NEW YORK STATE | Department of Health

New York State Department of Health

Hepatitis B and C

ANNUAL REPORT 2022

Surveillance, Prevention, Programs and Special Projects

Bureau of Hepatitis Health Care and Epidemiology, AIDS Institute

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BACKGROUND

Viral hepatitis refers to a viral infection that affects the liver. There are at least five different types of viral hepatitis (A-E). The most common types of viral hepatitis in the United States are hepatitis A, hepatitis B, and hepatitis C. These viruses can cause a short-term (acute) illness characterized by fever, nausea, abdominal pain, malaise, and jaundice; however, in some cases, these acute infections are mild or do not cause any symptoms.

Hepatitis A virus is usually spread when a person ingests fecal matter - even in microscopic amounts - from objects, food, or drinks contaminated by feces from an infected person. Hepatitis A infections do not become long-term (chronic).

In contrast, hepatitis B and hepatitis C are blood-borne pathogens which can cause lifelong, chronic infections without symptoms. Many people with chronic hepatitis B or hepatitis C do not know that they are infected. Eventually, chronic hepatitis B or hepatitis C infection can cause cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. Hepatitis B and hepatitis C are the leading causes of liver cancer and a common reason for liver transplantation in the United States.

Hepatitis B virus (HBV) is transmitted through contact with blood or body fluids from an infected person, most often through sexual contact; sharing drug injection equipment such as needles, syringes, or other works; sharing razors or medical equipment such as glucometers; or from an infected person to their infant during birth (perinatal transmission). Transmission can also occur through close contact with an infected person (e.g., household contact) or when health care infection control is inadequate. The risk for a hepatitis B infection becoming chronic becomes lower with age: approximately 90% of infants infected at birth, 25-50% of children infected at age 1-5, and 5% of persons infected as adults will become chronically infected. Infants born to people with HBV can be given prophylactic treatment at birth to prevent infection, and the Centers for Disease Control and Prevention (CDC) recommends vaccination of all infants at birth and anyone else at risk who had not already been vaccinated. Most adults are infected through sex with an infected person. People with chronic hepatitis B can be treated with medications that cause viral suppression and reduce liver damage but typically need to take medication for life.

Hepatitis C virus (HCV) is transmitted most often through contact with blood from an infected person, such as through sharing drug injection equipment, including needles, syringes, or other works; sharing equipment used to snort drugs; needlestick injuries involving blood; receiving blood transfusions or blood products prior to the availability of blood supply screening in 1992; and inadequate infection control in health care settings. Less often, HCV can be transmitted through sexual contact or during birth from an infected person to the infant. Perinatal transmission occurs in approximately 6-12% of hepatitis C infected persons that are pregnant. The best way to prevent infection is to avoid behaviors that can spread the disease such as sharing injection drug use (IDU) equipment. About 75-85% of newly infected people do not spontaneously clear HCV from their body and develop chronic infection. People with hepatitis C can be treated with medications that can cure >90% of people after 8-12 weeks of therapy.

TECHNICAL NOTES

Reporting of communicable diseases is mandated under the NYS Sanitary Code (10NYCRR 2.10). The New York State Department of Health (NYSDOH) requires health care providers, laboratories, and others to report suspected or confirmed cases of communicable disease, including viral hepatitis, to the local health department (LHD) where the patient resides. The LHDs conduct investigations and, for the 57 counties located outside of NYC, report case data to the NYSDOH via the Communicable Disease Electronic Surveillance System (CDESS). A large majority of investigations are triggered by receipt of clinical laboratory reports, which are electronically transmitted from laboratories to the NYSDOH through the Electronic Clinical Laboratory Reporting System (ECLRS). Laboratories report all positive markers of viral hepatitis infection to ECLRS. Since 2016, negative tests for HCV RNA are also reportable. Laboratories are also asked to report other negative hepatitis results or the results of liver enzyme assays (e.g., alanine aminotransferase (ALT)). In addition to patient name and date of birth, laboratories often report additional demographic information such as sex or race.

Case investigation involves case ascertainment, case classification, and the collection, when available, of demographic, clinical, and exposure or risk factor information.

Case Definitions, Ascertainment, and Classification

Case ascertainment and classification are made according to the current CDC/Council of State and Territorial Epidemiologists (CSTE) case definitions using available laboratory testing results and clinical symptoms. Cases of acute hepatitis B, chronic hepatitis B, perinatal hepatitis B, acute hepatitis C, chronic hepatitis C, and perinatal hepatitis C, are recorded in CDESS. Cases that meet the definition for a confirmed or probable case are summarized in this report.

Case definitions change from time to time. The case definitions in effect during 2022 were:

Acute hepatitis B	https://ndc.services.cdc.gov/case-definitions/hepatitis-b-acute-2012
Chronic hepatitis B	https://ndc.services.cdc.gov/case-definitions/hepatitis-b-chronic-2012
Perinatal hepatitis B	https://ndc.services.cdc.gov/case-definitions/hepatitis-b-perinatal-virus-infection-2017/
Acute hepatitis C	https://ndc.services.cdc.gov/case-definitions/hepatitis-c-acute-2020/
Chronic hepatitis C	https://ndc.services.cdc.gov/case-definitions/hepatitis-c-chronic-2020
Perinatal hepatitis C	https://ndc.services.cdc.gov/case-definitions/hepatitis-c-perinatal-infection-2018

Ascertainment of acute cases of hepatitis B follow the 2012 surveillance case definition and depend on 1) symptoms consistent with viral hepatitis along with either jaundice or an elevated ALT value, or 2) the documented conversion of a viral hepatitis test from negative to positive within a specified time frame. Chronic cases include any case that does not meet the definition for an acute case or for which symptoms or prior test results are unavailable.

Under case definitions utilized in 2022, ascertainment of acute cases of hepatitis C depends on 1) the presence of jaundice, peak elevated total bilirubin levels ≥ 3.0 mg/dL, or peak elevated serum ALT levels >200 IU/L, or 2) the documented conversion of a viral hepatitis test from negative to positive within a specified time frame. Chronic cases include any case that does not meet the definition for an acute case or for which symptoms or prior test results are unavailable. Perinatal cases must have a positive RNA or genotype test between 2 and 36 months; an epidemiologic linkage to a birth mother with hepatitis C infection, if known; and not be known to be due to a healthcare exposure.

Note that changes in standardized case definitions result in counting cases differently and can profoundly impact the number of cases reported in each year. The new 2020 case definitions for acute and chronic hepatitis C were meant to improve identification of acute hepatitis C cases. Case definitions for 2016 were substantially different from the previous case definition. Consequently, comparing counts or rates of hepatitis C cases reported during 2016-2019 and 2020-2022 to those reported during 2015 and earlier years should be done with caution.

Variable Definitions

Case Year: Cases are recorded in the year during which the case was first reported, typically the year during which the first positive laboratory test for the patient was electronically reported to NYSDOH.

Sex at birth, Gender identity, and Sexual Orientation: Sex at birth is defined as male, female, or unknown/missing. Sex at birth, obtained from the laboratory report is known for >99% of cases. Surveillance data collection forms allow for the collection of gender identity for cases of hepatitis C and sexual orientation for acute cases of hepatitis B and C during patient or provider interviews conducted during case investigations. However, due to the high volume of reporting, case investigations of chronic hepatitis are often not feasible. Therefore, data on gender identity and sexual orientation is very limited, available for <5% of cases.

Race and Ethnicity: For surveillance data, race and ethnicity are recorded separately. For this report, races are white, black, Asian/Pacific Islander, American Indian/Alaska Native, and other -race not specified, or unknown/missing. Ethnicities are Hispanic, non-Hispanic, and unknown/missing. Race and ethnicity are not required variables for laboratory reporting, and health care provider reporting of race and ethnicity is incomplete. A large percentage of cases, particularly chronic cases, are missing this information, and caution should be used when evaluating race and ethnicity patterns.

Case county: The case county is typically the county in which the patient resided at the time the case was first reported. Cases identified among persons incarcerated upon intake screening at NYS Department of Corrections and Community Supervision (DOCCS) facilities are assigned to the county where the intake facility is located rather than the county where the patient resided prior to incarceration. To avoid overrepresenting cases in counties and regions with DOCCS intake facilities, cases among persons incarcerated in DOCCS are excluded from county and region-level data. However, persons incarcerated at county jails are included in these geographic summaries.

Region: Program areas within NYSDOH define regions of the state differently. The regions presented here are grouped by Ryan White HIV/AIDS Program service areas. There are four Communicable Disease Surveillance Regions: Western, Central, Capital, and Metropolitan. Ryan White regions further subdivide the Western region into Western/Buffalo and Finger Lakes/Rochester regions, Central NY into Central/Syracuse and NY Penn/Binghamton regions, and the Metropolitan region into Lower Hudson Valley, Mid-Hudson Valley, and Nassau/Suffolk regions.

Crude Case Rates: 2020 Population census counts are used as denominators for overall case rates per 100,000 and rates by geographic area, age, sex for the years 2012-2022.[1]

Risk Factor Information

Risk factor information is collected by LHDs during case investigation when available. Methods of data collection vary including a standard one-page survey of the patient's health care provider, phone interview with the health care provider, medical record review, review of records in the NYS Immunization Information System (NYSIIS), patient interview, or proxy interview. Therefore, surveillance data quality is affected by, for example, a provider's incomplete knowledge of the patient's risks, transposition errors, misinterpretation of the question, intentionally misleading answers, recall bias, uncertain timelines, and other forms of inaccuracies.

Risk factor data are often incomplete, particularly for chronic cases. Depending on disease and risk factor, the proportion of cases with unknown or missing information can be >80%. For these reasons, caution should be taken when interpreting risk information.

For acute cases, except where noted, risk factors and exposures are determined for the 6-month period before illness onset or test conversion. For chronic cases, lifetime risk is assessed.

1 CC-EST2021-ALLDATA-[ST-FIPS]: Annual County Resident Population Estimates by Age, Sex, Race, and Hispanic Origin: April 1, 2020 to July 1, 2021
File: 7/1/2021 County Characteristics Resident Population Estimates Source: U.S. Census Bureau, Population Division.
Release Date: June 2022.

About the Data in this Report

This report contains information about hepatitis B and hepatitis C gathered by the NYSDOH. Information about residents of NYC is excluded except where noted. NYC data are available from the NYC Department of Health and Mental Hygiene (DOHMH).

The surveillance data summarize confirmed and probable cases of acute hepatitis B, chronic hepatitis B, perinatal hepatitis B, acute hepatitis C, chronic hepatitis C, and perinatal hepatitis C in NYS (excluding NYC) reported during 2022. Trend data are also presented for cases reported during 2012 through 2022. Surveillance data for hepatitis B and hepatitis C are current as of May 2023. All surveillance data should be considered preliminary and subject to change. During 2022, the Bureau of Hepatitis Health Care and Epidemiology conducted intense data quality activities to increase the accuracy of case ascertainment utilizing all information available in NYSDOH electronic surveillance systems (ECLRS and CDESS). This resulted in both an overall decrease in the counts of newly reported hepatitis C cases, as well as a reclassification of acute and chronic cases between 2020-2021, compared to case counts reported in prior published Hepatitis Annual Reports.

Case data reflect only newly reported cases and are not intended to represent disease incidence (all new infections) nor prevalence (all persons currently infected). Data from sources other than surveillance are described in the sections in which they are presented.

This report was developed by the NYSDOH AIDS Institute, Bureau of Hepatitis Health Care and Epidemiology. For questions about this report, email NYSDOH at HepBC.Surveillance@health.ny.gov.

Hepatitis B Surveillance

- In 2022, 1,984 cases of hepatitis B were newly reported to the NYSDOH. In 2022, there was a 21% decrease in newly reported acute hepatitis B cases (19 cases), compared to 2021; and a 11% increase in chronic hepatitis B cases (1,965 cases) compared to 2021 chronic hepatitis B cases. There were no new perinatal hepatitis B cases reported in 2022. In 2022, the case rate was 17.4/100,000.

- The highest rates of newly reported cases of hepatitis B were among males[1] (19.3/100,000 cases) and persons aged 40 – 44 (36.6/100,000 cases).

- Forty-seven percent of females cases were of reproductive age (aged 15-44).

- Among cases with known race, 35% were among people reported as Asian/Pacific Islander. Among cases with known ethnicity, 85% were among people reported as non-Hispanic.

- In 2022, Nassau and Suffolk counties had the highest number of newly reported cases of hepatitis B, with 549 and 247 cases respectively. Westchester, Erie, Monroe, and Albany counties also reported a high number of cases 224, 197, 91 and 75 respectively. In 2022, Nassau and Chautauqua counties recorded the highest case rates per 100,000 population. Nassau had a rate of 39.4 per 100,000 pop. while Chautauqua had a rate of 36.1. Albany, Westchester, and Erie counties also had high case rates 23.9, 22.3, and 20.7 per 100,000 pop.

- For both newly reported cases of acute and chronic hepatitis B, the most commonly reported risk factor was the lack of hepatitis B vaccination. Thirty-two percent of all newly reported acute cases of hepatitis B had no history of hepatitis B vaccination, and 10% of all newly reported chronic cases of hepatitis B had no history of vaccination. It is important to note that risk factor information is missing in approximately 78% of all cases due to the high volume of new reports and limited resources available for case investigation.

[1] Sex data represents sex at birth. Gender identity is not presented on this data report. See *Variable Definitions* on page 5.

- In the 57 counties outside NYC, NYSDOH implements a Perinatal Hepatitis B Prevention Program (PHBPP) consistent with CDC guidance and NYSDOH laws and regulations.
- The PHBPP enrolled 232 infants in 2021. Nearly all infants (97%) received timely post-exposure prophylaxis; 96% completed the hepatitis B vaccine series by 12 months of age, and 82% completed post-vaccination serologic testing by December 31, 2022.
- The 2022 hepatitis B vaccine birth dose rate for NYS hospitals (outside of NYC) was 84%. Rates, since 2012, are posted on Health Data NY.

- During 2022, 3,374 cases of hepatitis C were reported to the NYSDOH, including 4 perinatal, 257 acute, and 3,113 newly reported chronic cases. Chronic cases accounted for 92% of all newly reported cases, and acute cases for 8%. Perinatal reports accounted for less than 1% of all reports. Newly reported chronic cases decreased by 15% while newly reported acute cases, which represent a recent infection, decreased by 9% compared to 2021. The case rate in 2022 was 29.6/100,000.

- Case rates were highest in males [1] (37.5/100,000) and in persons 30-34 years of age (78.0/100,000).

- Although historically, the highest proportion of newly reported cases used to be among Baby Boomers (persons born between 1945-1965) in 2022, Baby Boomers represent only 26% of all newly reported cases while cases reported in persons under the age of 40 represent nearly twice as many (47%).

- When race and ethnicity were reported, a larger proportion of individuals with hepatitis C aged < 40 were White then among those aged 40 years and older.

- Sixty percent of females cases were of reproductive age (aged 15-44).

- In 2022, highest number of reported cases were in Suffolk and Erie counties, with 307 and 282 cases respectively. Nassau, Onondaga, Monroe, and Westchester also reported high numbers of cases: 207, 188, 177, 165, respectively. The highest rates per 100,000 population were in Sullivan and Chautauqua counties, with 72.5 and 65.1 per 100,000 population. Cayuga, Chemung, Chenango, Broome, Delaware, Schoharie, Clinton, Oneida, St. Lawrence, and Greene had case rates per 100,000 population that exceeded 50.0 per 100,00 population.

- The most commonly reported risk factors among both acute and chronic hepatitis C cases in 2022 were injection and non-injection drug use. Other common risk factors included having a history of incarceration and having close contact with a person with hepatitis C.

- Trends in case counts and rates across years should be interpreted with caution for several reasons. In 2014, the NYS Hepatitis C Testing Law was implemented resulting in an increase in testing and case reporting, especially in Baby Boomers. The surveillance case definitions for acute and chronic hepatitis C were modified in 2016 and 2020. Therefore, caution should be exercised when comparing numbers of cases of hepatitis C reported from 2012-2015 to 2016-2019.

[1] Sex data represents sex at birth. Gender identity is not presented on this data report. See Variable Definitions on page 5.

- In 2022, 27 agencies across the state participated in the NYS Hepatitis C Testing Program. These agencies tested 2,147 high-risk clients and identified 657 with reactive hepatitis C antibody tests who either received or were referred for follow-up hepatitis C virus (HCV) ribonucleic acid (RNA) testing. The antibody reactivity rate was 30.6%.

- The NYS Hepatitis C Patient Navigation program provides funding to seven Drug User Health Hubs in upstate NY, to increase the number of HCV-infected persons who inject drugs who are successfully linked to medical care and treated for HCV. Between November 2018 and October 2021, the initiative enrolled 806 patients, 86% of whom received an HCV RNA test, which is required to confirm or rule out a diagnosis of HCV. Of the clients enrolled, diagnosed with HCV, and linked to care, 82% initiated treatment.

- The NYS Hepatitis C Care and Treatment Initiative funds 11 primary care-based integrated models of HCV care and treatment within Article 28 health care facilities. Between June 2021 and May 2022, a total of 995 patients were enrolled in the initiative. Eighty-five percent of patients who were linked to care, initiated treatment, and 99% of those who completed treatment and were assessed for a sustained virologic response (SVR) were found to be cured.

- The NYS Innovative Models Initiative supports HCV care and treatment models that address the needs and barriers that people who inject drugs who are diagnosed with HCV face when accessing HCV services in traditional health care settings. From July 2019 through June 2022, three agencies, each with a different model, enrolled 244 patients in the initiative. Eighty-four percent of enrolled patients were linked to care, 83% of whom initiated treatment, and 95% of those who completed treatment and were assessed for a sustained virologic response (SVR) were found to be cured.

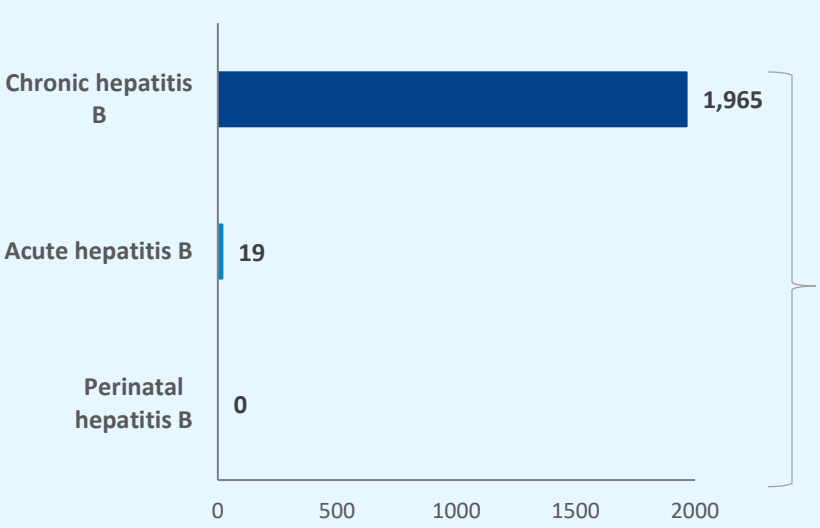
Hepatitis B Surveillance and Program Data

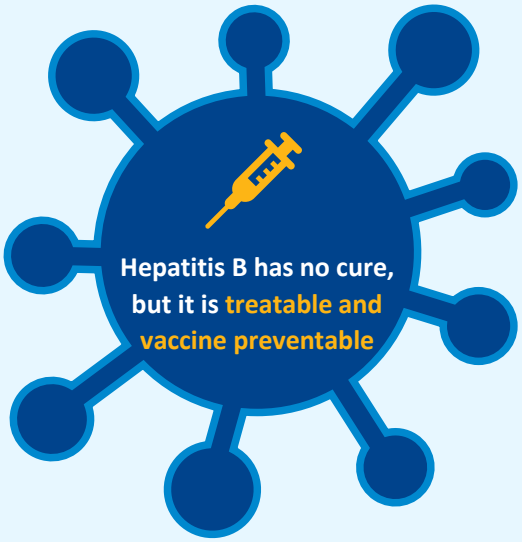
Infographic 1: Hepatitis B, Newly Reported Cases, NYS (excl. NYC), 2022

1,984
Newly reported cases of hepatitis B

cases per 100,000 pop.
17.4

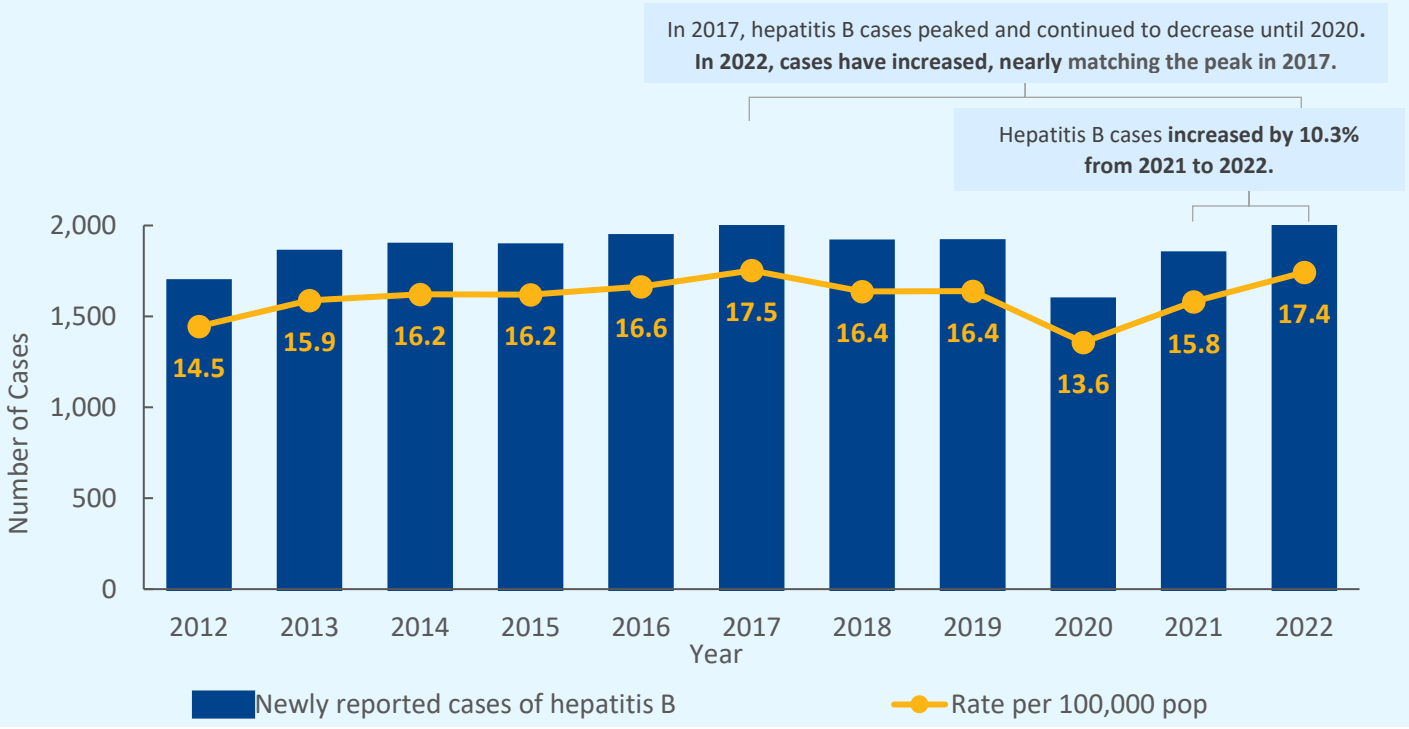
Figure 1.1: Newly Reported Acute, Chronic, and Perinatal Hepatitis B Cases, NYS (excl. NYC), 2022





Chronic hepatitis B represents individuals who were likely infected at least 6 months before initial report. **Acute hepatitis B** indicates more recent infection, with individuals presenting gastrointestinal symptoms and jaundice. **Perinatal hepatitis B** is classified as infants < 2 years old infected following birth from a person living with hepatitis B.

Figure 1.2: Newly Reported Hepatitis B Cases by Year, NYS (excl. NYC), 2012-2022



Notes. See Variable Definitions on page 5 and About Data on page 6 in this report. Rates per 100,000 are based on 2020 US Census Data. See Tables 1.1, 1.3 in the Data Appendix for additional information.

Infographic 2: Hepatitis B, Newly Reported Cases, by Sex and Age, NYS (excl. NYC), 2022

In 2022:

Newly Reported Cases in Males per 100,000 pop.:

19.3

Newly Reported Cases in Females per 100,000 pop.:

15.5

Figure 2.1: Number of Newly Reported Hepatitis B Cases by Sex and Year, NYS (excl. NYC), 2012-2022

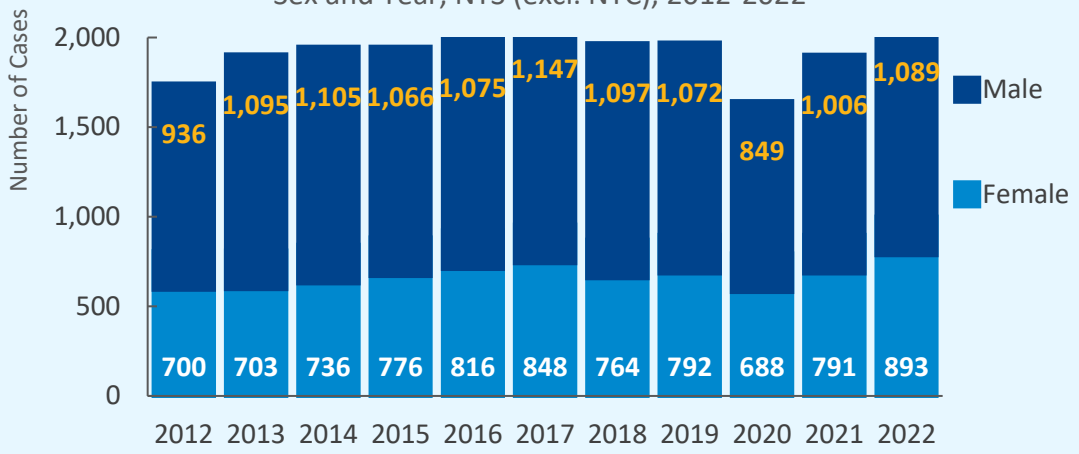
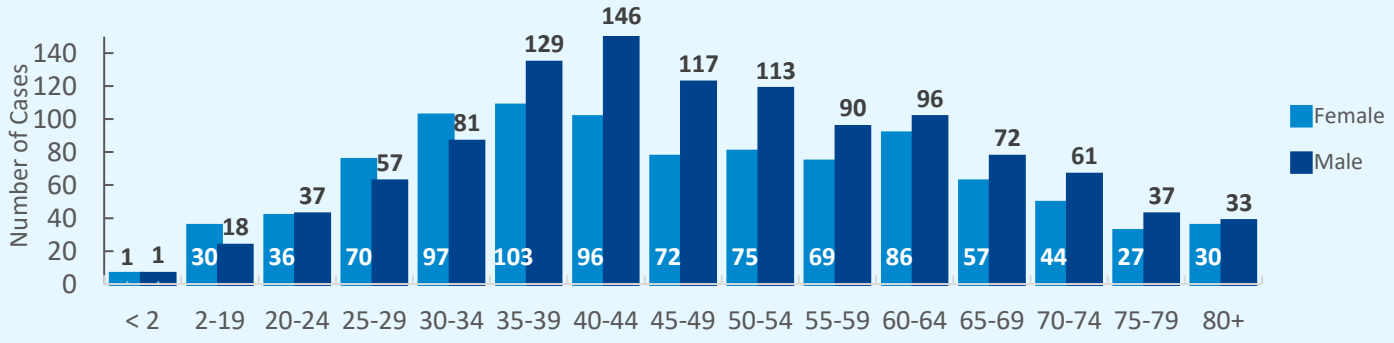
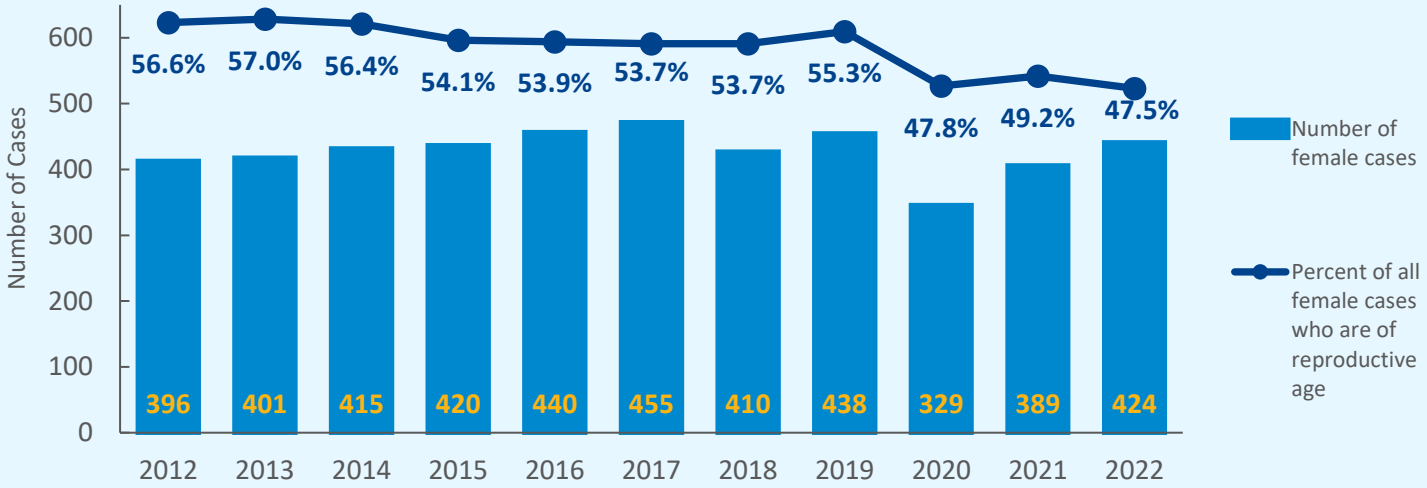


Figure 2.2: Newly Reported Hepatitis B Cases by Sex and Age Group, NYS (excl. NYC), 2022



In 2022, **55% of all reported hepatitis B cases were male and 68% of hepatitis B cases were among individuals 40 years and older.**

Figure 2.3: Newly Reported Cases of Hepatitis B Among Females and Percent Aged 15-44, NYS (excl. NYC), 2012- 2022

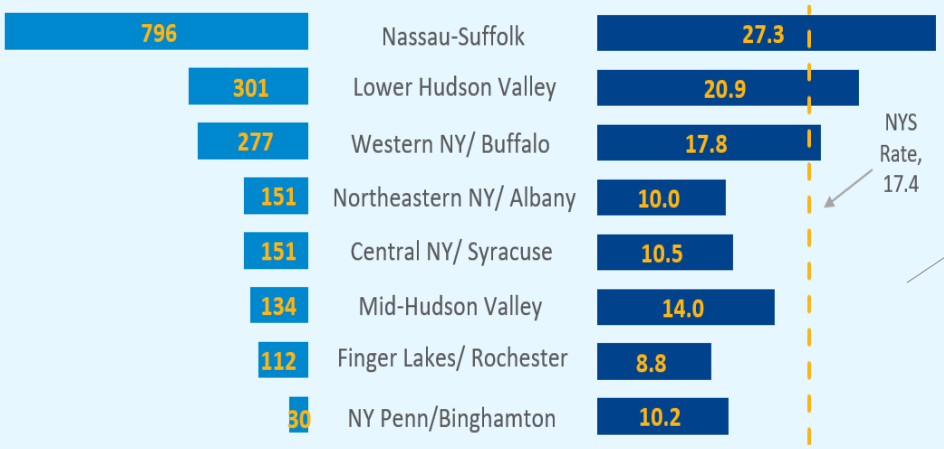


Although the number of newly reported hepatitis B cases among females has increased by approximately 29% since 2020, **the percentage of females who are of reproductive age (e.g., between the ages of 15 and 44) has declined since 2019.**

Notes. Sex data represents sex at birth. Gender identity is not presented in the infographics of this data report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. See Tables 1.1, 1.2, 1.4 in the Data Appendix for additional information.

Infographic 3: Hepatitis B, Newly Reported Cases and Rates, by Region and Year, NYS (excl. NYC), 2022

Figure 3.1: Newly Reported Hepatitis B **Cases** and **Rates** per 100,000 pop. by NYS Region (excl. NYC), 2022



Nassau-Suffolk (796), Lower Hudson Valley (301), and Western NY/Buffalo (277) had the highest number of reported cases of hepatitis B in 2022.

Figure 3.2: Newly Reported Hepatitis B Cases, Rate per 100,000 pop., by Region, NYS (excl. NYC), 2022

In 2022, Nassau-Suffolk (27.3), Lower Hudson Valley (20.9), and Western NY/ Buffalo (17.8) had the highest case rates per 100,000 population.

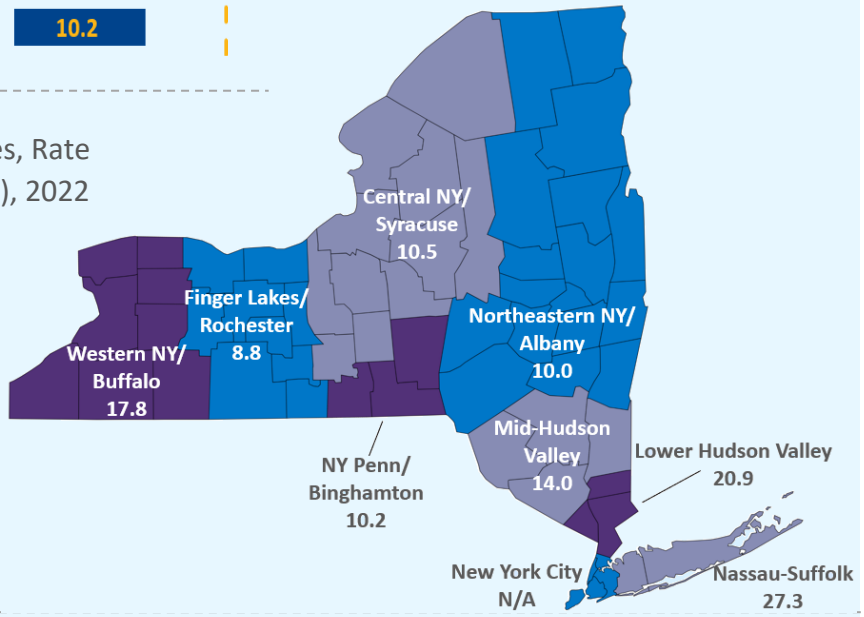
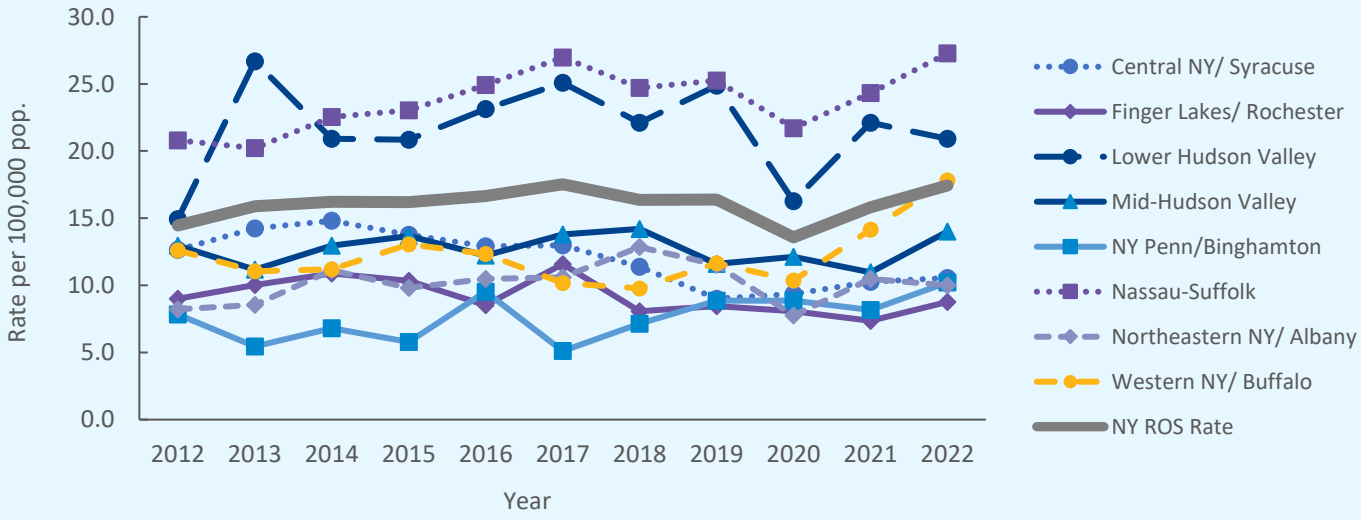


Figure 3.3: Newly Reported Hepatitis B Cases, Rate per 100,000 pop. by NYS Region (excl. NYC), 2012-2022

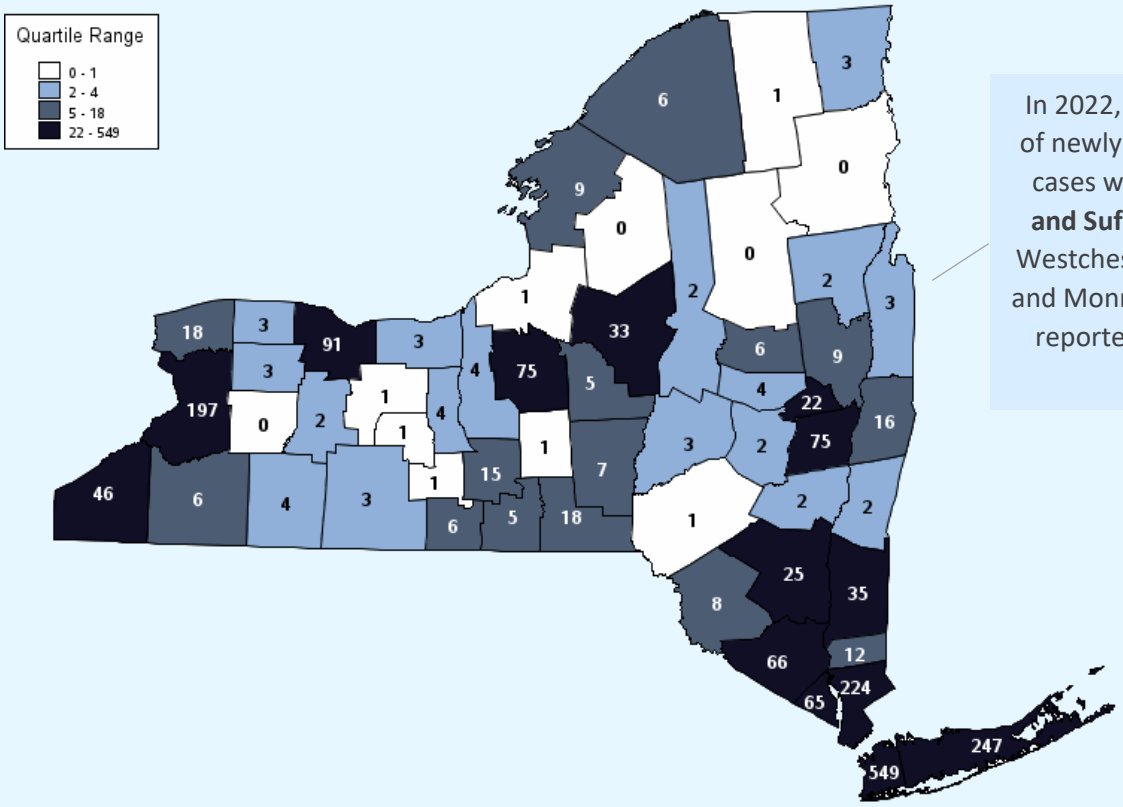


Since 2012, Nassau-Suffolk and Lower Hudson Valley regions have consistently had the highest case rates of newly reported hepatitis B. **Rates in most regions have remained relatively stable since 2021, with the exception of rates in Western NY/Buffalo, which increased by 53.4% since 2019 (from 11.6 to 17.8 cases per 100,000 pop.)**

Notes. Regional case counts and rates exclude cases in persons incarcerated in Department of Corrections and Community Supervision (DOCCS). NYS ROS represents New York State, excluding New York City (NYC). See Table 1.5 in the Data Appendix for additional information.

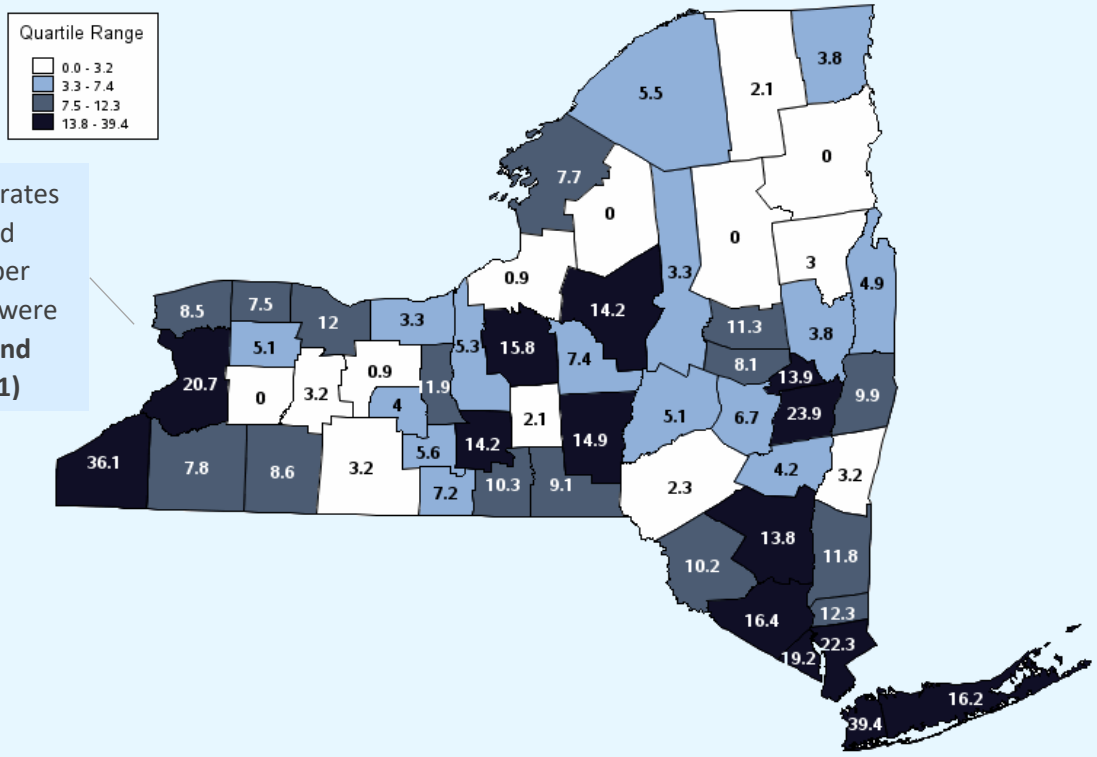
Infographic 4: Hepatitis B, Newly Reported Cases by County, NYS (excl. NYC), 2022

Figure 4.1: Newly Reported Hepatitis B Cases by County, NYS (excl. NYC), 2022



In 2022, the highest number of newly reported hepatitis B cases were in **Nassau (549) and Suffolk (247) counties.** Westchester (224), Erie (197), and Monroe (91) counties also reported a high number of cases.

Figure 4.2: Newly Reported Hepatitis B Case Rates per 100,000 pop., NYS (excl. NYC), 2022

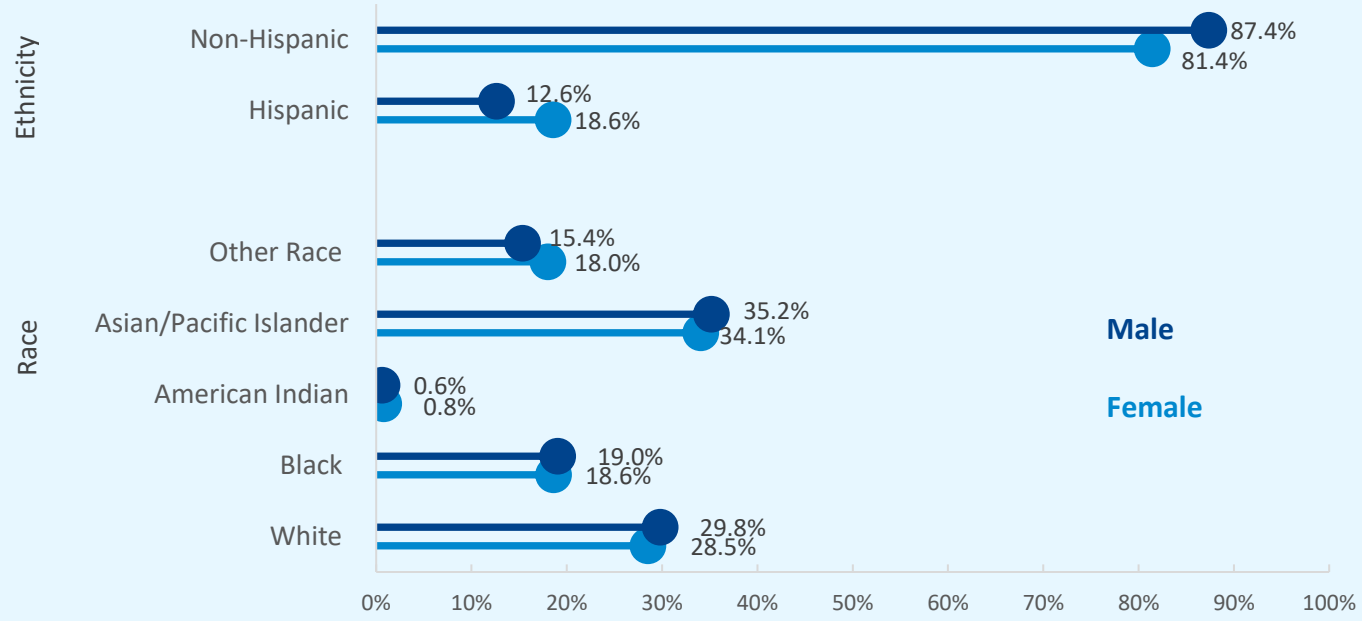


In 2022, the highest rates of newly reported hepatitis B cases per 100,000 population were in **Nassau (39.4) and Chautauqua (36.1)**

Notes. Regional case counts and rates at the county level exclude cases in persons incarcerated in the Department of Corrections and Community Supervision (DOCCS). Case rates per 100,000 pop. are calculated based on 2020 US Census data. See About Data on page 6 in this report. See Table 1.6 in the Data Appendix for additional information.

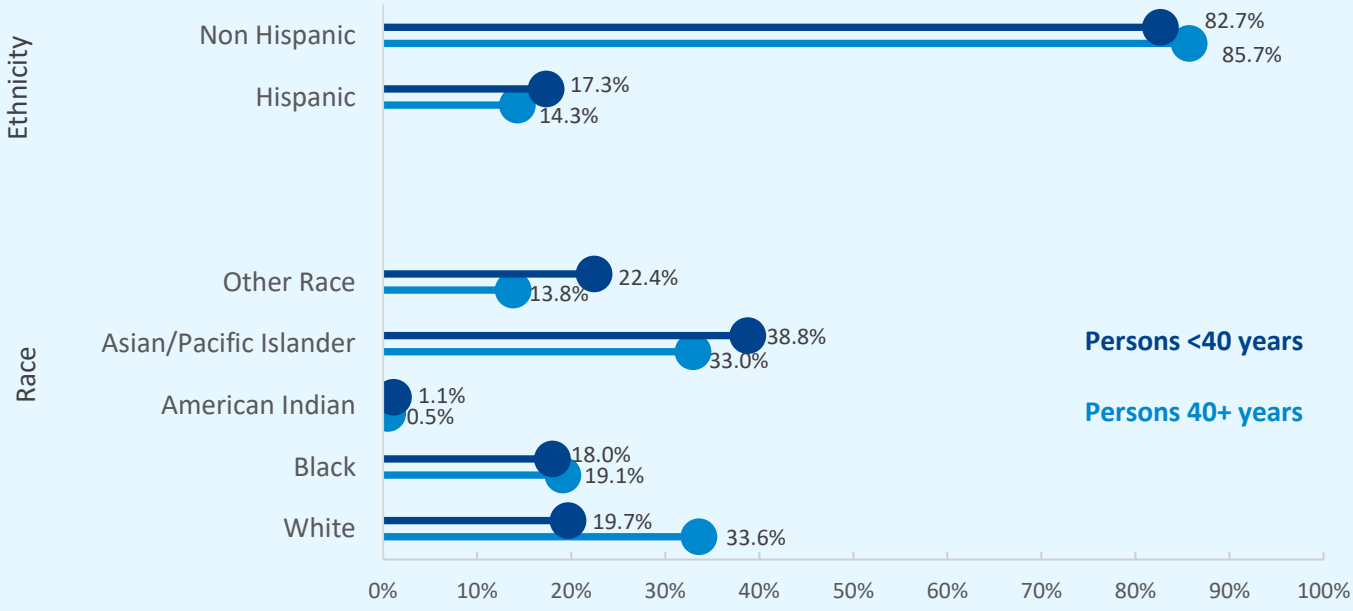
Infographic 5: Hepatitis B, Newly Reported Cases by Race, Ethnicity, and by Sex, NYS (excl. NYC), 2022

Figure 5.1: Newly Reported Hepatitis B Cases by Sex, Race, and Ethnicity, NYS (excl. NYC), 2022, Excluding Cases with Unknown Race and Ethnicity



Where race and ethnicity were reported, **the highest percentage of newly reported cases of hepatitis B were among Asian/Pacific Islanders and those with non-Hispanic ethnicity for both males and females.**

Figure 5.2: Newly Reported Hepatitis B by Age, Race, and Ethnicity, NYS (excl. NYC), Excluding Cases with Unknown Race and Ethnicity, 2022



The percentage of newly reported cases of hepatitis B **that are white are substantially higher for people aged 40+ years than for those under 40 years of age.**

Note. Race data is missing for 41.7% of all hepatitis B cases, 43.4% among females, 40.2% among males, 45.3% among persons <40 years of age, and 39.9% for persons 40 years and older. Ethnicity is missing for 73.3% of all hepatitis B cases, 73.5% among females, 73.1% among males, 73.8% among persons <40 years of age, and 73.0% among persons 40 years and older. Sex data represents sex at birth. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. See Tables 1.7, 1.8 in the Data Appendix for additional information

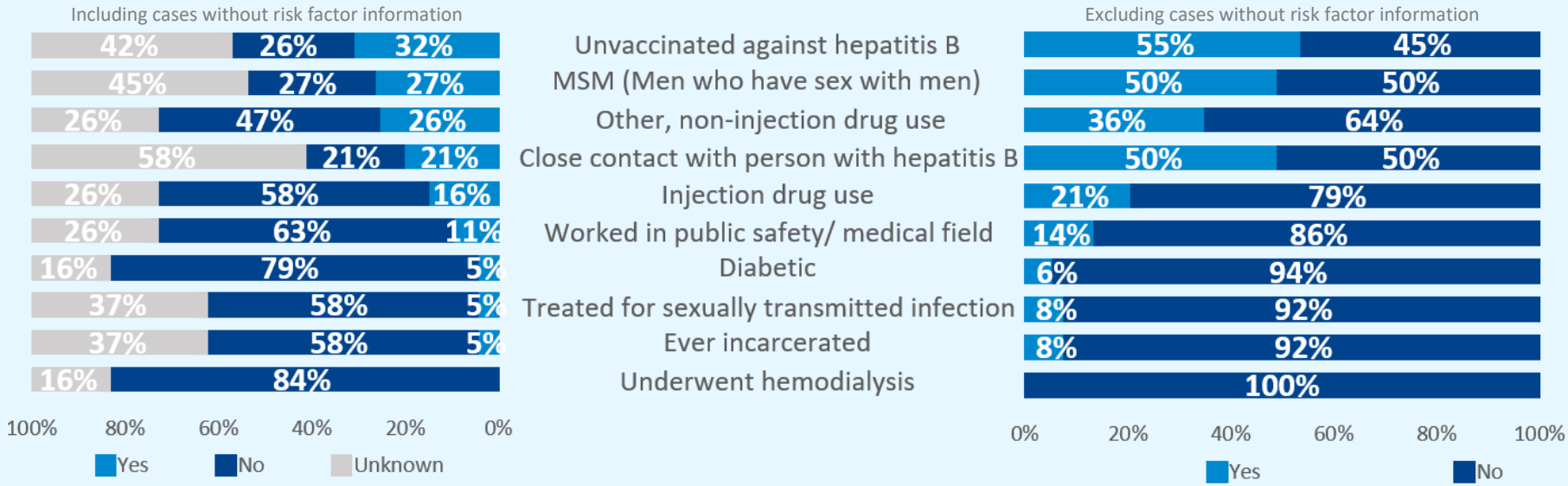
Infographic 6: Hepatitis B, Newly Reported Acute Cases, Risk Factors, NYS (excl. NYC), 2022

In 2022, **32% of newly reported acute hepatitis B cases had no known history of hepatitis B vaccination.** When analyzing only cases with known risk factors, 55% of newly reported acute cases had no known history of hepatitis B vaccination.

In 2022, **27% of newly reported acute hepatitis B cases in males were among men who have sex with men (MSM).** When analyzing only cases with known risk factors, 50% of newly reported acute cases in males were among men who have sex with men.

In 2022, **26% of newly reported acute hepatitis B cases indicated other, non-injection drug use as a risk factor.** When analyzing cases with known risk factors, 36% of newly reported acute cases indicated other, non-injection drug use.

Figure 6.1: Newly Reported Acute Hepatitis B Cases, Risk Factor Information, NYS (excl. NYC), 2022



Note. Risk factor information is missing for 32.4% of newly reported acute cases. Categories are not mutually exclusive. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. For acute hepatitis B cases, risk factor information is collected for the individual's exposure window period. See Table 1.9 in the Data Appendix for additional information.

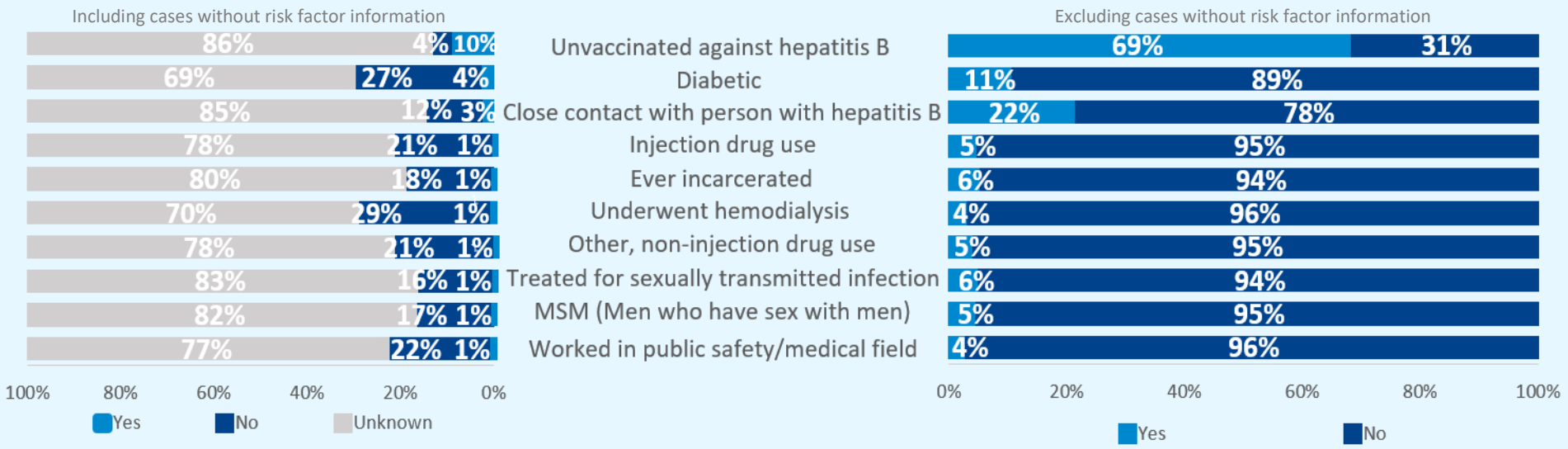
Infographic 7: Hepatitis B, Newly Reported Chronic Cases, Risk Factors, NYS (excl. NYC), 2022

In 2022, **10% of newly reported chronic hepatitis B cases had no known history of hepatitis B vaccination.** When analyzing only cases with known risk factors, 69% of newly reported chronic cases had no known history of hepatitis B vaccination.

In 2022, **4% of newly reported chronic hepatitis B cases had a known history of diabetes.** When analyzing only cases with known risk factors, 11% of newly reported chronic cases were among cases with a known history of diabetes.

In 2022, **3% of newly reported chronic hepatitis B cases had close contact with a person diagnosed with hepatitis B.** When analyzing only cases with known risk factors, 22% of newly reported chronic cases had close contact with a person diagnosed with hepatitis B.

Figure 7.1: Newly Reported Chronic Hepatitis B Cases, Risk Factor Information, NYS (excl. NYC), 2022



Note. Risk factor information is missing for 78.6% of newly reported chronic cases. Categories are not mutually exclusive. See *About Data* on page 6 in this report. For chronic hepatitis B cases, risk factors indicate risk over an individual's lifetime. See Table 1.10 in the Data Appendix for additional information.

PERINATAL HEPATITIS B PREVENTION PROGRAM DATA

In the 57 counties outside NYC, NYSDOH implements a Perinatal Hepatitis B Prevention Program (PHBPP) consistent with CDC guidance and NYSDOH laws and regulations.

Program Goals are:

1. Screen every person during every pregnancy for the presence of hepatitis B surface antigen (HBsAg) and record the test result prominently in the pregnant person's and infant's hospital medical record.
2. Identify all pregnant persons who have hepatitis B (positive HBsAg, positive hepatitis B e antigen [HBeAg], and/or detectable hepatitis B virus deoxyribonucleic acid [DNA]), and pregnant person with unknown status, and provide case management for their infant to ensure that the infant receives timely post exposure prophylaxis (hepatitis B immune globulin [HBIG] and hepatitis B vaccine), completes the hepatitis B vaccine series, and postvaccination serologic testing (PVST) consistent with CDC guidance.
3. Adopt the universal hepatitis B vaccine birth dose by all birthing hospitals, which provides a "safety net" for the prevention of perinatal and early childhood infection.

For infants born during 2021 (Fig. 8.1):

- 232 infants were enrolled in the PHBPP.
- 226 infants (97%) received hepatitis B vaccine and HBIG within one calendar day of birth.
- 4 infants received hepatitis B vaccine only; 2 infants did not receive hepatitis B vaccine and HBIG within one calendar day of birth.
- 197 infants (85%) received hepatitis B vaccine and HBIG within one calendar day of birth and completed the hepatitis B vaccine series by eight months of age.
- 222 infants (96%) received hepatitis B vaccine and HBIG within one calendar day of birth and completed the hepatitis B vaccine series by 12 months of age.
- 190 infants (82%) completed PVST by the end of the reporting period (December 31, 2022).

The overall 2022 birth dose rate for 81 NYS birth hospitals (not including NYC) is 84%. Rates, since 2012, can be viewed on Health Data NY. The percentage of infants who were born at a hospital during 2022 and received a dose of hepatitis B vaccine within three days of birth are represented in Fig. 8.2 by region. Rates range from 88% in the Capital District Region to 79% in the Metropolitan Region. Twenty-one birth hospitals have a birth dose rate of 90% and above.

Figure 8.1: Perinatal Hepatitis B Prevention Program 2021 Birth Cohort

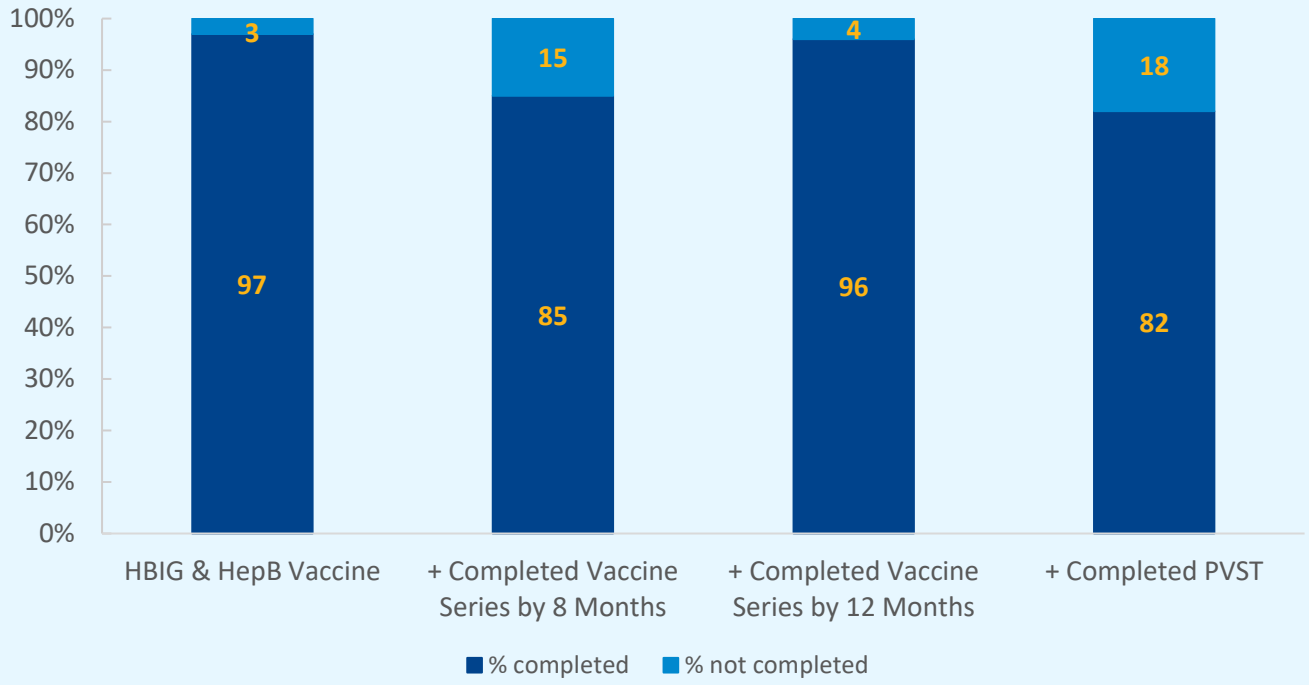
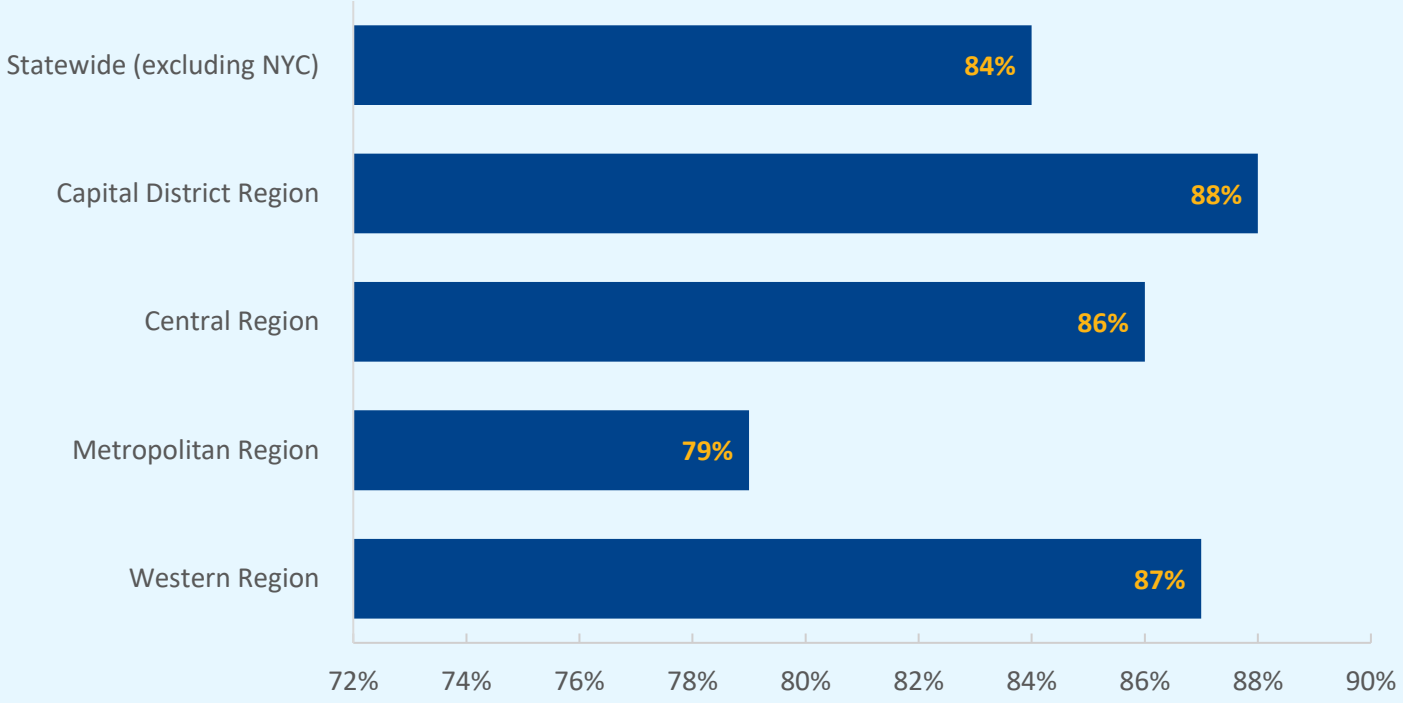


Figure 8.2: Hepatitis B Birth Dose Vaccination Rate (Percent), by Region, 2022



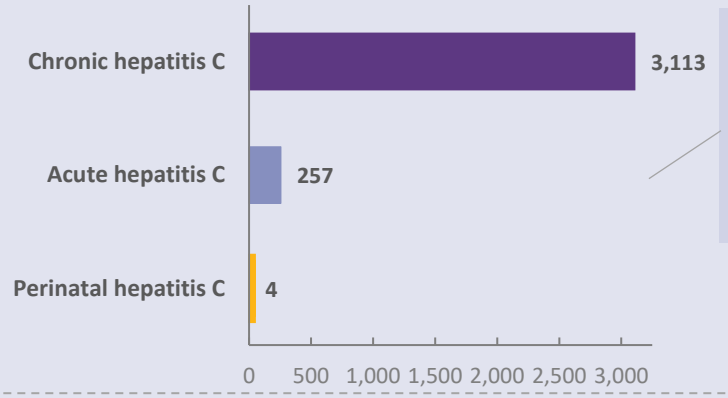
Hepatitis C Surveillance and Program Data

Infographic 9: Hepatitis C, Newly Reported Cases, NYS (excl. NYC), 2022

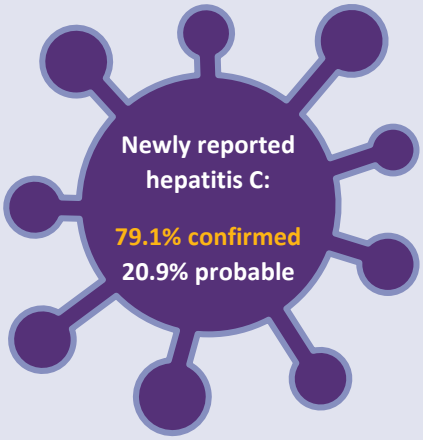
3,374
Newly reported cases of hepatitis C

29.6
cases per 100,000 pop.

Figure 9.1: Newly Reported Acute, Chronic, and Perinatal Hepatitis C Cases, NYS (excl. NYC), 2022

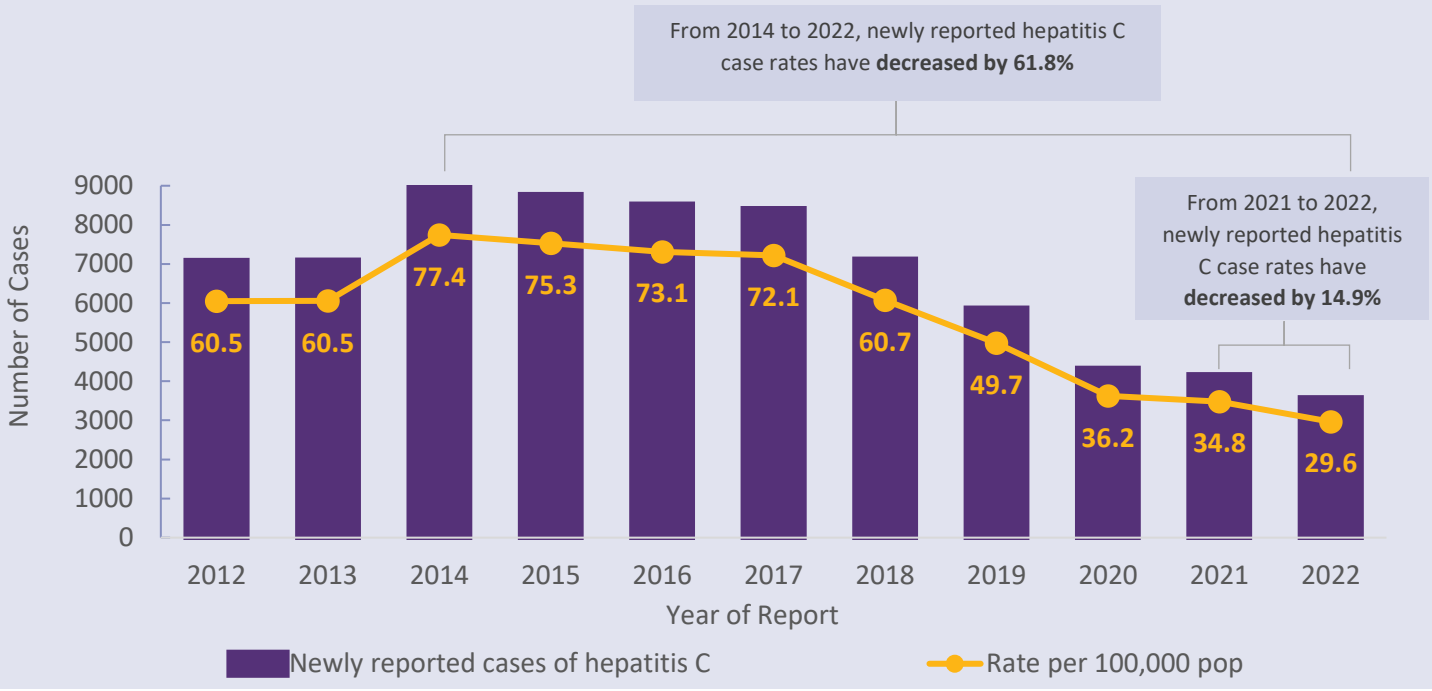


Chronic hepatitis C represents individuals that were likely infected years before initial report while **acute hepatitis C** indicates more recent infection. **Perinatal hepatitis C** is classified as infants < 3 years old that were infected in-utero or at the time of birth from a pregnant person living with hepatitis C.



Confirmed hepatitis C cases received a positive RNA result after a positive antibody screening test, which indicates active infection, while **probable hepatitis C cases indicate persons who had a positive antibody screening test but did not have RNA testing performed.** Reflex testing increases complete and timely diagnosis, which allows for care and treatment to be initiated sooner.

Figure 9.2: Newly Reported Hepatitis C Cases by Year, NYS (excl. NYC), 2012-2022



Notes. The NYS Hepatitis C Testing Law was implemented in 2014, acute and chronic case definitions were changed in 2016 and 2020, the hepatitis C perinatal case definition was established in 2018. Rates per 100,000 are based on 2020 US Census Data. See Tables 2.1, 2.3, 2.4 in the Data Appendix for additional information.

Infographic 10: Hepatitis C, Newly Reported Cases, by Sex and Age, NYS (excl. NYC), 2022

In 2022:

Newly Reported Cases in Males per 100,000 pop.:

37.5

Newly Reported Cases in Females per 100,000 pop.:

21.9

Figure 10.1: Number of Newly Reported Hepatitis C Cases by Sex and Year, NYS (excl. NYC), 2012-2022

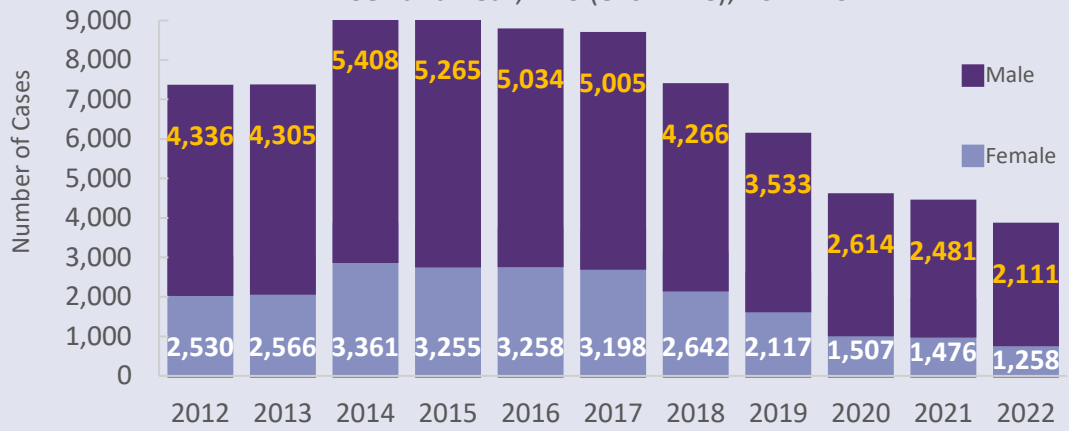
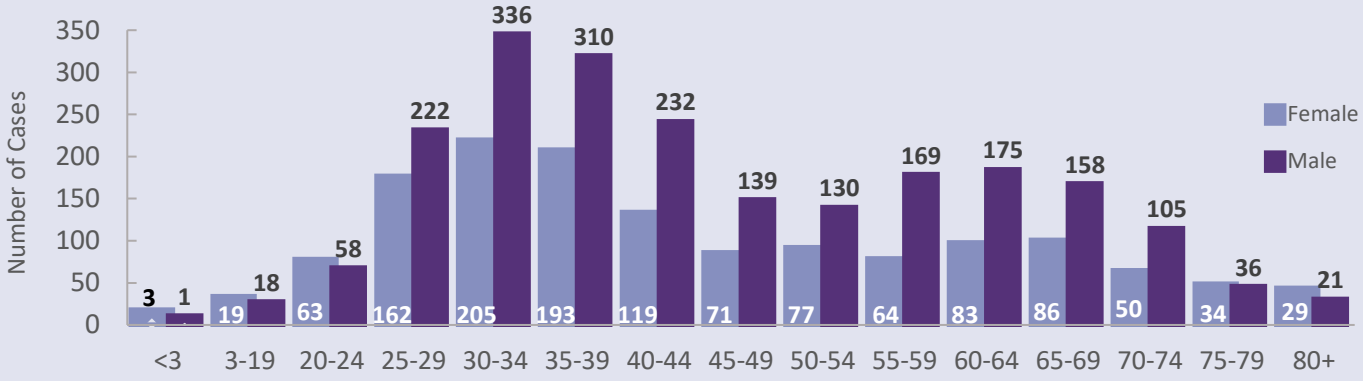
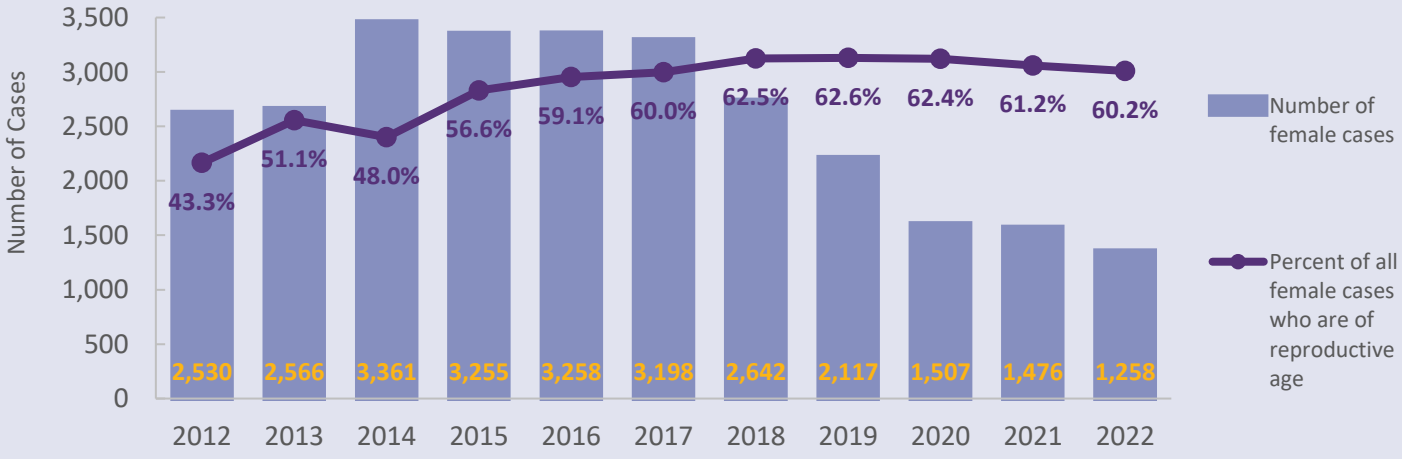


Figure 10.2: Newly Reported Hepatitis C Cases by Sex and Age Group, NYS (excl. NYC), 2022



In 2022, **62.6% of all newly reported hepatitis C cases were male.**

Figure 10.3: Number of Newly Reported Hepatitis C Cases Among Females and Percent Among Those Aged 15-44, NYS (excl. NYC), 2012-2022

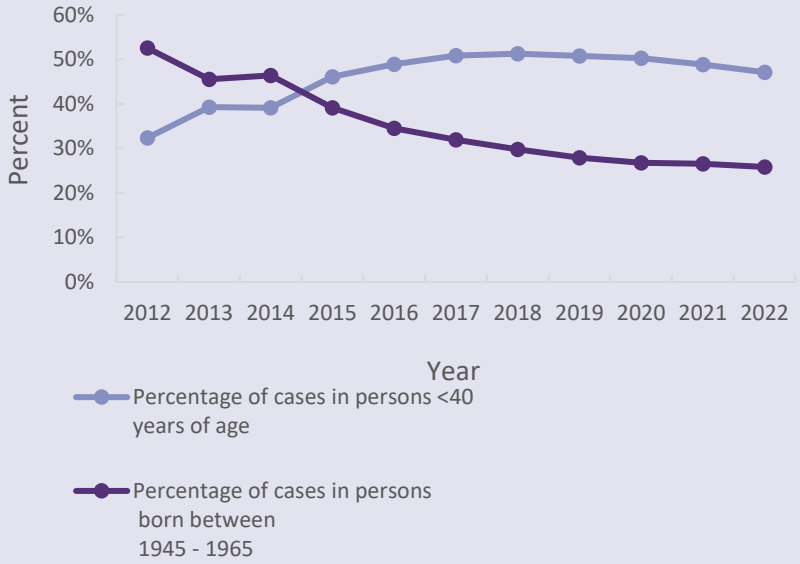


Although the number of newly reported cases of hepatitis C among females has declined since 2016, **the percentage of females who are of reproductive age (e.g., between the ages of 15 and 44) has remained stable at approximately 60% from 2016 to 2022.**

Notes. Sex data represents sex at birth. Gender identity is not presented in the infographics of this data report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. See Tables 2.1, 2.2, 2.3 in the Data Appendix for additional information.

Infographic 11: Hepatitis C, Newly Reported Cases Among Selected Birth Cohorts, NYS (excl. NYC), 2012-2022

Figure 11.1: Percent of Newly Reported Hepatitis C Cases Less than 40 Years of Age and Newly Reported Cases Born Between 1945-1965, 2012-2022



Baby Boomers (Born 1945-1965)

53% in 2012 → **26%** in 2022

of all newly reported hepatitis C cases

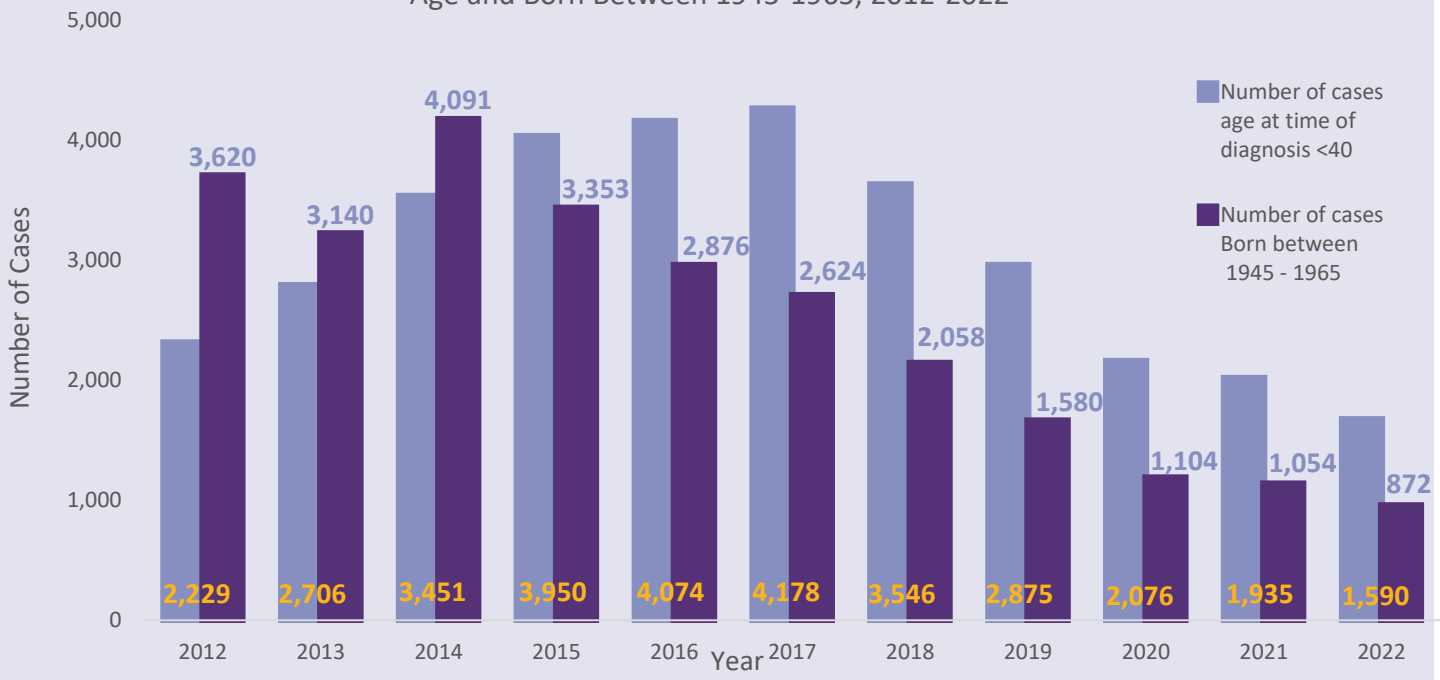
People Aged <40 years

32% in 2012 → **47%** in 2022

of all newly reported hepatitis C cases

In 2012, 52.6% of all newly reported cases of hepatitis C were reported in Baby Boomers (people born between 1945-1965) while those less than 40 years of age accounted for 32.4% of all cases. **In 2022, 47.1% of all newly reported cases of hepatitis C were in those under 40 years of age while only 25.8% were in the Baby Boomer population.**

Figure 11.2: Number of Newly Reported Hepatitis C Cases Less than 40 Years of Age and Born Between 1945-1965, 2012-2022

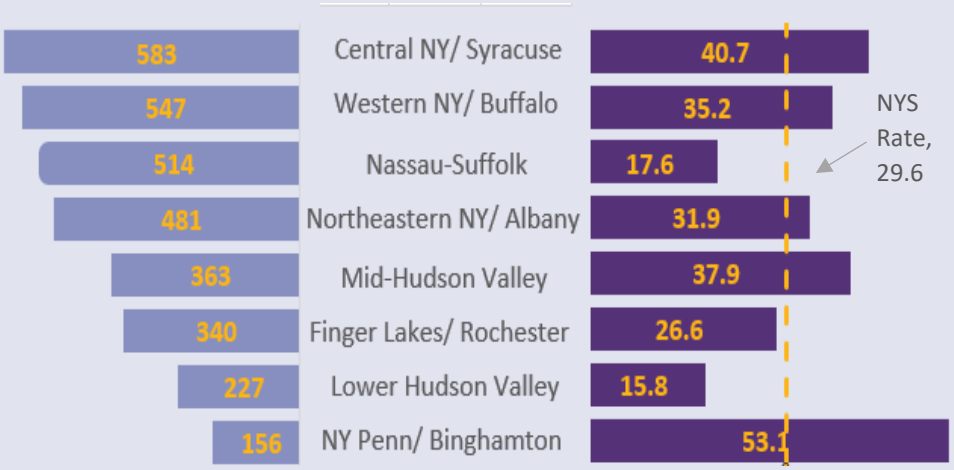


While the Baby Boomer population total case counts peaked in 2014, cases in individuals <40 years of age peaked in 2017.

Notes. See Table 2.5 in the Data Appendix for additional information.

Infographic 12: Hepatitis C, Newly Reported Cases and Rates, by Region and Year, NYS (excl. NYC), 2022

Figure 12.1: Newly Reported Hepatitis C **Cases** and **Rates** per 100,000 pop. by NYS Region (excl. NYC), 2022



Central NY/Syracuse (583), Western NY/ Buffalo (547), and Nassau-Suffolk (514) had the highest number of reported cases of hepatitis C in 2022.

Figure 12.2: Newly Reported Hepatitis C Cases, Rate Per 100,000 pop., by Region, NYS (excl. NYC), 2022

In 2022, NY Penn/ Binghamton (53.1), Central NY/ Syracuse (40.7), and Mid-Hudson Valley (37.9) had the highest case rates per 100,000 population.

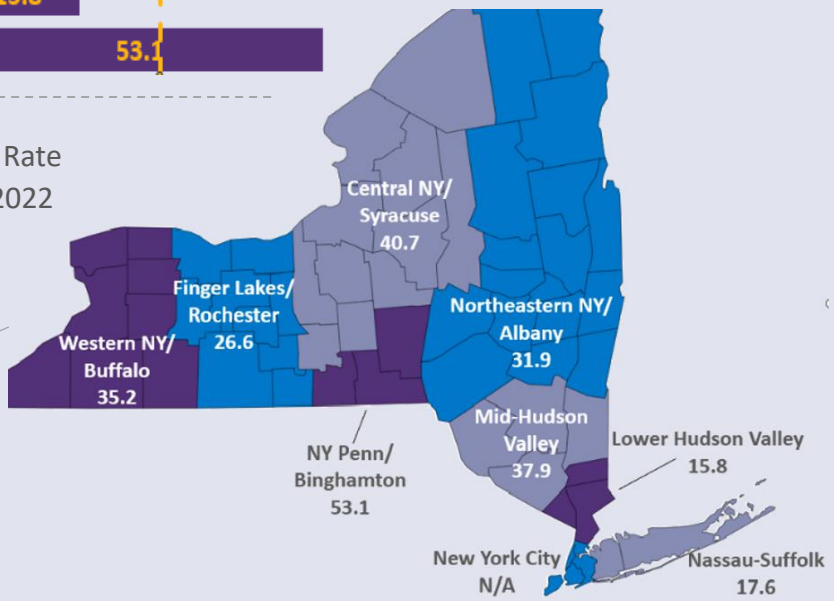
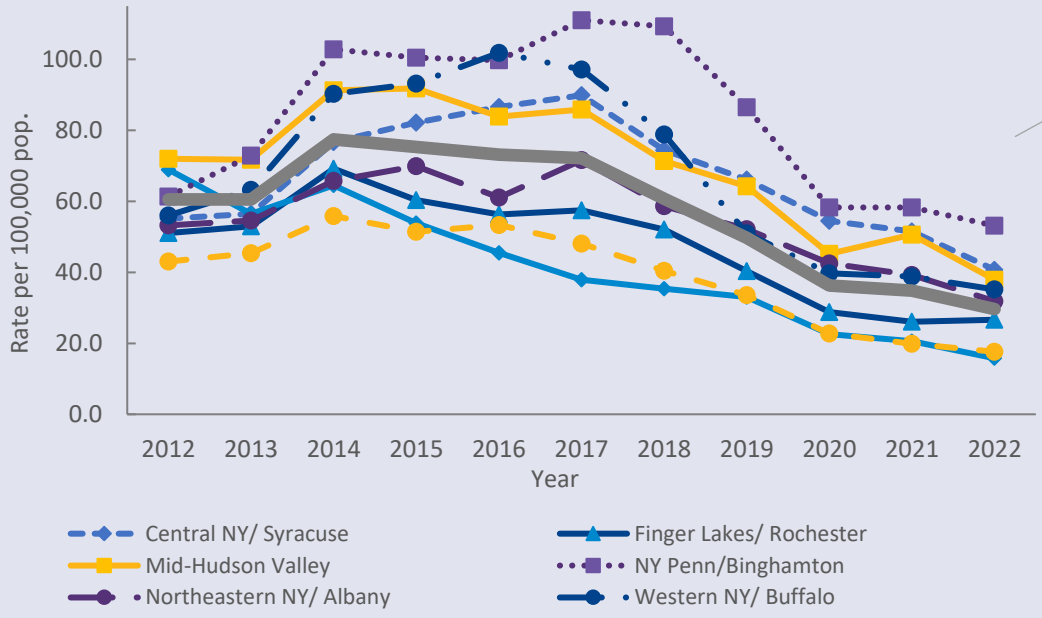


Figure 12.3: Newly Reported Hepatitis C Cases, Rate per 100,000 pop. by NYS Region (excl. NYC), 2012-2022

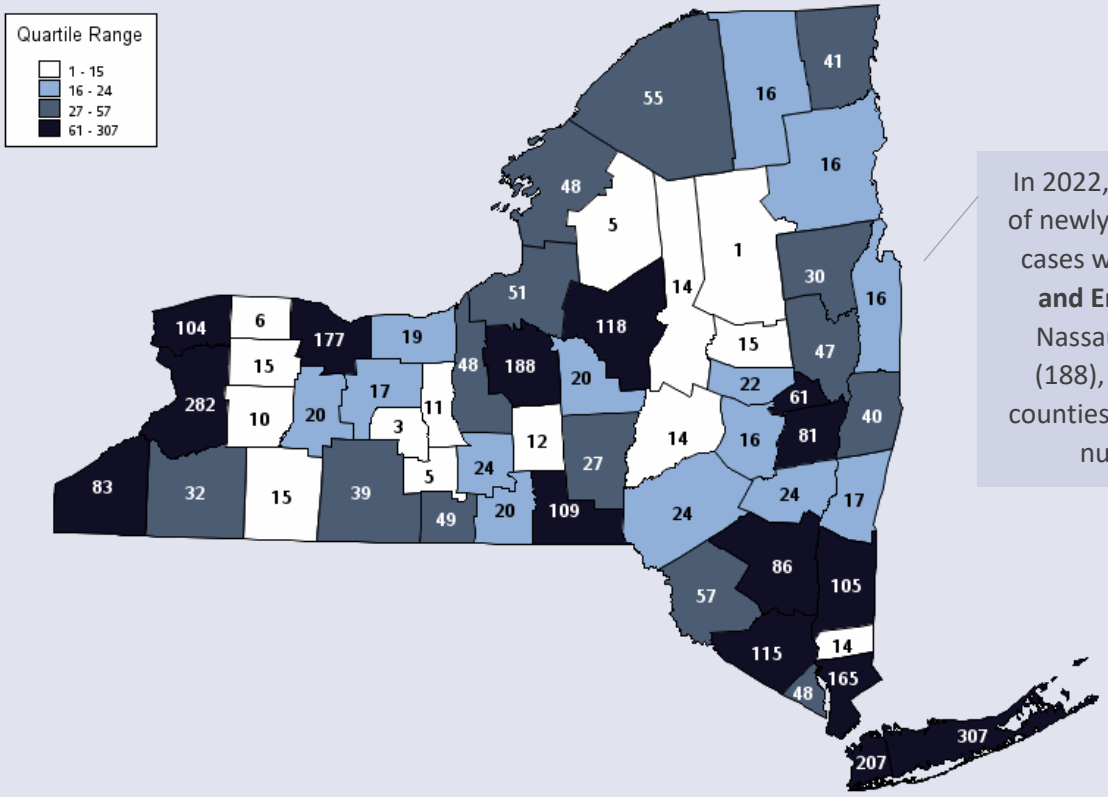


Since peaking in 2014, rates across all regions of the state have decreased. NY Penn/ Binghamton region has held the highest case rate per 100,000 pop. since 2017.

Notes. Regional case counts and rates exclude cases in persons incarcerated in the Department of Corrections and Community Supervision (DOCCS). NYS ROS represents New York State, excluding New York City (NYC). See Table 2.6 in the Data Appendix for additional information.

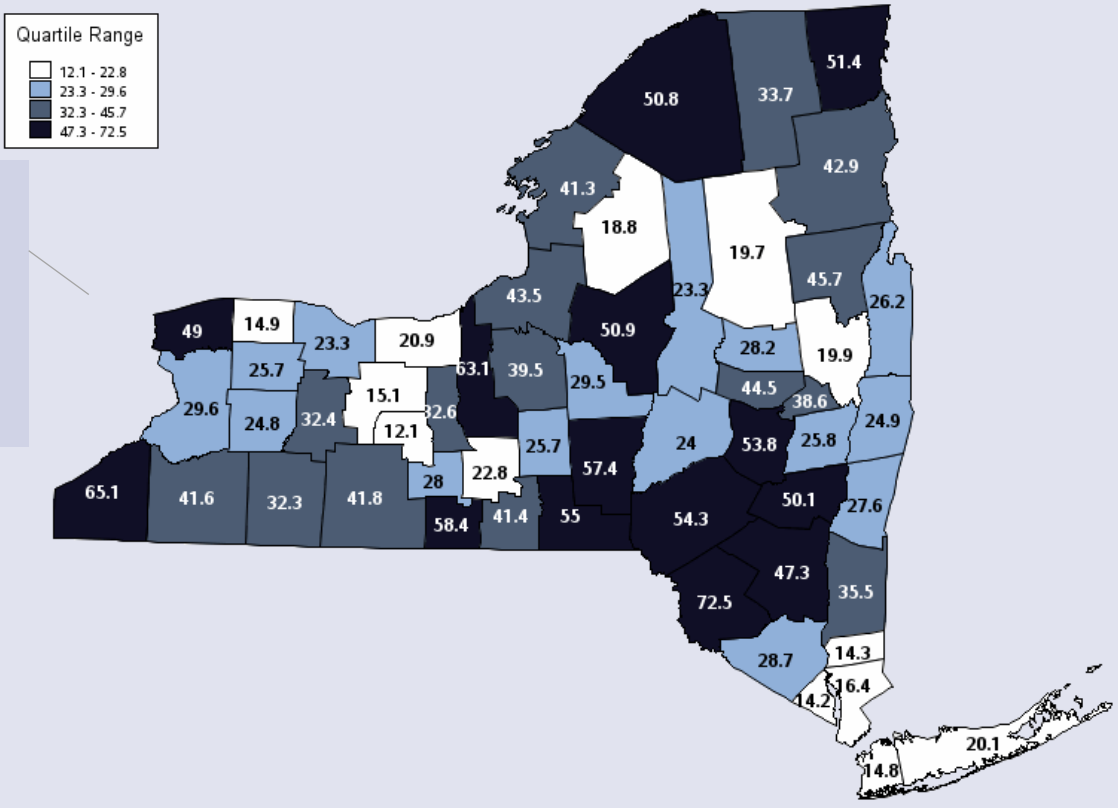
Infographic 13: Hepatitis C, Newly Reported Cases by County, NYS (excl. NYC), 2022

Figure 13.1: Newly Reported Hepatitis C Cases by County, NYS (excl. NYC), 2022



In 2022, the highest number of newly reported hepatitis C cases were in **Suffolk (307) and Erie counties (282).** Nassau (207), Onondaga (188), and Monroe (177) counties also reported a high number of cases.

Figure 13.2: Newly Reported Hepatitis C Case Rate per 100,000 pop., NYS (excl. NYC), 2022

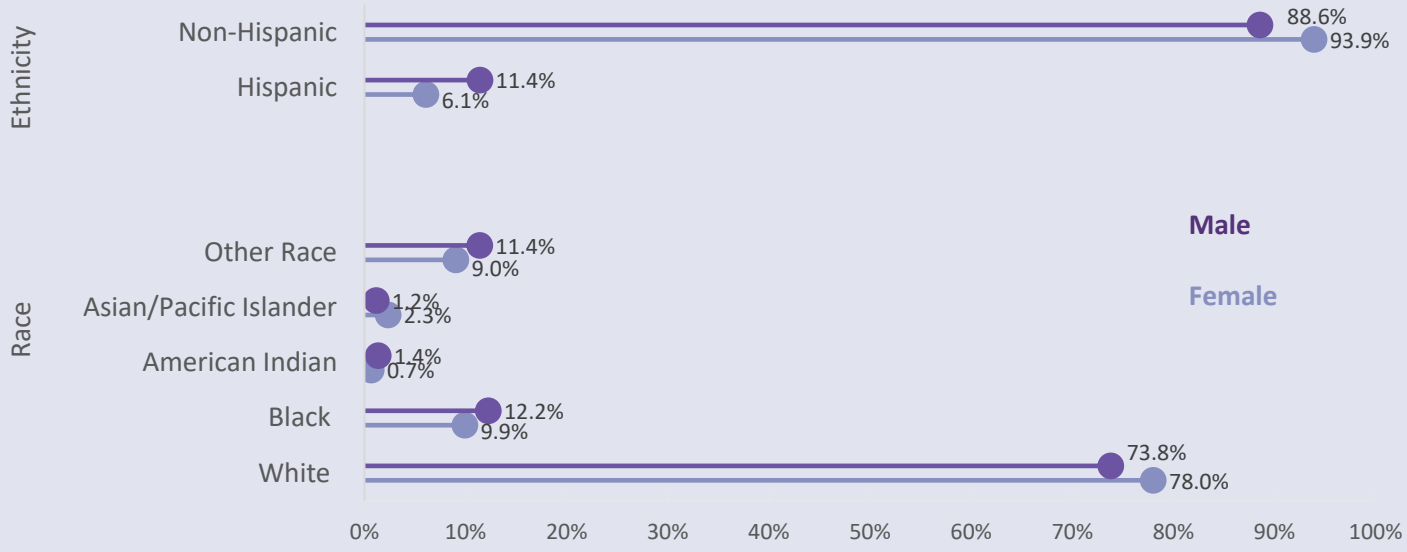


The highest rates of newly reported hepatitis C cases per 100,000 population in 2022 were in **Sullivan (72.5) and Chautauqua (65.1) counties.**

Notes. Regional case counts and rates at the county level exclude cases in persons incarcerated in the Department of Corrections and Community Supervision (DOCCS). Case rates per 100,000 pop. are calculated based on 2020 US Census data, See *About Data* on page 6 in this report. See Table 2.7 in the Data Appendix for additional information.

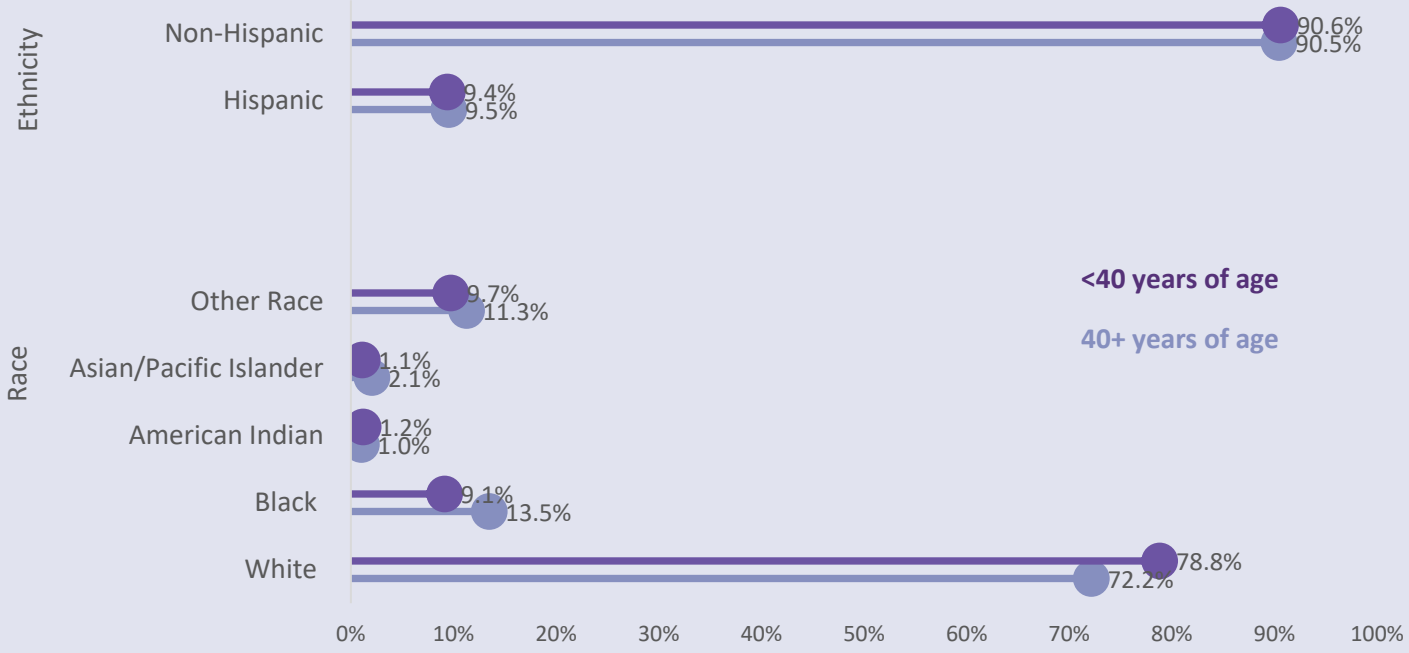
Infographic 14: Hepatitis C, Newly Reported Cases by Race, Ethnicity, Sex, and Age, NYS (excl. NYC), 2022

Figure 14.1: Newly Reported Hepatitis C Cases by Sex, Race, and Ethnicity, NYS (excl. NYC), Excluding Cases with Unknown Race and Ethnicity, 2022



Where race and ethnicity were reported, the highest percentage of newly reported cases of hepatitis C were among White persons and those of non-Hispanic ethnicity for both males and females and persons aged <40 and 40+ years. **A larger proportion of males with hepatitis C occurred in communities of color than seen in females. In addition, a larger proportion of individuals with hepatitis C aged 40 years or older occurred in communities of color than those aged < 40 years.**

Figure 14.2: Newly Reported Hepatitis C Cases by Age, Race, and Ethnicity, NYS (excl. NYC), Excluding Cases with Unknown Race and Ethnicity, 2022

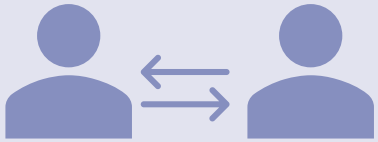


Note. Race data is missing for 27.7% of all hepatitis C cases, 28.8% among females, 26.9% among males, 26.4% for persons <40 years, and 28.8% for persons 40+ years. Ethnicity is missing for 55.9% of all hepatitis C cases, 56.8% among females, 55.2% among males, 51.8% for persons <40 years, and 59.4% for persons 40+ years. Sex data represents sex at birth. Gender identity is not presented on this data report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. See Tables 2.8, 2.9 in the Data Appendix for additional information.

Infographic 15: Hepatitis C, Newly Reported Acute Cases, Risk Factors, NYS (excl. NYC), 2022

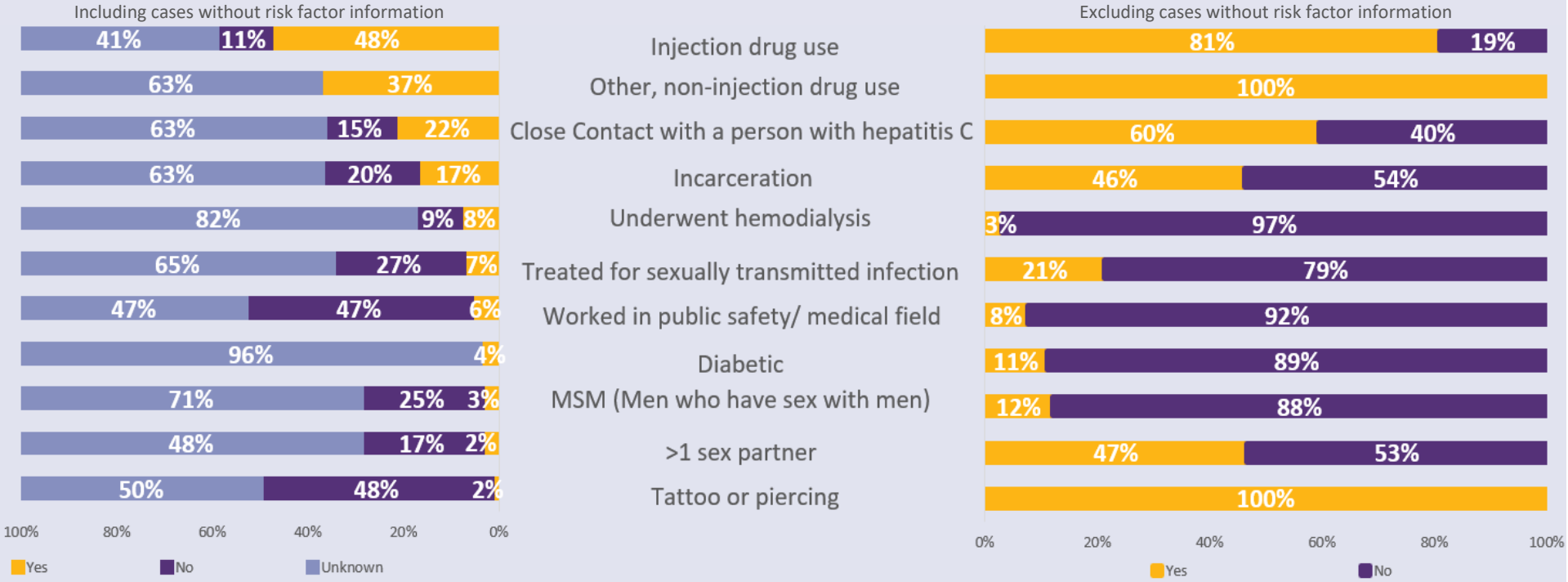
In 2022, **48% of newly reported cases of acute hepatitis C indicated injection drug use as a risk factor.** When analyzing cases with known risk factors, 81% of newly reported acute cases indicated injection drug use.

Additionally, **37% of newly reported cases of acute hepatitis C indicated other, non-injection drug use as a risk factor.** When analyzing cases with known risk factors, all newly reported acute cases indicated other, non-injection drug use.



In 2022, **22% of newly reported cases of acute hepatitis C indicated having close contact with a person with hepatitis C.** When analyzing cases with known risk factors, 60% of newly reported acute cases indicated having close contact with a person with hepatitis C.

Figure 15.1: Newly Reported Acute Hepatitis C Cases, Risk Factor Information, NYS (excl. NYC), 2022

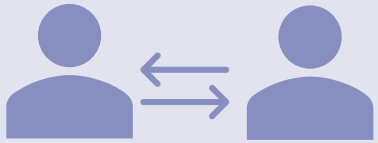


Note. Risk factor information is missing for 64.9% of newly reported acute cases. Categories are not mutually exclusive. See *Variable Definitions* on page 5. For acute hepatitis C cases, risk factor information is collected for exposure window period. See Table 2.11 in the Data Appendix for additional information.

Infographic 16: Hepatitis C, Newly Reported Chronic Cases, Risk Factors, NYS (excl. NYC), 2022

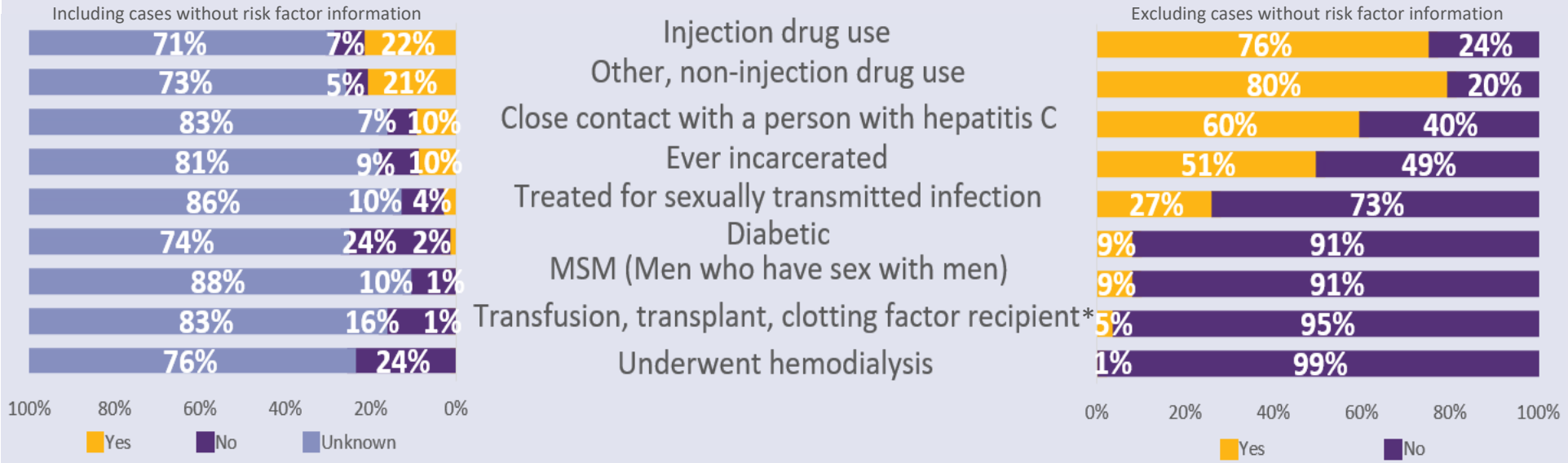
In 2022, **22% of newly reported cases of chronic hepatitis C indicated injection drug use as a risk factor.** When analyzing cases with known risk factors, 76% of newly reported chronic cases indicated injection drug use.

Additionally, **21% of newly reported cases of chronic hepatitis C indicated other, non-injection drug use as a risk factor.** When analyzing cases with known risk factors, 80% of newly reported chronic cases indicated other, non-injection drug use.



In 2022, **10% of newly reported cases of chronic hepatitis C indicated having close contact with a person with hepatitis C.** When analyzing cases with known risk factors, 60% of newly reported chronic cases indicated having close contact with a person with hepatitis C.

Figure 16.1: Newly Reported Chronic Hepatitis C Cases, Risk Factor Information, NYS (excl. NYC), 2022

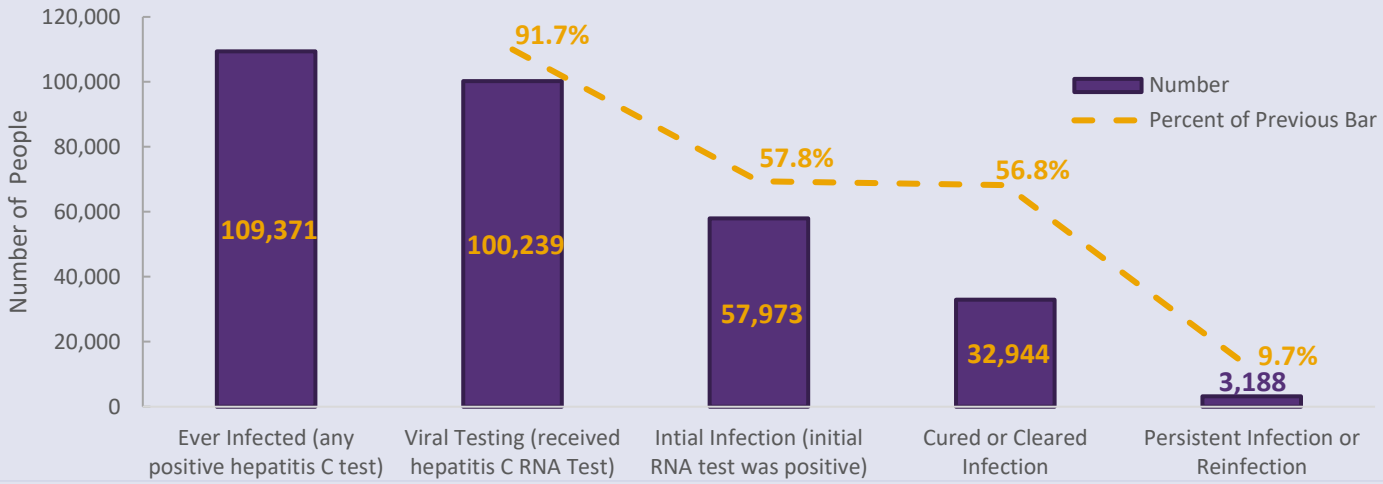


Note. * Recipient of transfusion and/or transplant before 1992 and/or recipient of clotting factor before 1987. Risk factor information is missing for 79% of newly reported chronic cases. Categories are not mutually exclusive. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. For chronic hepatitis C cases, risk factors indicate risk over the individual's lifetime. See Table 2.10 in the Data Appendix for additional information.

Infographic 17: Hepatitis C, HCV Clearance Cascade, NYS (excl. NYC), 2021

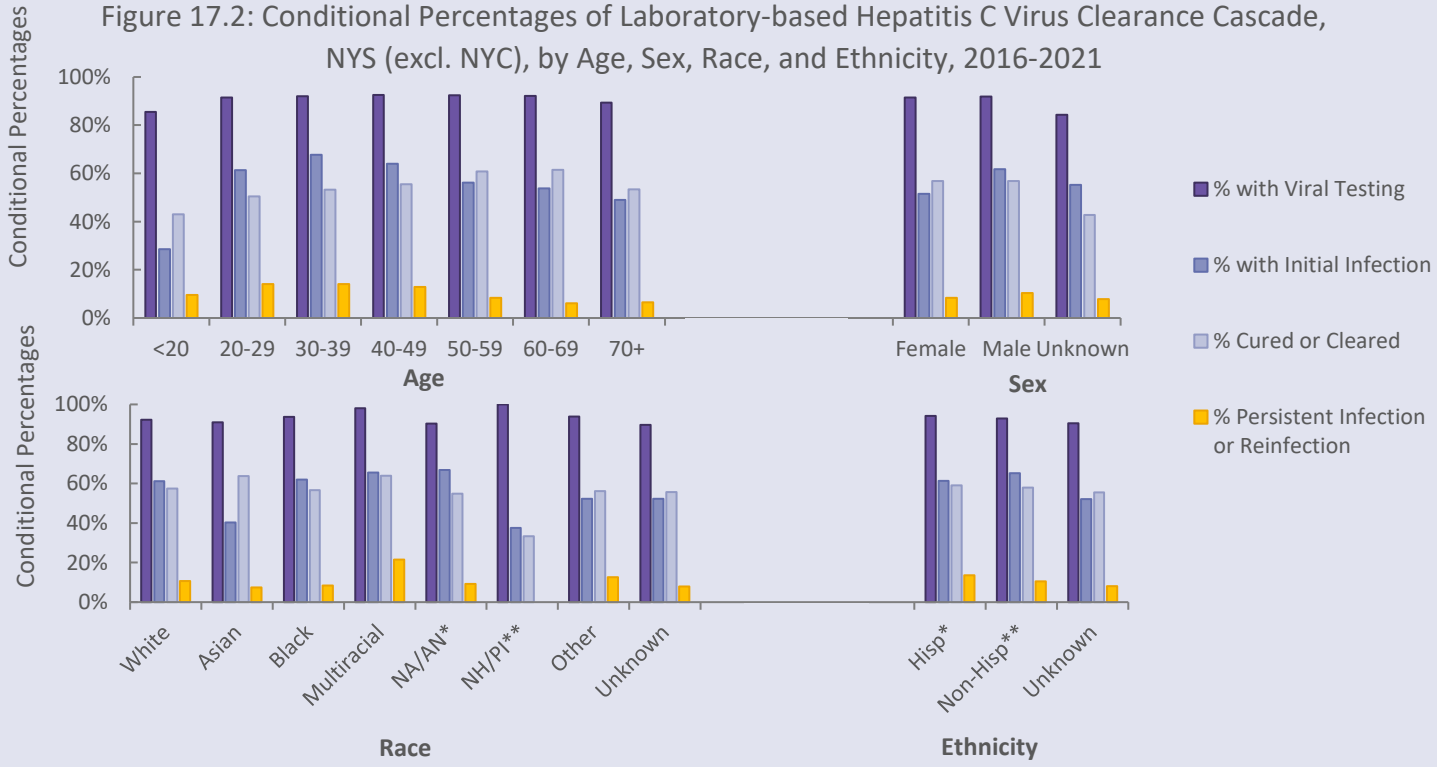
In 2021, the Centers for Disease Control and Prevention (CDC) developed a method to use laboratory results to track the numbers and percentages of people who are tested for and cured of hepatitis C. **The results of this HCV Clearance Cascade are shown below.**

Figure 17.1: Laboratory-Based Hepatitis C Virus Clearance Cascade, NYS (excl. NYC), 2016-2021



Of 109,371 individuals in NYS (excluding NYC) with any positive hepatitis C test, indicating either past or current infection with hepatitis C from 2016 to 2020, **91.7% received viral testing in the follow-up period. 57.8% of those receiving viral testing had a positive RNA test (indicating initial infection). Of those initially infected, 56.8% individuals were cured or cleared their infection and among those, 9.7% had a persistent infection or experienced reinfection.**

Figure 17.2: Conditional Percentages of Laboratory-based Hepatitis C Virus Clearance Cascade, NYS (excl. NYC), by Age, Sex, Race, and Ethnicity, 2016-2021



Notes. Race: *Native American/Alaskan Native, **Native Hawaiian/Pacific Islander. Ethnicity: *Hispanic, **non-Hispanic. See *About Data* on page 6 in this report. See Tables 3.1 and 3.2 in the Data Appendix for additional information.

Infographic 18: Newly Reported Cases of Hepatitis C, NYS Department of Corrections and Community Supervision, 2022

NEW YORK STATE | Department of Health

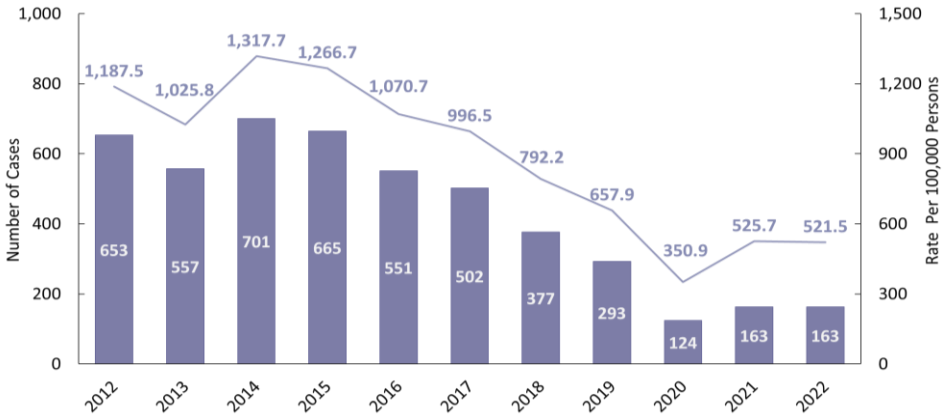
In 2022:

There were **163** newly reported cases of hepatitis C in the New York State Department of Corrections and Community Supervision (NYSDOCCS).

521.5 per 100,000 individuals, was the rate of newly reported hepatitis C cases in the NYSDOCCS.

When risk factor information was available, injection drug use was the most common risk factor for newly reported cases.

Figure 18.1: Newly Reported Hepatitis C Cases and Rates by Year, NYSDOCCS, 2012-2022



Between 2012-2022, 4,750 cases of hepatitis C were first diagnosed in the NYSDOCCS and reported to the NYSDOH. The rate and the total number of newly reported cases peaked in 2014 and decreased in the following years, reaching a ten year low in 2020, corresponding to the start of the COVID-19 pandemic.

Figure 18.2: Newly Reported Acute and Chronic Hepatitis C Cases by Year, NYSDOCCS, 2012-2022

HCV RNA testing, which confirms current infections, was conducted on 91.4% of new hepatitis C cases in 2022. There was an 9.0% rise in chronic cases of hepatitis C that were newly reported in 2022 compared to 2021, while newly reported acute cases fell by 41%.

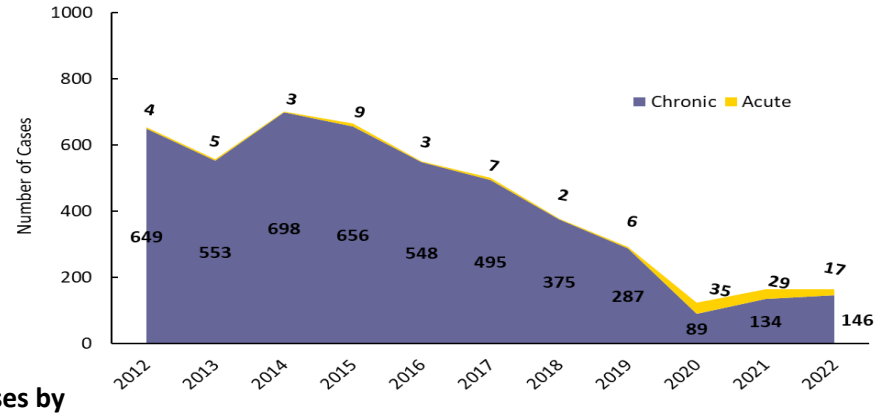


Figure 18.3: Newly Reported Hepatitis C Cases by Sex and Age, NYS DOCCS, 2022

Of newly reported hepatitis C cases, 89.6% were in males and 67.9% were in persons less than 40 years old.

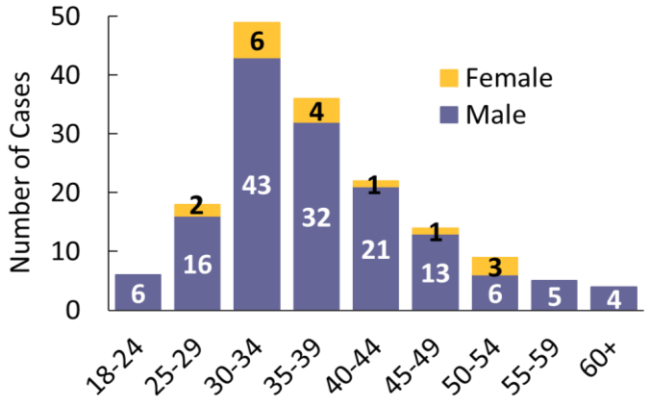
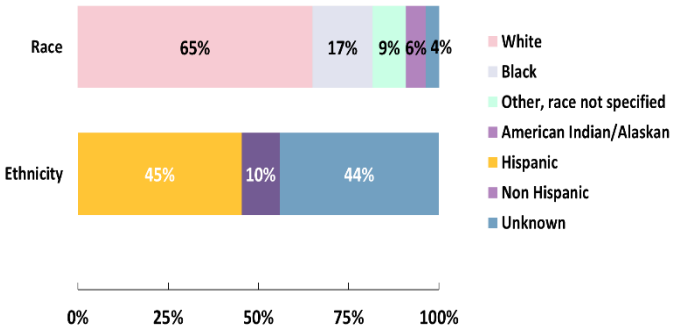


Figure 18.4: Newly Reported Hepatitis C Cases by Race/Ethnicity, NYSDOCCS, 2022

Where race and ethnicity were reported, the percentage of newly reported cases was highest among White and non-Hispanic individuals.

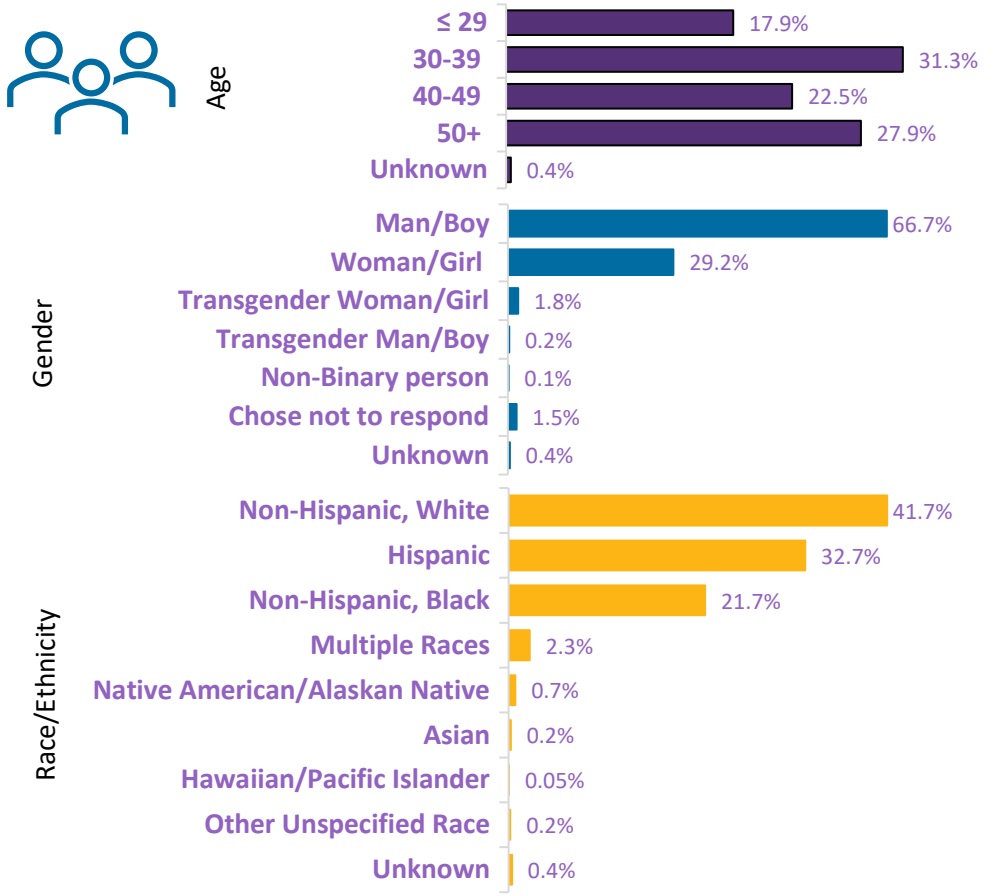


Notes. Counts represent newly reported cases in DOCCS facilities within NYS outside of NYC. Rates are calculated based on the number of individuals under custody at the end of each year. Sex data represents sex at birth. Asian/Pacific Islander persons accounted for 0 % of newly reported hepatitis C cases. Risk factor information includes newly reported hepatitis C cases where risk factor information was available. For 67% of newly reported acute cases and 85% of chronic cases, risk factor information was not available.

New York State Hepatitis C Testing Program

The Hepatitis C (HCV) Testing Program provides free HCV rapid antibody test kits to agencies serving underinsured individuals at the highest risk of HCV infection. Enrolled agencies also had access to free supplies for onsite HCV RNA specimen collection with dried blood spot (DBS) to confirm or rule out current infection. Not all enrolled agencies opted for DBS collection. In 2021, there were 27 enrolled agencies in the Hepatitis C Testing Program.

Figure 19.1: Hepatitis C Testing Program, Client Demographics, 2021



In 2021,

2,147
Clients tested for HCV Antibody (Ab)

657
Clients tested Ab+

30.6%
Reactivity Rate

Of clients tested:

48.7%
have a history of injection drug use

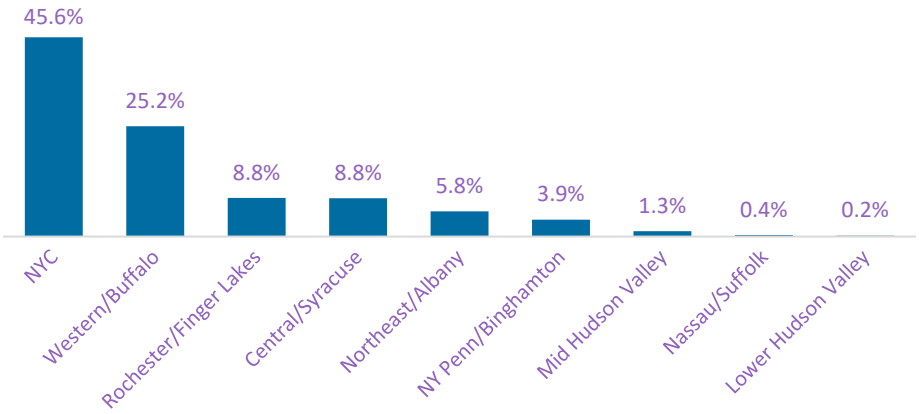
19.3%
are homeless, living on the street or in a shelter

61.7%
DO NOT have permanent housing

36.5%
are insured by Medicaid

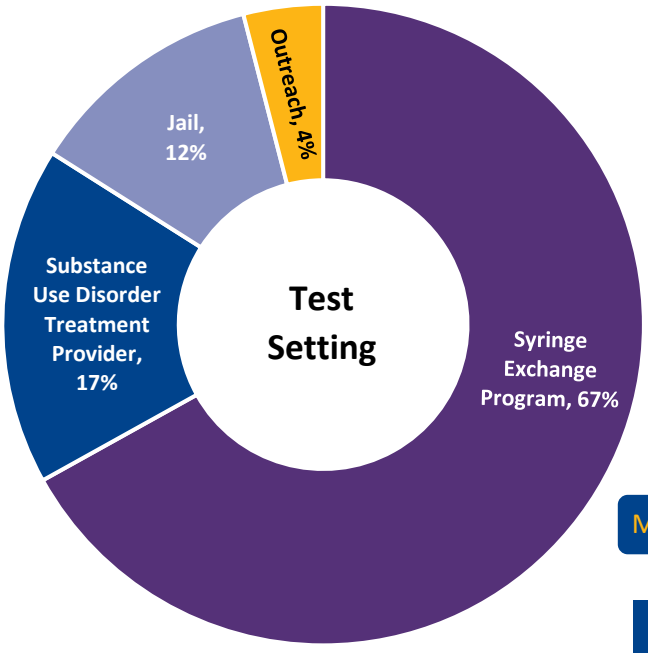
Figure 19.2: Hepatitis C Testing Program, Region of Residence of Tested Clients, 2021

Although tested clients came from across the state, most resided in New York City (45.6%) and Western New York (25.2%). These regions also had the largest number of participating testing agencies (10 and 8 respectively).



Note. Data Source: AIDS Institute Reporting System (AIRS). See New York State Department of Health Hepatitis C Testing Program fact sheet at: https://www.health.ny.gov/publications/1805.pdf.

Figure 19.3: Hepatitis C Testing Program, Test Setting, and Availability of Onsite RNA Testing

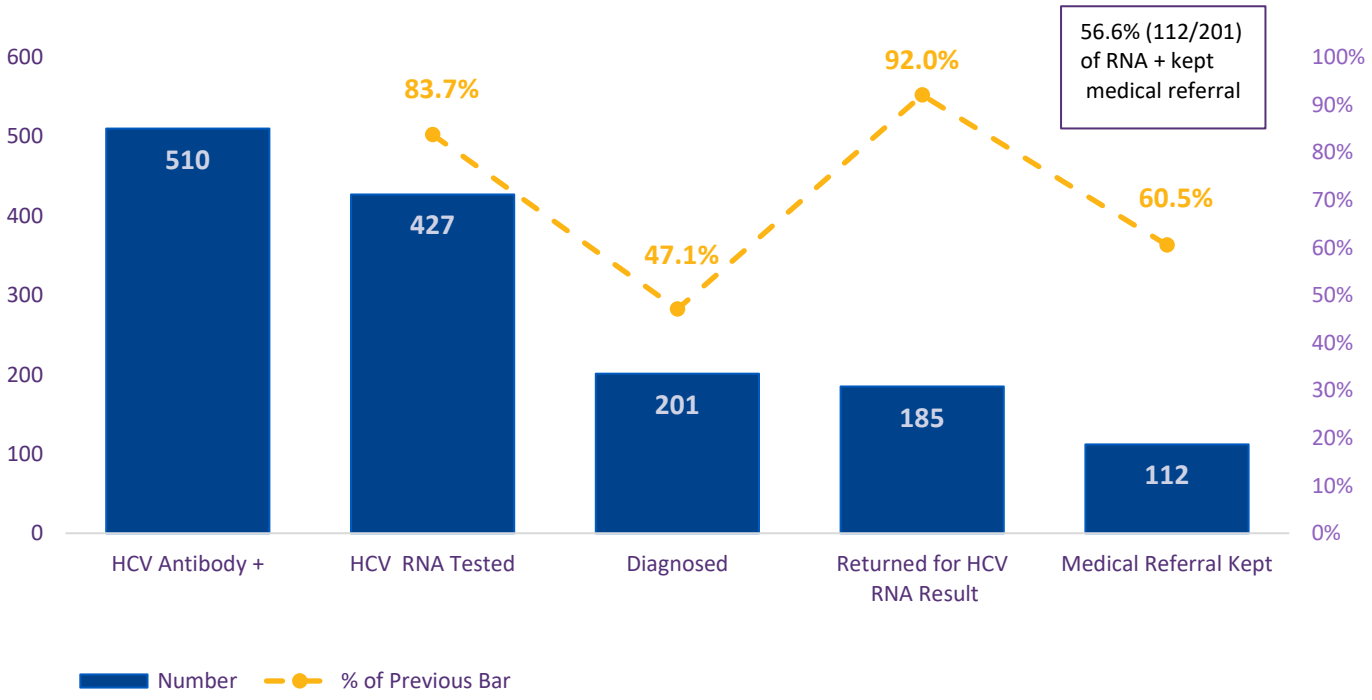


RNA testing is needed to confirm or rule-out current HCV infection in individuals with a reactive antibody test. Offering onsite RNA testing can reduce barriers to receiving this diagnostic test.

83.7%
of Ab+ clients tested at agencies offering onsite RNA tests received an RNA test.
vs
27.9%
Ab+ clients tested at agencies that referred for offsite RNA tests received an RNA test.

Most clients were tested at agencies offering **onsite** RNA testing

Figure 19.4: Hepatitis C Testing Program, HCV Care Continuum at Agencies Offering On-Site HCV RNA Testing*, 2021

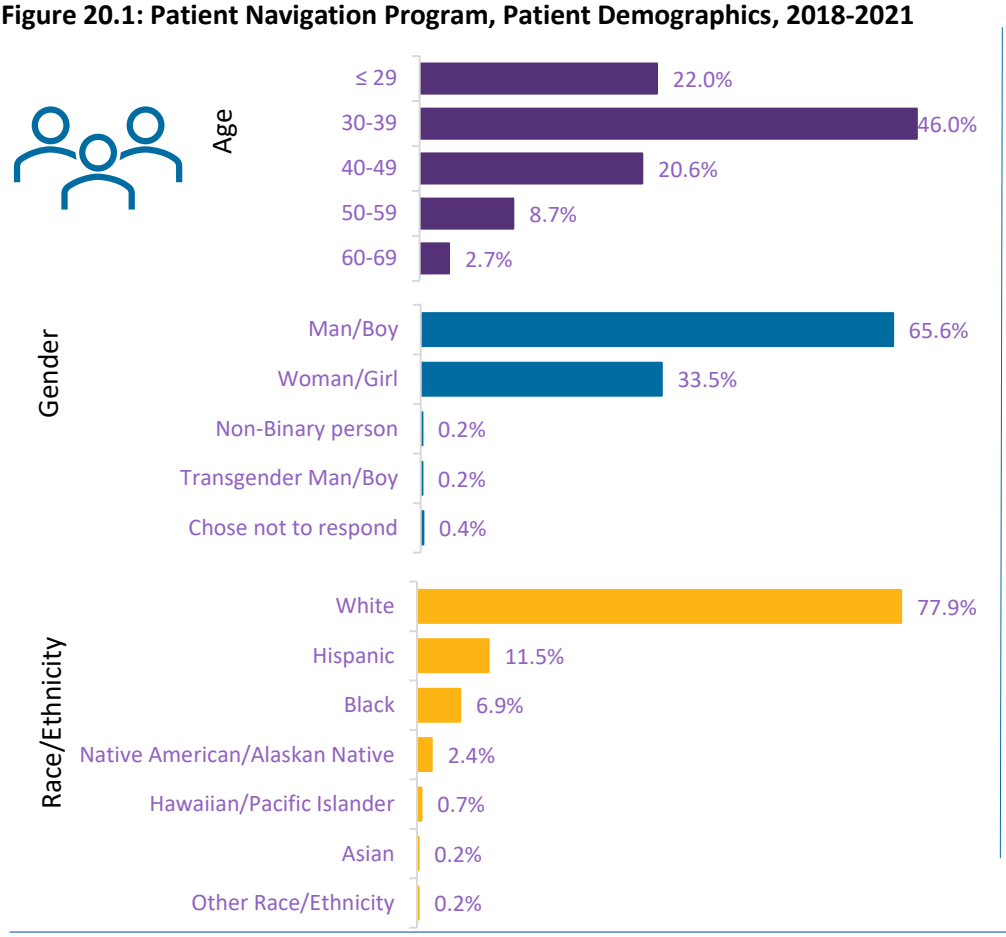


* 1,731 clients were were tested.

New York State Hepatitis C Patient Navigation Program

The Hepatitis C (HCV) Patient Navigation Program aims to increase the number of persons who inject drugs (PWID) who know their HCV status and are linked to HCV medical care and treatment. This is done by addressing patient- and systems-level barriers to HCV care and treatment. The Program is based in seven Drug User Health Hubs (Health Hubs) located outside New York City. As expansions to Syringe Services Programs (SSPs), the Health Hubs improve availability and accessibility of an array of health, mental health, and medication assisted treatment services. This summary describes the characteristics and outcomes of patients enrolled in the initiative from Nov. 2018 through Oct. 2021.

Figure 20.1: Patient Navigation Program, Patient Demographics, 2018-2021



From 2018-2021

7 Navigation Programs

806 Clients Enrolled

95.5% have a history of injection drug use

16.9% are in a residential drug treatment facility

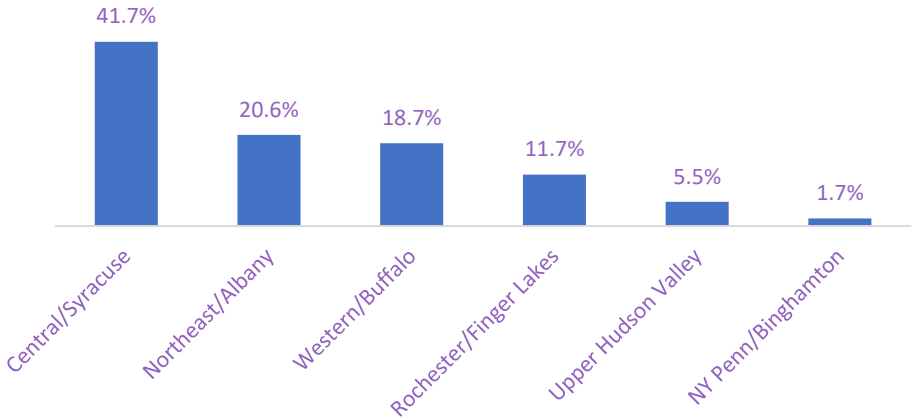
12.8% are homeless, living on the street or in a shelter

1.4% are in a correctional facility (jail/prison)

89.8% are insured by Medicaid

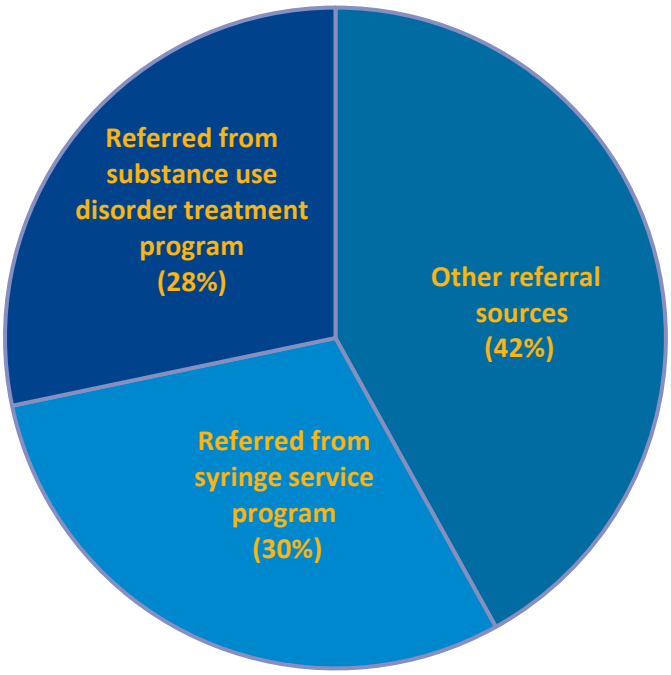
Figure 20.2: Patient Navigation Program, Region of Residence of Enrolled Patients, 2018-2021

Patient Navigation services are provided by seven drug user health hubs providing services across New York State (NYS) outside of New York City. The largest percentage of enrolled clients are in the Central/Syracuse region.



Note. Data Source: AIDS Institute Reporting System (AIRS). See fact sheet available online at: https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/docs/patient_navigation_program.pdf

Figure 20.3: Patient Navigation Program, Patient Referral Source, 2018-2021

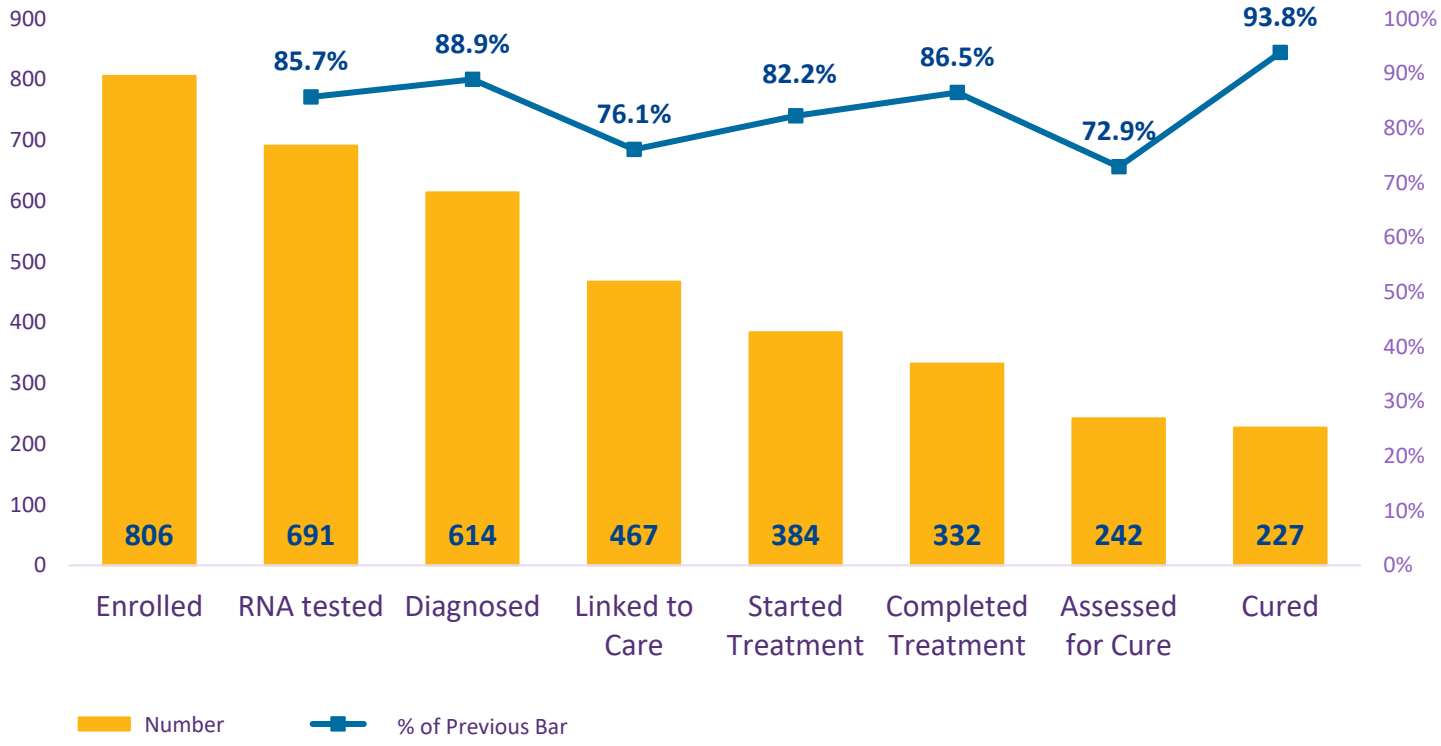


Priority Settings Identified in NYS Hepatitis C Elimination Plan

1. Correctional facilities, including jails, courthouses, prisons
2. Harm reduction programs
3. Drug/substance use treatment program sites
4. Primary and routine health care offices, community health providers, and federally qualified health centers
5. Settings serving the homeless

More than **50%** of patients were referred from a priority setting serving people who use drugs

Figure 20.4: Patient Navigation Program, HCV Care Continuum: 2018-2021*

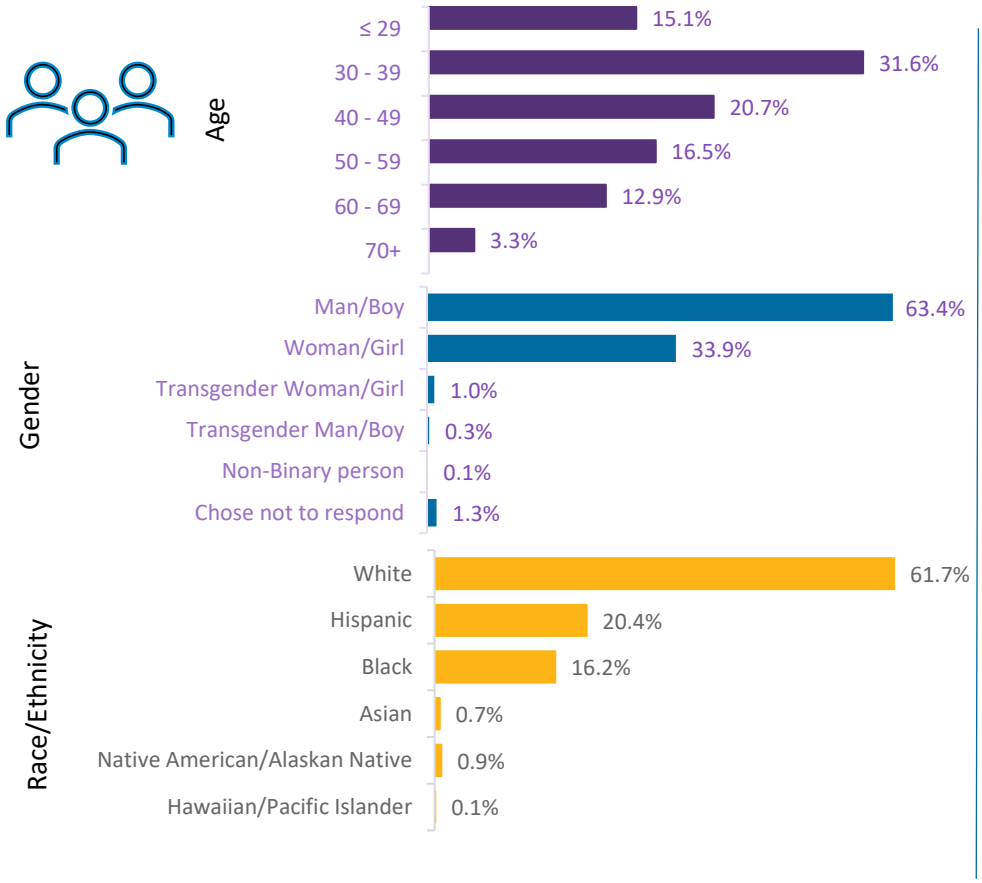


*Includes patients enrolled any time from Nov. 1, 2018 through Oct. 31, 2021 and reflects treatment status as of Nov. 23, 2021.

New York State HCV Care and Treatment Initiative

The Hepatitis C (HCV) Care and Treatment initiative supports primary care-based integrated models of HCV care and treatment within Article 28 health care facilities that will: 1) increase the number of people living with HCV who are linked to care; 2) increase HCV treatment initiation and completion rates; and 3) increase the number of people cured of HCV. This is accomplished by conducting targeted outreach and recruitment, linkage, and care coordination to assist people with HCV and HIV/HCV in accessing timely HCV medical care and appropriate supportive services delivered by a multidisciplinary team in a primary care setting. This summary describes the characteristics and outcomes of clients enrolled in the initiative from June 2021 through May 2022.

Figure 21.1: HCV Care and Treatment Initiative Patient Demographics, 2021-2022



In 2021-2022,

11
HCV Care and Treatment Programs

995
Patients Enrolled

70.6%
have a history of injection drug use

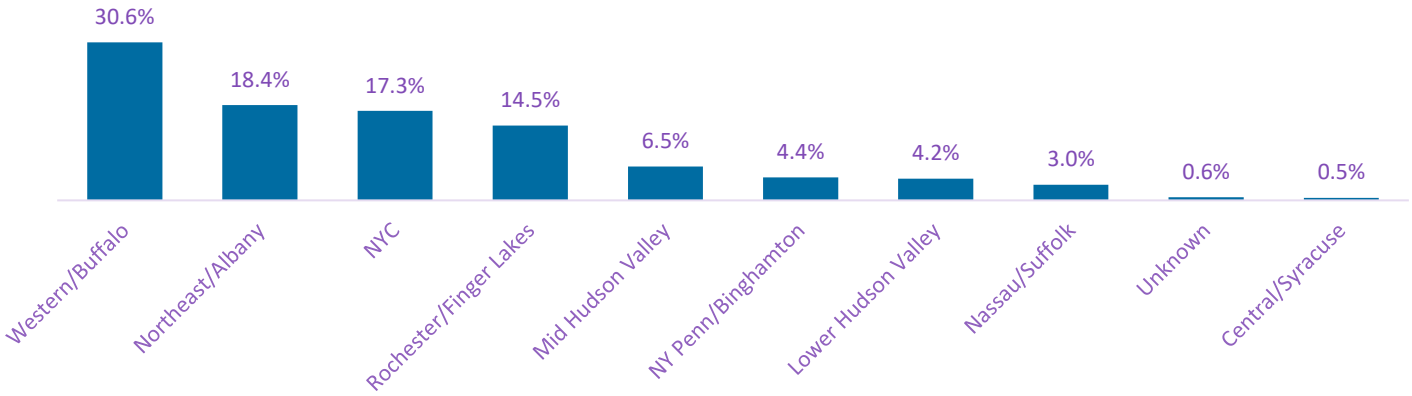
7%
are homeless, living on the street or in a shelter

17%
are in a residential drug treatment program

0.6%
are in a correctional facility (jail/prison)

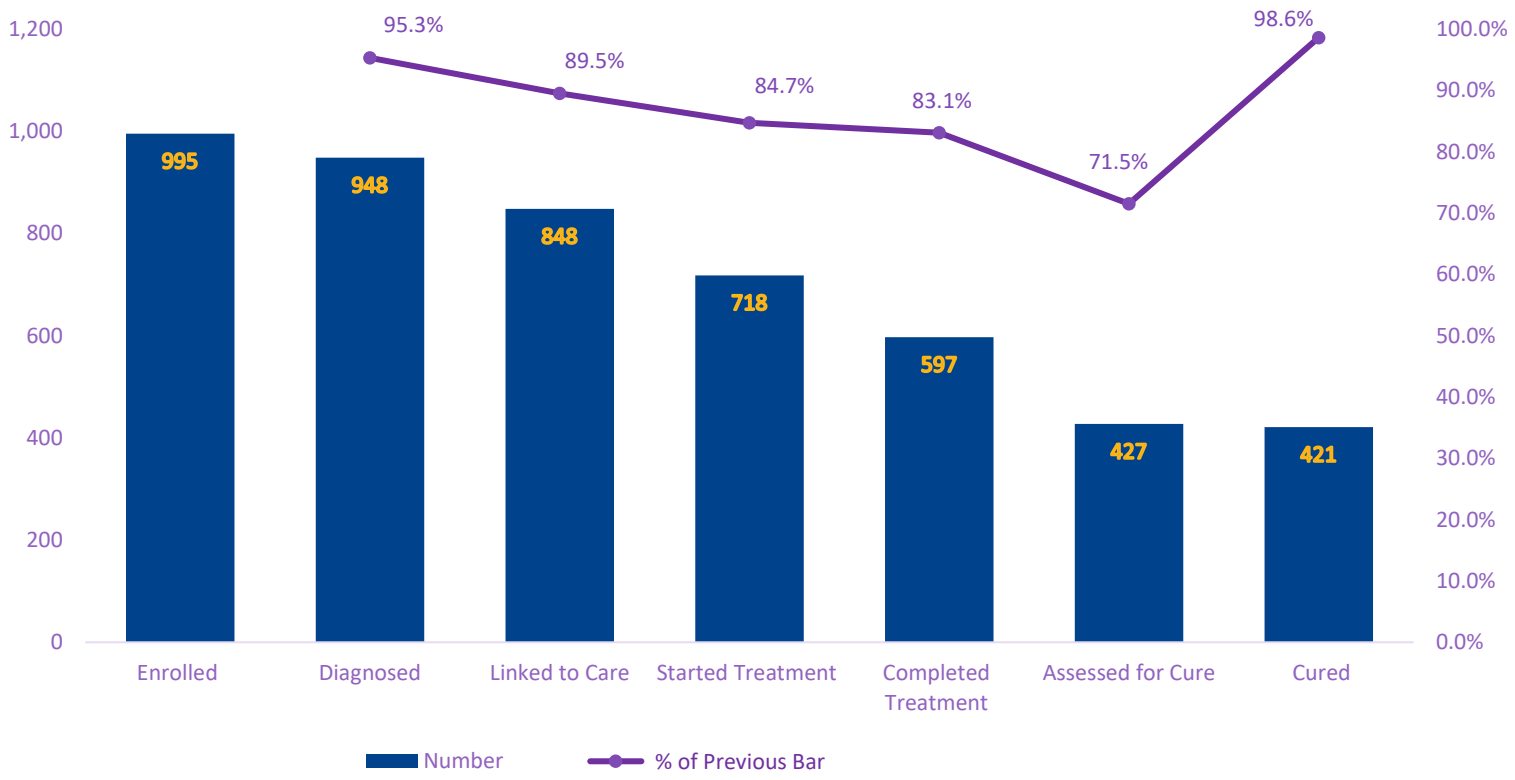
78.5%
are insured by Medicaid

Figure 21.2: Hepatitis C Care and Treatment Program, Region of Residence of Tested Clients, 2021-2022



Note. Data Source: AIDS Institute Reporting System (AIRS).

Figure 21.3: Hepatitis C Care and Treatment Program, Care Continuum, 2021-2022*

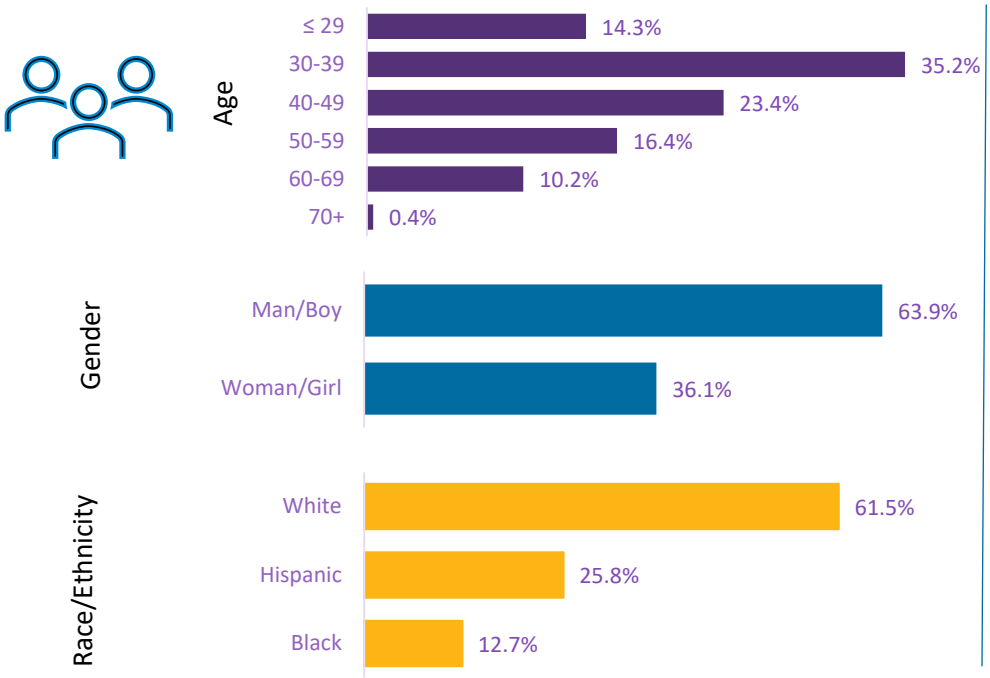


*Includes patients enrolled any time from June 1, 2021 through May 30, 2022 and reflects treatment status as of April 27, 2023.

New York State HCV Innovative Models Initiative

The Hepatitis C (HCV) Innovative Models of Care Initiative addresses the needs and barriers people who inject drugs (PWID) who are diagnosed with HCV face when accessing services in traditional health care settings. Three agencies, each with a different model, are funded to provide HCV services in a non-traditional setting, including: co-location at syringe exchange program/drug user health hub, onsite at drug treatment programs, and via mobile van or tele-health technology. This summary describes the characteristics and outcomes of clients enrolled in the initiative from July 2019 through June 2022.

Figure 22.1: Innovative Models, Client Demographics, 2019-2022



From 2019-2022,

3
Innovative Models of Care

244
Patients enrolled

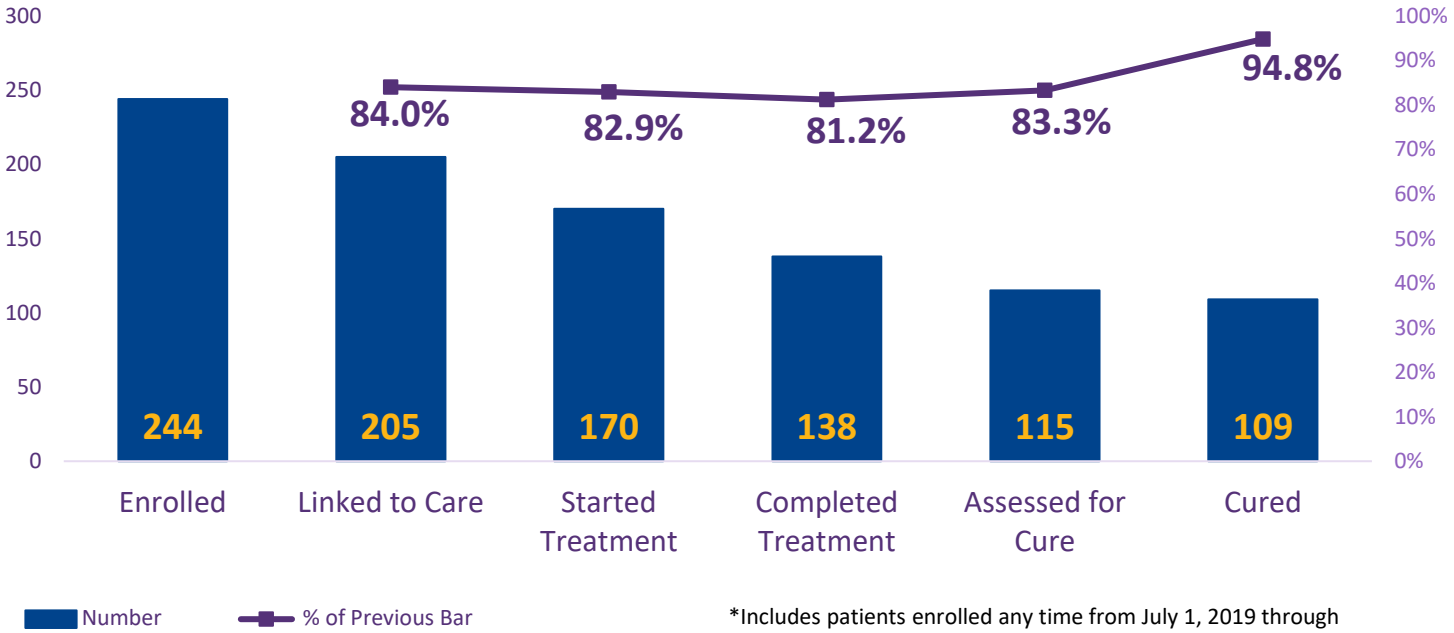
74.2%
have a history of injection drug use

14.8%
are homeless, living on the street or in a shelter

0.8%
are in a correctional facility (jail/prison)

91.4%
are insured by Medicaid

Figure 22.2: Innovative Models, HCV Care Continuum, 2019-2022



*Includes patients enrolled any time from July 1, 2019 through June 30, 2022 and reflects treatment status as of Feb. 1, 2023.

Note. Data Source: AIDS Institute Reporting System (AIRS).

Infographic 23: Mortality due to Hepatitis B, Hepatitis C, or Liver Cancer, NYS, 1999-2021

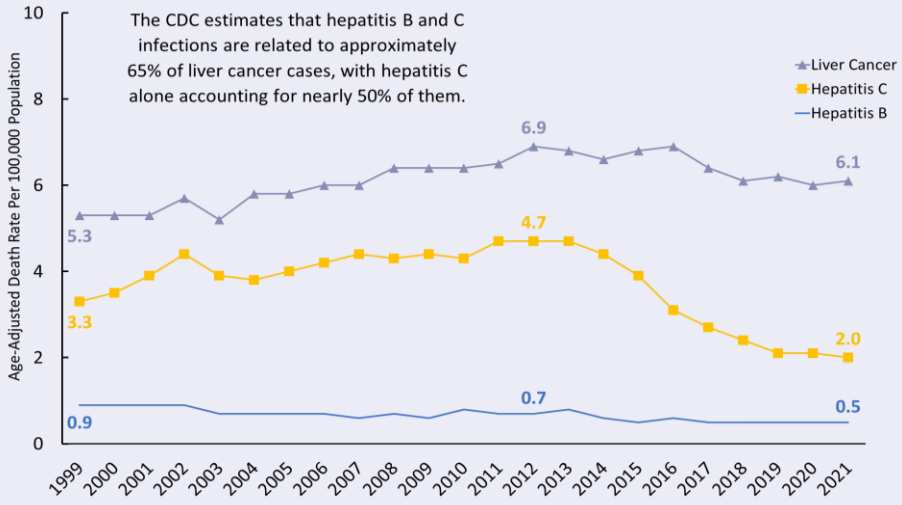
Deaths from Liver Cancer, Hepatitis B and Hepatitis C – National Center for Health Statistics

Figure 23.1: Age-Adjusted Death Rates Due to Hepatitis B & C, and Liver Cancer, New York State: 1999- 2021

Age-adjusted liver cancer death rates in New York State (NYS) peaked at 6.9/100,000 in 2012. From 2012 to 2021 the rate decreased by 11.6%.

Age-adjusted hepatitis C death rates peaked at 4.7/100,000 in 2012. From 2012 to 2021, the rate decreased by 57.4%.

Age-adjusted hepatitis B death rates have remained lower than 1/100,000 since 1999.

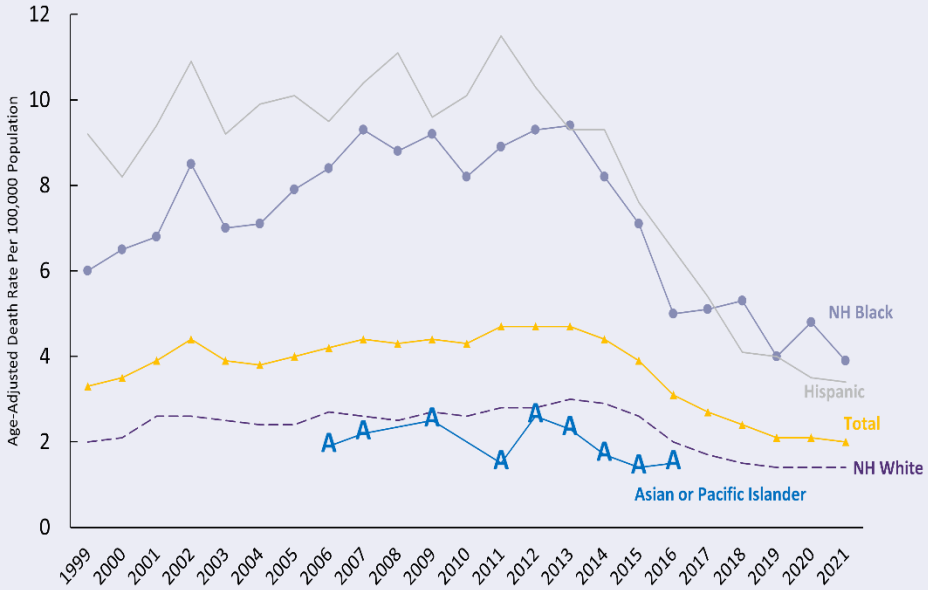


Source: CDC Wonder Multiple Cause of Death files
ICD-10 Codes Hep. B (B16.0-B16.2, B16.9, B17.0, B18.0, B18.1) Hep. C (B17.1, B18.2)
Liver Cancer (C22)

Figure 23.2: Age-Adjusted Hepatitis C Death Rates by Race/Ethnicity, New York State: 1999-2021

Among race/ethnicities with 20 or more hepatitis C deaths per year, age-adjusted death rates were highest in the non-Hispanic Black and Hispanic populations.

When available, yearly age-adjusted death rates in the Asian/Pacific Islander community were consistently lower than death rates in the White population.



Source: CDC Wonder Multiple Cause of Death files ICD-10 Codes: Hep. C (B17.1, B18.2)
When yearly deaths are below 20, age-adjusted death rates are unavailable.
Due to small numbers, unable to show year-by-year data for Native Americans.

- Yearly age-adjusted rates in the Native American population were unavailable for all years. However, from 2012-2020, the average age-adjusted death rate in this group was 2.8/100,000 pop.
- The age-adjusted death rate in the Native American population was lower than the rates in the Hispanic and non-Hispanic Black population (6.5/100,000 pop. and 6.4/100,000 pop. respectively), but higher than the rates in the non-Hispanic White and Asian/Pacific Islander population (2.2/100,000 pop. and 1.3/100,000 pop. respectively).

Data source: National Center for Health Statistics, multiple causes of death file, available at Wonder.cdc.gov.
Centers for Disease Control and Prevention, Viral Hepatitis and Liver Cancer Fact Sheet, March 2016 online
https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/viral-hep-liver-cancer.pdf.

Notes. See Table 3.3 in the Data Appendix for additional information.

Data Appendices

Table 1.1: Newly Reported Hepatitis B Cases, By Sex, Age, and Region, NYS (excl. NYC), 2022

	Female		Male		Total	
	Number of Cases	Rate per 100,000 pop.	Number of Cases	Rate per 100,000 pop.	Number of Cases	Rate per 100,000 pop.
Total	893	15.5	1,089	19.3	1,984	17.4
Perinatal	0	NA	0	NA	0	NA
Acute	8	0.1	11	0.2	19	0.2
Chronic	885	15.4	1,078	19.1	1,965	17.3
Age						
< 2 years	1	NA	1	NA	2	NA
2-9	5	NA	4	NA	9	NA
10-14	3	0.9	0	0.0	3	0.4
15-19	22	6.0	14	3.6	36	4.8
20-24	36	9.8	37	9.6	73	9.7
25-29	70	20.5	57	15.9	127	18.1
30-34	97	28.5	81	23.0	178	25.7
35-39	103	30.2	129	37.0	232	33.6
40-44	96	29.2	146	43.9	242	36.6
45-49	72	21.1	117	34.4	189	27.7
50-54	75	19.2	113	29.3	189	24.4
55-59	69	16.0	90	21.5	160	18.8
60-64	86	21.0	96	24.2	182	22.6
65-69	57	16.6	72	22.3	129	19.3
70-74	44	15.4	61	24.1	105	19.5
75-79	27	13.5	37	22.8	64	17.7
80+	30	9.8	33	17.6	63	12.8
Unknown	0	NA	1	NA	1	NA
Region of Residence						
Central /Syracuse	60	8.4	91	12.7	151	10.5
Finger Lakes/Rochester	42	6.5	70	11.2	112	8.8
Lower Hudson Valley	141	19.2	160	22.7	301	20.9
Mid-Hudson Valley	67	14.1	67	13.9	134	14.0
Nassau-Suffolk	379	25.6	415	28.8	796	27.3
Northeast/Albany	76	10.1	75	9.9	151	10.0
NY Penn/Binghamton	11	7.5	19	13.0	30	10.2
Western NY	117	14.8	160	20.9	277	17.8

Notes. There were no perinatal hepatitis B cases in NYS excluding NYC in 2022. Two chronic hepatitis B cases had unknown sex and one male case with an unknown age. Data represents case counts and rates excluding NYC. Cases are presented in this report by sex at birth. Gender identity information is not presented. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. Total population counts for calculated rates are based upon the US Census 2020 data. Cases among persons incarcerated in the Department of Corrections and Community Supervision (DOCCS) are excluded from regional counts and rates.

Table 1.2: Newly Reported Hepatitis B Cases, by Year and Sex, NYS (excl. NYC), 2012-2022

	Female		Male		Total	
	Total Number of Cases	Rate per 100,000 pop.	Total Number of Cases	Rate per 100,000 pop.	Total Number of Cases	Rate per 100,000 pop.
2012	700	12.2	936	16.6	1,646	14.5
2013	703	12.2	1,095	19.4	1,808	15.9
2014	736	12.8	1,105	19.6	1,846	16.2
2015	776	13.5	1,066	18.9	1,844	16.2
2016	816	14.2	1,075	19.1	1,894	16.6
2017	848	14.8	1,147	20.3	1,995	17.5
2018	764	13.3	1,097	19.5	1,864	16.4
2019	792	13.8	1,072	19.0	1,866	16.4
2020	688	12.0	849	15.1	1,545	13.6
2021	791	13.8	1,006	17.8	1,799	15.8
2022	893	15.5	1,089	19.3	1,984	17.4

Table 1.3: Newly Reported Hepatitis B Cases, by Year, NYS (excl. NYC), 2012-2022

	No. of Chronic Cases	No. of Acute Cases	No. of Total Cases	Rate per 100,000 pop
2012	1,594	52	1,646	14.5
2013	1,759	49	1,808	15.9
2014	1,806	40	1,846	16.2
2015	1,812	32	1,844	16.2
2016	1,852	42	1,894	16.6
2017	1,958	37	1,995	17.5
2018	1,832	32	1,864	16.4
2019	1,814	52	1,866	16.4
2020	1,520	25	1,545	13.6
2021	1,775	24	1,799	15.8
2022	1,965	19	1,984	17.4

Notes. The acute and chronic hepatitis B case definition has remained unchanged between 2012 -2022. Denominators for rates per 100,000 population use US Census 2020 data for comparison purposes. Cases are presented by sex at birth. Gender identity information is not presented in this report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 1.4: Newly Reported Hepatitis B Cases Among Females and Percent Aged 15-44, NYS (excl. NYC), 2012-2022

	Total no. of case in females	No. of cases in females of reproductive age 15-44	Percent of cases in females of reproductive age
2012	700	396	56.6%
2013	703	401	57.0%
2014	736	415	56.4%
2015	776	420	54.1%
2016	816	440	53.9%
2017	848	455	53.7%
2018	764	410	53.7%
2019	792	438	55.3%
2020	688	329	47.8%
2021	791	389	49.2%
2022	893	424	47.5%

Notes. The acute and chronic hepatitis B case definition has remained unchanged between 2012-2022. Cases are presented by sex at birth. Gender identity information is not present in this report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 1.5: Newly Reported Hepatitis B Cases and Rates per 100,000 pop., by NYS Region (excl. NYC), 2012- 2022

	Central NY/ Syracuse		Finger Lakes/ Rochester		Lower Hudson Valley		Mid-Hudson Valley	
	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.
2012	181	12.6	115	9.0	215	14.9	124	13.0
2013	204	14.2	128	10.0	384	26.7	107	11.2
2014	212	14.8	139	10.9	301	20.9	124	13.0
2015	197	13.8	132	10.3	300	20.8	131	13.7
2016	185	12.9	109	8.5	333	23.1	117	12.2
2017	186	13.0	148	11.6	361	25.1	132	13.8
2018	163	11.4	103	8.1	318	22.1	136	14.2
2019	129	9.0	108	8.5	358	24.9	111	11.6
2020	134	9.4	103	8.1	234	16.3	116	12.1
2021	147	10.3	94	7.4	318	22.1	105	11.0
2022	151	10.5	112	8.8	301	20.9	134	14.0

Table 1.5: Newly Reported Hepatitis B Cases and Rates per 100,000 pop., by NYS Region (excl. NYC), 2012- 2022 (cont'd)

	NY Penn/Binghamton		Nassau-Suffolk		Northeastern NY/ Albany		Western NY/ Buffalo		Statewide Total	
	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.
2012	23	7.8	607	20.8	124	8.2	196	12.6	1,646	14.5
2013	16	5.4	590	20.2	129	8.5	172	11.1	1,808	15.9
2014	20	6.8	658	22.5	168	11.1	174	11.2	1,846	16.2
2015	17	5.8	672	23.0	148	9.8	203	13.1	1,844	16.2
2016	28	9.5	727	24.9	158	10.5	192	12.3	1,894	16.6
2017	15	5.1	787	27.0	160	10.6	158	10.2	1,995	17.5
2018	21	7.2	721	24.7	194	12.9	152	9.8	1,864	16.4
2019	26	8.9	737	25.3	174	11.5	181	11.6	1,866	16.4
2020	26	8.9	633	21.7	117	7.8	161	10.4	1,545	13.6
2021	24	8.2	710	24.3	158	10.5	220	14.1	1,799	15.8
2022	30	10.2	796	27.3	151	10.0	277	17.8	1,984	17.4

Notes. The acute and chronic case definition has remained unchanged between 2012-2022.Cases among persons that are incarcerated in the Department of Corrections and Community Supervision (DOCCS) are excluded from regional case counts. Denominators for rates per 100,000 population use US Census 2020 data for comparison purpose. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 1.6: Newly Reported Hepatitis B Cases and Rates per 100,000 pop, by County, NYS (excl. NYC),2022

County	No. of Cases	2020 Population	Rate per 100,000 pop.
Albany	75	314,368	23.9
Allegany	4	46,373	8.6
Broome	18	198,199	9.1
Cattaraugus	6	76,907	7.8
Cayuga	4	76,095	5.3
Chautauqua	46	127,424	36.1
Chemung	6	83,882	7.2
Chenango	7	47,073	14.9
Clinton	3	79,715	3.8
Columbia	2	61,550	3.2
Cortland	1	46,723	2.1
Delaware	1	44,186	2.3
Dutchess	35	295,742	11.8
Erie	197	953,254	20.7
Essex	0	37,336	0.0
Franklin	1	47,527	2.1
Fulton	6	53,160	11.3
Genesee	3	58,258	5.1
Greene	2	47,890	4.2
Hamilton	0	5,078	0.0
Herkimer	2	60,007	3.3
Jefferson	9	116,134	7.7
Lewis	0	26,538	0.0
Livingston	2	61,699	3.2
Madison	5	67,890	7.4
Monroe	91	758,554	12.0
Montgomery	4	49,433	8.1
Nassau	549	1,393,978	39.4
Niagara	18	212,252	8.5
Oneida	33	231,695	14.2
Onondaga	75	475,653	15.8
Ontario	1	112,475	0.9
Orange	66	401,322	16.4
Orleans	3	40,236	7.5
Oswego	1	117,351	0.9
Otsego	3	58,351	5.1
Putnam	12	97,660	12.3
Rensselaer	16	160,923	9.9
Rockland	65	338,121	19.2
St. Lawrence	6	108,311	5.5
Saratoga	9	235,689	3.8
Schenectady	22	157,861	13.9
Schoharie	2	29,720	6.7
Schuyler	1	17,857	5.6
Seneca	4	33,715	11.9
Steuben	3	93,363	3.2
Suffolk	247	1,524,099	16.2
Sullivan	8	78,643	10.2
Tioga	5	48,355	10.3
Tompkins	15	105,404	14.2
Ulster	25	181,687	13.8
Warren	2	65,638	3.0
Washington	3	61,143	4.9
Wayne	3	91,103	3.3
Westchester	224	1,003,245	22.3
Wyoming	0	40,401	0.0
Yates	1	24,709	4.0

Notes. Cases among persons that are incarcerated in the Department of Corrections and Community Supervision (DOCCS) are excluded from regional case counts. Denominators for rates per 100,000 population use US Census 2020 data for comparison purpose. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 1.7: Newly Reported Hepatitis B Cases, by Age, Race, and Ethnicity, NYS (excl. NYC), 2022

	Persons <40 Years of Age		Persons 40+ Years of Age		Total	
	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases
Race						
White	71	19.7%	267	33.6%	338	17.0%
Black	65	18.0%	152	19.1%	218	11.0%
American Indian	4	1.1%	4	0.5%	8	0.4%
Asian/Pacific Islander	140	38.8%	262	33.0%	402	20.3%
Other	81	22.4%	110	13.8%	191	9.6%
Unknown	299	45.3%	528	39.9%	827	41.7%
Ethnicity						
Hispanic	487	17.3%	966	14.3%	81	4.1%
Non-Hispanic	30	82.7%	51	85.7%	449	22.6%
Unknown	143	73.8%	306	73.0%	1454	73.3%

Table 1.8: Newly Reported Hepatitis B Cases, by Sex, Race, and Ethnicity, NYS (excl. NYC), 2022

	Female		Male		Total	
	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases
Race						
White	144	16.1%	194	17.8%	338	17.0%
Black	94	10.5%	124	11.4%	218	11.0%
American Indian	4	0.4%	4	0.4%	8	0.4%
Asian/Pacific Islander	172	19.3%	229	21.0%	402	20.3%
Other	91	10.2%	100	9.2%	191	9.6%
Unknown	388	43.4%	438	40.2%	827	41.7%
Ethnicity						
Hispanic	44	4.9%	37	3.4%	81	4.1%
Non-Hispanic	193	21.6%	256	23.5%	449	22.6%
Unknown	656	73.5%	796	73.1%	1454	73.3%

Notes. Race and ethnicity information is self-reported and is collected through laboratory reporting and case investigation. "Other" represents Other, unspecified race. Information on race and ethnicity is often missing from surveillance case reports. Cases are presented by sex at birth. Gender identity information is not present in this report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 1.9: Newly Reported Acute Hepatitis B Cases, by Risk Factor, NYS (excl. NYC) 2022

	Yes		No		Unknown		
	No. of Cases	Percent	No. of Cases	Percent	No. of Cases	Percent	Total
Injection drug use	3	15.8%	11	57.9%	5	26.3%	19
Other,non-injection drug use	5	26.3%	9	47.4%	5	26.3%	19
Close contact with person with hepatitis B	4	21.1%	4	21.1%	11	57.9%	19
Ever incarcerated	1	5.3%	11	57.9%	7	36.8%	19
Treated for sexually transmitted infection	1	5.3%	11	57.9%	7	36.8%	19
MSM (Men who have sex with men)	3	27.3%	3	27.3%	5	45.5%	11
Underwent hemodialysis	0	0.0%	16	84.2%	3	15.8%	19
Worked in public safety/ medical field	2	10.5%	12	63.2%	5	26.3%	19
Diabetic	1	5.3%	15	78.9%	3	15.8%	19
Unvaccinated against hepatitis B	6	31.6%	5	26.3%	8	42.1%	19

Table 1.10: Newly Reported Chronic Hepatitis B Cases, by Risk Factor, NYS (excl. NYC) 2022

	Yes		No		Unknown		
	No. of Cases	Percent	No. of Cases	Percent	No. of Cases	Percent	Total
Unvaccinated against hepatitis B	191	9.7%	85	4.3%	1,689	85.9%	1,965
Diabetic	69	3.5%	534	27.2%	1,362	69.3%	1,965
Worked in a medical field	16	0.8%	441	22.4%	1,508	76.7%	1,965
Underwent hemodialysis	23	1.2%	564	28.7%	1,378	70.1%	1,965
MSM (Men who have sex with men)	10	0.9%	179	16.6%	889	82.5%	1,078
Treated for sexually transmitted infections	19	1.0%	321	16.3%	1,625	82.7%	1,965
Ever incarcerated	23	1.2%	363	18.5%	1,579	80.3%	1,965
Close contact with person with hepatitis B	67	3.4%	235	12.0%	1,663	84.6%	1,965
Other,non-injection drug use	21	1.1%	415	21.1%	1,529	77.8%	1,965
Injection drug use	24	1.2%	414	21.1%	1,527	77.7%	1,965

Notes. MSM presents cases assigned male sex at birth who have reported having at least 1 male sexual partner. Risk factors for acute cases are collected for 160 days, approximately 6 months, prior to their positive test results. Risk factors for chronic cases are collected through an individual's lifetime. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

DATA APPENDIX 2- HEPATITIS C SURVEILLANCE DATA

Table 2.1: Newly Reported Cases of Hepatitis C, By Sex, Age, and Region, NYS (excl. NYC), 2022

	Female		Male		Total	
	Number of Cases	Rate per 100,000 pop.	Number of Cases	Rate per 100,000 pop.	Number of Cases	Rate per 100,000 pop.
Total	1,258	21.9	2,111	37.5	3,374	29.6
Perinatal	3	N/A	1	N/A	4	N/A
Acute	84	1.5	173	3.1	257	2.3
Chronic	1,171	20.4	1,937	34.4	3,113	27.4
Age						
<3 years	3	N/A	1	N/A	4	N/A
3-9	4	N/A	3	N/A	7	N/A
10-14	-	N/A	1	0.3	1	0.1
15-19	15	4.1	14	3.6	29	3.8
20-24	63	17.1	58	15.1	121	16.0
25-29	162	47.5	222	61.8	384	54.8
30-34	205	60.2	336	95.2	541	78.0
35-39	193	56.5	310	88.9	503	72.9
40-44	119	36.2	232	69.7	352	53.2
45-49	71	20.8	139	40.8	210	30.8
50-54	77	19.8	130	33.7	207	26.7
55-59	64	14.8	169	40.3	234	27.5
60-64	83	20.3	175	44.1	258	32.0
65-69	86	25.0	158	48.8	245	36.7
70-74	50	17.5	105	41.4	155	28.8
75-79	34	17.1	36	22.2	70	19.3
80+	29	9.5	21	11.2	51	10.4
Unknown	-	N/A	1	N/A	2	N/A
Region of Residence						
Central /Syracuse	232	32.4	351	49.1	583	40.7
Finger Lakes/Rochester	114	17.5	226	36.0	340	26.6
Lower Hudson Valley	99	13.5	127	18.0	227	15.8
Mid-Hudson Valley	143	30.1	219	45.5	363	37.9
Nassau-Suffolk	190	12.9	323	22.4	514	17.6
Northeast/Albany	199	26.3	281	37.3	481	31.9
NY Penn/Binghamton	50	33.9	105	71.8	156	53.1
Western NY	214	27.1	333	43.5	547	35.2

Notes. Total case count includes 5 cases of chronic hepatitis C that have an unknown sex at birth. Cases are presented by sex at birth. Gender identity information is not presented in this report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report. Total population counts for rates are based on the US Census 2020 data. Cases among persons incarcerated in the Department of Corrections and Community Supervision (DOCCS) are excluded from regional case counts.

Table 2.2: Newly Reported Hepatitis C Cases Among Females and Percent Aged 15-44, NYS (excl. NYC), 2012-2022

	Total no. of cases in females	No. of cases in females of reproductive age 15-44	Percent of cases in females of reproductive age
2012	2,530	1,096	43.3%
2013	2,566	1,312	51.1%
2014	3,361	1,614	48.0%
2015	3,255	1,843	56.6%
2016	3,258	1,924	59.1%
2017	3,198	1,918	60.0%
2018	2,642	1,650	62.5%
2019	2,117	1,325	62.6%
2020	1,507	941	62.4%
2021	1,476	903	61.2%
2022	1,258	757	60.2%

Table 2.3: Newly Reported Hepatitis C Cases, by Sex and Year, NYS (excl. NYC) 2012-2022

	Female		Male		Total	
	Total Number of Cases	Rate per 100,000 pop.	Total Number of Cases	Rate per 100,000 pop.	Total Number of Cases	Rate per 100,000 pop.
2012	2,530	44.0	4,336	76.9	6,885	60.5
2013	2,566	44.7	4,305	76.4	6,890	60.5
2014	3,361	58.5	5,408	95.9	8,814	77.4
2015	3,255	56.7	5,265	93.4	8,569	75.3
2016	3,258	56.7	5,034	89.3	8,322	73.1
2017	3,198	55.7	5,005	88.8	8,212	72.1
2018	2,642	46.0	4,266	75.7	6,913	60.7
2019	2,117	36.8	3,533	62.7	5,660	49.7
2020	1,507	26.2	2,614	46.4	4,125	36.2
2021	1,476	25.7	2,481	44.0	3,962	34.8
2022	1,258	21.9	2,111	37.5	3,374	29.6

Notes. The acute and chronic hepatitis C case definition was updated in 2016 and 2020. Comparisons across years should be interpreted with caution. Data quality activities performed by the Bureau of Hepatitis Health Care and Epidemiology have influenced changes in case counts and rates across previous years' reports. Denominators for rates per 100,000 population use US Census 2020 data for comparison purposes. Cases are presented by sex at birth. Gender identity information is not presented in this report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 2.4: Newly Reported Hepatitis C Cases, by Year, NYS (excl. NYC), 2012-2022

	No. of Chronic	No. of Acute Cases	No. of Total Cases	Rate per 100,000 pop
2012	6,805	80	6,885	60.5
2013	6,775	115	6,890	60.5
2014	8,700	114	8,814	77.4
2015	8,456	113	8,569	75.3
2016	8,124	198	8,322	73.1
2017	8,009	203	8,212	72.1
2018	6,667	237	6,913	60.7
2019	5,397	251	5,660	49.7
2020	3,792	328	4,125	36.2
2021	3,673	281	3,962	34.8
2022	3,113	257	3,374	29.6

Table 2.5: Newly Reported Hepatitis C Cases in Person under 40 Years of Age and Persons Born Between 1945-1965, NYS (excl. NYC), 2012-2022

	Count cases age at time of diagnosis <40	Percent of total cases age at time of diagnosis <40	Count cases Born between 1945 - 1965**	Percent of total cases Born between 1945 - 1965
2012	2,229	32.4%	3,620	52.6%
2013	2,706	39.3%	3,140	45.6%
2014	3,451	39.2%	4,091	46.4%
2015	3,950	46.1%	3,353	39.1%
2016	4,074	49.0%	2,876	34.6%
2017	4,178	50.9%	2,624	32.0%
2018	3,546	51.3%	2,058	29.8%
2019	2,875	50.8%	1,580	27.9%
2020	2,076	50.3%	1,104	26.8%
2021	1,935	48.8%	1,054	26.6%
2022	1,590	47.1%	872	25.8%

Note. Cases born between 1945-1965 represent the 'Baby Boomer' population. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 2.6: Newly Reported Hepatitis C Cases and Rates per 100,000 pop., by NYS Region (excl. NYC), 2012- 2022

	Central NY/ Syracuse		Finger Lakes/ Rochester		Lower Hudson Valley		Mid Hudson Valley	
	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.
2012	789	55.1	652	51.0	992	68.9	689	72.0
2013	809	56.5	676	52.9	813	56.5	687	71.8
2014	1,098	76.7	884	69.2	928	64.5	874	91.3
2015	1,177	82.2	771	60.4	775	53.9	879	91.8
2016	1,240	86.6	719	56.3	654	45.4	803	83.9
2017	1,287	89.9	734	57.5	546	37.9	822	85.9
2018	1,066	74.5	665	52.1	509	35.4	683	71.3
2019	947	66.1	515	40.3	476	33.1	615	64.2
2020	780	54.5	368	28.8	325	22.6	433	45.2
2021	737	51.5	333	26.1	296	20.6	485	50.7
2022	583	40.7	340	26.6	227	15.8	363	37.9

Table 2.6: Newly Reported Hepatitis C Cases and Rates per 100,000 pop., by NYS Region (excl. NYC), 2012- 2022 (cont'd)

	NY Penn/ Binghamton		Nassau-Suffolk		Northeastern NY/ Albany		Western NY/ Buffalo		Statewide Total	
	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.	No. of Cases	Rate per 100,000 pop.
2012	180	61.3	1,256	43.0	803	53.2	871	56.0	6,885	60.5
2013	214	72.9	1,325	45.4	824	54.6	984	63.3	6,890	60.5
2014	302	102.9	1,630	55.9	993	65.8	1,404	90.3	8,814	77.4
2015	295	100.5	1,502	51.5	1,056	70.0	1,449	93.2	8,569	75.3
2016	293	99.8	1,556	53.3	922	61.1	1,584	101.9	8,322	73.1
2017	326	111.0	1,404	48.1	1,081	71.6	1,510	97.1	8,212	72.1
2018	321	109.3	1,181	40.5	885	58.6	1,226	78.8	6,913	60.7
2019	254	86.5	980	33.6	787	52.1	793	51.0	5,660	49.7
2020	171	58.2	665	22.8	642	42.5	617	39.7	4,125	36.2
2021	171	58.2	580	19.9	593	39.3	604	38.8	3,962	34.8
2022	156	53.1	514	17.6	481	31.9	547	35.2	3,374	29.6

Notes. The acute and chronic hepatitis C case definition was updated in 2016 and 2020. Comparisons across years should be interpreted with caution. Data quality activities performed by the Bureau of Hepatitis Health Care and Epidemiology have influenced changes in case counts and rates across previous years' reports. Denominators for rates per 100,000 population use US Census 2020 data for comparison purposes. Cases are presented by sex at birth. Gender identity information is not presented in this report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 2.7: Newly Reported Hepatitis C Cases and Rates per 100,000 pop, by County, NYS (excl. NYC),2022

County	No. of Cases	2020 Population	Rate per 100,000 pop
Albany	81	314,368	25.8
Allegany	15	46,373	32.3
Broome	109	198,199	55.0
Cattaraugus	32	76,907	41.6
Cayuga	48	76,095	63.1
Chautauqua	83	127,424	65.1
Chemung	49	83,882	58.4
Chenango	27	47,073	57.4
Clinton	41	79,715	51.4
Columbia	17	61,550	27.6
Cortland	12	46,723	25.7
Delaware	24	44,186	54.3
Dutchess	105	295,742	35.5
Erie	282	953,254	29.6
Essex	16	37,336	42.9
Franklin	16	47,527	33.7
Fulton	15	53,160	28.2
Genesee	15	58,258	25.7
Greene	24	47,890	50.1
Hamilton	1	5,078	19.7
Herkimer	14	60,007	23.3
Jefferson	48	116,134	41.3
Lewis	5	26,538	18.8
Livingston	20	61,699	32.4
Madison	20	67,890	29.5
Monroe	177	758,554	23.3
Montgomery	22	49,433	44.5
Nassau	207	1,393,978	14.8

County	No. of Cases	2020 Population	Rate per 100,000 pop
Niagara	104	212,252	49.0
Oneida	118	231,695	50.9
Onondaga	188	475,653	39.5
Ontario	17	112,475	15.1
Orange	115	401,322	28.7
Orleans	6	40,236	14.9
Oswego	51	117,351	43.5
Otsego	14	58,351	24.0
Putnam	14	97,660	14.3
Rensselaer	40	160,923	24.9
Rockland	48	338,121	14.2
Saratoga	47	235,689	19.9
Schenectady	61	157,861	38.6
Schoharie	16	29,720	53.8
Schuyler	5	17,857	28.0
Seneca	11	33,715	32.6
St. Lawrence	55	108,311	50.8
Steuben	39	93,363	41.8
Suffolk	307	1,524,099	20.1
Sullivan	57	78,643	72.5
Tioga	20	48,355	41.4
Tompkins	24	105,404	22.8
Ulster	86	181,687	47.3
Warren	30	65,638	45.7
Washington	16	61,143	26.2
Wayne	19	91,103	20.9
Westchester	165	1,003,245	16.4
Wyoming	10	40,401	24.8
Yates	3	24,709	12.1

Notes. Cases among persons that are incarcerated in the Department of Corrections and Community Supervision (DOCCS) are excluded from regional case counts. Denominators for rates per 100,000 population use US Census 2020 data for comparison purpose. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 2.8: Newly Reported Hepatitis C Cases, by Sex, Race, and Ethnicity, NYS (excl. NYC), 2022

	Female		Male		Total	
	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases
Race						
White	699	55.6%	1,139	54.0%	1,839	54.5%
Black	89	7.1%	189	9.0%	278	8.2%
American Indian	6	0.5%	21	1.0%	27	0.8%
Asian/Pacific Islander	21	1.7%	18	0.9%	39	1.2%
Other	81	6.4%	176	8.3%	258	7.6%
Unknown	362	28.8%	568	26.9%	933	27.7%
Ethnicity						
Hispanic	33	2.6%	108	5.1%	141	4.2%
Non-Hispanic	510	40.5%	837	39.6%	1,348	40.0%
Unknown	715	56.8%	1,166	55.2%	1,885	55.9%

Table 2.9: Newly Reported Hepatitis C Cases, by Age, Race, and Ethnicity, NYS (excl. NYC), 2022

	Persons <40 Years of Age		Persons 40+ Years of Age		Total	
	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases
Race						
White	923	58.1%	915	51.3%	1,839	54.5%
Black	107	6.7%	171	9.6%	278	8.2%
American Indian	14	0.9%	13	0.7%	27	0.8%
Asian/Pacific Islander	13	0.8%	26	1.5%	39	1.2%
Other	114	7.2%	143	8.0%	258	7.6%
Unknown	419	26.4%	514	28.8%	933	27.7%
Ethnicity						
Hispanic	72	4.5%	69	3.9%	141	4.2%
Non-Hispanic	694	43.6%	654	36.7%	1,348	40.0%
Unknown	824	51.8%	1059	59.4%	1885	55.9%

Notes. Race and ethnicity information is self-reported and is collected through laboratory reporting and case investigation. "Other" represents Other, unspecified race. Information on race and ethnicity is often missing from surveillance case reports. Cases are presented by sex at birth. Gender identity information is not present in this report. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 2.10: Newly Reported Chronic Hepatitis C Cases, by Risk Factor, NYS (excl. NYC) 2022

	Yes		No		Unknown		
	No. of Cases	Percent	No. of Cases	Percent	No. of Cases	Percent	Total
Injection drug use	698	22.4%	218	7.0%	2,197	70.6%	3,113
Other, non-injection drug use	669	21.5%	164	5.3%	2,280	73.2%	3,113
Close contact with person who has hepatitis C	319	10.2%	209	6.7%	2,585	83.0%	3,113
Ever incarcerated	299	9.6%	292	9.4%	2,522	81.0%	3,113
Treated for sexually transmitted infection	116	3.7%	313	10.1%	2,684	86.2%	3,113
MSM (Men who have sex with men)	20	1.0%	203	10.5%	1,714	88.5%	1,937
Underwent hemodialysis	10	0.3%	752	24.2%	2,351	75.5%	3,113
Transfusion, transplant, clotting factor recipient*	25	0.8%	506	16.3%	2,582	82.9%	3,113
Diabetic	73	2.3%	738	23.7%	2,302	73.9%	3,113

Table 2.11: Newly Reported Acute Hepatitis C Cases, by Risk Factor, NYS (excl. NYC) 2022

	Yes		No		Unknown		
	No. of Cases	Percent	No. of Cases	Percent	No. of Cases	Percent	Total
Injection drug use	123	47.9%	29	11.3%	105	40.9%	257
Other, non-injection drug use	96	37.4%	0	0.0%	161	62.6%	257
Close contact with person with hepatitis C	56	21.8%	38	14.8%	163	63.4%	257
Incarceration	44	17.1%	51	19.8%	162	63.0%	257
Tattoo or piercing	10	3.9%	0	0.0%	247	96.1%	257
Treated for sexually transmitted infection	19	7.4%	70	27.2%	168	65.4%	257
> 1 sex partner	21	8.2%	24	13.9%	212	82.5%	257
MSM (Men who have sex with men)	6	3.5%	44	25.4%	123	71.1%	173
Underwent hemodialysis	4	1.6%	124	48.2%	129	50.2%	257
Worked in public safety/ medical field	5	1.9%	61	23.7%	191	74.3%	257
Diabetic	15	5.8%	121	47.1%	121	47.1%	257

Notes. *Recipient of transfusion and/or transplant before 1992 and/or recipient of clotting factor before 1987. MSM presents cases assigned male sex at birth who have reported having at least 1 male sexual partner. Risk factors for acute cases are collected for 160 days, approximately 6 months, prior to their positive test results. Risk factors for chronic cases are collected through an individual's lifetime. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 3.1 Time Frame and Definitions for the 2021 Laboratory-Based Hepatitis C Virus Clearance Cascade

- Cascade starting point: January 1, 2016, the date when hepatitis C virus RNA negative/"not detected" reporting was fully implemented in New York State.

Step 1—Ever infected. All individuals with any positive/"detected" HCV test (anti-HCV, RNA, detectable genotype, or core antigen) performed from the starting point through the end of the ever-infected period (December 31, 2020). The test performance date is the specimen collection date (or laboratory result date if specimen collection date is not available). All individuals who are known to be living outside the jurisdiction or deceased as of the end of the follow-up period (December 31, 2021) should be excluded entirely from the cascade.

Step 2—Viral testing performed. This category includes all individuals who were ever infected (Step 1):

- *2a - No HCV viral test reported*—All individuals who have no HCV viral test performed by the end of the follow-up period (December 31, 2021).
- *2b - HCV viral test performed*—All individuals who have any HCV viral test performed by the end of the follow-up period (December 31, 2021), regardless of the result.

Step 3—Initial infection status. This category includes all individuals with viral testing performed (Step 2b):

- *3a – Initial HCV infection cured or cleared*—All individuals whose initial HCV viral test result performed during the follow-up period (through December 31, 2021) was "not detected."
- *3b - Initial HCV infection present*—All individuals whose initial HCV viral test result performed during the follow-up period (through December 31, 2021) was "detected."

Step 4—Cured or cleared. This category includes all individuals with an initial HCV viral test result "detected" (Step 3b):

- *4a – HCV infection not cured or cleared during the cascade timeframe*—All individuals where no subsequent HCV viral test results were performed or where all subsequent HCV viral test results during the follow-up period (through December 31, 2021) were "detected."
- *4b – HCV infection cured or cleared during the cascade timeframe*—All individuals where a subsequent HCV viral test result "not detected" was performed during the follow-up period (through December 31, 2021).

Note: The cascade is unable to distinguish between cured (referring to successful treatment response) and cleared (referring to natural, spontaneous clearance).
Note: A patient with a single, detectable HCV RNA result would populate all of the first four Steps—Step 1, Step 2b, Step 3b, and Step 4a .

Step 5—Persistent infection or reinfection.

- 5a – Persistent infection or reinfection—All individuals where a negative/ "not detected" result (Step 3a) is followed by an HCV viral test result positive/"detected."
- 5b – Persistent infection or reinfection—All individuals where a negative/ "not detected" result (Step 4b) is followed by an HCV viral test result positive/"detected."

Note: The cascade is unable to distinguish among the reasons for persistent infection (e.g., incomplete treatment, treatment failure, viral breakthrough), reinfection, or false positive reports (rare). For simplicity, there is no minimum time period after an HCV viral negative/"not detected" test result (cured or

cleared) and before a subsequent HCV viral positive/“detected” test result occurs to qualify as a persistent infection or reinfection. Regardless of whether these infections represent persistent infections or reinfections, this group represents an important opportunity for linkage to care and treatment.

All individuals known to be living outside the jurisdiction or deceased as of the end of the follow-up period (December 31, 2021) were excluded from the cascade.

Table 3.2: Conditional Percentages of Laboratory-based Hepatitis C Virus Clearance Cascade, NYS (excl. NYC), by Age, Sex, Race, Race, and Ethnicity, 2016-2021

	Ever Infected	Viral Testing		Initial Infection		Cured/Cleared		Persistent infection/ Reinfection	
	Number (1)	Number (2b)	Percent of Previous Column (2b/1)	Number (3b)	Percent of Previous Column (3b/2b)	Number (4b)	Percent of Previous Column (4b/3b)	Number (5b)	Percent of Previous Column (5b/4b)
Total									
	109,371	100,239	91.7%	57,973	57.8%	32,944	56.8%	3,188	9.7%
Age									
<20	654	424	85.8%	121	28.5%	52	43.0%	5	9.6%
20-29	9,098	7,144	91.5%	4,382	61.3%	2,209	50.4%	311	14.1%
30-39	22,419	18,321	92.0%	12,415	67.8%	6,609	53.2%	928	14.0%
40-49	16,340	13,275	92.5%	8,499	64.0%	4,718	55.5%	605	12.8%
50-59	22,045	17,500	92.5%	9,832	56.2%	5,974	60.8%	503	8.4%
60-69	38,363	29,243	92.1%	15,708	53.7%	9,648	61.4%	593	6.2%
70+	19,798	14,307	89.3%	7,001	48.9%	3,733	53.3%	243	6.5%
Sex									
Male	67,069	61,579	91.8%	38,053	61.8%	21,648	56.9%	2,249	10.4%
Female	42,057	38,499	95.4%	19,831	51.5%	11,258	56.8%	936	8.3%
Unknown Sex	191	161	84.8%	89	55.3%	38	42.7%	3	7.9%
Race									
Asian	1,392	1,266	91.0%	510	40.3%	325	63.7%	24	7.4%
Black/African American	14,148	13,255	93.7%	8,206	61.9%	4,654	56.7%	395	8.5%
Multiracial	428	420	98.1%	275	65.5%	176	64.0%	38	21.6%
Native American/Alaskan Native	558	504	90.3%	337	66.9%	185	54.9%	17	9.2%
Native Hawaiian/Pacific Island	8	8	100.0%	3	37.5%	1	33.3%	0	0.0%
White	52,562	48,487	92.3%	29,665	61.2%	17,025	57.4%	1,810	10.6%
Other, unspecified Race	5,066	4,753	93.8%	2,487	52.3%	1,395	56.1%	177	12.7%
Unknown Race	35,155	31,546	89.7%	16,490	52.3%	9,183	55.7%	727	7.9%
Ethnicity									
Hispanic/Latino	9,323	8,774	94.1%	5,385	61.4%	2,206	59.0%	431	13.6%
Not Hispanic/Latino	40,412	37,550	92.9%	24,465	65.2%	10,290	57.9%	1,493	10.5%
Unknown Race	59,582	53,915	90.5%	28,123	52.2%	12,533	55.4%	1,264	8.1%

Notes. See *Variable Definitions* on page 5 and *About Data* on page 6 in this report.

Table 3.3: Age-Adjusted Death Rates Due to Hepatitis B, Hepatitis C, and Liver Cancer, New York State, 1999-2021

	Hepatitis B		Hepatitis C		Liver Cancer	
	Number of Deaths	Age-Adjusted Death Rate Per 100,000	Number of Deaths	Age-Adjusted Death Rate Per 100,000	Number of Deaths	Age-Adjusted Death Rate Per 100,000
1999	174	0.9	616	3.3	1,007	5.3
2000	176	0.9	663	3.5	1,031	5.3
2001	181	0.9	767	3.9	1,043	5.3
2002	186	0.9	874	4.4	1,127	5.7
2003	142	0.7	782	3.9	1,045	5.2
2004	142	0.7	778	3.8	1,178	5.8
2005	139	0.7	827	4.0	1,193	5.8
2006	144	0.7	889	4.2	1,244	6.0
2007	134	0.6	939	4.4	1,271	6.0
2008	150	0.7	951	4.3	1,361	6.4
2009	124	0.6	992	4.4	1,390	6.4
2010	167	0.8	977	4.3	1,403	6.4
2011	165	0.7	1,105	4.7	1,462	6.5
2012	143	0.7	1,118	4.7	1,575	6.9
2013	179	0.8	1,139	4.7	1,584	6.8
2014	147	0.6	1,092	4.4	1,569	6.6
2015	115	0.5	979	3.9	1,634	6.8
2016	138	0.6	789	3.1	1,683	6.9
2017	123	0.5	701	2.7	1,590	6.4
2018	115	0.5	615	2.4	1,561	6.1
2019	113	0.5	556	2.1	1,585	6.2
2020	125	0.5	567	2.1	1,565	6.0
2021	124	0.5	535	2.0	1,602	6.1

Source: CDC Wonder Multiple Causes of Death files

ICD-10 Codes: Hep.B (B16.0-B16.2, B19.9, B17.0, B18.0, B18.1) Hep.C (B.17.1, B18.2)
Liver Cancer (C22)