

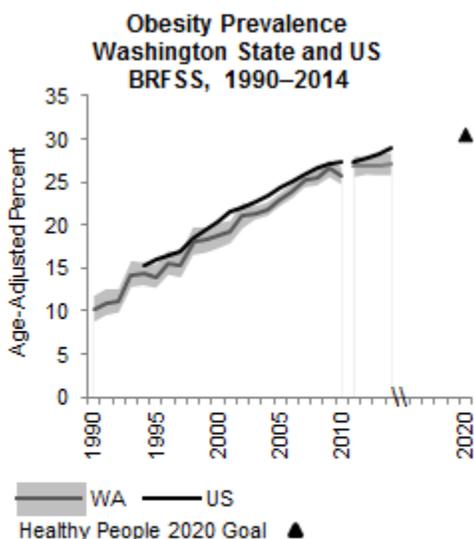
# Obesity and Overweight

**Definition:** The U.S. Centers for Disease Control and Prevention (CDC) defines overweight and obesity weights that are greater than those generally healthy for a given height. These weights often increase the likelihood of health problems. CDC defines overweight for adults as body mass index (BMI) of 25–29.9 and obesity as a BMI of 30 or higher. BMI is calculated by dividing weight in kilograms by height in meters squared. A child's weight status is determined using age- and sex-specific BMI percentiles. Children with BMIs in the 85–94th percentiles on BMI-for-age growth charts are considered overweight; children with BMIs at the 95th percentile or higher are obese. BMI does not distinguish between fat and lean body mass. This chapter focuses on adult obesity because obesity is more consistently linked to poor health than is overweight. For children, the chapter presents information on overweight and obesity, because overweight children are more likely than normal weight children to be obese as adults.

This is a data update of the *Health of Washington State* chapter on [Obesity and Overweight](#) published in 2013.

## Time Trends

**Adult obesity.** On the 2014 Washington Behavioral Risk Factor Surveillance System (BRFSS) survey, 27% ( $\pm 1\%$ ) of Washington adults reported heights and weights indicating obesity. This is the same as the [age-adjusted](#) percent shown below. Washington has already met the *Healthy People 2020* goal, and will likely continue to meet it.



**NOTE:** Washington and US data are based on self-reported heights and weights that underestimate obesity; Healthy People goals use measured heights and weights.

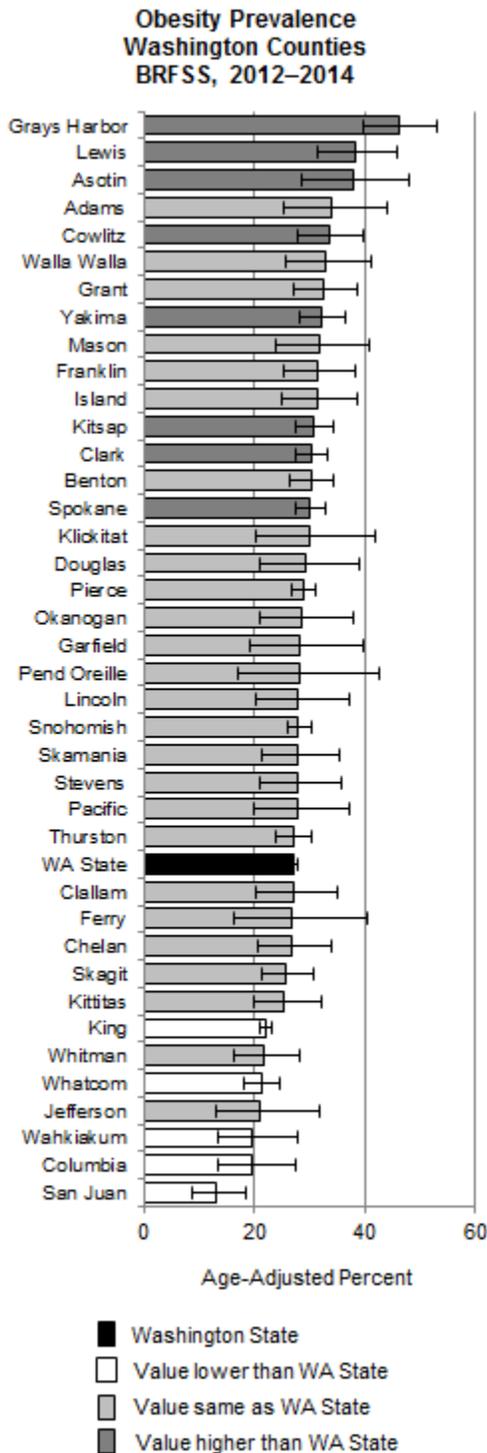
Data for 2011–2014 are not comparable to earlier years due to changes in methods for collecting and analyzing BRFSS data. (See BRFSS Caveats in [Appendix B](#)).

**Childhood overweight and obesity.** Based on self-reported heights and weights, the 2014 [Healthy Youth Survey](#) showed 11% ( $\pm 2\%$ ) of 10th graders as obese and 14% ( $\pm 2\%$ ) as overweight. In Washington, rates of overweight and obesity among 10<sup>th</sup> graders have not changed since 2002, the earliest year with consistent reporting.

Availability of data on younger children in Washington is limited. Based on measured heights and weights in 2014, about 24% of children ages two through four in low-income families served by the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) were overweight or obese. This includes about 10% who were obese and 14% who were overweight (See [Technical Notes](#)). Rates of overweight and obesity decreased in 2010–2014 after remaining steady for 2004–2010. The decrease in overweight and obesity beginning in 2010 might partly reflect changes in WIC implemented in 2009.<sup>1,2</sup> Changes were designed to increase rates of breastfeeding and improve the nutritional content of foods available through WIC.

Adult obesity rates are not consistent throughout Washington. Based on Washington BRFSS data for 2012–2014, estimates for age-adjusted rates ranged from 13% ( $\pm 5\%$ ) in San Juan County to 46% ( $\pm 7\%$ ) in Grays Harbor.

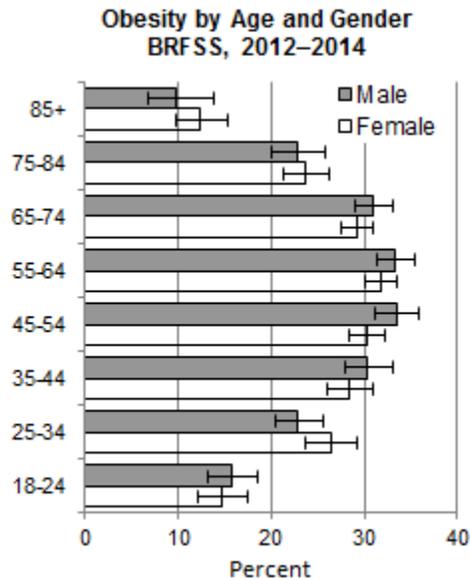
## Geographic Variation



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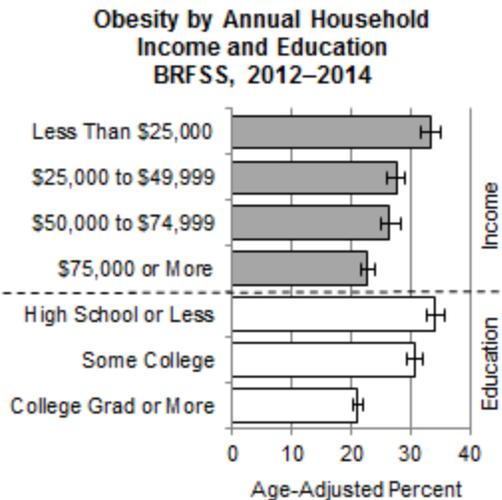
## Age and Gender

Consistent with national BRFSS data, Washington BRFSS data for 2012–2014 show that obesity rates in adults increase with age until 45, hold steady through 74 and then decline. Overall, there was no difference between obesity rates in men and women (both equal to 27%  $\pm 1\%$ ).



## Economic Factors and Education

BRFSS data for 2012–2014 combined show that obesity rates are lowest in higher income families. During the same time period, college graduates had lower obesity rates than those with less education.

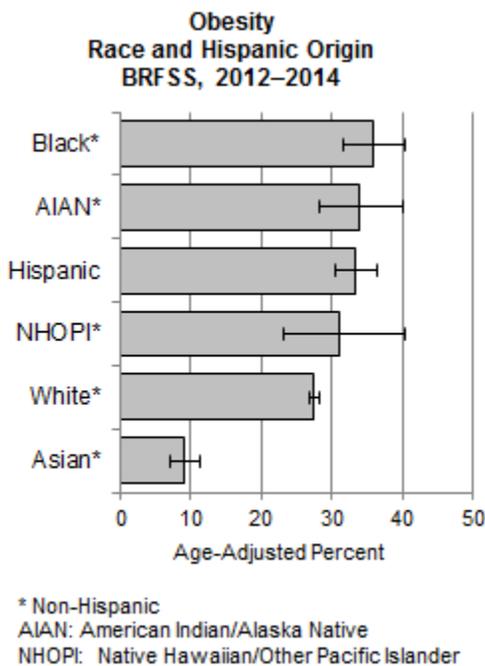


Among WIC children ages two through four, those in families with annual household incomes at or below the federal poverty limit have higher levels of obesity

and overweight than low-income families with higher incomes (25%  $\pm$ 1% and 22%  $\pm$ 1%, respectively).

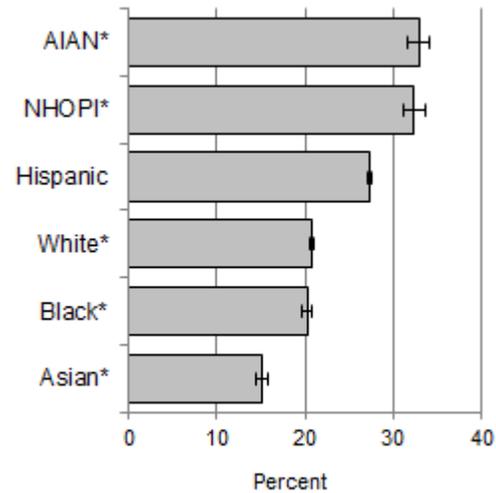
### Race and Hispanic Origin

BRFSS data for 2012–2014 combined showed Asians having the lowest rate of obesity followed by non-Hispanic whites. Residents with Hispanic origin, American Indian and Alaska Native (AIAN), and black Washington residents reported weights and heights that resulted in higher levels of obesity than those for Asian and white residents. The rate for Native Hawaiians and other Pacific Islanders is hard to interpret due to the wide margin of error. Compared with whites, black residents had higher obesity rates and Asian residents had lower obesity rates after accounting for gender, income, education and age. National BRFSS data show similar patterns of obesity by race and Hispanic origin.



As with adult obesity, in 2012–2014 Washington’s children of Asian heritage attending WIC clinics had the lowest rates of overweight and obesity. Unlike adults, black and white children had similar rates. Hispanic children had intermediate rates; NHOPI and AIAN children had the highest rates.

**Obesity and Overweight Race and Hispanic Origin WIC children ages 2–4, 2012–2014**



\* Non-Hispanic, single race only  
AIAN: American Indian/Alaska Native  
NHOPI: Native Hawaiian/Other Pacific Islander

### Other Measures of Impact and Burden

**Morbid obesity.** Morbid obesity, defined as a BMI of 40 or higher, has major health and economic impacts. Studies have shown that the risks of death and illness are greatly elevated among morbidly obese people, regardless of gender or race.<sup>3,4</sup> Washington BRFSS data for 2012–2014 combined showed about 4% ( $\pm$ 1%) of adults reporting heights and weights indicating morbid obesity. Morbid obesity varied by race, Hispanic origin, income and education in a similar manner as obesity, though results were unreliable for some sub-categories due to small numerators. Women (5%  $\pm$ 1%) had higher rates of morbid obesity than men (3%  $\pm$ 1%).

**Pre-pregnancy obesity and excessive weight gain during pregnancy.** The rate of pre-pregnancy obesity has been increasing. Data from birth certificates show that from 2012–2014, 25% of Washington women who gave birth were obese prior to pregnancy, including 5% of women who were morbidly obese. Complications among mothers who are obese when they become pregnant include increased risk of diabetes during pregnancy, pre-eclampsia (high blood pressure and protein in the urine), Caesarean section, and failure to begin or continue breastfeeding. Their infants are at increased risk of high or low birth weight, stillbirth and birth defects, especially those affecting the brain, spinal cord and heart.<sup>5,6</sup>

Patterns of pre-pregnancy obesity by race and Hispanic origin are similar to patterns of adult obesity. Among pregnant women, NHOPI mothers had the highest rates of pre-pregnancy obesity from 2012–2014 (50%). AIAN mothers also had high rates (41%). African American (32%) and Hispanic women (31%) had higher rates than white women (24%). Asian women (8%) had the lowest rate of pre-pregnancy obesity. Teen mothers have a pre-pregnancy obesity rate of 18%.

Recommended weight gain during pregnancy depends on the mother’s BMI before becoming pregnant. The following table shows the Institute of Medicine’s 2009 weight categories and recommendations for women with singleton (one-baby) pregnancies.<sup>6</sup>

Weight category	BMI	Recommended total gain (pounds)
Underweight	Less than 18.5	28–40
Normal	18.5–24.9	25–35
Overweight	25.0–29.9	15–25
Obese	More than 30.0	11-20

Washington birth certificate data for 2012–2014 show that 45% of all women in Washington gained more weight during pregnancy than recommended, with higher rates in overweight or obese women (52%) compared with women not overweight or obese (44%).

Like pre-pregnancy obesity, weight gain above the recommended range during pregnancy can increase risks for mother and child. Well-established risks for the mother include Caesarean delivery and postpartum weight retention, and movement into a higher BMI category. Infant risks include high birth weight and childhood obesity.<sup>6,7,8</sup>

**Data Sources** (For additional detail, see [Appendix B.](#))

Washington State Behavioral Risk Factor Surveillance System (BRFSS): Washington State Behavioral Risk Factor Surveillance System (BRFSS) Data: 1987–2014. Olympia, Washington: Washington State Department of Health, under federal cooperative agreement numbers: U58/CCU002118 (1987-2003), U58/CCU022819 (2004-2008), U58 DP001996 (2009-2010), or U58/SO000047 (2011–2014); data prepared by Washington State Department of Health, Office of Healthy Communities. Washington State Department of Health, Center for Health Statistics, Vital Registration System Annual Statistical

Files, Births 1980-2014, released September 2014; data prepared by Office of Healthy Communities.

Washington Healthy Youth Survey: Office of the Superintendent of Public Instruction, Washington State Department of Health, Washington State Department of Social and Health Services, and Washington State Liquor Control Board, 2002-2014; data prepared by Washington State Department of Health Office of Healthy Communities.

Women, Infants and Children (WIC) data: Client Information Management System (CIMS). Washington State Department of Health, Office of Nutrition Services; 2004–2014; data extracted November 2015, prepared by Washington State Department of Health, Office of Healthy Communities.

**For More Information**

Washington State Nutrition and Physical Activity <http://www.doh.wa.gov/YouandYourFamily/NutritionandPhysicalActivity.aspx>

Center for Public Health Nutrition, University of Washington <http://depts.washington.edu/uwcpnh/>

Childhood Obesity Prevention Coalition [www.copcwa.org](http://www.copcwa.org)

Weight Gain During Pregnancy in Washington State <http://here.doh.wa.gov/materials/weight-gain-during-pregnancy-in-washington-state>

**Technical Notes**

**WIC data.** The Washington State Department of Health maintains the Client Information Management System (CIMS). CIMS contains data on clinic visits of participants in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). Pregnant, breastfeeding and postpartum women and children under age five are eligible for WIC if their household income is at or below 185% of the federal poverty level. In 2014, over 300,000 women and children participated in WIC. Almost fifty percent of all infants born in Washington receive WIC services. At each WIC visit children’s weights and heights are measured and body mass index (BMI) is calculated. A child’s weight status is determined using an age- and sex-specific percentile for BMI based on World Health Organization growth charts. Children in the 85th to 94th percentiles are considered overweight. Those at the 95th percentile or higher are considered obese. Children are weighed and measured many times over the course of a year. This report use heights and weights measured at the last visit of the year for children ages two through four years.

**WIC margins or error.** We have not included margins of error for WIC estimates. All margins of error are less than 1%, except for overweight and obesity for Native Hawaiian and other Pacific Islander children (margin of error: 1.3%) and American Indian and Alaska Native (margin of error: 1.2%)

## **Acknowledgments**

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## **Endnotes**

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<sup>1</sup> Centers for Disease Control and Prevention. *CDC Vital Signs Town Hall Teleconference – Progress on Childhood Obesity: Many States Show Declines Q&A*. Atlanta, GA: Centers for Disease Control; August 13, 2012.

[http://www.cdc.gov/stltpublichealth/townhall/transcripts/2013/VS\\_Childhood\\_Obesity\\_QA.pdf](http://www.cdc.gov/stltpublichealth/townhall/transcripts/2013/VS_Childhood_Obesity_QA.pdf). Accessed December 17, 2013.

<sup>2</sup> Chiasson MA, Findley SE, Sekhobo JP, et al. Changing WIC changes what children eat. *Obesity*. 2013;21(7):1423-1429.

<sup>3</sup> McTigue K, Larson JC, Valoski A, et al. Mortality and cardiac and vascular outcomes in extremely obese women. *JAMA*. 2006;296(1):79-86.

<sup>4</sup> Fontaine KR, Redden DT, Wang C, Westfall AO, Allison DB. Years of life lost due to obesity. *JAMA*. 2003;289(2):187-193.

<sup>5</sup> Marshall NE, Spong CY. Obesity, pregnancy complications, and birth outcomes. *Semin Reprod Med*. 2012;30:465-471.

<sup>6</sup> U.S. Institute of Medicine. *Weight Gain During Pregnancy: Re-Examining the Guidelines*. Washington, DC: The National Academies Press; 2009.

<sup>7</sup> Viswanathan M, Siega-Riz AM, Moos MK, et al. *Outcomes of Maternal Weight Gain*. Evidence Reports/Technical Assessments, No. 168. Rockville, MD: Agency for Healthcare Research and Quality; 2008.

<sup>8</sup> Nehring I, Schmoll S, Beyerlein A, Hauner H, von Kries R. Gestational weight gain and long term post partum weight retention: a meta-analysis. *Am J Clin Nutr*. 2011;94:1225-1231.