Hepatitis

(Focus on Hepatitis C)

Definition: A viral infection of the liver ranging in severity from an infection without apparent symptoms, to mild to severe liver disease, to death. Hepatitis is classified as acute or chronic. Acute hepatitis is a short-term illness that occurs within six months of being exposed to hepatitis A, B or C virus. Acute illness may or may not lead to chronic illness. Chronic hepatitis is a long-term illness that occurs when hepatitis B or C virus remains in a person's body. Hepatitis A does not develop a chronic form. About 60% to 85% of individuals with acute hepatitis C infection develop chronic infection, and about 20% of individuals with chronic infection will progress to cirrhosis or liver cancer during the course of their lifetime. The Washington chronic hepatitis C data presented in this chapter reflect total unduplicated cases of infection reported by local health jurisdictions to the state surveillance system. They are presented by year of diagnosis and include cases classified according to the CDC's case definition as either "confirmed" or "probable."

Summary

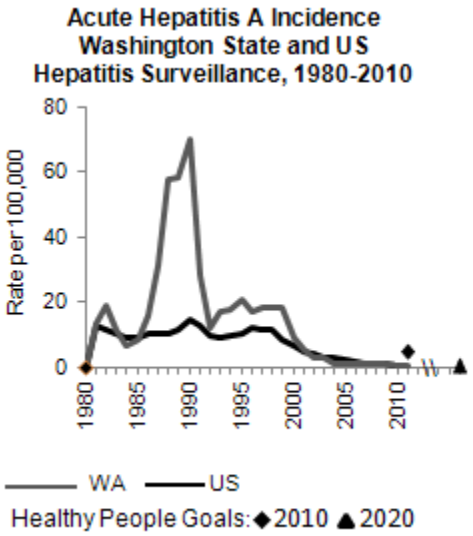
Hepatitis C is a virus that infects the liver. It is the most common bloodborne pathogen in the United States. It is also the most common cause of liver cancer, and the biggest reason why people need liver transplants. The virus is mainly spread through exposure to infected blood, and people who inject drugs are often at high risk of exposure. While rates of acute hepatitis A, B and C infection have dropped since the 1990s, rates of chronic hepatitis C remain high.

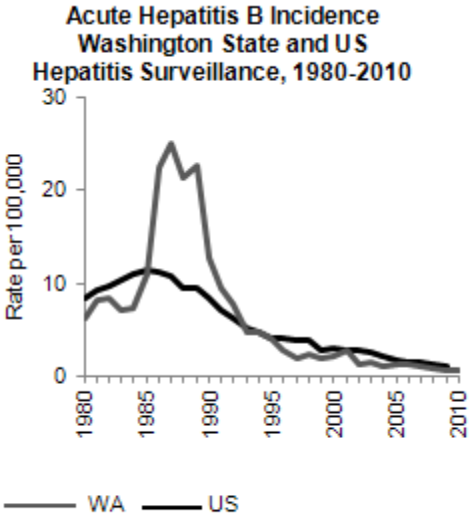
During 2008–2010 combined, 95 per 100,000 people living in Washington were diagnosed with chronic hepatitis C. Both nationally and in Washington, chronic hepatitis C occurs more often among men than women. Most people diagnosed with hepatitis C are middle-aged and older adults, particularly those born between 1945 and 1965.

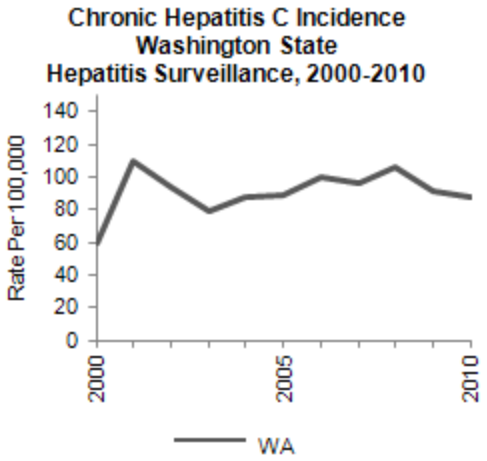
While there are vaccines to prevent hepatitis A and B, there is no vaccine to prevent hepatitis C. The best way to prevent hepatitis C is to not inject drugs or share syringes or other drug preparation equipment. Healthcare and public safety workers should always follow routine barrier precautions and safe handling of syringes to prevent hepatitis C transmission between patients and to themselves. People with hepatitis C can take steps to prevent spreading the virus to others. Treatment for hepatitis C is available, and cure rates of 70% and greater have been seen for most populations. Many people with chronic hepatitis C, however, remain unaware of their infection. Those with known risk factors should be tested and counseled about managing their disease and avoiding spread to others.

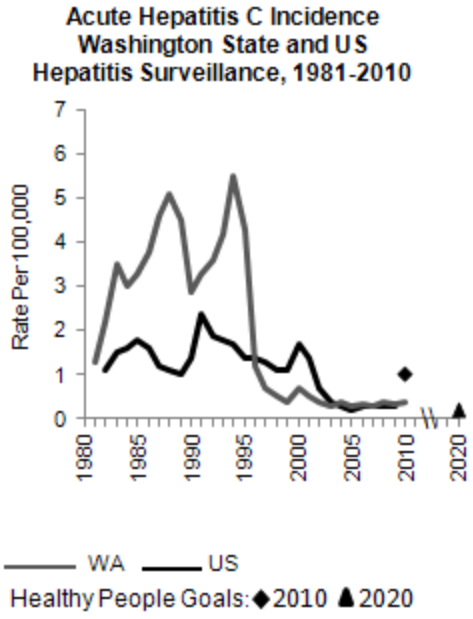
Time Trends

Rates of acute hepatitis have gone down over the past 20 years. Hepatitis A and B (HAV and HBV) have dropped mostly because they can be prevented through vaccination. The initial drop in acute hepatitis C (HCV) infection was due to changes in blood donor screening practices to prevent HIV transmission and later to screening of the blood supply for HCV. The more recent decline is less clear, but is probably the result of injection drug users gaining better access to clean syringes and other injection equipment through syringe exchange programs.[1,2,3] These programs also encourage healthy behavior change, including drug treatment. During 2008–2010 combined, Washington's rates of acute HAV, HBV and HCV were 0.6, 0.8 and 0.4 cases per 100,000, respectively.









Chronic HCV rates are higher. During 2008–2010 combined, there were 95 newly diagnosed cases per 100,000 residents reported in Washington. Few states report chronic HCV cases to the federal government, so national comparison data are not available.

2010 and 2020 Goals

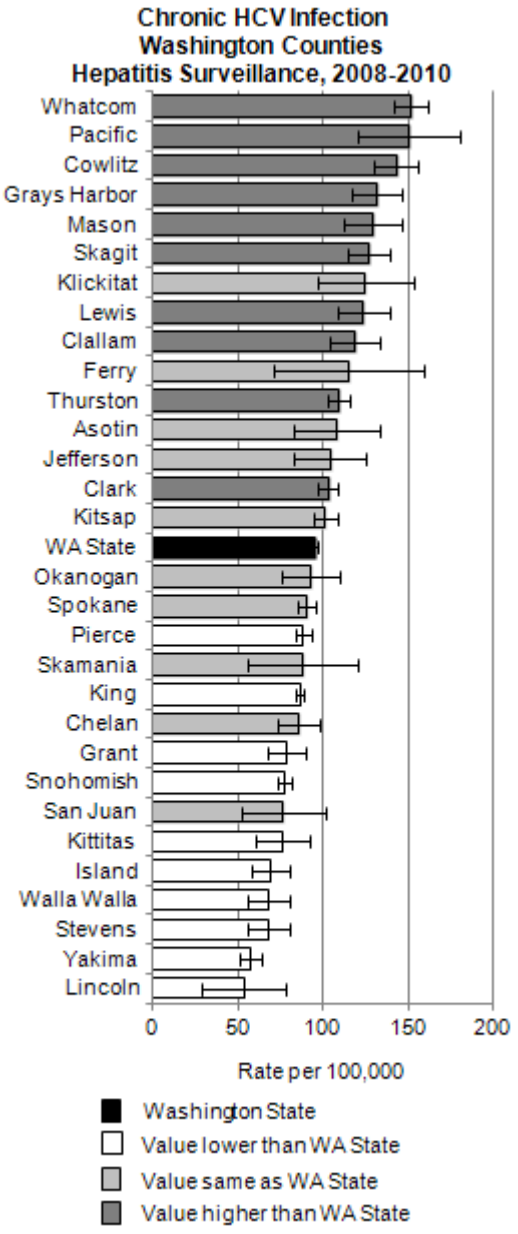
For acute HAV, Washington's rate of 0.6 new cases per 100,000 during 2008–2010 combined was better than the *Healthy People 2010* goal of 4.5 new cases per 100,000. For acute HCV, Washington's rate of 0.4 per 100,000 was also better than the *Healthy People 2010* goal of one new case per 100,000. Both of these rates will need to be cut in half to meet *Healthy People 2020* goals of 0.3 and 0.2 new cases per 100,000 for acute HAV and HCV, respectively. *Healthy People 2010* and *2020* goals for acute HBV are age-specific. While Washington has too few cases to calculate reliable, age-specific rates for acute HBV, given the overall rate of 0.8 per 100,000 and the *Healthy People* goals ranging from 2.4 to 5.1 per 100,000, we are likely to have met the *2010* goal. It also appears that Washington is meeting the *2020* goals of zero cases in people under 19 years of age and 1.5 cases per 100,000 in people 19 years and older.

HCV is both under-diagnosed and underreported. About 5 million people in the United States are living with chronic HCV.[4] Experts estimate that 75% of people with chronic HCV are unaware of their infection.[5] The *Healthy People 2020* goal is to decrease this number to 40%.

A developmental *Healthy People 2010* goal was to increase the proportion of people with chronic hepatitis C infection identified by state and local health departments. Washington met this goal in December 2000 when both chronic HBV and HCV were made reportable. It is still unknown how many cases are not reported to state or local health departments.

Geographic Variation

In Washington, rates of newly diagnosed and reported chronic HCV vary by county. This variation could be caused by real differences in levels of chronic HCV, as well as by differences in detection and reporting. Some counties have more resources to support chronic HCV reporting than others.

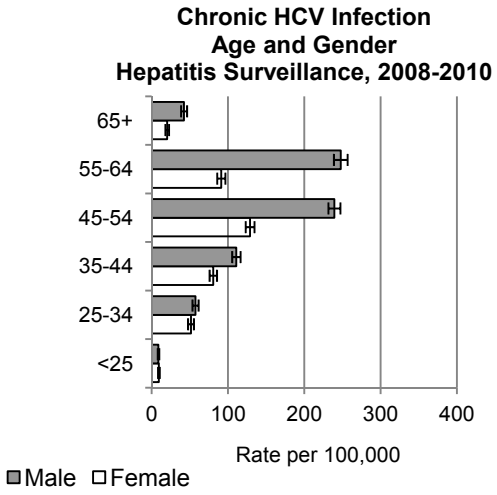


During 2008–2010 combined, Columbia, Franklin, Garfield and Wahkiakum counties did not have enough cases to calculate a rate. Ten counties had rates that were higher than the state as a whole; 10 had rates that were lower than the state rate.

Age and Gender

During 2008–2010, 80% of newly diagnosed chronic HCV cases were among people ages 35–64 years. In the United States, two-thirds of chronic HCV cases are among people born between 1945 and 1965.[6,9]

In Washington, rates for newly diagnosed chronic HCV were higher for males than for females in all age groups beginning at 35-44 years, similar to national data reporting that newly diagnosed chronic HCV is more common among males than females.[9,10] The rate for males was 96 new diagnoses per 100,000 compared to 54 per 100,000 for females. Overall, males comprised 64% of newly diagnosed cases during 2008–2010. Higher rates of injection drug use among men compared to women likely accounts for some of the gender differences in HCV.[7,8]



These data are consistent with national data that show chronic HCV is more common among males. One national survey found that about 2% of men have an antibody to HCV compared to just 1% of women.[4]

Economic Factors and Education

Washington does not collect information about income or education among people with HCV. Nationally, people without a high school degree are more than twice as likely to have chronic HCV compared to people who graduated high school.

Being in poverty also increases a person's risk for HCV. Among people with family incomes at least double the federal poverty threshold, less than 1%

have HCV. Rates are about two times higher among people with family incomes between the federal poverty threshold and double the threshold, and about three times higher among people living below the poverty threshold.[4] Like gender, higher rates of injection drug use among people living at or below the federal poverty level compared with those above the poverty level accounts for some of this difference.[7,8]

The higher rates among men are not likely to be related to military service. Though there are higher rates of HCV infection among U.S. veterans who use the Department of Veteran Affairs,[5] nationally, there is not a significant association between HCV risk and service in the U.S. armed forces. Among adult men with a history of military service, 2.8% have been exposed to HCV compared to 2.7% among who have not served.[4]

Race and Hispanic Origin

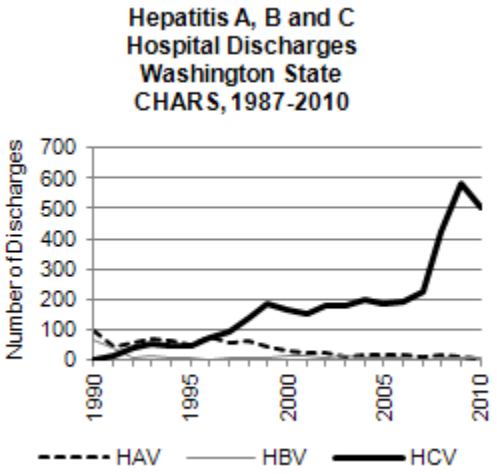
For 2008–2010, 74% of newly reported cases of chronic HCV did not include race or ethnicity. As a result, reliable rates cannot be calculated for these groups in Washington. Nationally, of groups for which there are data, non-Hispanic blacks are disproportionately affected by chronic HCV. Their overall prevalence of antibody to HCV is 3.0% compared to 1.5% among non-Hispanic whites and 1.3% among Mexican-Americans.[4]

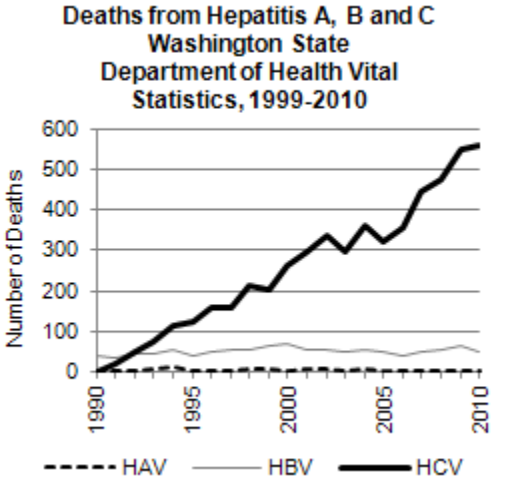
Other Measures of Impact and Burden

Hospitalization rates for HAV and HBV have decreased over the last 20 years in Washington, due to the decrease in the acute forms of these diseases. In contrast, the number of hospitalizations due to HCV infection has increased over the past 20 years, reflecting complications of chronic infection.

Deaths in Washington from HCV also greatly exceed deaths from HAV or HBV. In 2010, 560 death certificates listed HCV as the underlying or contributing cause of death. For the last 20 years, only about 50 death certificates a year listed HBV as the underlying or contributing cause, and only about four death certificates a year listed HAV.

Nationally, researchers estimate that annual medical costs of chronic HCV and associated complications of liver disease, liver cancer and death will more than double over the next 15 years. This does not take into account the unquantified societal costs due to premature loss of life and productivity in individuals younger than 65 years.[6,9]





Risk and Protective Factors

Transmission of HCV occurs primarily through exposure to infected blood. Data on risk for Washington cases are not available, but national studies show that most cases occur among injection drug users.[5] Nationally, CDC estimates that about 60% of chronic HCV infections were caused by injecting drugs, 15% through sexual contact, 10% through blood transfusion prior to 1992 when screening techniques were started, 4% through occupational exposures, 1% through unsafe medical practices, 1% through perinatal routes, and 10% through unknown means.[10]

In addition to increased risk by age and gender, individuals who have do not have jaundice or other symptoms during acute infection develop chronic infection at higher rates than individuals who do not have such symptoms. Blacks develop chronic infection at higher rates than non-Hispanic whites or people of Hispanic origin. Blacks also have a lower response to treatment. People who are HIV-positive or have suppressed immune systems also are more likely to develop chronic HCV infection.[1]

Intervention Strategies

A comprehensive hepatitis prevention strategy includes increasing awareness among providers and individuals, vaccination, screening,[11,12] behavioral interventions, substance abuse treatment, syringe exchange and treatment for hepatitis. Increasing awareness through education and risk reduction counseling not only can prevent further transmission, but through testing and linkage to care, also gives the individual channels for care and treatment. It is important for those infected with HCV to work closely with a healthcare provider to evaluate chronic liver disease, get vaccinated for HAV and HBV, and learn about antiviral therapy options. These individuals should also receive counseling to avoid substances, such as alcohol, that could harm their livers and possibly increase the severity of hepatitis C related liver disease.

Vaccination for HAV and HBV. Currently there is no vaccine for HCV.

Vaccination for HAV and HBV are effective ways to reduce infection. CDC recommends that all children receive vaccinations for HAV and HBV. CDC also recommends vaccination for those at higher risk, such as HAV vaccination for those traveling to high-risk areas and both HAV and HBV vaccination for those with multiple sexual partners or injecting illicit drugs. HBV vaccination is also recommended for those who are HIV-positive, work in healthcare, or have parents who emigrated from a high-risk area. Vaccination for HAV and HBV is also important in those infected with HCV to prevent additional liver damage.

Screening for HCV. Many people with chronic HCV infection are not aware of their condition. Screening people who are at high risk of infection provides opportunities for effective disease management for the infected person and helps prevent further spread. CDC recommends testing the following groups for HCV:

- Injection drug users
- Recipients of clotting factors made before 1987
- Hemodialysis patients
- Recipients of blood or organ transplants before 1992
- People with physical symptoms that may indicate liver problems
- Healthcare and public safety workers after known exposures
- People born during 1945–1965, a recommendation added in 2012 due to higher chronic HCV prevalence in this group
- Infants born to infected mother (test at 12–18 months of age)
- Persons diagnosed with HIV infection

Drug abuse treatment for HBV and HCV prevention. Current injection drug users can greatly reduce their risk of HBV and HCV infection—as well as the risk of transmitting the viruses to others—if they stop injecting. Substance abuse treatment can help some individuals to stop injecting. They can also reduce transmission by not sharing syringes or other drug preparation equipment.

Syringe exchange. People who use drugs can reduce their risk of acquiring or transmitting infections including HBV and HCV by using clean syringes and drug preparation equipment.[13,14] Studies show that access to clean syringes and injection equipment does not increase the frequency of drug use or create drug-using networks.[15,16] In Washington, clean syringes and equipment are available in many counties through syringe exchange programs. In addition, access to clean syringes and equipment is enhanced by state laws that permit (but do not require) pharmacists to distribute syringes to individuals older than 18 years.

Other interventions for HBV and HCV. People who are infected can also reduce the risk of transmission by not sharing personal care items that might have blood on them, such as razors or toothbrushes. Healthcare and public safety workers should always follow routine barrier precautions and safe handling of needles. Individuals who are having sex with more than one partner can reduce the risk of transmission by using latex barriers correctly every time.[10] People with acute or chronic hepatitis should not donate blood, organs or tissue.[10]

Treatment for chronic infection. Successful treatment for HCV is defined as having an undetectable virus level for six months or more after stopping therapy. Treating people with chronic HCV infections can prevent long-term complications and reduces their risk of transmitting the virus to others.

Individuals with chronic HBV or HCV infection should consult with their physicians to determine appropriate treatment. The length and success of treatment for HCV depends largely on the virus subtypes and several other factors, including being African American; having a large amount of virus in the blood; infection with HIV; and having cirrhosis, insulin resistance or diabetes.[17,18,19,20,21]

There are six different types of the hepatitis C virus; types 1–3 are most common in the United States. Until 2011, the best treatment for chronic HCV was a 48-week course of pegylated alpha interferon and ribavirin. Approximately 70%–80% of individuals with types 2 or 3 respond successfully to this treatment, while only about 40%–45% of individuals with type 1 do so.[17]

The national Food and Drug Administration approved two new medications for use in the United States in 2011. These medications have the potential to improve the percent of successful outcomes in individuals with type 1 HCV, including those who were previously treated unsuccessfully. [22,23,24] The new medications might also improve outcomes in other populations that did not respond well to the pegylated alpha interferon and ribavirin.[18,20,21] Both of the new medications, Victrelis and Incivek, are given in addition to pegylated alpha interferon and ribavirin. Treatment courses can be as short as 24 weeks.[20,21] Patients need to be closely monitored during treatment, so that treatment can be stopped if patients are not responding.[22,23,24,25] Both of the new medications are expensive, but the drug companies that produce them offer patient assistance programs in Washington.[26,27]

Data Sources

National Notifiable Diseases Surveillance System

Washington State Department of Health. 2010 Communicable Disease Report

Washington State Department of Health chronic hepatitis disease surveillance database

For More Information

U.S. Centers for Disease Control and Prevention, Division of Viral Hepatitis. http://www.cdc.gov/hepatitis/index.htm

National Institutes of Health, National Digestive Diseases Information Clearinghouse.
http://digestive.niddk.nih.gov/index.htm

Division of Alcohol and Substance Abuse, Washington State Department of Social and Health Services.
http://www1.dshs.wa.gov/dasa/

Hepatitis and Liver Cancer: A National Strategy for Prevention and Control of Hepatitis B and C.
http://www.iom.edu/Reports/2010/Hepatitis-and-Liver-Cancer-A-National-Strategy-for-Prevention-and-Control-of-Hepatitis-B-and-C.aspx

Combating The Silent Epidemic of Viral Hepatitis, Action Plan for the Prevention, Care & Treatment of Viral Hepatitis.
http://www.hhs.gov/ash/initiatives/hepatitis/actionplan_viralhepatitis2011.pdf

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Technical Notes

According to the CDC's 2005 case definition of chronic hepatitis C, a "probable" case is one that is anti-HCV enzyme immunoassay (EIA)-positive but is not verified by a more specific test. A "confirmed" case is verified by an additional assay, such as: 1) positive recombinant immunoblot assay for HCV; or 2) positive nucleic acid test for HCV; 3) HCV genotype; or 4) a screening test with a high signal-to-cutoff ratio for the specific test (e.g. > 3.8 for EIAs). The national and state surveillance data for hepatitis A and acute and chronic hepatitis B and C underestimate actual disease prevalence because all of the conditions are under diagnosed and underreported. (ICD-9 CM codes 070.41, 070.44, 070.51, 070.54, 070.70, 070.71; ICD-10 codes B17.1 and B18.2)

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Endnotes

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