

Hepatitis C in Douglas County, Colorado 2008-2013 Epidemiological Profile Report

Cases of Acute and Chronic Hepatitis C in Douglas County

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 reported to CDPHE from 2008-2013



Colorado Department
of Public Health
and Environment

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Douglas County is located in northeast Colorado with an estimated population of 306,032 in 2013.¹ The median age in Douglas County is 37. The median household income is \$101,193, and the county poverty rate is 2%, compared to 19% for the region.² There are 102,018 households in Douglas County with the majority being married with children (37%), married with no children (31%), single households (18%), and single parent households (7%).² The leading occupation by industry in Douglas County is Business, Science, and Arts (52%) and Sales and Office work (27%). According to the United States Census, the largest ethnic group in the county are White 84.3%, followed by Hispanic or Latino 8.1%, Asian 4.1%, two or more races 2.4%, Black or African American 1.4%, American Indian and Alaska Native 0.5%, and Native Hawaiian and Other Pacific Islander 0.1%.³ The data in this report is current as of December 31, 2014. The state database is constantly being updated as lab reports are received and new cases are confirmed or deleted.

Hepatitis C in Douglas County

Table 1: Reported Hepatitis C Cases by Case Status, Gender, Age, and Race: Douglas County, 2013

	Acute HCV Cases		Chronic HCV Cases †		All HCV Cases	
	Number	Percent of Total	Number	Percent of Total	Total	Rate of Reported Cases/ 100,000 ‡
Total (State)	23	100%	3257	100%	3280	62.3
Total (Douglas)	0	0.0%	57	1.8%	57	18.6
Case Status						
Confirmed	0	0.0%	49	86.0%	49	16.0
Probable	0	0.0%	0	0.0%	0	0.0
Suspect	0	0.0%	8	14.0%	8	2.6
Gender						
Female	0	0.0%	24	42.1%	24	7.8
Male	0	0.0%	32	56.1%	32	10.5
Unknown	0	0.0%	1	1.8%	1	0.3
Age (years)						
0-9	0	0.0%	0	0.0%	0	0.0
10-19	0	0.0%	2	3.5%	2	0.7
20-29	0	0.0%	12	21.1%	12	3.9
30-39	0	0.0%	8	14.0%	8	2.6
40-49	0	0.0%	13	22.8%	13	4.2
50-59	0	0.0%	11	19.3%	11	3.6
60+	0	0.0%	11	19.3%	11	3.6
Unknown	0	0.0%	0	0.0%	0	0.0
Race/Ethnicity						

Hispanic	0	0.0%	2	3.5%	2	0.7
White non-	0	0.0%	10	17.5%	10	3.3
Hispanic	0	0.0%	1	1.8%	1	0.3
Black non-	0	0.0%	0	0.0%	0	0.0
Hispanic	0	0.0%	0	0.0%	0	0.0
American	0	0.0%	0	0.0%	0	0.0
Indian	0	0.0%	0	0.0%	0	0.0
Asian/Pacific	0	0.0%	0	0.0%	0	0.0
Islander	0	0.0%	0	0.0%	0	0.0
Multiple	0	0.0%	0	0.0%	0	0.0
Other/Missing/ Unknown	0	0.0%	44	77.2%	44	14.4

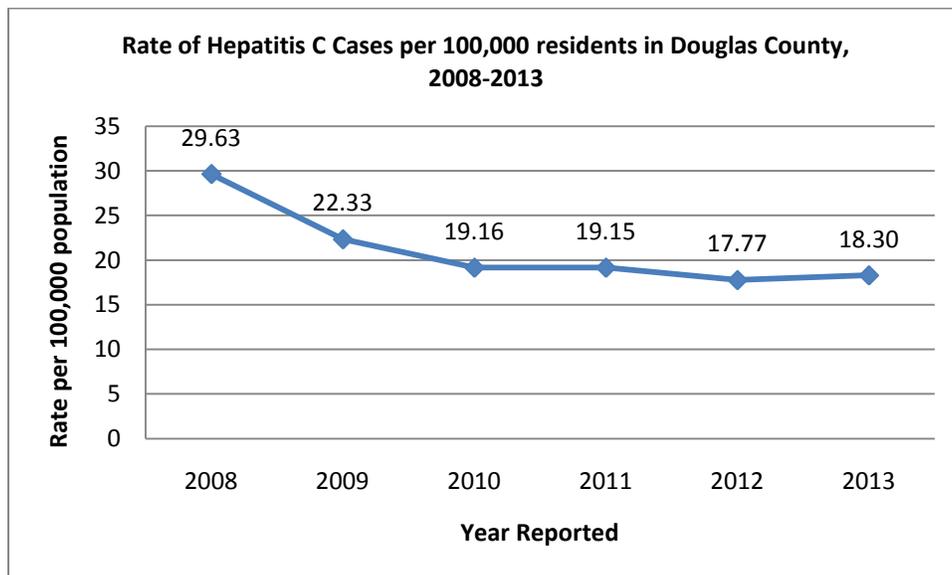
Data is current as of 12/31/2014.

Table 2: Reported Hepatitis C Cases by Case Status, Gender, Age, and Race: Douglas County, 2008-2013

	Acute HCV Cases		Chronic HCV Cases †		All HCV Cases	
	Number	Percent of Total	Number	Percent of Total	Total	Rate of Reported Cases/100,000 ‡
Total (State)	184	100%	20401	100%	20585	67.5
Total (Douglas)	4	2.2%	361	1.8%	365	20.9
Case Status						
Confirmed	2	50.0%	338	93.6%	340	19.5
Probable	2	50.0%	0	0.0%	2	0.1
Suspect	0	0.0%	23	6.4%	23	1.3
Gender						
Female	2	50.0%	161	44.6%	163	9.4
Male	2	50.0%	199	55.1%	201	11.5
Unknown	0	0.0%	1	0.3%	1	0.1
Age (years)						
0-9	0	0.0%	0	0.0%	0	0.0
10-19	0	0.0%	6	1.7%	6	0.3
20-29	2	50.0%	41	11.4%	43	2.5
30-39	1	25.0%	43	11.9%	44	2.5
40-49	1	25.0%	88	24.4%	89	5.1
50-59	0	0.0%	126	34.9%	126	7.2
60+	0	0.0%	57	15.8%	57	3.3
Unknown	0	0.0%	0	0.0%	0	0.0
Race/Ethnicity						
Hispanic	0	0.0%	4	1.1%	4	0.2
White non-	4	100.0%	95	26.3%	99	5.7

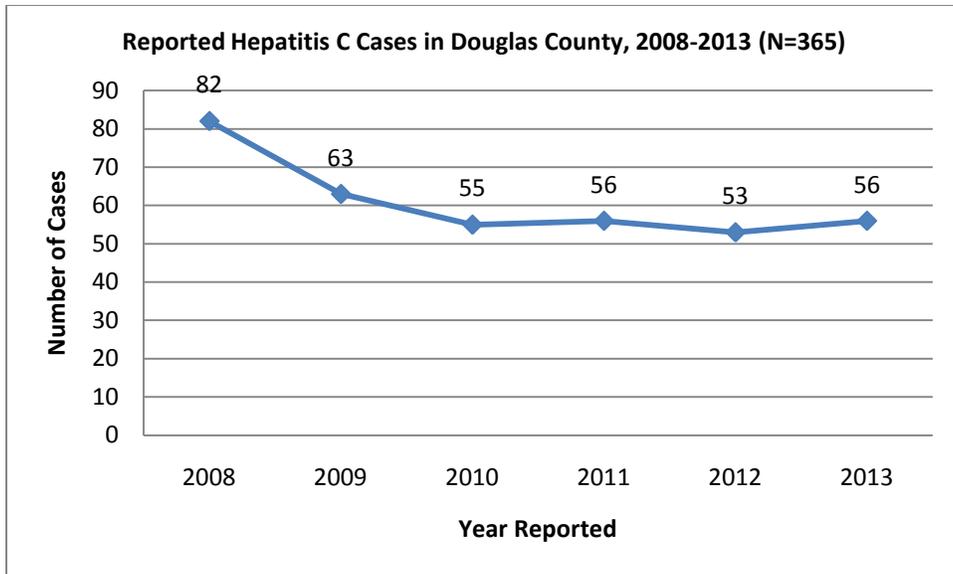
Hispanic						
Black non-Hispanic	0	0.0%	7	1.9%	7	0.4
American Indian	0	0.0%	0	0.0%	0	0.0
Asian/Pacific Islander	0	0.0%	3	0.8%	3	0.2
Multiple	0	0.0%	0	0.0%	0	0.0
Other/Missing/Unknown	0	0.0%	252	69.8%	252	14.5

Data is current as of 12/31/2014.



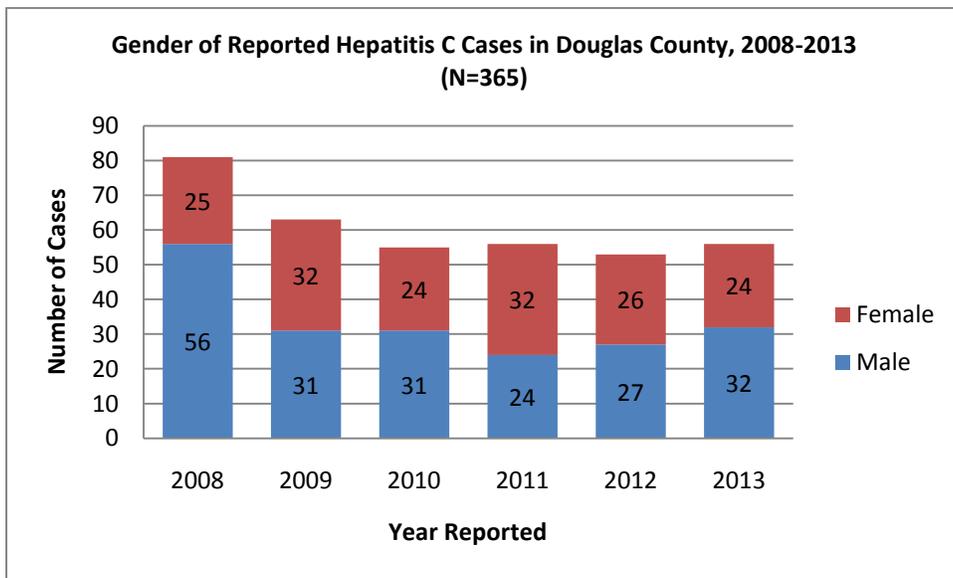
Data is current as of 12/31/2014.

Figure 1. The number of reported Hepatitis C cases in Douglas County, 2008-2013



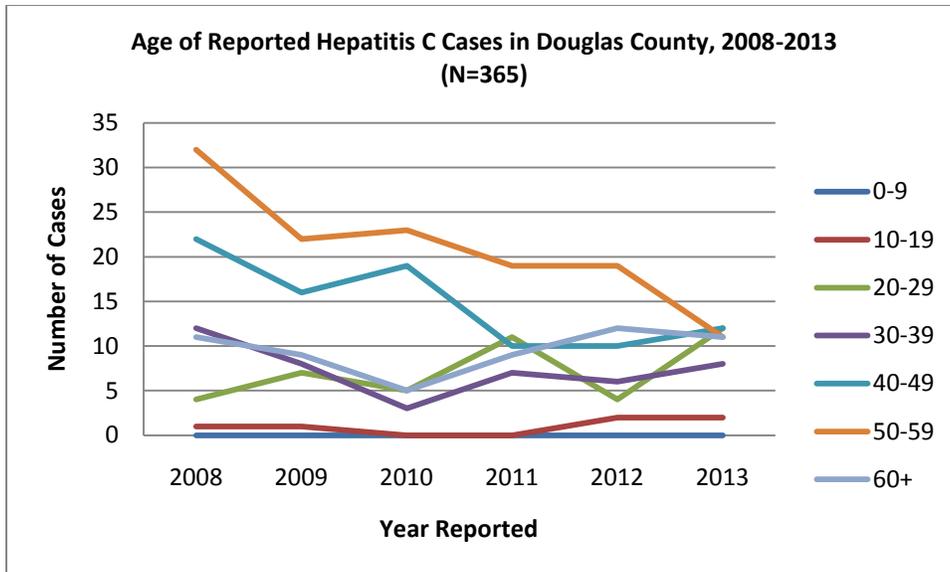
Data is current as of 12/31/2014.

Figure 2. The rate of Hepatitis C cases in Douglas County, 2008-2013



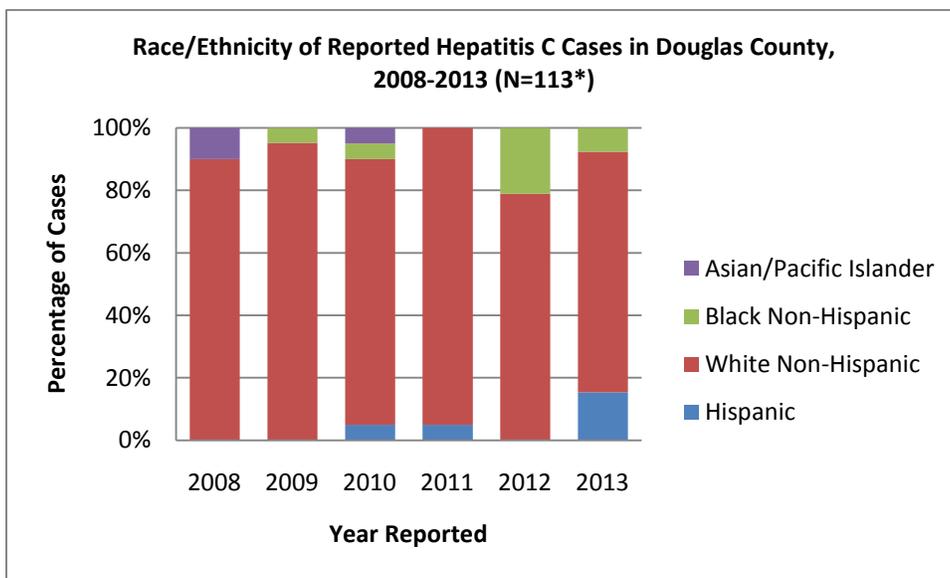
Data is current as of 12/31/2014.

Figure 3. The gender of reported Hepatitis B cases in Douglas County, 2008-2013



Data is current as of 12/31/2014.

Figure 4. The age of reported Hepatitis B cases in Douglas County, 2008-2013



Data is current as of 12/31/2014.

Figure 5. The race/ethnicity of reported Hepatitis B cases in Douglas County, 2008-2013

Table 3: Reported Hepatitis C Cases by Risk Factor, and Percentage of Cases Reporting the Risk Factor: Douglas County, 2013†

	Acute HCV Cases		Chronic HCV Cases †		All HCV Cases
	Number	Percent of Total	Number	Percent of Total	Total
Total	0		57		57
IVDU					
Yes	0	0.0%	5	8.8%	5
No	0	0.0%	0	0.0%	0
Unknown	0	0.0%	0	0.0%	0
Missing	0	0.0%	52	91.2%	52
Household Contact					
Yes	0	0.0%	0	0.0%	0
No	0	0.0%	1	1.8%	1
Unknown	0	0.0%	0	0.0%	0
Missing	0	0.0%	56	98.2%	56
Sex Contact					
Yes	0	0.0%	1	0.0%	1
No	0	0.0%	0	1.8%	0
Unknown	0	0.0%	0	0.0%	0
Missing	0	0.0%	56	98.2%	56
Baby Boomer					
Yes	0	0.0%	25	43.9%	25
No	0	0.0%	32	56.1%	32
MSM					
Yes	0	0.0%	0	0.0%	0
No	0	0.0%	0	0.0%	0
Unknown	0	0.0%	1	1.8%	1
Missing	0	0.0%	56	98.2%	56

Data is current as of 12/31/2014.

†Risk factor categories are not mutually exclusive.

Table 4: Reported Hepatitis C Cases by Risk Factor, and Percentage of Cases Reporting the Risk Factor: Douglas County, 2008 - 2013†

	Acute HCV Cases		Chronic HCV Cases †		All HCV Cases
	Number	Percent of Total	Number	Percent of Total	Total
Total	4		361		365
IVDU					
Yes	1	25.0%	26	7.2%	27
No	1	25.0%	11	3.0%	12
Unknown	1	25.0%	171	47.4%	172
Missing	1	25.0%	153	42.4%	154
Household Contact					
Yes	0	0.0%	0	0.0%	0
No	2	50.0%	7	1.9%	9
Unknown	1	25.0%	153	42.4%	154
Missing	1	25.0%	201	55.7%	202
Sex Contact					
Yes	0	0.0%	2	0.6%	2
No	2	50.0%	5	1.4%	7
Unknown	1	25.0%	153	42.4%	154
Missing	1	25.0%	201	55.7%	202
Baby Boomer					
Yes	0	0.0%	207	57.3%	207
No	4	100.0%	154	42.7%	158
Unknown	0	0.0%	0	0.0%	0
MSM					
Yes	2	50.0%	5	1.4%	7
No	0	0.0%	2	0.6%	2
Unknown	1	25.0%	185	51.2%	186
Missing	1	25.0%	169	46.8%	170

Data is current as of 12/31/2014.

†Risk factor categories are not mutually exclusive.

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 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 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, and only 52.3% of cases included both an anti-HCV and an HCV RNA test. 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 2013, it also attempted to follow-up on a subset of chronic cases by 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 reviewed a medical record for a case and found 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.”

Hepatitis C Morbidity

Surveillance Summary for Hepatitis C

From 2008-2013, a total of 18 cases of acute hepatitis C and 1917 cases of chronic hepatitis C were reported in Colorado. In 2013, a total of 0 acute cases and 56 chronic cases of hepatitis C were reported in Douglas County, Colorado. Table 1 and Figure 1 and 2 describe the distribution of reported cases by case status, gender, age, race/ethnicity, for 2013 and for 2008-2013. 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. Rates per 100,000 were calculated using the 2013 estimates from the U.S. Census Bureau, Population Division.⁵

Gender

In 2013, for chronic HCV infections, a total of 56 cases were reported in Douglas County. 56.1% of the total 56 reported cases were among men (n=32), as compared to 24 (42.1%) in women. Over the 2008 to 2013 time period, acute cases of hepatitis C were equal among men (n=2, 50%) and women (n=2, 50%). For chronic hepatitis C cases during the time period of 2008 to 2013 men also had higher percentage of the disease burden (n=199, 55.1%) when compared to women (n=161, 44.6%) in Douglas County. The numbers for 2008 to 2013 are displayed in Figure 3.

Age

For chronic infections in 2013, persons 20-29 years of age and 40-49 had the highest number of reported cases (n=12, 21.1%) in Douglas County. For the 2008 to 2013 time period, the majority of chronic hepatitis C cases were in the 50-59 years of age range (n=126, 34.9%) (Figure 4). 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.⁴ They also suggest that additional testing might need to be done among younger age groups with risk factors for hepatitis C.

Race/Ethnicity

Data on race and ethnicity was missing, unknown, or reported as other for most of the reported cases of chronic HCV (n=43; 77.2%) in 2013. Among the reported cases that included race, White non-Hispanics had the highest number of chronic cases (n=10; 17.5% of cases) in 2013. From 2008 to 2013, the majority of cases were reported as other (n=252, 69.8%), followed by White non-Hispanics (n=95, 26.3%), Black non-Hispanics (n=7, 1.9%), Hispanics (n=4, 1.1%), and Asian/Pacific Islanders (n=3, 0.8%) as displayed in Figure 5.

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. Twenty acute cases offered information on risk factors.

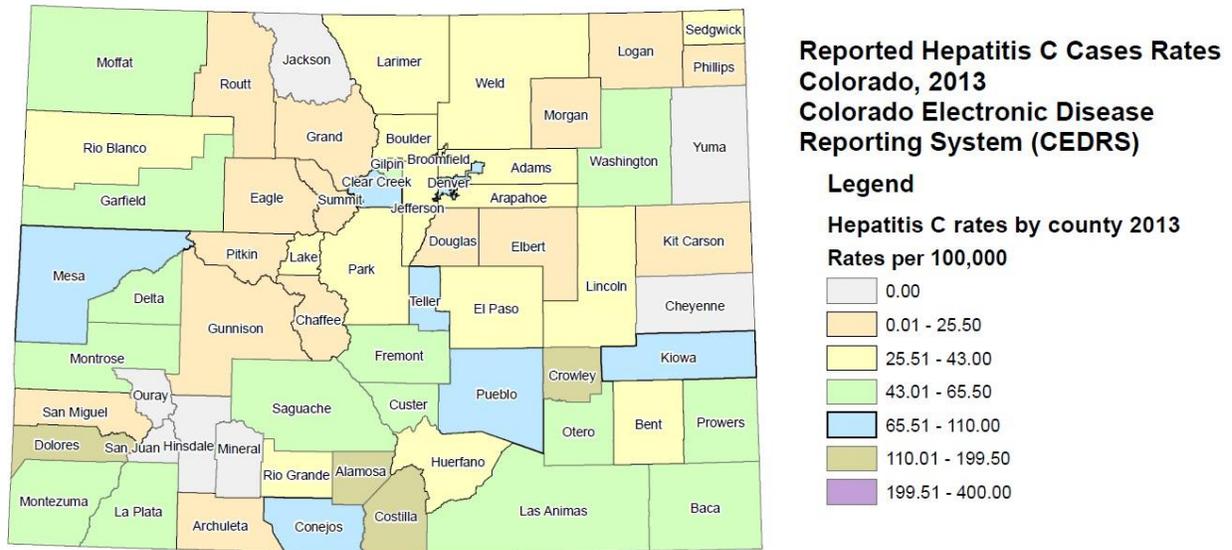


Figure 6. This map shows the rate distribution of hepatitis C per 100,000 county populations in Colorado. The rate is calculated using the 2013 estimated population figures from the U.S. Census Bureau, Population Division.⁵

References

¹ Population figures for 2000-2013 are 2013-based estimates from the Demographer's Office, Colorado Department of Local Affairs.

² Denver Regional Council of Governments-Douglas County Community Profile.
http://gis.drcog.org/datacatalog/sites/default/files/Douglas%20County_0.pdf

³ U.S Census Bureau, State and County Quick Facts-Douglas County, Colorado 2013
<http://quickfacts.census.gov/qfd/states/08/08035.html>

⁴Centers 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.

⁵US Census Bureau, Population Division. (June 2014). *Annual Estimates of the Resident Population*