Hepatitis C in Colorado
2014 Surveillance Report

Cases of Acute Hepatitis C and Chronic Hepatitis C (past or present) 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 C cases newly reported to CDPHE in 2014. Technical notes and a public health surveillance summary follow the presentation of the data tables and figure.

Colorado Department
of Public Health
and Environment

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Table 1: Reported Hepatitis C Cases by Case Status, Sex, Age, and Race: Colorado, 2014

	Acute HCV Cases		Past or Present HCV Cases †		All HCV Cases	
	Number	Percent of Total	Number	Percent of Total	Total	Rate of Reported Cases/ 100,000 ‡
Total	33		4033		4066	69.5
Case Status						
Confirmed	33	100.0%	3628	90.0	3661	69.5
Probable	0	0.0%	0	0.0%	0	0.0
Suspect	0	0.0%	405	10.0%	405	7.7
Gender						
Female	18	54.6%	1455	36.1%	1473	28.0
Male	15	45.5%	2574	63.8%	2589	49.2
Unknown	0	0.0%	4	0.1%	4	0.1
Age						
0-4	1	3.0%	6	0.1%	7	0.1
5-9	0	0.0 %	2	0.0%	2	0.0
10-19	2	6.1%	36	0.9%	38	0.7
20-29	22	66.7%	525	13.0%	547	10.4
30-39	4	12.1%	639	15.8%	643	12.2
40-49	2	6.1%	706	17.5%	708	13.4
50-59	2	6.1%	1326	32.9%	1328	25.2
60+	0	0.0%	791	19.6%	791	15.0
Unknown	0	0.0%	2	0.1%	2	0.1
Ethnicity						
Hispanic	6	18.2%	227	5.6%	233	4.4
Race *						
White	31 (6)	93.9%	1219(117)	30.2%	1250(123)	23.7
Black	0	0.0%	126(2)	3.1%	126(2)	0.7
American Indian	1	3.0%	37(5)	0.9%	38(5)	0.3
Asian/Pacific Islander	0	0.0%	18(1)	0.5%	18(1)	0.2
Other/Missing/ Unknown	1	0.0%	2642	65.5%	2643	50.2
> 1 race selected**	0	0.0%	9	0.2%	9	

* Multiple races can be selected.The number in brackets denotes Hispanic ethnicity. Race was not identified for all Hispanic ethnicity.
**These individuals are counted above in all identified races.
†Past or present cases may include 5-10% of acute cases reported for the same year and cases who have resolved the infection.
‡ Rates per 100,000 were calculated using the U.S. Census Bureau, Population Division, *Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States and States: April 1, 2010 to July 1, 2014,*.
http://www.census.gov/popest/data/index.html. Rates calculated for counties with few cases and small populations should be interpreted with caution. This is not a rate of disease incidence.

Table 2: Reported Hepatitis C Cases by Risk Factor, and Percentage of Cases Reporting the Risk Factor, Colorado, 2014 †

	Acute HCV Cases		Past or Present HCV Cases		All HCV Cases
	Number	Percent of Total	Number	Percent of Total	Total
Total	33		4033		4066
IVDU					
Yes	20	60.6%	293	7.3%	313
No	7	21.2%	16	0.4%	23
Unknown	1	3.0%	35	0.9%	36
Missing	5	15.2%	3689	91.5%	3694
Household Contact					
Yes	2	6.1%	3	0.1%	5
No	0	0.0%	0	0.0%	0
Unknown	0	0.0%	0	0.0%	0
Missing	31	93.9%	4030	99.9%	4061
Sex Contact					
Yes	5	15.2%	32	0.8%	37
No	0	0.0%	0	0.0%	0
Unknown	0	0.0%	0	0.0%	0
Missing	28	84.8%	4001	99.2%	4029
MSM	15 male cases		2574 male cases		
Yes	2	6.1%	2	0.0%	4
No	6	18.2%	3	0.0%	9
Unknown	2	6.1%	30	0.7 %	32
Missing	5	15.2%	2539	63.0%	2544

†Risk factor categories are not mutually exclusive.

Table 3: Number and Percentage of Reported Acute and Chronic Hepatitis C Cases by County of Residence: Colorado, 2014

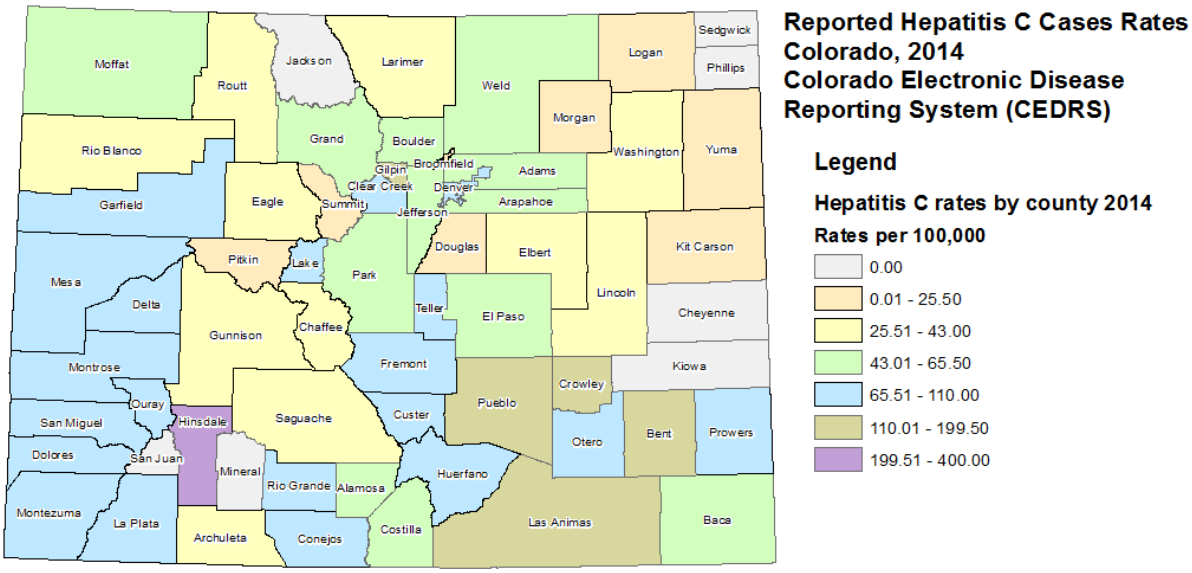
	Acute HCV Cases		Past or Present HCV Cases †		All HCV Cases	
	Number	Percent of Total	Number	Percent of Total	Total	Rate of Reported Cases/ 100,000 ‡
Total	33		4033		4066	62.2
County of Residence						
Adams	1	3.0%	234	5.80%	235	50.1
Alamosa	0	0.0%	10	0.25%	10	63.3
Arapahoe	4	12.1%	289	7.17%	293	48.3
Archuleta	0	0.0%	4	0.10%	4	32.9
Baca	0	0.0%	2	0.05%	2	54.5
Bent	0	0.0%	11	0.27%	11	193.9
Boulder	2	6.1%	132	3.27%	134	43.2
Broomfield	0	0.0%	11	0.27%	11	18.5
Chaffee	0	0.0%	5	0.12%	5	27.3
Cheyenne	0	0.0%	0	0.00%	0	0.0
Clear Creek	0	0.0%	6	0.15%	6	66.5
Conejos	0	0.0%	6	0.15%	6	72.9
Costilla	0	0.0%	2	0.05%	2	57.0
Crowley	0	0.0%	8	0.20%	8	153.1
Custer	0	0.0%	3	0.07%	3	69.8
Delta	0	0.0%	21	0.52%	21	69.3
Denver	4	12.1%	662	16.41%	666	102.6
Dolores	0	0.0%	2	0.05%	2	99.4
Douglas	1	3.0%	55	1.36%	56	18.3
Eagle	0	0.0%	14	0.35%	14	26.7
Elbert	0	0.0%	9	0.18%	9	38.0
El Paso	3	9.1%	399	9.89%	402	61.3
Fremont	2	6.1%	39	0.97%	41	88.9
Garfield	0	0.0%	40	0.99%	40	69.8
Gilpin	0	0.0%	7	0.17%	7	125.2
Grand	0	0.0%	7	0.17%	7	49.0
Gunnison	0	0.0%	5	0.12%	5	32.4
Hinsdale	0	0.0%	2	0.05%	2	248.4
Huerfano	1	3.0%	5	0.12%	6	92.8
Jackson	0	0.0%	0	0.00%	0	0.0
Jefferson	3	9.1%	285	7.07%	288	52.2
Kiowa	0	0.0%	0	0.00%	0	0

	Acute HCV Cases		Past or Present HCV Cases †		All HCV Cases	
	Number	Percent of Total	Number	Percent of Total	Total	Rate of Reported Cases/ 100,000 ‡
Kit Carson	0	0.0%	2	0.05%	2	24.8
Lake	0	0.0%	7	0.17%	7	95.8
La Plata	2	6.1%	51	1.26%	53	99.2
Larimer	1	3.0%	116	2.88%	117	37.1
Las Animas	0	0.0%	23	0.57%	23	160.2
Lincoln	0	0.0%	2	0.05%	2	36.9
Logan	0	0.0%	5	0.12%	5	22.9
Mesa	2	6.1%	134	3.32%	136	92.0
Mineral	0	0.0%	0	0.00%	0	0.0
Moffat	0	0.0%	7	0.17%	7	53.5
Montezuma	0	0.0%	25	0.62%	25	97.5
Montrose	0	0.0%	29	0.72%	29	71.2
Morgan	0	0.0%	7	0.17%	7	24.7
Otero	1	3.0%	15	0.37%	16	86.3
Ouray	0	0.0%	3	0.07%	3	66.2
Park	0	0.0%	10	0.25%	10	61.8
Phillips	0	0.0%	0	0.00%	0	0.0
Pitkin	0	0.0%	2	0.05%	2	11.5
Prowers	1	3.0%	10	0.25%	11	89.9
Pueblo	3	9.1%	200	4.96%	203	125.9
Rio Blanco	0	0.0%	2	0.05%	2	29.5
Rio Grande	1	3.0%	8	0.20%	9	76.7
Routt	0	0.0%	10	0.25%	10	42.7
Saguache	0	0.0%	2	0.05%	2	32.1
San Juan	0	0.0%	0	0.00%	0	0.0
San Miguel	0	0.0%	6	0.15%	6	78.3
Sedgwick	0	0.0%	0	0.00%	0	0.0
Summit	0	0.0%	5	0.12%	5	17.5
Teller	0	0.0%	18	0.45%	18	77.3
Washington	0	0.0%	2	0.05%	2	41.9
Weld	1	3.0%	119	2.95%	120	44.5
Yuma	0	0.0%	1	0.02%	1	9.9
Unspecified	0	0.0%	937	29.36%	937	

Total Unspecified	Chronic HCV Cases	
	Number	%
CDOC	330	35.2%
FCI	71	7.6%
Other	536	57.2.%

†Past or present chronic cases may include 5-10% of acute cases reported for the same year

‡ Rates per 100,000 were calculated using the U.S. Census Bureau, Population Division, *Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2014*, http://www.census.gov/popest/data/index.html. Rates calculated for counties with few cases and small populations should be interpreted with caution



Rates per 100,000 were calculated using the U.S. Census Bureau, Population Division, Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2014, http://www.census.gov/popest/data/index.html. Rates calculated for counties with few cases and small populations should be interpreted with caution.

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Technical Notes Hepatitis C Surveillance

Epidemiology

Viral hepatitis surveillance in Colorado is primarily based on laboratory reporting of serologic results. Laboratory-based reporting enables the identification of symptomatic persons infected by the virus as well as those persons that were identified based on screening recommendations. In Colorado, the Board of Health requires physicians and other health care providers to report suspected cases of acute hepatitis C within 7 days, and laboratories to report positive HCV serologic tests (including positive serum antibody titers with signal-to-cutoff ratios or more specific 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 the appropriate diagnosis and case status for each patient.

Acute Hepatitis C

Acute hepatitis C is the first stage of hepatitis C infection and may be identified two weeks to six months after the exposure to the virus. Many people with hepatitis C do not have symptoms and do not know they are infected. If symptoms occur, they may include fever, headache, malaise, nausea, vomiting,

diarrhea, abdominal pain, and jaundice. Abnormal liver function tests are one of the most characteristic features. The Colorado Department of Public Health and Environment (CDPHE) uses case definitions published by the National Notifiable Diseases Surveillance System (NNDSS) to define an acute case. These can be found at http://wwwn.cdc.gov/NNDSS/script/conditionsummary.aspx?CondID=83

Past or Present Hepatitis C

Up to 85% of persons infected with hepatitis C, develop chronic infection. Chronic liver disease or liver cancer develops in approximately 15 -25% of people infected with the hepatitis C virus for 20 years or longer. When symptoms appear, they are often a sign of advanced liver disease and may include the same symptoms as an acute infection. The surveillance case definition relates to past or present cases of hepatitis C rather than truly chronic infections. A present case can only be identified with additional viral load testing. The case definition for hepatitis C past or present can be found at http://wwwn.cdc.gov/NNDSS/script/conditionsummary.aspx?CondID=84

The CDPHE Viral Hepatitis Program attempts to interview all acute cases. In 2014, it also attempted to follow-up on a subset of chronic cases that were less than 30 years of age or who had liver enzymes ≥ 400 IU/L. Follow-up includes soliciting more risk and clinical information from healthcare providers. If a demographic or risk variable is reported as missing, the information was not located by the disease investigators. If the variable is reported as unknown, then the investigator asked the question or located the information in a report and it was marked unknown. For example, a case investigator may review a medical record for a case and find a question related to race that was not marked. In that case, the variable was "missing." If a person did not know whether or not their household contacts had hepatitis C, they would respond "don't know" or "unknown."

Public Health Surveillance Summary for Hepatitis C

In 2014, a total of 33 acute cases and 4066 chronic cases of hepatitis C were reported in Colorado. Table 1 describes the distribution of reported cases by gender, age, race and ethnicity. Rates include acute and chronic case reports even though up to 85% 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. Rates per 100,000 were calculated using the 2014 estimates from the U.S. Census Bureau, Population Division.[i] Table 3 describes the distribution of acute and chronic hepatitis C cases by county of residence.

Gender

In 2014, a total of 33 acute cases of hepatitis C were reported in Colorado. The majority of the reported acute cases of hepatitis C were females (n=18; 54.6%); 15 male cases were reported (45.5%). For chronic HCV infections, 63.8% of the total 4033 reported cases were among men (n=2574), as compared to 1,455 (36.1%) in women.

Age

Persons 20-29 years of age had the highest number of reported acute cases (n=22). For chronic infections, persons 50-59 years of age had the highest number of reported cases (n=1,326). These reports support recent recommendations by the U.S. Centers for Disease Control and Prevention (CDC). The recommendation states that adults born during 1945-1965 should receive one-time testing for HCV without prior ascertainment of HCV risk.[ii] They also suggest that additional testing be considered for younger age groups with risk factors for hepatitis C.

Race/Ethnicity

Data on race and ethnicity was missing, unknown, or reported as other for 65% of the reported cases of chronic HCV. Among the reported cases that included race, White non-Hispanics had the highest number of chronic cases (n=1,102; 27% of cases) and acute cases (n=25; 70%).

Risk Factors

Risk factor data include: injection drug use (IDU), household contact, sex contact, and healthcare exposures. These data were obtained through patient interviews, medical record reviews, or information provided by a physician, hospital, or other healthcare provider. Injection drug use is the most commonly reported risk factor for both acute and chronic hepatitis C infections.

County Distribution

Acute hepatitis C was reported in 17 of the 64 Colorado counties. Chronic hepatitis C was reported in 57 of the 64 Colorado counties. The ten counties with the most number of reported cases (63.8% combined were (Adams, Arapahoe, Boulder, Denver, El Paso, Jefferson, Larimer, Mesa, Pueblo, and Weld.) There were a significant number of chronic cases reported in rural and frontier counties.[iii] Altogether, only seven rural and frontier counties did not report a case. Incarcerated HCV chronic cases are counted in the "Unspecified" section under Colorado Department of Corrections (CDOC) or Federal Correctional Institute (FCI).

[i] US Census Bureau, Population Division. (Oct 2015). *Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States and States: April 1, 2010 to July 1, 2014.* Retrieved from http://www.census.gov/popest/data/index.html.

[ii] Centers for Disease Control and Prevention. (17 August 2012). Recommendations for the Identification of Chronic Hepatitis C Virus Infection Among Persons Born During 1945–1965. *MMWR 61*(RR04), 1-18.

[iii] Rural areas are sparsely populated and isolated from population centers and services.