

**Washington State
Chronic Hepatitis B and Chronic Hepatitis C
Surveillance Report**

***Summary of Cases Reported
December 2000 through June 2010***



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Technical Notes

The following report describes statewide probable and confirmed cases of chronic hepatitis B and chronic hepatitis C reported to the Washington State Department of Health (DOH) since reporting began in December 2000 through June 30, 2010. The report describes all unique cases reported to DOH, including cases diagnosed and reported prior to 2001. When more than one county reported an individual, the report assigns that person to the county with the earliest diagnosis date. The report counts cases diagnosed within Washington State prisons as 'State Corrections' cases. It does NOT count them in the county in which the facility is located.

IMPORTANT NOTES: This update replaces all earlier chronic hepatitis reports. The prior report of cases reported through September 2008 incorrectly summarized the number of hepatitis B and hepatitis C co-infected cases. Also, the death summary in the prior report was incorrect. It counted some cases more than once when death certificates listed hepatitis as an underlying condition and one of multiple conditions leading to death.

For each disease report, if a county or other reporting entity designated the case as 'Confirmed' or 'Probable', then this report counts them as such. If the reporter did not classify the case as 'Confirmed' or 'Probable', then this report counts it according to the classification criteria defined by the Centers for Disease Control and Prevention (CDC) (see www.cdc.gov/ncphi/diss/nndss/casedef/ for current case definitions). The diagnosis date for each case equals the earliest diagnosis date reported. If a case report did not include a diagnosis date, then it equals the date of laboratory data that defines the case. In the absence of laboratory data, it equals the date that a person entered the case into the system.

The tables and figures in this report describe the summary amount of cases reported (confirmed plus probable plus unknown). However, in the event the CDC provides future funding for chronic hepatitis based on case counts, they may disallow cases with insufficient data to determine their classifications.

Washington State deaths related to hepatitis B and C include all deaths with hepatitis B or hepatitis C ICD-9 or ICD-10 codes noted on the death certificate, whether hepatitis B or C was the underlying cause or one of multiple causes. See Appendix for list of codes associated with viral hepatitis.

Additional Resources

The Health of Washington State, 2007 Edition: <http://www.doh.wa.gov/hws/HWS2007.htm>
Acute hepatitis B data: www.doh.wa.gov/notify/nc/hepb.htm. Acute hepatitis C data:
www.doh.wa.gov/notify/nc/hepc.htm

Hepatitis B

Frequently Asked Questions

The Frequently Asked Questions below are adapted from those published by the Centers for Disease Control and Prevention.

What is hepatitis B?

Hepatitis B is a contagious liver disease that ranges in severity from a mild illness lasting a few weeks to a serious, lifelong illness. It results from infection with the hepatitis B virus (HBV). HBV infection is either “acute” or “chronic.” Acute HBV infection is a short-term illness that occurs within the first 6 months after someone comes in contact with the virus. Acute infection can — but does not always — lead to chronic infection. Chronic HBV infection is a long-term illness that occurs when the virus remains in a person’s body.

How many people have hepatitis B?

There was about 43,000 new HBV infections in the U.S. in 2007. The number of reported cases is much lower because many infected people do not go to the doctor because they do not have symptoms. In the U.S., about 800,000 to 1.4 million people have chronic HBV. Globally, it affects about 350 million people and contributes to about 600,000 annual deaths. Rates of acute HBV in the U.S. have dropped by about 80% since 1991. At that time, many states began routine HBV vaccination of children, which dramatically decreased the rates of the disease, particularly among children.

What are the symptoms of acute hepatitis B?

Although a majority of adults develop symptoms from acute HBV infection, many young children do not. Adults and children over the age of five years are more likely to have symptoms. Seventy percent of adults will develop symptoms from the infection. On average, symptoms appear three months after exposure, but they can appear any time between six weeks and six months after exposure. Symptoms usually last a few weeks, but some people can be ill for as long as 6 months. Symptoms of acute HBV, if they appear, can include:

- Fever
- Fatigue
- Loss of appetite
- Nausea
- Vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice (yellow color in the skin or the eyes)

What long-term health problems does hepatitis B cause?

Many people with chronic HBV infection do not know they have HBV because they may not feel or look sick. However, they still can spread the virus to others and are at risk of serious health problems. These include liver damage, liver failure, liver cancer, or even death. Approximately 3,000 people die every year in the U.S. from HBV-related liver disease.

Does everyone infected with hepatitis B experience long-term effects?

The chance of long-term sickness depends upon the age at infection. People who are young at infection have greater chances of developing chronic HBV than do older people. About 90% of infected infants will develop chronic infection. The risk goes down as a child gets older. About 25%–50% of children infected between the ages of 1 and 5 years will develop chronic HBV. The risk drops to 6%–10% when exposure occurs in a person over 5 years of age. Worldwide, transmission occurred in most people with chronic HBV at birth or during early childhood.

Some people have ongoing symptoms similar to acute HBV, but most people with chronic HBV remain free of symptoms for as long as 20 or 30 years. About 15%–25% of people with chronic HBV develop serious liver conditions, such as cirrhosis (scarring of the liver) or liver cancer. Even as the liver becomes diseased, some people still do not have symptoms, although certain blood tests for liver function might begin to show some abnormalities.

How is hepatitis B spread?

Transmission occurs when blood, semen, or other body fluid infected with the hepatitis B virus enters the body of a person who is not infected. Adults in the United States most commonly spread HBV through sexual contact, which accounts for nearly two-thirds of acute hepatitis B cases. People can become infected with the virus during activities such as:

- Birth (spread from an infected mother to her baby during birth)
- Sex with an infected partner
- Sharing needles, syringes, or other drug-injection equipment
- Sharing items such as razors or toothbrushes with an infected person
- Direct contact with the blood or open sores of an infected person
- Exposure to blood from needlesticks or other sharp instruments

The virus does not spread routinely through food or water. However, there have been instances in which people have transmitted HBV to babies when they gave them pre-chewed food. People do not spread HBV by sharing eating utensils, breastfeeding, hugging, kissing, holding hands, coughing, or sneezing.

Who is at risk for hepatitis B?

Although anyone can get hepatitis B, some people are at greater risk, such as those who:

- Have sex with an infected person

- Have multiple sex partners
- Have a sexually transmitted disease
- Are men who have sexual contact with other men
- Inject drugs or share needles, syringes, or other drug equipment
- Live with a person who has chronic hepatitis B
- Are infants born to infected mothers
- Are exposed to blood on the job
- Are hemodialysis patients
- Travel to countries with moderate to high rates of hepatitis B

Who should be tested for hepatitis B?

Health care providers should routinely test the following people for hepatitis B infection:

- Persons born in regions of the world where hepatitis B is common
- U.S.-born persons not vaccinated as infants whose parents were born in regions of the world where hepatitis B is common
- Injection-drug users
- Men who have sex with men
- Persons needing immunosuppressive therapy, including chemotherapy, immunosuppression related to organ transplantation, and immunosuppression for rheumatologic or gastroenterologic disorders
- Persons with elevated liver enzymes of unknown reason
- Donors of blood, plasma, organs, tissues or semen
- Hemodialysis patients
- Pregnant women
- Infants born to mothers who have had a positive hepatitis B surface antigen test
- Household, needle-sharing, or sex contacts of persons known to have had a positive hepatitis B surface antigen test
- Persons who are the source of blood or body fluids resulting in an exposure (for example, a needlestick or sexual assault) that might require postexposure prophylaxis
- HIV-positive persons

How is hepatitis B treated?

There is no medication available to treat acute hepatitis B. During this short-term infection, doctors usually recommend rest, adequate nutrition, and fluids, although some people may be sick enough to stay in the hospital. People with chronic hepatitis B virus infection should seek the care or consultation of a doctor with experience treating hepatitis B. People with chronic hepatitis B should go to a doctor regularly to check for signs of liver disease and discuss possible treatment. There are several medications for hepatitis B treatment, and companies are developing new drugs. However, not every person with chronic hepatitis B needs to be on medication, and the drugs may cause side effects in some patients.

What can a person with chronic hepatitis B do to take care of his or her liver?

Doctors with experience in care for people with HBV should regularly monitor people with chronic infection. People with HBV should avoid alcohol because it can cause additional liver damage. They also should check with a health care provider before taking any prescription pills, supplements, or other medications, as these may damage the liver.

Is there a vaccine that prevents hepatitis B?

Yes. The best way to prevent hepatitis B is by getting the hepatitis B vaccine. The hepatitis B vaccine is safe and effective and people usually get them as 3-4 shots over a 6-month period. The hepatitis B vaccine series is a series of shots that make a person's natural immune system protect against hepatitis B. After a person receives the vaccine, the body makes antibodies that protect a person against the virus. An antibody is a substance that the body produces in response to a virus invading the body. The body then stores these antibodies and fights off the infection if it comes in contact with hepatitis B virus in the future.

Who should get vaccinated against hepatitis B?

Public health officials recommend hepatitis B vaccination for:

- All infants, starting with the first dose of hepatitis B vaccine at birth
- All children and adolescents younger than 19 years of age who have not been vaccinated
- People whose sex partners have hepatitis B
- Sexually active persons who are not in a long-term, mutually monogamous relationship.
- Persons seeking evaluation or treatment for a sexually transmitted disease
- Men who have sexual contact with other men
- People who share needles, syringes, or other drug-injection equipment
- People who have close household contact with someone infected with the hepatitis B virus
- Healthcare and public safety workers at risk for exposure to blood or blood-contaminated body fluids on the job
- People with end-stage renal disease, including predialysis, hemodialysis, peritoneal dialysis, and home dialysis patients
- Residents and staff of facilities for developmentally disabled persons
- Travelers to regions with moderate or high rates of hepatitis B
- People with chronic liver disease
- People with HIV infection
- Anyone who wishes to be protected from hepatitis B virus infection

In order to reach individuals at risk for hepatitis B, public health officials also recommend vaccination for anyone in or seeking treatment from the following:

- Sexually transmitted disease treatment facilities
- HIV testing and treatment facilities

- Facilities providing drug-abuse treatment and prevention services
- Healthcare settings targeting services to injection drug users
- Healthcare settings targeting services to men who have sex with men
- Chronic hemodialysis facilities and end-stage renal disease programs
- Correctional facilities
- Institutions and nonresidential day care facilities for developmentally disabled persons

Washington State Surveillance Summary

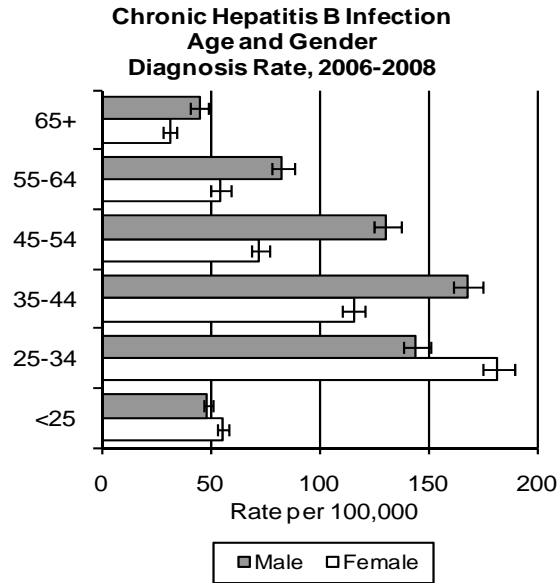
From December 2000 through June 2010, the following traits describe chronic HBV cases in Washington:

- Total cases: 17,458
- Case classification: Probable = 68%, Confirmed = 17%, Unknown = 14%
- About 53% were among males, 45% among females, and 1% were of unknown sex (Table 1)
- Most cases are found in persons age 25-54 years old (Table 1)
- Males have higher rates of infection in most age categories, though females under age 35 have higher rates than males of similar age (Figure 1)
- Many case reports are missing race and risk information, so it is not possible to draw summary conclusions about race/ethnicity and risk (Tables 2 and 3)
- Statewide, there were approximately 1400 cases diagnosed annually from 2005 through 2009 (Table 4)
- The annual rate of reported cases statewide was 23 per 100,000 for the years 2006 through 2008 (Figure 2)
- For the years 2004 through 2008, there were approximately 51 hepatitis B deaths annually (Figure 5)

Table 1. Sex and age at diagnosis of chronic hepatitis B cases reported through 6/30/10

Age	Female		Male		Unknown		Total	
	N	%	N	%	N	%	N	%
<25 years	1821	23%	1661	18%	46	18%	3528	20%
25-34 years	2312	29%	1932	21%	33	13%	4277	24%
35-44 years	1597	20%	2399	26%	48	19%	4044	23%
45-54 years	1073	14%	1921	21%	64	25%	3058	18%
55-64 years	613	8%	902	10%	32	13%	1547	9%
65+ years	402	5%	441	5%	16	6%	859	5%
Unknown	53	1%	76	1%	16	6%	145	1%
Total	7871	100%	9332	100%	255	100%	17458	100%
Percent of Total Cases		45%		53%		1%		

Figure 1. Chronic hepatitis B diagnosis rate per 100,000 by sex and age at diagnosis, 2006 through 2008



There are a large number of cases with unknown race or ethnicity. It is not correct to draw conclusions about the race or ethnicity of missing cases based on those reported (Table 2). Prevalence of HBV antibodies is relatively low in most of North America and Europe (<2%) compared to other countries. Areas of the world with high prevalence of HBV antibodies ($\geq 8\%$) include countries in southeast Asia and central and south Africa.

Table 2. Race/ethnicity of chronic hepatitis B cases reported through 6/30/10

Race/Ethnicity	Total	%
Asian/Pacific Islander, non-Hispanic	5880	34%
Black, non-Hispanic	1179	7%
Hispanic, all races	303	2%
Multi-race, non-Hispanic	134	1%
Native American/Alaska Native, non-Hispanic	131	1%
Unknown or not reported	6947	40%
White, non-Hispanic	2884	17%
Total	17458	100%

There are a large number of cases with unknown risk factors. It is not correct to draw conclusions about the risk factors of missing cases based on those reported (Table 3).

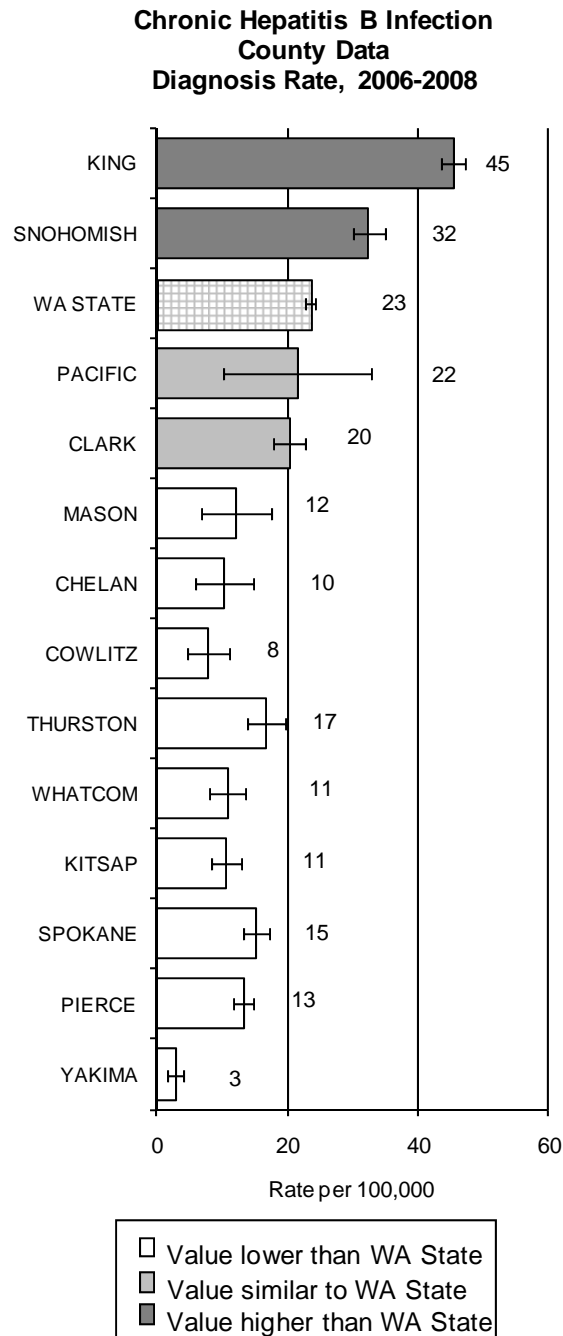
Table 3. Exposure risk factors of chronic hepatitis B cases reported through 6/30/10

Risk	Amount	%
Unknown or not reported	16001	92%
Multiple risks	917	5%
Injection drug use	339	2%
Blood products or solid organ transplant	70	0%
Maternal transmission	62	0%
Sexual	28	0%
Occupational needlestick	26	0%
Chronic hemodialysis	14	0%
Factor concentrates before 1987	1	0%
Total	17458	100%

Table 4. Year of diagnosis of chronic hepatitis B cases reported through 6/30/10

County	Pre-2005	2005	2006	2007	2008	2009	Total	%
ADAMS	9	1	0	2	0	1	13	0%
ASOTIN	6	0	1	4	2	1	14	0%
BENTON	35	1	0	2	3	0	41	0%
CHELAN	10	0	3	7	12	2	34	0%
CLALLAM	35	3	4	5	7	1	55	0%
CLARK	345	78	106	66	80	39	714	4%
COLUMBIA	2	0	0	1	0	0	3	0%
COWLITZ	46	12	11	3	9	5	86	0%
DOUGLAS	7	1	1	0	0	0	9	0%
FERRY	4	1	0	0	0	0	5	0%
FRANKLIN	12	0	1	0	2	0	15	0%
GARFIELD	0	0	0	1	0	0	1	0%
GRANT	30	6	2	1	3	5	47	0%
GRAYS HARBOR	22	3	5	5	3	1	39	0%
ISLAND	25	8	4	5	9	20	71	0%
JEFFERSON	12	3	3	3	3	1	25	0%
KING	7437	703	833	829	870	645	11317	65%
KITSAP	63	13	24	26	28	41	195	1%
KITTITAS	5	2	0	2	7	7	23	0%
KLICKITAT	7	1	2	1	1	0	12	0%
LEWIS	15	3	1	3	4	3	29	0%
LINCOLN	1	0	0	0	1	1	3	0%
MASON	28	4	11	1	8	4	56	0%
OKANOGAN	13	1	6	3	5	2	30	0%
PACIFIC	4	0	0	8	6	0	18	0%
PEND OREILLE	11	1	0	1	1	1	15	0%
PIERCE	828	107	62	149	104	103	1353	8%
SAN JUAN	4	0	0	1	2	0	7	0%
SKAGIT	20	5	6	5	8	4	48	0%
SKAMANIA	1	0	1	1	0	0	3	0%
SNOHOMISH	437	190	196	220	249	212	1504	9%
SPOKANE	253	6	59	80	67	86	551	3%
STEVENS	12	4	4	7	4	2	33	0%
THURSTON	64	13	12	59	49	40	237	1%
WAHKIAKUM	0	0	0	0	0	0	0	0%
WALLA WALLA	26	0	0	1	0	10	37	0%
WHATCOM	42	7	24	14	23	18	128	1%
WHITMAN	15	2	2	4	2	2	27	0%
YAKIMA	192	18	10	6	4	6	236	1%
STATE CORRECTIONS	187	39	18	24	30	11	309	2%
UNKNOWN	111	4	0	0	0	0	115	1%
Total	10376	1240	1412	1550	1606	1274	17458	100%

Figure 2. Washington State chronic hepatitis B diagnosis rate per 100,000 by county, 2006 through 2008



Note: Several counties reported too few cases to calculate a rate. These include: Adams, Asotin, Benton, Clallam, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Grays Harbor, Island, Jefferson, Kittitas, Klickitat, Lewis, Lincoln, Okanogan, Pacific, Pend Oreille, San Juan, Skagit, Skamania, Stevens, Wahkiakum, Walla Walla and Whitman. Low rates could reflect a low number of cases. It could also from the lack of case finding due to insufficient surveillance resources.

Hepatitis C

Frequently Asked Questions

The Frequently Asked Questions below are adapted from those published by the Centers for Disease Control and Prevention.

What is hepatitis C?

Hepatitis C is a contagious liver disease that ranges in severity. It can be a mild illness lasting a few weeks or a serious, lifelong illness. It results from infection with the hepatitis C virus (HCV), which spreads most often through contact with the blood of an infected person. The disease can be either “acute” or “chronic.” Acute HCV infection is a short-term illness that occurs within the first six months after exposure to the virus. For most people, acute infection leads to chronic infection. Chronic HCV infection is a long-term illness that occurs when the virus remains in a person’s body. Chronic infection can last a lifetime and lead to serious liver problems, including scarring or cancer.

How many people have hepatitis C?

There was about 17,000 new HCV infections in the U.S. in 2006. The official number of reported cases is much lower because many infected people never go to the doctor because they do not have symptoms. About 3.3 million people in the U.S. have chronic HCV infection. For every 10 people who get HCV, about eight develop long-term (chronic) infection.

What are the symptoms of acute hepatitis C?

Approximately three-fourths of people with acute HCV do not have any symptoms. Some people can have mild to severe symptoms soon after they get the virus. These include:

- Fever
- Fatigue
- Loss of appetite
- Nausea
- Vomiting
- Abdominal pain
- Dark urine
- Clay-colored bowel movements
- Joint pain
- Jaundice (yellow color in the skin or eyes)

If symptoms occur, the average time is 6–7 weeks after exposure, but this can range from 2 weeks to 6 months. Even if a person with hepatitis C has no symptoms, he or she can still

spread the virus to others. In many cases, there are no symptoms of the disease until liver problems have developed. In people without symptoms, HCV is often detected during routine blood tests to measure liver function and liver enzyme (protein produced by the liver) level.

What long-term health problems does hepatitis C cause?

Chronic hepatitis C is a serious disease that can result in long-term health problems. These include liver damage, liver failure, liver cancer, or even death. It is the leading cause of cirrhosis and liver cancer in the United States. It is also the most common reason for liver transplants. About 12,000 people die every year from HCV-related liver disease.

Does everyone infected with hepatitis C experience long-term effects?

Of every 100 people infected with the hepatitis C virus, about

- 75–85 people will develop chronic HCV infection; of those,
 - 60–70 people will go on to develop chronic liver disease
 - 5–20 people will go on to develop cirrhosis over a period of 20–30 years
 - 1–5 people will die from cirrhosis or liver cancer

About 15%–25% of people who get HCV will clear the virus from their bodies without treatment and will not develop chronic infection. Experts do not know why this happens for some people but not others.

How is hepatitis C spread?

The virus spreads when blood from a person infected with the hepatitis C virus enters the body of someone who is not infected. Today, most people become infected with the hepatitis C virus when they share needles or other equipment to inject drugs. In 1992, the U.S. began to screen its blood supply for HCV. Before then, people got HCV when they received infected blood or organ transplants.

People can spread within a household, but this does not occur very often. If it does happen, it is most likely a result of direct, through-the-skin exposure to the blood of an infected household member. Pregnant women rarely pass HCV to their babies. About 4 of every 100 infants born to mothers with hepatitis C become infected with the virus. However, the risk is higher if the mother has both HIV infection and hepatitis C. People do not spread HCV by sharing eating utensils, breastfeeding, hugging, kissing, holding hands, coughing, or sneezing. It is also not spread through food or water.

Who is at risk for hepatitis C?

Some people are at increased risk for hepatitis C, including

- Current injection drug users
- Past injection drug users, including those who injected only one time or many years ago
- Recipients of donated blood, blood products, and organs (once a common means of transmission but now rare in the United States since blood screening became available in 1992)
- People who received a blood product for clotting problems made before 1987
- Hemodialysis patients or persons who spent many years on dialysis for kidney failure
- People who received body piercing or tattoos done with non-sterile instruments
- People with known exposures to the hepatitis C virus, such as
 - Healthcare workers injured by needlesticks
 - Recipients of blood or organs from a donor who tested positive for the hepatitis C virus
- HIV-infected persons
- Children born to mothers infected with the hepatitis C virus

Who should be tested for hepatitis C?

Talk to your doctor about being tested for hepatitis C if any of the following are true:

- You are a current or former injection drug user, even if you injected only one time or many years ago
- You were treated for a blood clotting problem before 1987
- You received a blood transfusion or organ transplant before July 1992
- You are on long-term hemodialysis treatment
- You have abnormal liver tests or liver disease
- You work in healthcare or public safety and were exposed to blood through a needlestick or other sharp object injury
- You are infected with HIV

How is hepatitis C treated?

There are no drugs for treating acute hepatitis C infection. Doctors usually recommend rest, adequate nutrition, and fluids. Each person should discuss treatment options with a doctor who specializes in treating hepatitis. This can include some internists, family practitioners, infectious disease doctors, or hepatologists (liver specialists). People with chronic hepatitis C should regularly go to their doctor to have their livers checked for damage. The treatment most often used for chronic HCV is a combination of two medicines, interferon and ribavirin. Not all people with chronic HCV need or will benefit from treatment. The drugs are strong and may cause serious side effects in some patients.

What can a person with chronic hepatitis C do to take care of his or her liver?

People with chronic HCV should get regular medical exams and liver monitoring. They should avoid alcohol because it can cause liver damage. They should check with a health care provider before taking any prescription pills, supplements, or over-the-counter medications. People with HCV also should talk with their doctors about getting vaccinated against hepatitis A and hepatitis B.

Washington State Surveillance Summary

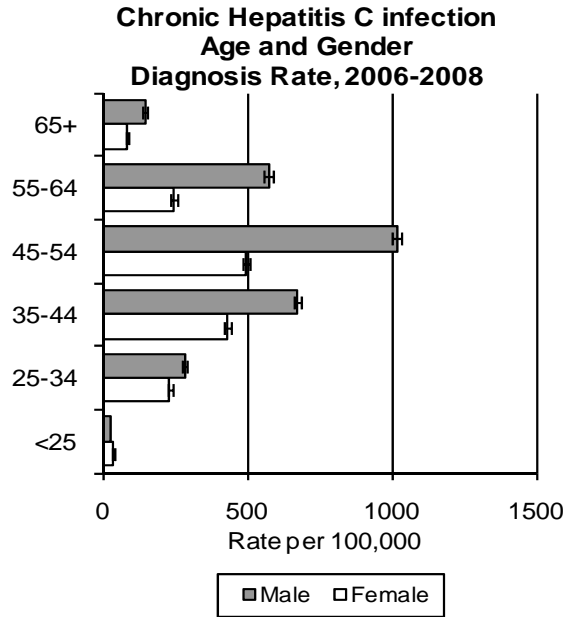
From December 2000 through June 2010, the following traits describe chronic HCV cases in Washington:

- Total cases: 61,206
- Case classification: Probable = 77%, Confirmed = 22%, Unknown = 1%
- About 62% were among males, 36% among females, and 2% were of unknown sex (Table 5)
- Most cases are found in persons age 35-54 years old (Table 5)
- Males have higher rates of infection in most age categories (Figure 3)
- Many case reports are missing race and risk information, so it is not possible to draw summary conclusions about race/ethnicity and risk (Tables 6 and 7)
- Statewide, there were approximately 6000 cases diagnosed annually from 2005 through 2009 (Table 8)
- The annual rate of reported cases statewide was 97 per 100,000 for the years 2006 through 2008 (Figure 4)
- For the years 2004 through 2008, there were approximately 284 hepatitis C deaths annually among males and 123 deaths annually among females (Table 14)

Table 5. Sex and age at diagnosis of chronic HCV cases reported through 6/30/10

Age	Female		Male		Unknown		Total	
	N	%	N	%	N	%	N	%
<25 years	1179	5%	1054	3%	48	5%	2281	4%
25-34 years	3020	14%	3877	10%	78	8%	6975	11%
35-44 years	6031	27%	9733	25%	154	16%	15918	26%
45-54 years	7547	34%	15264	40%	354	36%	23165	38%
55-64 years	2922	13%	6525	17%	203	21%	9650	16%
65+ years	1122	5%	1498	4%	56	6%	2676	4%
Unknown	179	1%	283	1%	79	8%	541	1%
Total	22000	100%	38234	100%	972	100%	61206	100%
Percent of Total Cases		36%		62%		2%		

Figure 3. Chronic HCV diagnosis rate per 100,000 by sex and age at diagnosis, 2006 through 2008



There are a large number of cases with unknown race/ethnicity. It cannot be assumed that their race/ethnicity distribution is the same as for cases with known race/ethnicity (Table 6).

Table 6. Race/ethnicity of chronic HCV cases reported through 6/30/10

Race/Ethnicity	Total	%
Asian/Pacific Islander, non-Hispanic	957	2%
Black, non-Hispanic	3423	6%
Hispanic, all races	1835	3%
Multi-race, non-Hispanic	115	0%
Native American/Alaska Native, non-Hispanic	1255	2%
Unknown or not reported	33883	55%
White, non-Hispanic	19738	32%
Total	61206	100%

There are a large number of cases with unknown risk factors. It cannot be assumed that their risk factor distribution is the same as for cases with reported risk factors (Table 7).

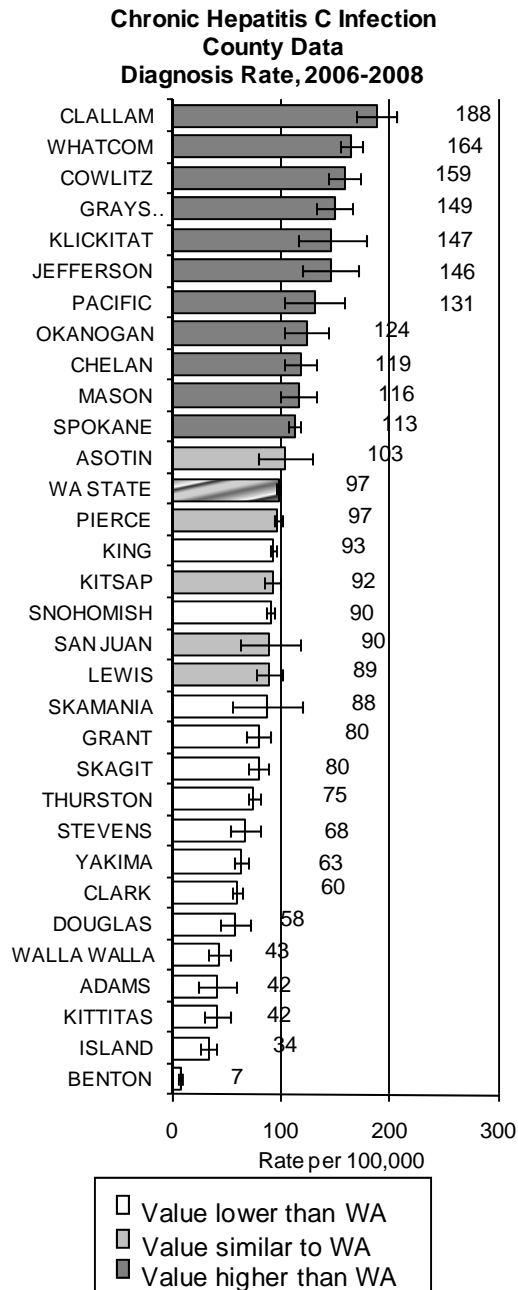
Table 7. Exposure risk factors of chronic HCV cases reported through 6/30/10

Risk	Amount	%
Unknown or not reported	49860	81%
Injection drug use	5659	9%
Multiple risks	4415	7%
Blood products or solid organ transplant	752	1%
Sexual	269	0%
Occupational needlestick	143	0%
Chronic hemodialysis	48	0%
Maternal transmission	43	0%
Factor concentrates before 1987	17	0%
Total	61206	100%

Table 8. Year of diagnosis of chronic HCV cases reported through 6/30/10

County	Pre-2005	2005	2006	2007	2008	2009	Total	%
ADAMS	23	5	1	14	7	4	54	0%
ASOTIN	107	23	26	23	17	37	233	0%
BENTON	147	17	13	8	15	1	201	0%
CHELAN	152	14	60	114	79	57	476	1%
CLALLAM	313	54	129	128	129	68	821	1%
CLARK	665	95	199	127	418	257	1761	3%
COLUMBIA	9	3	1	2	0	0	15	0%
COWLITZ	528	105	153	155	158	164	1263	2%
DOUGLAS	41	6	15	21	27	9	119	0%
FERRY	35	6	7	2	3	5	58	0%
FRANKLIN	66	4	3	5	5	0	83	0%
GARFIELD	1	2	0	3	0	0	6	0%
GRANT	164	44	48	67	82	50	455	1%
GRAYS HARBOR	117	65	123	107	87	97	596	1%
ISLAND	126	65	10	25	44	61	331	1%
JEFFERSON	73	32	47	34	44	6	236	0%
KING	12242	1696	1721	1704	1761	1508	20632	34%
KITSAP	636	163	207	195	277	278	1756	3%
KITTITAS	48	8	9	4	35	21	125	0%
KLICKITAT	56	17	27	21	40	10	171	0%
LEWIS	78	12	16	71	111	84	372	1%
LINCOLN	32	11	8	5	2	8	66	0%
MASON	136	53	60	60	71	113	493	1%
OKANOGAN	92	19	65	40	43	32	291	0%
PACIFIC	37	9	15	24	46	21	152	0%
PEND OREILLE	74	12	7	6	3	2	104	0%
PIERCE	6631	851	793	688	827	605	10395	17%
SAN JUAN	25	4	9	24	10	5	77	0%
SKAGIT	168	42	59	82	134	142	627	1%
SKAMANIA	26	8	12	5	11	5	67	0%
SNOHOMISH	1852	632	654	580	619	481	4818	8%
SPOKANE	2910	435	573	539	416	433	5306	9%
STEVENS	113	24	27	38	22	17	241	0%
THURSTON	215	28	45	206	288	236	1018	2%
WAHKIAKUM	3	2	1	2	2	1	11	0%
WALLA WALLA	181	35	22	28	26	51	343	1%
WHATCOM	263	78	285	294	348	283	1551	3%
WHITMAN	20	1	4	2	2	1	30	0%
YAKIMA	1136	210	167	165	113	88	1879	3%
STATE CORRECTIONS	1567	396	355	403	578	262	3561	6%
UNKNOWN	304	44	19	18	16	11	412	1%
Total	31412	5330	5995	6039	6916	5514	61206	100%

Figure 4. Washington State chronic HCV diagnosis rate per 100,000 by county, 2006 through 2008



Note: A county's rate for chronic hepatitis C can be influenced by the resources it devotes to chronic hepatitis surveillance, as well as the actual prevalence. Several counties reported too few cases to calculate a rate, including Columbia, Ferry, Franklin, Garfield, Lincoln, Pend Oreille, Wahkiakum and Whitman counties.

Hepatitis B and C Co-infection

Washington State Surveillance Summary

There were 2140 cases of chronic hepatitis B and C co-infection reported to the Washington State Department of Health from December 2000 through June 2010. For the years 2005 through 2009, there were approximately 100 cases of co-infection diagnosed per year. Among all co-infected cases, 67% were among males and 31% among females (Table 9). Co-infection is most often diagnosed among individuals 35-54 years old. Like chronic hepatitis B and chronic hepatitis C, the majority of cases are diagnosed among individuals 25-54 years old (Table 10). Co-infection is not reported in as many counties as mono-infected hepatitis B or hepatitis C, with 25 counties reporting fewer than 20 cases (Table 11). Similar to mono-infected chronic hepatitis B and chronic hepatitis C cases, many co-infected cases are missing race and risk information (Tables 12 and 13).

Table 9. Sex and age at diagnosis of chronic HBV and chronic HCV co-infected cases reported through 6/30/10

Age at Coinfection	Hepatitis B and C Co-infection							
	Female		Male		Unknown		Total	
	N	%	N	%	N	%	N	%
<25 years	92	14%	79	5%	2	6%	173	8%
25-34 years	165	25%	225	16%	4	13%	394	18%
35-44 years	178	27%	441	31%	6	19%	625	29%
45-54 years	140	21%	477	33%	13	42%	630	29%
55-64 years	76	11%	168	12%	4	13%	248	12%
65+ years	16	2%	41	3%	2	6%	59	3%
Unknown	4	1%	7	0%	0	0%	11	1%
Total	671	100%	1438	100%	31	100%	2140	100%
Percent of Total Cases		31%		67%		1%		

Table 10. Comparison of age at diagnosis for chronic HBV and chronic HCV co-infected cases, and mono-infected chronic HBV and chronic HCV cases reported through 6/30/10

Age at Diagnosis	Hepatitis B and C Co-infection		Hepatitis B		Hepatitis C	
	N	%	N	%	N	%
<25 years	173	8%	3528	20%	2281	4%
25-34 years	394	18%	4277	24%	6975	11%
35-44 years	625	29%	4044	23%	15918	26%
45-54 years	630	29%	3058	18%	23165	38%
55-64 years	248	12%	1547	9%	9650	16%
65+ years	59	3%	859	5%	2676	4%
Unknown	11	1%	145	1%	541	1%
Total	2140	100%	17458	100%	61206	100%

Table 11. Comparison of county of residence at diagnosis for chronic HBV and chronic HCV co-infected cases, and mono-infected chronic HBV and chronic HCV cases reported through 6/30/10

County	Hepatitis B and C Co-infection		Hepatitis B		Hepatitis C	
	N	%	N	%	Total	%
ADAMS	3	0%	13	0%	54	0%
ASOTIN	7	0%	14	0%	233	0%
BENTON	23	1%	41	0%	201	0%
CHELAN	9	1%	34	0%	476	1%
CLALLAM	29	1%	55	0%	821	1%
CLARK	214	10%	714	4%	1761	3%
COLUMBIA	2	0%	3	0%	15	0%
COWLITZ	33	2%	86	1%	1263	2%
DOUGLAS	5	0%	9	0%	119	0%
FERRY	2	0%	5	0%	58	0%
FRANKLIN	9	0%	15	0%	83	0%
GARFIELD	1	0%	1	0%	6	0%
GRANT	29	1%	47	0%	455	1%
GRAYS HARBOR	19	1%	39	0%	596	1%
ISLAND	18	1%	71	0%	331	1%
JEFFERSON	8	0%	25	0%	236	0%
KING	376	18%	11317	66%	20632	35%
KITSAP	54	2%	195	1%	1756	3%
KITTITAS	9	0%	23	0%	125	0%
KLICKITAT	4	0%	12	0%	171	0%
LEWIS	10	0%	29	0%	372	1%
LINCOLN	2	0%	3	0%	66	0%
MASON	32	1%	56	0%	493	1%
OKANOGAN	17	1%	30	0%	291	0%
PACIFIC	15	1%	18	0%	152	0%
PEND OREILLE	10	0%	15	0%	104	0%
PIERCE	162	7%	1353	7%	10395	16%
SAN JUAN	4	0%	7	0%	77	0%
SKAGIT	19	1%	48	0%	627	1%
SKAMANIA	2	0%	3	0%	67	0%
SNOHOMISH	205	10%	1504	8%	4818	8%
SPOKANE	210	10%	551	3%	5306	9%
STEVENS	12	1%	33	0%	241	0%
THURSTON	24	1%	237	1%	1018	2%
WAHAKIUM	0	0%	0	0%	11	0%
WALLA WALLA	18	1%	37	0%	343	1%
WHATCOM	40	2%	128	1%	1551	2%
WHITMAN	5	0%	27	0%	30	0%
YAKIMA	147	7%	236	1%	1879	3%
STATE CORRECTIONS	250	13%	309	2%	3561	6%
UNKNOWN	102	4%	115	1%	412	1%
Total	2140	100%	17458	100%	61206	100%

Table 12. Comparison of race/ethnicity for chronic HBV and chronic HCV co-infected cases, and mono-infected chronic HBV and chronic HCV cases reported through 6/30/10

Race/Ethnicity	Hepatitis B and C Co-infection		Hepatitis B		Hepatitis C	
	N	%	N	%	N	%
Asian/Pacific Islander, non-Hispanic	273	13%	5880	34%	957	2%
Black, non-Hispanic	116	5%	1179	7%	3423	6%
Hispanic, all races	92	4%	303	2%	1835	3%
Multi-race, non-Hispanic	0	0%	134	1%	115	0%
Native American/Alaska Native, non-Hispanic	55	3%	131	1%	1255	2%
Unknown or not reported	758	35%	6947	40%	33883	55%
White, non-Hispanic	846	40%	2884	17%	19738	32%
Total	2140	100%	17458	100%	61206	100%

Table 13. Comparison of risk factors chronic HBV and chronic HCV co-infected cases, and mono-infected chronic HBV and chronic HCV cases reported through 6/30/10

Risk	Hepatitis B and C Co-infection		Hepatitis B		Hepatitis C	
	N	%	N	%	N	%
Unknown or not reported	1220	57%	16001	92%	49860	81%
Multiple risks	568	27%	917	5%	4415	7%
Injection drug use	305	14%	339	2%	5659	9%
Blood products or solid organ transplant	31	1%	70	0%	752	1%
Occupational needlestick	7	0%	26	0%	143	0%
Maternal transmission	5	0%	62	0%	43	0%
Sexual	4	0%	28	0%	269	0%
Chronic hemodialysis	0	0%	14	0%	48	0%
Factor concentrates before 1987	0	0%	1	0%	17	0%
Total	2140	100%	17458	100%	61206	100%

Hepatitis B and Hepatitis C Deaths

Figure 5 and Table 14 describe deaths from hepatitis B and hepatitis C. They include deaths in which either condition was listed as the underlying cause, or one of multiple causes. Also, they include all hepatitis B and hepatitis C deaths, including acute and chronic. The number of annual hepatitis B deaths is stable at about 51 per year. The number of hepatitis C deaths continues to climb, and was about 500 in 2008. Premature death is a problem for people with hepatitis, particularly HCV (Table 14). For example, among all female deaths in Washington State for the years 2004 through 2008, only 20% of females died before age 65. Among all female HBV-related deaths, 63% died before age 65; among female HCV-related deaths, 76% of females died before age 65. For males, 33% of all deaths were among males of age less than 65 years. 77% of males with HBV-related deaths died before age 65, and 86% of males with HCV-related deaths died before age 65. This may reflect both effects of the disease and risk factors contributing to the disease, such as injection drug use, that also affect mortality.

Figure 5. Washington State deaths related to hepatitis B and hepatitis C, 1992 through 2008

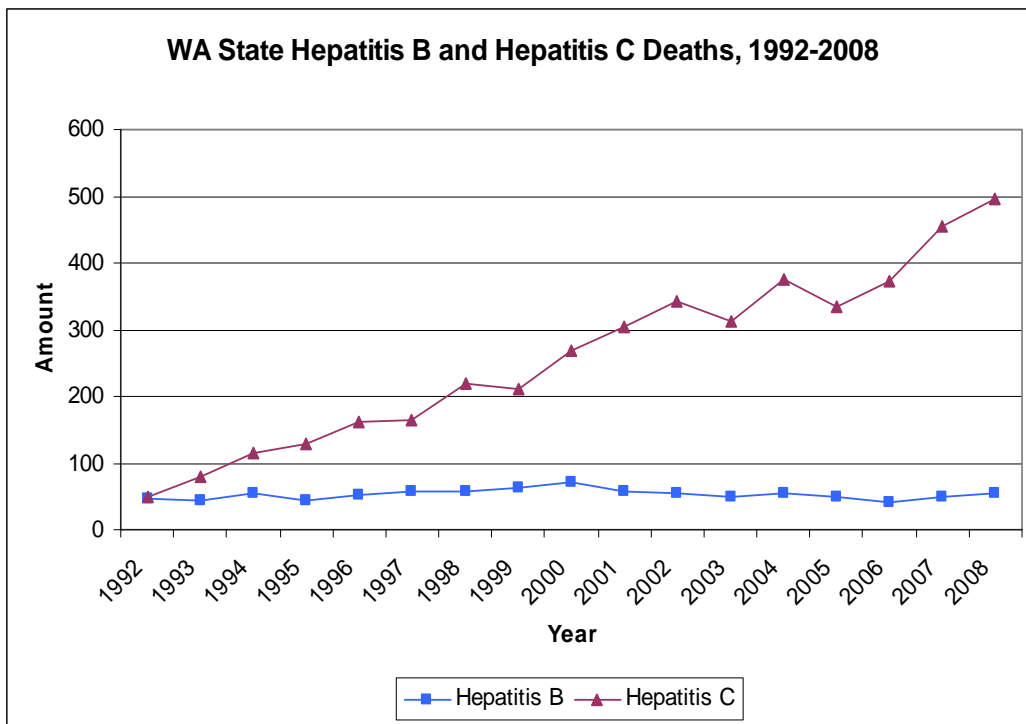


Table 14. All Washington State deaths, and deaths related to hepatitis B and hepatitis C, 2004 through 2008

Female Deaths, 2004-2008

Age	WA State Total		Hepatitis B		Hepatitis C	
	N	%	N	%	N	%
<45 years	6014	5%	9	13%	47	8%
45-54 years	6781	6%	18	26%	226	37%
55-64 years	11310	9%	16	24%	191	31%
65-74 years	16385	14%	12	18%	74	12%
75-84 years	32353	27%	10	15%	51	8%
85+ years	46467	39%	3	4%	24	4%
Total	119310	100%	68	100%	613	100%

Male Deaths, 2004-2008

Age	WA State Total		Hepatitis B		Hepatitis C	
	N	%	N	%	N	%
<45 years	11445	10%	23	12%	89	6%
45-54 years	10908	9%	59	32%	553	39%
55-64 years	16497	14%	61	33%	582	41%
65-74 years	20882	18%	23	12%	127	9%
75-84 years	31939	27%	16	9%	53	4%
85+ years	27380	23%	3	2%	15	1%
Total	119051	100%	185	100%	1419	100%

Appendix

International Classification of Disease (ICD) Codes for Viral Hepatitis

ICD-9 codes

070 Viral hepatitis

070.0 Viral hepatitis A with hepatic coma

070.1 Viral hepatitis A without mention of hepatic coma

070.2 Viral hepatitis B with hepatic coma

070.3 Viral hepatitis B without mention of hepatic coma

070.4 Other specified viral hepatitis with hepatic coma

070.41 Acute hepatitis C with hepatic coma

070.42 Hepatitis delta without mention of active hepatitis B disease with hepatic coma

070.43 Hepatitis E with hepatic coma

070.44 Chronic hepatitis C with hepatic coma

070.49 Other specified viral hepatitis with hepatic coma

070.5 Other specified viral hepatitis without mention of hepatic coma

070.51 Acute hepatitis C without mention of hepatic coma

070.52 Hepatitis delta without mention of active hepatitis B disease or hepatic coma

070.53 Hepatitis E without mention of hepatic coma

070.54 Chronic hepatitis C without mention of hepatic coma

070.59 Other specified viral hepatitis without mention of hepatic coma

070.6 Unspecified viral hepatitis with hepatic coma

070.7 Unspecified viral hepatitis C

070.7 Unspecified viral hepatitis C without hepatic coma

070.71 Unspecified viral hepatitis C with hepatic coma

070.9 Unspecified viral hepatitis without mention of hepatic coma

ICD-10 codes

B15 Acute hepatitis A

- B15.0 Hepatitis A with hepatic coma
- B15.9 Hepatitis A without hepatic coma

B16 Acute hepatitis B

- B16.0 Acute hepatitis B with delta-agent (co-infection) with hepatic coma
- B16.1 Acute hepatitis B with delta-agent (co-infection) without hepatic coma
- B16.2 Acute hepatitis B without delta-agent with hepatic coma
- B16.9 Acute hepatitis B without delta-agent and without hepatic coma

B17 Other acute viral hepatitis

- B17.0 Acute delta-(super)infection of hepatitis B carrier
- B17.1 Acute hepatitis C
- B17.2 Acute hepatitis E
- B17.8 Other specified acute viral hepatitis

B18 Chronic viral hepatitis

- B18.0 Chronic viral hepatitis B with delta-agent
- B18.1 Chronic viral hepatitis B without delta-agent
- B18.2 Chronic viral hepatitis C
- B18.8 Other chronic viral hepatitis
- B18.9 Chronic viral hepatitis, unspecified

B19 Unspecified viral hepatitis

- B19.0 Unspecified viral hepatitis hepatic with coma
- B19.9 Unspecified viral hepatitis without hepatic coma