidence intervals are reported for all indicators. With sample data, such as BRFSS and HYS, confidence intervals are used to account for the difference between a sample from a population and the population itself. With total population data, such as births, confidence intervals help account for uncertainty that arises from random variation that

occurs when we divide a continuous phenomenon such as time into discreet periods for analysis.

The Local Public Health Indicators website reports 95% confidence intervals for all indicators. A 95% confidence interval captures the true value of the point estimate in 95 out of 100 cases. In the data tables included in the Data by Jurisdiction section of the website, 95% confidence intervals are reported as numbers, representing the lower and upper limits of the interval. In the bar charts found in the Data by Indicator section, confidence intervals are shown as horizontal lines with small vertical lines at the lower and upper limits of the interval. Narrow confidence intervals indicate greater certainty that the calculated rate is a reliable approximation of the true rate. Conversely, wide confidence intervals signal greater potential variability and less certainty that the calculated rate is a good estimate of the true rate.

The methods used to calculate confidence intervals for population data are consistent with the Guidelines for Using Confidence Intervals for Public Health Assessment (www.doh.wa.gov/Portals/1/Documents/5500/ConfIntGuide.pdf) For indicators that use survey data, confidence intervals are calculated in Stata 11.0 using tabulate commands for weighted survey data. For indicators that use data from total population data such as the Birth Certificate System, Sexually Transmitted Disease Registry, Child Profile Immunization Registry, and environmental health databases, binomial confidence intervals are computed using the Score method. For indicators that use hospital discharge data, confidence intervals are calculated through a modified method that adjusts for duplicated, non-independent events.

Statistical Significance

Except for the air pollution indicator, the Local Public Health Indicators website reports whether local health jurisdictions are statistically significantly better, worse, or similar to the state as a whole for each indicator. The website also compares indicators for a given jurisdiction across years and reports whether the two time periods are statistically significantly different. Both types of comparisons are determined by performing a Z test. A p-value less than .05 is considered statistically significant. If an indicator measure is 0% or 100% (example: 100% of inspected food establishments scored less than 36 critical violation points), the test for difference is modified to account for the absence of a standard error. In these instances, the p-value equals the state average to the power of the sample size for the health jurisdiction. For the poverty indicator, see [Small Area Income and Poverty Estimates Caveats for detail](#).

Two health jurisdictions can have the same rate for an indicator, with one jurisdiction marked as statistically different from the state (“better” or “worse”) and the other as statistically “similar” to the state. Rates based on small numbers have wide confidence intervals; rates based on large numbers have more narrow confidence intervals. If the confidence intervals for health jurisdiction and state rates overlap, this might mean that the two rates are statistically similar; if the confidence intervals do not overlap, they are always statistically different. Local estimates are not independent from the state average, because the state average contains data from each local health jurisdiction. But this lack of independence does not make a big enough difference to substantively change results, except possibly for Public Health - Seattle & King County.

Suppressed Data

Local and state indicator data are suppressed if:

- The amount of missing data exceeds 30% or 25% for Air Quality. (**See [Missing Data](#)**)
- The relative standard error (RSE) is greater than 30%. The RSE is a measure of an estimate's reliability. The RSE of an estimate is obtained by dividing the standard error of the estimate (SE(r)) by the estimate itself (r). This quantity is expressed as a percent of the estimate and is calculated as follows: $RSE = 100 \times (SE(r)/r)$. The National Center for Health Statistics considers a rate unreliable if it has an RSE of greater than 30%.
- There are fewer than five records per year. (For On-site Sewage, a record is the number of failures.) (**See [Small Numbers](#)**)
- For indicators using the Healthy Youth Survey, the response rate was less than 40%.

Missing Data

Missing data result either when records do not include all of the information required (missing values) or when records that should be included in a dataset are not (missing records). For population-based data, missing records are cases of disease, hospitalizations, births or deaths that are not included in the dataset. For survey data, missing records are those of people who do not respond to the survey, commonly referred to as non-response rate when presented as a percent of the total sampling frame. Rates estimated from datasets with a large amount 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 bias is most likely to occur when the amount of missing data is relatively large.

This website reports the percent of missing values for local and state indicators. Estimates are flagged if 10% or more of the records needed for a specific indicator have missing values: a single dagger (†) identifies 10–19% and a double dagger (††) identifies 20–30% of records with missing values. Data are suppressed if more than 30% of records are missing values. Most Local Public Health Indicators have low levels of missing values.

Small Numbers

Presenting and interpreting statistics when there are a small number of events or few survey respondents present several challenges. Statistics developed when there are few events or the population in which the events occurred is relatively small presents a risk of breaching confidentiality. Interpreting data based on few survey respondents or a small number of events irrespective of the size of the population can be difficult, because random fluctuation can be relatively large when the number of events is small. As the amount of potential random fluctuation increases, the predictive value of a statistic generally decreases. For example, with 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 assessment.

DATA SOURCES

State and Local Data

Except for Poverty, indicators state and health jurisdiction data for the Local Public Health Indicators come from databases maintained by the Washington State Department of Health (WA-DOH). Staff from the WA-DOH's Non-Infectious Conditions Epidemiology Office calculated the indicators. Other WA-DOH units assisted with quality assurance processes and Stata programming. Several indicators were produced using the Community Health Assessment Tool (CHAT). A description of each database as it relates to the Local Public Health Indicators and links for additional information follows. Accurate interpretation of data depends on understanding the strengths and limitations of the data systems.

Abortion Registry

Purpose

The Abortion Reporting System collects information on induced abortions that can be used to help address issues related to family planning, maternal and child health, and access to care.

Coverage

In-state health care providers and facilities that perform induced abortions are required to report these to the WA-DOH per WAC 246-490-100. Additionally, reports from other states and Canada are regularly exchanged. Except for Oregon, the numbers from other localities are small. In 2008, the number of reported abortions was about 0.1% lower than the number of abortions reported in an independent study conducted by the Guttmacher Institute (Jones RK, Kooistra K. Abortion Incidence and Access to Services in the United States, 2008. *Perspectives on Sexual and Reproductive Health*, 2011, 43(1): 41–50).

Reporting system

For each induced abortion performed on Washington State residents, the attending physician, hospital, or medical facility must complete a reporting form with specified non-identified information about the patient, the procedure performed, and the medical complications and submit the form to the Washington State Department of Health. Forms are submitted electronically and as paper forms.

Data quality procedures

To improve data quality, abortion providers are queried if the information obtained on their reporting forms is incomplete, inconsistent, or falls outside expected ranges. Tables are sent back to each provider annually for a review of the completeness and accuracy of information reported for their facility.

Caveats

The age and county of residence fields are more than 90% complete and so inconsistencies in reporting are not expected to substantively affect the LHPI teen pregnancy indicator that uses data from the Abortion Registry.

More information

www.doh.wa.gov/DataandStatisticalReports/VitalStatisticsData/AbortionPregnancyData.aspx

Behavioral Risk Factor Surveillance System (BRFSS)

Purpose

BRFSS provides information on health risk behaviors, preventive practices, health care use and access, and prevalence of selected diseases.

Coverage

For years of data included in the Local Public Health Indicators, Washington BRFSS included a random sample of English- and Spanish-speaking residents ages 18 and older living in households with landline telephones. In 2010, there were 19,628 respondents. The average statewide CASRO (Council of American Survey Research Organizations) response rate for 2004-2010 was 47%.

Reporting system

BRFSS is a random-digit-dialed telephone survey. The Washington State Department of Health (Department) contracts with a survey research firm to contact potential participants and administer the survey following protocols established by the Centers for Disease Control and Prevention (CDC). The questionnaire includes core questions used by all states and questions on topics of specific interest to Washington. Annual data are generally available six to eight months after the close of the calendar year. Some data for the Local Public Health Indicators are collected annually; others are collected every other year.

Data quality procedures

The survey research contractor uses several procedures to improve response rates, such as advance letters to households. Interviewers use computer-assisted interview software to minimize errors. CDC or the survey research contractor tests all questions to assure that respondents can understand them and answer. Interviewers receive professional training, and supervisors and project directors regularly monitor calls to maintain quality standards.

Caveats

- We do not know whether people who respond to BRFSS are different from those who do not respond on factors measured by the survey. CDC has concluded that "BRFSS data show minimum bias that does not appear to be associated with response rate." (Mokdad A. "The Future of The Behavioral Risk Factor Surveillance System [BRFSS] in a Changing Environment." Paper presented at the annual meeting of the American Association for Public Opinion Research, Sheraton Music City, Nashville, TN, Aug 16, 2003, available at www.allacademic.com/meta/p116188_index.html)

- The Washington BRFSS does not represent people who do not speak English or Spanish, or people who live in institutions or other group settings, such as dormitories, group homes, hospitals, in-patient drug treatment facilities, jails, or prisons.
- BRFSS data are self-reported. The BRFSS might underestimate behaviors that others might not find acceptable (such as smoking) and overestimate more positive behaviors (such as physical activity). As long as over- and underreporting are consistent across time and county, misreporting would not affect comparisons over time or among counties.
- Beginning in 2011, BRFSS included landline and cell phone respondents. Prior to 2011, all respondents participated by landline and thus, all lived in homes with landlines. Beginning in 2011, BRFSS also changed from post-stratification weighting to raked (proportional iterative fitting) weighting. These changes result in data that are not comparable before and after 2011. Thus, LPHI BRFSS data for cycle 4 (update 3) are not comparable to BRFSS data from earlier cycles.
- BRFSS data from cycles 1–3 might be biased due to excluding adults without landlines. By July 2009–June 2010 more than a quarter of Washington adults lived in households with wireless telephones only. (National Health Statistics Report, No. 39, April 20, 2011) It is unclear how excluding these participants might bias findings overall and for specific counties.

More information

www.doh.wa.gov/DataandStatisticalReports/HealthBehaviors/BehavioralRiskFactorSurveillanceSystemBRFSS.aspx

Birth Certificate System

Purpose

The Birth Certificate System is used to establish legal rights associated with birth, paternity, and adoption and to provide public health information about births and newborns.

Coverage

The system includes all live births to Washington State residents, including those of residents who give birth in other states. The Washington State Department of Health estimates more 99% of births are registered in the system.

Reporting system

For more than 99% of births, hospitals and birth attendants enter required information from medical records and worksheets completed by parents into an automated information system that transmits information to the Washington State Department of Health; less than 1% of records are transmitted using a paper-based system. Classification and coding of data on Washington birth records follow the National Center for Health Statistics guidelines.

Data quality procedures

WA-DOH provides hospital staff and birth attendants with instruction manuals and training in the completion of the birth certificate and in the use of the electronic system. Efforts to improve completeness of reporting include a website where hospitals can see their reports and what is not filled-in. Data quality procedures include range of value

checks, internal consistency edits, mandatory data entry fields, and checks for consistency in trends over time.

Caveats

- High unknowns in some fields (such as the month prenatal care began) may make patterns and trends difficult to interpret.
- Differences between counties might reflect incomplete extraction of information from medical records by some hospitals.
- Smoking during pregnancy on the birth certificate is underestimated compared to smoking during pregnancy reported on the Pregnancy Risk Assessment Monitoring System. (See [Maternal Smoking](#).)

More information

www.doh.wa.gov/DataandStatisticalReports/VitalStatisticsData/BirthData.aspx

Death Certificate System

Purpose

The death certificate establishes legal benefits and can be used to monitor causes of death and changes in causes over time.

Coverage

The Washington Death Certificate System includes approximately 99% of deaths for Washington residents including residents who die elsewhere.

Reporting system

Death certificates are currently submitted both electronically and in paper format. Less than 30% of all death certificates are electronic. Funeral directors gather demographic information including age and legal residence of the decedent; the attending physician or the coroner/medical examiner reports the immediate and contributing causes of death. The paper certificate is filed with the local health jurisdiction, which retains it for about 60 days for local issuance purposes, then files it with WA-DOH. Electronic death records are submitted to DOH by the county registrar and uploaded to the WA-DOH death certificate system on a daily basis. WA-DOH follows the guidelines of the National Center for Health Statistics to code data collected on the death certificate.

Data quality procedures

WA-DOH provides instruction manuals to physicians, coroners, and medical examiners, as well as local health jurisdictions and others involved in completing and managing death certificates. The LPHI use only the numbers of deaths, legal residence and age at death from the Death Certificate System. County of residence data are verified by using geocoding software that identifies county based on street address. Age at death is verified with internal computer-assisted consistency checks using date of birth and date of death.

Caveats

None relevant to LPHI

More information

www.doh.wa.gov/DataandStatisticalReports/VitalStatisticsData/DeathData.aspx

Fetal Death Certificate System

Purpose

The Fetal Death Certificate System provides a death record for proper disposition of human remains. It also provides information such as pregnancy history, prenatal care, and causes of death.

Coverage

Fetal deaths are required to be reported to the state only for gestational ages of 20 weeks or more (RCW 70.58.160). Thus, early fetal deaths (commonly called 'miscarriages') are not included in the total. A fetal death certificate must be completed and filed before a Burial Transit permit is used and before final disposition for every fetus 20 or more weeks gestation, therefore WA-DOH estimates at least 90% completeness except for events that occur near 20 weeks. (See Caveats.)

Reporting system

For fetal deaths that occur in Washington State, a Certificate of Fetal Death is completed by the hospital or birth attendant and initially filed with the local health jurisdiction. The certificates are then sent to the Department of Health within 60 days of the fetal death.

Data quality procedures

WA-DOH queries hospitals and birth attendants if the information on their reporting forms are incomplete or inconsistent. WA-DOH also conducts computer assisted data edits to check for consistency and validity and certifiers are queried if the information is incomplete or inconsistent.

Caveats

- Fetal deaths are required to be reported to the state only for gestational ages of 20 weeks or more. Thus, early fetal deaths (commonly called 'miscarriages') which are much more common than late fetal deaths are not included in the total. Thus, pregnancy rates are likely higher than reported.
- Reporters may differ in classifying an event as a fetal death for events happening near 20 weeks of gestation. However, since the number of fetal deaths to mothers ages 15-17 is low (generally less than 10 each year) compared to the numbers of abortions and births, these inconsistencies likely do not substantively affect teen pregnancy rates reported in LPHI.

More information

www.doh.wa.gov/DataandStatisticalReports/VitalStatisticsData/FetalDeathData.aspx

Food Safety and On-site Sewage (Septic)

Purpose

Data on food safety inspections and on-site sewage assist health jurisdictions to identify the need for action to reduce health risks associated with unsafe food handling practices and on-site sewage system failures.

Coverage

All permanent food service establishments operating under permit from health departments as required by Washington administrative codes and local regulations; all on-site sewage systems regulated by local health jurisdictions in Washington (systems with design flows less than 3,500 gallons per day). The completeness of reporting, however, varies by jurisdiction.

Reporting System

All 35 local health jurisdictions maintain environmental health data systems and submit the food and on-site sewage data to DOH as part of the annual PHIP Public Health Activities and Services (PHAS) inventory. DOH uploads all data submitted by the LHJs directly into the Activities and Services data system. Environmental Health Directors review their data before they enter it into the Activities and Services survey and are sent a link to check their data before the PHAS website is published. Summary reports are also reviewed annually at the Environmental Health Directors meetings.

Data quality procedures

In addition to the reviews by LHJs and Environmental Health Directors discussed under "Reporting System," Trainings, field evaluations and standardized protocols are used to improve accuracy of conducting inspections and reporting.

Caveats

- Food inspection results may vary between jurisdictions due to training (e.g. FDA course completion), resources, time allocated per inspection, program evaluation, and the inspector's experience and training.
- Length of time for initiating septic system repairs may vary between jurisdictions due to special projects such as shoreline surveys to find and correct failures, the number of housing presale inspections, climate (some repairs are seasonal but the correction can be initiated), resources, workloads, and training.

Healthy Youth Survey (HYS)

Purpose

HYS provides information on health-related risk and protective factors and health status among youth.

Coverage

HYS includes public school students in grades 6, 8, 10, and 12. Local Public Health Indicators based on Healthy Youth Survey use data for grade 10. For some indicators, reporting by 10th grade students is more reliable than reporting by 8th grade students. Students in grade 10 represent the high school population better than those in grade 12, because fewer have dropped out of high school. The statewide response rates for grade 10 were 67%, 60% and 63% in 2010, 2008 and 2006, respectively. Response rates by county vary. Data for counties with response rates below 40% are not presented.

Reporting system

Statewide data are from random samples of public schools serving grades 6, 8, and 10 or 12. Within schools, all students in grades 6, 8, 10, and 12 are asked to participate. For county-level data, samples are drawn in large counties (in 2010 these included Clark, King, Pierce, Snohomish Spokane, and Thurston), and the remaining counties strive for participation by all school and students. The survey has been administered in October of even-numbered years since 2002. Data are generally available in February of the following year.

Data quality procedures

Most of the questions on the HYS are from other surveys and have been field-tested, and some have also been assessed for reliability and validity. WA-DOH organizes focus groups for construct validity for questions that are not from other well-documented surveys. The survey contractor provides materials and training to survey administrators to increase consistency and to assure confidentiality. The survey contractor uses algorithms to identify and omit surveys of low quality (e.g., those with multiple internal inconsistencies).

Caveats

Self-reported information is not verified through other means, although some questions have been validated through special studies done elsewhere.

More information

www.askhys.net

Hospital Discharge Data System

Indicators using Washington's hospital discharge data system combine data on Washington residents hospitalized in Washington (Comprehensive Hospital Abstract Reporting System—CHARS) or Oregon (Healthcare Cost and Utilization Project [HCUP] State Inpatient Databases [Oregon]—OR-SID).

Purpose

CHARS and OR-SID were developed to monitor hospitalization costs and utilization. These datasets can be used to examine trends in causes of hospitalization, create hospital-specific case-mix indices, characterize access to and quality of health care, and monitor morbidity from selected health conditions.

Coverage

- CHARS includes inpatient and observation (beginning in 2008) stays for patients treated in all state-licensed acute care hospitals in Washington regardless of patient residence. It does not include federal hospitals (e.g, Veterans Administration and military hospitals) or private alcoholism hospitals, and no-fee hospitals. CHARS does not include Washington State psychiatric hospitals, but does include community psychiatric hospitals and psychiatric hospitalizations in acute care hospitals.
- OR-SID includes inpatient and observation (beginning in 2008) stays for patients treated in community hospitals defined as "nonfederal, short-term, general and other specialty hospitals, excluding hospital units of institutions..." and including "academic medical centers and specialty hospitals.... Non-community hospitals include federal hospitals ..., long-term hospitals, psychiatric hospitals,

alcohol/chemical dependency treatment facilities and hospitals units within institutions such as prisons." (www.hcup-us.ahrq.gov/sidoverview.jsp) accessed February 2012) For 2004–2009 OR-SID included all but one identified community hospital; for 2003, OR-SID was missing two community hospitals. It is not known how these might affect hospitalization records for Washington residents. Both datasets contain 98%–100% of hospitalization records from reporting hospitals. External cause of injury codes needed for the LPHI are approximately 95% complete in CHARS (2.5% of these are imputed) and 95% complete in OR-SID (3.5% of these are imputed). LHPI indicators use information from inpatient stays only.

Reporting System

- For CHARS, hospitals summarize information from the uniform billing form, code diagnoses and procedures, and submit the information to the state by electronic file transfer.
- WA-DOH obtains OR-SID directly from the Healthcare Cost and Utilization Project (HCUP) sponsored by the Agency for Healthcare Research and Quality. Information on the HCUP is available at www.hcup-us.ahrq.gov/overview.jsp; information on SID is available at www.hcup-us.ahrq.gov/db/state/sidbdbdocumentation.jsp.

Both datasets code reasons for hospitalization to ICD-9-CM codes. The reason in the first diagnosis field is considered to be the principal reason the patient was admitted to the hospital. Both datasets also contain external cause of injury ICD-9-CM codes that are used for both LHPI indicators.

Data quality procedures

The Washington State Department of Health edits CHARS data for accuracy and completeness through computerized system program checks. Information on OR-SID quality control procedures is available at www.hcup-us.ahrq.gov/db/quality.pdf.

Caveats

- The unit of observation is the hospitalization episode, not the individual.
- Changes in hospitalization practices or coding conventions might affect trends over time.
- Residence is based on five-digit ZIP codes. For LPHI, ZIP codes have been assigned to counties based on U.S. Postal Service conventions that assign ZIP codes to counties based on the physical location of the post office. When ZIP codes cross county borders, some hospitalizations are assigned to the wrong county.

More information

www.doh.wa.gov/DataandStatisticalReports/HealthcareinWashington/HospitalandPatientData/HospitalDischargeDataCHARS.aspx

www.hcup-us.ahrq.gov/db/state/sidbdbdocumentation.jsp

Population Estimates

Purpose

The U.S. Constitution mandates a count of people living in the United States (the U.S. Decennial Census) every 10 years to determine how many seats each state will have in the U.S. House of Representatives. The U.S. Decennial Census is also used for political

redistricting, distribution of federal and state funds, and other governmental needs. The Office of Financial Management develops intercensal and postcensal estimates to provide population counts for non-census years. State and local governments, non-governmental organizations and individuals use population counts for diverse purposes.

Coverage

The U.S. Decennial Census attempts to count everyone living in the United States on April 1 of the census year. In March 2001, the U.S. Census Monitoring Board reported that approximately 98.5% of people living in Washington in April 2000 had been counted in the 2000 census. This improved to an undercount of 0.1% in 2010. (U.S. Census Bureau. 2010 Census Coverage Measurement Results News Conference. (undated) Available at http://www.census.gov/newsroom/pdf/20120512_ccm_newsconf_slides.pdf (Accessed April 2, 2014.)

Reporting system

For information on the U.S. Census, see <http://2010.census.gov/2010census>. Population counts used in developing rates for this version of the LPHIs used Office of Financial Management's counts for single years for 2001–2011 released February 2013. For 2010, counts are the same as those from the U.S. Census. OFM develops intercensal counts using information from the decennial censuses, annual data on the number of births and deaths in Washington, and a variety of other data, such as housing starts, to estimate migration into and out of Washington.

Data quality procedures

Contact Office of Financial Management (www.ofm.wa.gov/pop/contact.asp) for information on estimation procedures.

Caveats

In general, the larger the population, the greater the accuracy of an estimate. Thus, counts might be more accurate for larger counties and age groups compared to smaller counties and age groups. However, given that counts used in the current version of the LPHIs use intercensal estimates interpolated between two known endpoints, inaccuracies are unlikely to substantively affect the LPHIs. Data from previous versions was updated to reflect changes to population counts as a result of the 2010 U.S. Census.

More information

www.ofm.wa.gov/pop/default.asp

Public Health Issues Management System – Sexually Transmitted Diseases (PHIMS-STD)

Purpose

PHIMS-STD supports surveillance activities for legally reportable cases of sexually transmitted diseases and enables public health agencies to act quickly to treat and prevent the spread of disease.

Coverage

PHIMS-STD includes incident cases of laboratory confirmed Chlamydia infection, gonorrhea, and syphilis reported by diagnosis date. Genital herpes may be reported without laboratory confirmation. Cases are not unique persons diagnosed with disease (e.g., a person may have more than one infection within a given year). Completeness of reporting is high for persons seeking and receiving care for STDs, reproductive health services or other care in both public and private care settings.

Reporting system

Public and private health care providers complete confidential case reports, which are submitted to local health jurisdictions. Laboratories providing diagnostic or screening services are also required to report positive test results to the local health jurisdiction where the person lives. Local health jurisdiction staff members enter the case information into the statewide PHIMS-STD web-based electronic system.

Data quality procedures

Training for users new to PHIMS-STD is available through the Learning management System (LMS). Monthly data quality checks are performed for crucial data elements with lists of cases needing review distributed to state field staff. Case reports are also geocoded, providing assurance that cases are attributed to the correct jurisdiction for official reporting purposes

Caveats

- Clinically diagnosed cases of STD may be underreported through public health surveillance systems.
- Laboratory confirmed cases underestimate the burden of disease because not all cases of Chlamydia are diagnosed and not all diagnosed cases are laboratory confirmed.
- Depending upon diagnosing practices, completeness of reporting may vary by source of health care, particularly private versus publicly funded sources of care.

More information

www.doh.wa.gov/PublicHealthandHealthcareProviders/PublicHealthSystemResourcesandServices/PublicHealthIssueManagementSystemPHIMS.aspx

Small Area Income and Poverty Estimates (SAIPE)

Purpose

The U.S. Census Bureau's Small Area Income and Poverty Estimates (SAIPE) provide estimates of income and poverty for the administration of federal programs and allocation of federal funds to local jurisdictions. State and local programs use the income and poverty estimates for distributing funds and managing programs.

Coverage

SAIPE provides estimates for all counties.

Reporting system

The SAIPE program's combines survey data (such as the American Community Survey, ACS) with population estimates (such as the U.S. Census) and administrative records (such as tax returns and Supplemental Nutrition Assistance Program recipients) to

model single year estimates of poverty and income. For areas with populations less than 65,000, estimates are based on 3-year or 5-year accumulations of ACS data.

Data quality procedures

The estimates for the counties of a given state are controlled to sum to the independently derived state estimate (which in turn has been controlled to sum to the ACS national estimate).

Caveats

- **Comparing across jurisdictions.** SAIPE technical documentation cautions about comparing between jurisdictions, stating, “All SAIPE model-based estimates are correlated because they depend on the same regression coefficients. Also estimates for individual states are controlled to add up to the national ACS estimate, and counties within each state are controlled to add up to the state-level estimate. These controls create additional correlation. Therefore, to make comparisons between two or more states or counties, it is not sufficient to take the variances (implied by the confidence intervals) for the two different places and apply the usual estimates-difference hypothesis testing.” Because the amount of correlation between local health jurisdictions and between a given local health jurisdiction and the state varies, standard errors needed for estimate-differences hypothesis testing vary depending on the specific difference examined. To compare a given local health jurisdiction to the state and the other 34 local health jurisdictions would require 35 separate formulas. The chart comparing each local health jurisdiction to the state does not adjust variances for the correlation, resulting in potential failure to find statistically significant differences between a county and the state. This same caution applies when using confidence intervals to compare two local health jurisdictions: the variance implied by the confidence intervals on the chart is larger (i.e. wider confidence intervals) than would be the case if accounting for the correlation.
- **Comparing across two time periods:** SAIPE estimates are correlated across years and cautions similar to those described for comparing between jurisdictions apply.

More information

www.census.gov/did/www/saipe/about/faq.html

www.census.gov/did/www/saipe/methods/cautions.html

Washington State Immunization Information System

The Washington State Immunization Information System is a statewide, lifetime immunization registry that keeps track of immunization records for people of all ages. All residents of Washington State may have records in the system. The following notes focus on children, because children are the focus of the Public Health Indicator that uses this data source.

Purpose

The Washington State Immunization Information System helps health care providers assure that children in their practices received age-appropriate vaccinations, helps parents keep track of their children’s immunizations, and helps public health

practitioners identify the need for programs to prevent diseases for which vaccinations are available.

Coverage

About 94% of Washington State children under six years old have a record in the Immunization Information System with two or more vaccinations. This proportion has remained steady for the past four years. Vaccination information, however, is not complete. (***See Caveats below for more detail***)

Reporting system

Information on children and vaccines they have received comes from a variety of sources including the Washington State Department of Health Center for Health Statistics, Medicaid, private health care providers, public health clinics, community health centers, tribal clinics, and health plans. Data are submitted through a variety of mechanisms including manual, web-based data entry, submission of electronic files from billing systems, and HL7 real-time data exchange with electronic health records. As of August 2011, 100% (228/228) of public facilities and 93% (1,011/1,089) of private facilities participated in the Immunization Information System.

Data quality procedures

The Immunization Information System uses several procedures to improve the quality of data, including:

- An automated algorithm to de-duplicate demographic records, combined with a manual procedure to resolve duplicates that cannot be resolved by the algorithm.
- A user-initiated process to report duplicate records which staff then manually resolve, merging records when needed.
- A process to identify children who have died, using the state's Early Notification of Childhood Death bulletin board and death records from the Department, and flagging these records as "inactive-deceased".
- A mailing system to identify children under age six who have moved out-of-state.

Caveats

- Vaccination data in the Immunization Information System are not complete and underestimate the percent of children who have received the complete vaccination series.
 - Immunization Information System data are currently useful for tracking participation in the system but not for assessing the percentage of children who have received all necessary vaccines, statewide or at the local level.
 - The 2010 National Immunization Survey (NIS) indicates that 71% ($\pm 6\%$) of Washington children ages 19–35 completed the [vaccine series used in this indicator](#) (4-DTP, 3-Polio, 1-MMR, 3-Hib, 3-HepB, 1-Varicella, 4PCV) compared to 50% ($\pm <1\%$) in 2010 based on the Immunization Information System. The gap reflects a gap in data submission by providers as well as children missing one or more vaccinations.
 - Compared to the 2008 NIS data, local/regional vaccine coverage rates reported by the Immunization Information System were significantly lower ($p < .01$) than NIS estimates for 26 of 35 health jurisdictions.
- The number of demographic records for children in the Immunization Information System is larger than population estimates published by the Office of Financial Management (OFM). Factors that account for this include:

- o The system including children who have moved out of state.
- o Duplicate records not being identified.
- o OFM population counts undercounting migrant families.

Due to these differences, this indicator uses patients registered in the system for the denominator.

More information

www.doh.wa.gov/ForPublicHealthandHealthcareProviders/HealthcareProfessionalsandFacilities/DataReportingandRetrieval/ImmunizationInformationSystem.aspx

Washington Tracking Network (WTN) – Air Monitoring Data

Purpose

WTN integrates hazard, exposure, and health outcome information for use by public health advocates, professionals, and researchers.

Coverage

In 2009 71% percent of LHJs, had at least one active monitor that functioned for at least 75% of days in all four quarters of the year; for 2011, 81% met these criteria. <https://fortress.wa.gov/doh/wtn/WTNPortal/>; click “no” when prompted.

Reporting System

The Washington State Department of Ecology (Ecology) and its partners monitor PM_{2.5} pollution levels around Washington State using the Federal Reference Method (FRM) www.ecy.wa.gov/biblio/99205.html and continuous monitors www.ecy.wa.gov/biblio/0002007.html and www.ecy.wa.gov/biblio/0102001.html. Ecology provides these data to WTN.

Data quality procedures

Ecology is the EPA’s designated Primary Quality Assurance Organization for Washington State. Ecology conducts a comprehensive quality assurance process for all FRM and continuous monitor data. See www.ecy.wa.gov/biblio/99201.html and PDFs referenced in previous section for details.

Caveats

- For counties with more than one monitor, the calculation used the monitor with the highest average daily value.
- Not everyone living in the county may be exposed to unhealthy levels of PM on days that a local health jurisdiction does not meet Ecology’s healthy air goal for PM_{2.5}. Factors such as weather, geography, population distribution, and the placement of monitors determine how completely the monitors in a given jurisdiction reflect the air quality breathed by residents.

More information

<http://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/WashingtonTrackingNetworkWTN/AirQuality.aspx>

NATIONAL DATA SOURCES

Behavioral Risk Factor Surveillance System

National BRFSS data reported in this website were calculated from raw BRFSS data, obtained from the CDC website

http://www.cdc.gov/brfss/annual_data/annual_2012.html. Additional information is available at: www.cdc.gov/brfss

Births

National birth data reported in this website come from National Vital Statistics Reports available at: www.cdc.gov/nchs/births.htm

Deaths

CDC Wonder, Underlying causes of death 1999–2008, <http://wonder.cdc.gov/ucd-icd10.html>

Sexually Transmitted Diseases

CDC Wonder, Sexually transmitted disease morbidity data 1996–2009, <http://wonder.cdc.gov/std-v2009-race-age.html>

Small Area Income and Poverty Estimates (SAIPE)

Information on and data from the U.S. Census Bureau on Small Area Income and Poverty Estimates can be found at www.census.gov/did/www/saipe/index.html.

U.S. Life Expectancy

CDC National Center for Health Statistics National Vital Statistics Reports. Data for 2007 can be found at www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_19.pdf.

Youth Risk Behavior Surveillance System (YRBS)

National YRBS data reported in this website were drawn from YRBS reports, obtained from the CDC. The YRBS surveys grades 9-12. We used responses by 10th graders to facilitate comparisons with 10th grade data available from Washington's Healthy Youth Survey. Additional information is available at:

www.cdc.gov/HealthyYouth/yrbs/index.htm