Hospitalization

Definition: Hospitalizations are all inpatient discharges of Washington residents admitted to Washington and Oregon licensed acute-care facilities. In-hospital childbirths (including women and newborns) are excluded where noted. A hospitalization rate is the number of hospital visits per 100,000 people. One person may be hospitalized multiple times.

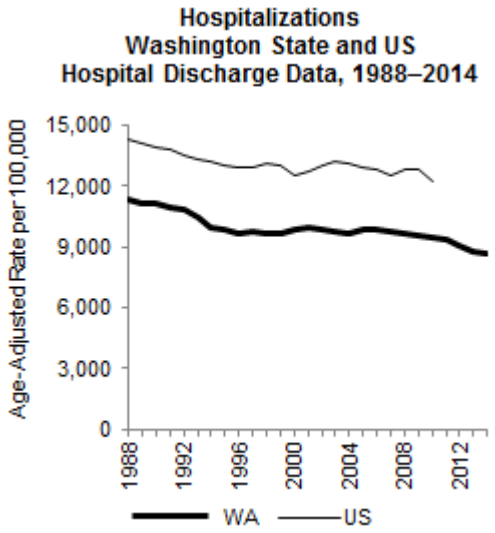
This is a data update of the *Health of Washington State* chapter on Hospitalization published in 2014.

Time Trends

From 1988 to 1995, Washington's age-adjusted inpatient hospitalization rate declined from 11,377 to 9,821 per 100,000 people. The rate was stable from 1995 to 2007, and decreased from 9,775 in 2007 to 8,619 per 100,000 in 2014. In 2014, more than half a million Washington residents were hospitalized in Washington or Oregon, with a total of 623,379 hospitalizations reported.

The decline in hospitalization rates in the late 1980s and early 1990s has been attributed to changes in reimbursement for care, increased enrollment in managed care plans and other cost containment programs that restrict the use of inpatient hospital services.[1,2] In the mid-1990s, the influence of managed care on hospitalization rates appeared to decrease, with rates for people in managed care programs becoming comparable to rates for people insured by fee-for-service programs.[2]

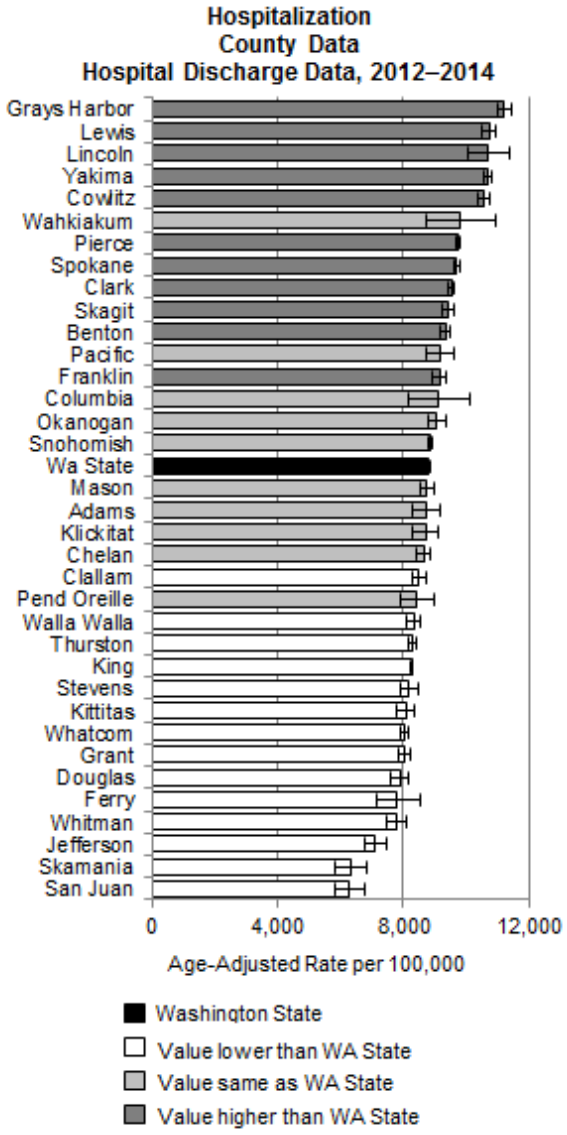
From the late 1980s through 2010, Washington has consistently had a much lower age-adjusted hospitalization rate than the United States as whole; 2010 is the last year national data is available for comparison. The lower rate in Washington is likely due to many factors, including Washington's higher percentage of residents with health insurance than the national average. (See the *Health of Washington State* chapter on Access to Primary Healthcare Services). Washington's population is also healthier than much of the nation, ranking as the 9th healthiest state by the United Health Foundation in 2015.[3]



Geographic Variation

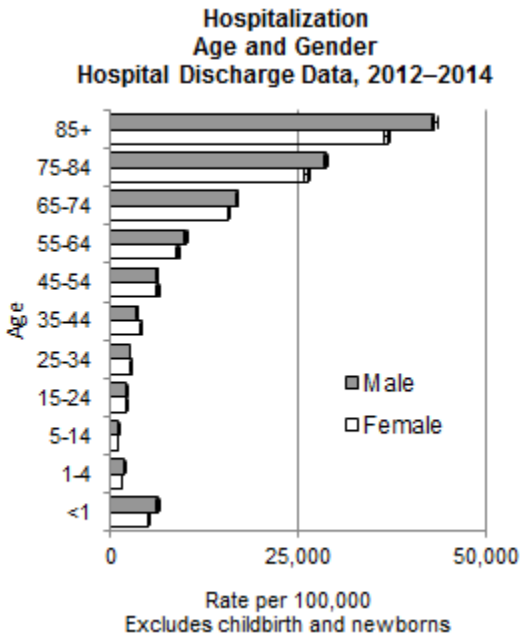
Washington counties vary in their rates of hospitalization. Hospital discharge data for 2012–2014 show that age-adjusted hospitalization rates ranged from a high of 11,224 per 100,000 people for Grays Harbor County to a low of 6,274 per 100,000 people for San Juan County.

Eleven Washington counties had hospitalization rates significantly higher than the state average. Fourteen counties had rates significantly lower than the state average. Four counties are excluded from the analysis due to missing data. (See Data Sources)



Age and Gender

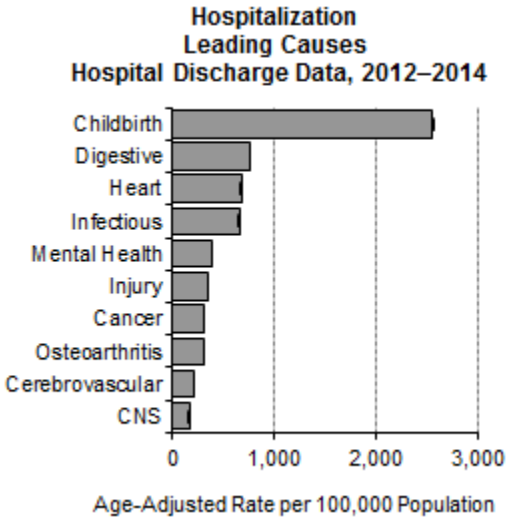
With a quarter of hospitalizations being for childbirth (both women and newborns), females have a higher rate of hospitalization than males. Hospital discharge data for 2012–2014 show that the overall age-adjusted hospitalization rate for females was 10,027 visits per 100,000 women. In comparison, the age-adjusted rate for males was 7,714 visits per 100,000 men. When birth-related hospitalizations are omitted, the overall hospitalization rate was similar for females and males at 6,152 per 100,000 population and 6,430 per 100,000, respectively.



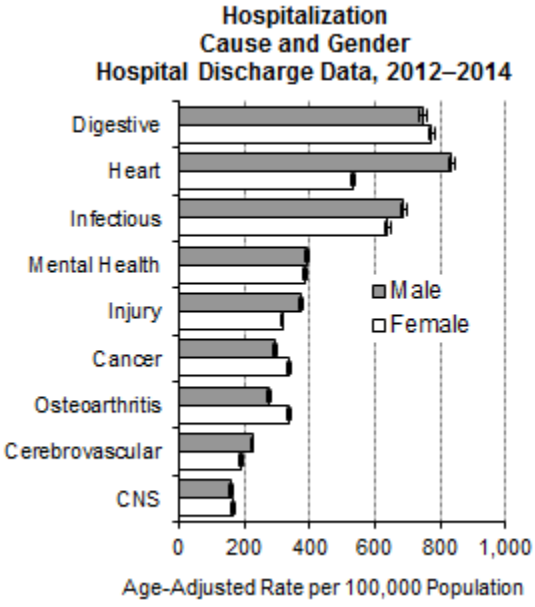
Hospitalization rates for both males and females aged 5 years and older, increase with age. The highest hospitalizations rates are of individuals ages 85 years and older. During 2012–2014, people in this age group represented 2% of the state population[4,5] but 11% of all hospitalizations.

Leading Causes of Hospitalization

The leading causes of hospitalization are derived from ICD-9-CM codes and diagnosis-related groups. The categories are adapted from definitions used by the National Hospital Discharge Survey.[6] During 2012–2014, the ten leading causes of hospitalization in rank order of age-adjusted rates were childbirth (including both women and newborns), digestive system disorders (including ulcer, appendicitis and hernia), heart disease, infectious and parasitic diseases, mental health disorders, injuries, cancer, osteoarthritis, cerebrovascular disease, and disorders of the central nervous system (CNS). These conditions accounted for over two-thirds of all hospitalizations for Washington residents.



Leading causes of hospitalization and hospitalization rates vary by gender and age. According to hospital discharge data for 2012–2014, males had higher hospitalization rates than females for heart disease, infectious and parasitic diseases, injuries and cerebrovascular diseases. Females had higher hospitalization rates than males for digestive system disorders, cancer, and osteoarthritis.



Hospital discharge data for 2012–2014 show that the leading causes of hospitalization for individuals younger than 65 years were digestive system disorders (191 per 100,000), mental health disorders (135 per 100,000), and infectious and parasitic diseases (126 per 100,000). For people ages 65 years and older, hospitalization rates were highest for heart disease (1,177 per 100,000), infectious and parasitic diseases (924 per 100,000), and digestive system disorders (755 per 100,000).

Economic Factors and Education

Hospital discharge data do not contain information about the income or education levels of patients.

Race and Hispanic Origin

The CHARS dataset began collecting information about patient's race and ethnic origin in 2007. The percent of records with this information has continued to increase, but in 2014, about 17% of records still lacked information on race and ethnic origin. Given this level of missing data, we have not calculated hospitalization rates by race and Hispanic origin.

Data Sources (For additional detail, see Appendix B.)

Washington hospitalization data: Dataset compiled by the Washington State Department of Health, Center for Health Statistics from the Washington Comprehensive Hospital Abstract Reporting System (1988–2014) and Oregon Hospital Discharge data (1988–2014). CHARS data describe Washington residents hospitalized in either Washington or Oregon. Readmissions are calculated using all hospitalizations occurring in Washington, regardless of residence. The county chart excludes Asotin, Garfield, Island and Kitsap counties due to a large amount of missing data. Island and Kitsap counties are primarily served by federal hospitals, which are not represented in the CHARS dataset, and many residents in Asotin and Garfield counties receive hospital care in Idaho.

U.S. hospitalization data: U.S. Centers for Disease Control and Prevention, National Center for Health Statistics, National Hospital Discharge Survey 1998–2010. 2010 is the last year this survey was administered. Similar data will be collected by the National Hospital Care Survey, but it is not yet available.

State Inpatient Database (SID), Healthcare Cost and Utilization Project (HCUP), U.S. Agency for Healthcare Research and Quality (AHRQ), Oregon 1988–2014.

For More Information

Washington State Department of Health, Center for Health Statistics

Technical Notes

Leading cause definitions. The leading causes are derived from ICD-9CM diagnosis codes. These are the codes that hospitals use to record what is treated for billing purposes. The hospital discharge record reports up to 25 diagnosis codes. The first-listed condition is thought to be the main reason for the hospitalization (principal diagnosis). The codes used to calculate

the leading causes of hospitalization for this chapter are shown in the table below. The first three digits of the principal diagnosis were used unless otherwise specified.

Cause	*Coding Definition*
Infectious and parasitic disease	001-139, 480-487
Cancer	140-239
Mental health	290-319
Central nervous system disorders	320-336, 340-349
Heart disease	391-392.0, 393-398, 402, 404, 410-416, 420-429
Cerebrovascular Diseases	430-438
Digestive system disorders	530-579
Osteoarthritis	715
Injuries	800-959
Childbirth	DRG 765-782, 789-795

Acknowledgments

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Endnotes

[1] Miller RH, Luft HS. Managed Care Plan Performance since 1980. *JAMA.* 1994;271(19):1512-1519.

[2] Weinick RM, Cohen JW. Leveling the playing field: managed care enrollment and hospital use, 1987-1996. *Health Aff.* 2000;19(3):178-184.

[3] United Health Foundation. *America's Health Rankings.* Minnetonka, MN: United Health Foundation; 2015. http://www.americashealthrankings.org/states. Accessed May 26, 2016.

[4] Washington State Office of Financial Management. *Population Estimates by Age and Sex, 2010–2012*. Olympia, WA: Washington State Office of Financial Management; 2013. http://www.ofm.wa.gov/pop/default.asp. Accessed December 15, 2013.

[5] Washington State Office of Financial Management. *Intercensal estimates of population by age and sex, 1980–2010*. Olympia, WA: Washington State Office of Financial Management; 2013. http://www.ofm.wa.gov/pop/asr/ic/default.asp. Accessed December 15, 2013.

[6]Centers for Disease Control and Prevention. *National Hospital Discharge Survey.* Hyattsville, MD: Hospital Care Team Ambulatory and Hospital Care Statistics Branch, National Center for Health Statistics; 2013. http://www.cdc.gov/nchs/nhds.htm. Accessed April 2, 2014.