

Hepatitis B in Colorado

2011 Surveillance Report

Cases of Acute and Chronic Hepatitis B in Colorado

Note: This report is published by the Viral Hepatitis Program (VHP), Disease Control and Environmental Epidemiology Division, Colorado Department of Public Health and Environment, Denver Colorado. Data are presented for acute and chronic hepatitis B cases newly reported to CDPHE in 2011



**Colorado Department
of Public Health
and Environment**

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Hepatitis B

Hepatitis B is a disease that results from an infection with the hepatitis B virus (HBV). HBV is spread through contact with infected blood. This occurs primarily through sex with an infected person or from mother to child during childbirth (perinatal). However, a large proportion of people do not know how they became infected.

HBV infection can range in severity, from a mild illness lasting a few weeks to a serious, lifelong illness. The number of new and chronic infections is on the decline. Data from the National Health and Nutrition Examination Survey indicates that the prevalence of HBV infection is 4.3-5.6% of the population. In Colorado, 4.3% of the population translates to 220,022 residents who have ever been infected with hepatitis B.

Viral hepatitis surveillance in Colorado is primarily based on laboratory reporting of serologic results. Laboratory-based reporting enables the identification of asymptomatic persons infected by the virus as well as those displaying symptoms. In Colorado, the Board of Health requires physicians and other health care providers to report suspected cases of hepatitis B within 7 days, and it requires laboratories to report positive HBV serologic tests within 7 days. Upon receipt of these reports, either electronically, by fax, or via another reporting system, the Viral Hepatitis Program (VHP) uses established case definitions to assign a diagnosis and case status for each patient.. Data is entered into the Colorado Electronic Disease Reporting System where it is available to local or state public health personnel for further investigation of cases.

Acute Hepatitis B

Acute hepatitis B is a short-term illness that occurs within the first six months of infection with HBV. Symptoms are usually mild to moderate, and include fatigue, nausea, vomiting, abdominal pain, jaundice and abnormal liver function tests. Older children and adults are more likely to develop symptoms than younger children. The hepatitis B IgM can be detected in sera and used as a marker of acute infection.

Chronic Hepatitis B

Chronic hepatitis B results when HBV remains in the body after the acute phase of illness. People with a chronic infection do not develop protective antibodies to the hepatitis B surface antigen. Approximately 5% of older children and adults, 25-50% of younger children (aged 1-5 years), and up to 90% of infants will develop chronic hepatitis B. Over time, chronic hepatitis B can result in liver disease, cirrhosis, or cancer. Each year approximately 2,000 to 4,000 people die from diseases related to hepatitis B in the U.S.

Vaccine is available to prevent hepatitis B infection. Hepatitis B vaccination became a school entry requirement in 1997. At that time, the Colorado Board of Health required all day care students age fifteen months through four years of age, kindergarten and seventh grade students to have had three doses of hepatitis B vaccine to attend school. A 12 year old student entering seventh grade in 1997 would have been born in 1985 and be 27 years of age in 2011.

Surveillance Summary

In 2011, a total of 27 cases of acute hepatitis B were reported in Colorado. Table 1 describes the reported cases by gender, age, race/ethnicity, risk factors, and county of residence. Rates include acute and chronic case reports even though up to 10% of acute cases may also be included in the chronic cases. This occurs when an individual retests positive six months following the initial acute diagnosis, and the person is reported as a chronic case following the second test.

Gender

Of these, 18 (67%) were reported in men, and 9 (33%) in women. For chronic infections over half of the total 492 reported cases were among men (n=290; 59%), while 201 (40%) were reported in women. Surveillance cannot determine the number of men and women tested in Colorado. However, Colorado birth certificate data for 2011 reported that 96% (64,259) of women were screened for hepatitis B during pregnancy as recommended by the Advisory Committee on Immunization practices of the U.S. Centers for Disease Control and Prevention and the U.S. Preventive Services Taskforce. There is no recommendation to routinely test men.

Age

Table 1 represents the age distribution of acute and chronic hepatitis B cases. Most reported acute infections occurred among persons >27 years of age. Persons >27 years of age are less likely to be immunized for hepatitis B based on a school-entry requirement that began in 1997. The higher incidence of acute infections in people over 27 suggests that individuals in these age groups continue to engage in high risk behavior and could benefit from vaccine. For chronic hepatitis B infection, persons 20-39 years of age had the most reported cases (n=238; 48%). Chronic infections are more likely to be diagnosed later in the course of infection when symptoms commonly appear or among women screened during pregnancy.

Race/ethnicity

The majority of acute cases of hepatitis B were reported among White non-Hispanics (n=17; 63%). The highest number of chronic HBV infections were reported among Asian/Pacific Islanders (n=171; 35%). Rates per 100,000 were done using the 2011 estimates from the US Census Bureau, Population Division.² Data from Colorado's Perinatal Hepatitis B Unit indicate that foreign-born pregnant women are significantly more likely to be reported with hepatitis B infection than pregnant women born in the U.S. National data also describes significant disparities in chronic hepatitis B infections by race (McQuillan)

Risk Factors

A subset of risk factor data was added to the 2011 statistics. These data include: injection drug use (IDU), household contact, sex contact, men who have sex with men (MSM), born in endemic country, and perinatal transmission. Others risk factors are collected, but only those reported in the yearly progress report for CDC are included in Table 1. These data were obtained through patient interviews, medical record reviews, or from information provided by a physician, hospital, or other healthcare provider. The VHP collected risk factor information on 17 (63%) acute HBV cases and 247 (50%) chronic cases.

Perinatal Cases

There was one hepatitis B perinatal case reported in Colorado in 2011. Hepatitis B perinatal cases are those who are <2 years of age and were born in the US to HBV infected mothers.

County Distribution

Acute HBV cases were reported in 10 of the 64 Colorado counties. Chronic hepatitis B cases were reported in 24 of the 64 Colorado counties. Counties without reported cases were more likely to be frontier counties (rural areas sparsely populated that are isolated from population centers and services). Incarcerated HBV chronic cases are counted in the "Unspecified" section under Colorado Department of Corrections (CDCOC) and Federal Correctional Institute (FCI).

Figure 1 is a map describing the rate distribution of hepatitis B per 100,000 county populations in Colorado. The rate is calculated using the Estimated 2011 Census figures from the Colorado Division of Local Government, Demography section.

Table 1: Reported Hepatitis B Cases by Case Status, Sex, Age, and Race, Colorado, 2011

	Acute HBV Cases		Chronic HBV Cases*			
	Number	%**	Number	%**	Total Number	Rate of Reported Cases/ 100,000***
Total	27		492		519	10.1
Case Status						
Confirmed	23	85%	146	30%	169	3.3
Probable	4	15%	345	70%	349	6.8
Suspect	0	0%	1	0%	1	0.02
Sex						
Male	18	67%	290	59%	308	11.9
Female	9	33%	201	41%	210	8.2
Unknown	0	0%	1	0%	1	
Age						
0-4	0	0%	5	1%	5	1.4
5-9	0	0%	4	1%	4	1.1
10-19	0	0%	26	5%	26	3.8
20-29	1	4%	111	23%	112	15.1
30-39	5	19%	127	26%	132	18.5
40-49	9	33%	101	21%	110	15.3
50-59	5	19%	75	15%	80	11.2
60+	7	26%	42	9%	49	5.6
Unknown	0	0%	1	0%	1	
Race/Ethnicity						
Hispanic	3	11%	18	4%	21	1.9
White non-Hispanic	17	63%	71	14%	88	2.4
Black non-Hispanic	1	4%	85	17%	86	43.9
American Indian	0	0%	2	0%	2	6
Asian/Pacific Islander	0	0%	171	35%	171	115.7
Multiple	0	0%	3	1%	3	2.9
Other/Missing/Unknown	6	22%	142	29%	148	

* Chronic cases may include 5%-10% of those cases that were also reported as acute cases in the same year

**Decimal places are rounded up or down for percentages.

***Rates were calculated for everything except race and ethnicity using the 2011 Census Estimates from the Demography Section, Colorado Division of Local Government:

<http://www.colorado.gov/cs/Satellite/DOLA-Main/CBON/1251590805419>. Rates calculated for counties with a small number of reported cases should be interpreted with caution.

Total Number of Pregnant Women Reported N = 159

Newly Reported	Previous case/new pregnancy
89	70

1 perinatal HBV Case reported

School Immunization Requirement 20-29 year olds

	Born after 1986	Born Before 1986
Acute	8	19
Chronic	120	372
Total	128	391
Rate/100,000	7.47	11.79

Table 2: Reported Hepatitis B Cases by Risk Factor, and Percentage of Cases Reporting the Risk Factor , Colorado, 2011 ***

	Acute HBV Cases		Chronic HBV Cases		
Category	Number	Total/# in row	Number	Total/# in row	Total Number
Total	27		492		519
Risk Factors***					
IDU					
No	15	56%	99	20%	114
Yes	1	4%	7	1%	8
Missing	10	37%	245	50%	255
Unknown	1	4%	141	29%	146
Household Contact					
No	0		0		0
Yes	0		7	1%	7
Missing	27	100%	485	99%	512
Unknown	0		0		0
Sex Contact					
No	0		0		0
Yes	1	4%	8	2%	9
Missing	26	96%	484	98%	510
Unknown	0		0		0
MSM					
No	7	26%	11	2%	18
Yes	5	19%	11	2%	16
Missing	4	15%	152	31%	156
Unknown	2	7%	116	24%	118
Born in Endemic Area					
No	0	0%	0		0
Yes	0	0%	155	32%	155
Missing	0	0%	0		0
Unknown	0	0%	0		0

*** Risk factor categories are not mutually exclusive

Table 3: Number and Percentage of Reported Acute and Chronic Hepatitis B Cases by County of Residence, Colorado, 2011

	Acute HBV Cases		Chronic HBV Cases*			
	Number	% **	Number	% **	Total Number	Rate of Reported Cases/100,000 ***
Total	27		492		519	10.1
County of Residence						
Adams	1	4%	46	9%	47	10.4
Alamosa	0	0%	1	<1%	1	2.1
Arapahoe	4	15%	114	23%	118	20.2
Archuleta	0	0%	0	0%	0	0
Baca	0	0%	1	<1%	1	26.4
Bent	0	0%	0	0%	0	0
Boulder	0	0%	25	5%	25	8.3
Broomfield	0	0%	2	<1%	2	3.4
Chaffee	0	0%	0	0%	0	0
Cheyenne	0	0%	0	0%	0	0
Clear Creek	0	0%	0	0%	0	0
Conejos	0	0%	0	0%	0	0
Costilla	0	0%	0	0%	0	0
Crowley	0	0%	0	0%	0	0
Custer	0	0%	0	0%	0	0
Delta	1	4%	0	0%	1	3.1
Denver	7	26%	93	19%	100	3.9
Dolores	0	0%	0	0%	0	0
Douglas	1	4%	20	4%	21	7.2
Eagle	0	0%	0	0%	0	0
Elbert	0	0%	1	<1%	1	4.2
El Paso	5	19%	50	10%	55	8.6
Fremont	0	0%	0	0%	0	0
Garfield	0	0%	1	<1%	1	1.7
Gilpin	0	0%	0	0%	0	0
Grand	0	0%	0	0%	0	0
Gunnison	0	0%	0	0%	0	0
Hinsdale	0	0%	0	0%	0	0
Huerfano	0	0%	1	<1%	1	14.7
Jackson	0	0%	1	<1%	1	69.8
Jefferson	4	15%	33	7%	37	6.8
Kiowa	0	0%	0	0%	0	0
Kit Carson	0	0%	0	0%	0	0
Lake	0	0%	0	0%	0	0
La Plata	0	0%	0	0%	0	0
Larimer	0	0%	19	4%	19	6.2

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	Acute HBV Cases		Chronic HBV Cases*			
	Number	% **	Number	% **	Total Number	Rate of Reported Cases/100,000 ***
Total	27		492		519	10.1
Las Animas	0	0%	0	0%	0	0
Lincoln	0	0%	0	0%	0	0
Logan	0	0%	1	<1%	1	4.3
Mesa	1	4%	3	<1%	4	2.6
Mineral	0	0%	0	0%	0	0
Moffat	0	0%	0	0%	0	0
Montezuma	0	0%	1	<1%	1	3.8
Montrose	0	0%	0	0%	0	0
Morgan	0	0%	2	<1%	2	7
Otero	0	0%	0	0%	0	0
Ouray	0	0%	1	<1%	1	21.7
Park	0	0%	0	0%	0	0
Phillips	0	0%	0	0%	0	0
Pitkin	0	0%	2	<1%	2	11.4
Prowers	0	0%	0	0%	0	0
Pueblo	2	8%	5	1%	7	4.3
Rio Blanco	0	0%	0	0%	0	0
Rio Grande	0	0%	0	0%	0	0
Routt	0	0%	0	0%	0	0
Saguache	0	0%	0	0%	0	0
San Juan	0	0%	0	0%	0	0
San Miguel	0	0%	0	0%	0	0
Sedgwick	0	0%	0	0%	0	0
Summit	0	0%	2	<1%	2	6.9
Teller	0	0%	0	0%	0	0
Washington	0	0%	0	0%	0	0
Weld	1	4%	27	6%	28	10.8
Yuma	0	0%	0	0%	0	0
Unspecified	0	0%	40	8%	40	

Total Unspecified	Chronic HBV Cases*	
	Number	% **
CDOC	23	58%
FCI	4	10%
Unknown	12	32%

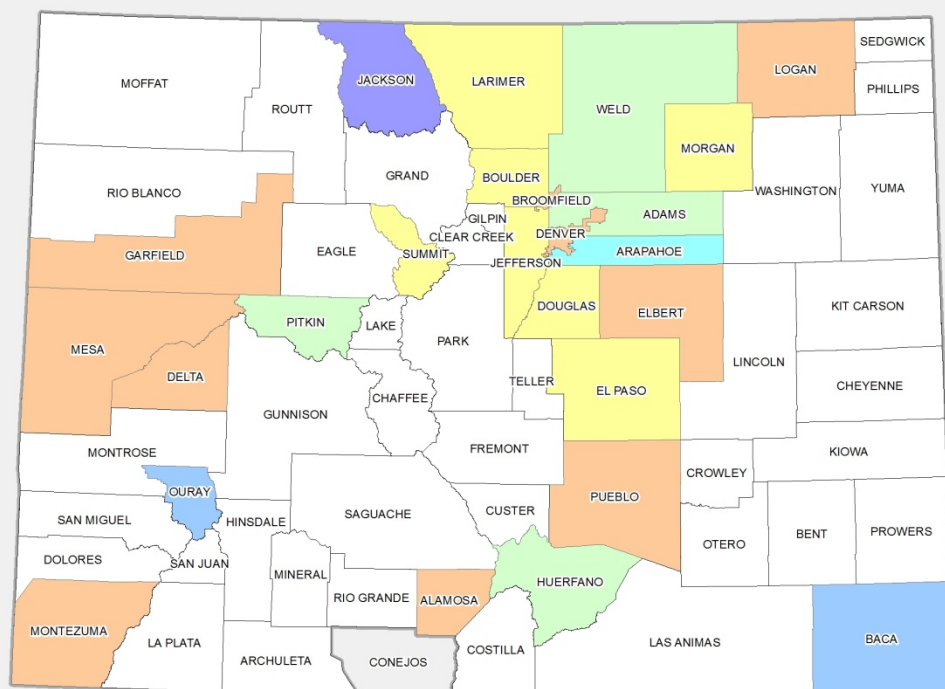
*Chronic cases may include 5%-10% of those cases that were also reported as acute cases in the same year

** Decimal places are rounded

*** Rates were calculated for everything except race and ethnicity using the 2011 Census

Estimates from the Demography Section, Colorado Division of Local Government: :

<http://www.colorado.gov/cs/Satellite/DOLA-Main/CBON/1251590805419>. Rates calculated for counties with a small number of reported cases should be interpreted with caution.

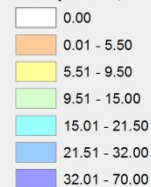


**Reported Hepatitis B Cases
Colorado, 2011
Colorado Electronic Disease
Reporting System (CEDRS)**

Legend

Hepatitis B rates by county 2011

Rate per 100,000



The rate is calculated using the Estimated 2011 Census figures from the Colorado Division of Local Government, Demography section. Rates calculated for counties with a small number of reported cases should be interpreted with caution.

