Viral Hepatitis Surveillance in Colorado

2022 Annual Report

April 2024

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. 18, 2023 for diagnoses through Dec. 31, 2022. Lab data through Dec. 31, 2023 was used for the chronic HCV care cascade.

This report was prepared by:

Kaitlyn Probst, MPH - Lead author

Megan Duffy, MPH

Other contributors to the production and dissemination of this publication:

Data Analytics Unit Staff

Communicable Disease Branch Staff

Registries and Vital Statistics Branch Staff

Colorado Central Cancer Registry Staff

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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
PWID	People Who Inject Drugs
PHBPP	Perinatal Hepatitis B Prevention Program
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 2,316 confirmed cases of hepatitis A, B, and C reported to CDPHE in 2022. From 2018 to 2022, there were a cumulative 13,655 reported cases, 95% of which were chronic conditions. Data for 2022 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, 2022

2022 Data Snapshot		
	Cases	Rate per 100,000
Hepatitis A	27	0.5
Hepatitis B, Acute	20	0.3
Hepatitis B, Chronic	255	4.4
Hepatitis C, Acute	26	0.4
Hepatitis C, Chronic	1,988	33.9

Hepatitis A

HAV is preventable as there is a safe and effective vaccine available. As a result, the number of HAV cases has decreased since the vaccine became widely available in 1995. 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 2021 showed that only 34.2% 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 2022, the rate of reported acute HBV cases in Colorado slightly increased compared to 2021 to a rate of 0.3 diagnoses per 100,000 population (n=26). At the time of this report's publication, 2022 national data were not available; however, from 2020 to 2021 there was a 14% decrease in reported acute HBV cases nationally.[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 from 2020 to 2022, this follow up was not routinely done, likely resulting in an underestimation of acute HBV cases in Colorado.

The rate of chronic HBV cases slightly decreased from 4.7 to 4.4 diagnoses per 100,000 (n=255) from 2021 to 2022. Current rates remain lower than pre-pandemic rates seen in Colorado. Nationally, there was a 36.0% decrease in chronic HBV cases reported from 2019 to 2021 - at the time of this report's publication, 2022 national data were not available.[6]

The decreases seen in reported HBV cases in 2020 were likely affected by the COVID-19 pandemic. Worldwide, liver clinic visits and diagnostic imaging decreased drastically in the beginning of the pandemic in 2020[7] and HBV prevention, diagnosis, and treatment services were disrupted overall.[8] These decreases may have continued into 2021 and 2022.

There were zero perinatal hepatitis B cases in 2022 in Colorado. In Colorado, the hepatitis B birth dose vaccination rate was 83.3% in 2022, which was a slight decrease from the 2021 vaccination rate.

[3] CDC. Vaccination Coverage among Adults in the United States, National Health Interview Survey, 2021. https://www.cdc.gov/vaccines/imz-managers/coverage/adultvaxview/pubs-resources/vaccination-coverage-adults-2021.html#:~:text=Hepatitis%20B%20vaccination%20coverage%20in,and%20Other%20(40.2%25)%20adults.

[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. 2021 Viral Hepatitis Surveillance Report. https://www.cdc.gov/hepatitis/statistics/2021surveillance/index.htm

[6] CDC. 2021 Viral Hepatitis Surveillance Report. https://www.cdc.gov/hepatitis/statistics/2021surveillance/hepatitis-b/figure-2.1.htm

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

[8] 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.

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.[9]

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 decreased by 59% and 62% nationally in the spring of 2020, respectively.[10] 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%.[11] 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 from 2020 to 2022, this follow up was not done, likely resulting in an overall underestimation of acute HCV cases in Colorado.

Nationally, acute HCV incidence increased by 4.7% from 2020 to 2021.[12]

In Colorado in 2022, 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 2022, the chronic HCV rate among 20-39 year olds continued to follow this trend, having the highest rate of diagnosis (51.4 per 100,000) of all age groups. These trends are seen nationally, as well. The rates of new acute hepatitis C cases reported to the CDC among young people aged 20-39 have been higher than any other group since 2009.[13]

From 2018 to 2022, more diagnoses of chronic HCV occurred in federal or state prisons than any one county in Colorado.

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, three cases in 2021, and no cases in 2022.

[9] CDC. Hepatitis C Questions and Answers for the Public. 2019. https://www.cdc.gov/hepatitis/hcv/cfaq.htm

[10] 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.

[11] CDC. National Profile of Viral Hepatitis. https://www.cdc.gov/hepatitis/statistics/2020surveillance/introduction/national-profile.htm

[12] CDC. 2021 Viral Hepatitis Surveillance Report. https://www.cdc.gov/hepatitis/statistics/2021surveillance/index.htm

[13] CDC. Hepatitis C Surveillance 2021. https://www.cdc.gov/hepatitis/statistics/2021surveillance/hepatitis-c.htm

Data Sources and Methods

This report provides a summary of confirmed viral hepatitis cases reported to CDPHE by laboratories and health care providers in 2022. Data from 2013-2022 and 2018-2022 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. Due to the COVID-19 pandemic from 2020 to 2022, staffing capacity issues prevented case ascertainment work from taking place. Therefore, acute HBV and HCV cases were not consistently interviewed in 2020, 2021, or 2022.

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 sex, 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 2013 to 2022. The Colorado Central Cancer Registry (CCCR) Branch of CDPHE provided data on liver cancer from 2013 to 2022.

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.[14] 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.[15] Additionally 90% of infants who perinatally acquire HBV and 5% of adults will develop a chronic, incurable infection.[16]

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.

[14] 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.

[15] CDC. Perinatal Transmission. https://www.cdc.gov/hepatitis/hbv/perinatalxmtn.htm

[16] CDC. Hepatitis B Questions and Answers for Health Professionals. 2022. https://www.cdc.gov/hepatitis/hbv/bfaq.htm

Approximately 70 to 80% of people with acute HCV will not exhibit symptoms, and most remain unaware of the infection.[17] 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.[18] 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.[19]

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.[20]

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.[21]

[17] CDC. Hepatitis C Questions and Answers for the Public. 2019. https://www.cdc.gov/hepatitis/hcv/cfaq.htm
[18] CDC. Hepatitis C Questions and Answers for the Public. 2019. https://www.cdc.gov/hepatitis/hcv/cfaq.htm
[19] CDC. Hepatitis C Questions and Answers for the Public. 2019. https://www.cdc.gov/hepatitis/hcv/cfaq.htm
[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

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.[22] 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.[23]

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

[22] CDC. Surveillance for Viral Hepatitis - United States. 2018.
[23] 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.

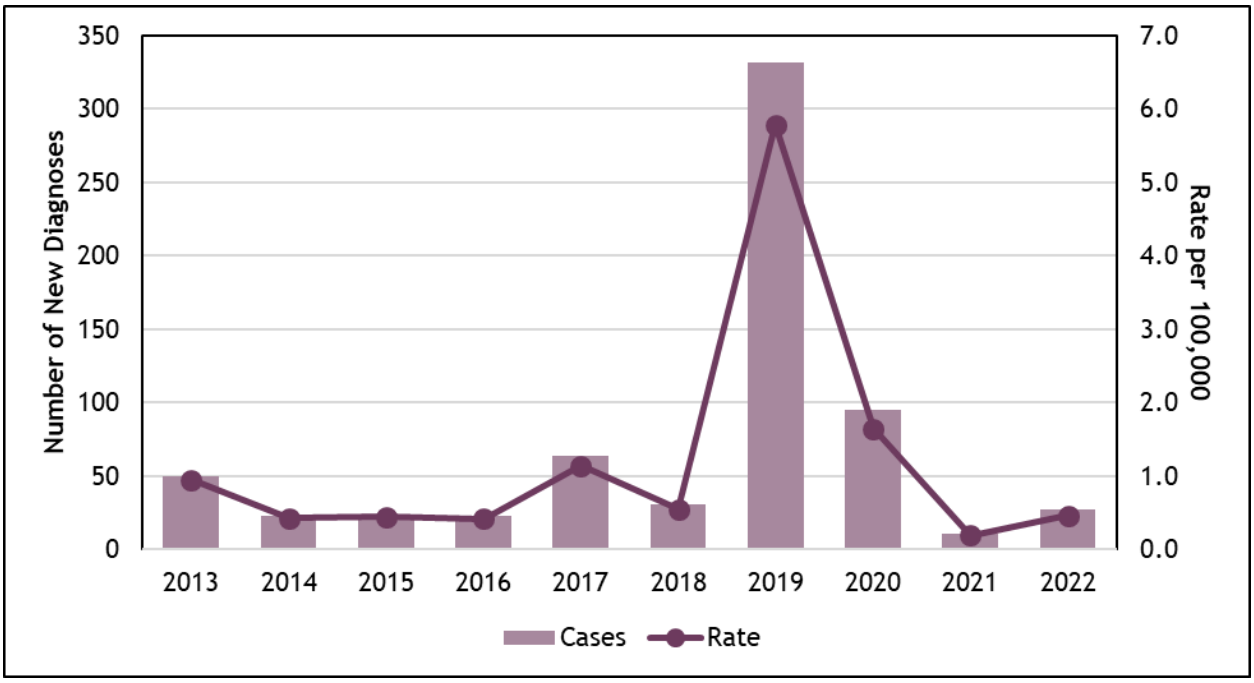
Some conditions have case definitions that are broken down into "Probable" and "Confirmed" case statuses. **This report only includes data on viral hepatitis cases classified as "Confirmed".**

Hepatitis A

Summary

- In 2022, there were 27 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 2022, 85.2% (n=23) 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 2018-2022 was injection drug use, reported among approximately 25% of cases.

Figure 1.1: Reported HAV Cases and Rate per 100,000, 2013-2022

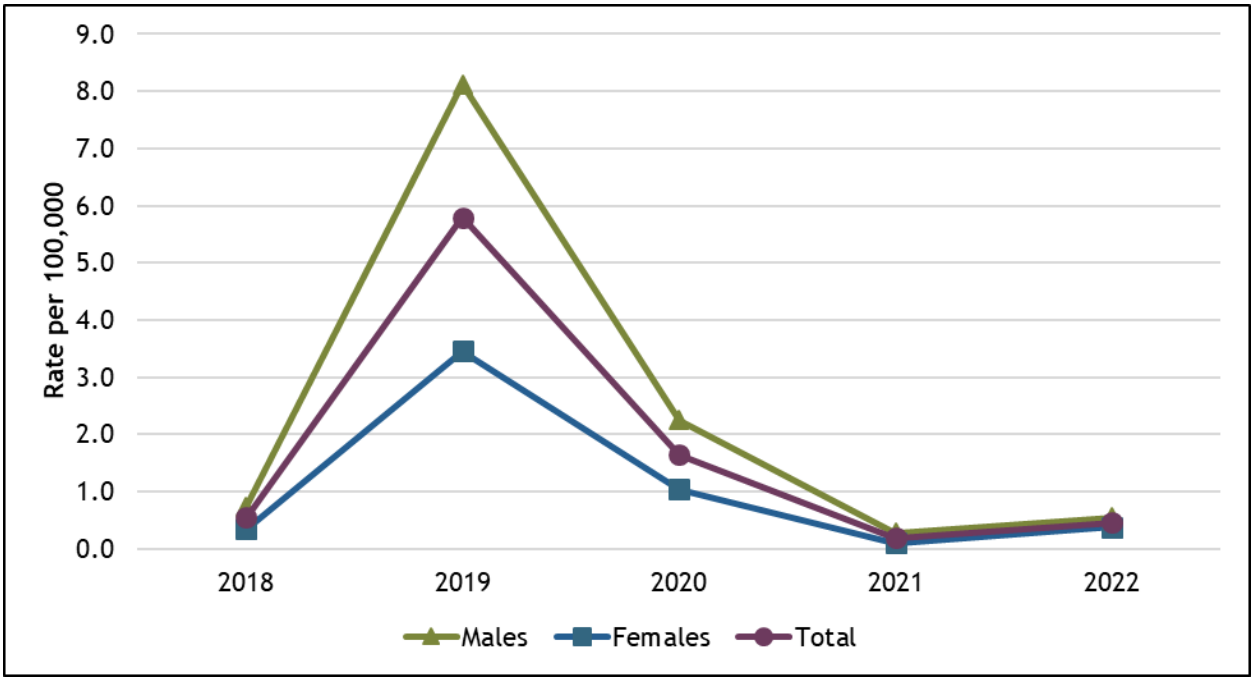


Data used in this graph can be found in **Table 1.1** in the Appendix.

New HAV Diagnoses by Sex

In 2022, males accounted for over half (59.3%) of reported HAV cases. Rates among males and females dramatically increased in 2019 due to a statewide outbreak of HAV. Rates then decreased in 2020 and 2021, slightly increasing in 2022 to a statewide rate of 0.5 diagnoses per 100,000 population. The rate among males is consistently higher than females.

Figure 1.2: Rate per 100,000 of HAV Cases by Sex, 2018-2022

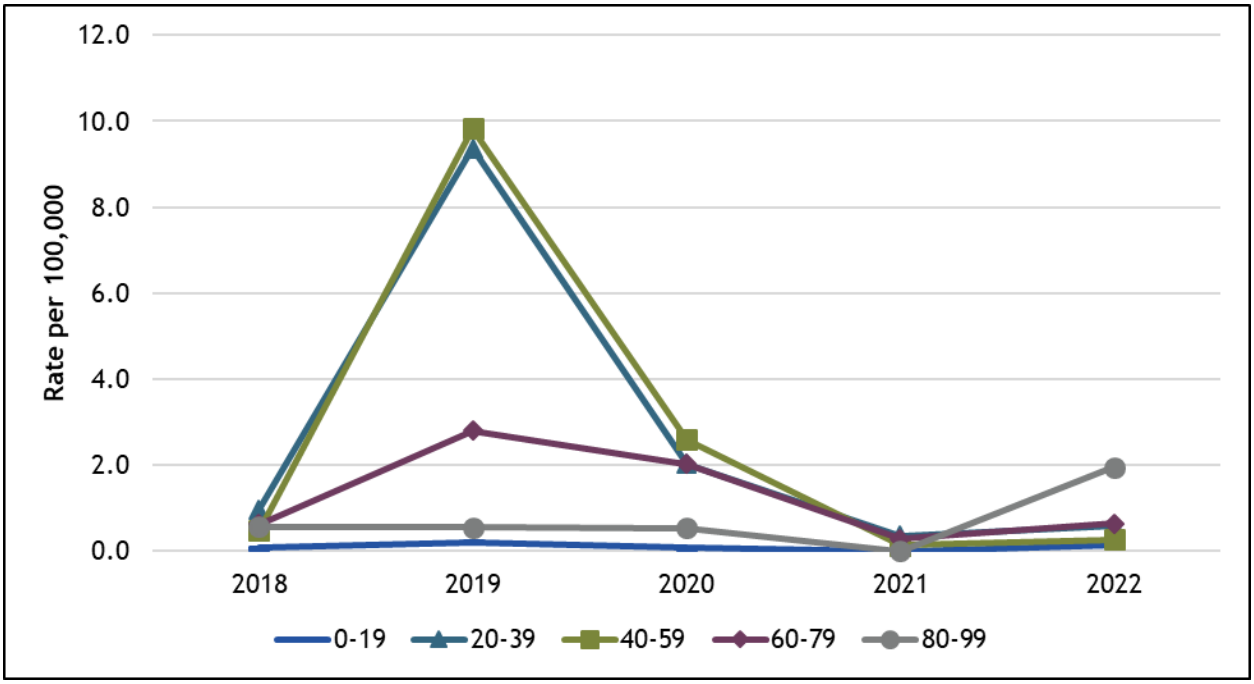


Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

New HAV Diagnoses by Age

The rate of HAV diagnosis in 2022 was highest among 80-99 year olds (n=4) at 1.9 diagnoses per 100,000 population as shown in **Figure 1.3**. However, the majority of HAV diagnoses in 2022 were among 20-39 year olds (n=10). 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, 2018-2022



New HAV Diagnoses by Race/Ethnicity

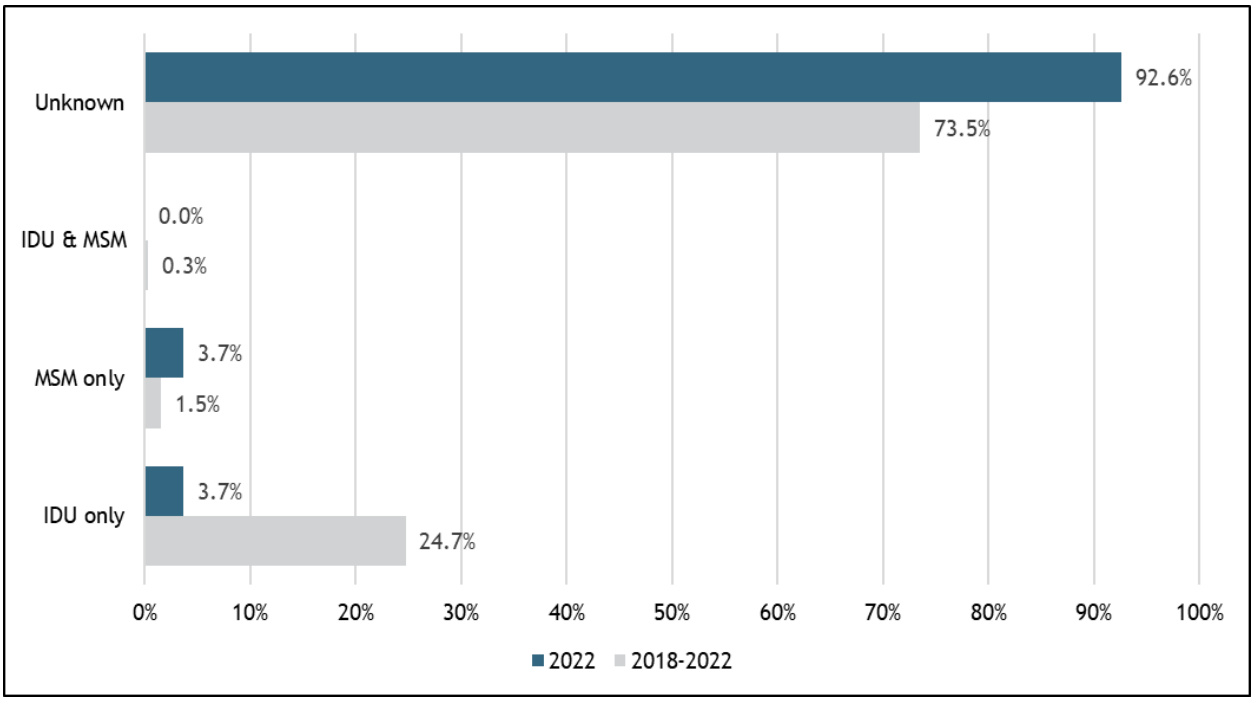
Race/ethnicity data were available for 92.5% of HAV cases in 2022. Among cases, 48.1% were non-Hispanic White, 29.6% were Hispanic/Latino/a/x of all races, 7.4% were non-Hispanic multi race, 3.7% were non-Hispanic Indigenous/Native Americans (n=1), and 3.7% were non-Hispanic Asian/Pacific Islanders (n=1). Additional data can be found in **Table 1.2** in the appendix.

Behavioral Risk Factors

In 2022, over 90% of cases had no reported behavioral risk. From 2018-2022, 73.5% of behavioral risk factors were unknown.

From 2018-2022, almost one quarter of cases reported injection drug use. 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, 2022 Compared to 2018-2022



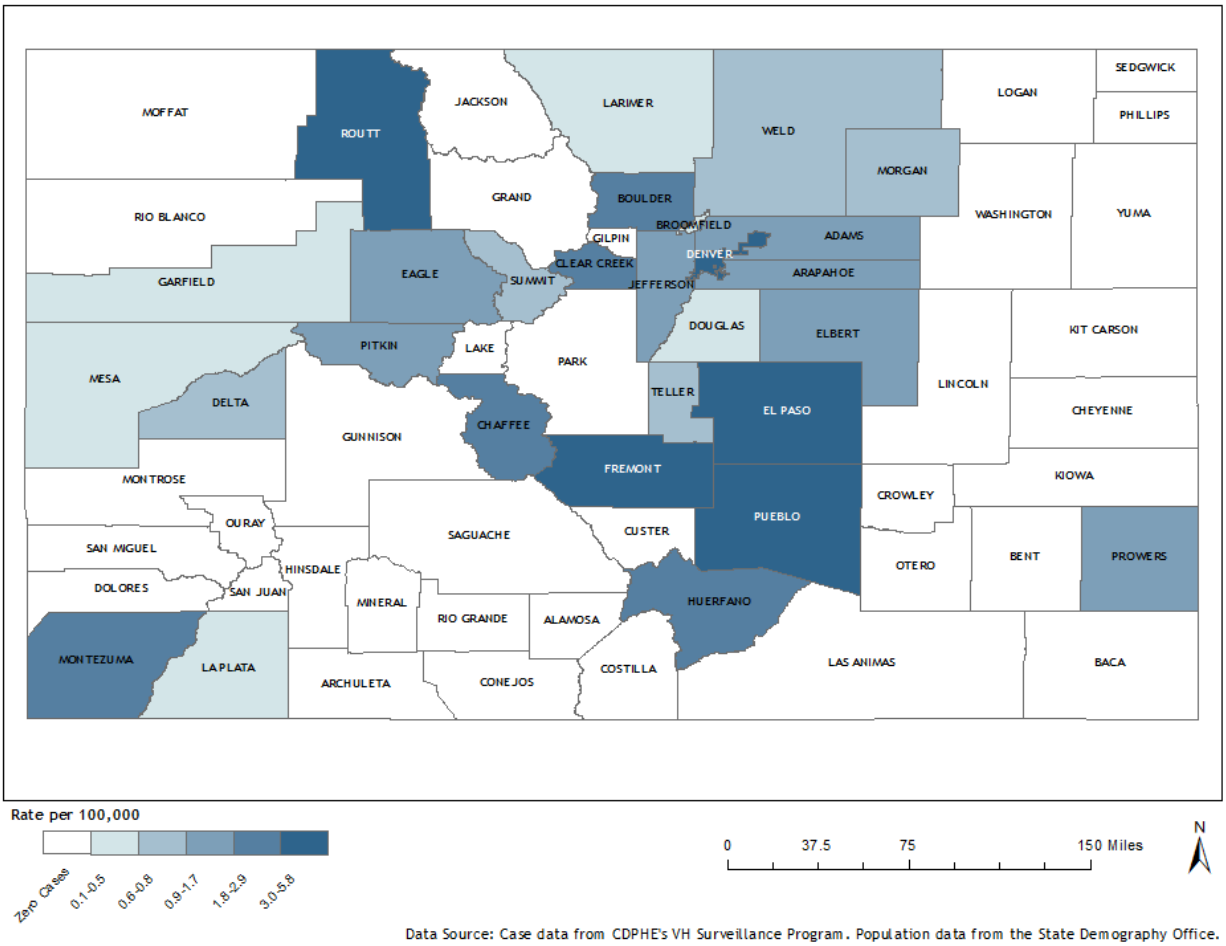
Geographic Distribution

Since 2018, over 45% of HAV diagnoses have occurred in the Denver TGA which includes Adams, Arapahoe, Broomfield, Denver, Douglas, and Jefferson counties. In 2022, 44.4% of cases occurred in the Denver TGA, followed by 40.7% of cases in non-TGA urban counties which includes Boulder, El Paso, Larimer, Mesa, Pueblo, and Weld counties. Weld County accounted for 25.9% of cases in 2022.

From 2018-2022, El Paso has experienced the most HAV diagnoses of any county - accounting for 28.8% of all HAV diagnoses in Colorado from 2018-2022 (n=143). El Paso County rates were heavily influenced by the statewide HAV outbreak.

From 2018-2022, the average rate of diagnosis over the past five years for HAV diagnosis has been highest in Fremont, Routt, El Paso, Pueblo, 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 (2018-2022)



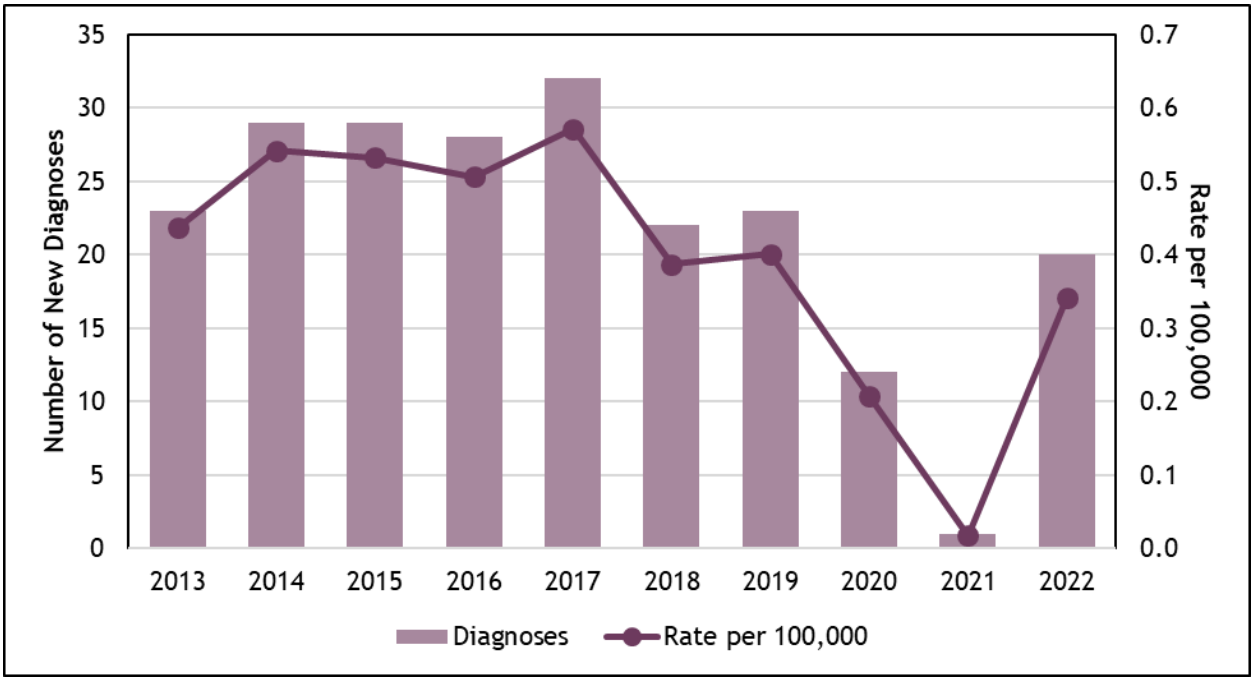
Data Source: Case data from CDPHE's VH Surveillance Program. Population data from the State Demography Office.

Acute Hepatitis B

Summary

- In 2022, there were 20 reported cases of acute HBV.
- This is a notable increase in cases compared to those reported in 2020 and 2021.
    - 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 from 2020 to 2022, this follow up was not done, likely resulting in an underestimation of acute HBV cases these years.
- Over the past five years, there have been 78 cases of acute HBV in Colorado.
- The average rate of acute HBV diagnosis in Colorado from 2018-2022 was 0.3 diagnoses per 100,000 population.
- 87.2% 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 57.7% occurring in the Denver TGA.
- 40-59 year olds have experienced the highest rates of acute HBV diagnosis over the past five years.

Figure 2.1: Reported Acute HBV Cases and Rate per 100,000, 2013-2022

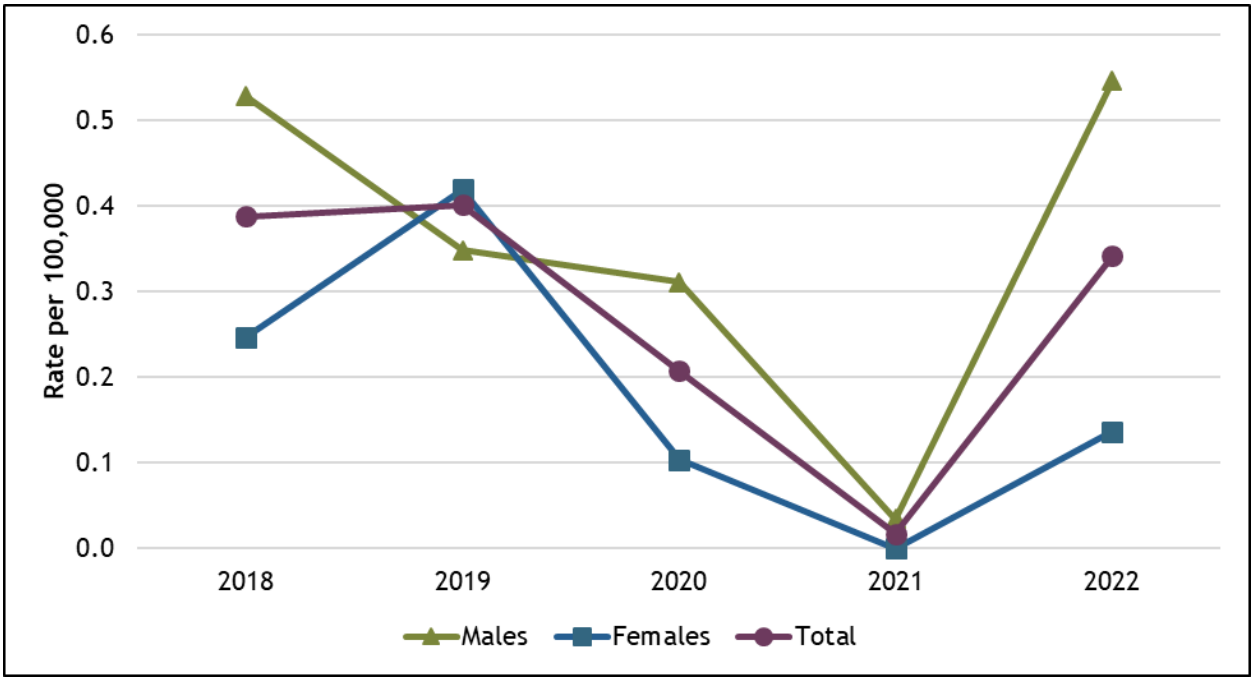


Data used in this graph can be found in Table 2.1 in the Appendix.

New Acute HBV Diagnoses by Sex

From 2018-2022, males accounted for 65.3% of all acute HBV diagnoses. Four out of the past five years, males have also had higher rates than 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.[24]

Figure 2.2: Rate per 100,000 of Acute HBV Cases by Sex, 2018-2022



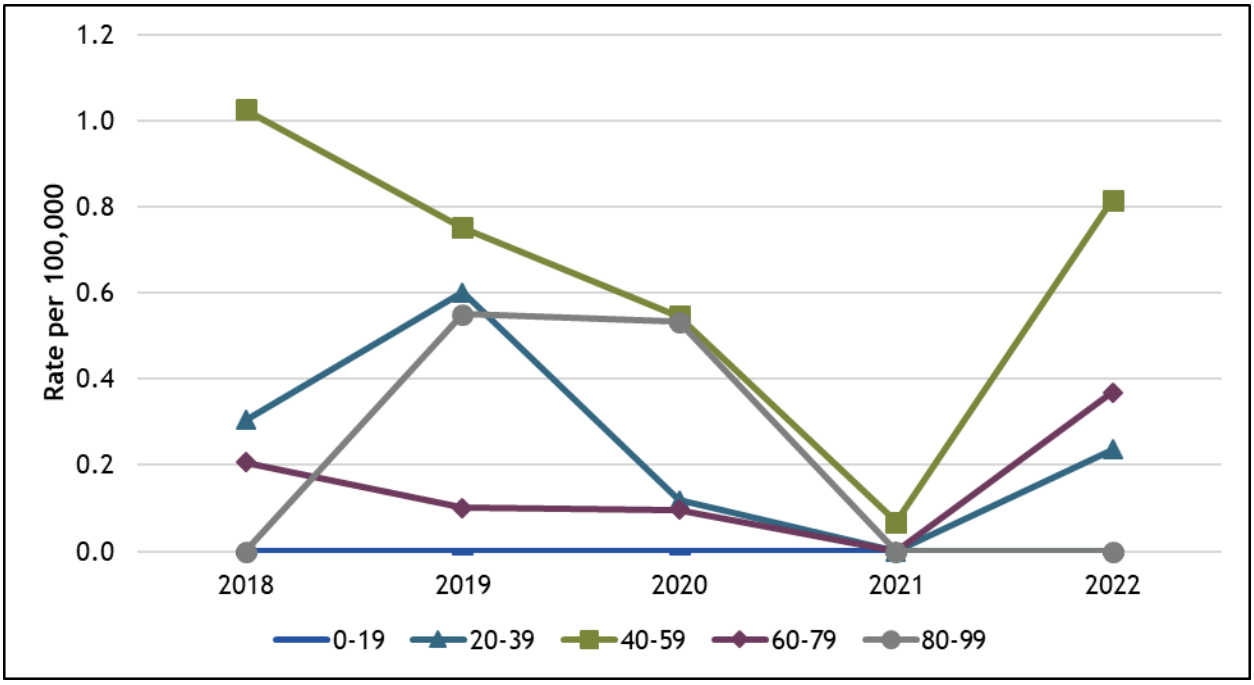
Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

[24] 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.

Figure 2.3: Rate per 100,000 of Acute HBV Cases by Age Group, 2018-2022



New Acute HBV Diagnoses by Race/Ethnicity

From 2018 to 2022, non-Hispanic Whites accounted for 67.9% of acute HBV diagnoses. Hispanic/Latino/a/x of all races made up 17.9% of the diagnoses and non-Hispanic Black/African Americans made up 6.4%. 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 95% of acute HBV cases reported in 2022. Five percent of cases reported MSM. No risk factors were reported for the case of acute HBV in 2021. From 2018-2022, on average 84.8% of behavioral risk factors were unknown. Due to staffing shortages during the COVID-19 pandemic from 2020 to 2022, few interviews were conducted on acute HBV cases and insufficient behavioral risk information was collected. Therefore, no behavioral risk data will be displayed for acute HBV in this report.

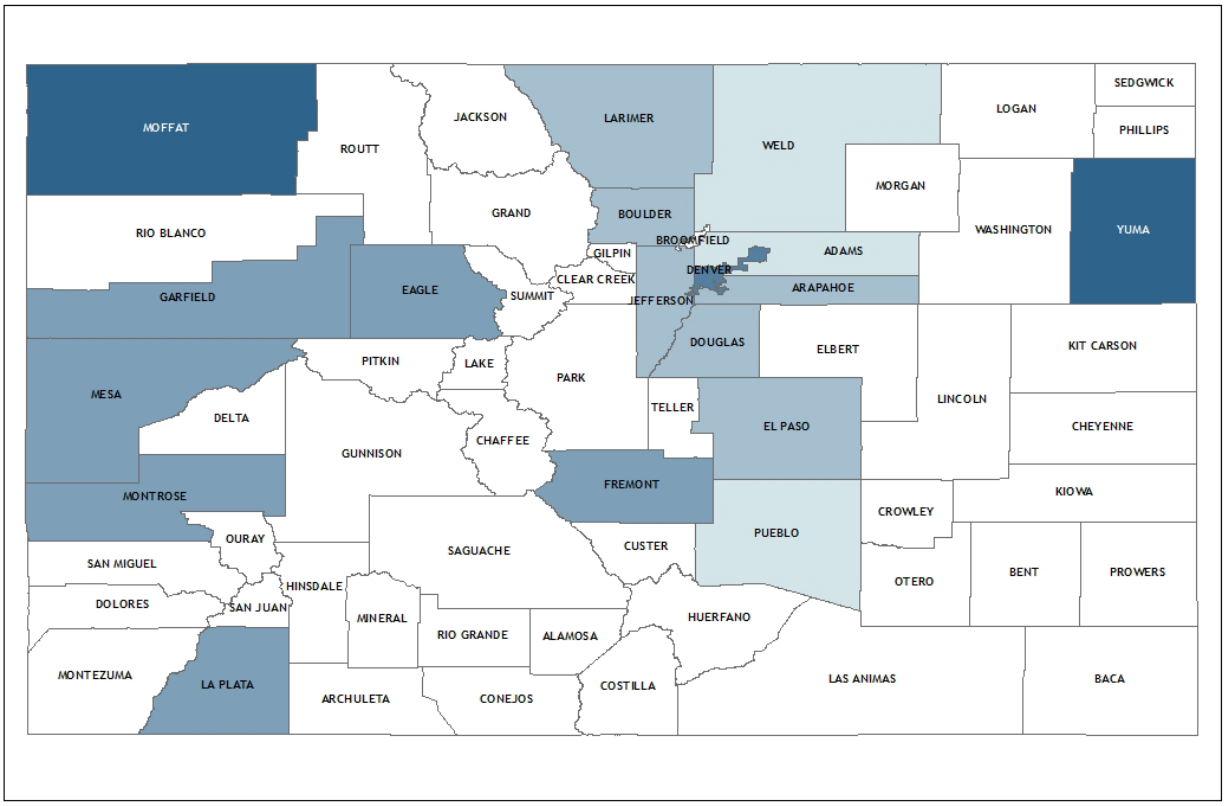
Geographic Distribution

The majority of acute HBV cases from 2018-2022 were reported in urban counties, with the Denver TGA accounting for 57.7% of diagnoses. Denver County has seen the most reported cases, accounting for 34.6% of all reported cases, over the past five years (n=27). Denver County was followed by El Paso county, accounting for 12.8% of diagnoses from 2018-2022. Average rates of diagnosis from 2018-2022 by county can be seen in **Figure 2.4**.

From 2018-2022, 15.3% of acute HBV cases reported experiencing homelessness at the time of their diagnosis.

Average rates of diagnosis from 2018-2022 were highest in Yuma and Moffat counties. Due to smaller populations in Yuma and Moffat counties, 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 (2018-2022)



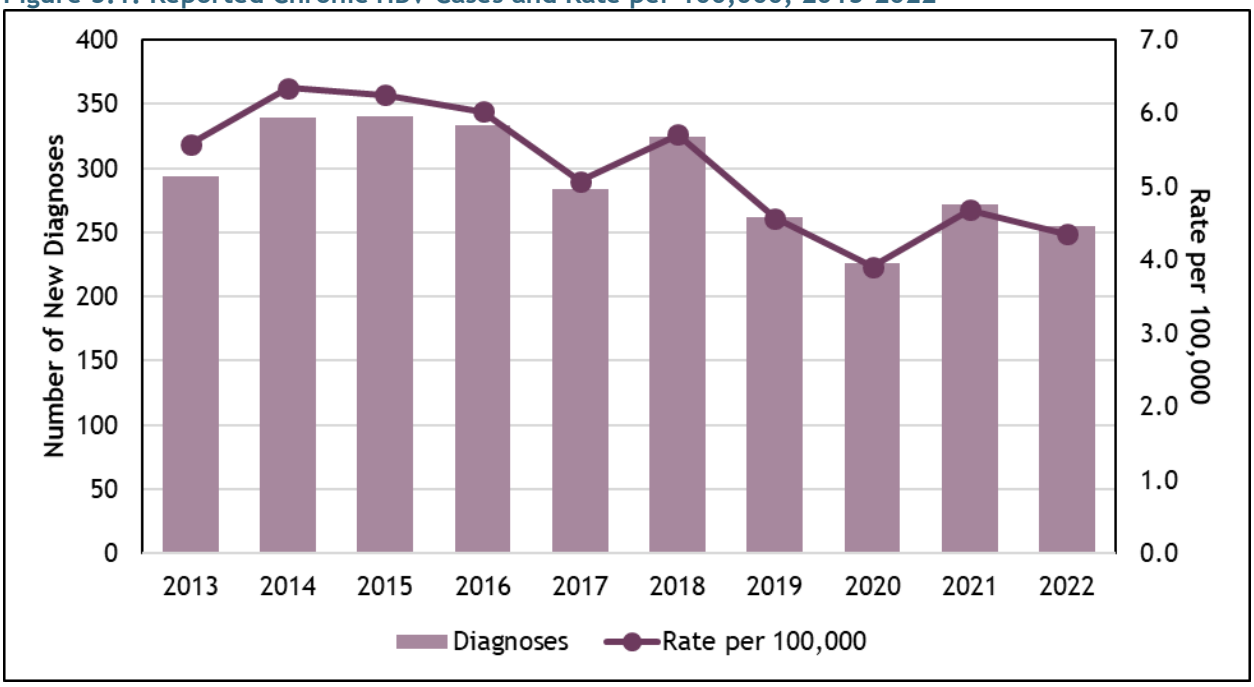
Data Source: Case data from CDPHE's VH Surveillance Program. Population data from the State Demography Office.

Chronic Hepatitis B

Summary

- In 2022, there were 255 reported cases of chronic HBV.
    - This is a slight decrease from cases reported in 2021.
- Just over half of the cases reported from 2018-2022 were among males (56.8%).
- The highest proportion of 2022 cases occurred in 20-39 year olds (39.6%) while 40-59 year olds experienced the highest rates of diagnosis at 6.6 diagnoses per 100,000 population.
- 59.2% of cases occurred in the Denver TGA.
- Non-Hispanic Asian/Native Hawaiian/Pacific Islanders made up 23.5% of cases in 2022 while only accounting for an estimated 4.1% of Colorado's population in 2022.

Figure 3.1: Reported Chronic HBV Cases and Rate per 100,000, 2013-2022

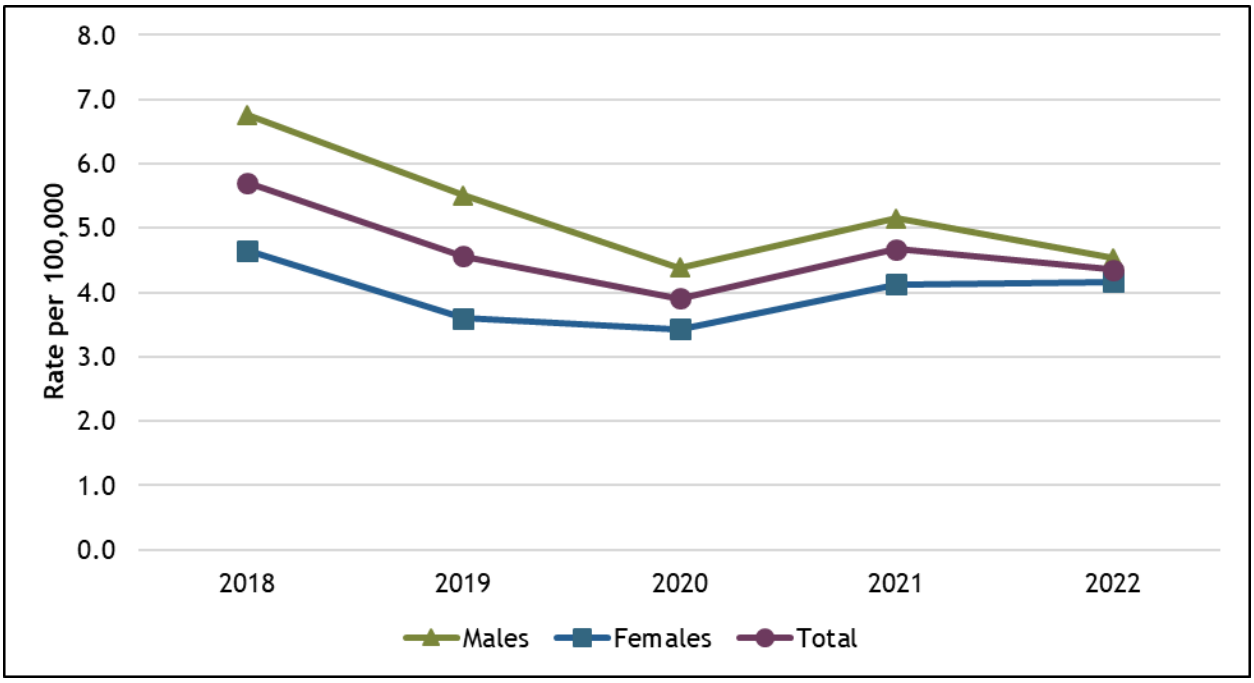


Data used in this graph can be found in Table 3.1 in the Appendix.

New Chronic HBV Diagnoses by Sex

Over the past five years (2018-2022), males have consistently made up the slight majority (56.8%) of chronic HBV diagnoses. In 2022, 52.2% of cases were among males, with a rate of diagnosis of 4.5 diagnoses per 100,000 compared to a rate of 4.2 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, 2018-2022



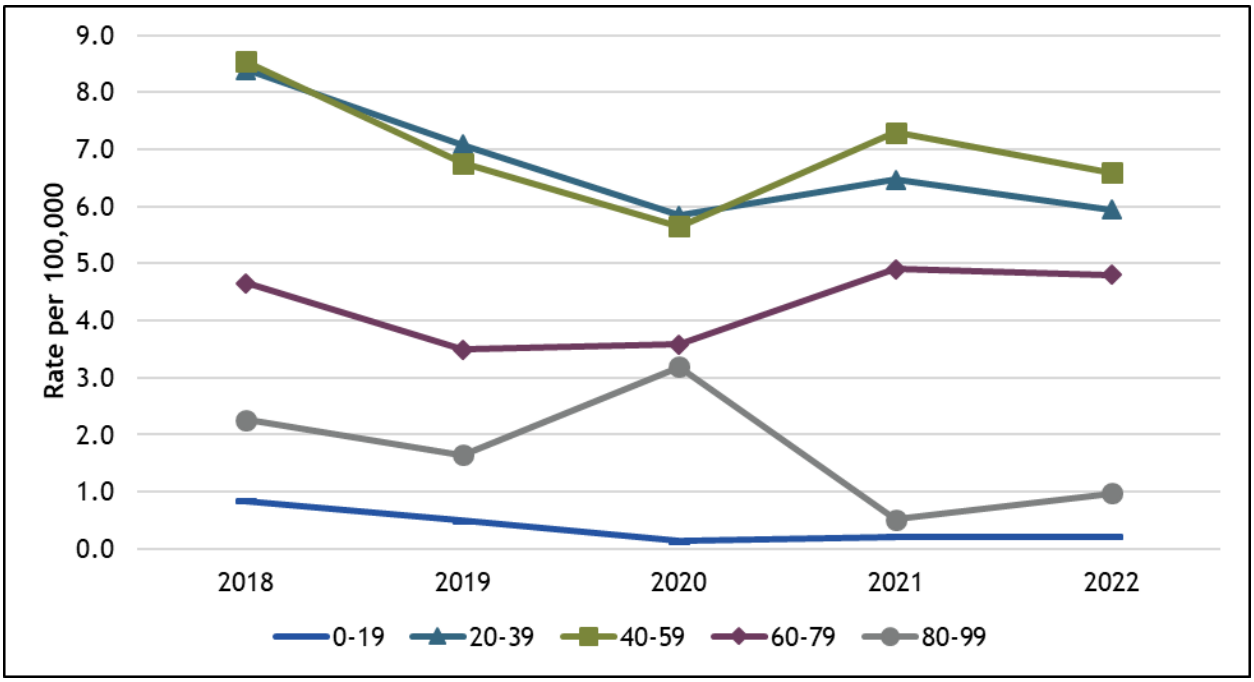
Gender identity is not known for all diagnoses. The sex reported could be sex at birth or an individual's gender identity. Other and unknown genders are not shown due to small counts and unreliable rates.

New Chronic HBV Diagnoses by Age

Rates of chronic HBV diagnosis were highest amongst those aged 40-59 in 2022 as shown in **Figure 3.3**. Rates slightly decreased among the two most affected groups, 20-39 year olds and 40-59 year olds, from 2021 to 2022.

There were 27 diagnoses in the 0-19 age group from 2018-2022. While the HBV vaccine has been a mandated childhood vaccination since 1997 in Colorado, 37.0% of the people in this age group from 2018-2022 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, 2018-2022



New Chronic HBV Diagnoses by Race/Ethnicity

Race/ethnicity data is not routinely reported for chronic HBV cases in Colorado. To improve race and ethnicity reporting among chronic HBV cases, cases were matched to Medicaid data sources which have more complete data on race and ethnicity. Before this match, 50.7% of cases from 2018-2022 had an unknown race/ethnicity. After this match, only 37.9% of reported cases from 2018-2022 were missing race/ethnicity data.

Non-Hispanic Asian/Native Hawaiian/Pacific Islanders have accounted for 24.7% of all chronic HBV diagnoses from 2018-2022. In 2022, non-Hispanic Asian/Native Hawaiian/Pacific Islanders made up

23.5% of chronic HBV diagnoses and were followed by non-Hispanic Whites (14.9%) and non-Hispanic Black/African Americans (12.9%).

While non-Hispanic Asian/Native Hawaiian/Pacific Islanders and non-Hispanic Black/African Americans represent over one third of diagnoses in 2022, they were estimated to only represent 4.1% and 4.7% of Colorado's population in 2022, respectively. Non-Hispanic Asian/Native Hawaiian/Pacific Islanders had a rate of diagnosis of 24.6 diagnoses per 100,000 and non-Hispanic Black/African Americans had a rate of 11.8 diagnoses per 100,000 in 2022. Comparatively, the overall rate of chronic HBV diagnosis was 4.4 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%).[25]

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.[26]

[25] 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).

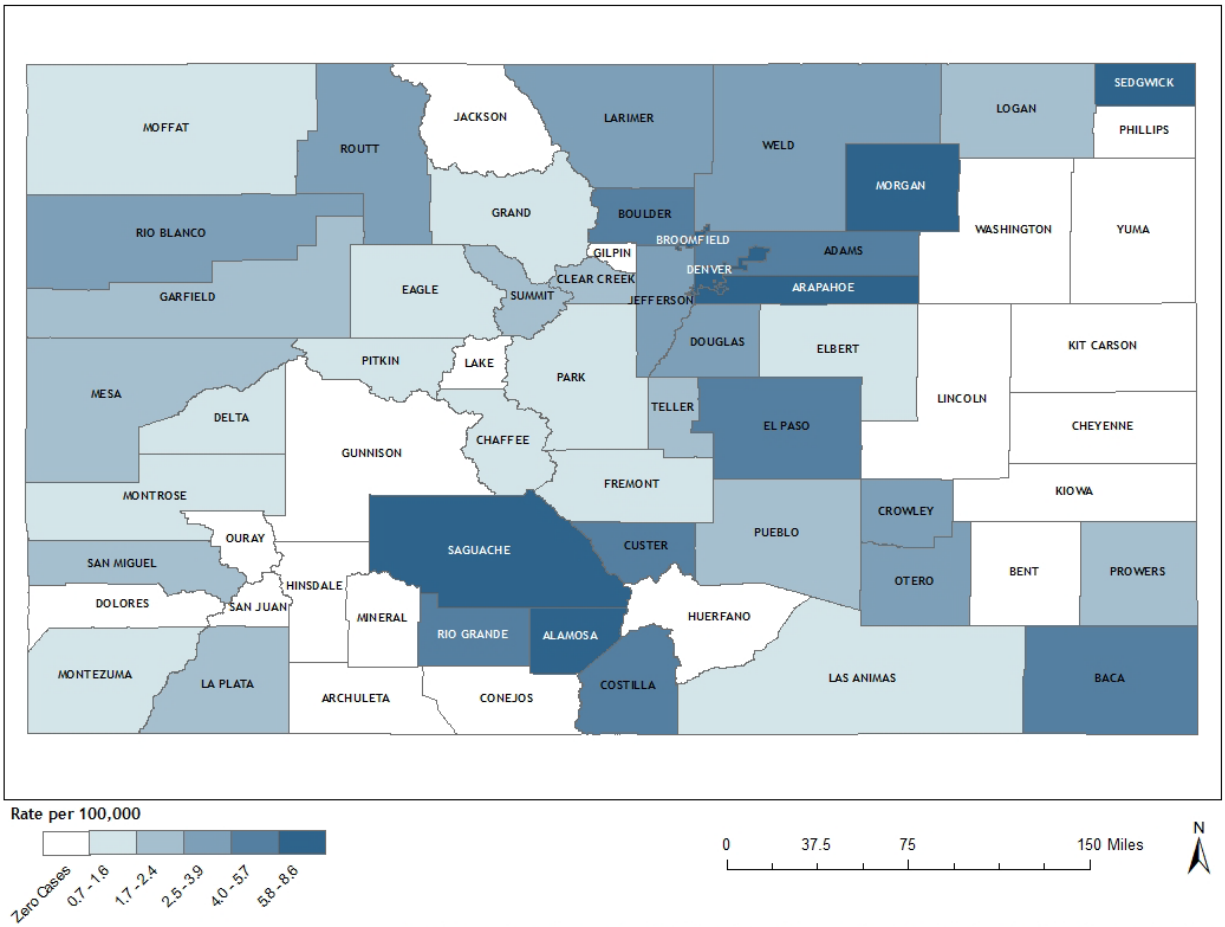
[26] Roberts H, Kruszon-Moran D, Ly KN, Hughes E, Iqbal K, Jiles RB, et al. Prevalence of chronic hepatitis B virus (HBV) infection in U.S. households: National Health and Nutrition Examination Survey (NHANES), 1988-2012. Hepatology. 2015 Aug 6;63(2):388-97.

Geographic Distribution

Chronic HBV diagnoses over the past five years (2018-2022) have been concentrated in Arapahoe (21.1%), Denver (17.3%), and El Paso (11.6%) counties. In 2022, almost a fifth (18.4%) of cases occurred in Arapahoe County, followed by Denver (15.3%) and Adams (11.7%) counties.

From 2018-2022, rates were highest in Arapahoe, Sedgwick, Alamosa, Denver, Broomfield, Saguache, and Morgan counties - shown in **Figure 3.4**. Due to smaller populations in Alamosa, Saguache, and Morgan 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 (2018-2022)



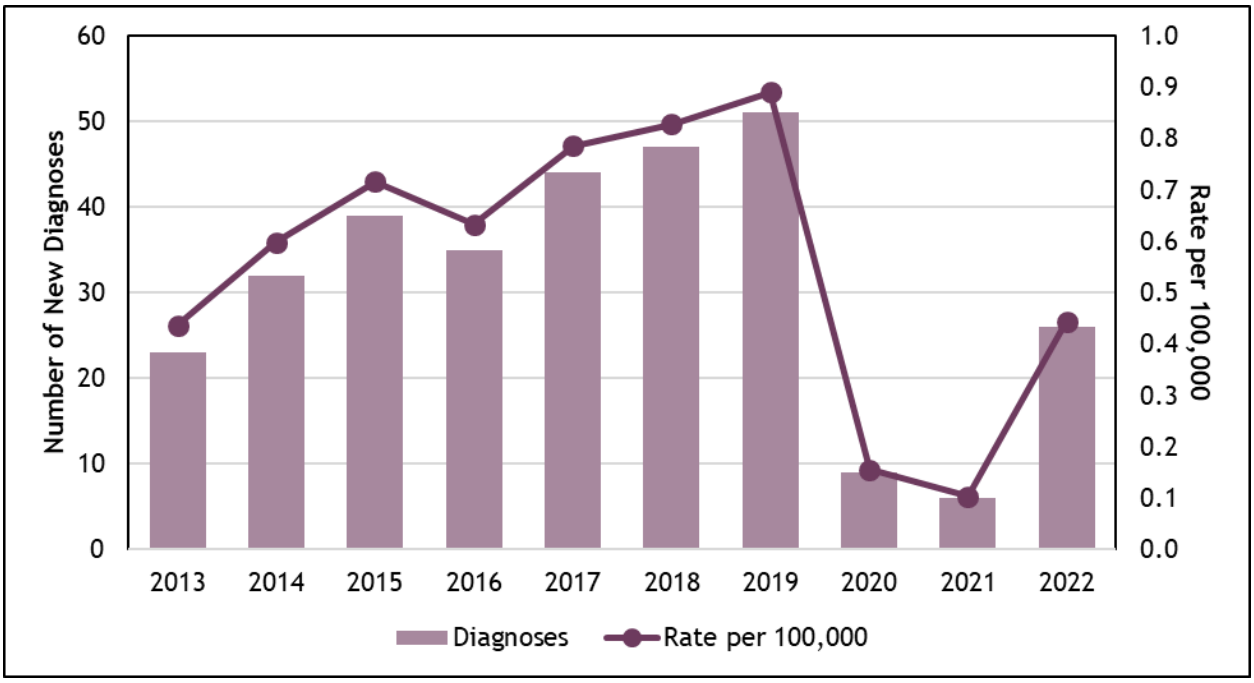
Data Source: Case data from CDPHE's VH Surveillance Program. Population data from the State Demography Office.

Acute Hepatitis C

Summary

- In 2022, there were 26 cases of acute HCV reported to CDPHE.
- Before the effects of the COVID-19 pandemic, acute HCV diagnoses were increasing in Colorado.
    - Due to staffing capacity 2020 through 2022, necessary follow up to identify an acute HCV case was not done, likely resulting in an underestimation of acute HCV cases in Colorado.
- From 2018 to 2022, 41.0% of cases occurred in the Denver TGA.
- The majority of cases from 2018-2022 were among people that were 20-39 years old (74.8%).

Figure 4.1: Reported Acute HCV Cases and Rate per 100,000, 2013-2022



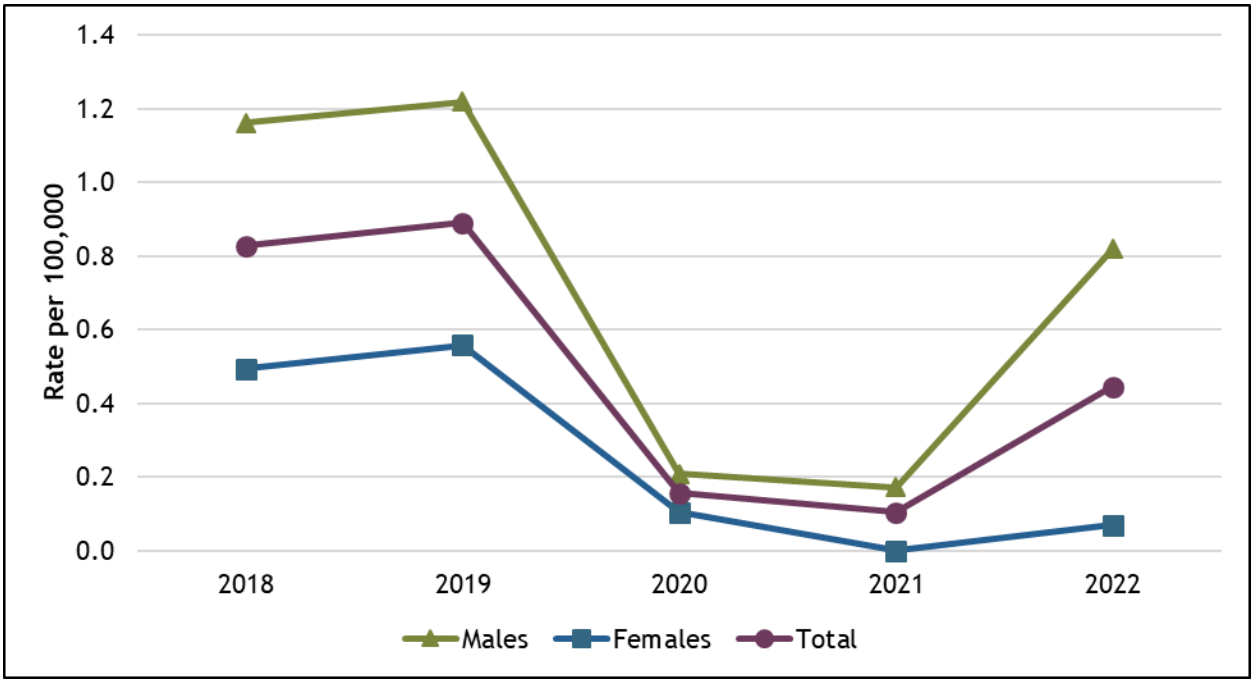
Data used in this graph can be found in Table 4.1 in the Appendix.

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% 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. 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**. In 2022, rates among males increased compared to 2021; however, cases and rates among males and females are still lower than pre-pandemic levels.

Figure 4.2: Rate per 100,000 of Acute HCV Cases by Sex, 2018-2022



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.

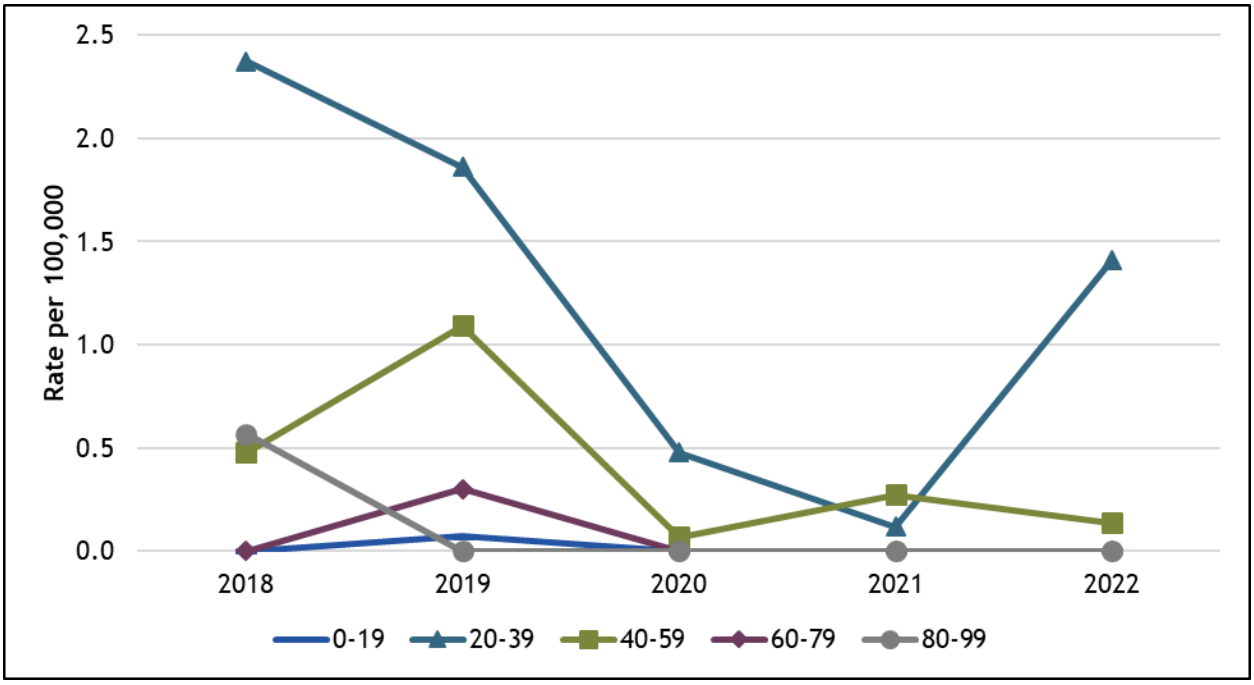
New Acute HCV Diagnoses by Age

People between the ages of 20-39 have made up almost 75% of HCV diagnoses since 2018. 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.

Rates among all age groups decreased in 2020 and 2021 due to staff capacity during the COVID-19 pandemic. As reported cases declined overall in 2020 and 2021, rates decreased across all age groups and should be interpreted with caution.

Identification of acute HCV cases increased in 2022 and there were 15 cases reported among 20-39 year olds resulting in a rate of 1.4 diagnoses per 100,000. Trends by age group can be seen in **Figure 4.3**.

Figure 4.3: Rates per 100,000 of Acute HCV by Age Group, 2018-2022



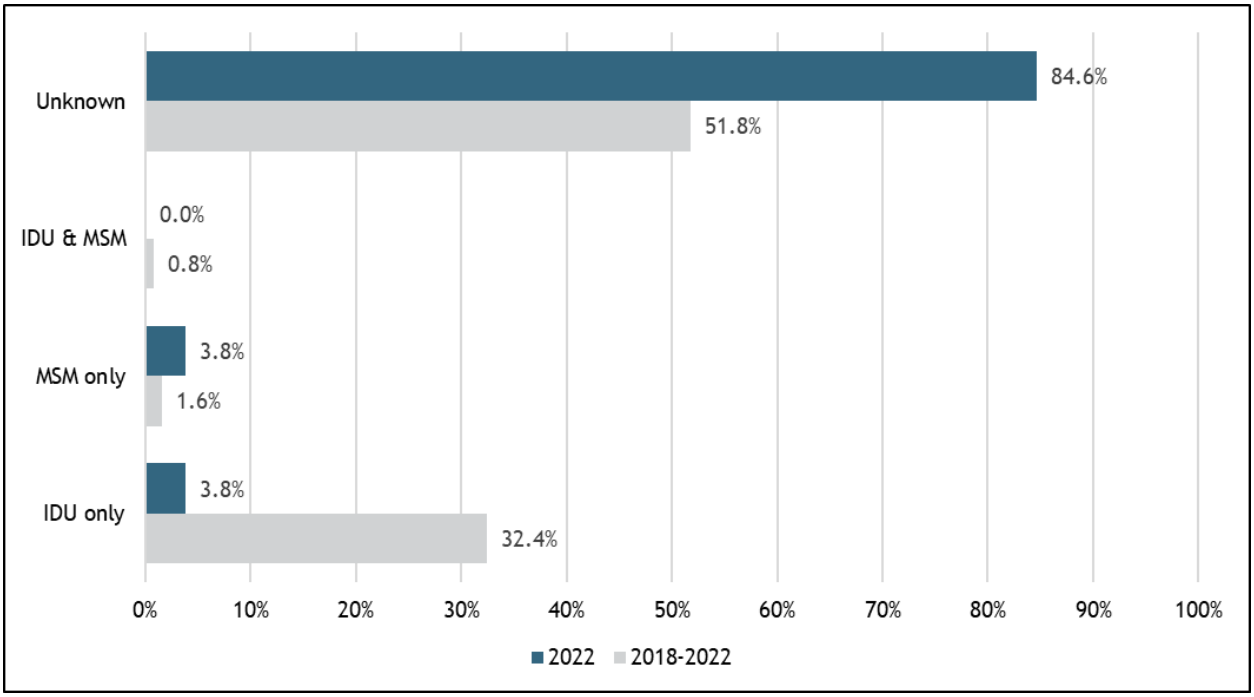
New Acute HCV Diagnoses by Race/Ethnicity

Race and ethnicity data were available for 96.4% of cases from 2018-2022. The majority of diagnoses over the past five years were among non-Hispanic Whites (57.6%). Hispanic/Latino/a/x of all races represented almost one third of all cases (30.2%) from 2018-2022.

Behavioral Risk Factors

In 2022, 84.6% of cases had no reported risk factors. Injection drug use was reported among 32.4% of cases from 2018-2022. Nationally, the opioid epidemic is driving an increase in acute HCV incidence.[27] Over the past five years, 13.7% of acute HCV diagnoses were among people experiencing homelessness and 25.9% 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, 2022 Compared to 2018-2022



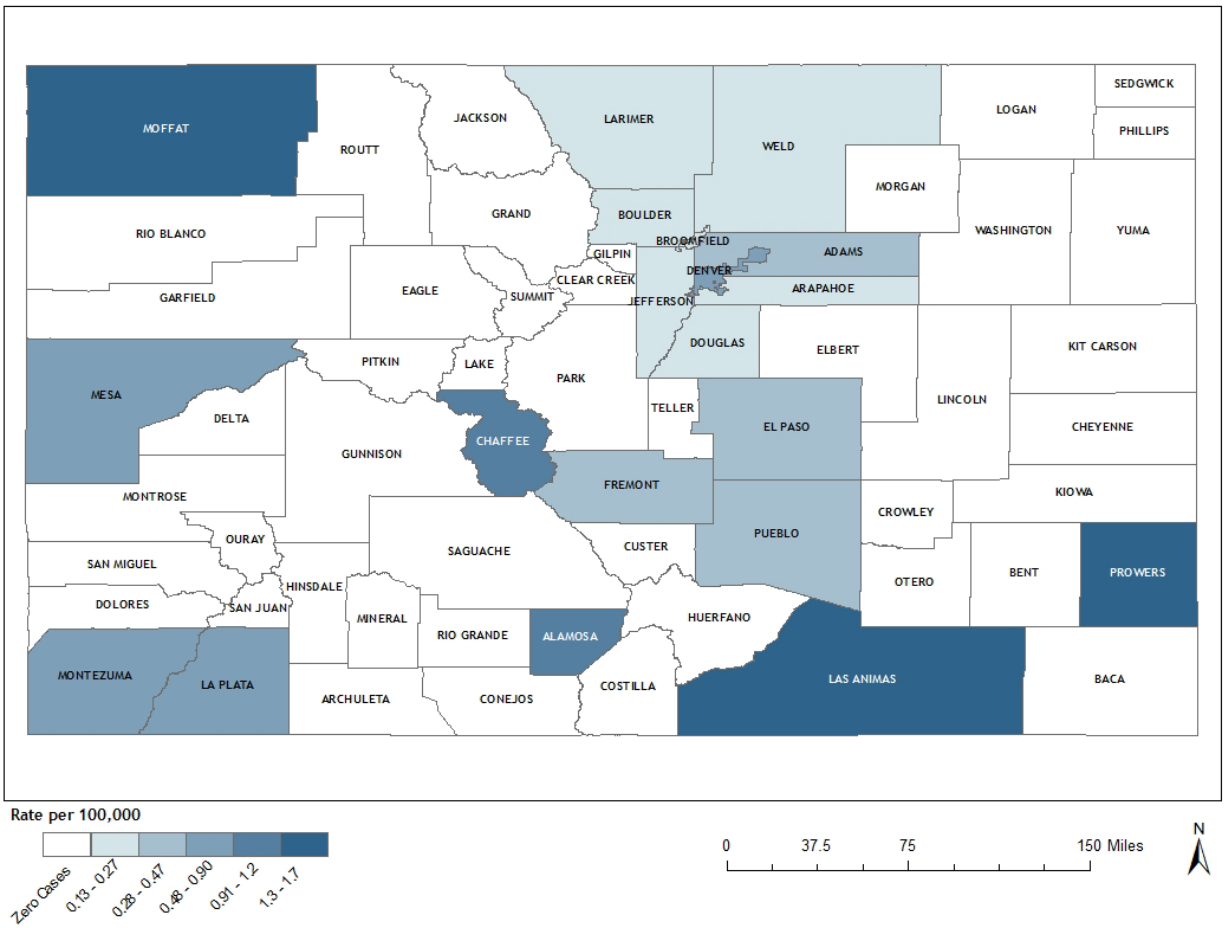
[27] CDC. Hepatitis C Surveillance 2021 - United States. 2021.

Geographic Distribution

The majority of acute HCV diagnoses over the past five years (2018-2022) have occurred in Denver (23.0%), El Paso (12.2%), and Adams (7.2%) counties. During the same time period, 25.9% of cases were diagnosed in federal or state prisons.

Rates were highest in Prowers, Moffat, Las Animas, and Alamosa counties from 2018-2022 as seen in Figure 4.5. However, due to the small populations 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 (2018-2022)



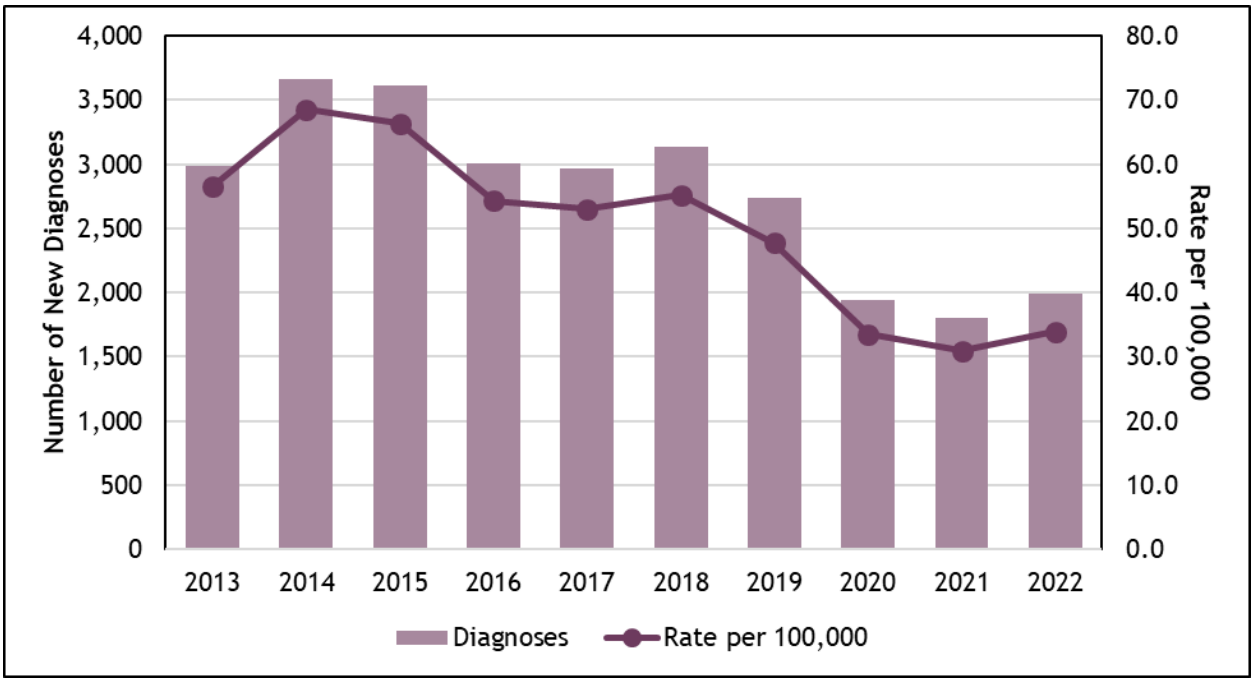
Data Source: Case data from CDPHE's VH Surveillance Program. Population data from the State Demography Office.

Chronic Hepatitis C

Summary

- In 2022, there were 1,988 cases of chronic HCV.
    - This is a slight increase from the number of cases reported in 2020 and 2021 - during these years, testing for HCV declined nationwide.
    - However, cases reported in 2022 represent a 27.4% decrease from cases reported in 2019 (n=2,737) before the COVID-19 pandemic.
- 71.4% of diagnoses in 2022 were among males.
- In 2022, 20-39 year olds were disproportionately affected by chronic HCV and made up 44.0% of diagnoses.
- In 2022, 34.5% of cases occurred in the Denver TGA.
- Diagnoses in federal or state prisons from 2018-2022 accounted for more diagnoses than any single county (22.9%).

Figure 5.1: Reported Chronic HCV Cases and Rate per 100,000, 2013-2022



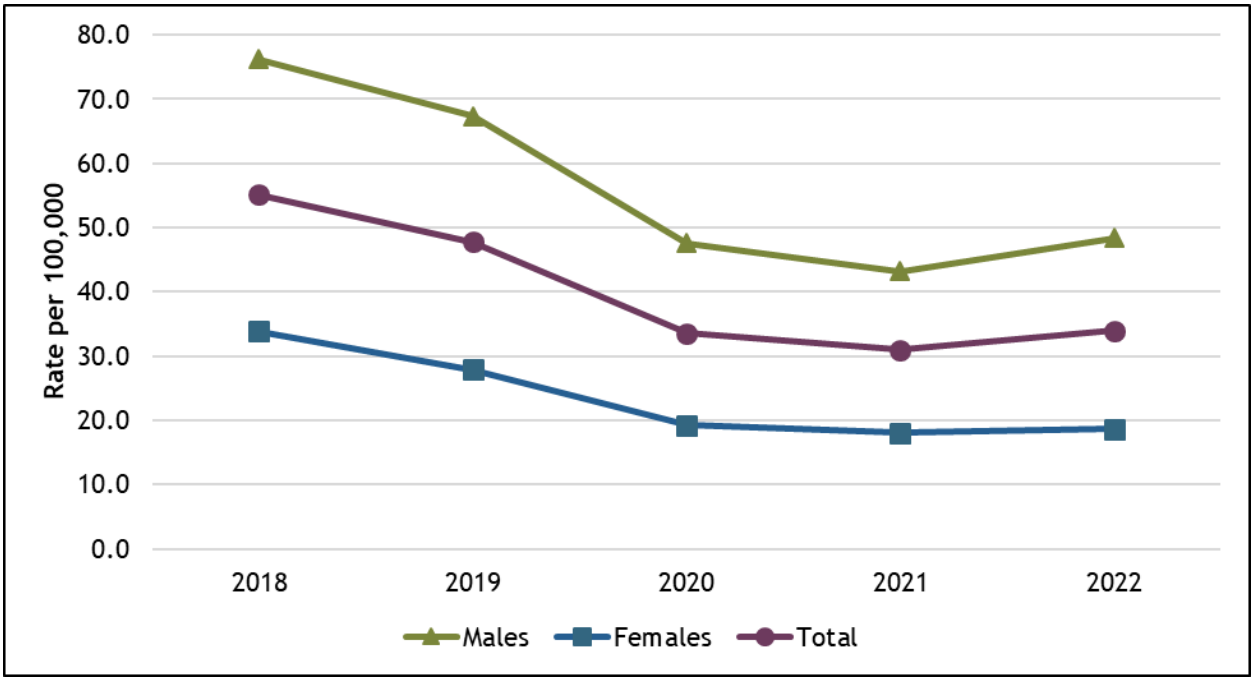
Data used in this graph can be found in Table 5.1 in the Appendix.

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.[28,29]

New Chronic HCV Diagnoses by Sex

The rate of cases among males in 2022 was 48.4 per 100,000 and 18.7 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. Injection drug use (IDU) is more associated with males than females which may explain higher rates among males.[30]

Figure 5.2: Rate per 100,000 of Chronic HCV Cases by Sex, 2018-2022



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.

[28] 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.

[29] CDC. National Profile of Viral Hepatitis. https://www.cdc.gov/hepatitis/statistics/2020surveillance/introduction/national-profile.htm

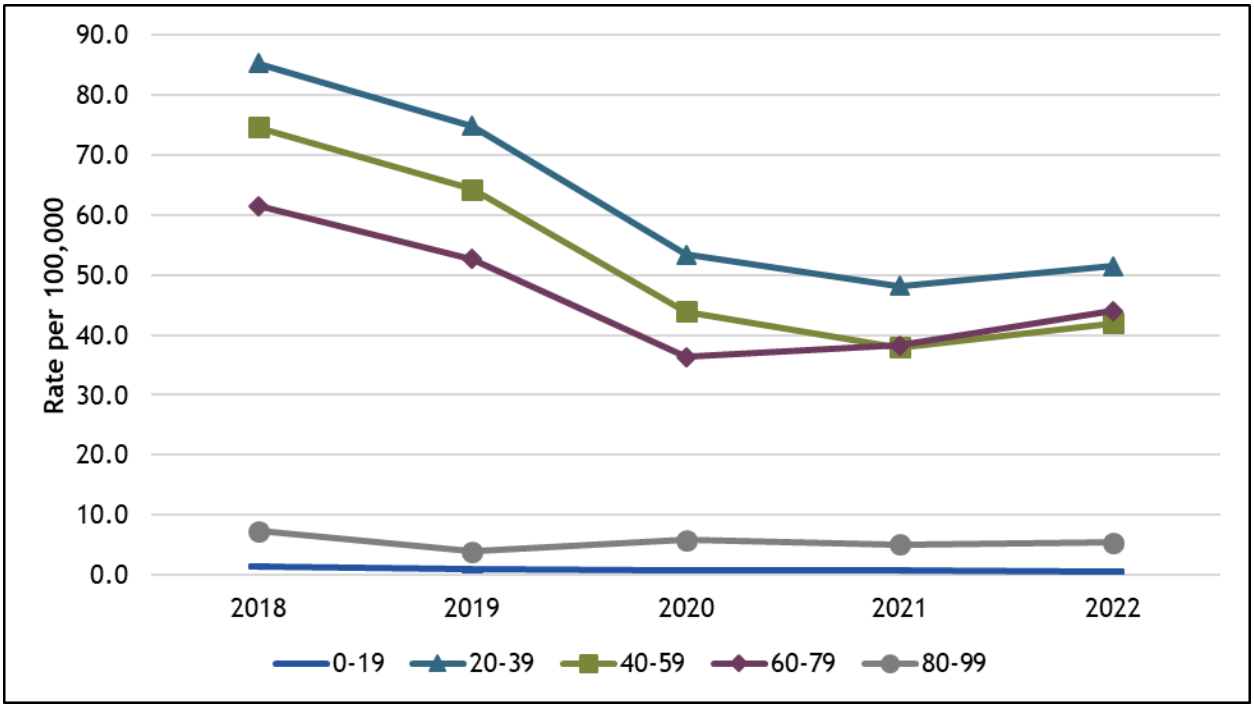
[30] NIH. Sex and Gender Differences in Substance Use. 2020. https://www.drugabuse.gov/publications/research-reports/substance-use-in-women/sex-gender-differences-in-substance-use

New Chronic HCV Diagnoses by Age

People between the ages of 20-39 had the highest rate of cases (85.3 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 2022, 20-39 year olds only made up 29.0% of the overall population of Colorado but accounted for 44.0% of all chronic HCV diagnoses.

In 2022, those aged 20-39 years old had the highest rate of diagnosis amongst age groups, with a rate of 51.4 per 100,000. In comparison, 40-59 year olds had a rate of 41.9 per 100,000 and 60-79 year olds had a rate of 44.0 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.[31]

Figure 5.3: Rates per 100,000 of Chronic HCV by Age Group, 2018-2022



[31] 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 more complete data on race and ethnicity. Before this match, 62.8% from 2018-2022 of cases had an unknown race/ethnicity. After this match, only 34.6% of cases from 2018-2022 still had an unknown race/ethnicity.

From 2018-2022, 44.4% of cases were among non-Hispanic Whites and 15.1% 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.[32]

From 2018-2022, 168 of those diagnosed with chronic HCV were also living with/diagnosed with HIV. Of this group, 16.7% (n=28) were diagnosed with HIV and chronic HCV within 30 days, with the majority of cases (79.2%) having already been living with HIV. Those living with HIV and chronic HCV were primarily 30-39 years old at the time of their HCV diagnosis (35.7%) and almost half (45.2%) reported injection drug use at the time of their HIV diagnosis.

Geographic Distribution

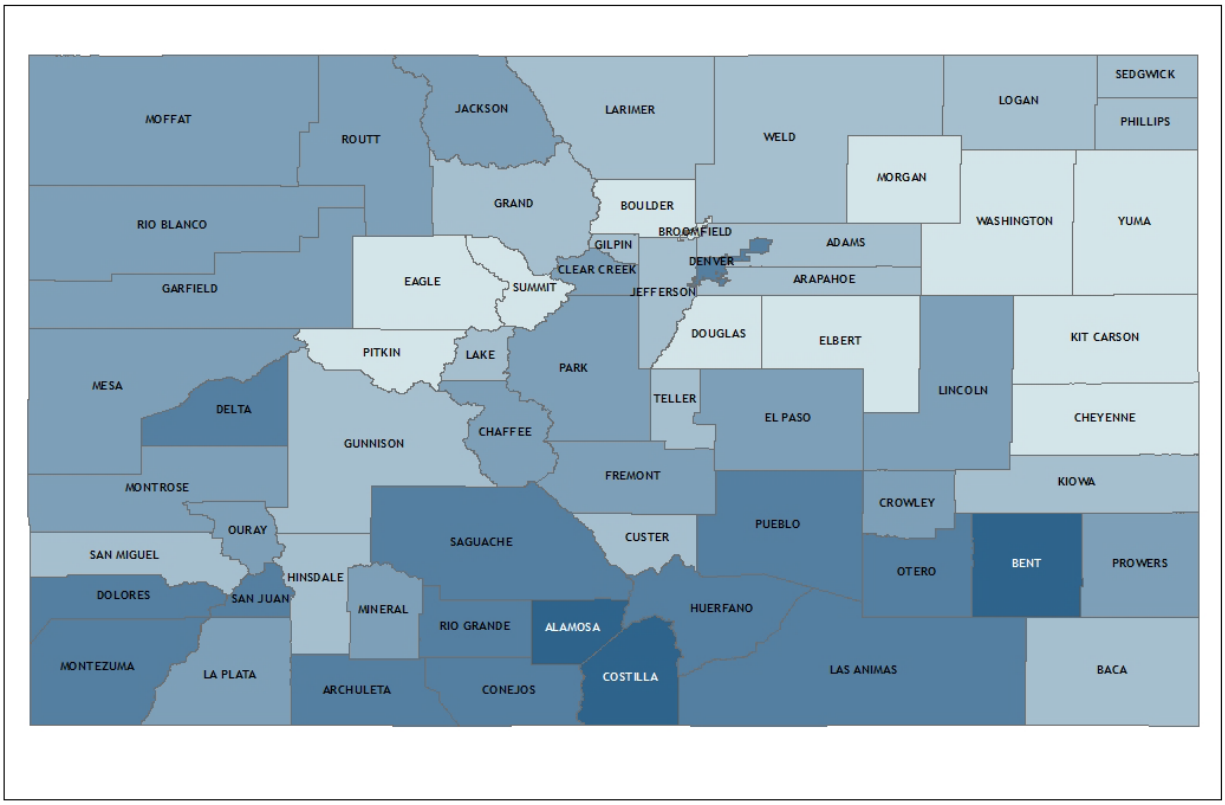
Cases among incarcerated individuals represented 22.9% of all reported cases from 2018-2022, which was higher than the proportion of any individual county. In 2022, 23.2% of all cases occurred in prisons. This percentage was followed by Denver County, which made up 14.1% of diagnoses in 2022.

Rates of diagnosis for chronic HCV have been highest in rural counties over the past five years (2018-2022). Bent and Alamosa counties had an average rate of diagnosis over 90 diagnoses per 100,000 population from 2018-2022. For comparison, the average rate of diagnosis in Colorado from 2018-2022 was 40.3 diagnoses per 100,000. These average rates of diagnosis can be seen in **Figure 5.5** on the next page. Case counts by county, as well as rates, can be found in **Table 5.3** in the Appendix.

[32] CDC. Surveillance for Viral Hepatitis - United States. 2018.

While rates were high in Bent, Alamosa, Costilla, and Dolores counties from 2018-2022 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 (2018-2022)



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

Chronic Hepatitis C Care Cascade

Negative HCV RNA tests became reportable to CDPHE in 2019. These labs have allowed surveillance staff to ascertain when individuals with chronic HCV have reached viral clearance and when individuals have experienced persistent infection or reinfection.

Due to the time it takes to pursue treatment and reach viral clearance, this report will focus on the care cascade of those diagnosed with confirmed chronic HCV in 2021. Additional data on previous years of viral clearance is available in the appendix in **Table 6.1**.

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.

In previous years, to verify that an individual had achieved sustained virologic response (SVR), a HCV RNA test at least three months after completing the treatment regimen was needed. Due to the efficacy of HCV treatments, guidelines were updated in 2022 to interpret any negative HCV RNA reported after a confirmed HCV diagnosis as viral clearance. Individuals that have one reported negative HCV RNA are considered cured of their HCV infection. If these steps are reached and an individual has a subsequent reported positive HCV RNA at least three months after viral clearance, they are considered to be reinfected with HCV or to have a persistent infection of HCV.

Only 2021 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 to CDPHE. Additionally, 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 negative tests.

Definitions

People with a positive HCV RNA test: People with at least one positive HCV RNA test reported to CDPHE in the 2021 calendar year.

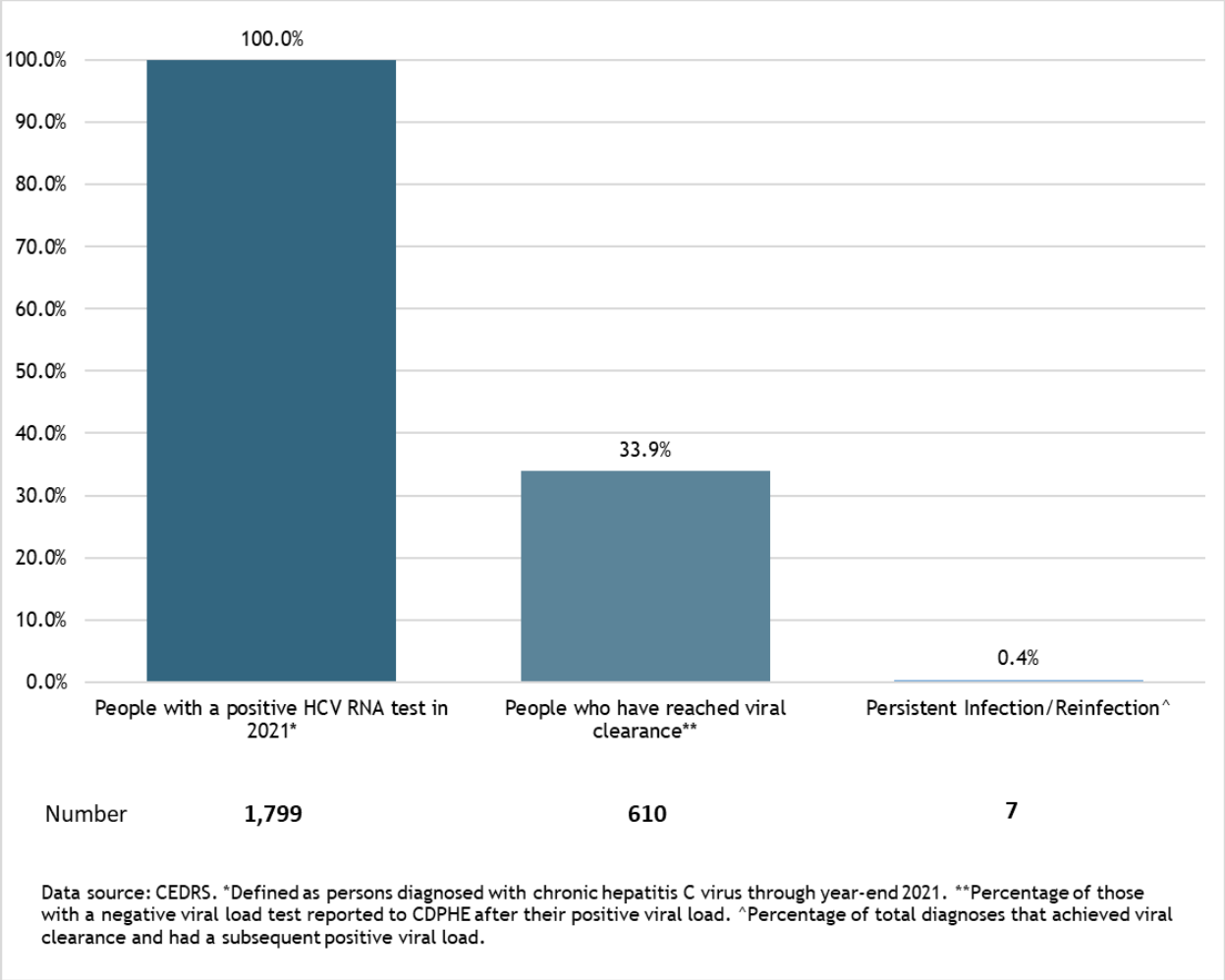
People who have reached viral clearance: Percent of people with a negative HCV RNA test reported to CDPHE after a positive HCV RNA test reported to CDPHE during the time period January 1, 2021 through December 31, 2023.

Persistent Infection/Reinfection: Percent of people that had reached viral clearance and had a reported positive HCV RNA to CDPHE after achieving viral clearance during the time period January 1, 2021 through December 31, 2023.

As shown in **Figure 6.1**, of all confirmed diagnoses in 2021 (n=1,799) only 33.9% had achieved viral clearance as of December 2023. The average time from diagnosis to SVR was 0.9 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.

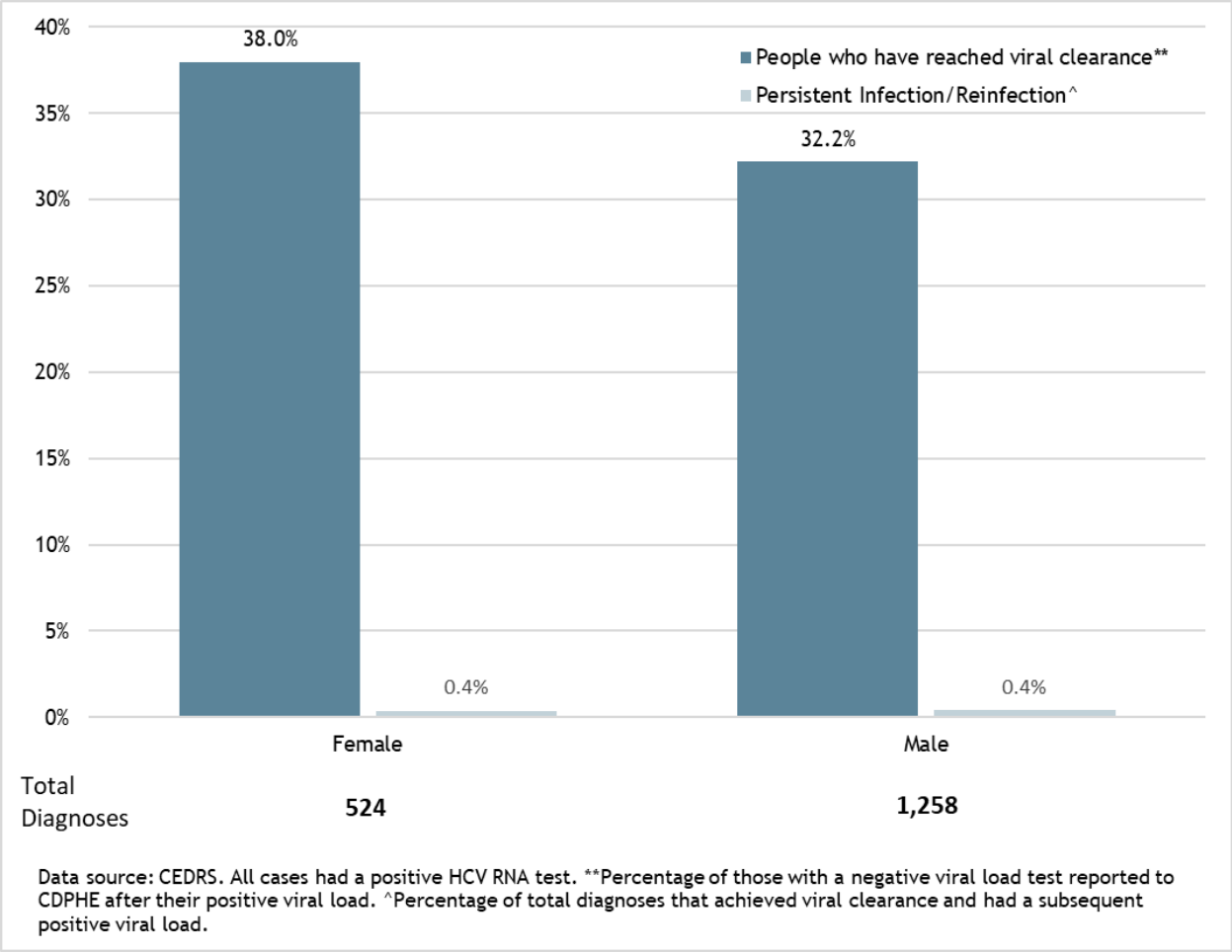
Figure 6.1: Chronic HCV Care Cascade; 2021 Colorado Diagnoses



Data source: CEDRS. *Defined as persons diagnosed with chronic hepatitis C virus through year-end 2021. **Percentage of those with a negative viral load test reported to CDPHE after their positive viral load. ^Percentage of total diagnoses that achieved viral clearance and had a subsequent positive viral load.

While the majority of diagnoses in 2021 were among males, females were slightly more likely to reach SVR than males by December 2023 - as depicted in **Figure 6.2**. Additionally, more males experienced a reinfection or persistent infection (n=5) than females did (n=2).

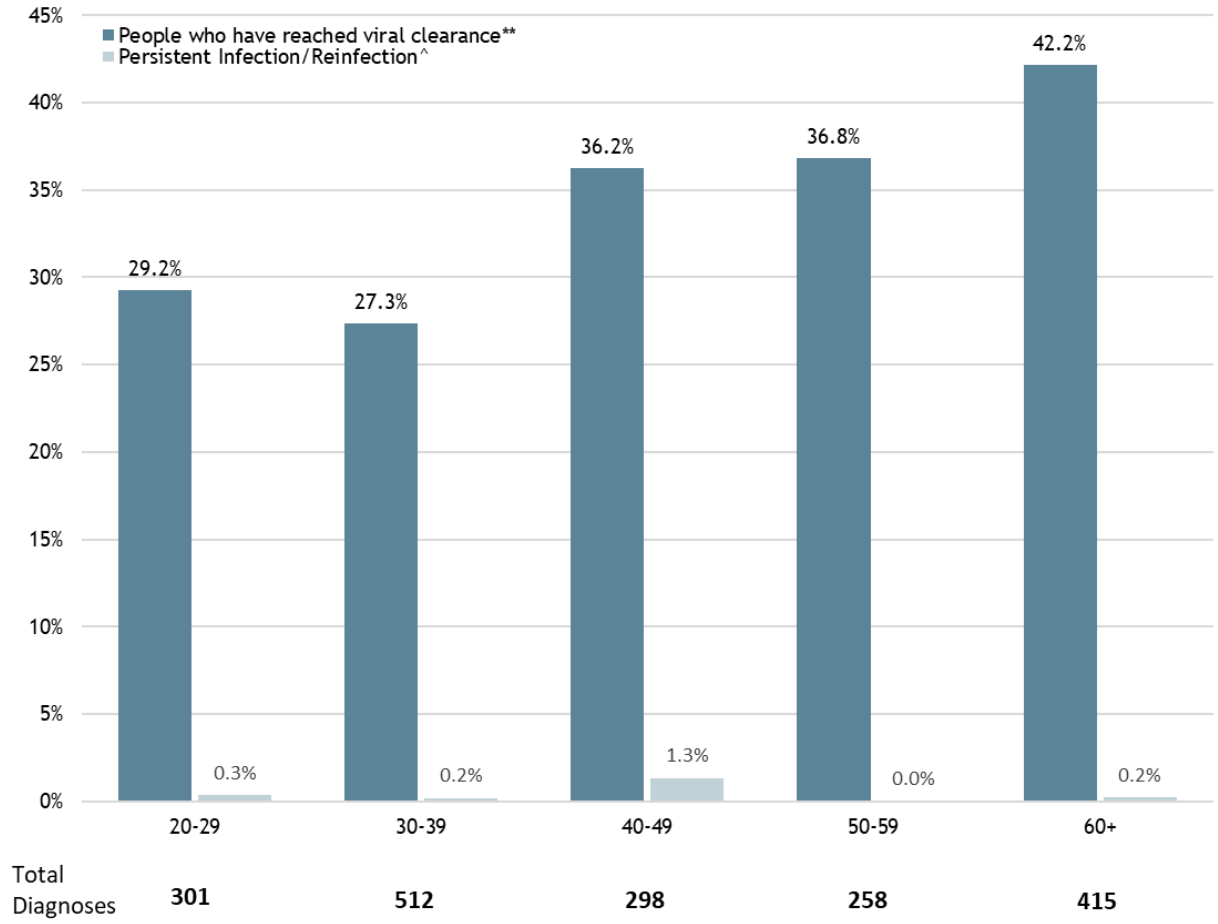
Figure 6.2: Chronic HCV Care Cascade; 2021 Diagnoses by Sex



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 achieved viral clearance by December 2023 were 60 and older when they were diagnosed with hepatitis C. While 20-39 year olds made up 45.2% of new diagnoses in 2021 (n=813), only 28.0% (n=228) of this cohort had achieved viral clearance by December 2023, implying that the prevalence of HCV in this age group is increasing in the community. Those aged 40-49 at the time of their HCV diagnosis experienced the most persistent or reinfections through December 2023 (n=4).

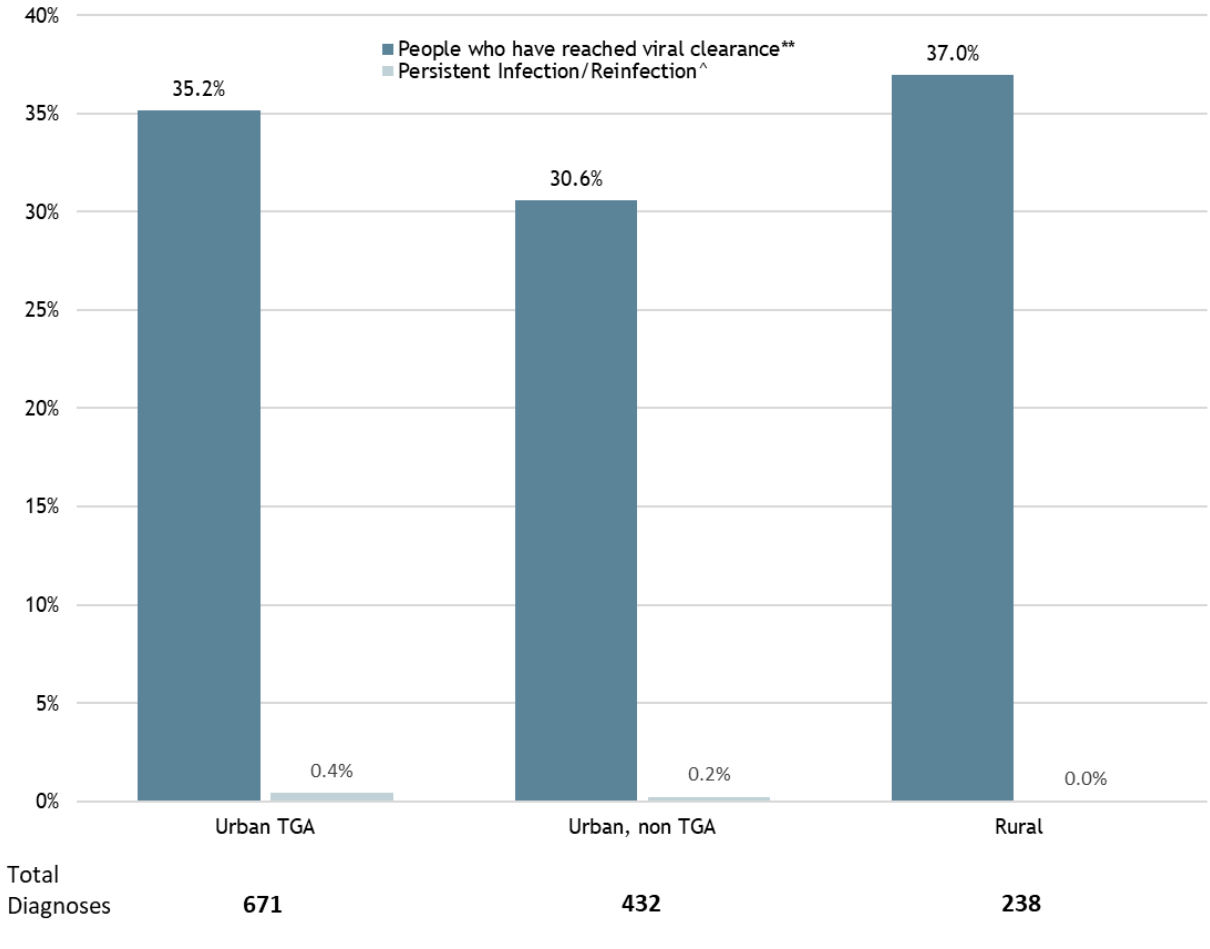
Figure 6.3: Chronic HCV Care Cascade; 2021 Diagnoses by Age at Diagnosis



Data source: CEDRS. All cases had a positive HCV RNA test. **Percentage of those with a negative viral load test reported to CDPHE after their positive viral load. ^Percentage of total diagnoses that achieved viral clearance and had a subsequent positive viral load.

As shown in **Figure 6.4**, those living in rural counties were most likely to achieve viral clearance. Individuals diagnosed in urban-non Denver TGA counties were the least likely to achieve viral clearance - 30.6% of 2021 diagnoses (n=132) had achieved viral clearance by December 2023. The majority of diagnoses in 2021 occurred in urban TGA counties and this trend continued into 2022, implying that the prevalence of chronic HCV in these counties may be increasing.

Figure 6.4: Chronic HCV Care Cascade; 2021 Diagnoses by Region



Data source: CEDRS. All cases had a positive HCV RNA test. **Percentage of those with a negative viral load test reported to CDPHE after their positive viral load. ^Percentage of total diagnoses that achieved viral clearance and had a subsequent positive viral load.

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 2022. Over the past ten years (2013-2022), there were two cases of **perinatal HBV**.

CDPHE had 89 pregnant people enrolled in the PHBPP with an estimated due date (EDD) in 2022. This number is not inclusive of all pregnant people that were enrolled in the PHBPP in 2022. Of the 89 people enrolled in PHBPP, 45 pregnant people had never been enrolled in the program, and 44 had previously been enrolled in the program but had a new pregnancy with an EDD in 2022. 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 63,052 total births, 60,940 pregnant people had a known prenatal hepatitis B screening (96.7%). This is a slight decrease from a screening rate of 97.6% in 2021. Colorado had a hepatitis B birth dose vaccination rate of 83.3% in 2022, which is slightly lower than the rate in 2021 (83.4%).

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. There were no cases of perinatal hepatitis C reported in 2022.

Coinfections and Liver Cancer

There were 30 cases of individuals diagnosed with both HBV and HCV from 2018 to 2022. 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.[33]

Among chronic HBV and HCV diagnoses that occurred from 2013 to 2022, there were 353 cases of liver cancer diagnosed in Colorado among previously reported chronic HCV cases, and 29 among previously reported chronic HBV cases during the same time period. The “Baby Boomer” generation (those born from 1945-1965) made up 87.3% of liver cancer diagnoses associated with a previously reported chronic

[33] 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.

HCV diagnosis from 2013-2022. The average time from hepatitis diagnosis reporting to liver cancer diagnosis was 1.9 years among reported chronic HCV cases, and 2.6 years among reported chronic 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.

Data Tables

Table 1.1: Reported hepatitis A cases and rate per 100,000, 2013-2022

Measure	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cases	50	23	24	23	64	31	332	95	11	27
Rate	0.9	0.4	0.4	0.4	1.1	0.5	5.8	1.6	0.2	0.5

2013-2022 population estimates from the Colorado State Demography Office

Table 1.2: Demographics of new hepatitis A cases, 2018-2022

	2018		2019		2020		2021		2022	
	N	%	N	%	N	%	N	%	N	%
Total	31	100.0%	332	100.0%	95	100.0%	11	100.0%	27	100.0%
Sex*										
Female	10	32.3%	99	29.8%	30	31.6%	3	27.3%	11	40.7%
Male	21	67.7%	233	70.2%	65	68.4%	8	72.7%	16	59.3%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Age Group										
0-19	1	3.2%	3	0.9%	1	1.1%	0	0.0%	2	7.4%
20-39	16	51.6%	156	47.0%	34	35.8%	6	54.5%	10	37.0%
40-59	7	22.6%	144	43.4%	38	40.0%	2	18.2%	4	14.8%
60-79	6	19.4%	28	8.4%	21	22.1%	3	27.3%	7	25.9%
80-99	1	3.2%	1	0.3%	1	1.1%	0	0.0%	4	14.8%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Race/Ethnicity										
NH, Asian/Pacific Islander	0	0.0%	4	1.2%	2	2.1%	1	9.1%	1	3.7%
NH, Black/African American	0	0.0%	21	6.3%	6	6.3%	1	9.1%	0	0.0%
Hispanic/Latino/a/x , all races	5	16.1%	43	13.0%	16	16.8%	3	27.3%	8	29.6%

NH, Indigenous/Native American	0	0.0%	2	0.6%	0	0.0%	0	0.0%	1	3.7%
NH, Multi Race	0	0.0%	8	2.4%	1	1.1%	0	0.0%	2	7.4%
NH White	20	64.5%	218	65.7%	62	65.3%	6	54.5%	13	48.1%
Unknown Race	6	19.4%	36	10.8%	8	8.4%	0	0.0%	2	7.4%
County Class**										
TGA	14	45.2%	151	45.5%	50	52.6%	5	45.5%	12	44.4%
Homeless	1	3.2%	83	25.0%	16	16.8%	0	0.0%	0	0.0%
Urban, non-TGA	16	51.6%	151	45.5%	37	38.9%	5	45.5%	11	40.7%
Homeless	5	16.1%	85	25.6%	15	15.8%	2	18.2%	0	0.0%
Rural	1	3.2%	27	8.1%	8	8.4%	1	9.1%	3	11.1%
Homeless	0	0.0%	11	3.3%	1	1.1%	0	0.0%	0	0.0%
Prison	0	0.0%	3	0.9%	0	0.0%	0	0.0%	1	3.7%
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 1.3: New hepatitis A cases and rate per 100,000 by county, 2018-2022

	2018		2019		2020		2021		2022		2018-2022		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	31	0.5	332	5.8	95	1.6	11	0.2	27	0.5	496	1.7	100.0%
Adams	3	0.6	16	3.1	10	1.9	3	0.6	1	0.2	33	1.3	6.7%
Alamosa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Arapahoe	4	0.6	19	2.9	10	1.5	1	0.2	1	0.2	35	1.1	7.1%
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	2	0.6	11	3.3	18	5.4	1	0.3	0	0.0	32	1.9	6.5%
Broomfield	0	0.0	0	0.0	1	1.3	0	0.0	0	0.0	1	0.3	0.2%

Chaffee	0	0.0	0	0.0	2	10.2	0	0.0	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	1	10.6	0	0.0	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	1	3.2	0	0.0	0	0.0	1	0.6	0.2%
Denver	5	0.7	92	13.0	19	2.6	1	0.1	5	0.7	122	3.4	24.6%
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	7	2.0	0	0.0	0	0.0	1	0.3	8	0.5	1.6%
Eagle	1	1.8	3	5.5	0	0.0	0	0.0	0	0.0	4	1.5	0.8%
El Paso	10	1.4	127	17.5	3	0.4	0	0.0	3	0.4	143	3.9	28.8%
Elbert	0	0.0	0	0.0	2	7.6	0	0.0	0	0.0	2	1.5	0.4%
Fremont	0	0.0	14	28.9	0	0.0	0	0.0	0	0.0	14	5.8	2.8%
Garfield	0	0.0	0	0.0	1	1.6	0	0.0	0	0.0	1	0.3	0.2%
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	1	14.6	0	0.0	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	17	2.9	10	1.7	0	0.0	4	0.7	33	1.1	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	1	1.8	0	0.0	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	1	0.3	1	0.3	1	0.3	0	0.0	1	0.3	4	0.2	0.8%
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	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	1	0.1	0.2%
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	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Montezuma	0	0.0	1	3.9	0	0.0	1	3.8	1	3.8	3	2.3	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	1	3.4	0	0.0	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	1	5.8	1	1.2	0.2%
Prowers	0	0.0	0	0.0	1	8.3	0	0.0	0	0.0	1	1.7	0.2%
Pueblo	3	1.8	9	5.4	14	8.3	3	1.8	0	0.0	29	3.5	5.8%
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	5	20.4	0	0.0	0	0.0	0	0.0	5	4.1	1.0%
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	1	3.2	0	0.0	0	0.0	0	0.0	1	0.6	0.2%
Teller	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	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	0	0.0	2	0.6	1	0.3	1	0.3	7	2.0	11	0.6	2.2%
Yuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prison	0	---	3	---	0	---	0	---	1	---	4	---	0.8%
Unknown	0	---	0	---	0	---	0	---	0	---	0	---	0.0%

Table 2.1: Reported acute hepatitis B cases and rate per 100,000, 2013-2022

Measure	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cases	23	29	29	28	32	22	23	12	1	20
Rate	0.4	0.5	0.5	0.5	0.6	0.4	0.4	0.2	<0.1	0.3

2013-2022 population estimates from the Colorado State Demography Office

Table 2.2: Demographics of new acute hepatitis B cases, 2018-2022

	2018		2019		2020		2021		2022	
	N	%	N	%	N	%	N	%	N	%
Total	22	100.0%	23	100.0%	12	100.0%	1	100.0%	20	100.0%
Sex*										
Female	7	31.8%	12	52.2%	3	25.0%	0	0.0%	4	20.0%
Male	15	68.2%	11	47.8%	9	75.0%	1	100.0%	16	80.0%
Unknown	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	5	22.7%	10	43.5%	2	16.7%	0	0.0%	4	20.0%
40-59	15	68.2%	11	47.8%	8	66.7%	1	100.0%	12	60.0%
60-79	2	9.1%	1	4.3%	1	8.3%	0	0.0%	4	20.0%
80-99	0	0.0%	1	4.3%	1	8.3%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Race/Ethnicity										
NH, Asian/Pacific Islander	0	0.0%	0	0.0%	0	0.0%	---	---	1	5.0%
NH, Black/African American	2	9.1%	1	4.3%	1	8.3%	---	---	1	5.0%
Hispanic/Latino/a/x , all races	5	22.7%	5	21.7%	2	16.7%	---	---	2	10.0%
NH, Indigenous/Native	0	0.0%	0	0.0%	1	8.3%	---	---	0	0.0%

American										
NH, Multi Race	0	0.0%	0	0.0%	0	0.0%	---	---	1	5.0%
NH White	15	68.2%	17	73.9%	6	50.0%	---	---	14	70.0%
Unknown Race	0	0.0%	0	0.0%	2	16.7%	---	---	1	5.0%
County Class**										
TGA	11	50.0%	14	60.9%	9	75.0%	0	0.0%	11	55.0%
Homeless	3	13.6%	5	21.7%	3	25.0%	0	0.0%	0	0.0%
Urban, non-TGA	8	36.4%	6	26.1%	2	16.7%	1	100.0%	6	30.0%
Homeless	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	5.0%
Rural	3	13.6%	1	4.3%	0	0.0%	0	0.0%	3	15.0%
Homeless	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Prison	0	0.0%	2	8.7%	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	1	8.3%	0	0.0%	0	0.0%

*Gender identity is not known for all diagnoses. The sex 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, 2018-2022

	2018		2019		2020		2021		2022		2018-2022		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	22	0.4	23	0.4	12	0.2	1	0.0	20	0.3	78	0.3	100.0%
Adams	0	0.0	0	0.0	1	0.2	0	0.0	1	0.2	2	0.1	2.6%
Alamosa	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Arapahoe	2	0.3	3	0.5	0	0.0	0	0.0	1	0.2	6	0.2	7.7%
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	0	0.0	0	0.0	1	0.3	1	0.3	3	0.2	3.8%
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	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Denver	7	1.0	8	1.1	7	1.0	0	0.0	5	0.7	27	0.8	34.6%
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	1	0.3	1	0.3	0	0.0	2	0.5	4	0.2	5.1%
Eagle	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	1.3%
El Paso	4	0.6	3	0.4	1	0.1	0	0.0	2	0.3	10	0.3	12.8%
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	0	0.0	0	0.0	1	0.4	1.3%
Garfield	0	0.0	1	1.7	0	0.0	0	0.0	0	0.0	1	0.3	1.3%
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	0	0.0	0	0.0	2	0.3	6	0.2	7.7%
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	1	1.8	1	0.4	1.3%
Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Larimer	1	0.3	1	0.3	1	0.3	0	0.0	0	0.0	3	0.2	3.8%
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	0.6	1	0.6	0	0.0	0	0.0	2	1.3	4	0.5	5.1%
Mineral	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Moffat	1	7.5	0	0.0	0	0.0	0	0.0	0	0.0	1	1.5	1.3%
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	0	0.0	0	0.0	0	0.0	1	2.3	1	0.5	1.3%
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	0	0.0	1	0.6	0	0.0	0	0.0	0	0.0	1	0.1	1.3%
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	0	0.0	0	0.0	0	0.0	1	0.3	2	0.1	2.6%
Yuma	0	0.0	0	0.0	0	0.0	0	0.0	1	10.0	1	2.0	1.3%
Prison	0	---	2	---	0	---	0	---	0	---	2	---	2.6%
Unknown	0	---	0	---	1	---	0	---	0	---	1	---	1.3%

Table 3.1: Reported chronic hepatitis B cases and rate per 100,000, 2013-2022

Measure	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cases	294	339	340	333	284	324	262	226	272	255
Rate	5.6	6.3	6.2	6.0	5.1	5.7	4.6	3.9	4.7	4.4

2013-2022 population estimates from the Colorado State Demography Office

Table 3.2: Demographics of new chronic hepatitis B cases, 2018-2022

	2018		2019		2020		2021		2022	
	N	%	N	%	N	%	N	%	N	%
Total	324	100.0%	262	100.0%	226	100.0%	272	100.0%	255	100.0%
Sex*										
Female	132	40.7%	103	39.3%	99	43.8%	120	44.1%	122	47.8%
Male	192	59.3%	159	60.7%	127	56.2%	150	55.1%	133	52.2%
Unknown	0	0.0%	0	0.0%	0	0.0%	2	0.7%	0	0.0%
Age Group										
0-19	12	3.7%	7	2.7%	2	0.9%	3	1.1%	3	1.2%
20-39	138	42.6%	118	45.0%	98	43.4%	109	40.1%	101	39.6%
40-59	125	38.6%	99	37.8%	83	36.7%	107	39.3%	97	38.0%
60-79	45	13.9%	35	13.4%	37	16.4%	52	19.1%	52	20.4%
80-99	4	1.2%	3	1.1%	6	2.7%	1	0.4%	2	0.8%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Race/Ethnicity										
NH, Asian/Pacific Islander	106	32.7%	58	22.1%	50	22.1%	57	21.0%	60	23.5%
NH, Black/African American	48	14.8%	35	13.4%	31	13.7%	25	9.2%	33	12.9%
Hispanic/Latino/a/x , all races	21	6.5%	17	6.5%	10	4.4%	13	4.8%	12	4.7%
NH, Indigenous/Native	1	0.3%	2	0.8%	1	0.4%	2	0.7%	2	0.8%

American										
NH, Multi Race	4	1.2%	4	1.5%	4	1.8%	5	1.8%	5	2.0%
NH White	57	17.6%	53	20.2%	33	14.6%	45	16.5%	38	14.9%
Unknown Race	87	26.9%	93	35.5%	97	42.9%	125	46.0%	105	41.2%
County Class**										
TGA	199	61.4%	149	56.9%	148	65.5%	183	67.3%	151	59.2%
Homeless	5	1.5%	3	1.1%	1	0.4%	1	0.4%	2	0.8%
Urban, non-TGA	87	26.9%	79	30.2%	59	26.1%	65	23.9%	83	32.5%
Homeless	0	0.0%	2	0.8%	0	0.0%	0	0.0%	0	0.0%
Rural	20	6.2%	15	5.7%	8	3.5%	18	6.6%	15	5.9%
Homeless	2	0.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Prison	18	5.6%	17	6.5%	3	1.3%	3	1.1%	4	1.6%
Unknown	0	0.0%	2	0.8%	8	3.5%	3	1.1%	2	0.8%

*Gender identity is not known for all diagnoses. The sex 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, 2018-2022

	2018		2019		2020		2021		2022		2018-2022		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	324	5.7	262	4.6	226	3.9	272	4.7	255	4.4	1,339	4.6	100.0%
Adams	27	5.3	23	4.5	17	3.3	34	6.5	30	5.7	131	5.0	9.8%
Alamosa	2	12.4	2	12.3	0	0.0	1	6.1	1	6.1	6	7.4	0.4%
Arapahoe	71	10.9	51	7.8	54	8.2	59	9.0	47	7.1	282	8.6	21.1%
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	1	28.7	0	0.0	1	5.7	0.1%
Bent	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Boulder	22	6.7	9	2.7	17	5.1	12	3.6	17	5.1	77	4.7	5.8%
Broomfield	5	7.0	4	5.5	4	5.4	10	13.3	0	0.0	23	6.2	1.7%
Chaffee	1	5.2	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0	0.1%

Cheyenne	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Clear Creek	1	10.7	0	0.0	0	0.0	0	0.0	0	0.0	1	2.1	0.1%
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	1	27.8	1	5.6	0.1%
Crowley	0	0.0	0	0.0	0	0.0	1	16.6	0	0.0	1	3.3	0.1%
Custer	0	0.0	1	21.5	0	0.0	0	0.0	0	0.0	1	4.3	0.1%
Delta	0	0.0	1	3.2	1	3.2	0	0.0	0	0.0	2	1.3	0.1%
Denver	58	8.3	34	4.8	50	7.0	50	7.0	39	5.4	231	6.5	17.3%
Dolores	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Douglas	16	4.7	19	5.4	11	3.1	13	3.5	12	3.2	71	4.0	5.3%
Eagle	0	0.0	1	1.8	0	0.0	2	3.6	1	1.8	4	1.4	0.3%
El Paso	34	4.7	38	5.2	23	3.1	27	3.7	33	4.4	155	4.2	11.6%
Elbert	0	0.0	0	0.0	0	0.0	0	0.0	1	3.6	1	0.7	0.1%
Fremont	0	0.0	0	0.0	1	2.0	1	2.0	2	4.0	4	1.6	0.3%
Garfield	1	1.7	2	3.3	1	1.6	2	3.2	0	0.0	6	2.0	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	1	6.3	0	0.0	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	22	3.8	18	3.1	12	2.1	17	2.9	23	4.0	92	3.2	6.9%
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	3	5.4	2	3.6	0	0.0	0	0.0	1	1.8	6	2.2	0.4%
Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Larimer	14	4.0	10	2.8	6	1.7	10	2.8	10	2.7	50	2.8	3.7%
Las Animas	1	6.8	0	0.0	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	0	0.0	0	0.0	1	4.6	1	4.7	0	0.0	2	1.9	0.1%
Mesa	3	1.9	4	2.6	1	0.6	3	1.9	5	3.2	16	2.0	1.2%
Mineral	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Moffat	1	7.5	0	0.0	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	1	3.8	1	0.8	0.1%
Montrose	1	2.4	0	0.0	0	0.0	1	2.3	0	0.0	2	0.9	0.1%
Morgan	3	10.4	1	3.4	1	3.4	0	0.0	4	13.7	9	6.2	0.7%
Otero	1	5.3	1	5.3	0	0.0	0	0.0	1	5.4	3	3.2	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	1	5.6	0	0.0	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	1	5.7	0	0.0	0	0.0	0	0.0	0	0.0	1	1.1	0.1%
Prowers	0	0.0	1	8.3	0	0.0	0	0.0	0	0.0	1	1.7	0.1%
Pueblo	4	2.4	7	4.2	2	1.2	6	3.5	1	0.6	20	2.4	1.5%
Rio Blanco	0	0.0	1	15.3	0	0.0	0	0.0	0	0.0	1	3.1	0.1%
Rio Grande	2	17.2	0	0.0	0	0.0	1	8.8	0	0.0	3	5.2	0.2%
Routt	2	8.2	1	4.1	0	0.0	0	0.0	1	4.0	4	3.3	0.3%
Saguache	0	0.0	0	0.0	1	15.7	1	15.4	0	0.0	2	6.2	0.1%
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	1	12.4	0	0.0	1	2.5	0.1%
Sedgwick	0	0.0	0	0.0	0	0.0	1	42.9	0	0.0	1	8.6	0.1%
Summit	0	0.0	0	0.0	2	6.5	1	3.2	0	0.0	3	1.9	0.2%
Teller	0	0.0	1	4.1	0	0.0	1	4.0	1	4.0	3	2.4	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	3.2	11	3.4	10	3.0	7	2.1	17	4.9	55	3.3	4.1%
Yuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prison	18	---	17	---	3	---	3	---	4	---	45	---	3.4%
Unknown	0	---	2	---	8	---	3	---	2	---	15	---	1.1%

Table 4.1: Reported acute hepatitis C cases and rate per 100,000, 2013-2022

Measure	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cases	23	32	39	35	44	47	51	9	6	26
Rate	0.4	0.6	0.7	0.6	0.8	0.8	0.9	0.2	0.1	0.4

2013-2022 population estimates from the Colorado State Demography Office

Table 4.2: Demographics of new acute hepatitis C cases, 2018-2022

	2018		2019		2020		2021		2022	
	N	%	N	%	N	%	N	%	N	%
Total	47	100.0%	51	100.0%	9	100.0%	6	100.0%	26	100.0%
Sex*										
Female	14	29.8%	16	31.4%	3	33.3%	0	0.0%	2	7.7%
Male	33	70.2%	35	68.6%	6	66.7%	5	83.3%	24	92.3%
Unknown	0	0.0%	0	0.0%	0	0.0%	1	16.7%	0	0.0%
Age Group										
0-19	0	0.0%	1	2.0%	0	0.0%	0	0.0%	0	0.0%
20-39	39	83.0%	31	60.8%	8	88.9%	2	33.3%	24	92.3%
40-59	7	14.9%	16	31.4%	1	11.1%	4	66.7%	2	7.7%
60-79	0	0.0%	3	5.9%	0	0.0%	0	0.0%	0	0.0%
80-99	1	2.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Race/Ethnicity										
NH, Asian/Pacific Islander	0	0.0%	1	2.0%	0	0.0%	0	0.0%	2	7.7%
NH, Black/African American	0	0.0%	3	5.9%	1	11.1%	0	0.0%	3	11.5%
Hispanic/Latino/a/x , all races	14	29.8%	11	21.6%	4	44.4%	3	50.0%	10	38.5%
NH, Indigenous/Native American	1	2.1%	1	2.0%	0	0.0%	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	30	63.8%	34	66.7%	4	44.4%	1	16.7%	11	42.3%
Unknown Race	2	4.3%	1	2.0%	0	0.0%	2	33.3%	0	0.0%
County Class										
TGA	21	44.7%	27	52.9%	4	44.4%	4	66.7%	1	3.8%
Homeless	3	6.4%	9	17.6%	1	11.1%	1	16.7%	0	0.0%
Urban, non-TGA	16	34.0%	14	27.5%	2	22.2%	0	0.0%	5	19.2%
Homeless	2	4.3%	3	5.9%	0	0.0%	0	0.0%	0	0.0%
Rural	5	10.6%	4	7.8%	0	0.0%	0	0.0%	0	0.0%
Homeless	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Prison	5	10.6%	6	11.8%	3	33.3%	2	33.3%	20	76.9%
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 sex 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, 2018-2022

	2018		2019		2020		2021		2022		2018-2022		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	47	0.8	51	0.9	9	0.2	6	0.1	26	0.4	139	0.5	100.0%
Adams	7	1.4	1	0.2	1	0.2	1	0.2	0	0.0	10	0.4	7.2%
Alamosa	0	0.0	1	6.2	0	0.0	0	0.0	0	0.0	1	1.2	0.7%
Arapahoe	2	0.3	3	0.5	0	0.0	1	0.2	0	0.0	6	0.2	4.3%
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	3	0.9	0	0.0	0	0.0	0	0.0	0	0.0	3	0.2	2.2%
Broomfield	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	1	0.3	0.7%
Chaffee	0	0.0	1	5.2	0	0.0	0	0.0	0	0.0	1	1.0	0.7%
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	8	1.1	19	2.7	3	0.4	2	0.3	0	0.0	32	0.9	23.0%
Dolores	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Douglas	2	0.6	2	0.6	0	0.0	0	0.0	0	0.0	4	0.2	2.9%
Eagle	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
El Paso	5	0.7	9	1.2	0	0.0	0	0.0	3	0.4	17	0.5	12.2%
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	0	0.0	0	0.0	1	0.4	0.7%
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	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	1	0.2	0	0.0	0	0.0	1	0.2	4	0.1	2.9%
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	2	3.6	0	0.0	0	0.0	0	0.0	0	0.0	2	0.7	1.4%
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	0	0.0	0	0.0	0	0.0	4	0.2	2.9%
Las Animas	1	6.8	0	0.0	0	0.0	0	0.0	0	0.0	1	1.4	0.7%
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	1.9	1	0.6	1	0.6	0	0.0	0	0.0	5	0.6	3.6%
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	0.7%
Montezuma	1	3.9	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8	0.7%
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	1	8.3	0	0.0	0	0.0	0	0.0	1	1.7	0.7%
Pueblo	1	0.6	3	1.8	0	0.0	0	0.0	0	0.0	4	0.5	2.9%
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	0	0.0	1	0.3	0	0.0	2	0.6	4	0.2	2.9%
Yuma	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0.0%
Prison	5	---	6	---	3	---	2	---	20	---	36	---	25.9%
Unknown	0	---	0	---	0	---	0	---	0	---	0	---	0.0%

Table 5.1: Reported chronic hepatitis C cases and rate per 100,000, 2013-2022

Measure	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Cases	2984	3665	3614	3003	2966	3130	2737	1940	1799	1988
Rate	56.6	68.5	66.4	54.3	53.0	55.1	47.7	33.5	30.9	33.9

2013-2022 population estimates from the Colorado State Demography Office

Table 5.2: Demographics of new chronic hepatitis C cases, 2018-2022

	2018		2019		2020		2021		2022	
	N	%	N	%	N	%	N	%	N	%
Total	3,130	100.0%	2,737	100.0%	1,940	100.0%	1,799	100.0%	1,988	100.0%
Sex*										
Female	961	30.7%	799	29.3%	557	28.7%	524	29.1%	546	27.5%
Male	2,168	69.3%	1,935	70.7%	1,377	71.0%	1,259	70.0%	1,420	71.4%
Unknown	1	0.0%	3	0.1%	6	0.3%	16	0.9%	22	1.1%
Age Group										
0-19	21	0.7%	13	0.5%	11	0.6%	12	0.7%	8	0.4%
20-39	1,402	44.8%	1,246	45.5%	896	46.2%	813	45.2%	874	44.0%
40-59	1,093	34.9%	942	34.4%	644	33.2%	556	30.9%	618	31.1%
60-79	595	19.0%	527	19.3%	375	19.3%	405	22.5%	477	24.0%
80-99	13	0.4%	7	0.3%	11	0.6%	10	0.6%	11	0.6%
Unknown	6	0.2%	2	0.1%	3	0.2%	3	0.2%	0	0.0%
Race/Ethnicity										
NH, Asian/Pacific Islander	23	0.7%	16	0.6%	12	0.6%	15	0.8%	19	1.0%
NH, Black/African American	116	3.7%	111	4.1%	71	3.7%	59	3.3%	54	2.7%
Hispanic/Latino/a/x , all races	431	13.8%	440	16.1%	277	14.3%	278	15.5%	325	16.3%

NH, Indigenous/ Native American	42	1.3%	29	1.1%	19	1.0%	24	1.3%	12	0.6%
NH, Multi Race	21	0.7%	10	0.4%	10	0.5%	10	0.6%	17	0.9%
NH White	1,442	46.1%	1,258	46.0%	876	45.2%	771	42.9%	800	40.2%
Unknown Race	1,055	33.7%	873	31.9%	675	34.8%	642	35.7%	761	38.3%
County Class										
TGA	1,061	33.9%	895	32.7%	698	36.0%	671	37.3%	663	33.4%
Homeless	176	5.6%	161	5.9%	117	6.0%	83	4.6%	62	3.1%
Urban, non-TGA	864	27.6%	736	26.9%	510	26.3%	432	24.0%	538	27.1%
Homeless	57	1.8%	46	1.7%	17	0.9%	11	0.6%	20	1.0%
Rural	356	11.4%	349	12.8%	241	12.4%	238	13.2%	217	10.9%
Homeless	12	0.4%	10	0.4%	6	0.3%	3	0.2%	2	0.1%
Prison	781	25.0%	699	25.5%	373	19.2%	338	18.8%	462	23.2%
Unknown	68	2.2%	58	2.1%	118	6.1%	120	6.7%	108	5.4%

*Gender identity is not known for all diagnoses. The sex 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 5.3: New chronic hepatitis C cases and rate per 100,000 by county, 2018-2022

	2018		2019		2020		2021		2022		2018-2022		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	%
Total	3,130	55.1	2,737	47.7	1,940	33.5	1,799	30.9	1,988	33.9	11,594	40.3	100.0%
Adams	153	29.9	160	31.0	109	21.0	109	20.9	117	22.2	648	25.0	5.6%
Alamosa	24	148.3	13	80.0	13	79.5	12	72.7	14	84.8	76	93.1	0.7%
Arapahoe	192	29.5	161	24.6	131	20.0	121	18.5	122	18.5	727	22.2	6.3%
Archuleta	10	76.7	9	68.2	10	74.5	4	29.0	5	36.0	38	56.9	0.3%
Baca	2	56.4	0	0.0	1	28.8	0	0.0	1	28.9	4	22.8	0.0%
Bent	13	217.4	8	133.8	6	106.7	3	52.4	7	123.0	37	126.7	0.3%
Boulder	88	26.8	72	21.9	48	14.5	39	11.8	54	16.3	301	18.3	2.6%
Broomfield	15	21.0	16	22.0	5	6.7	5	6.6	8	10.5	49	13.4	0.4%

Chaffee	17	88.3	11	56.7	2	10.2	2	10.0	5	24.7	37	38.0	0.3%
Cheyenne	0	0.0	0	0.0	0	0.0	0	0.0	1	58.9	1	11.8	0.0%
Clear Creek	4	42.6	3	31.9	4	42.6	5	52.9	3	31.7	19	40.3	0.2%
Conejos	3	39.2	7	92.7	5	67.1	7	92.3	2	26.9	24	63.6	0.2%
Costilla	3	85.4	5	142.8	1	28.5	3	82.9	3	83.4	15	84.6	0.1%
Crowley	0	0.0	1	17.1	4	67.8	2	33.2	3	50.2	10	33.7	0.1%
Custer	1	21.8	3	64.6	0	0.0	1	19.8	2	39.4	7	29.1	0.1%
Delta	19	61.2	18	57.6	16	51.2	19	60.0	11	34.7	83	52.9	0.7%
Denver	452	64.3	401	56.5	315	43.9	289	40.6	281	39.0	1,738	48.9	15.0%
Dolores	1	47.8	2	95.9	1	48.0	2	93.9	1	47.4	7	66.6	0.1%
Douglas	56	16.3	47	13.4	34	9.4	39	10.6	36	9.5	212	11.8	1.8%
Eagle	8	14.8	12	21.9	6	10.8	8	14.4	5	8.9	39	14.1	0.3%
El Paso	351	48.9	265	36.5	181	24.7	161	21.8	193	25.9	1,151	31.6	9.9%
Elbert	2	7.9	8	31.2	5	19.1	2	7.4	0	0.0	17	13.1	0.1%
Fremont	20	41.7	33	68.2	17	34.7	7	14.1	15	30.2	92	37.8	0.8%
Garfield	36	60.2	27	44.6	14	22.7	16	25.7	15	23.9	108	35.4	0.9%
Gilpin	1	17.5	1	17.4	4	68.7	2	34.0	1	16.8	9	30.9	0.1%
Grand	3	19.7	4	26.0	3	19.1	7	44.2	4	25.1	21	26.8	0.2%
Gunnison	6	36.0	4	23.6	4	23.6	2	11.6	3	17.1	19	22.4	0.2%
Hinsdale	1	125.2	0	0.0	0	0.0	0	0.0	0	0.0	1	25.0	0.0%
Huerfano	4	59.2	9	132.8	0	0.0	1	14.4	2	28.9	16	47.1	0.1%
Jackson	0	0.0	0	0.0	0	0.0	1	73.6	2	147.5	3	44.2	0.0%
Jefferson	193	33.3	110	18.9	104	17.8	108	18.6	99	17.0	614	21.1	5.3%
Kiowa	0	0.0	1	68.6	1	68.9	0	0.0	0	0.0	2	27.5	0.0%
Kit Carson	1	13.7	2	27.8	0	0.0	1	14.4	1	14.7	5	14.1	0.0%
La Plata	17	30.5	30	54.0	14	25.2	20	35.5	17	30.2	98	35.1	0.8%
Lake	3	40.9	2	26.5	4	54.0	1	13.5	0	0.0	10	27.0	0.1%
Larimer	129	36.8	106	29.7	79	22.0	62	17.1	63	17.3	439	24.6	3.8%
Las Animas	7	47.5	15	102.4	8	54.9	8	54.7	4	27.7	42	57.5	0.4%

Lincoln	2	35.6	4	70.9	2	35.4	1	17.6	0	0.0	9	31.9	0.1%
Logan	9	41.6	3	13.9	6	27.9	5	23.3	6	28.2	29	27.0	0.3%
Mesa	83	53.9	68	43.8	68	43.6	43	27.3	76	48.2	338	43.4	2.9%
Mineral	0	0.0	0	0.0	0	0.0	1	107.5	1	105.9	2	42.7	0.0%
Moffat	6	45.1	4	29.9	4	30.2	3	22.8	4	30.5	21	31.7	0.2%
Montezuma	21	82.0	17	66.1	16	61.8	10	38.1	11	42.0	75	58.0	0.6%
Montrose	21	49.9	21	49.4	15	35.0	22	51.0	15	34.6	94	44.0	0.8%
Morgan	9	31.1	7	24.0	0	0.0	4	13.8	5	17.2	25	17.2	0.2%
Otero	14	74.6	11	58.7	8	42.9	9	48.5	4	21.7	46	49.3	0.4%
Ouray	0	0.0	1	20.4	4	82.1	2	39.6	1	19.3	8	32.3	0.1%
Park	9	51.8	7	40.0	7	40.2	5	28.2	7	39.3	35	39.9	0.3%
Phillips	2	44.3	2	44.2	2	44.2	0	0.0	0	0.0	6	26.5	0.1%
Pitkin	2	11.3	4	23.0	0	0.0	1	5.8	2	11.7	9	10.4	0.1%
Prowers	5	41.8	5	41.6	8	66.7	4	33.4	3	25.1	25	41.7	0.2%
Pueblo	124	74.4	132	78.8	79	46.9	70	41.3	83	49.0	488	58.1	4.2%
Rio Blanco	0	0.0	2	30.6	4	61.3	5	77.4	1	15.6	12	37.0	0.1%
Rio Grande	16	137.4	6	51.7	2	17.3	3	26.3	8	70.8	35	60.7	0.3%
Routt	10	41.1	9	36.7	8	32.2	7	27.9	6	23.7	40	32.3	0.3%
Saguache	2	31.9	3	47.1	2	31.3	6	92.2	4	61.0	17	52.7	0.1%
San Juan	0	0.0	1	141.0	1	141.2	0	0.0	0	0.0	2	56.5	0.0%
San Miguel	2	24.5	2	24.6	1	12.4	1	12.4	2	24.9	8	19.8	0.1%
Sedgwick	2	83.3	0	0.0	0	0.0	0	0.0	1	43.3	3	25.3	0.0%
Summit	7	22.5	3	9.6	2	6.5	5	16.1	1	3.2	18	11.6	0.2%
Teller	10	40.8	7	28.4	6	24.3	3	12.0	6	24.0	32	25.9	0.3%
Washington	0	0.0	2	41.5	0	0.0	1	20.6	0	0.0	3	12.4	0.0%
Weld	89	28.4	93	28.9	55	16.6	57	16.8	69	20.0	363	22.1	3.1%
Yuma	1	10.0	0	0.0	0	0.0	4	40.2	2	20.0	7	14.1	0.1%
Prison	781	---	699	---	373	---	338	---	462	---	2,653	---	22.9%
Unknown	68	---	58	---	118	---	120	---	108	---	472	---	4.1%

Table 6.1: HCV Viral Clearance Cascade, 2019-2021*

	2019		2020		2021		2019-2021	
	N	%	N	%	N	%	N	%
People with a positive HCV RNA test**	2,736	100.0%	1,940	100.0%	1,799	100.0%	6,475	100.0%
Viral clearance***	996	36.4%	754	38.9%	611	34.0%	2,361	36.5%
Persistent infection/Reinfection^	19	0.7%	9	0.5%	7	0.4%	35	0.5%

*2019 was the first year negative HCV RNAs became reportable to CDPHE. **Defined as persons diagnosed with chronic hepatitis C virus through the year-end of corresponding year. ***Percentage of those with a negative viral load test reported to CDPHE after their positive viral load during the time period of January 1, 2019 through December 31, 2023. ^Percentage of total diagnoses that achieved viral clearance and had a subsequent positive viral load during the time period of January 1, 2019 through December 31, 2023.

Table 6.2: Coinfections with Hepatitis Diagnoses from 2018-2022*

Coinfections	Number of Cases, 2018-2022
Chronic HBV and Chronic HCV	30
Chronic HBV and HIV	38
Chronic HCV and HIV	168

*HIV diagnosis before 12/31/2022. HIV diagnoses include those previously diagnosed with HIV, concurrently diagnosed, or subsequently diagnosed with HIV as of 12/31/2022. All hepatitis diagnoses represented occurred 2018-2022. Those who had achieved viral clearance 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.

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.

Viral clearance is defined as having a negative test reported for confirmed chronic HCV.