
Viral Hepatitis Surveillance in Colorado

2021 Annual Report

March 2023



COLORADO
Department of Public
Health & Environment

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Acknowledgments

This report is published by the Colorado Department of Public Health and Environment (CDPHE), Denver, Colorado.

This report describes the epidemiology of hepatitis A, B and C in Colorado. CDPHE uses available data resources to report the burden and distribution of these conditions, as well as trends over time. A summary of each of the three types of viral hepatitis is followed by a more detailed description. Data are presented for all hepatitis A, B, and C cases reported to CDPHE by Dec. 26, 2022 for diagnoses through Dec. 31, 2021.

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This publication is available on the web at www.colorado.gov/cdphe/hepatitis-data. This report is compliant with data release guidelines established by CDPHE's Division of Disease Control and Environmental Epidemiology to ensure the protection of sensitive health information.

The Colorado Department of Public Health and Environment (CDPHE) acknowledges that racism is a public health crisis. It is a risk factor, a social determinant of health, and a root cause of health inequities. CDPHE also acknowledges that generation-long social, economic, and environmental inequities result in adverse health outcomes. They affect communities differently and have a greater influence on health outcomes than either individual choices or one's ability to access health care.

Reducing health inequities through policies and organizational systems can help improve opportunities for all Coloradans. CDPHE aspires to present data humbly, recognizing statistics and numbers never tell the complete story. The goal is to work collaboratively with individuals and communities to learn and share their stories to build a collective understanding. Knowing that people have different lived experiences and have inequitable opportunities to achieve optimal health, we commit to pair data and stories to inform programs and systems change to improve health for all. (Partially adapted from the [Denver Public Health, Health Equity Data Commitment and Principles](#)).



Acronyms

CCCR	Colorado Central Cancer Registry
CDC	Centers for Disease Control and Prevention
CDOC	Colorado Department of Corrections
CDPHE	Colorado Department of Public Health and Environment
CEDRS	Colorado Electronic Disease Reporting System
CSTE	The Council for State and Territorial Epidemiologists
DAAs	Direct-acting Antivirals
ELR	Electronic Laboratory Reporting
HAV	Hepatitis A Virus
HBIG	Hepatitis B immune globulin
HBsAg	HBV surface Antigen
HBV	Hepatitis B Virus
HCC	Hepatocellular Carcinoma
HCV	Hepatitis C Virus
IDU	Injection Drug Use
MSM	Men who have Sex with Men
NH	Non-Hispanic
NHANES	National Health and Nutrition Examination Survey
PEH	People Experiencing Homelessness
PWID	People Who Inject Drugs
PHBPP	Perinatal Hepatitis B Prevention Program
SVR	Sustained Virologic Response
TGA	Transitional Grant Area

Executive Summary

Viral hepatitis is a significant public health challenge. Hepatitis A virus (HAV), hepatitis B virus (HBV), and hepatitis C virus (HCV) can be transmitted in different ways, but each virus causes damage to the liver and can lead to severe complications and premature death.

There were a total of 2,009 confirmed cases of hepatitis A, B, and C reported to CDPHE in 2021. From 2017 to 2021, there were a cumulative 14,523 reported cases, 95% of which were chronic conditions. Data for 2021 can be seen in [Table 0.1](#) below.

Hepatitis D and E are not covered in this report due to low incidence in Colorado.

Table 0.1: Diagnoses and Rate per 100,000 of Hepatitis in Colorado, 2021

2021 Data Snapshot		
	Cases	Rate per 100,000
Hepatitis A	11	0.1
Hepatitis B, Acute	1	<0.1
Hepatitis B, Chronic	239	4.1
Hepatitis C, Acute	4	0.1
Hepatitis C, Chronic	1,752	30.1

Hepatitis A

HAV is preventable as there is a safe and effective vaccine available. As a result of the vaccine, the number of HAV cases has decreased. However, outbreaks of HAV among unvaccinated people still happen.¹

In 2019, the United States experienced new or ongoing outbreaks of HAV in 33 states, including Colorado; Colorado’s outbreak lasted until January 2021. The groups highest at risk for HAV are people who use drugs, people experiencing unstable housing or homelessness, men who have sex with men, and those that are or recently have been incarcerated.²

¹ CDC. Vaccine Information Statement - Hepatitis A. 2020. <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-a.html>

² CDC. Widespread person-to-person outbreaks of hepatitis A across the United States. 2020. <https://www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm>



Hepatitis B

No cure exists for HBV but it is preventable through vaccination. However, vaccination coverage remains low. The most recent estimation of vaccination done by the CDC in 2018 showed that only 30% of adults over 19 had been adequately vaccinated for HBV.³ Due to suboptimal vaccination coverage in adults, in April of 2022 the CDC updated their recommendations for HBV vaccines to be recommended to all adults aged 19-59.⁴

In 2021, the rate of reported acute HBV cases in Colorado dropped to less than 0.1 diagnoses per 100,000 (n=1). Nationally, the United States saw a 32% decrease in acute HBV cases after 2019.⁵ To correctly identify and classify an acute HBV case, CDPHE case ascertainment specialists need to follow up with labs and clients. Due to staffing capacity in 2020 and 2021, this follow up was not done, likely resulting in an underestimation of acute HBV cases in Colorado.

The rate of chronic HBV cases increased from 3.5 to 4.1 diagnoses per 100,000 (n=239) from 2020 to 2021, but remains lower than pre-pandemic rates seen in Colorado.

The decreases seen in reported HBV cases were likely affected, or caused by, the COVID-19 pandemic. Worldwide, liver clinic visits and diagnostic imaging decreased drastically in the beginning of the pandemic in 2020⁶ and HBV prevention, diagnosis, and treatment services were disrupted overall.⁷

There were zero perinatal hepatitis B cases in 2021 in Colorado. In Colorado, the hepatitis B birth dose vaccination rate was 83.3% in 2021, which was a slight decrease from the 2020 vaccination rate.

Hepatitis C

Currently, HCV does not have a vaccine. Fortunately, there are treatments that can cure most cases of HCV in eight to twelve weeks.⁸

Incidence of hepatitis C in Colorado had been increasing until 2020, when the COVID-19 pandemic reduced overall testing and treatment for hepatitis C. Hepatitis C antibody and hepatitis C RNA testing

³ CDC. Universal Hepatitis B Vaccination in Adults Aged 19-59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices – United States, 2022. <https://www.cdc.gov/mmwr/volumes/71/wr/mm7113a1.htm>

⁴ CDC. Universal Hepatitis B Vaccination in Adults Aged 19-59 Years: Updated Recommendations of the Advisory Committee on Immunization Practices – United States, 2022. <https://www.cdc.gov/mmwr/volumes/71/wr/mm7113a1.htm>

⁵ CDC. 2020 Viral Hepatitis Surveillance Report. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/index.htm>

⁶ Toyoda, Hidenori. Liver Care and Surveillance: The Global Impact of the COVID-19 Pandemic. *Hepatology Communications*. 2020 Aug 3;4(12):1751-1757.

⁷ Pley, Caitlin. The global impact of the COVID-19 pandemic on the prevention, diagnosis and treatment of hepatitis B virus (HBV) infection. *BMJ Global Health*. 2021; 6(1):e004275.

⁸ CDC. Hepatitis C Questions and Answers for the Public. 2019. <https://www.cdc.gov/hepatitis/hcv/cfaq.htm>

decreased by 59% and 62% nationally in the spring of 2020, respectively.⁹ A study of national laboratory data showed a decline of positive HCV tests during the first months of the pandemic in 2020, by approximately 60%.¹⁰ Therefore, lower reported cases during pandemic years may be a result of underreporting and underdiagnosing. Additionally, to correctly identify an acute hepatitis C case, CDPHE case ascertainment specialists need to follow up with labs and clients. Due to staffing capacity in 2020 and 2021, this follow up was not done, likely resulting in an overall underestimation of acute HCV cases in Colorado.

Nationally, acute HCV incidence increased by 15% from 2019 to 2020.¹¹

The most recent estimation of hepatitis C prevalence in the United States done by the CDC in 2018 showed that nearly 2.4 million Americans were living with HCV¹², and an estimated 44,000 people are newly infected every year.¹³ Although HCV is curable as stated above, only an estimated 56% of people living with HCV are aware of their infection¹⁴ and only about 1 of every 14 cases are reported to public health.¹⁵

In Colorado in 2021, the majority of both acute and chronic cases occurred in people aged 20-39. The rate of reported chronic HCV cases among 20-39 year olds surpassed the rate among 40-59 year olds for the first time in 2018. In 2021, the chronic HCV rate among 20-39 year olds continued to follow this trend, having the highest rate of diagnosis (46.5 per 100,000) of all age groups. These trends are seen nationally, as well. The rate of new acute hepatitis C cases reported to the CDC among young people aged 20-39 has been increasing since 2010 with the most commonly reported behavioral risk factor being injection drug use.¹⁶

From 2017 to 2021, more diagnoses of chronic HCV occurred in federal or state prisons than any one county in Colorado. In 2018, the Colorado Department of Corrections (CDOC) committed 41 million dollars over two years to treat the incarcerated population living with chronic HCV. By the end of the

⁹ Kaufman, H. W., et al. Decreases in hepatitis C testing and treatment during the COVID-19 pandemic. *American Journal of Preventive Medicine*, 2021; 61(3), 369-376.

¹⁰ CDC. National Profile of Viral Hepatitis. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/introduction/national-profile.htm>

¹¹ CDC. 2020 Viral Hepatitis Surveillance Report. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/index.htm>

¹² Hofmeister, MG, et al. Estimating Prevalence of Hepatitis C Virus Infection in the United States, 2013-2016. *Hepatology*. 2019 Mar;69(3):1020-1031.

¹³ CDC. Surveillance for Viral Hepatitis - United States, 2017. <https://www.cdc.gov/hepatitis/statistics/2017surveillance/index.htm>

¹⁴ Kim HS, Yank JD, El-Serag HB, Kanwal F. Awareness of chronic viral hepatitis in the United States: An update from National Health and Nutrition Examination Survey. *J Viral Hepat*. 2019;26:596-602.

¹⁵ Klevens RM, Liu S, Roberts H, Jiles RB, Holmberg SD. Estimating acute viral hepatitis infections from nationally reported cases. *Am J Public Health*. 2014 Mar; 104(3):482-7.

¹⁶ CDC. Hepatitis C Surveillance 2020. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/hepatitis-c.htm>

2022 fiscal year (June 30, 2022), 1,226 offenders had been successfully treated for chronic HCV since 2018.

Perinatal HCV became a reportable condition in 2018. There were two cases of perinatal HCV in 2018, one case in 2019, three cases in 2020, and three cases in 2021.



Data Sources and Methods

This report provides a summary of confirmed viral hepatitis cases reported to CDPHE by laboratories and health care providers in 2021. Data from 2012-2021 and 2017-2021 are also included to examine trends over time. Reported cases represent a combination of new cases and new diagnoses from previously acquired cases. Surveillance of reported cases helps to highlight trends in condition reporting but gives an underestimate of the true burden of conditions.

Colorado Electronic Disease Reporting System (CEDRS)

Colorado law requires both laboratories and health care providers to report cases of viral hepatitis to CDPHE. Reports of diagnosis for HBV, HCV, and other viral hepatitis cases must be submitted to CDPHE within four calendar days. HAV reports must be submitted to CDPHE within one working day. Viral hepatitis surveillance in Colorado is primarily based on laboratory reporting of serologic results.

The data that form the basis of this report are principally reports of hepatitis among people living in Colorado at the time of their diagnosis. Cases are reported via electronic lab reporting (ELR) and are entered into the Colorado Electronic Disease Reporting System (CEDRS). Per state reporting requirements, laboratories must report all tests indicative of hepatitis, such as antibody tests and hepatitis viral loads. Upon receipt of these reports, CDPHE uses established case definitions to assign the appropriate diagnosis for each patient. If a case is listed as “probable” in CEDRS and a new test confirms the case, the case is reassigned as “confirmed” but retains the original reporting year.

Exposure or behavioral risk factor data can be obtained through patient interviews, medical record reviews, and information provided by a physician, hospital, or other health care provider. Information is more complete for those who are interviewed. These behavioral risk data are collected with options of “Yes”, “No”, and “Unknown” when indicated, or as checkboxes. The time period of inquiry is generally the six months prior to onset of symptoms for acute cases. Due to capacity and limited hepatitis funding, exposure and behavioral risk data is limited and should be interpreted with caution.

CDPHE attempts to interview all newly reported HAV, acute HBV, and acute HCV cases but does not have the capacity to interview chronic cases. Local public health agencies sometimes perform acute case interviews. Due to the COVID-19 pandemic in 2020 and 2021, staffing capacity issues prevented case ascertainment work from taking place. Therefore, acute HBV and HCV cases were not consistently interviewed in 2020 or 2021.

Additionally, CDPHE follows all people who can become pregnant 14 to 45 years of age who are reported to be living with HBV to ensure that, if they become pregnant, they are enrolled in the Perinatal Hepatitis B Prevention Program (PHBPP) to help prevent perinatal transmission. Infants born to individuals living with HBV should receive hepatitis B immune globulin (HBIG) and the first dose of the three dose HBV vaccine series within 12 hours of birth to begin immediate protection. PHBPP ensures infants receive these crucial shots at birth in addition to completing the vaccine series and receiving post vaccination serology to determine immune protection.

A Colorado Board of Health rule change in 2019 made negative confirmatory results for chronic HCV reportable which has enabled the identification of those who have been cured of HCV. Prior to 2019, this information was not available. Additionally, most demographic and behavioral risk information remains missing for chronic events, since most events are reported by laboratories, and the resources do not exist to follow up with cases.

Data collection options that included transgender identities were not available until March 2017, and case counts are small. No data collection options currently exist to analyze viral hepatitis among gender non-binary/non-conforming individuals. Additionally, some of the data may represent the sex assigned at birth rather than the current gender identity of individuals but this level of detail does not exist within the data.

Population Data

Population information from the Colorado Division of Local Affairs State Demography Office is used to compare the population to people reported with hepatitis by gender, age, race, ethnicity and county. If a person reported with hepatitis is incarcerated in a county jail, that event is assigned to the county of the jail location; however, if an event is identified in a state or federal prison, a county is not assigned. Instead, an institution type is selected in the event, and for the purposes of this report, the county is labeled “Prison”.

Health Care Policy and Financing Data (HCPF)

Race and ethnicity data from the Colorado Department of Health Care Policy and Financing (HCPF) is used to improve viral hepatitis surveillance data. Records are matched on name and date of birth to improve these data.

Center for Health and Environmental Data (CHED)

CDPHE's Vital Statistics Branch provided cause of death data from 2012 to 2021. The Colorado Central Cancer Registry (CCCR) Branch of CDPHE provided data on liver cancer from 2012 to 2021.

Background

Hepatitis A

HAV is a viral infection that affects the liver and appears only as an acute (newly occurring) infection that does not become chronic. The virus is transmitted fecal-orally or percutaneously through contact with a person infected with HAV.¹⁷ This can include sexual activity, shared drug use, or through eating or drinking contaminated food or water. Other behavioral risk factors for HAV transmission include homelessness or unstable housing, international travel, and men who have sex with men (MSM). People with HAV can have a mild illness lasting a few weeks to a more severe illness requiring hospitalization but mortality is low. A safe and effective vaccine to prevent HAV was introduced in 1995 and has been a recommended routine vaccination of all children aged 12-23 months since 2006. If a person knows they have been exposed to HAV, post-exposure prophylaxis (either immune globulin or HAV vaccine) can be administered within two weeks of exposure to prevent illness.

Hepatitis B

HBV is a bloodborne illness that can occur as an acute or chronic infection. It can range in severity from a mild illness that can become immune-controlled to a serious, lifelong illness that can result in death. The virus can replicate in the liver for years causing damage, often without symptoms. However, HBV is preventable and can be managed if treated appropriately.

Transmission of HBV occurs most often by three routes: perinatally (mother to child at birth), through direct contact with blood, or through direct contact with semen or vaginal fluids. The likelihood of perinatal transmission is estimated to be 40% without postexposure immunoprophylaxis.¹⁸ Additionally 90% of infants who perinatally acquire HBV and 5% of adults will develop a chronic, incurable infection.¹⁹

¹⁷ CDC. People Who Use or Inject Drugs and Viral Hepatitis.

<https://www.cdc.gov/hepatitis/populations/idu.htm#:~:text=People%20Who%20Use%20or%20Inject%20Drugs%20and%20Hepatitis%20A&text=While%20hepatitis%20A%20can%20affect,vaccine%20for%20PWUD%20and%20PWID>.

¹⁸ CDC. Perinatal Transmission. <https://www.cdc.gov/hepatitis/hbv/perinatalxmtn.htm>

¹⁹ CDC. Hepatitis B Questions and Answers for Health Professionals. 2022. <https://www.cdc.gov/hepatitis/hbv/bfaq.htm>

There is no cure for chronic HBV. A safe and effective vaccine to prevent HBV has been a recommended routine vaccination of all infants since 1991.

Hepatitis C

HCV is a bloodborne illness that can be transmitted perinatally or through direct contact with blood. Acute HCV infection occurs an average of 14 (two to 26) weeks after exposure to the virus. Approximately 70 to 80% of people with acute HCV will not exhibit symptoms, and most remain unaware of the infection.²⁰ Abnormal liver function tests are one of the most characteristic features of HCV infection.

The screening test for probable chronic HCV infection is an antibody test that, if positive, indicates a past or present exposure to HCV. An estimated 15 to 25% of people exposed to the virus will clear it spontaneously, while the remainder will develop chronic infection.²¹ Due to the unknown number of past cases that have either cleared the virus spontaneously or have been cured, only cases that have confirmatory lab results are included in this report. HCV is often asymptomatic until later stages of the condition and can result in liver fibrosis, cirrhosis, cancer and/or death. Of people living with unresolved, chronic HCV, 10 to 20% will develop cirrhosis over a period of 20 to 30 years.²²

Today, the most common exposure to HCV in the United States is through sharing needles, syringes, or other materials used to prepare and inject drugs.²³

While there is no vaccine for HCV, it is curable. Current treatments often involve 8 to 12 weeks of oral medication. This treatment is effective in 90% of cases and causes few side effects. Those with HCV should be closely monitored by their health care provider, even if they have been cured, because of the risk of liver conditions including cancer.²⁴

²⁰ CDC. Hepatitis C Questions and Answers for the Public. 2019. <https://www.cdc.gov/hepatitis/hcv/cfaq.htm>

²¹ CDC. Hepatitis C Questions and Answers for the Public. 2019. <https://www.cdc.gov/hepatitis/hcv/cfaq.htm>

²² CDC. Hepatitis C Questions and Answers for the Public. 2019. <https://www.cdc.gov/hepatitis/hcv/cfaq.htm>

²³ CDC. Hepatitis C Questions and Answers for the Public. 2019. <https://www.cdc.gov/hepatitis/hcv/cfaq.htm>

²⁴ CDC. Hepatitis C Questions and Answers for the Public. 2019. <https://www.cdc.gov/hepatitis/hcv/cfaq.htm>

Case Definitions

The Council for State and Territorial Epidemiologists (CSTE) develops and maintains case definitions for hepatitis A, B, and C to standardize reporting at the state and national level. Case definitions are modified or added when new technologies, methodologies, or clinical data become available.²⁵ Details of all case definitions can be found at <https://ndc.services.cdc.gov/>

Changes to case definitions have an impact on the number of cases reported and the status of cases.

Reported trends over time should be interpreted with caution if the case definition for that condition has changed. In 2017, CDPHE conducted an analysis of the impact of the 2016 case definition change on chronic HCV case counts and found a possible artificial decrease in the number of confirmed cases due to a more restrictive case definition.²⁶

This report focuses largely on five-and ten year trends in data. The following changes have occurred during these time periods:

- In 2016, **the case definition of chronic HCV infection changed** to require RNA or NAAT tests to confirm cases. Previously, the laboratory criteria for diagnosis included positive antibodies to HCV with a signal to cut-off ratio predictive of a true positive as determined for the particular assay as defined by CDC.
- In 2016, **the clinical description for acute HCV infection changed** from ALT level at >400 IU/L to ALT level >200 IU/L. The time frame for seroconversion was changed from six months to 12 months. These changes **made criteria less restrictive when determining if a case met acute case definition.**
- In 2017, **the case definition of perinatal HBV infection was updated** to include additional labs that were added as options to diagnosis of a case. This may make it easier for case finding, however, it was also added that the HBsAg-positive acceptance is dependent on there being at least four weeks between the last dose of hepatitis B vaccine and testing to avoid false positivity. This in turn could make case finding more challenging if the child's vaccination status is unknown or cannot be located.
- In 2018, **a case definition of perinatal HCV infection was established** for the first time.
 - Prior to 2018, perinatal HCV cases were not considered to meet case definition and were not included in the case counts.
- In 2019, **the case definition for HAV infection was updated** to require bilirubin levels of 3.0 mg/dL or higher, ALT levels at >200 IU/L, and the absence of a more likely diagnosis to diagnose

²⁵ CDC. Surveillance for Viral Hepatitis - United States. 2018.

²⁶ CDPHE. 2017 Surveillance Report: Viral Hepatitis in Colorado. 2017.

HAV. To confirm a case of HAV, laboratory criteria were expanded to include nucleic amplification tests in addition to IgM antibodies.

- In 2020, **the case definition of acute HCV was updated.** Clinically, cases must be at least 36 months of age, have bilirubin levels of 3.0 mg/dL or higher, ALT levels at >200 IU/L, or jaundice and another more likely diagnosis should be absent. To confirm an acute case of HCV, there must be a positive HCV virus detection test or a test indicating the presence of HCV viral antigen. These changes **made criteria more restrictive when determining if a case met acute case definition.**
- In 2020, **the case definition of chronic HCV was updated.** Clinically, cases must be at least 36 months of age, have bilirubin levels of 3.0 mg/dL or higher, ALT levels at >200 IU/L, or jaundice and another more likely diagnosis should be absent. To confirm a chronic case of HCV, there must be a positive HCV virus detection test or a test indicating the presence of HCV viral antigen. Cases are only considered Probable if there is not a known negative HCV RNA result.

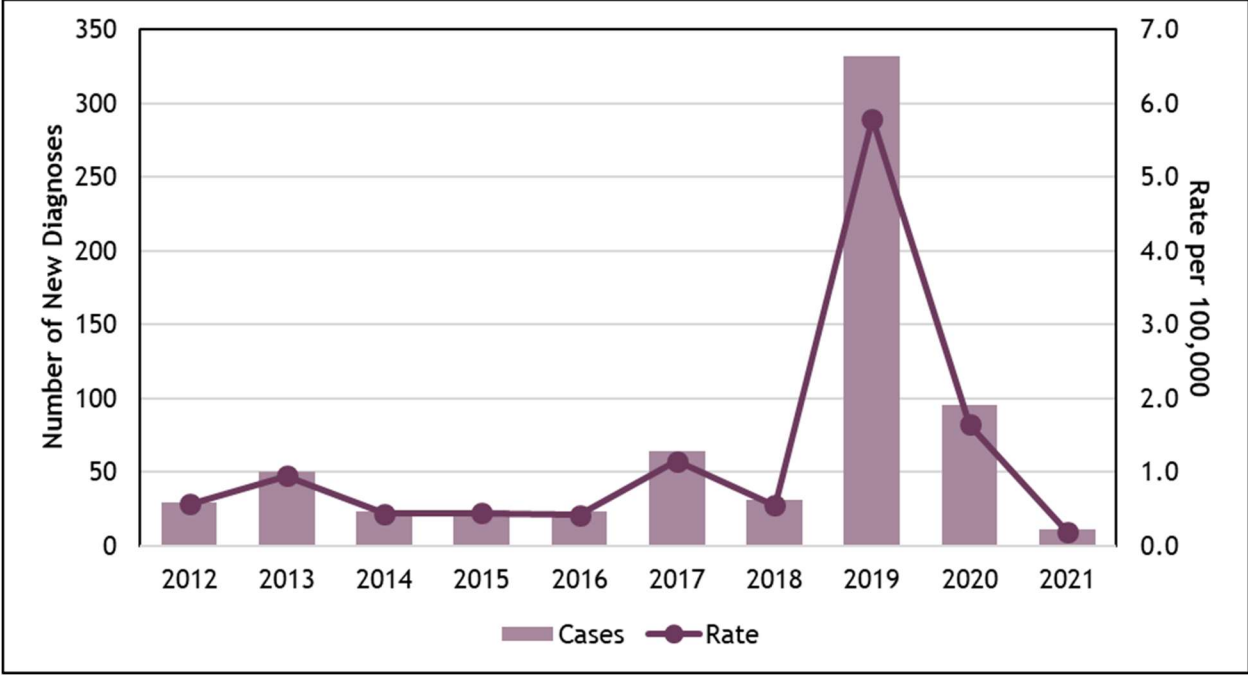
Some conditions have case definitions that are broken down into “Probable” and “Confirmed” case statuses. **This report only includes data on viral hepatitis cases classified as “Confirmed”.**

Hepatitis A

Summary

- In 2021, there were 11 reported cases of HAV in Colorado.
- Colorado experienced an outbreak of HAV from October 2018 through January 2021 primarily among people that were experiencing homelessness, those with substance use disorders, and people incarcerated in city or county jails.
- Of the people diagnosed with HAV in 2021, 90.9% (n=10) were reported in urban counties which include Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo, and Weld Counties.
- A common behavioral risk factor reported for diagnoses from 2017-2021 was injection drug use, reported among approximately 36.9% (n=197) of cases.

Figure 1.1: Reported HAV Cases and Rate per 100,000, 2012-2021



Data used in this graph can be found in [Table 1.1](#) in the Appendix.

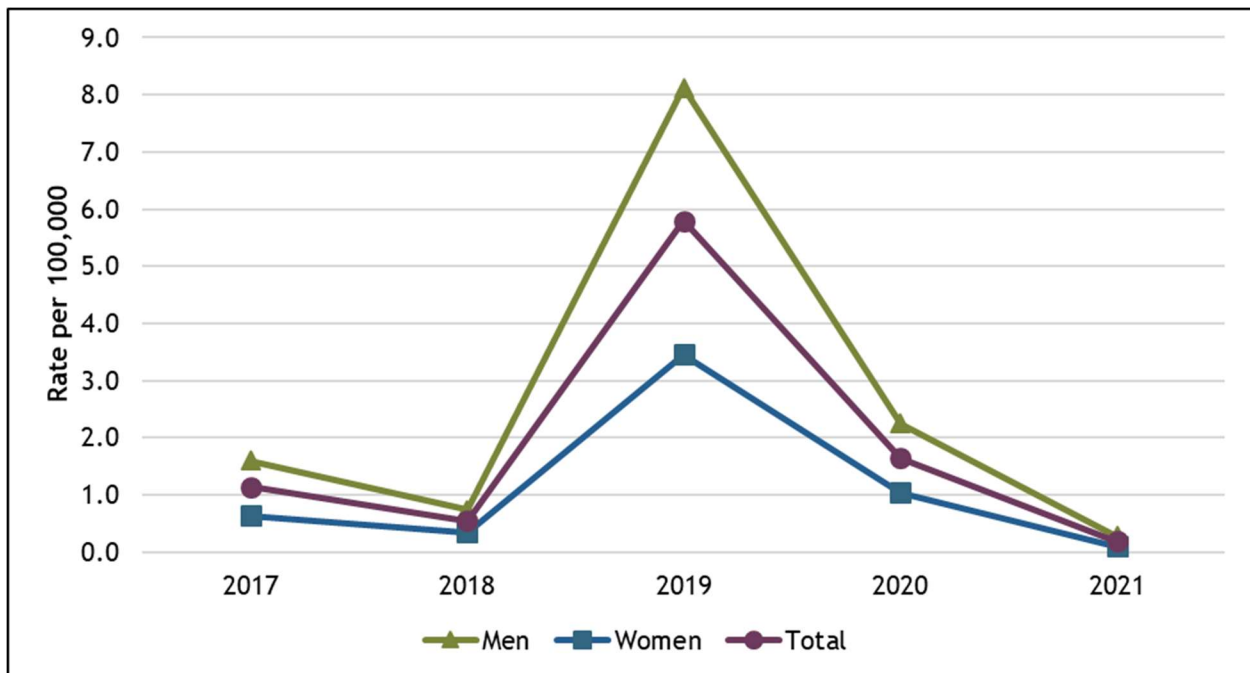


New HAV Diagnoses by Sex

In 2021, males accounted for almost three-quarters (72.7%) of reported HAV cases. Rates among males and females dramatically increased in 2019 due to a statewide outbreak of HAV. Rates have since been decreasing.

The rate among males has been consistently higher than females since 2017, which could be in part attributable to a separate outbreak of HAV among MSM in 2017.

Figure 1.2: Rate per 100,000 of HAV Cases by Sex, 2017-2021

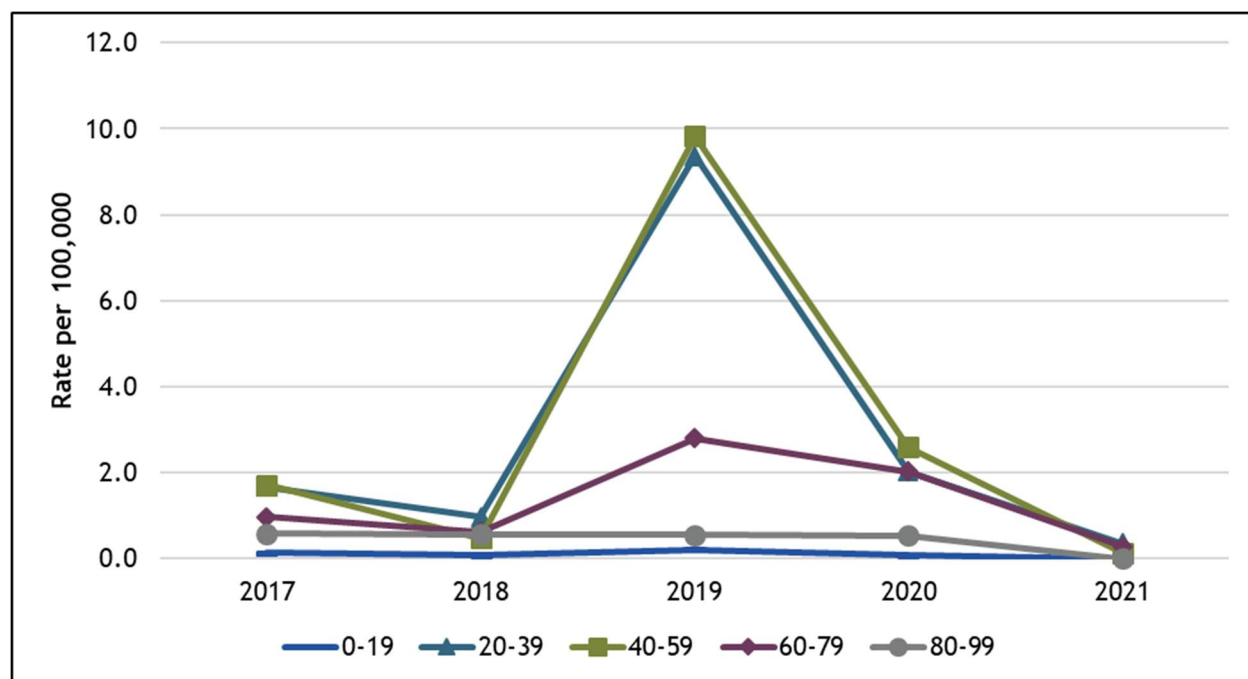


Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

New HAV Diagnoses by Age

The rate of HAV diagnosis in 2021 was highest among 20-39 year olds at 0.4 diagnoses per 100,000 population as shown in [Figure 1.3](#). During the 2019 outbreak, those aged 40-59 years experienced the highest rate of HAV diagnosis. This age group may experience higher rates because they did not receive an HAV vaccine as a routine immunization. More data on age of diagnoses can be found in [Table 1.2](#) in the appendix.

Figure 1.3: Rate per 100,000 of HAV Cases by Age Group, 2017-2021



New HAV Diagnoses by Race/Ethnicity

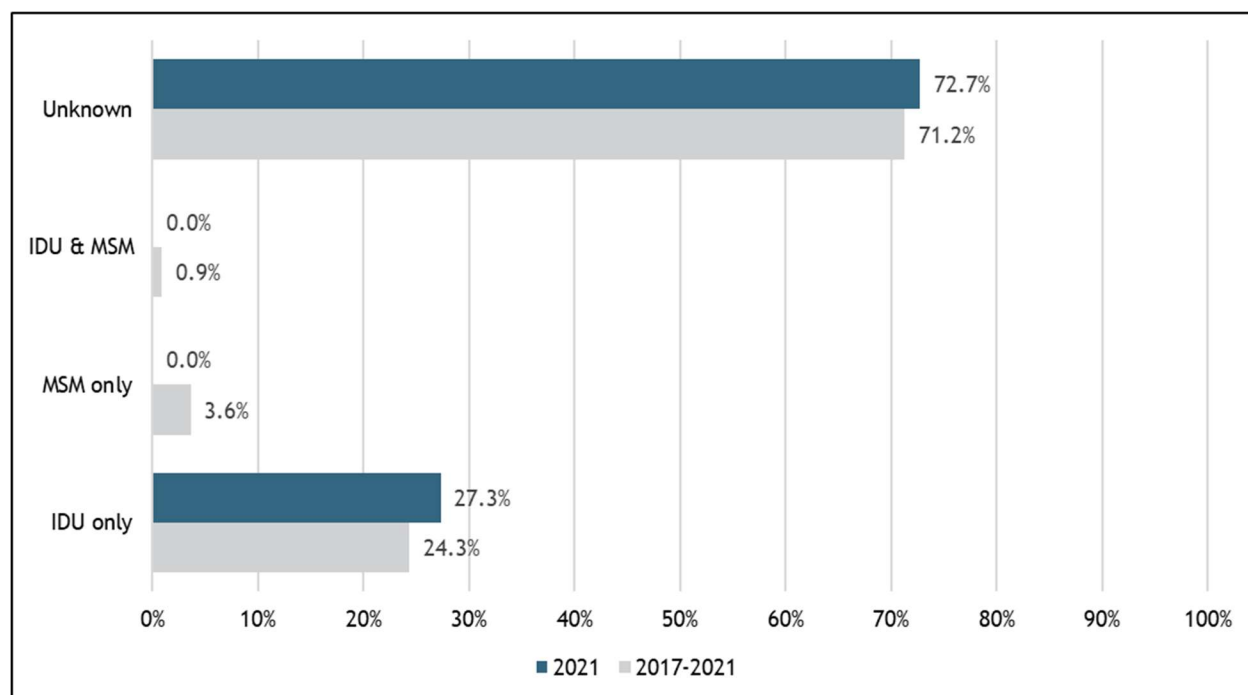
Race/ethnicity data were available for all HAV cases in 2021. Among cases, 54.5% were non-Hispanic White, 27.3% were Hispanic/Latino/a/x (all races), and 9.1% were non-Hispanic Black/African American and 9.1% were non-Hispanic Asian/Pacific Islander. Additional data can be found in [Table 1.2](#) in the appendix.

Behavioral Risk Factors

Injection drug use (IDU) was identified as a common behavioral risk factor reported among HAV diagnoses in 2021 (27.3%) and over the past five years (24.3%). However, from 2017-2021, 71.2% of behavioral risk factors were unknown. In 2021, 72.7% of behavioral risk factors were unknown.

From 2017-2021, 41.5% of all HAV diagnoses were experiencing homelessness at the time of their diagnosis. In 2019, at the height of the HAV outbreak, 53.9% of those diagnosed with HAV were experiencing homelessness.

Figure 1.4: Reported Behavioral Risk Factors Among New HAV Diagnoses, 2021 Compared to 2017-2021



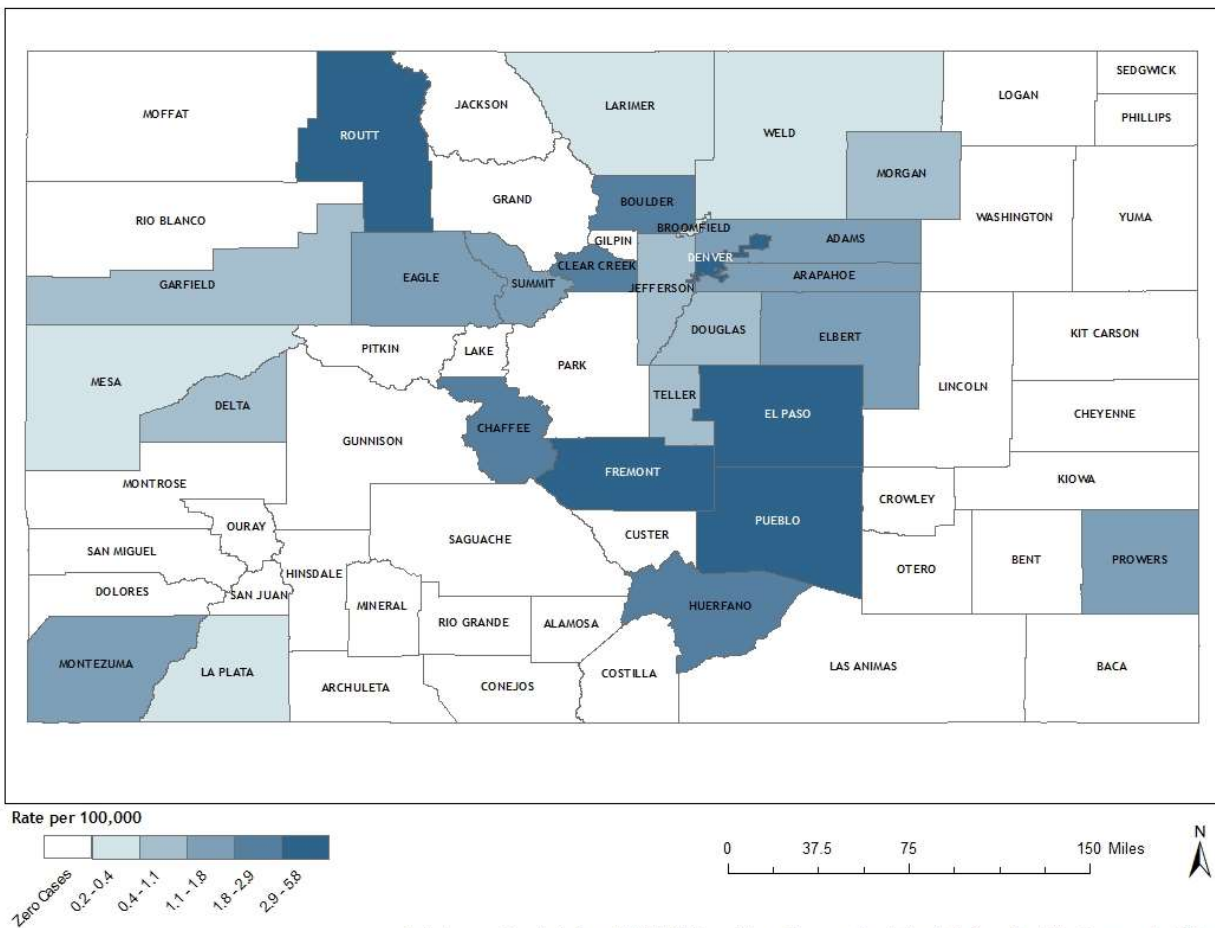
Geographic Distribution

Since 2017, over 45% of HAV diagnoses have occurred in the Denver TGA which includes Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson counties. In 2021, 45.5% of cases occurred in the Denver TGA, and another 45.5% of cases occurred in non-TGA urban counties which includes El Paso, Larimer, Mesa, Pueblo, Weld, and Boulder counties. Adams and Pueblo County both accounted for 27.2% of cases in 2021.

From 2017-2021, 47.1% of all HAV diagnoses occurred in the Denver TGA. However, El Paso has experienced the most HAV diagnoses of any county - accounting for 28.5% of all HAV diagnoses in Colorado from 2017-2021. El Paso County rates were heavily influenced by the statewide HAV outbreak.

From 2017-2021, the average rate of diagnosis over the past five years for HAV diagnosis has been highest in Fremont, Pueblo, El Paso, Routt, and Denver counties as seen in **Figure 1.5**. Due to smaller populations in Fremont and Routt counties, higher rates are not always a result of higher case counts. For all case counts and rates by county, refer to **Table 1.3** in the appendix. An explanation of how incidence rates are calculated can be found in the **Definitions** section.

Figure 1.5: New HAV Diagnosis Rate per 100,000 Population by County of Residence at the Time of Diagnosis - Colorado (2017-2021)



Data Source: Case data from CDPHE's VH Surveillance Program. Population data from the State Demography Office.



Acute Hepatitis B

Summary

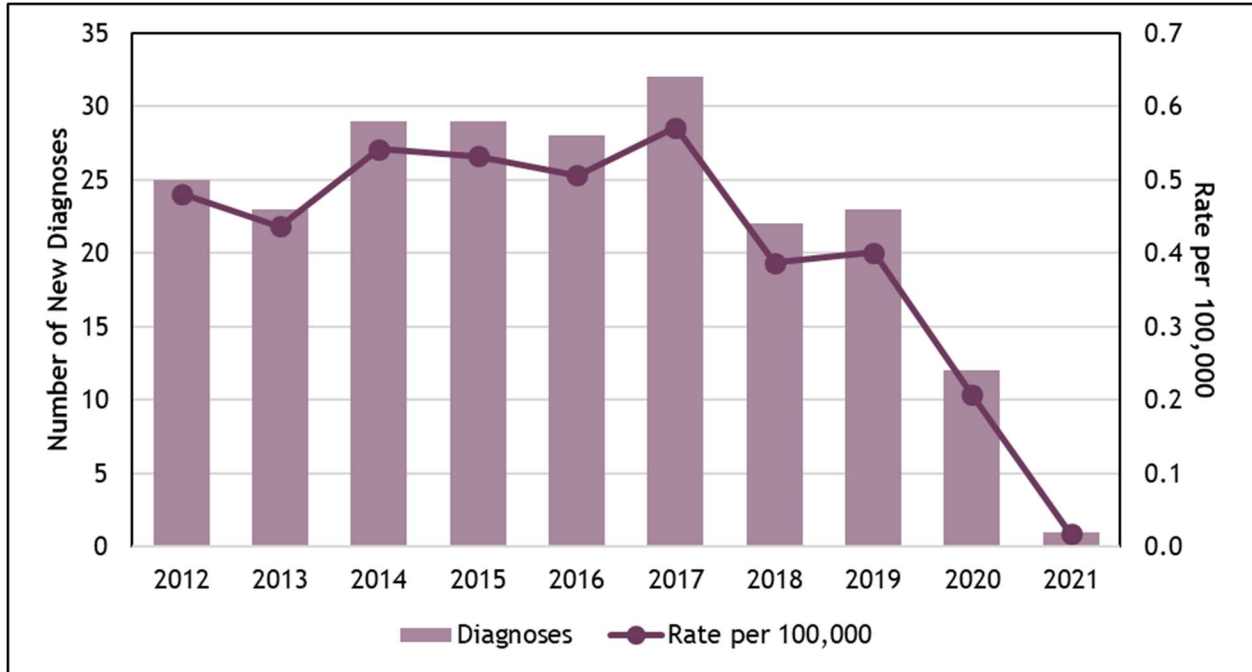
- In 2021, there was 1 reported case of acute HBV.
 - To correctly identify and classify an acute HBV case, CDPHE case ascertainment specialists need to follow up with labs and clients. Due to staffing capacity in 2020 and 2021, this follow up was not done, likely resulting in an underestimation of acute HBV cases in Colorado.
- Over the past five years, there have been 90 cases of acute HBV in Colorado.
- According to the CDC, acute HBV cases are underreported by a factor of 6.5.²⁷ Accounting for this underreporting, there would be an estimated 585 cases of acute HBV from 2017-2021.
 - Due to decreased testing and follow up during COVID-19 pandemic years, this number is likely still an underestimation.
- The average rate of acute HBV diagnosis in Colorado from 2017-2021 was 0.3 diagnoses per 100,000 population.
- Nationally, there was a dramatic decrease in the rate of acute HBV diagnosis - after 2019, rates dropped by 32%.²⁸
- 87.8% of cases over the past five years occurred in urban counties which include Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo, and Weld Counties, with 61.1% occurring in the Denver TGA.
- 40-59 year olds have experienced the highest rates of acute HBV diagnosis over the past five years.

²⁷ CDC. Viral Hepatitis Surveillance -2019 - United States.

<https://www.cdc.gov/hepatitis/statistics/2019surveillance/pdfs/2019HepSurveillanceRpt.pdf>

²⁸ CDC. 2020 Viral Hepatitis Surveillance Report. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/index.htm>

Figure 2.1: Reported Acute HBV Cases and Rate per 100,000, 2012-2021

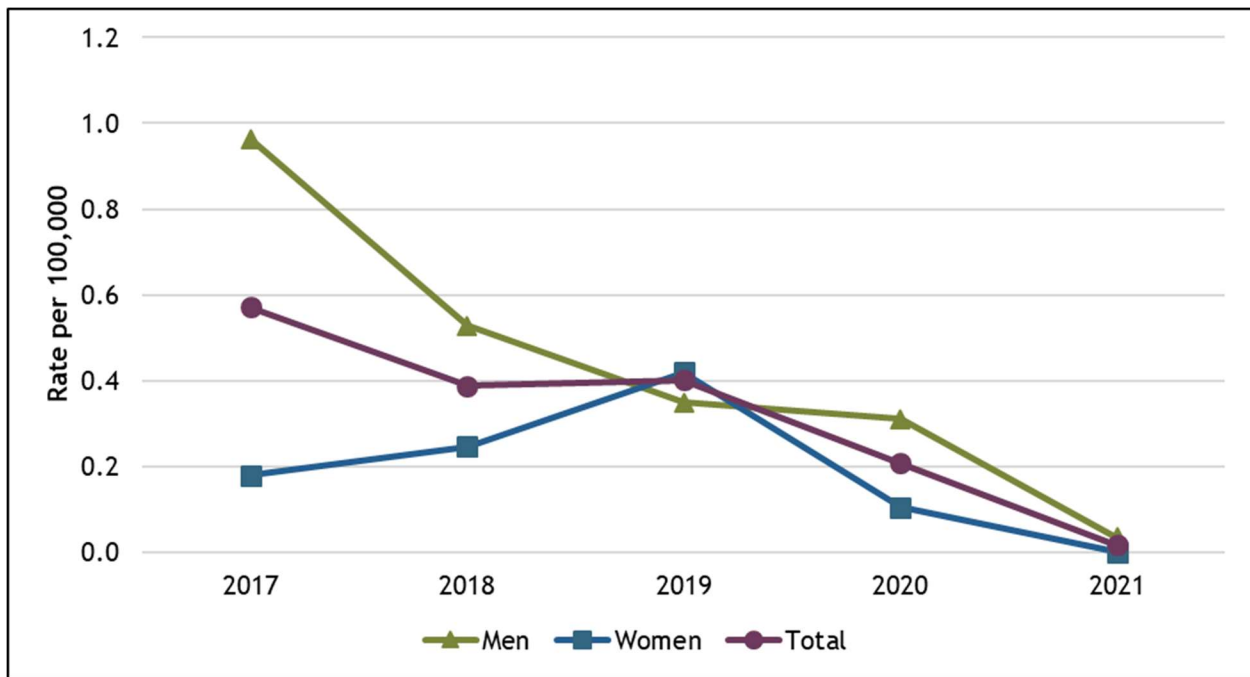


Data used in this graph can be found in [Table 2.1](#) in the Appendix.

New Acute HBV Diagnoses by Sex

From 2017-2021, males accounted for 68.9% of all acute HBV diagnoses. Nationally, males have had consistently higher rates of reported acute HBV than females.²⁹ Three out of the past five years, Colorado has mirrored these trends - the rate of acute HBV diagnosis among males was at least double the rate among females. Rates among both females and males decreased in 2020 and 2021 due to an overall decrease of viral hepatitis testing and follow up during the COVID-19 pandemic.³⁰

Figure 2.2: Rate per 100,000 of Acute HBV Cases by Sex, 2017-2021



Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

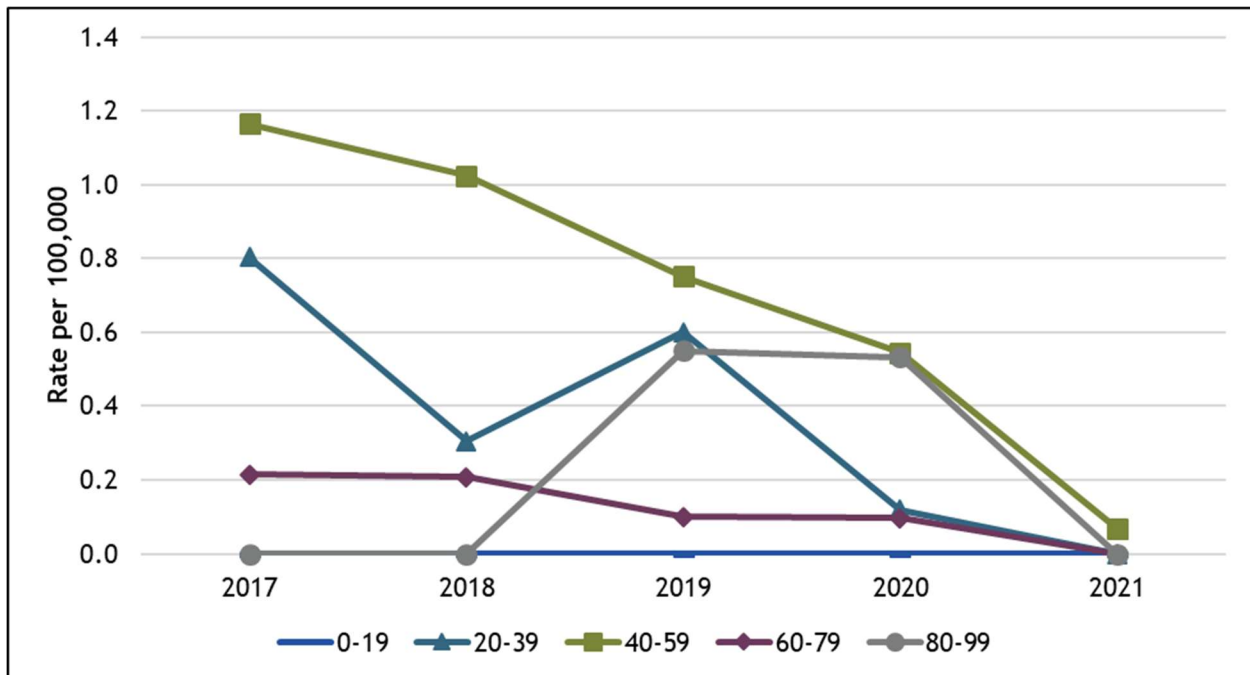
²⁹ CDC. Viral Hepatitis Statistics and Surveillance. Figure 2.5 Rates of reported acute hepatitis B virus infection, by sex - United States, 2004-2019. <https://www.cdc.gov/hepatitis/statistics/2019surveillance/Figure2.5.htm>

³⁰ Pley, Caitlin. The global impact of the COVID-19 pandemic on the prevention, diagnosis and treatment of hepatitis B virus (HBV) infection. *BMJ Global Health*. 2021; 6(1):e004275.

New Acute HBV Diagnoses by Age

People between the ages of 40-59 had the highest rate of diagnosis amongst cases over the past five years. Since 2015, there have been no reported acute cases in an individual less than 20 years old. People older than 19 years are less likely to be immunized for HBV based on a school-entry requirement that began in 1997. The majority of acute cases being among individuals ages 40-59 underscores the need for catch-up vaccination, particularly for individuals in priority populations.

Figure 2.3: Rate per 100,000 of Acute HBV Cases by Age Group, 2017-2021



New Acute HBV Diagnoses by Race/Ethnicity

From 2017 to 2021, non-Hispanic Whites accounted for 64.4% of acute HBV diagnoses. Hispanics of all races made up 20.0% of the diagnoses and non-Hispanic Black/African Americans made up 7.8%. More data on race and ethnicity can be found in [Table 2.2](#) in the appendix.

Behavioral Risk Factors

Behavioral risk factors were unknown for the case of acute HBV reported in 2021. In the previous four years, 2017-2020, on average 72.9% of behavioral risk factors were unknown. In the same time period, 20.1% of acute HBV diagnoses reported injection drug use as a behavioral risk factor. Due to staffing shortages during the COVID-19 pandemic in 2020 and 2021, no interviews were conducted on acute HBV cases and no behavioral risk information was collected. Therefore, no behavioral risk data will be displayed for acute HBV in this report.

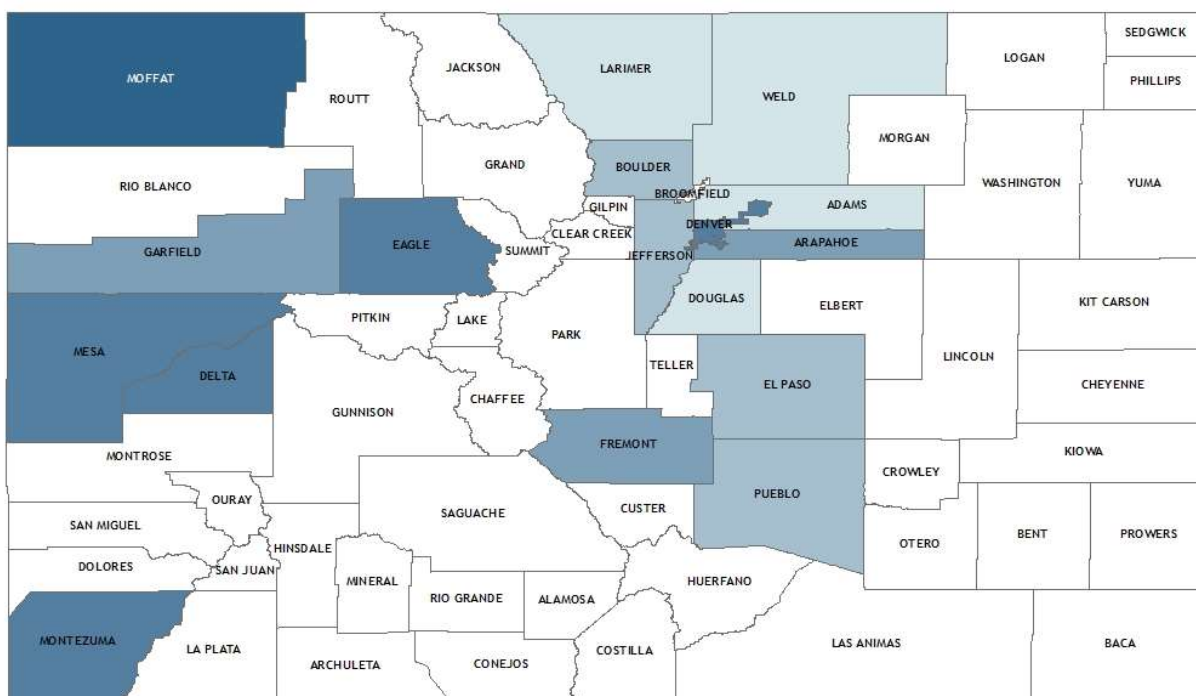
Geographic Distribution

The majority of acute HBV cases from 2017-2021 were reported in urban counties, with the Denver TGA accounting for 61.1% of diagnoses. Denver County, with thirty-four reported cases over the past five years, representing the majority of cases (37.8%). Denver County was followed by El Paso county, accounting for 10.0% of diagnoses from 2017-2021. Average rates of diagnosis from 2017-2021 by county can be seen in [Figure 2.4](#).

From 2017-2021, 16.6% of acute HBV cases reported experiencing homelessness at the time of their diagnosis.

Rates of diagnosis were highest in Moffat and Denver counties. Due to smaller populations in Moffat county, higher rates do not necessarily indicate high case counts. For all case counts by county as well as rates, refer to [Table 2.3](#) in the appendix. An explanation of how rates are calculated can be found in the [Definitions](#) section.

Figure 2.4: New Acute HBV Diagnosis Rate per 100,000 Population by County of Residence at the Time of Diagnosis - Colorado (2017-2021)

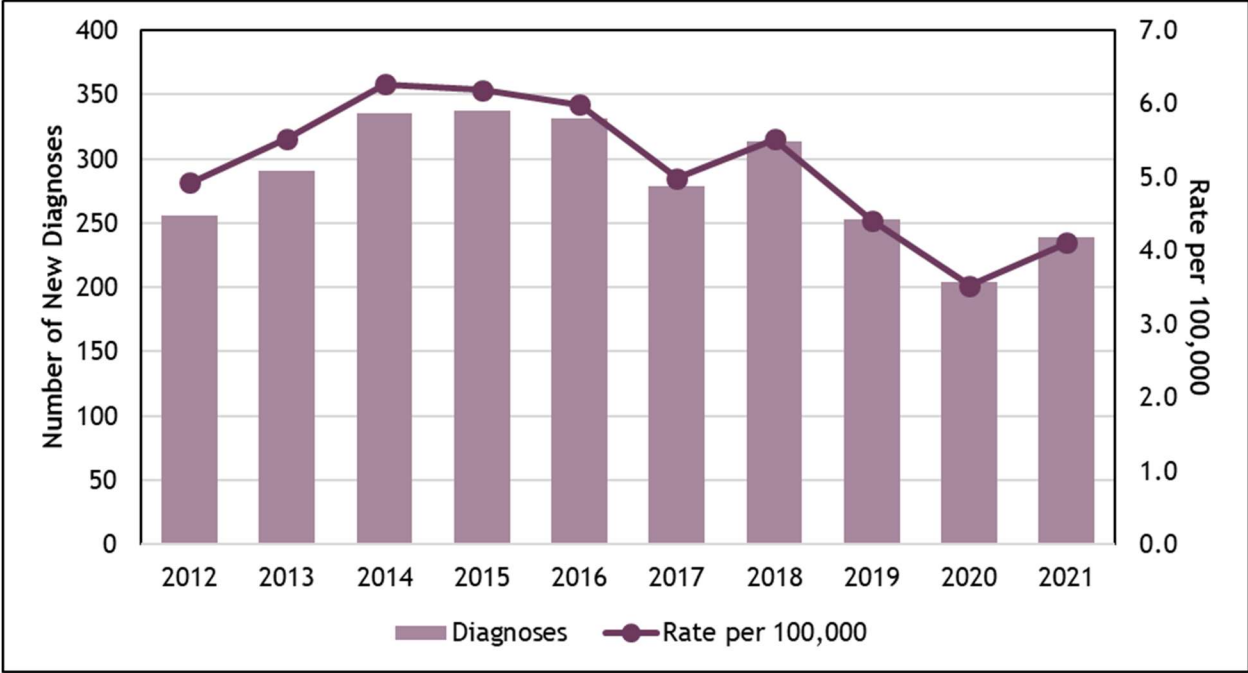


Chronic Hepatitis B

Summary

- In 2021, there were 239 reported cases of chronic HBV.
 - This is a 17.2% increase from the diagnoses in 2020, but still lower than pre-pandemic levels.
- Over half of the cases reported from 2017-2021 were among males.
- The highest proportion of cases occurred in 20-39 year olds (40.6%) while 40-59 year olds experienced the highest rates of diagnosis at 6.4 diagnoses per 100,000 population.
- 66.5% of cases occurred in the Denver TGA.
- Non-Hispanic Asian/Native Hawaiian/Pacific Islanders made up 18.8% of cases in 2021 while only accounting for an estimated 4.0% of Colorado’s population in 2021.

Figure 3.1: Reported Chronic HBV Cases and Rate per 100,000, 2012-2021



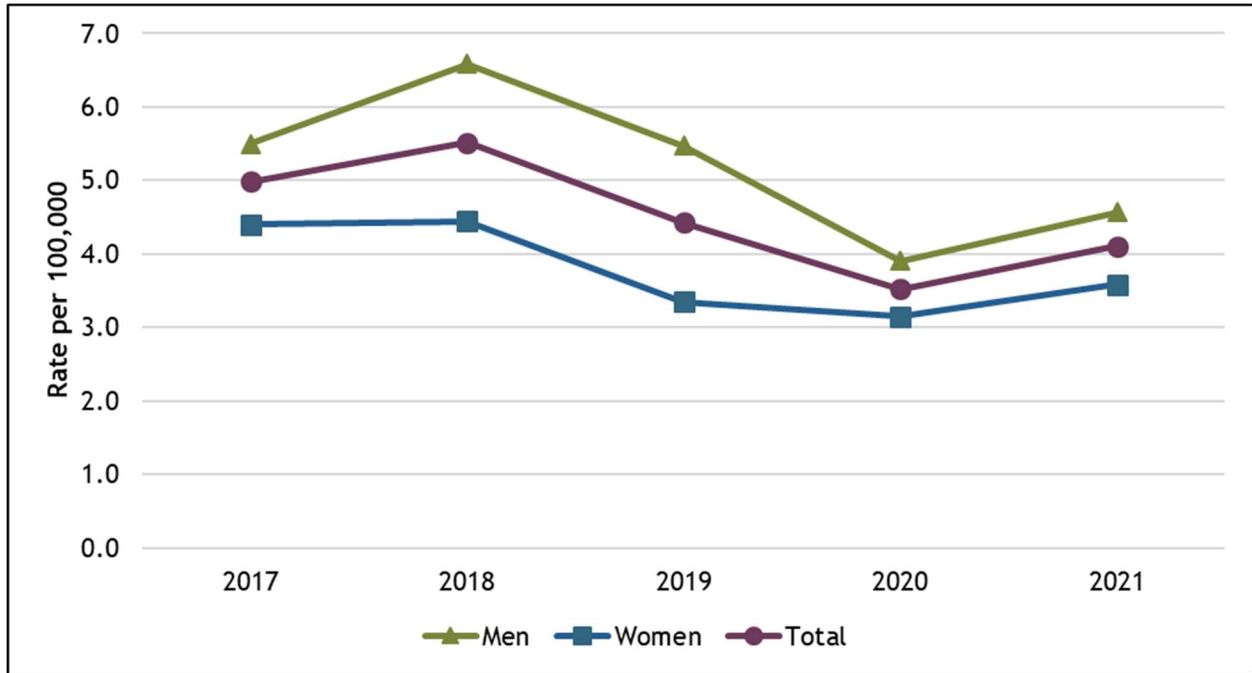
Data used in this graph can be found in [Table 3.1](#) in the Appendix.



New Chronic HBV Diagnoses by Sex

Over the past five years (2017-2021), males have consistently made up the majority (57.7%) of chronic HBV diagnoses. In 2021, 55.6% of cases were among males, with a rate of diagnosis of 4.6 diagnoses per 100,000 compared to a rate of 3.6 diagnoses per 100,000 in females, as shown in [Figure 3.2](#).

Figure 3.2: Rate per 100,000 of Chronic HBV Cases by Sex, 2017-2021



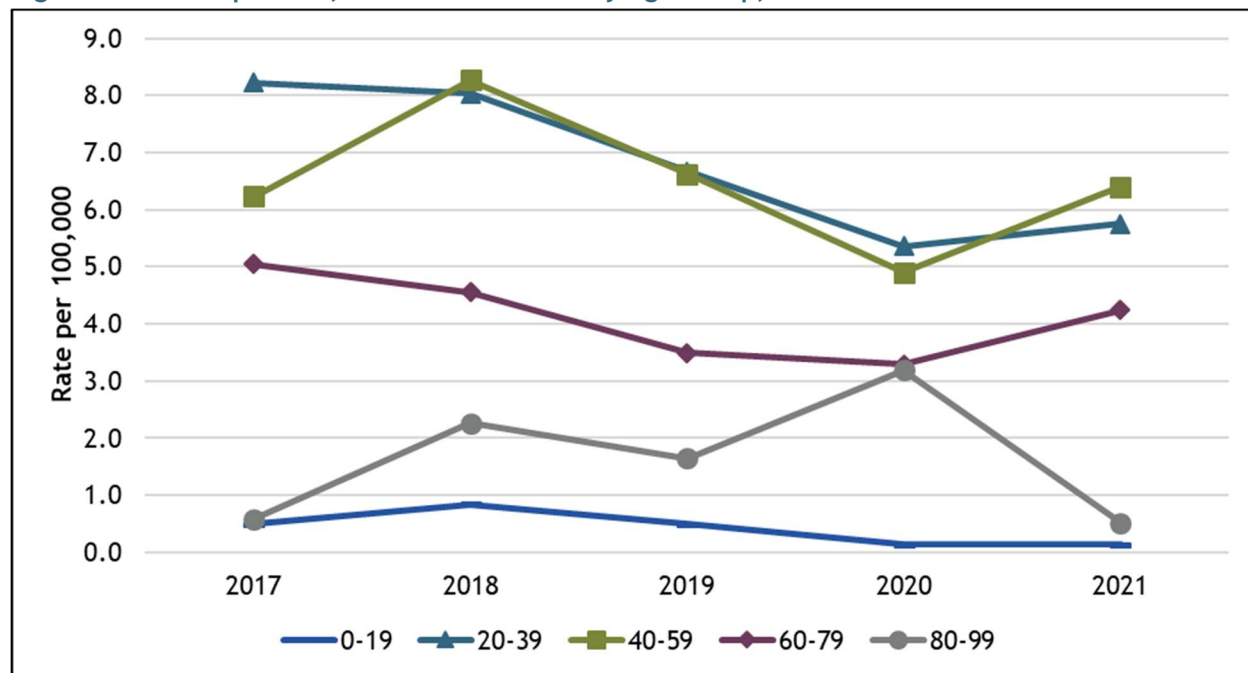
Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

New Chronic HBV Diagnoses by Age

Rates of chronic HBV diagnosis were highest amongst those aged 40-59 in 2021. People between the ages of 20-39 had the highest rate of cases in 2020 (5.4 per 100,000), surpassing the rate of diagnosis among 40-59 year olds for the first time since 2017 as shown in [Figure 3.3](#). Rates increased in both groups from 2020 to 2021.

There were 30 diagnoses in the 0-19 age group from 2017-2021. While the HBV vaccine has been a mandated childhood vaccination since 1997 in Colorado, 36.6% of the people in this age group from 2017-2021 were known to be born outside of the United States. The number of cases among people under twenty highlights the importance of PHBPP to prevent possible perinatal transmission in families. Catch-up vaccination is important for those who were born before HBV vaccination became routine.

Figure 3.3: Rates per 100,000 of Chronic HBV by Age Group, 2017-2021



New Chronic HBV Diagnoses by Race/Ethnicity

Race/ethnicity data is not routinely reported for chronic HBV cases in Colorado, and 53.6% of reported cases in 2021 were missing race/ethnicity data. Non-Hispanic Asian/Native Hawaiian/Pacific Islanders have accounted for 24.7% of all chronic HBV diagnoses from 2017-2021. In 2021, non-Hispanic Asian/Native Hawaiian/Pacific Islanders made up 18.8% of chronic HBV diagnoses and were followed by non-Hispanic Whites (14.6%) and non-Hispanic Black/African Americans (7.9%).



While non-Hispanic Asian/Native Hawaiian/Pacific Islanders and non-Hispanic Black/African Americans represent over twenty-five percent of diagnoses in 2021, they were estimated to only represent 4.0% and 4.7% of Colorado's population in 2021, respectively. Non-Hispanic Asian/Native Hawaiian/Pacific Islanders had a rate of diagnosis of 19.0 diagnoses per 100,000 and non-Hispanic Black/African Americans had a rate of 6.9 diagnoses per 100,000. Comparatively, the overall rate of chronic HBV diagnosis was 4.1 diagnoses per 100,000.

These trends are seen nationwide. A study done in 2020 found that, from 2015 to 2018, national prevalence of HBV was highest among non-Hispanic Asians (20.5%) and non-Hispanic Black/African Americans (10.8%).³¹

Behavioral Risk Factors

Behavioral risk data is not routinely collected for chronic cases, but individuals born in countries where HBV is endemic are considered to be at greater risk than individuals born in the United States.³²

³¹ CDC. Prevalence and Trends in Hepatitis B Virus Infection in the United States, 2015-2018. 2020. [https://www.cdc.gov/nchs/products/databriefs/db361.htm#:~:text=The%20prevalence%20of%20any%20past%20or%20present%20HBV%20infection%20during,Hispanic%20black%20adults%20\(10.8%25\).](https://www.cdc.gov/nchs/products/databriefs/db361.htm#:~:text=The%20prevalence%20of%20any%20past%20or%20present%20HBV%20infection%20during,Hispanic%20black%20adults%20(10.8%25).)

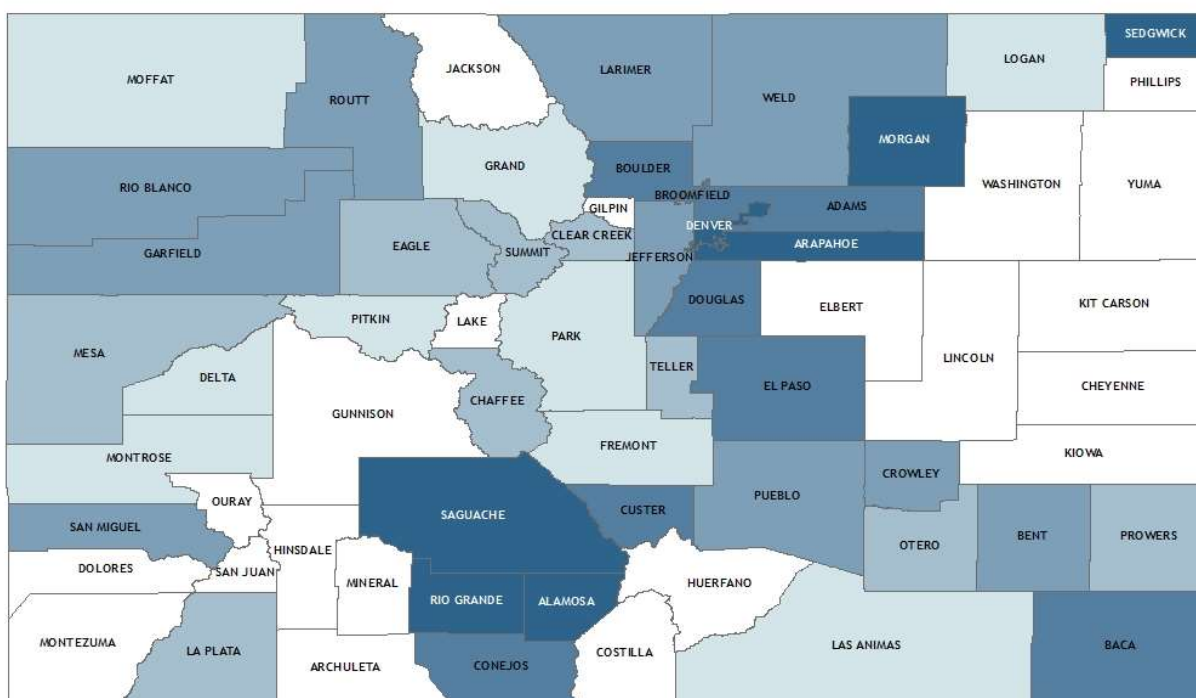
³² Roberts H, Kruszon-Moran D, Ly KN, Hughes E, Iqbal K, Jiles RB, et al. Prevalence of chronic hepatitis B virus (HBV) infection in U.S. households: National Health and Nutrition Examination Survey (NHANES), 1988-2012. *Hepatology*. 2015 Aug 6;63(2):388-97.

Geographic Distribution

Chronic HBV diagnoses over the past five years (2017-2021) have been concentrated in Arapahoe (21.4%), Denver (17.6%), and El Paso (11.5%) counties. In 2021, over a fifth (21.8%) of cases occurred in Arapahoe County, followed by Denver (17.2%) and Adams (13.4%) counties.

From 2017-2021, rates were highest in Sedgwick, Arapahoe, and Morgan counties as shown in [Figure 3.4](#). Due to smaller populations in these counties, higher rates do not necessarily indicate high case counts. Full case counts by county as well as rates can be found in [Table 3.3](#) in the Appendix. An explanation of how rates are calculated can be found in the [Definitions](#) section of this report.

Figure 3.4: New Chronic HBV Diagnosis Rate per 100,000 Population by County of Residence at the Time of Diagnosis - Colorado (2017-2021)

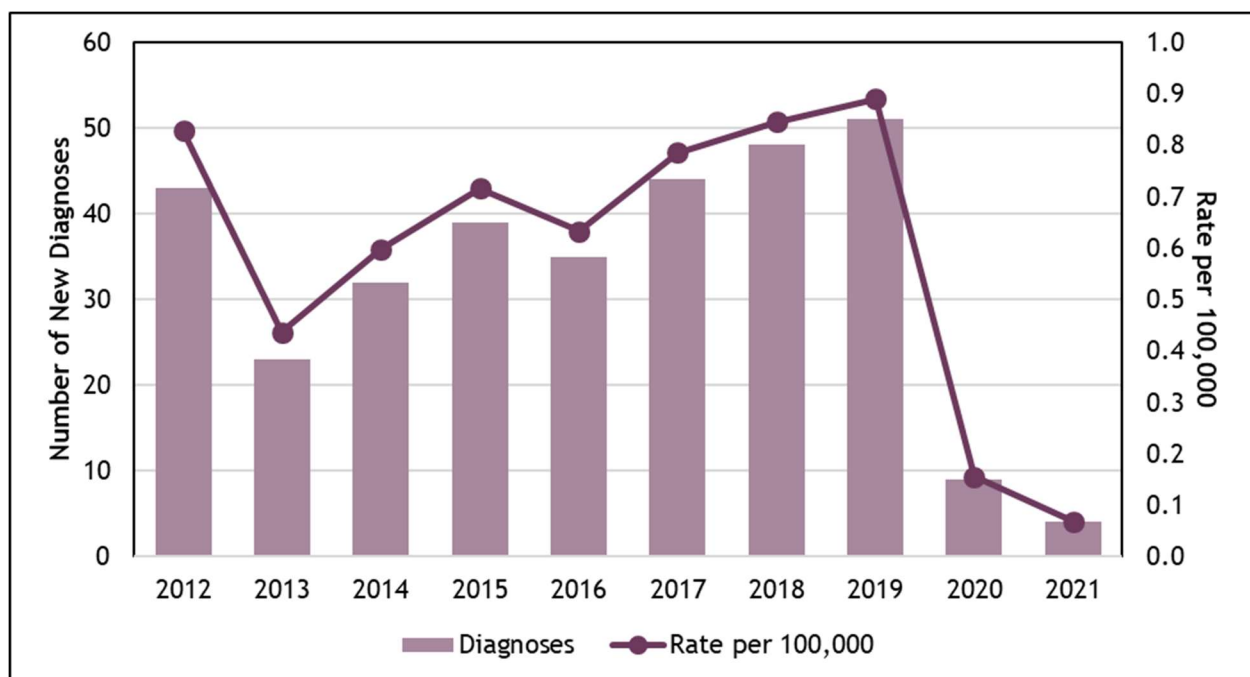


Acute Hepatitis C

Summary

- In 2021, there were 4 cases of acute HCV reported to CDPHE.
- Before the effects of the COVID-19 pandemic, acute HCV diagnoses were increasing in Colorado.
- Nationally, the rate of acute HCV increased by 15% from 2019 to 2020.³³
 - Due to staffing capacity in 2020 and 2021, necessary follow up to identify an acute HCV case was not done, likely resulting in an underestimation of acute HCV cases in Colorado.
- From 2017 to 2021, 54.5% of cases occurred in the Denver TGA.
- The majority of cases from 2017-2021 were among people that were 20-39 years old (75.6%).

Figure 4.1: Reported Acute HCV Cases and Rate per 100,000, 2012-2021



Data used in this graph can be found in [Table 4.1](#) in the Appendix.

To correctly identify and assign an acute HCV diagnosis, case ascertainment staff utilize lab and medical data concerning a hepatitis diagnosis. Due to the COVID-19 pandemic and staffing shortages, this follow-up on reported HCV cases was not conducted. Therefore, many acute HCV diagnoses were likely misclassified as a chronic HCV case and the low case count of acute HCV diagnoses is likely inaccurate. Before the COVID-19 pandemic, acute HCV was increasing in Colorado. There was a 15.9%

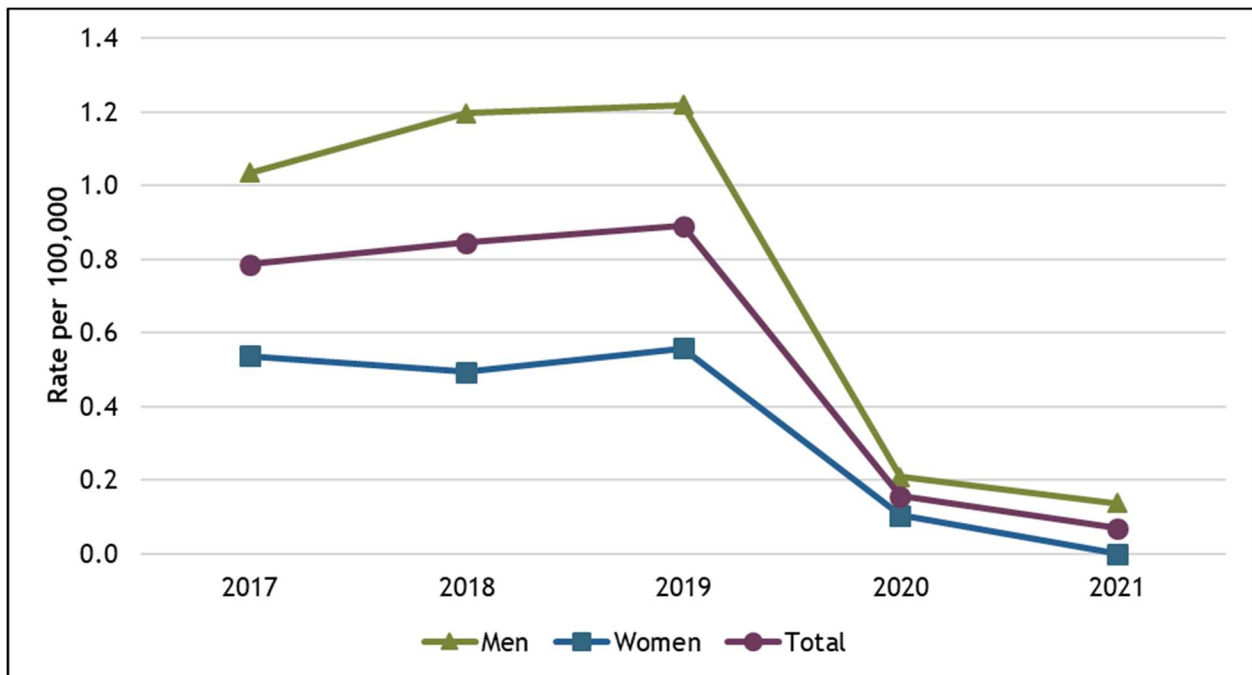
³³ CDC. 2020 Viral Hepatitis Surveillance Report. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/index.htm>

increase in diagnoses from 2017 to 2019 - where there were 51 diagnoses. In those three years, the primary behavioral risk factor reported amongst acute HCV cases was injection drug use.

New Acute HCV Diagnoses by Sex

Rates of diagnosis in males have remained higher than rates in females. In 2019, rates among males were approximately 162% higher than females. Rates among males and females had been steadily increasing until 2020, where the COVID-19 pandemic affected acute HCV testing, follow up, and reporting into 2021, which can be seen in [Figure 4.2](#).

Figure 4.2: Rate per 100,000 of Acute HCV Cases by Sex, 2017-2021

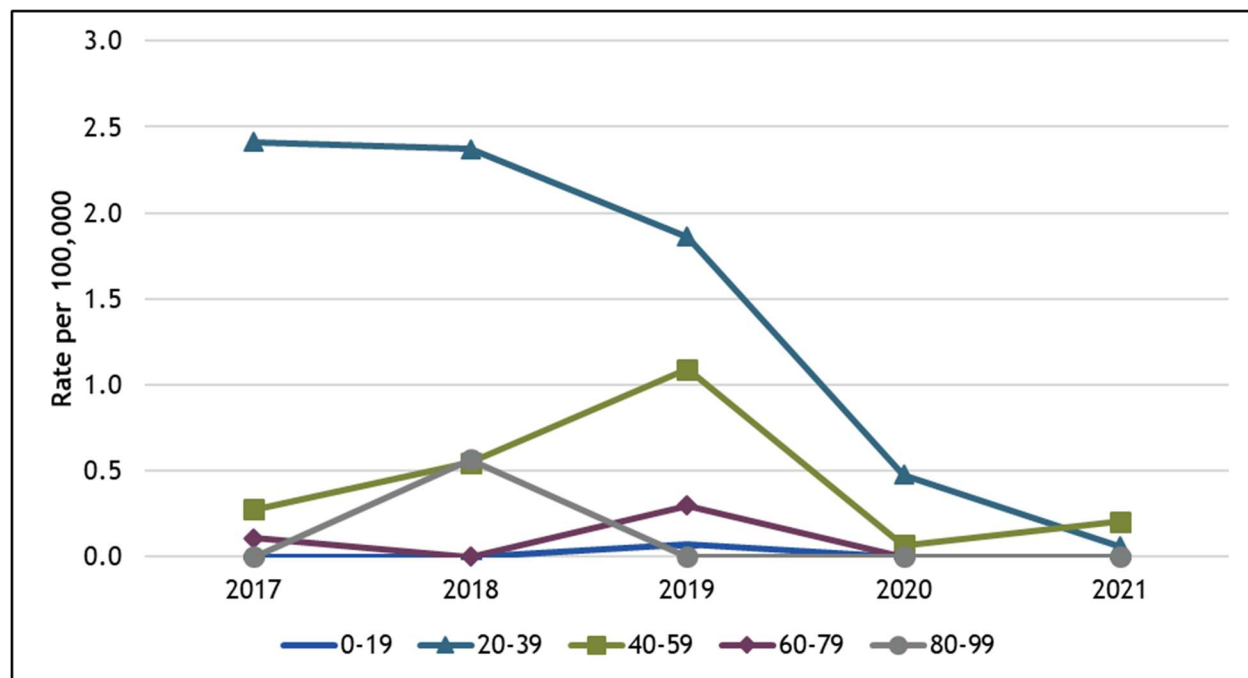


Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

New Acute HCV Diagnoses by Age

People between the ages of 20-39 have made up over sixty percent of acute HCV diagnoses since 2017. The average rate of diagnosis of acute HCV from 2015-2019, before the COVID-19 pandemic, among this age group was 2.0 diagnoses per 100,000 population. For comparison, the average rate of diagnosis of acute HCV amongst all age groups from 2015-2019 was 0.8 diagnoses per 100,000 population. As reported cases declined overall in 2020 and 2021, rates decreased across all age groups and should be interpreted with caution. Trends by age group can be seen in [Figure 4.3](#).

Figure 4.3: Rates per 100,000 of Acute HCV by Age Group, 2017-2021



New Acute HCV Diagnoses by Race/Ethnicity

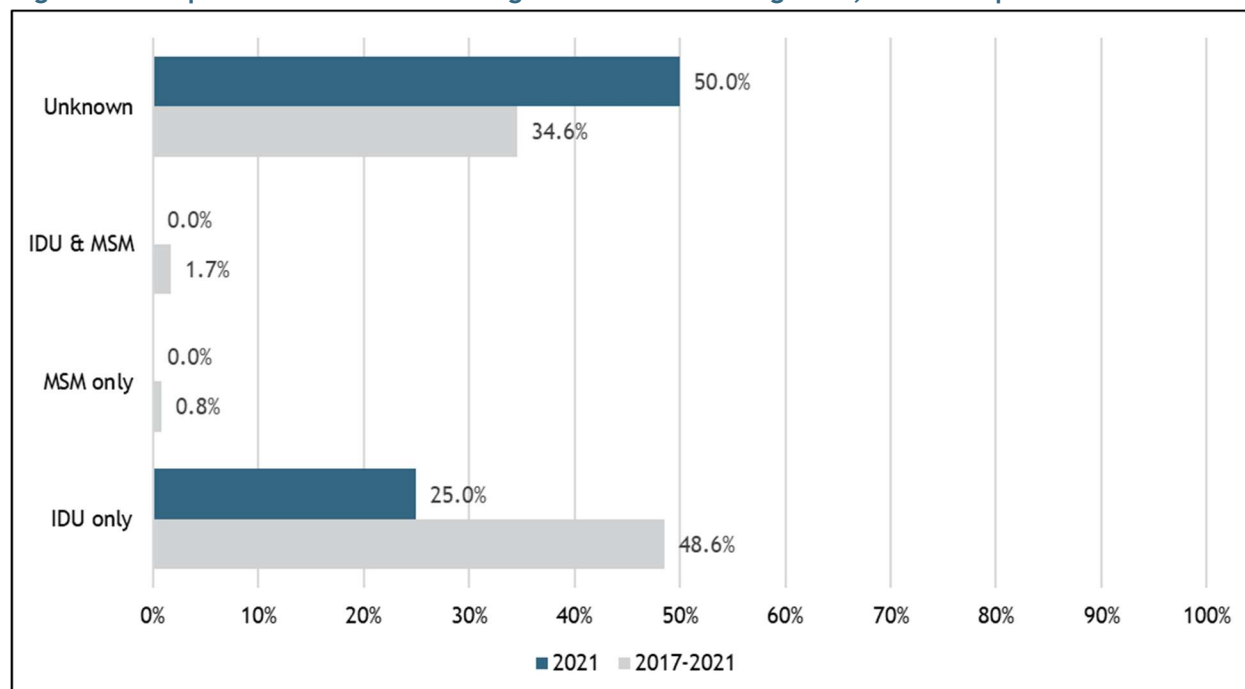
Race and ethnicity data were available for 96.7% of cases from 2017-2021. The majority of diagnoses over the past five years were among non-Hispanic Whites (66.7%). Hispanics of all races represented a quarter of all cases (25.0%) from 2017-2021.

Behavioral Risk Factors

Injection drug use was identified as a behavioral risk factor for one of the two reported cases that had any reported behavioral risk factors in 2021 and an average of 48.6% of cases from 2017-2021.

Nationally, the opioid epidemic is driving an increase in acute HCV incidence.³⁴ Over the past five years, 17.3% of acute HCV diagnoses were among people experiencing homelessness and 10.9% were incarcerated in a state or federal prison at the time of their diagnosis. Behavioral risk factors among acute HCV diagnoses can be seen in [Figure 4.4](#).

Figure 4.4: Reported Risk Factors Among New Acute HCV Diagnoses, 2021 Compared to 2017-2021



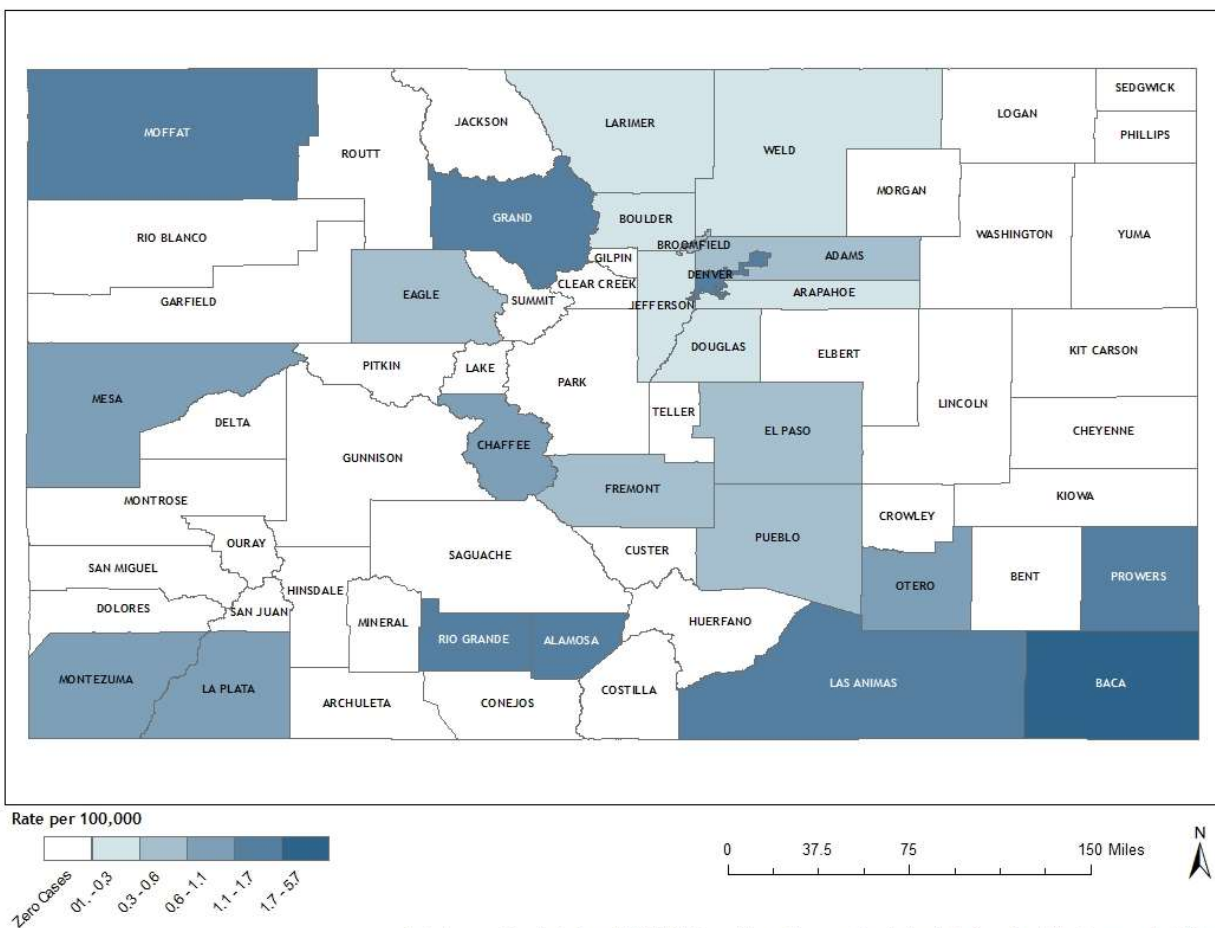
³⁴ CDC. Surveillance for Viral Hepatitis - United States. 2018.

Geographic Distribution

The majority of acute HCV diagnoses over the past five years (2017-2021) have occurred in Denver (32.1%), El Paso (11.5%), Adams (7.7%), and Arapahoe (7.1%) counties. During the same time period, 10.9% of cases were diagnosed in federal or state prisons.

Rates were highest in Baca, Rio Grande, Prowers, Moffat, and Denver counties from 2017-2021 as seen in [Figure 4.5](#). However, due to small populations in some of these counties, rates should be interpreted with caution. Total case counts and rates by county can be found in [Table 4.3](#) in the Appendix. An explanation of how rates are calculated can be found in the [Definitions](#) section.

Figure 4.5: New Acute HCV Diagnosis Rate per 100,000 Population by County of Residence at the Time of Diagnosis - Colorado (2017-2021)



Data Source: Case data from CDPHE's VH Surveillance Program. Population data from the State Demography Office.

Chronic Hepatitis C

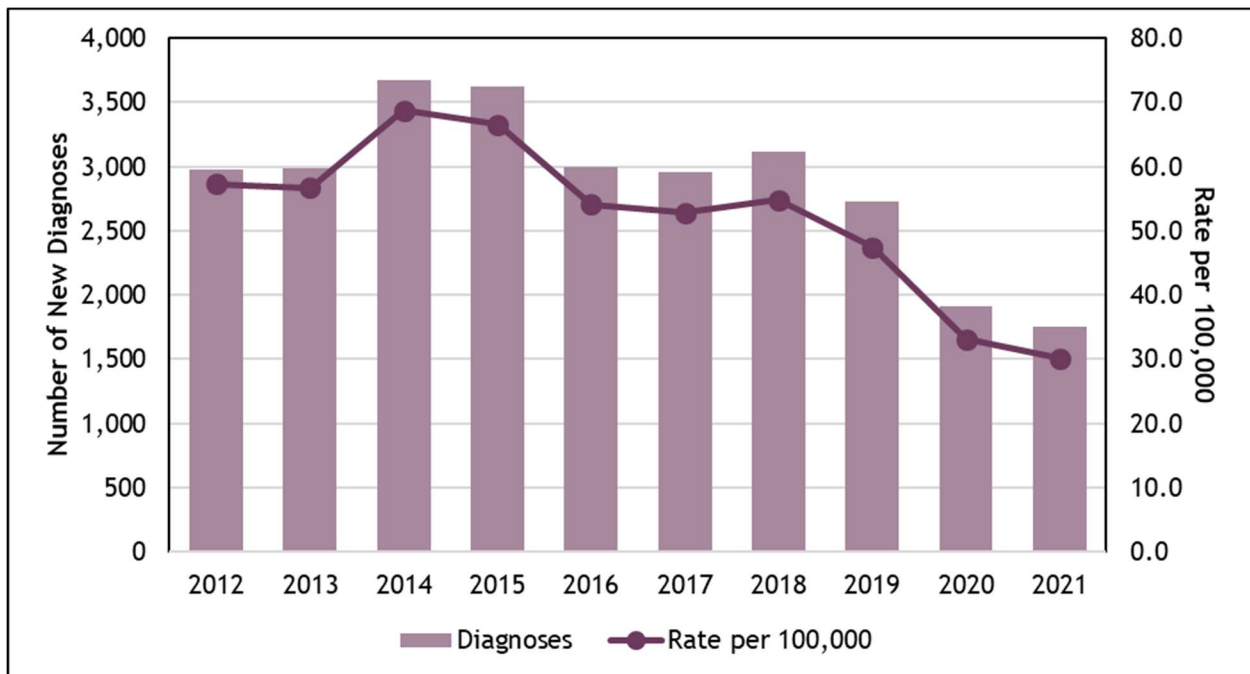
Summary

- In 2021, there were 1,752 cases of chronic HCV.
 - This represents an 8.5% decrease in diagnoses from 2020.
 - Testing for HCV declined nationwide during the COVID-19 pandemic which could be contributing to this decrease.
- 69.5% of diagnoses in 2021 were among males.
- In 2021, 20-39 year olds were disproportionately affected by chronic HCV and made up 44.7% of diagnoses.
- Due to large increases of incident cases among 15 to 44 year olds, the prevalence of chronic HCV is projected to rise in this age group, indicating a shift in the demographics of people living with HCV in Colorado.³⁵
- In 2021, 37.9% of cases occurred in the Denver TGA.
- Diagnoses in federal or state prisons from 2017-2021 accounted for more diagnoses than any single county (21.6%).
- In 2018, a settlement was reached between the CDOC and the ACLU committing the CDOC to spend 41 million dollars spread over two fiscal years towards the treatment of incarcerated individuals living with chronic HCV.
 - From the 2019 fiscal year (July 2018 - June 2019) through the end of the 2022 fiscal year (July 2021 - June 2022), 1,226 had finished treatment and had a sustained virologic response.

³⁵ CDPHE. Colorado Prevalence and Incidence of Hepatitis C Virus Infection: A Modeling Study (2018 update). Denver, CO; 2018.



Figure 5.1: Reported Chronic HCV Cases and Rate per 100,000, 2012-2021



Data used in this graph can be found in Table 5.1 in the Appendix.

Nationwide, hepatitis C testing and treatment decreased during the beginning of the COVID-19 pandemic; therefore, the decreases in diagnoses in 2020 and 2021 may be a result of a decrease in testing and not actual transmission and acquisition of new infections.^{36,37}

³⁶ Kaufman, H. W., et al. Decreases in hepatitis C testing and treatment during the COVID-19 pandemic. *American Journal of Preventive Medicine*, 2021; 61(3), 369-376.

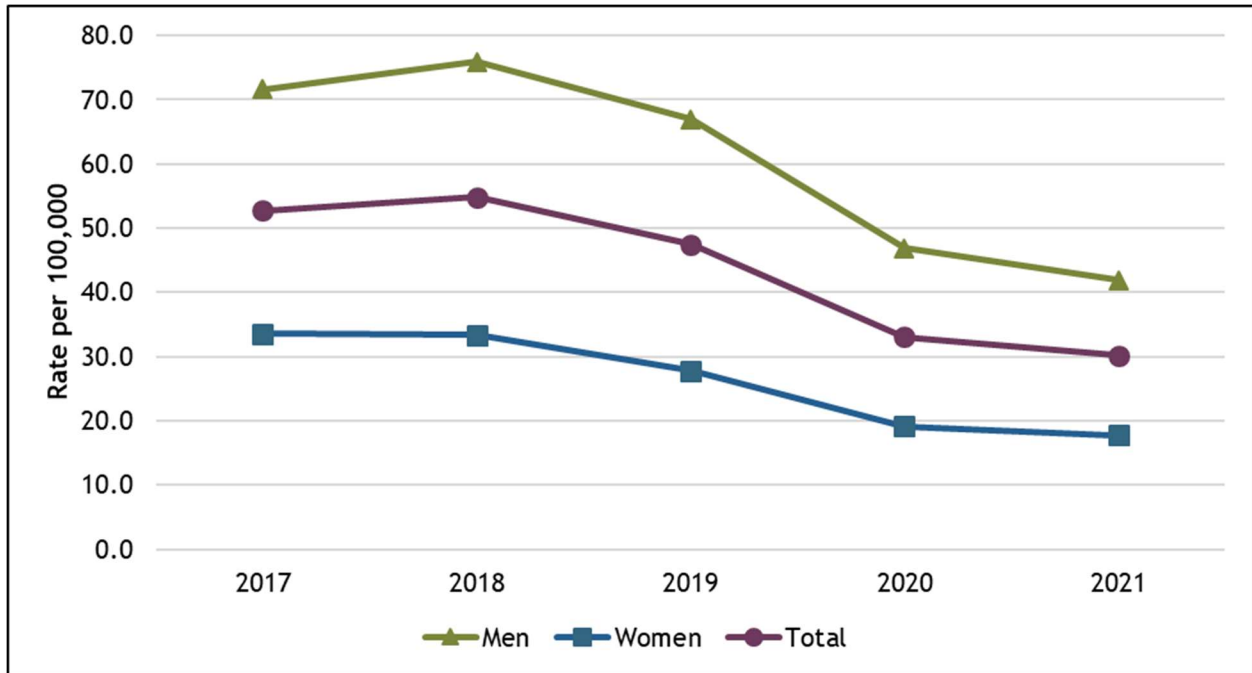
³⁷ CDC. National Profile of Viral Hepatitis. <https://www.cdc.gov/hepatitis/statistics/2020surveillance/introduction/national-profile.htm>



New Chronic HCV Diagnoses by Sex

The rate of cases among males in 2021 was 41.9 per 100,000 and 17.7 per 100,000 among females, as shown in **Figure 5.2**. The gender gap has been consistent over the past ten years, with males accounting for at least 63% of cases annually. As explained in the **Priority Populations** section of this report, IDU is more associated with males than females which may explain higher rates among males.³⁸

Figure 5.2: Rate per 100,000 of Chronic HCV Cases by Sex, 2017-2021



Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

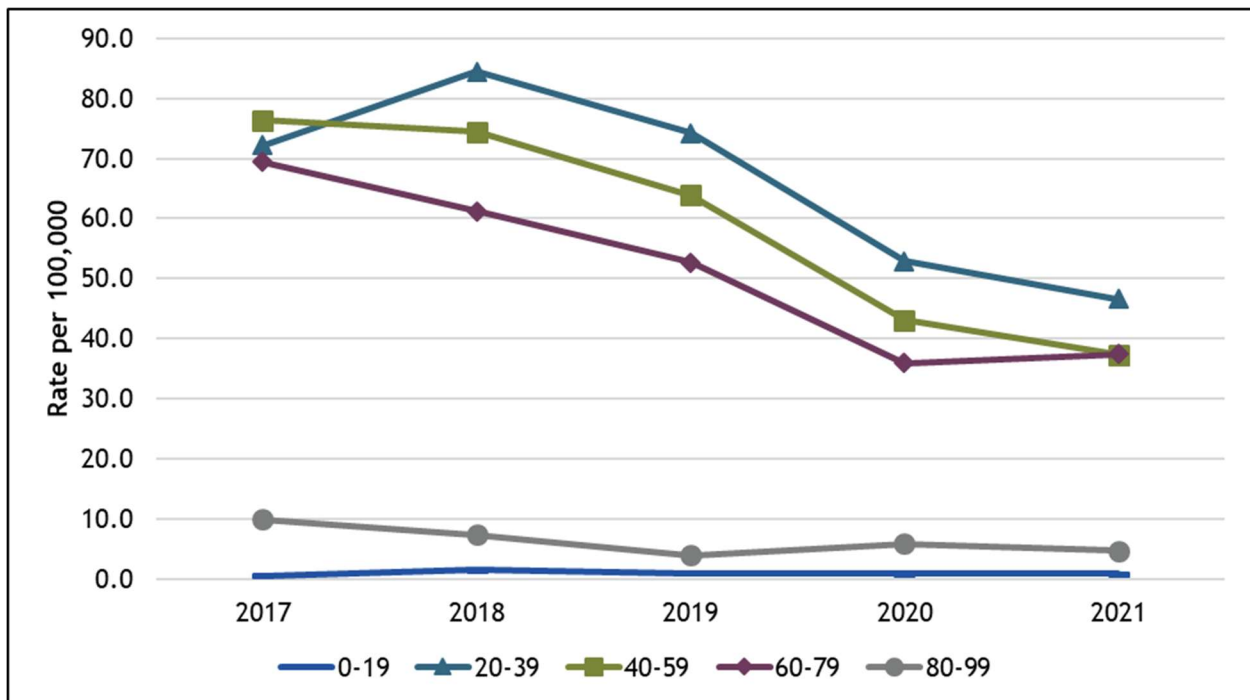
³⁸ NIH. Sex and Gender Differences in Substance Use. 2020. <https://www.drugabuse.gov/publications/research-reports/substance-use-in-women/sex-gender-differences-in-substance-use>

New Chronic HCV Diagnoses by Age

People between the ages of 20-39 had the highest rate of cases (84.5 per 100,000) for the first time in 2018, surpassing the “Baby Boomer” generation, and this trend continued into following years which can be seen in [Figure 5.3](#). In 2021, 20-39 year olds only made up 29.0% of the overall population of Colorado but accounted for 44.7% of all chronic HCV diagnoses.

In 2021, those aged 20-39 years old had the highest rate of diagnosis amongst age groups, with a rate of 46.5 per 100,000. In comparison, 40-59 year olds had a rate of 37.3 per 100,000 and 60-79 year olds had a rate of 37.5 per 100,000. This shift of the primary age group affected by chronic HCV is significant because people in the 20-39 age group have been most affected by the opioid crisis nationally.³⁹

Figure 5.3: Rates per 100,000 of Chronic HCV by Age Group, 2017-2021



³⁹ CDC. Surveillance for Viral Hepatitis - United States. 2018.

New Chronic HCV Diagnoses by Race/Ethnicity

Race/ethnicity data is not routinely reported for chronic HCV cases in Colorado. To improve race and ethnicity reporting among chronic HCV cases, cases were matched to Medicaid data sources which have better data on race and ethnicity. Before this match, 72% of cases had an unknown race/ethnicity. After this match, only 41% were still unknown.

From 2017-2021, 40.4% of cases had an unknown race and ethnicity. During this same time period, 41.4% of cases were among non-Hispanic Whites and 13.0% of cases were among Hispanic/Latino/a/x of all races.

Behavioral Risk Factors

Behavioral risk factor data is not routinely collected for chronic cases, but the rising rate of cases among 20-39 year olds in Colorado and nationally mirrors national trends related to the opioid epidemic.⁴⁰

People who reported experiencing homelessness at the time of diagnosis made up 6.3% (n = 110) of cases in 2021.

From 2017-2021, 178 of those diagnosed with chronic HCV were also living with/diagnosed with HIV. Of this group, 15.7% (n=28) were diagnosed with HIV and chronic HCV within 30 days, with the majority of cases (80.3%) having already been living with HIV. Those living with HIV and chronic HCV were primarily 30-39 years old (34.2%) and the primary reported behavioral risk factors for their HIV diagnosis included injection drug use (46.1%).

⁴⁰ CDC. Surveillance for Viral Hepatitis - United States. 2018.

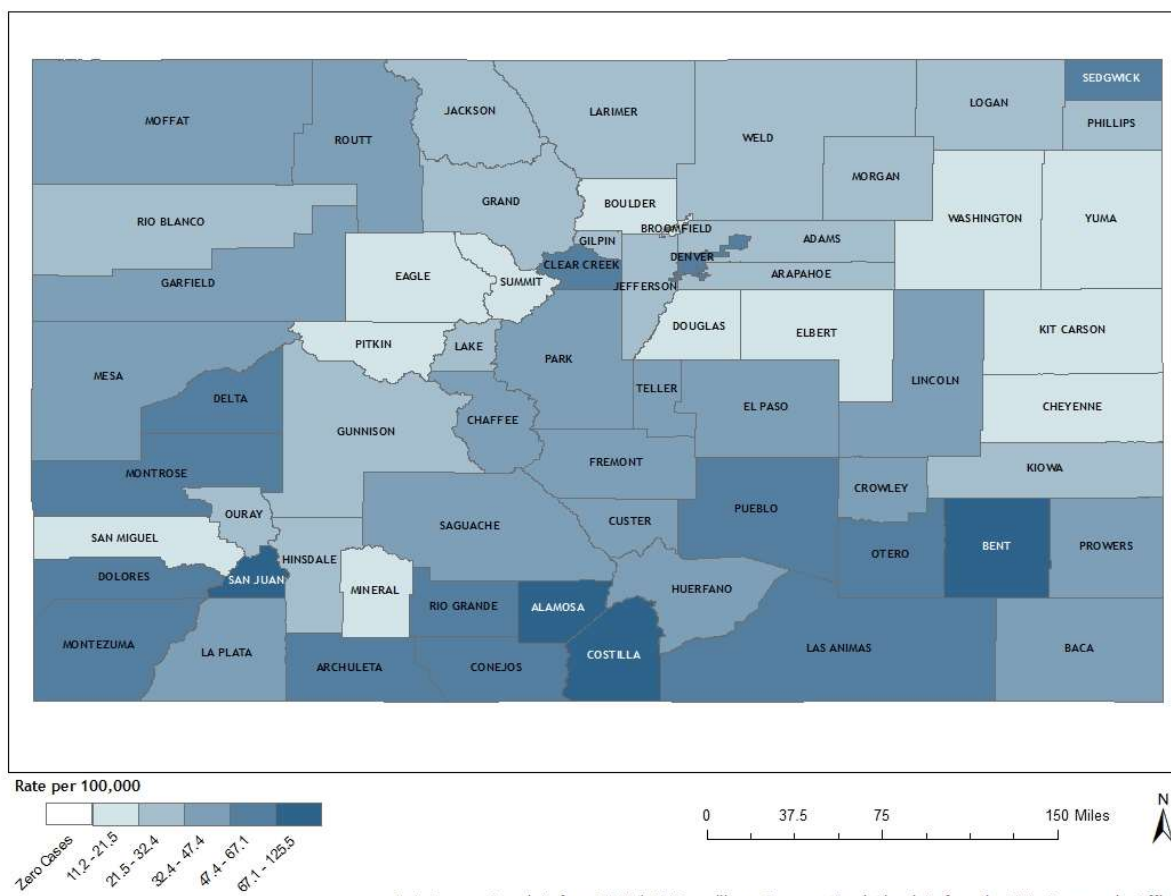
Geographic Distribution

Cases among incarcerated individuals represented 21.6% of all reported cases from 2017-2021, which was higher than the proportion of any individual county. In 2021, 18.5% of all cases occurred in prisons. This percentage was followed by Denver County, which made up 16.5% of diagnoses in 2021.

Rates of diagnosis for chronic HCV have been highest in rural counties over the past five years (2017-2021). Bent and Costilla counties had an average rate of diagnosis over 100 diagnoses per 100,000 population from 2017-2021. These average rates of diagnosis can be seen in [Figure 5.5](#). Case counts by county, as well as rates, can be found in [Table 5.3](#) in the Appendix.

While rates were high in Bent, Costilla, Alamosa, and San Juan counties from 2017-2021 due to small populations in these counties, rates should be interpreted with caution. An explanation of how rates are calculated can be found in the [Definitions](#) section.

Figure 5.5: New Chronic HCV Diagnosis Rate per 100,000 Population by County of Residence at the Time of Diagnosis - Colorado (2017-2021)



Chronic Hepatitis C Care Cascade

Negative HCV RNA tests became reportable to CDPHE in 2019. These labs have allowed surveillance staff to track individuals with chronic HCV that have reached a sustained virologic response (SVR) and those who have experienced a reinfection.

Due to the time it takes to pursue treatment and achieve SVR, this report will focus on the care cascade of those diagnosed with confirmed chronic HCV in 2020.

To be included in the care cascade, individuals needed to have one positive HCV RNA test reported to CDPHE to first confirm their HCV diagnosis. A subsequent negative or undetected HCV RNA is the next step in the cascade, which is used as an indication that an individual initiated treatment. Many providers will conduct a HCV RNA test 4 weeks into treatment to monitor a patient's response to treatment, and the RNA results at 4 weeks into treatment will, for most individuals, be negative or undetectable even though they have not yet completed the treatment regimen.

To verify that an individual has achieved SVR, a HCV RNA test at least three months after completing the treatment regimen is needed. Therefore, a second negative or undetected HCV RNA at least three months after an initial negative or undetected HCV RNA is used here as evidence that they completed treatment and achieved SVR. These individuals that have achieved SVR are considered cured of their HCV infection. If these steps are reached and an individual has a reported positive HCV RNA at least three months after SVR, they are considered to be reinfected with HCV.

Only 2020 diagnoses are included in this report to allow for at least a calendar year for an individual to pursue treatment. There are limitations to these data - only labs that occurred in Colorado are reported here; therefore, if an individual living with chronic HCV were to move outside of Colorado and pursue treatment, they would not be counted here. Additionally, beginning in 2021, Colorado Medicaid stopped requiring that an HCV RNA test be performed 4 weeks into a patient's treatment regimen. Due to this change, it is possible that certain Medicaid clients in this cohort have reached SVR despite only having one negative HCV RNA test reported to CDPHE, potentially showing an underestimation of overall SVR in Colorado among 2020 diagnoses. While requirements vary depending on insurance provider, it is becoming more and more common to forgo HCV RNA testing during the course of treatment and only test a patient 3 months after completion of treatment. Finally, for a small number of individuals, a negative RNA test within 6 months to a year of an initial positive RNA test may be due to spontaneous clearance of an acute HCV infection rather than treatment initiation, but this analysis cannot distinguish the cause of a subsequent negative test.

Definitions

People with a positive HCV RNA test: People with at least one positive HCV RNA test reported in the 2020 calendar year.

People with a subsequent negative HCV RNA test: Percent of people with a negative HCV RNA test reported after a positive HCV RNA test during the time period January 1, 2020 through December 31, 2022.

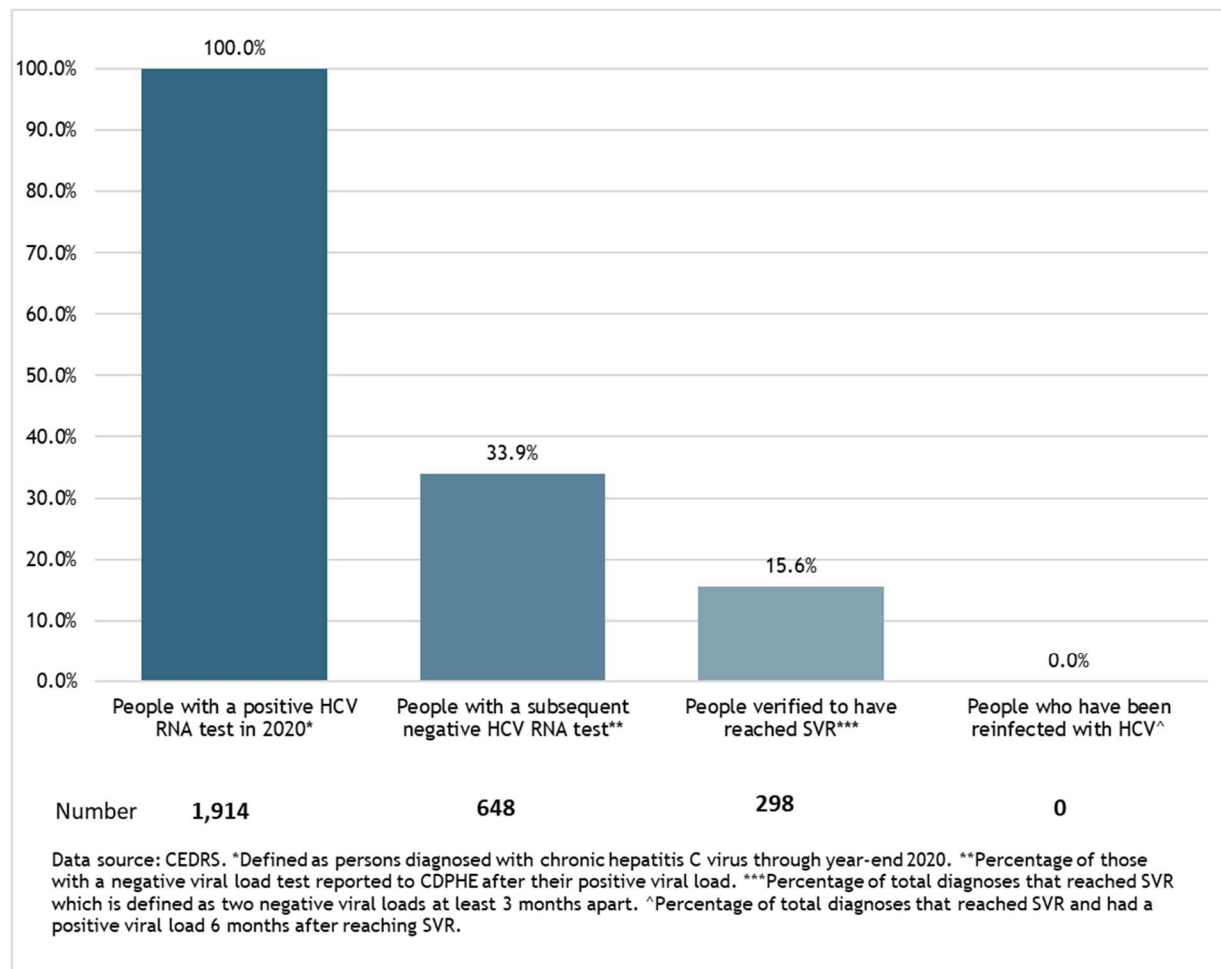
People who have reached SVR: Percent of people with a second negative HCV RNA test reported at least three months after a previous negative HCV RNA test during the time period January 1, 2020 through December 31, 2022.

People who have been reinfected with HCV: Percent of people that had been confirmed to have achieved SVR and had a reported positive HCV RNA at least three months after achieving SVR during the time period January 1, 2020 through December 31, 2022.

As shown in **Figure 6.1**, of all confirmed diagnoses in 2020 (n=1,914) only 15.6% had reached SVR as of December 2022. The average time from diagnosis to SVR was 1.2 years.

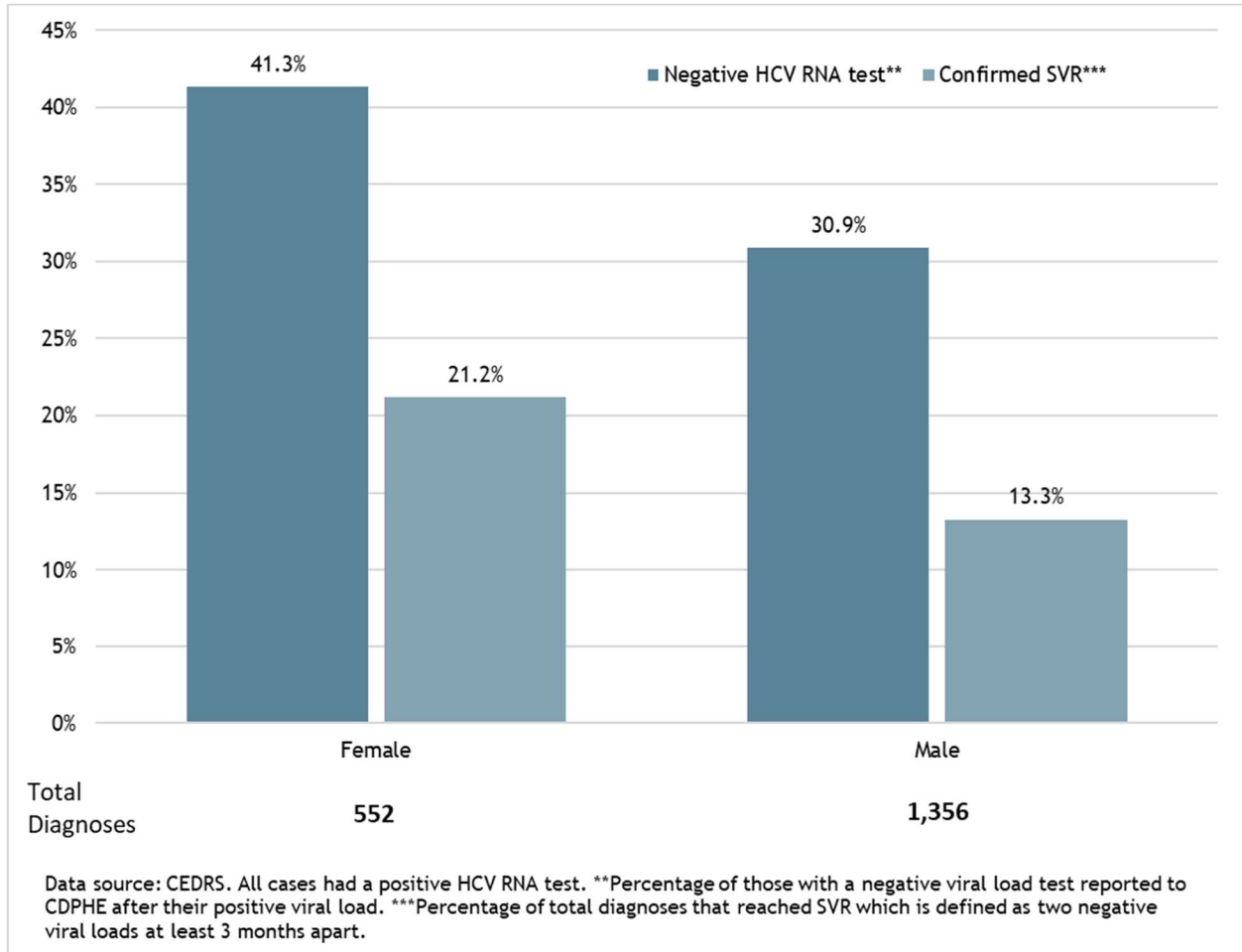
The low numbers of individuals reaching SVR and being cured of their hepatitis C infection implies there is still a high number of individuals living with hepatitis C. This along with the new diagnoses every year implies an increasing prevalence of chronic HCV in Colorado. However, many providers no longer require two HCV RNA tests over the course of an individual’s treatment. Treatment data is not reported to CDPHE and, therefore, estimates of SVR can only be done using the results of HCV RNA tests. It is possible that many individuals have achieved SVR but did not have two negative HCV RNA blood tests drawn over the course of their treatment, which would exclude them from CDPHE’s estimates of SVR. Therefore, the number of individuals with a single negative HCV RNA reported to CDPHE can be used as a liberal estimate of SVR and the number of individuals with two negative HCV RNAs reported to CPDHE can be used as a conservative estimate of where SVR was definitely verified.

Figure 6.1: Chronic HCV Care Cascade; 2020 Colorado Diagnoses



While the majority of diagnoses in 2020 were among males, females were slightly more likely to reach SVR than males by December 2022 - as depicted in [Figure 6.2](#). Additionally, a higher percentage of females had received an initial negative HCV RNA test by December 2022 than males.

Figure 6.2: Chronic HCV Care Cascade; 2020 Diagnoses by Sex

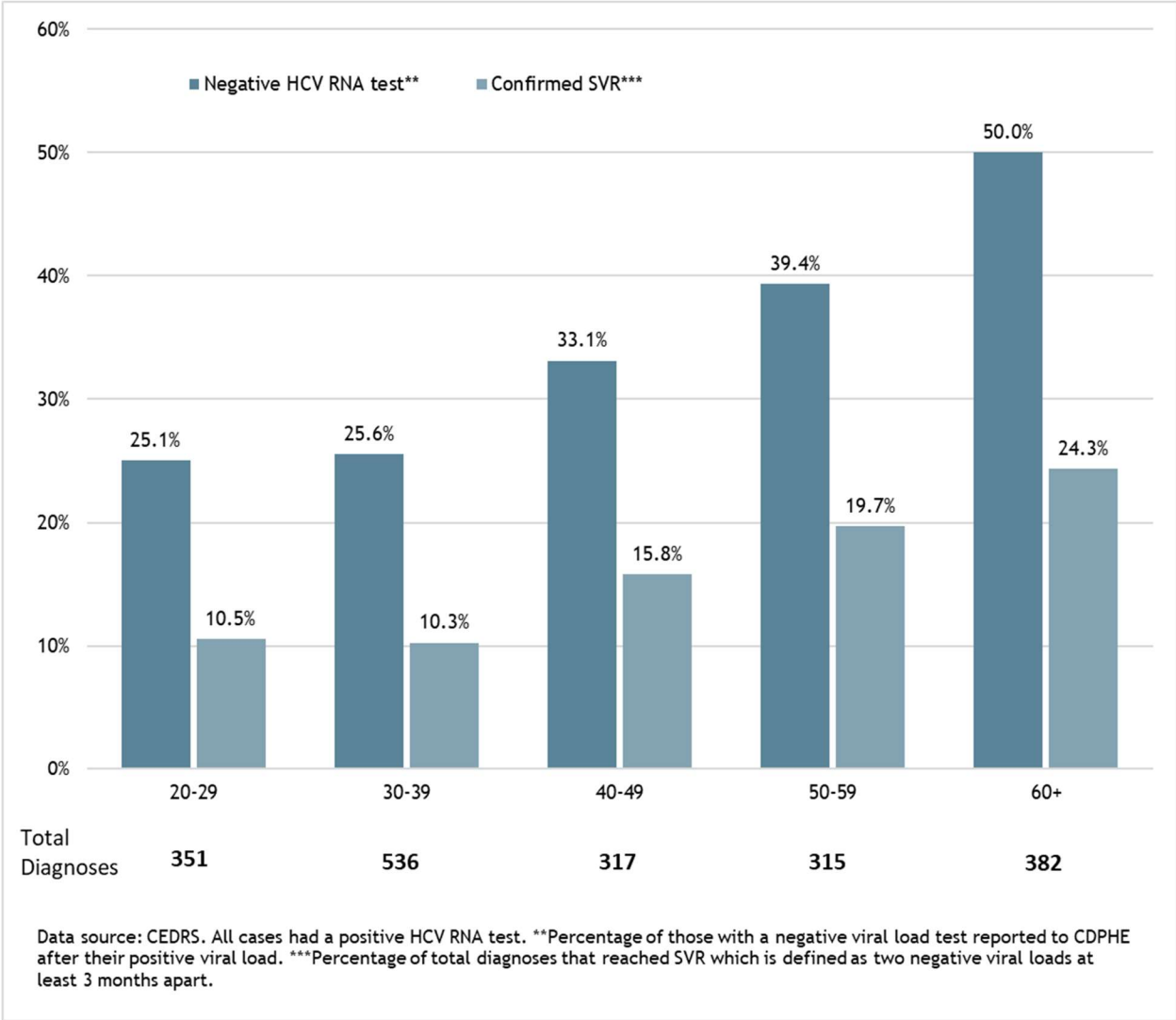


Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.



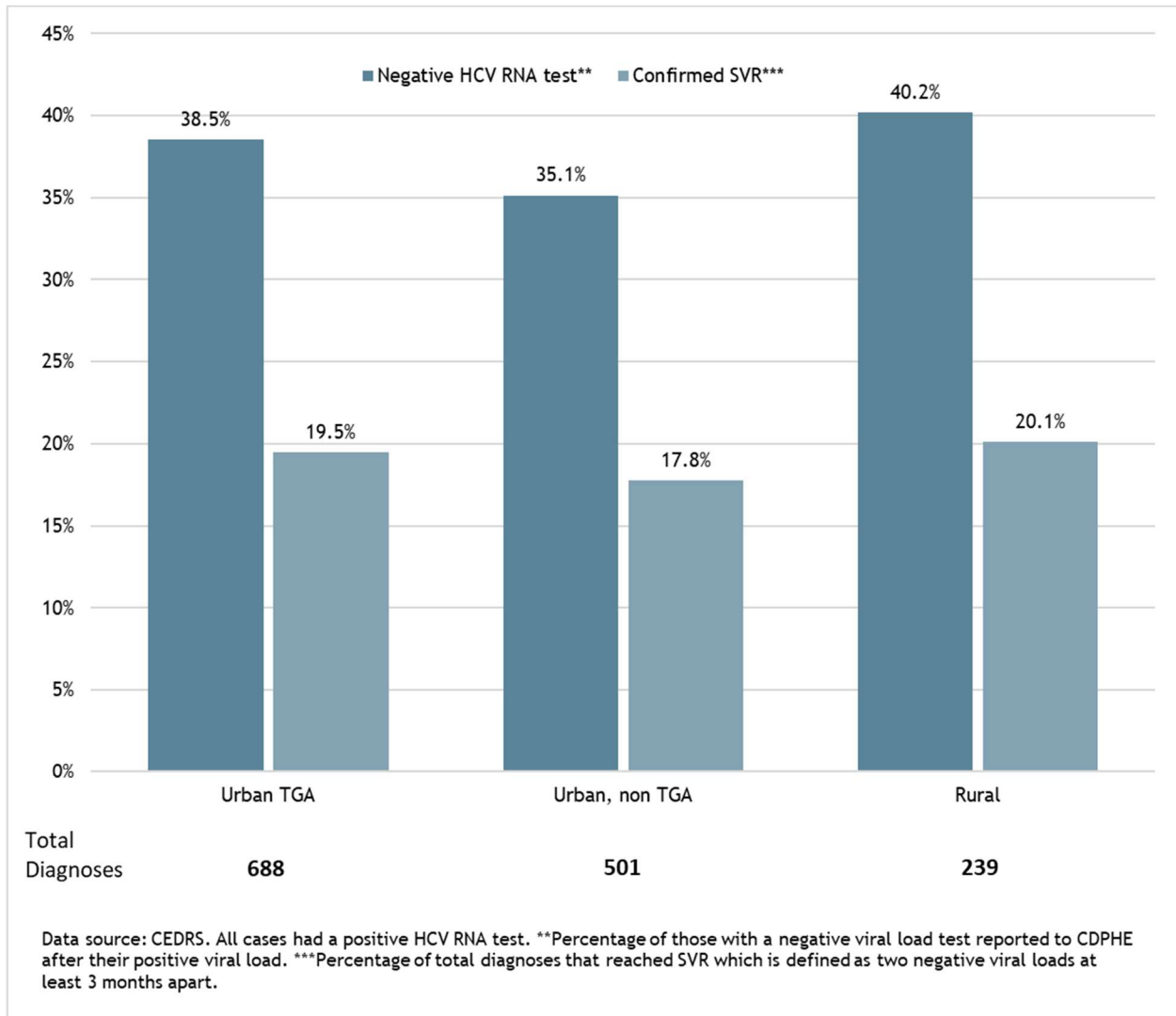
By age, as depicted in **Figure 6.3**, the majority of diagnoses that had reached SVR by December 2022 were 60 and older when they were diagnosed with hepatitis C. Additionally, this age group had the highest percentages of receiving an initial negative HCV RNA test whereas only 25.1% of 20-39 year olds had received an initial negative HCV RNA test by December 2022. While 20-39 year olds made up 46.3% of new diagnoses in 2020 (n=887), only 10.4% (n=92) of this cohort had reached SVR by December 2022, implying that the prevalence of HCV in this age group is increasing in the community.

Figure 6.3: Chronic HCV Care Cascade; 2020 Diagnoses by Age at Diagnosis



As shown in **Figure 6.4**, those living in urban, Denver TGA and rural counties were most likely to reach SVR. Individuals diagnosed in urban-non Denver TGA counties were the least likely to reach SVR - 17.8% of 2020 diagnoses (n=89) had reached SVR by December 2022. The majority of diagnoses in 2020 occurred in urban TGA counties and this trend continued into 2021, implying that the prevalence of chronic HCV in these counties is likely increasing.

Figure 6.4: Chronic HCV Care Cascade; 2020 Diagnoses by Region



Those diagnosed in unknown counties or prisons are not included in this figure.



Perinatal Hepatitis B and C

There were zero perinatal HBV cases reported in Colorado in 2021. Over the past ten years (2012-2021), there were two cases of [perinatal HBV](#).

CDPHE had 104 pregnant people enrolled in the PHBPP with an estimated due date (EDD) in 2021. This number is not inclusive of all pregnant people that were enrolled in the PHBPP in 2021. Of the 104 people enrolled in PHBPP, 53 pregnant people had never been enrolled in the program, and 51 had previously been enrolled in the program but had a new pregnancy with an EDD in 2021. CDC, Advisory Committee on Immunizations Practices (ACIP), and the U.S. Preventive Services Taskforce recommend that all people are screened for HBV during pregnancy.

Colorado birth certificate data for 2021 shows that of 63,548 total births, 62,022 pregnant people had a known prenatal hepatitis B screening (97.6%). This is up from 97.1% in 2020. Colorado had a hepatitis B birth dose vaccination rate of 83.4% in 2021, which is slightly lower (>1%) than rates in 2020.

[Perinatal HCV](#) became reportable in 2018. In Colorado, there were two perinatal HCV cases reported in 2018, one reported in 2019, three reported in 2020, and three reported in 2021 - all had confirmatory test results.

Coinfections and Liver Cancer

There were 37 cases of individuals diagnosed with both HBV and HCV from 2017 to 2021. Living with HBV and HCV is associated with faster progression of disease as well as higher rates of hepatocellular carcinoma (HCC) development. Managing patients who are living with both hepatitis B and C presents unique challenges. In some cases, treatment with direct-acting antivirals (DAAs) for HCV may result in reactivation of previously suppressed HBV infection.⁴¹

Among diagnoses that occurred from 2012 to 2021, there were 478 cases of liver cancer diagnosed in Colorado among previously reported HCV cases, and 40 among previously reported HBV cases during the same time period. The “Baby Boomer” generation (those born from 1945-1965) made up 88.1% of liver cancer diagnoses associated with a previously reported HCV diagnosis from 2012-2021. The average time from hepatitis diagnosis reporting to liver cancer diagnosis was 2.5 years among reported HCV

⁴¹ Mavilia MG, Wu GY. HBV-HCV Coinfection: Viral Interactions, Management, and Viral Reactivation. J Clin Transl Hepatol. 2018/07/06. 2018 Sep 28;6(3):296-305.

cases, and 2.5 years among reported HBV cases, illustrating the need to connect more people to treatment in the course of their illness as well as focusing on earlier diagnosis of HBV and HCV.

Priority Populations

People Experiencing Homelessness

People experiencing homelessness (PEH) are disproportionately affected by hepatitis A and C and make up high proportions of reported cases for these conditions in Colorado.

In the past five years, PEH made up 17.3% (n = 27) of acute HCV cases, and 7.6% (n = 951) of chronic HCV cases in Colorado. The majority of these cases were among young people aged 20-39 years old.

According to the 2020 Annual Homeless Assessment Report to Congress, there were an estimated 9,846 PEH in Colorado, 2,834 of whom were chronically homeless.⁴² Due to complications caused by the COVID-19 pandemic, for 2021 the Annual Homeless Assessment Report was only able to report sheltered homelessness - referring to people staying in emergency shelters, transitional housing programs, or safe havens. It was estimated that in 2021, there were 8,016 sheltered people experiencing homelessness in Colorado.⁴³ Prevalence estimates of HCV RNA, indicative of a current case of HCV, among PEH range from 10.8% to 31.2%.⁴⁴ Using these estimates of the sheltered homeless population and HCV prevalence, there were an estimated 866 to 2,501 PEH in Colorado living with chronic hepatitis C in 2021. However, depending on the proportion of PEH who inject drugs, the estimated HCV prevalence could well be higher. The estimates of the number of PEH may also be an underestimate.

Whether or not a person is experiencing homelessness at the time of reporting is based on address reporting, case notes, and/or case interviews. This methodology likely results in underestimates, especially for reported chronic HCV cases, since routine follow-up of chronic HCV cases is not conducted. No address or institution was reported for 4.2% (n = 526) of reported chronic HCV cases from 2017-2021. PEH may also report the permanent address of a friend or family member in medical records.

Outreach organizations, homeless shelters, and existing syringe services programs work to connect PEH and other marginalized populations to testing and care. The effectiveness of the efforts of these

⁴² HUD. The 2020 Annual Homeless Assessment Report to Congress. Washington, D.C.; 2020.

⁴³ HUD. The 2021 Annual Homeless Assessment Report to Congress.
<https://www.huduser.gov/portal/sites/default/files/pdf/2021-AHAR-Part-1.pdf>

⁴⁴ Hofmeister MG, Rosenthal EM, Barker LK, Rosenberg ES, Barranco MA, Hall EW, et al. Estimating Prevalence of Hepatitis C Virus Infection in the United States, 2013-2016. *Hepatology*. 2019 Mar 1;69(3):1020-31.

organizations to test individuals for viral hepatitis may contribute to the high numbers of reported cases among PEH. However, the data also mirror national trends in the increasing burden of viral hepatitis among this population compared to other groups such as people born between 1945 and 1965 (often referred to as “Baby Boomers”).⁴⁵

People who are Incarcerated

The CDOC offers HCV testing to inmates upon intake into a prison. Since 2017, there have been 2,686 chronic HCV cases reported to CDPHE from prisons - which represents 21.6% of all chronic HCV cases in Colorado during the past five years.

In 2018, a settlement was finalized between the American Civil Liberties Union (ACLU) and CDOC where CDOC agreed to spend \$41 million over two years to treat prisoners living with HCV.⁴⁶ In the 2021 fiscal year (July 2020 - June 2021), 190 offenders had completed treatment and had a sustained virologic response and 44 were released mid-treatment. In the 2022 fiscal year (July 2021 - June 2022), 127 offenders had completed treatment and had a sustained virologic response and 27 were released mid-treatment.

People who Inject Drugs

IDU is a commonly reported behavioral risk factor for new viral hepatitis diagnoses. In the past five years, 2017-2021, nearly 25% of HAV cases, 16% of acute HBV cases, and nearly 50% of acute HCV cases reported IDU as a behavioral risk factor.

The increasing diagnoses of chronic HCV in young people mirrors the trends of the opioid epidemic in Colorado. In 2021, 25 to 34 year olds made up 24.6% of all fatal drug overdoses while only accounting for roughly 15% of Colorado’s population in 2021. The average drug overdose rate in this age group in 2021 was 53.5 drug overdose deaths per 100,000. For comparison, the average drug overdose rate for all age groups was 32.3 per 100,000.⁴⁷ The rate of drug overdose deaths among this age group increased by 25% from 2020 and the overall rate increased by 26.6% - indicating an increase in overall drug use in Colorado.

⁴⁵ CDC. Surveillance for Viral Hepatitis - United States. 2018.

⁴⁶ ACLU of Colorado. ACLU and Colorado Department of Corrections Reach Historic Settlement to Treat All Colorado Prisoners with Hepatitis C. 2018. <https://aclu-co.org/aclu-and-colorado-department-of-corrections-reach-historic-settlement-to-treat-all-colorado-prisoners-with-hepatitis-c/>

⁴⁷ Opioid Overdose Prevention Program, Colorado Department of Public Health and Environment. Drug Overdose Dashboard. Accessed 1/2023. https://cohealthviz.dphe.state.co.us/t/PSDVIP-MHPPUBLIC/views/DrugOverdoseDashboard/LandingPage?showAppBanner=false&:display_count=n&:showVizHome=n&:origin=viz_share_link

Differences in sex for chronic HCV diagnosis and the opioid epidemic are also similar. For the past five years, males have accounted for at least 60% of chronic HCV diagnoses annually. In 2021, the rate of cases among males was 44.0 per 100,000 and 20.7 per 100,000 among females. These trends may be able to be explained by patterns in drug use. Males, on average, are more likely than females to use drugs.⁴⁸ Additionally, males are more likely than females to inject drugs like heroin.⁴⁹ In 2020, males made up 67.9% of drug overdose deaths in Colorado while only accounting for 50.0% of the overall Colorado population in 2021.

In the 2019 Colorado Behavioral Risk Factor Surveillance System (BRFSS), the most recent year where injection drug use behavior was asked about, 1.7% of those interviewed indicated that they had used a needle to inject a drug not prescribed by a doctor at least once.⁵⁰ Of that group, 5.8% had injected drugs recently, within the past 30 days of when the interview was conducted.⁵¹ Explanation of the BRFSS can be found in the **Definitions** section of this report. Applying these percentages to Colorado's adult population in 2019, an estimated 75,231 Coloradans over 18 years old had ever injected drugs not prescribed by a doctor and 4,363 had done so recently.

Those that are currently injecting drugs are at risk for hepatitis. Prevention and treatment targeted at people who inject drugs (PWID) can help prevent the transmission of viral hepatitis and link more people at risk to screening and care.

⁴⁸ NIH. Sex and Gender Differences in Substance Use. 2020. <https://www.drugabuse.gov/publications/research-reports/substance-use-in-women/sex-gender-differences-in-substance-use>

⁴⁹ NIH. Sex and Gender Differences in Substance Use. 2020. <https://www.drugabuse.gov/publications/research-reports/substance-use-in-women/sex-gender-differences-in-substance-use>

⁵⁰ 2019 Colorado Behavioral Risk Factor Surveillance System (BRFSS), Colorado Department of Public Health and Environment. <https://drive.google.com/file/d/1uimVB49TVrtS1n1eldupJCHBlwTj4Wo9/view>

⁵¹ 2019 Colorado Behavioral Risk Factor Surveillance System (BRFSS), Colorado Department of Public Health and Environment. <https://drive.google.com/file/d/1uimVB49TVrtS1n1eldupJCHBlwTj4Wo9/view>

Data Tables

Table 1.1: Reported hepatitis A cases and rate per 100,000, 2012-2021

Measure	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Cases	29	50	23	24	23	64	31	332	95	11
Rate	0.6	0.9	0.4	0.4	0.4	1.1	0.5	5.8	1.6	0.2

2012-2021 population estimates from the Colorado State Demography Office

Table 1.2: Demographics of new hepatitis A cases, 2017-2021

	2017		2018		2019		2020		2021	
	N	%	N	%	N	%	N	%	N	%
Total	64	100.0%	31	100.0%	332	100.0%	95	100.0%	11	100.0%
Sex/Gender*										
Female	18	28.1%	10	32.3%	99	29.8%	30	31.6%	3	27.3%
Male	45	70.3%	21	67.7%	233	70.2%	65	68.4%	8	72.7%
Transgender Woman	1	1.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transgender Man	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown Gender	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Age Group										
0-19	2	3.1%	1	3.2%	3	0.9%	1	1.1%	0	0.0%
20-39	27	42.2%	16	51.6%	156	47.0%	34	35.8%	6	54.5%
40-59	25	39.1%	7	22.6%	144	43.4%	38	40.0%	2	18.2%
60-79	9	14.1%	3	9.7%	21	6.3%	14	14.7%	2	18.2%
80-99	0	0.0%	3	9.7%	7	2.1%	7	7.4%	1	9.1%
Unknown	1	1.6%	1	3.2%	1	0.3%	1	1.1%	0	0.0%
Race/Ethnicity										
NH, Asian/Pacific Islander	1	1.6%	0	0.0%	4	1.2%	2	2.1%	1	9.1%
NH, Black/African	1	1.6%	0	0.0%	21	6.3%	5	5.3%	1	9.1%



American										
Hispanic/Latino/a/x , all races	8	12.5%	5	16.1%	42	12.7%	16	16.8%	3	27.3%
NH, Indigenous/Native American	0	0.0%	0	0.0%	2	0.6%	0	0.0%	0	0.0%
NH, Multi Race	1	1.6%	0	0.0%	8	2.4%	1	1.1%	0	0.0%
NH White	42	65.6%	21	67.7%	216	65.1%	61	64.2%	6	54.5%
Unknown Race	11	17.2%	5	16.1%	39	11.7%	10	10.5%	0	0.0%
County Class**										
TGA	31	48.4%	14	45.2%	151	45.5%	50	52.6%	5	45.5%
Homeless	0	0.0%	1	3.2%	83	25.0%	16	16.8%	0	0.0%
Urban, non-TGA	28	43.8%	16	51.6%	151	45.5%	37	38.9%	5	45.5%
Homeless	1	1.6%	5	16.1%	85	25.6%	15	15.8%	2	18.2%
Rural	4	6.3%	1	3.2%	27	8.1%	8	8.4%	1	9.1%
Homeless	1	1.6%	0	0.0%	11	3.3%	1	1.1%	0	0.0%
Prison	0	0.0%	0	0.0%	3	0.9%	0	0.0%	0	0.0%
Unknown	1	1.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

*Gender identity is not known for all diagnoses. The gender reported could be sex at birth or an individual's gender identity.

** Percentages for county class will not add to 100% as homeless cases are counted in overall county class cases.

TGA counties include: Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson.

Urban, non-TGA counties include: El Paso, Larimer, Mesa, Pueblo, Weld, and Boulder.

Table 1.3: New hepatitis A cases and rate per 100,000 by county, 2017-2021

	2017		2018		2019		2020		2021		2017-2021		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	64	1.1	31	0.5	332	5.8	95	1.6	11	0.2	533	1.9	100.0%
Adams	9	1.8	3	0.6	16	3.1	10	1.9	3	0.6	41	1.6	7.7%
Alamosa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Arapahoe	5	0.8	4	0.6	19	2.9	10	1.5	1	0.2	39	1.2	7.3%
Archuleta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Baca	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%



Bent	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Boulder	4	1.2	2	0.6	11	3.3	18	5.4	1	0.3	36	2.2	6.8%
Broomfield	0	0.0	0	0.0	0	0.0	1	1.3	0	0.0	1	0.3	0.2%
Chaffee	0	0.0	0	0.0	0	0.0	2	10.2	0	0.0	2	2.0	0.4%
Cheyenne	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Clear Creek	0	0.0	0	0.0	1	10.6	0	0.0	0	0.0	1	2.1	0.2%
Conejos	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Costilla	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Crowley	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Custer	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Delta	0	0.0	0	0.0	0	0.0	1	3.2	0	0.0	1	0.6	0.2%
Denver	12	1.7	5	0.7	92	13.0	19	2.6	1	0.1	129	3.6	24.2%
Dolores	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Douglas	3	0.9	0	0.0	7	2.0	0	0.0	0	0.0	10	0.6	1.9%
Eagle	1	1.9	1	1.8	3	5.5	0	0.0	0	0.0	5	1.8	0.9%
El Paso	12	1.7	10	1.4	127	17.5	3	0.4	0	0.0	152	4.2	28.5%
Elbert	0	0.0	0	0.0	0	0.0	2	7.6	0	0.0	2	1.5	0.4%
Fremont	0	0.0	0	0.0	14	28.9	0	0.0	0	0.0	14	5.8	2.6%
Garfield	1	1.7	0	0.0	0	0.0	1	1.6	0	0.0	2	0.7	0.4%
Gilpin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Grand	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Gunnison	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Hinsdale	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Huerfano	0	0.0	0	0.0	0	0.0	1	14.6	0	0.0	1	2.9	0.2%
Jackson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Jefferson	2	0.3	2	0.3	17	2.9	10	1.7	0	0.0	31	1.1	5.8%
Kiowa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Kit Carson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
La Plata	0	0.0	0	0.0	1	1.8	0	0.0	0	0.0	1	0.4	0.2%



Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Larimer	3	0.9	1	0.3	1	0.3	1	0.3	0	0.0	6	0.3	1.1%
Las Animas	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Lincoln	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Logan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Mesa	1	0.7	0	0.0	1	0.6	0	0.0	0	0.0	2	0.3	0.4%
Mineral	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Moffat	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Montezuma	0	0.0	0	0.0	1	3.9	0	0.0	1	3.8	2	1.5	0.4%
Montrose	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Morgan	0	0.0	0	0.0	1	3.4	0	0.0	0	0.0	1	0.7	0.2%
Otero	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Ouray	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Park	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Phillips	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Pitkin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prowers	0	0.0	0	0.0	0	0.0	1	8.3	0	0.0	1	1.7	0.2%
Pueblo	7	4.2	3	1.8	9	5.4	14	8.3	3	1.8	36	4.3	6.8%
Rio Blanco	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Rio Grande	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Routt	0	0.0	0	0.0	5	20.4	0	0.0	0	0.0	5	4.1	0.9%
Saguache	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
San Juan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
San Miguel	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Sedgwick	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Summit	1	3.2	0	0.0	1	3.2	0	0.0	0	0.0	2	1.3	0.4%
Teller	1	4.1	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	0.2%
Washington	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Weld	1	0.3	0	0.0	2	0.6	1	0.3	1	0.3	5	0.3	0.9%



Yuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prison	0	---	0	---	3	---	0	---	0	---	3	---	0.6%
Unknown	1	---	0	---	0	---	0	---	0	---	1	---	0.2%

Table 2.1: Reported acute hepatitis B cases and rate per 100,000, 2012-2021

Measure	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Cases	25	23	29	29	28	32	22	23	12	1
Rate	0.5	0.4	0.5	0.5	0.5	0.6	0.4	0.4	0.2	<0.1

2012-2021 population estimates from the Colorado State Demography Office

Table 2.2: Demographics of new acute hepatitis B cases, 2017-2021

	2017		2018		2019		2020		2021	
	N	%	N	%	N	%	N	%	N	%
Total	32	100.0%	22	100.0%	23	100.0%	12	100.0%	1	100.0%
Sex/Gender*										
Female	5	15.6%	7	31.8%	12	52.2%	3	25.0%	0	0.0%
Male	27	84.4%	15	68.2%	10	43.5%	9	75.0%	1	100.0%
Transgender Woman	0	0.0%	0	0.0%	1	4.3%	0	0.0%	0	0.0%
Transgender Man	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown Gender	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Age Group										
0-19	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
20-39	13	40.6%	5	22.7%	10	43.5%	2	16.7%	0	0.0%
40-59	17	53.1%	15	68.2%	11	47.8%	8	66.7%	1	100.0%
60-79	2	6.3%	2	9.1%	1	4.3%	0	0.0%	0	0.0%
80-99	0	0.0%	0	0.0%	0	0.0%	1	8.3%	0	0.0%
Unknown	0	0.0%	0	0.0%	1	4.3%	1	8.3%	0	0.0%
Race/Ethnicity										

NH, Asian/Pacific Islander	1	3.1%	0	0.0%	0	0.0%	0	0.0%	---	---
NH, Black/African American	3	9.4%	2	9.1%	1	4.3%	1	8.3%	---	---
Hispanic/Latino/a/x , all races	6	18.8%	5	22.7%	5	21.7%	2	16.7%	---	---
NH, Indigenous/Native American	0	0.0%	0	0.0%	0	0.0%	1	8.3%	---	---
NH, Multi Race	0	0.0%	0	0.0%	0	0.0%	0	0.0%	---	---
NH White	19	59.4%	15	68.2%	17	73.9%	6	50.0%	---	---
Unknown Race	3	9.4%	0	0.0%	0	0.0%	2	16.7%	---	---
County Class**										
TGA	21	65.6%	11	50.0%	14	60.9%	9	75.0%	0	0.0%
Homeless	3	9.4%	3	13.6%	5	21.7%	3	25.0%	0	0.0%
Urban, non-TGA	7	21.9%	8	36.4%	6	26.1%	2	16.7%	1	100.0%
Homeless	1	3.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Rural	3	9.4%	3	13.6%	1	4.3%	0	0.0%	0	0.0%
Homeless	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Prison	1	3.1%	0	0.0%	2	8.7%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%	1	8.3%	0	0.0%

*Gender identity is not known for all diagnoses. The gender reported could be sex at birth or an individual's gender identity.

**Percentages for county class will not add to 100% as homeless cases are counted in overall county class cases.

TGA counties include: Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson.

Urban, non-TGA counties include: El Paso, Larimer, Mesa, Pueblo, Weld, and Boulder.

Race and ethnicity is suppressed for 2021 due to low case counts.

Table 2.3: New acute hepatitis B cases and rate per 100,000 by county, 2017-2021

	2017		2018		2019		2020		2021		2017-2021		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	32	0.6	22	0.4	23	0.4	12	0.2	1	<0.1	90	0.3	100.0%
Adams	2	0.4	0	0.0	0	0.0	1	0.2	0	0.0	3	0.1	3.3%
Alamosa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Arapahoe	5	0.8	2	0.3	3	0.5	0	0.0	0	0.0	10	0.3	11.1%

Archuleta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Baca	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Bent	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Boulder	1	0.3	1	0.3	0	0.0	0	0.0	1	0.3	3	0.2	3.3%
Broomfield	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Chaffee	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Cheyenne	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Clear Creek	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Conejos	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Costilla	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Crowley	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Custer	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Delta	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0	1	0.7	1.1%
Denver	12	1.7	7	1.0	8	1.1	7	1.0	0	0.0	34	1.0	37.8%
Dolores	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Douglas	0	0.0	0	0.0	1	0.3	1	0.3	0	0.0	2	0.1	2.2%
Eagle	1	1.9	1	1.8	0	0.0	0	0.0	0	0.0	2	0.7	2.2%
El Paso	1	0.1	4	0.6	3	0.4	1	0.1	0	0.0	9	0.2	10.0%
Elbert	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Fremont	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	1	0.4	1.1%
Garfield	0	0.0	0	0.0	1	1.7	0	0.0	0	0.0	1	0.3	1.1%
Gilpin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Grand	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Gunnison	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Hinsdale	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Huerfano	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Jackson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Jefferson	2	0.3	2	0.3	2	0.3	0	0.0	0	0.0	6	0.2	6.7%
Kiowa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%



Kit Carson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
La Plata	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Larimer	0	0.0	1	0.3	1	0.3	1	0.3	0	0.0	3	0.2	3.3%
Las Animas	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Lincoln	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Logan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Mesa	3	2.0	1	0.6	1	0.6	0	0.0	0	0.0	5	0.7	5.6%
Mineral	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Moffat	0	0.0	1	7.5	0	0.0	0	0.0	0	0.0	1	1.5	1.1%
Montezuma	1	3.9	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	1.1%
Montrose	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Morgan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Otero	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Ouray	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Park	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Phillips	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Pitkin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prowers	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Pueblo	1	0.6	0	0.0	1	0.6	0	0.0	0	0.0	2	0.2	2.2%
Rio Blanco	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Rio Grande	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Routt	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Saguache	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
San Juan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
San Miguel	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Sedgwick	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Summit	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Teller	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%



Washington	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Weld	1	0.3	1	0.3	0	0.0	0	0.0	0	0.0	2	0.1	2.2%
Yuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prison	1	---	0	---	2	---	0	---	0	---	3	---	3.3%
Unknown	0	---	0	---	0	---	1	---	0	---	1	---	1.1%

Table 3.1: Reported chronic hepatitis B cases and rate per 100,000, 2012-2021

Measure	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Cases	256	291	335	337	331	279	313	253	204	239
Rate	4.9	5.5	6.3	6.2	6.0	5.0	5.5	4.4	3.5	4.1

2012-2021 population estimates from the Colorado State Demography Office

Table 3.2: Demographics of new chronic hepatitis B cases, 2017-2021

	2017		2018		2019		2020		2021	
	N	%	N	%	N	%	N	%	N	%
Total	279	100.0%	313	100.0%	253	100.0%	204	100.0%	239	100.0%
Sex/Gender*										
Female	123	44.1%	126	40.3%	96	37.9%	91	44.6%	104	43.5%
Male	154	55.2%	187	59.7%	156	61.7%	113	55.4%	133	55.6%
Transgender Woman	2	0.7%	0	0.0%	1	0.4%	0	0.0%	0	0.0%
Transgender Man	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown Gender	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	0.8%
Age Group										
0-19	7	2.5%	12	3.8%	7	2.8%	2	1.0%	2	0.8%
20-39	133	47.7%	132	42.2%	111	43.9%	90	44.1%	97	40.6%
40-59	91	32.6%	121	38.7%	97	38.3%	72	35.3%	94	39.3%
60-79	31	11.1%	34	10.9%	24	9.5%	21	10.3%	35	14.6%
80-99	16	5.7%	10	3.2%	11	4.3%	13	6.4%	10	4.2%

Unknown	1	0.4%	4	1.3%	3	1.2%	6	2.9%	1	0.4%
Race/Ethnicity										
NH, Asian/Pacific Islander	84	30.1%	96	30.7%	52	20.6%	41	20.1%	45	18.8%
NH, Black/African American	39	14.0%	44	14.1%	36	14.2%	22	10.8%	19	7.9%
Hispanic/Latino/a/x , all races	12	4.3%	20	6.4%	17	6.7%	8	3.9%	8	3.3%
NH, Indigenous/Native American	1	0.4%	1	0.3%	2	0.8%	1	0.5%	1	0.4%
NH, Multi Race	0	0.0%	3	1.0%	2	0.8%	4	2.0%	3	1.3%
NH White	42	15.1%	54	17.3%	48	19.0%	29	14.2%	35	14.6%
Unknown Race	101	36.2%	95	30.4%	96	37.9%	99	48.5%	128	53.6%
County Class**										
TGA	169	60.6%	190	60.7%	145	57.3%	134	65.7%	159	66.5%
Homeless	3	1.1%	5	1.6%	3	1.2%	1	0.5%	1	0.4%
Urban, non-TGA	79	28.3%	86	27.5%	74	29.2%	52	25.5%	56	23.4%
Homeless	0	0.0%	0	0.0%	2	0.8%	0	0.0%	0	0.0%
Rural	20	7.2%	19	6.1%	15	5.9%	7	3.4%	17	7.1%
Homeless	1	0.4%	2	0.6%	0	0.0%	0	0.0%	0	0.0%
Prison	4	1.4%	18	5.8%	17	6.7%	3	1.5%	3	1.3%
Unknown	7	2.5%	0	0.0%	2	0.8%	8	3.9%	4	1.7%

*Gender identity is not known for all diagnoses. The gender reported could be sex at birth or an individual's gender identity.

** Percentages for county class will not add to 100% as homeless cases are counted in overall county class cases.

TGA counties include: Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson.

Urban, non-TGA counties include: El Paso, Larimer, Mesa, Pueblo, Weld, and Boulder.

Table 3.3: New chronic hepatitis B cases and rate per 100,000 by county, 2017-2021

	2017		2018		2019		2020		2021		2017-2021		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	279	5.0	313	5.5	253	4.4	204	3.5	239	4.1	1,288	4.5	100.0%
Adams	29	5.8	27	5.3	23	4.5	16	3.1	32	6.1	127	4.9	9.9%
Alamosa	0	0.0	2	12.4	2	12.3	0	0.0	1	6.1	5	6.1	0.4%

Arapahoe	64	10.0	68	10.5	48	7.3	44	6.7	52	7.9	276	8.5	21.4%
Archuleta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Baca	0	0.0	0	0.0	0	0.0	0	0.0	1	28.7	1	5.7	0.1%
Bent	1	16.8	0	0.0	0	0.0	0	0.0	0	0.0	1	3.4	0.1%
Boulder	12	3.7	22	6.7	8	2.4	13	3.9	10	3.0	65	4.0	5.0%
Broomfield	0	0.0	4	5.6	4	5.5	4	5.4	8	10.6	20	5.4	1.6%
Chaffee	1	5.3	1	5.2	0	0.0	0	0.0	0	0.0	2	2.1	0.2%
Cheyenne	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Clear Creek	0	0.0	1	10.7	0	0.0	0	0.0	0	0.0	1	2.1	0.1%
Conejos	2	25.8	0	0.0	0	0.0	0	0.0	0	0.0	2	5.2	0.2%
Costilla	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Crowley	0	0.0	0	0.0	0	0.0	0	0.0	1	16.6	1	3.3	0.1%
Custer	0	0.0	0	0.0	1	21.5	0	0.0	0	0.0	1	4.3	0.1%
Delta	0	0.0	0	0.0	1	3.2	1	3.2	0	0.0	2	1.3	0.2%
Denver	49	7.1	55	7.8	34	4.8	48	6.7	41	5.8	227	6.4	17.6%
Dolores	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Douglas	12	3.6	16	4.7	18	5.1	11	3.1	11	3.0	68	3.9	5.3%
Eagle	3	5.6	0	0.0	1	1.8	0	0.0	2	3.6	6	2.2	0.5%
El Paso	36	5.1	34	4.7	36	5.0	20	2.7	22	3.0	148	4.1	11.5%
Elbert	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Fremont	1	2.1	0	0.0	0	0.0	1	2.0	1	2.0	3	1.2	0.2%
Garfield	2	3.4	1	1.7	2	3.3	1	1.6	2	3.2	8	2.6	0.6%
Gilpin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Grand	0	0.0	0	0.0	0	0.0	0	0.0	1	6.3	1	1.3	0.1%
Gunnison	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Hinsdale	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Huerfano	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Jackson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Jefferson	15	2.6	20	3.4	18	3.1	11	1.9	15	2.6	79	2.7	6.1%



Kiowa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Kit Carson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
La Plata	1	1.8	2	3.6	2	3.6	0	0.0	0	0.0	5	1.8	0.4%
Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Larimer	11	3.2	13	3.7	9	2.5	6	1.7	9	2.5	48	2.7	3.7%
Las Animas	0	0.0	1	6.8	0	0.0	0	0.0	0	0.0	1	1.4	0.1%
Lincoln	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Logan	1	4.6	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	0.1%
Mesa	7	4.6	3	1.9	3	1.9	1	0.6	2	1.3	16	2.1	1.2%
Mineral	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Moffat	0	0.0	1	7.5	0	0.0	0	0.0	0	0.0	1	1.5	0.1%
Montezuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Montrose	0	0.0	1	2.4	0	0.0	0	0.0	1	2.3	2	0.9	0.2%
Morgan	6	21.1	3	10.4	1	3.4	1	3.4	0	0.0	11	7.7	0.9%
Otero	0	0.0	1	5.3	1	5.3	0	0.0	0	0.0	2	2.1	0.2%
Ouray	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Park	0	0.0	0	0.0	0	0.0	0	0.0	1	5.6	1	1.1	0.1%
Phillips	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Pitkin	0	0.0	1	5.7	0	0.0	0	0.0	0	0.0	1	1.1	0.1%
Prowers	0	0.0	0	0.0	1	8.3	0	0.0	0	0.0	1	1.7	0.1%
Pueblo	3	1.8	4	2.4	7	4.2	2	1.2	6	3.5	22	2.6	1.7%
Rio Blanco	0	0.0	0	0.0	1	15.3	0	0.0	0	0.0	1	3.1	0.1%
Rio Grande	1	8.6	2	17.2	0	0.0	0	0.0	1	8.8	4	6.9	0.3%
Routt	1	4.1	2	8.2	1	4.1	0	0.0	0	0.0	4	3.3	0.3%
Saguache	0	0.0	0	0.0	0	0.0	1	15.7	1	15.4	2	6.2	0.2%
San Juan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
San Miguel	0	0.0	0	0.0	0	0.0	0	0.0	1	12.4	1	2.5	0.1%
Sedgwick	0	0.0	0	0.0	0	0.0	0	0.0	1	42.9	1	8.6	0.1%
Summit	0	0.0	0	0.0	0	0.0	2	6.5	1	3.2	3	1.9	0.2%



Teller	0	0.0	0	0.0	1	4.1	0	0.0	1	4.0	2	1.6	0.2%
Washington	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Weld	10	3.3	10	3.2	11	3.4	10	3.0	7	2.1	48	3.0	3.7%
Yuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prison	4	---	18	---	17	---	3	---	3	---	45	---	3.5%
Unknown	7	---	0	---	2	---	8	---	4	---	21	---	1.6%

Table 4.1: Reported acute hepatitis C cases and rate per 100,000, 2012-2021

Measure	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Cases	43	23	32	39	35	44	48	51	9	4
Rate	0.8	0.4	0.6	0.7	0.6	0.8	0.8	0.9	0.2	0.1

2012-2021 population estimates from the Colorado State Demography Office

Table 4.2: Demographics of new acute hepatitis C cases, 2017-2021

	2017		2018		2019		2020		2021	
	N	%	N	%	N	%	N	%	N	%
Total	44	100.0%	48	100.0%	51	100.0%	9	100.0%	4	100.0%
Sex/Gender*										
Female	15	34.1%	14	29.2%	16	31.4%	3	33.3%	0	0.0%
Male	29	65.9%	34	70.8%	35	68.6%	6	66.7%	4	100.0%
Transgender Woman	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Transgender Man	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown Gender	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Age Group										
0-19	0	0.0%	0	0.0%	1	2.0%	0	0.0%	0	0.0%
20-39	39	88.6%	39	81.3%	31	60.8%	8	88.9%	1	25.0%
40-59	4	9.1%	8	16.7%	16	31.4%	1	11.1%	3	75.0%
60-79	1	2.3%	0	0.0%	3	5.9%	0	0.0%	0	0.0%

80-99	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	1	2.1%	0	0.0%	0	0.0%	0	0.0%
Race/Ethnicity										
NH, Asian/Pacific Islander	0	0.0%	0	0.0%	1	2.0%	0	0.0%	0	0.0%
NH, Black/African American	1	2.3%	0	0.0%	3	5.9%	1	11.1%	0	0.0%
Hispanic/Latino/a/x , all races	8	18.2%	14	29.2%	11	21.6%	4	44.4%	2	50.0%
NH, Indigenous/Native American	0	0.0%	1	2.1%	1	2.0%	0	0.0%	0	0.0%
NH, Multi Race	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
NH White	34	77.3%	31	64.6%	34	66.7%	4	44.4%	1	25.0%
Unknown Race	1	2.3%	2	4.2%	1	2.0%	0	0.0%	1	25.0%
County Class										
TGA	29	65.9%	22	45.8%	27	52.9%	4	44.4%	3	75.0%
Homeless	6	13.6%	3	6.3%	9	17.6%	1	11.1%	1	25.0%
Urban, non-TGA	8	18.2%	16	33.3%	14	27.5%	2	22.2%	0	0.0%
Homeless	1	2.3%	2	4.2%	3	5.9%	0	0.0%	0	0.0%
Rural	5	11.4%	5	10.4%	4	7.8%	0	0.0%	0	0.0%
Homeless	1	2.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Prison	2	4.5%	5	10.4%	6	11.8%	3	33.3%	1	25.0%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

*Gender identity is not known for all diagnoses. The gender reported could be sex at birth or an individual's gender identity.

**Percentages for county class will not add to 100% as homeless cases are counted in overall county class cases.

TGA counties include: Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson.

Urban, non-TGA counties include: El Paso, Larimer, Mesa, Pueblo, Weld, and Boulder.

Table 4.3: New acute hepatitis C cases and rate per 100,000 by county, 2017-2021

	2017		2018		2019		2020		2021		2017-2021		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	44	0.8	48	0.8	51	0.9	9	0.2	4	0.1	156	0.5	100.0%
Adams	3	0.6	7	1.4	1	0.2	1	0.2	0	0.0	12	0.5	7.7%

Alamosa	0	0.0	0	0.0	1	6.2	0	0.0	0	0.0	1	1.2	0.6%
Arapahoe	5	0.8	2	0.3	3	0.5	0	0.0	1	0.2	11	0.3	7.1%
Archuleta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Baca	1	28.4	0	0.0	0	0.0	0	0.0	0	0.0	1	5.7	0.6%
Bent	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Boulder	1	0.3	3	0.9	0	0.0	0	0.0	0	0.0	4	0.2	2.6%
Broomfield	1	1.4	0	0.0	1	1.4	0	0.0	0	0.0	2	0.6	1.3%
Chaffee	0	0.0	0	0.0	1	5.2	0	0.0	0	0.0	1	1.0	0.6%
Cheyenne	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Clear Creek	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Conejos	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Costilla	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Crowley	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Custer	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Delta	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Denver	17	2.5	9	1.3	19	2.7	3	0.4	2	0.3	50	1.4	32.1%
Dolores	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Douglas	1	0.3	2	0.6	2	0.6	0	0.0	0	0.0	5	0.3	3.2%
Eagle	1	1.9	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	0.6%
El Paso	4	0.6	5	0.7	9	1.2	0	0.0	0	0.0	18	0.5	11.5%
Elbert	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Fremont	0	0.0	1	2.1	0	0.0	0	0.0	0	0.0	1	0.4	0.6%
Garfield	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Gilpin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Grand	1	6.6	0	0.0	0	0.0	0	0.0	0	0.0	1	1.3	0.6%
Gunnison	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Hinsdale	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Huerfano	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Jackson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%



Jefferson	2	0.3	2	0.3	1	0.2	0	0.0	0	0.0	5	0.2	3.2%
Kiowa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Kit Carson	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
La Plata	0	0.0	2	3.6	0	0.0	0	0.0	0	0.0	2	0.7	1.3%
Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Larimer	0	0.0	3	0.9	1	0.3	0	0.0	0	0.0	4	0.2	2.6%
Las Animas	0	0.0	1	6.8	0	0.0	0	0.0	0	0.0	1	1.4	0.6%
Lincoln	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Logan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Mesa	2	1.3	3	1.9	1	0.6	1	0.6	0	0.0	7	0.9	4.5%
Mineral	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Moffat	0	0.0	0	0.0	1	7.5	0	0.0	0	0.0	1	1.5	0.6%
Montezuma	0	0.0	1	3.9	0	0.0	0	0.0	0	0.0	1	0.8	0.6%
Montrose	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Morgan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Otero	1	5.3	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1	0.6%
Ouray	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Park	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Phillips	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Pitkin	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prowers	0	0.0	0	0.0	1	8.3	0	0.0	0	0.0	1	1.7	0.6%
Pueblo	1	0.6	1	0.6	3	1.8	0	0.0	0	0.0	5	0.6	3.2%
Rio Blanco	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Rio Grande	1	8.6	0	0.0	0	0.0	0	0.0	0	0.0	1	1.7	0.6%
Routt	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Saguache	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
San Juan	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
San Miguel	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Sedgwick	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%



Summit	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Teller	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Washington	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Weld	0	0.0	1	0.3	0	0.0	1	0.3	0	0.0	2	0.1	1.3%
Yuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prison	2	---	5	---	6	---	3	---	1	---	17	---	10.9%
Unknown	0	---	0	---	0	---	0	---	0	---	0	---	0.0%

Table 5.1: Reported chronic hepatitis C cases and rate per 100,000, 2012-2021

Measure	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Cases	2,976	2,987	3,672	3,623	2,992	2,954	3,110	2,722	1,914	1,752
Rate	57.3	56.7	68.7	66.5	54.1	52.8	54.8	47.5	33.1	30.1

2012-2021 population estimates from the Colorado State Demography Office

Table 5.2: Demographics of new chronic hepatitis C cases, 2017-2021

	2017		2018		2019		2020		2021	
	N	%	N	%	N	%	N	%	N	%
Total	2,954	100.0%	3,110	100.0%	2,722	100.0%	1,914	100.0%	1,752	100.0%
Sex/Gender*										
Female	939	31.8%	947	30.5%	795	29.2%	552	28.8%	516	29.5%
Male	2,009	68.0%	2,156	69.3%	1,923	70.6%	1,355	70.8%	1,218	69.5%
Transgender Woman	3	0.1%	4	0.1%	1	0.0%	0	0.0%	1	0.1%
Transgender Man	0	0.0%	1	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown Gender	3	0.1%	2	0.1%	3	0.1%	7	0.4%	17	1.0%
Age Group										
0-19	7	0.2%	21	0.7%	13	0.5%	11	0.6%	12	0.7%
20-39	1,168	39.5%	1,389	44.7%	1,237	45.4%	886	46.3%	784	44.7%
40-59	1,114	37.7%	1,089	35.0%	936	34.4%	632	33.0%	547	31.2%



60-79	577	19.5%	512	16.5%	446	16.4%	311	16.2%	327	18.7%
80-99	69	2.3%	80	2.6%	81	3.0%	60	3.1%	70	4.0%
Unknown	17	0.6%	13	0.4%	7	0.3%	11	0.6%	9	0.5%
County Class**										
TGA	1,068	36.2%	1,060	34.1%	890	32.7%	688	35.9%	664	37.9%
Homeless	152	5.1%	176	5.7%	160	5.9%	117	6.1%	83	4.7%
Urban, non-TGA	860	29.1%	853	27.4%	731	26.9%	500	26.1%	414	23.6%
Homeless	58	2.0%	55	1.8%	46	1.7%	17	0.9%	10	0.6%
Rural	366	12.4%	354	11.4%	350	12.9%	239	12.5%	231	13.2%
Homeless	6	0.2%	12	0.4%	10	0.4%	6	0.3%	3	0.2%
Prison	527	17.8%	774	24.9%	693	25.5%	368	19.2%	324	18.5%
Unknown	133	4.5%	69	2.2%	58	2.1%	119	6.2%	119	6.8%

*Gender identity is not known for all diagnoses. The gender reported could be sex at birth or an individual's gender identity.

**Percentages for county class will not add to 100% as homeless cases are counted in overall county class cases.

Data on race and ethnicity are excluded for chronic hepatitis C cases due to large proportions of missing/unknown data.

TGA counties include: Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson.

Urban, non-TGA counties include: El Paso, Larimer, Mesa, Pueblo, Weld, and Boulder.

Table 5.3: New chronic hepatitis C cases and rate per 100,000 by county, 2017-2021

	2017		2018		2019		2020		2021		2017-2021		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	2,954	52.8	3,110	54.8	2,722	47.5	1,914	33.1	1,752	30.1	12,452	43.6	100.0%
Adams	167	33.2	152	29.7	158	30.6	106	20.4	107	20.5	690	26.9	5.5%
Alamosa	17	105.9	23	142.1	13	80.0	13	79.5	12	72.7	78	96.0	0.6%
Arapahoe	202	31.4	192	29.5	161	24.6	128	19.5	119	18.2	802	24.7	6.4%
Archuleta	8	62.7	10	76.7	9	68.2	10	74.5	4	29.0	41	62.2	0.3%
Baca	3	85.1	2	56.4	0	0.0	1	28.8	0	0.0	6	34.1	0.0%
Bent	7	117.3	13	217.4	8	133.8	6	106.7	3	52.4	37	125.5	0.3%
Boulder	96	29.5	85	25.9	72	21.9	46	13.9	35	10.6	334	20.4	2.7%
Broomfield	17	24.4	15	21.0	16	22.0	4	5.4	5	6.6	57	15.9	0.5%
Chaffee	4	21.1	17	88.3	11	56.7	2	10.2	2	10.0	36	37.3	0.3%



Cheyenne	1	56.0	0	0.0	0	0.0	0	0.0	0	0.0	1	11.2	0.0%
Clear Creek	8	84.9	4	42.6	3	31.9	4	42.6	5	52.9	24	51.0	0.2%
Conejos	1	12.9	3	39.2	7	92.7	5	67.1	7	92.3	23	60.8	0.2%
Costilla	6	170.6	3	85.4	5	142.8	1	28.5	3	82.9	18	102.0	0.1%
Crowley	5	85.7	0	0.0	1	17.1	4	67.8	2	33.2	12	40.8	0.1%
Custer	3	66.1	1	21.8	3	64.6	0	0.0	1	19.8	8	34.5	0.1%
Delta	25	81.4	19	61.2	18	57.6	16	51.2	18	56.8	96	61.7	0.8%
Denver	453	65.4	452	64.3	399	56.2	315	43.9	289	40.6	1,908	54.1	15.3%
Dolores	1	48.0	1	47.8	2	95.9	1	48.0	2	93.9	7	66.7	0.1%
Douglas	58	17.3	57	16.6	48	13.7	33	9.2	38	10.3	234	13.4	1.9%
Eagle	14	26.1	8	14.8	14	25.5	5	9.0	7	12.6	48	17.6	0.4%
El Paso	305	43.3	347	48.3	267	36.8	177	24.2	152	20.6	1,248	34.6	10.0%
Elbert	7	28.1	2	7.9	8	31.2	5	19.1	2	7.4	24	18.7	0.2%
Fremont	21	44.1	20	41.7	33	68.2	17	34.7	7	14.1	98	40.6	0.8%
Garfield	33	56.1	35	58.6	27	44.6	14	22.7	16	25.7	125	41.5	1.0%
Gilpin	1	17.7	1	17.5	1	17.4	4	68.7	2	34.0	9	31.1	0.1%
Grand	3	19.8	3	19.7	4	26.0	3	19.1	7	44.2	20	25.7	0.2%
Gunnison	7	42.5	6	36.0	4	23.6	4	23.6	2	11.6	23	27.5	0.2%
Hinsdale	0	0.0	1	125.2	0	0.0	0	0.0	0	0.0	1	25.0	0.0%
Huerfano	0	0.0	4	59.2	9	132.8	0	0.0	1	14.4	14	41.3	0.1%
Jackson	1	72.5	0	0.0	0	0.0	0	0.0	1	73.6	2	29.2	0.0%
Jefferson	171	29.7	192	33.1	108	18.5	102	17.5	106	18.3	679	23.4	5.5%
Kiowa	0	0.0	0	0.0	1	68.6	1	68.9	0	0.0	2	27.5	0.0%
Kit Carson	0	0.0	1	13.7	2	27.8	0	0.0	1	14.4	4	11.2	0.0%
La Plata	27	49.1	17	30.5	30	54.0	13	23.4	20	35.5	107	38.5	0.9%
Lake	3	40.8	3	40.9	2	26.5	4	54.0	0	0.0	12	32.4	0.1%
Larimer	108	31.4	129	36.8	105	29.4	78	21.7	61	16.8	481	27.2	3.9%
Las Animas	5	33.8	7	47.5	16	109.3	8	54.9	6	41.0	42	57.3	0.3%
Lincoln	2	35.7	2	35.6	4	70.9	2	35.4	1	17.6	11	39.0	0.1%

Logan	5	23.0	9	41.6	3	13.9	6	27.9	5	23.3	28	26.0	0.2%
Mesa	105	69.0	82	53.2	68	43.8	68	43.6	43	27.3	366	47.4	2.9%
Mineral	0	0.0	0	0.0	0	0.0	0	0.0	1	107.5	1	21.5	0.0%
Moffat	8	60.5	6	45.1	4	29.9	4	30.2	3	22.8	25	37.7	0.2%
Montezuma	13	50.9	21	82.0	17	66.1	16	61.8	10	38.1	77	59.8	0.6%
Montrose	27	64.6	21	49.9	20	47.1	15	35.0	22	51.0	105	49.5	0.8%
Morgan	13	45.7	9	31.1	7	24.0	0	0.0	4	13.8	33	22.9	0.3%
Otero	19	101.3	14	74.6	10	53.4	8	42.9	8	43.1	59	63.1	0.5%
Ouray	0	0.0	0	0.0	1	20.4	4	82.1	2	39.6	7	28.4	0.1%
Park	5	29.7	9	51.8	7	40.0	7	40.2	5	28.2	33	38.0	0.3%
Phillips	1	22.2	2	44.3	2	44.2	2	44.2	0	0.0	7	31.0	0.1%
Pitkin	8	45.3	2	11.3	4	23.0	0	0.0	1	5.8	15	17.1	0.1%
Prowers	1	8.4	5	41.8	5	41.6	8	66.7	4	33.4	23	38.4	0.2%
Pueblo	150	90.6	120	72.0	127	75.8	77	45.7	66	38.9	540	64.6	4.3%
Rio Blanco	0	0.0	0	0.0	2	30.6	4	61.3	4	61.9	10	30.8	0.1%
Rio Grande	12	102.7	16	137.4	6	51.7	2	17.3	3	26.3	39	67.1	0.3%
Routt	8	33.1	10	41.1	9	36.7	8	32.2	7	27.9	42	34.2	0.3%
Saguache	2	32.2	2	31.9	3	47.1	2	31.3	6	92.2	15	47.0	0.1%
San Juan	1	143.7	0	0.0	1	141.0	1	141.2	0	0.0	3	85.2	0.0%
San Miguel	1	12.5	2	24.5	2	24.6	1	12.4	1	12.4	7	17.3	0.1%
Sedgwick	4	166.8	2	83.3	0	0.0	0	0.0	0	0.0	6	50.0	0.0%
Summit	7	22.5	7	22.5	3	9.6	2	6.5	5	16.1	24	15.4	0.2%
Teller	15	62.1	10	40.8	7	28.4	6	24.3	3	12.0	41	33.5	0.3%
Washington	2	41.3	0	0.0	2	41.5	0	0.0	1	20.6	5	20.7	0.0%
Weld	96	31.5	90	28.7	92	28.5	54	16.3	57	16.8	389	24.4	3.1%
Yuma	1	10.0	1	10.0	0	0.0	0	0.0	4	40.2	6	12.1	0.0%
Prison	527	---	774	---	693	---	368	---	324	---	2,686	---	21.6%
Unknown	133	---	69	---	58	---	119	---	119	---	498	---	4.0%



Table 6.1: Coinfections with Hepatitis Diagnoses from 2017-2021*

Coinfections	Number of Cases, 2017-2021
Chronic HBV and Chronic HCV	37
Chronic HBV and HIV	41
Chronic HCV and HIV	178

*HIV diagnosis before 12/31/2021. HIV diagnoses include those previously diagnosed with HIV, concurrently diagnosed, or subsequently diagnosed with HIV as of 12/31/2021. All hepatitis diagnoses represented occurred 2017-2021. Those who had achieved SVR for chronic HCV before an HIV or HBV diagnosis are not included.

Definitions

BRFSS is the Behavioral Risk Factor Surveillance System. The Behavioral Risk Factor Surveillance System is a federally funded random telephone survey of Colorado residents aged 18 and older. Information is gathered on a variety of health-related behaviors, conditions, and preventive health practices.

CDPHE is the Colorado Department of Public Health and Environment. The Colorado Department of Public Health and Environment is the principal department of the Colorado state government responsible for public health and environmental regulation.

CEDRS refers to the Colorado Electronic Disease Reporting System. This database is used to capture reportable conditions across Colorado.

Cirrhosis is a chronic disease of the liver marked by degeneration of cells, inflammation, and fibrous thickening of tissue.

Cisgender refers to persons whose gender identity aligns with the sex they were assigned at birth.

ELR refers to electronic lab reports that are sent by certain hospitals and labs directly to CDPHE.

Front Range refers to the following counties in Colorado: Larimer, Weld, Boulder, Denver, Arapahoe, Adams, Jefferson, Douglas, Broomfield, Elbert, Park, Clear Creek, Gilpin, El Paso, Teller, Fremont, and Pueblo.

Gender non-binary/non-conforming is an umbrella term for individuals who do not identify as strictly a woman or a man.

HBsAg is the hepatitis B surface antigen. HBsAg is a marker of infectivity. Its presence indicates either acute or chronic HBV.

HCV antibody testing, also referred to as anti-HCV, indicates past or present infection with HCV. If a person has spontaneously cleared the virus or has been cured, they will still test positive for HCV antibodies.

HCPF stands for Health Care Policy and Financing which administers Health First Colorado (Colorado's Medicaid program)

Incidence represents the number of new cases of a disease or condition that occur in a population during a specified time, usually a year. This report only covers diagnoses reported to CDPHE. Incidence is likely underestimated.

Prevalence refers to the total number of people with a specific disease or condition at a given time. This report only covers diagnoses reported to CDPHE. Prevalence is likely underestimated.

Rates per 100,000 persons are calculated by dividing the number of cases by the population for a given time period and multiplying by 100,000.

RNA (ribonucleic acid) refers to the level of virus existing in a person. As opposed to a positive test for HCV antibodies, which may indicate past or present HCV infection, HCV RNA signifies current infection with HCV. HCV RNA is measured through a nucleic acid amplification test (NAAT).

Rural counties in Colorado, according to the Office of Rural Health Policy, are Alamosa, Archuleta, Baca, Bent, Chaffee, Cheyenne, Clear Creek, Conejos, Costilla, Crowley, Custer, Delta, Dolores, Eagle, Elbert, Fremont, Garfield, Gilpin, Grand, Gunnison, Hinsdale, Huerfano, Jackson, Kiowa, Kit Carson, La Plata, Lake, Las Animas, Lincoln, Logan, Mineral, Moffat, Montezuma, Montrose, Morgan, Otero, Ouray, Park, Phillips, Pitkin, Prowers, Rio Grande, Rio Blanco, Routt, Saguache, San Juan, Sedgwick, San Miguel, Summit, Teller, Washington, and Yuma counties.

Sex assigned at birth is the assignment of people as male, female, intersex, or another sex assigned at birth often based on physical anatomy at birth.

Signal-to-cutoff ratio is a calculation that can be done for specific HCV antibody tests that is predictive of a true antibody-positive result.

Sustained virologic response is defined as aviremia 24 weeks after completion of antiviral therapy for chronic HCV.

The Denver transitional grant area (TGA) includes counties that are most severely impacted by the HIV epidemic. The Denver TGA covers 3,756 square miles and consists of six counties as follows: Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson and became eligible for federal funding in March of 1994 when it reported 2,000 cumulative AIDS cases. Since there is no corresponding distinction for viral hepatitis, this definition of TGA was used to provide a distinction between counties surrounding Denver and counties further from Denver.

Urban non-TGA counties are El Paso, Larimer, Mesa, Pueblo, Weld, and Boulder.