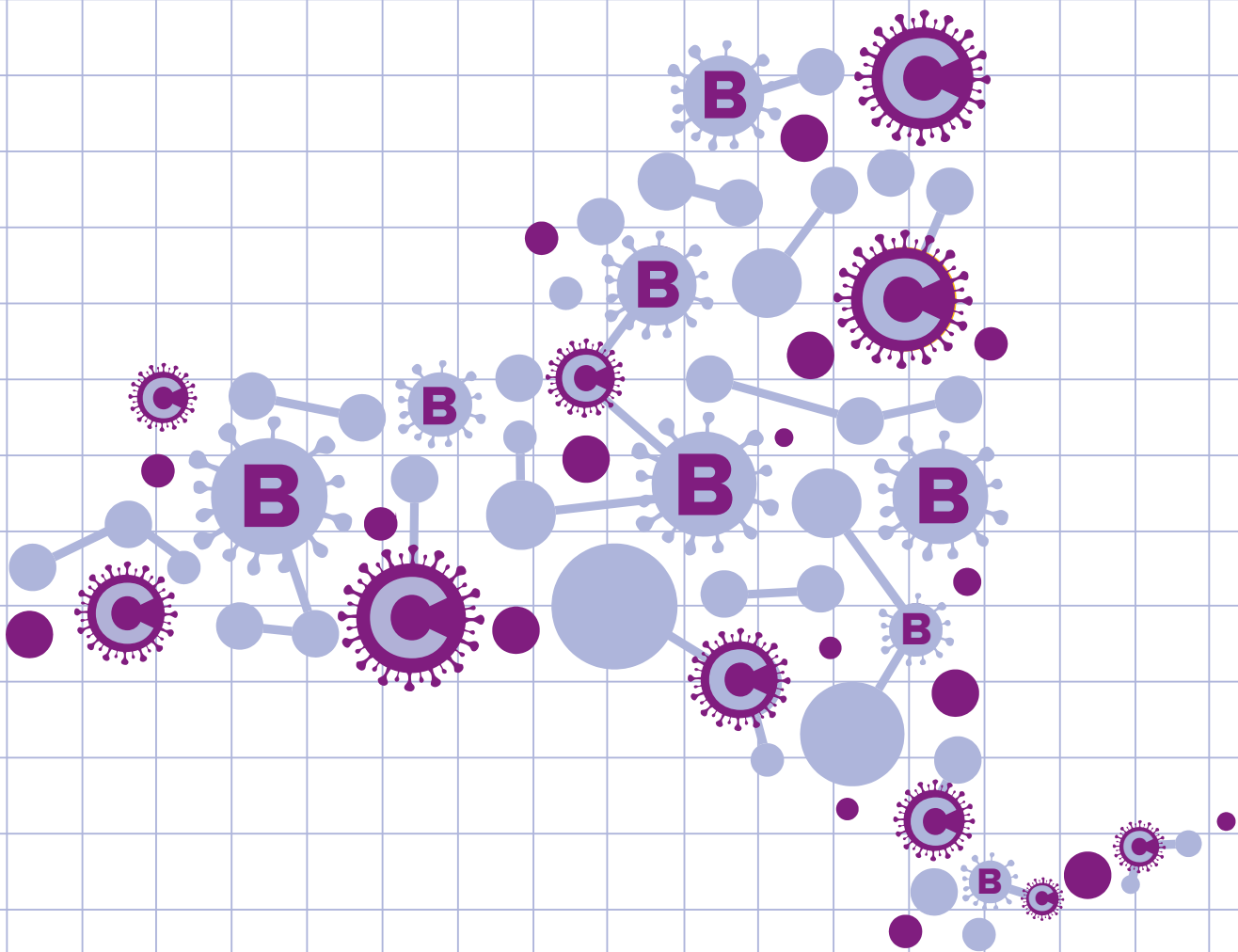


New York State Department of Health

Hepatitis B and C Annual Report 2020



Surveillance, Prevention, Programs and Special Projects

Table of Contents

Report Highlights	5
Background	7
Technical Notes	8
Viral Hepatitis Case Surveillance Data (for New York State, excluding New York City)	12
Hepatitis B	12
Figure 1.1 Hepatitis B Number and Rate of Newly Reported Cases Acute and Chronic, by Year 2012-2020	12
Table 1.1 Hepatitis B Newly Reported Cases in 2020	13
Figure 1.2 Hepatitis B Rate per 100,000 pop. by Region 2012-2020	14
Figure 1.3a County Map, Rates of Newly Reported Hepatitis B Cases Reported in 2020 per 100,000 population	15
Figure 1.3b County Map, Newly Reported Hepatitis B Cases Reported in 2020 per 100,000 population	16
Figure 1.4 Hepatitis B Median Age at Time of First Report, by Sex 2012-2020	17
Figure 1.5a Hepatitis B Race of Newly Reported Cases 2020, Including those with Unknown Race	17
Figure 1.5b Hepatitis B Race of Newly Reported Cases 2020, Excluding those with Unknown Race	18
Figure 1.5c Hepatitis B Ethnicity of Newly Reported Cases 2020, Including Cases with Unknown Ethnicity	19
Figure 1.5d Hepatitis B Ethnicity of Newly Reported Cases 2020, Excluding Cases with Unknown Ethnicity.....	19
Table 1.6 Risk Factors in Chronic Hepatitis B Newly Reported Cases in 2020	20
Figure 1.6 Chronic Hepatitis B Risk Factors for Newly Reported Cases in 2020	20
Perinatal Hepatitis B Prevention Program (PHBPP)	21
Figure 1.7 PHBPP 2019 Birth Cohort	22
Figure 1.8 Hepatitis B Birth Dose Vaccination Rate (Percent) by Region 2020	22
Hepatitis C	23
Table 2.1 Hepatitis C Cases Newly Reported in 2020	24
Figure 2.1 Hepatitis C Number and Rate of Newly Reported Cases by Year, 2012-2020 ..	25

Figure 2.2 Hepatitis C Rate per 100,000 pop. by Region, 2012-2020 26

Figure 2.3a County Map, Rates of Newly Reported Hepatitis C Cases in 2020 per 100,000 pop..... 27

Figure 2.3b County Map, Newly Reported Cases Hepatitis C in 2020 per 100,000 pop. 28

Figure 2.4a-c Hepatitis C by Year of Birth and Sex – in 2008, 2012 and 2020 29

Figure 2.4d Hepatitis C Median Age at Case Report, by Sex 2012-2020 30

Figure 2.4e Newly Reported Hepatitis C Cases among Females of Childbearing Age (15-44), 2012-2020 30

Figure 2.5a Hepatitis C Race of Reported Cases, 2020, Including those Cases with Unknown Race 31

Figure 2.5b Hepatitis C Race of Newly Reported Cases, 2020, Excluding those Cases with Unknown Race..... 31

Figure 2.5c Hepatitis C Ethnicity of Newly Reported Cases, 2020, Including those Cases with Unknown Ethnicity..... 32

Figure 2.5d Hepatitis C Ethnicity of Newly Reported Cases, 2020, Excluding those Cases with Unknown Ethnicity..... 32

Table 2.6a Risk Factors in Acute Hepatitis C Cases Newly Reported in 2020..... 33

Figure 2.6a Acute Hepatitis C Risk Factors for Cases Newly Reported in 2020 34

Table 2.6b Risk Factors in Chronic Hepatitis C Cases Newly Reported in 2020 34

Figure 2.6b Chronic Hepatitis C Risk Factors for Cases Newly Reported in 2020 35

AIDS Institute Hepatitis C Programs, Initiatives and Special Studies 36

Hepatitis C Testing Program 36

Figure 3.1 Testing and Reactivity Rate by Year, HCV Rapid Testing Program: 2016-2020 37

Figure 3.2 Acceptance of RNA Testing Among Clients with Positive HCV Antibody Test by Availability and Type of Onsite RNA Testing 37

Table 3.1 Client Characteristics and HCV Rapid Testing Reactivity of all Clients Tested for HCV Antibodies: NYSDOH HCV Testing Program, 2020..... 38

NYS Hepatitis C Patient Navigation Initiative 39

Table 4.1 Patient Characteristics NYSDOH HCV Patient Navigation Initiative, Nov. 1, 2018-Oct. 31, 2020 40

Figure 4.1 HCV Care Continuum: NYSDOH Patient Navigation Initiative Years 1 & 2 41

Hepatitis C Care and Treatment Initiative 42

 Table 5.1 Patient Characteristics NYSDOH HCV Care and Treatment Initiative, Apr. 1, 2015-Mar. 31, 2020 43

 Figure 5.1 HCV Care Continuum: NYSDOH Care and Treatment Initiative Years 1-6 44

Hepatitis C Criminal Justice Initiative 45

 Table 6.1 Demographics of Enrolled Releasees NYSDOH Criminal Justice Initiative, Aug. 1, 2019-July 31, 2020..... 46

 Figure 6.1 Released After HCV Treatment Initiation: NYSDOH Criminal Justice Initiative HCV Care Continuum..... 47

 Figure 6.2 Released Before HCV Treatment Initiation: NYSDOH Criminal Justice Initiative HCV Care Continuum..... 47

Behavioral Risk Factor Surveillance System (BRFSS) in New York State 48

 Table 7.1 New York State Adults Ever Tested for Hepatitis C: Behavioral Risk Factor Surveillance System, 2019 48

 Table 7.2 New York State Adults Ever Told They Had Hepatitis C: Behavioral Risk Factor Surveillance System, 2019 49

Additional Data..... 50

 Deaths from Liver Cancer, Hepatitis B and Hepatitis C – National Center for Health Statistics 50

 Figure 8.1 Age-Adjusted Death Rates Due to Hepatitis B & C & Liver Cancer New York State (Excluding NYC): 1999-2020 50

 Table 8.1 Deaths Due to Hepatitis B New York State (Excluding NYC) 1999-2010 and 2011-2020 51

 Figure 8.2 Hepatitis C Age-Adjusted Death Rates/100,000 by Race/Ethnicity New York State (Excluding NYC): 1999-2020 52

 Table 8.2 Deaths Due to Hepatitis C New York State (Excluding NYC) 1999-2010 and 2011-2020 52

Relevant Links 53

List of Acronyms.....54

Hepatitis B Surveillance

- During 2020, 1,556 cases of hepatitis B were newly reported to the New York State Department of Health (NYSDOH), including 25 acute cases and 1,531 chronic cases. The number of newly reported acute and chronic cases decreased by 52% and 16% respectively.
- Case rates (cases per 100,000 persons) were highest in males and in persons 40-49 years of age. Asian/Pacific Islander persons account for one-third of cases where race is known.
- The number of newly reported cases has decreased over the last three years.
- The median age at the time of case report gradually increased for males but remained unchanged for females from 2015 to 2019. Females were, on average, younger than males at the time of report.
- The most commonly reported risk factors? for cases of chronic hepatitis B was close contact (i.e., sexual, injection drug use, or household) with a person who has hepatitis B or being diabetic. A large majority of cases with a reported vaccination status were in persons who had never been vaccinated against hepatitis B.

Perinatal Hepatitis B Prevention Program

- The program enrolled 218 infants in 2019. Nearly all infants (94%) received timely post-exposure prophylaxis; 86% completed the hepatitis B vaccine series by 12 months of age, and 72% completed post-vaccination serologic testing by December 31, 2020.
- The 2020 hepatitis B vaccine birth dose rate for NYS hospitals (outside of NYC) is 85%. Rates, since 2012, are posted on Health Data NY.

Hepatitis C Surveillance

- During 2020, 4,131 cases of hepatitis C were reported to the NYSDOH, including 5 perinatal cases, 181 acute cases and 3,945 newly reported chronic cases. The number of newly reported chronic and acute cases decreased by 27% and 28% respectively compared to 2019.
- Case rates were highest in males and persons 30-39 years of age. Case rates were higher in young adults than in “baby boomers” (persons born during 1945-1965).
- Where race was reported, 84% of acute hepatitis cases and 77% of chronic hepatitis cases were among White persons.
- Recent case trends are difficult to discern for at least three reasons. In 2020, the surveillance case definition was revised to increase the detection of acute cases. The prior modification of the case definition was in 2016, making it challenging to compare case counts across years. Also, implementation of the NYS Hepatitis C Testing Law, beginning in 2014, resulted in reporting of more cases that year, particularly in persons born during 1945-1965. Finally, the COVID-19 pandemic impacted screening and testing for multiplicity of infectious diseases, including viral hepatitis.
- The median age at the time of report has decreased by 10 years since 2012 and during 2020 was 38 for females and 41 for males. Females are, on average, younger than males at the time of report.

- The two most commonly reported risk factors for chronic hepatitis C cases were injection drug use and non-injection drug use. Other common risk factors included close contact (e.g., sexual, or household) with a person who has hepatitis C, and incarceration.

AIDS Institute Hepatitis C Programs, Initiatives and Special Studies

- In 2020, 45 agencies across the state participated in the NYS Hepatitis C Testing Program. These agencies tested 1,433 high-risk clients and identified 301 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 21.0%.
- The NYS Hepatitis C Patient Navigation initiative 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 2020, the initiative enrolled 575 patients, 84% of whom received an HCV RNA test. Of the clients enrolled, diagnosed with hepatitis C, and linked to care, 82% initiated treatment.
- The NYS Hepatitis C Care and Treatment Initiative funds 15 primary care sites across the state to provide linkage to care activities and integrate hepatitis C care, treatment, and supportive services into their primary care structure. Between April 2015 and May 2021, a total of 8,823 patients were enrolled in the initiative. Seventy-six percent of those 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 Hepatitis C Criminal Justice Initiative funds eight community-based organizations to provide in-facility pre-release planning to persons with HCV who initiate HCV treatment while in NYS Department of Corrections and Community Supervision (DOCCS) custody and will be released before treatment completion and people who will begin HCV treatment after release to the community. A total of 184 clients were enrolled between August 2019 and July 2020; 45 initiated HCV treatment while incarcerated, and 139 were released prior to treatment initiation.

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](#) 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 the most common reason for liver transplantation in the United States. Hepatitis B and C viruses are both blood-borne pathogens.

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 mother to her newborn 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 infected mothers 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 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 woman to her newborn. Perinatal transmission occurs in approximately 5.8% of births among hepatitis C infected mothers. 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.

Case Reporting

Reporting of communicable diseases is mandated under the NYS Sanitary Code (10NYCRR 2.10). The 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 2020 are:

Acute hepatitis B	https://wwwn.cdc.gov/nndss/conditions/hepatitis-b-acute/case-definition/2012
Chronic hepatitis B	https://wwwn.cdc.gov/nndss/conditions/hepatitis-b-chronic/case-definition/2012
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://wwwn.cdc.gov/nndss/conditions/hepatitis-c-perinatal-infection/case-definition/2018/

Under case definitions utilized in 2020, 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.

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.

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 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: Sex at birth is defined as male, female, or unknown/missing. Sex at birth is, in general, obtained from the laboratory report and is known for >99% of cases. Surveillance reports data forms allow for the collection of gender and sexual identity information, but this information is rarely available in surveillance report with above 95% missing data.

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, including more than one race, 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 to NYS DOCCS prisons 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 county/LHD based on Communicable Disease Surveillance Regions and 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.

Communicable Disease Surveillance	Central NY		Metropolitan Region			Capital District	Western Region	
	Central/Syracuse	NY Penn/Binghamton	Lower Hudson Valley	Mid-Hudson Valley	Nassau/Suffolk	Northeast/Albany	Western/Buffalo	Finger Lakes/Rochester
County	Cayuga Cortland Herkimer Jefferson Lewis Madison Oneida Onondaga Oswego St. Lawrence Tompkins	Broome Chenango Tioga	Putnam Rockland Westchester	Dutchess Orange Sullivan Ulster	Nassau Suffolk	Albany Clinton Columbia Delaware Essex Franklin Fulton Greene Hamilton Montgomery Otsego Rensselaer Saratoga Schenectady Schoharie Warren Washington	Allegany Cattaraugus Chautauqua Erie Genesee Niagara Orleans Wyoming	Chemung Livingston Monroe Ontario Schuyler Seneca Steuben Wayne Yates

Crude Case Rates: Population estimates for each year (2012-2019) are used as denominators for overall case rates per 100,000 and rates by geographic area, age, sex. Estimates used for the resident population by county are annual estimates from US Census Bureau, (Population Division) for the resident population for selected age groups by sex for the United States, states, counties and Puerto Rico Commonwealth. April 1, 2010 to July 1, 2019. Release date: June 2020

Risk Factor Information

Risk factor information is collected by LHDs during 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.

Data on 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) at: https://hepfree.nyc/wp-content/uploads/2020/04/2020-Annual-Report_Final_11-15-21.pdf

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 2020. Trend data are also presented for cases reported during 2012 through 2020. Surveillance data for hepatitis C are current as of May 15, 2022. For hepatitis B, data are current as February 1, 2022. All surveillance data should be considered preliminary and subject to change. During 2022, the viral hepatitis surveillance program conducted intense data quality activities to increase the accuracy of case ascertainment utilizing all information available in NYS DOH electronic surveillance system (ECLRS and CDESS). This resulted in an overall decrease in the counts of newly reported cases between 2017-2019.

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.

During 2020, 1,556 cases of hepatitis B were newly reported to the New York State Department of Health (NYSDOH), including 25 (2%) acute cases and 1,531 (98%) chronic cases. The number of newly reported acute and chronic cases decreased by 52% and 16% respectively.

Demographic characteristics of hepatitis B cases are in Table 1.1. The majority of cases (55%) were in males, and 60% of the acute cases were in males. The case rates were highest in males aged 40-49 years, and in highest in females aged 30-39. Case rates in the Nassau/Suffolk region are double those observed in the rest of the regions (Table 1.1).

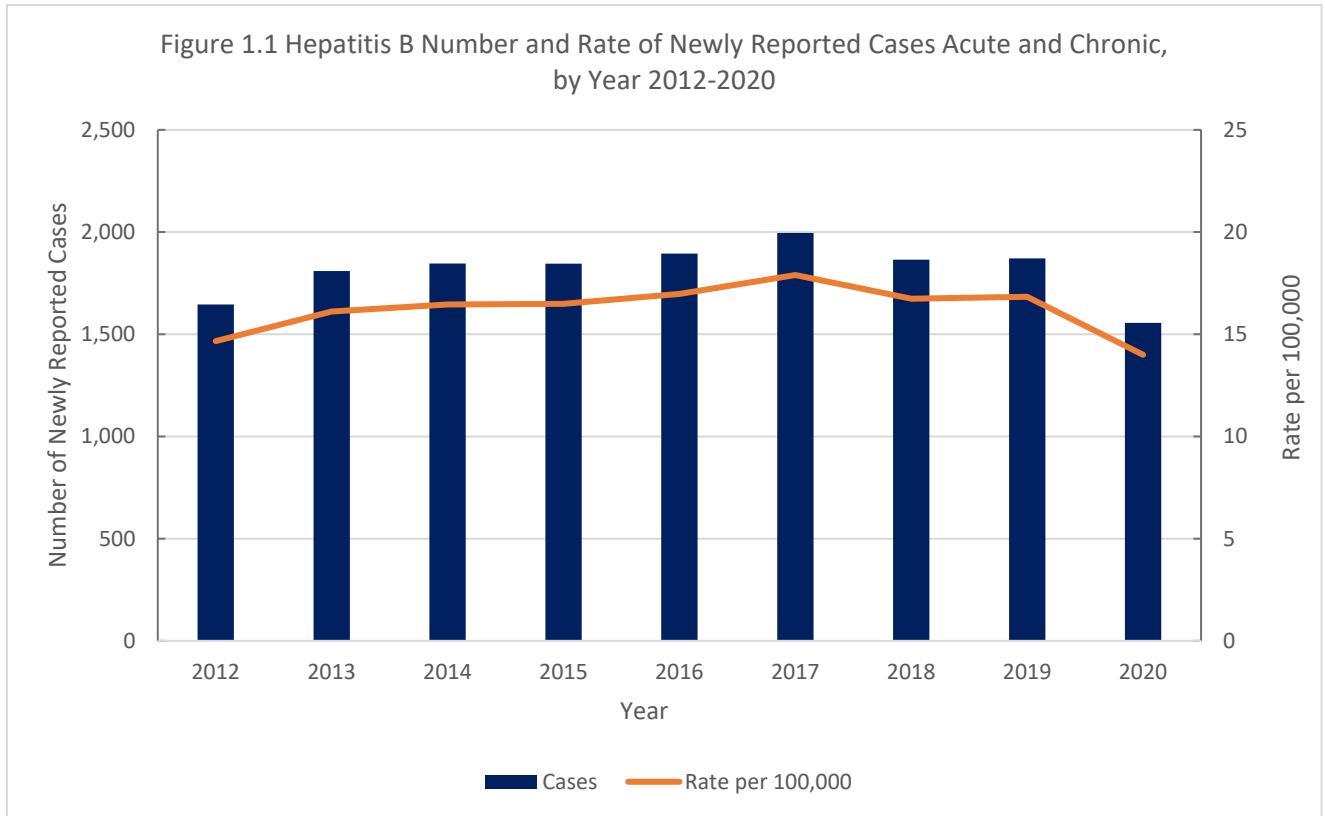
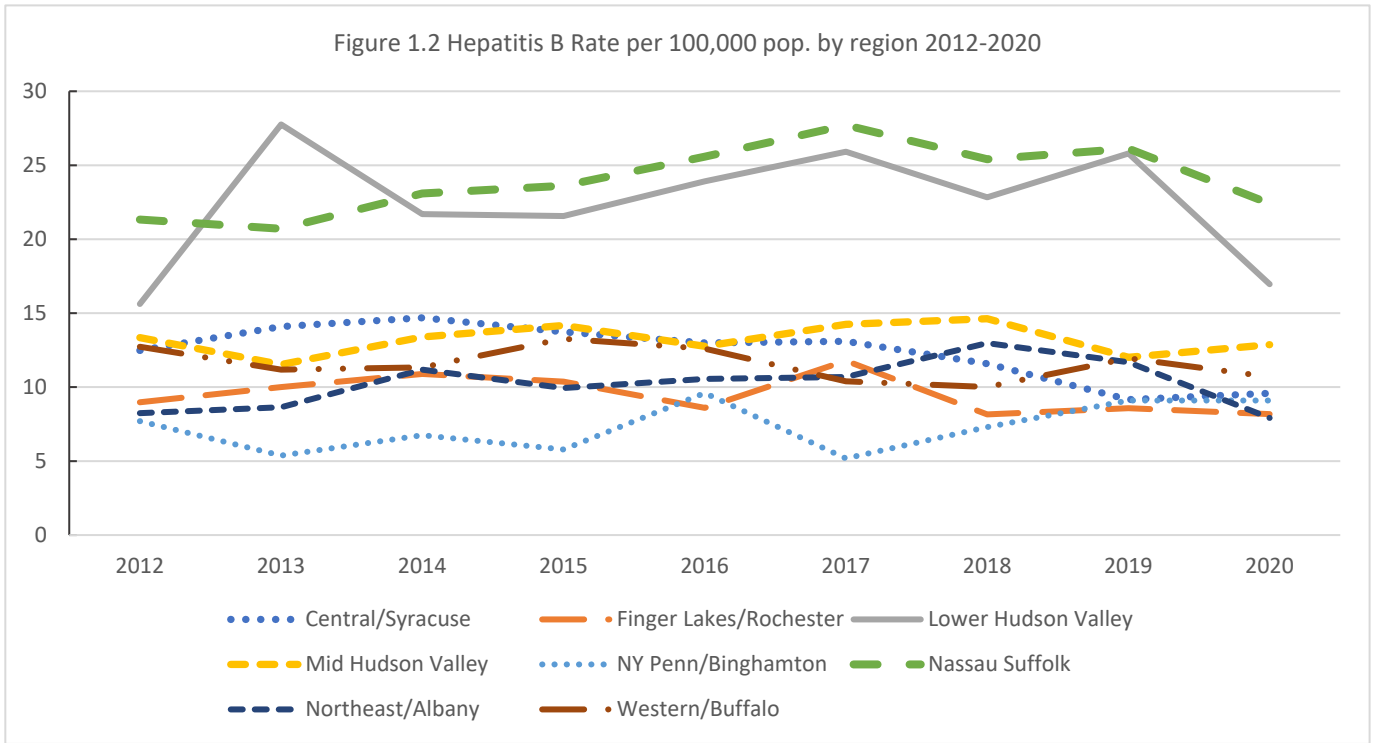


Table 1.1 Hepatitis B Newly Reported Cases in 2020						
	Female		Male		Total	
	Number of Cases	Rate per 100,000	Number of Cases	Rate per 100,000	Number of Cases	Rate per 100,000
Total	693	12.3	855	15.6	1556	14.0
Acute	10	0.2	15	0.3	25	0.2
Chronic	683	12.1	840	15.4	1531	13.8
Age group (years)						
0-19	16	1.2	14	1.0	28	1.1
20-29	74	10.4	73	9.7	144	9.9
30-39	180	27.2	157	23.2	334	25.0
40-49	138	20.9	214	32.9	348	26.5
50-59	111	13.6	165	21.2	272	17.1
60-69	96	13.2	142	21.0	238	17.0
70+	78	9.9	90	15.2	167	12.1
Region of Residence*						
Central/Syracuse	58	8.2	80	11.5	139	9.9
Finger Lakes/Rochester	42	6.5	61	9.9	103	8.2
Lower Hudson Valley	110	15.4	128	18.9	238	17.1
Mid-Hudson Valley	55	11.8	74	15.9	130	13.9
NY Penn/Binghamton	16	11.1	10	7.1	26	9.1
Nassau Suffolk	276	19.1	353	25.4	635	22.4
Northeast/Albany	60	8.0	60	8.1	120	8.1
Western/Buffalo	76	9.8	89	12.0	165	10.9
	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases
Race**						
White	113	16.3%	136	15.9%	249	16.0%
Black	66	9.5%	103	12.0%	169	10.9%
Native American / Alaskan	3	0.4%	2	0.2%	5	0.3%
Asian	129	18.6%	128	15.0%	257	16.5%
Other, unspecified race	36	5.2%	45	5.3%	83	5.3%
Unknown	346	49.9%	441	51.6%	793	51.0%
Ethnicity**						
Hispanic	17	2.5%	27	3.2%	44	2.8%
Non-Hispanic	121	17.5%	135	15.8%	257	16.5%
Unknown	555	80.1%	693	81.1%	1,255	80.7%

Notes. Totals include 8 cases where sex is unknown. *Geographic assessments exclude persons incarcerated in DOCCS

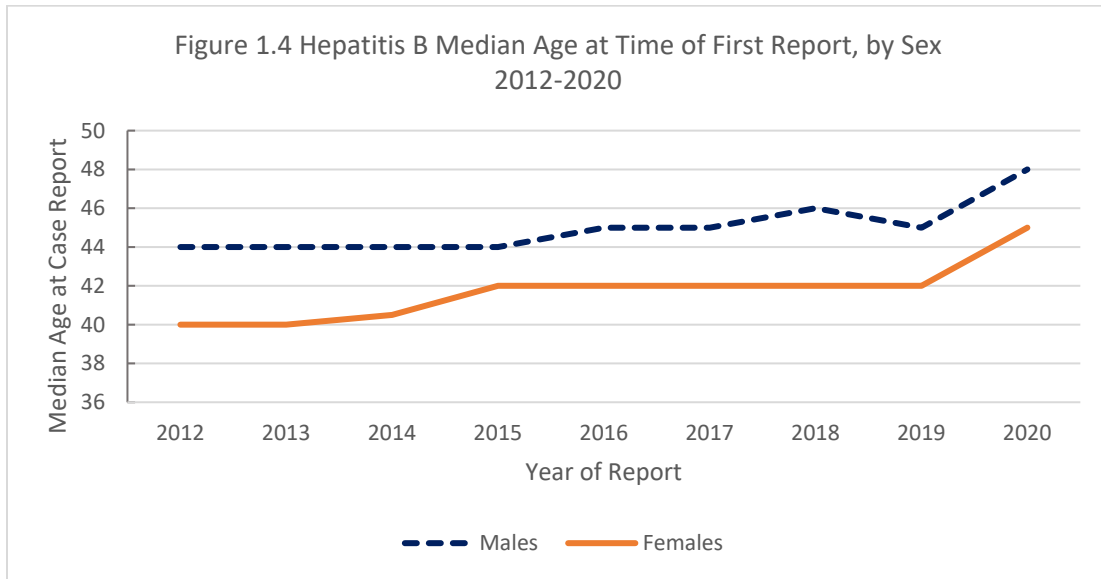
**Rates per 100,000 population are not calculated due to the large number of missing values

The number and rates per 100,000 population of newly reported hepatitis B cases has decreased over the last three years (Fig. 1.1), with rates in the Nassau/Suffolk and Lower Hudson Valley regions being consistently higher than in the other regions (Fig. 1.2). During 2020, case rates were highest in Nassau/Suffolk region (22.4 per 100,000 population).

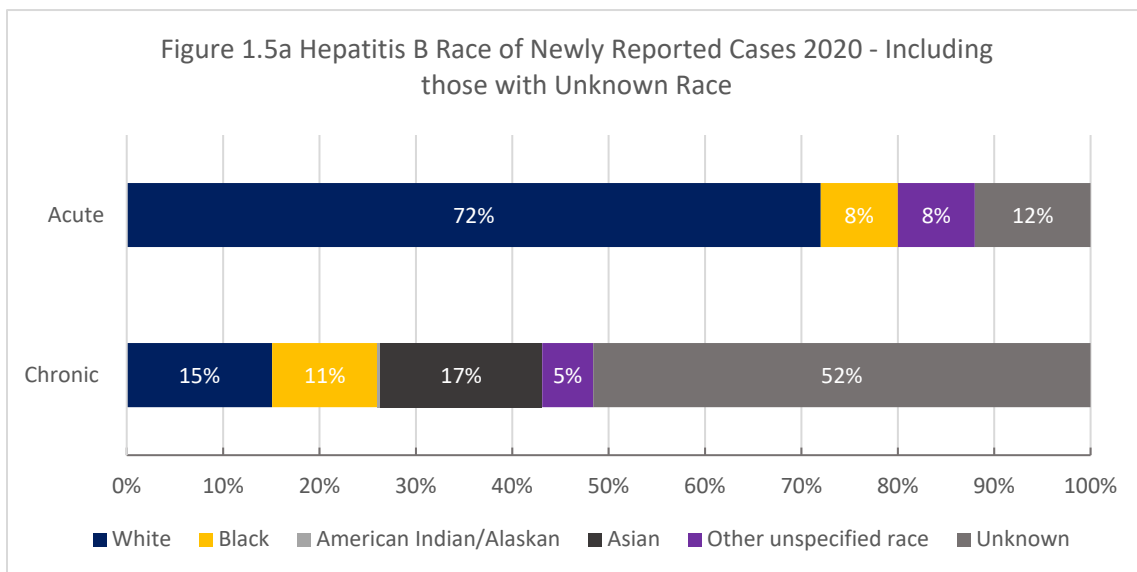


* Geographic assessments exclude persons incarcerated in DOCCS

The median age for females newly reported with hepatitis B during 2020 was 45, and the median age for males was 48. These ages are slightly older than among cases newly reported during 2019 (Fig. 1.4). Because women are routinely screened for hepatitis B with each pregnancy, chronic cases might be identified at a younger age (i.e., earlier) among females.

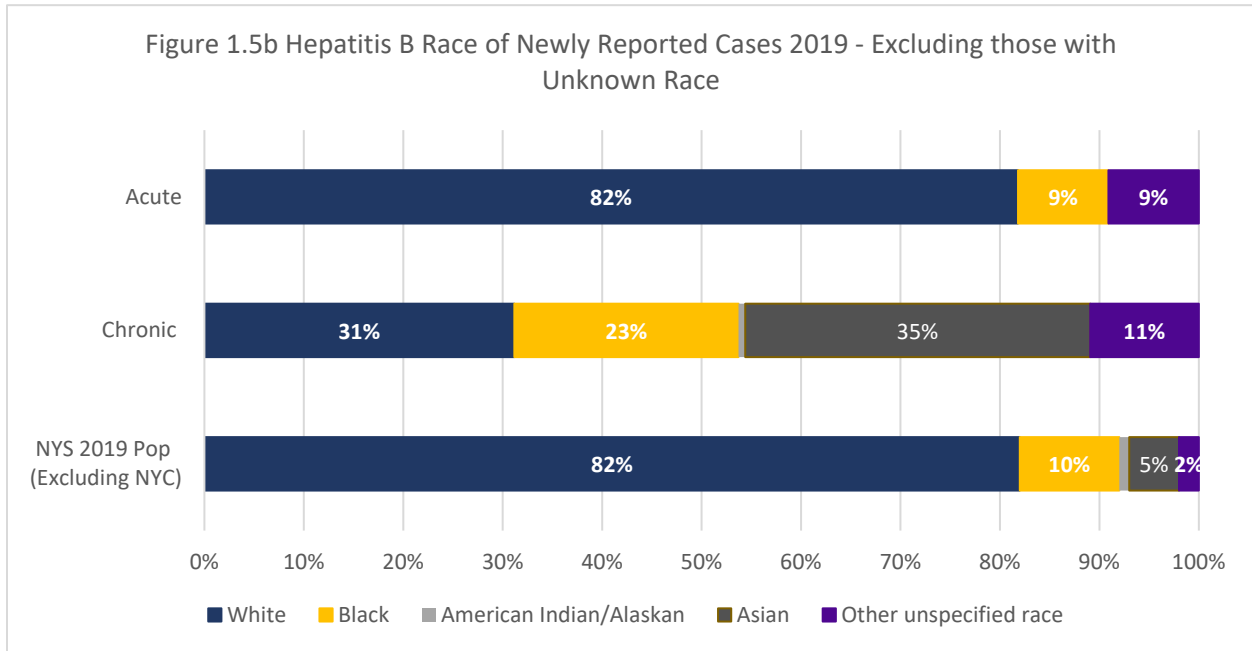


The distribution of race varied with whether the case was classified as acute or chronic hepatitis B. Figure 1.5a shows the distribution among all cases of hepatitis B reported during 2020. Note that race data were missing or unknown for 12% of acute and 52% of chronic hepatitis B cases.



Note. Chronic cases in American Indian/Alaskan persons are 0.3%; Acute cases in Asian and American Indian Alaskan persons are less than 0.5%

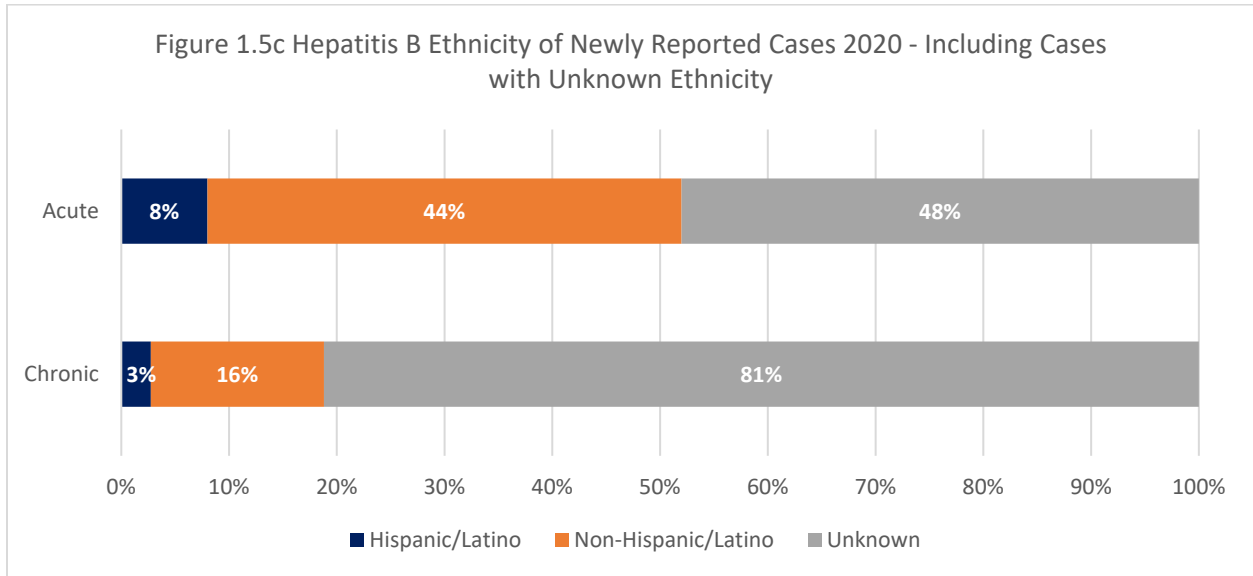
Figure 1.5b provides information on race for acute and chronic hepatitis B cases where race is reported (i.e., not missing or unknown). Among acute cases where race was reported, race was predominately White, followed by Black, and then Asian/Pacific Islander.



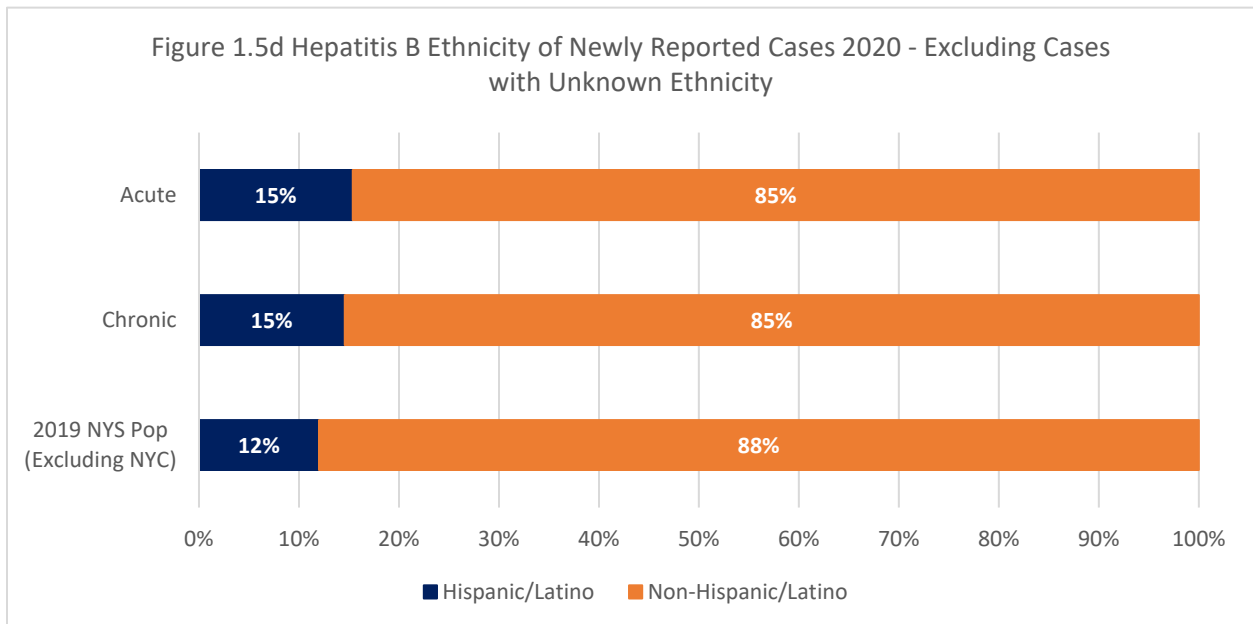
Note. The percentage of cases of acute and chronic hepatitis B among American Indian/Alaskan persons is less than 1%

Among chronic hepatitis B cases where race was reported, race was predominately Asian/Pacific Islander, followed by White, and then Black. Prevalence of hepatitis B is >2% in most countries in Asia and Africa; perinatal transmission resulting in chronic infection is more common in these areas.

Figure 1.5c shows the distribution of Hispanic ethnicity among all hepatitis B cases reported during 2020. Note that ethnicity data were missing for a large proportion of acute (48%) and chronic (81%) hepatitis B cases.



Where ethnicity was reported (i.e., not missing or unknown), ethnicity was recorded as non-Hispanic for 85% of chronic and acute hepatitis B cases (Fig. 1.5d). The data may be subject to recording error and biases related to the ability of laboratories to report race and ethnicity.

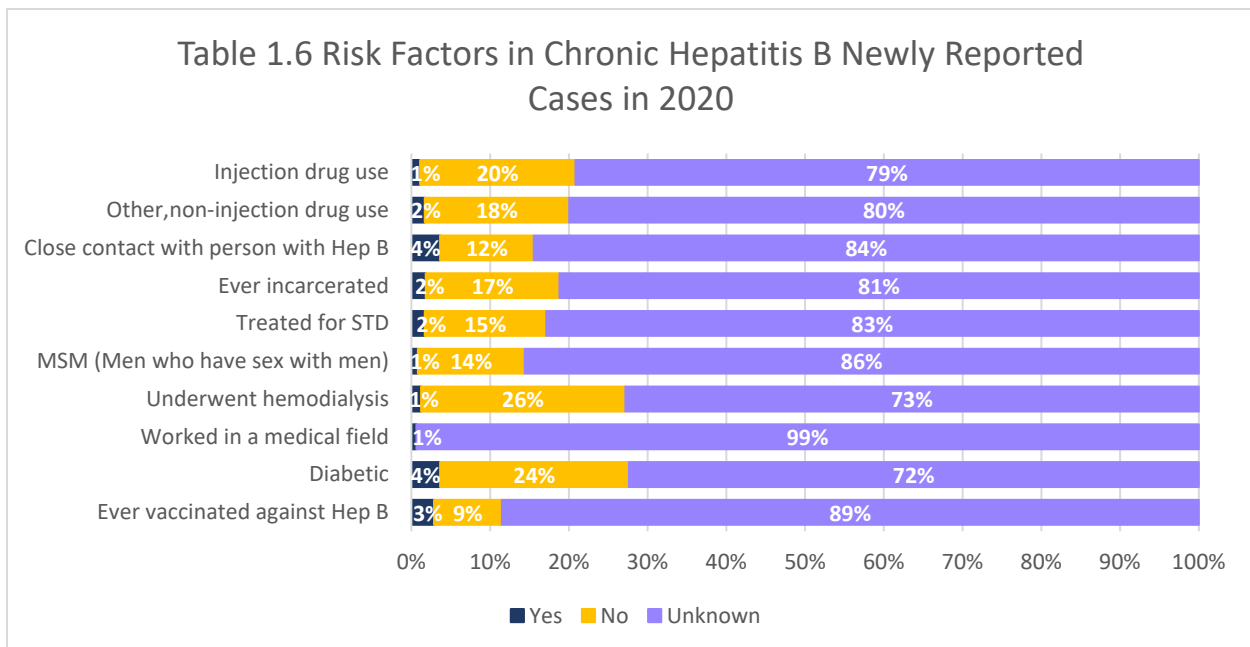


Risk factor and exposure information for acute hepatitis B cases are not presented in this report given the small number of cases (N=25) and large percentage of cases with unknown or

missing information. For chronic cases, risk factors and exposures are determined over the patient’s lifetime. Selected risk factor information for chronic hepatitis B cases are summarized in Table 1.6.

	Yes	No	Unknown	Total
Ever vaccinated against Hep B	44	132	1,355	1,531
Diabetic	56	367	1,108	1,531
Worked in a medical field	10	0	1,521	1,531
Underwent hemodialysis	19	397	1,115	1,531
MSM (Men who have sex with men)	7	114	719	840
Treated for STD	26	236	1,269	1,531
Ever incarcerated	28	260	1,243	1,531
Close contact with person with Hep B	56	182	1,293	1,531
Other, non-injection drug use	26	281	1,224	1,531
Injection drug use	17	302	1,212	1,531

Depending on risk factor, the percent of cases with unknown or missing information ranges from 72-99% (Fig. 1.6). Given the large percentage of cases with unknown or missing information, available risk factor information should be interpreted with caution.



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

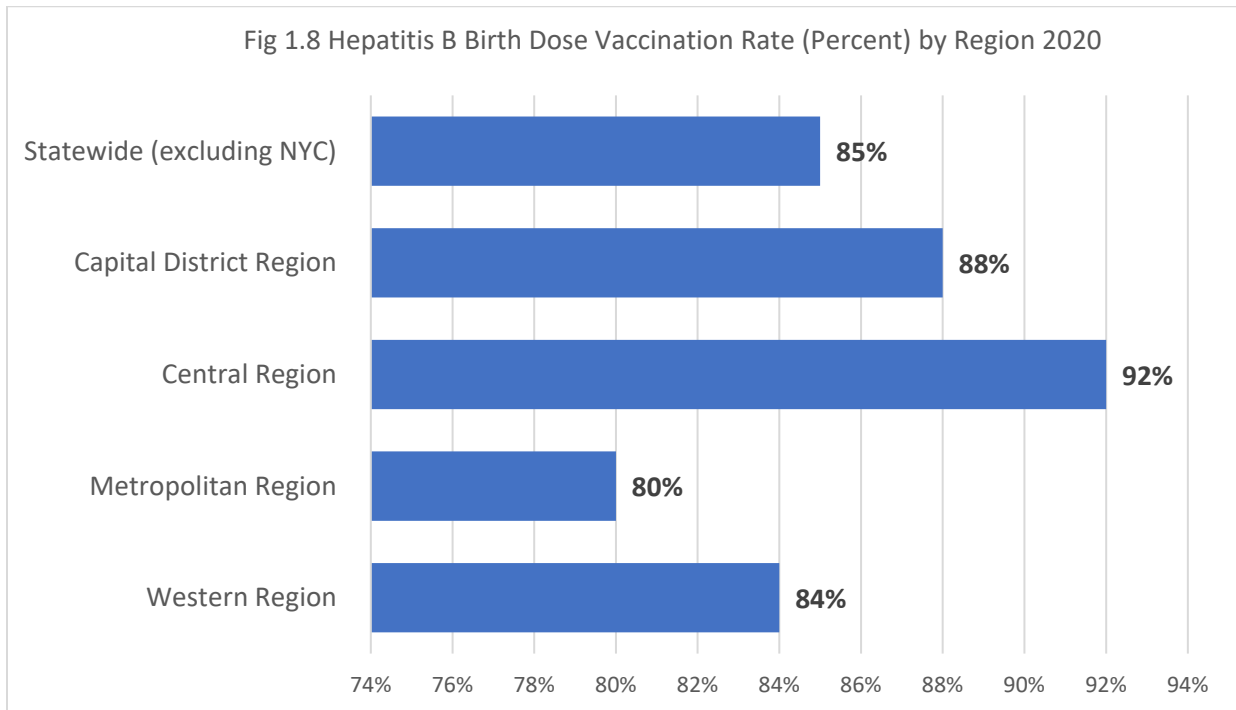
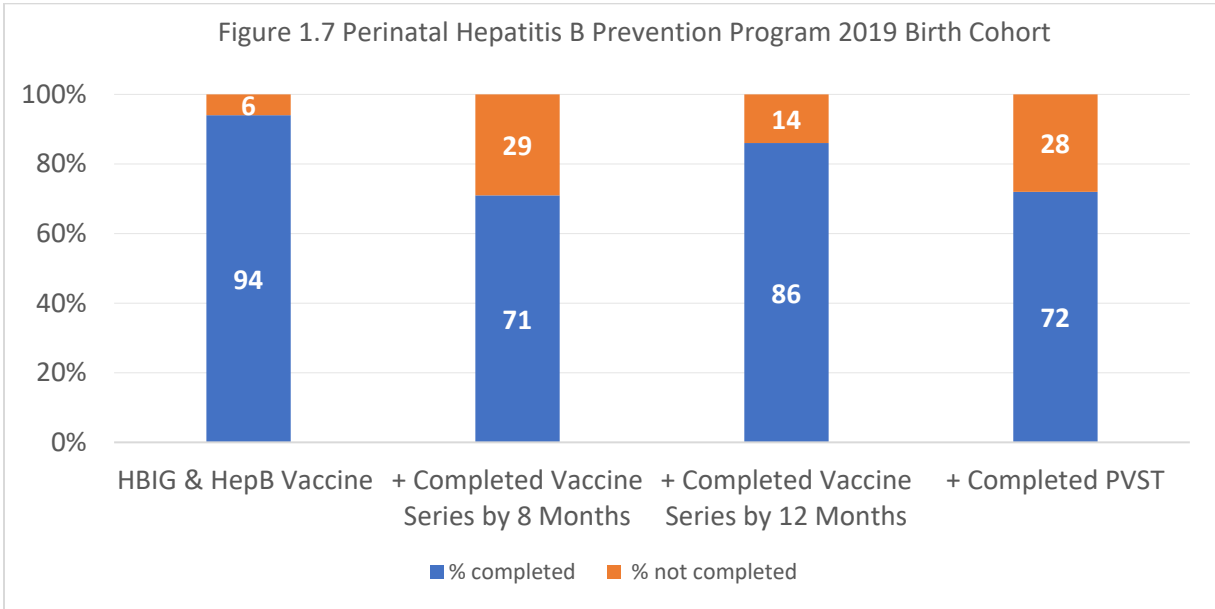
Program Goals are:

1. Screen every woman during every pregnancy for the presence of hepatitis B surface antigen (HBsAg) and record the test result prominently in the pregnant woman's and infant's hospital medical record.
2. Identify all pregnant women who have hepatitis B (positive HBsAg, positive hepatitis B e antigen [HBeAg], and/or detectable hepatitis B virus deoxyribonucleic acid [DNA]), and pregnant women 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 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 2019 (Fig. 1.7):

- 218 infants were enrolled in the PHBPP.
- 205 infants (94%) received hepatitis B vaccine and HBIG within one calendar day of birth.
- 8 infants received hepatitis B vaccine only; 4 infants did not receive hepatitis B vaccine and HBIG within one calendar day of birth.
- 155 infants (71%) received hepatitis B vaccine and HBIG within one calendar day of birth and completed the hepatitis B vaccine series by eight months of age.
- 188 infants (86%) received hepatitis B vaccine and HBIG within one calendar day of birth and completed the hepatitis B vaccine series by 12 months of age.
- 156 infants (72%) completed PVST by the end of the reporting period (December 31, 2020).

The overall 2020 birth dose rate for 84 NYS birth hospitals (not including NYC) is 85%. Rates, since 2012, can be viewed on Health Data NY. The percentage of infants who were born at a hospital during 2020 and received a dose of hepatitis B vaccine within three days of birth are represented in Fig. 1.8 by region. Rates range from 92% in the Central Region to 80% in the Metropolitan Region. Thirty-six birth hospitals have a birth dose rate of 90% and above.



During 2020, 4,131 cases of hepatitis C were reported to the NYSDOH, including 5 perinatal cases (<1%), 181 acute cases (4%) and 3,945 newly reported chronic cases (95%). The number of newly reported chronic and acute cases decreased by 27% and 28% respectively compared to 2019.

Demographic characteristics of hepatitis C cases are in Table 2.1. Sixty-three percent of cases were among males. For both sexes, the largest number of cases, and the highest case rates, were in persons aged 30–39 years of age. Although persons born during 1945-1965 (“baby boomers”; age 55-75 years) have historically been considered to have the highest rates of hepatitis C infection, during 2020, rates of newly reported cases among baby boomers was 37.2/100,000 persons, compared with 86.6/100,000 persons among those aged 30-39 years.

Race was unknown or missing for 39% of cases. Where race was reported, 77% of cases were among white persons. Ethnicity was unknown or missing for 73% of cases. Where ethnicity was known, 90% of cases were among non-Hispanic persons.

One hundred twenty-five hepatitis C cases were newly reported among persons incarcerated in DOCCS facilities (3.0% of all cases) and were typically identified upon intake screening. Sixteen cases were identified as female, and 109 as male. Cases among persons incarcerated in DOCCS facilities are excluded from the geographic analyses in this report, (i.e., analyses presenting counts by NYS region and/or county).

Table 2.1 Hepatitis C Cases Newly Reported in 2020

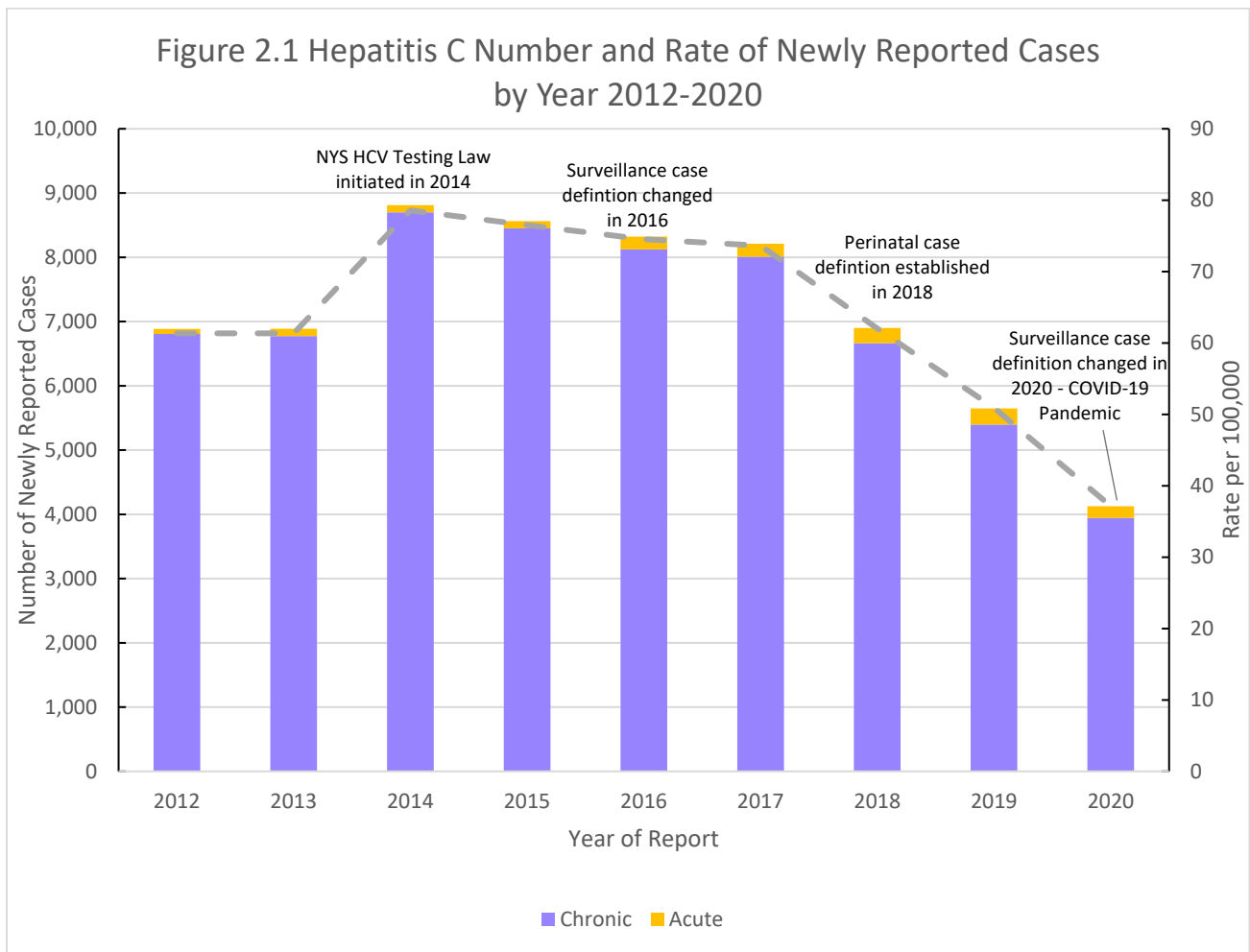
	Female		Male		Total	
	Number of Cases	Rate per 100,000 pop.	Number of Cases	Rate per 100,000 pop.	Number of Cases	Rate per 100,000 pop.
Total	1,505	26.6	2,622	47.9	4,131	37.2
Perinatal	3	1.7	2	1.1	5	1.4
Acute	52	0.9	129	2.4	181	1.7
Chronic	1,450	26.5	2,491	47.1	3,945	36.7
Age Groups (years)						
< 3 years (perinatal)	3	1.7	2	1.1	5	1.4
3-9	3	0.7	0	0.0	3	0.3
10-19	29	4.3	14	2.0	44	3.2
20-29	367	51.7	501	66.6	869	59.5
30-39	411	62.1	747	110.5	1,159	86.6
40-49	215	32.5	377	57.9	592	45.1
50-59	188	23.1	390	50.2	578	36.3
60-69	174	24.0	431	63.7	605	43.1
70+	111	14.0	156	26.4	267	19.3
Unknown	4	N/A	4	N/A	9	N/A
Region of Residence*						
Central /Syracuse	290	40.8	488	69.8	779	55.3
Finger Lakes/Rochester	134	20.8	235	38.2	370	29.4
Lower Hudson Valley	116	16.3	209	30.8	326	23.4
Mid-Hudson Valley	161	34.5	273	58.6	434	46.6
Nassau-Suffolk	270	18.7	394	28.4	664	23.4
Northeast/Albany	231	30.8	412	55.6	644	43.2
NY Penn/Binghamton	60	41.5	111	78.5	171	59.8
Western NY	227	29.3	391	52.8	618	40.8
	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases	Number of Cases	Percent of Cases
Race**						
White	710	47.2%	1,228	46.8%	1,939	46.9%
Black	83	5.5%	184	7.0%	267	6.5%
Native American/ Alaskan	10	0.7%	10	0.4%	20	0.5%
Asian/Pacific Islander	13	0.9%	21	0.8%	34	0.8%
Other unspecified race	93	6.2%	158	6.0%	251	6.1%
Unknown	596	39.6%	1,021	38.9%	1,620	39.2%
Ethnicity**						
Hispanic	27	1.8%	87	3.3%	114	2.8%
Non-Hispanic	372	24.7%	622	23.7%	994	24.1%
Unknown	1,106	73.5%	1,913	73.0%	3,023	73.2%

Notes. Totals include 4 cases where sex is unknown *Geographic assessments exclude persons incarcerated in DOCCS facilities

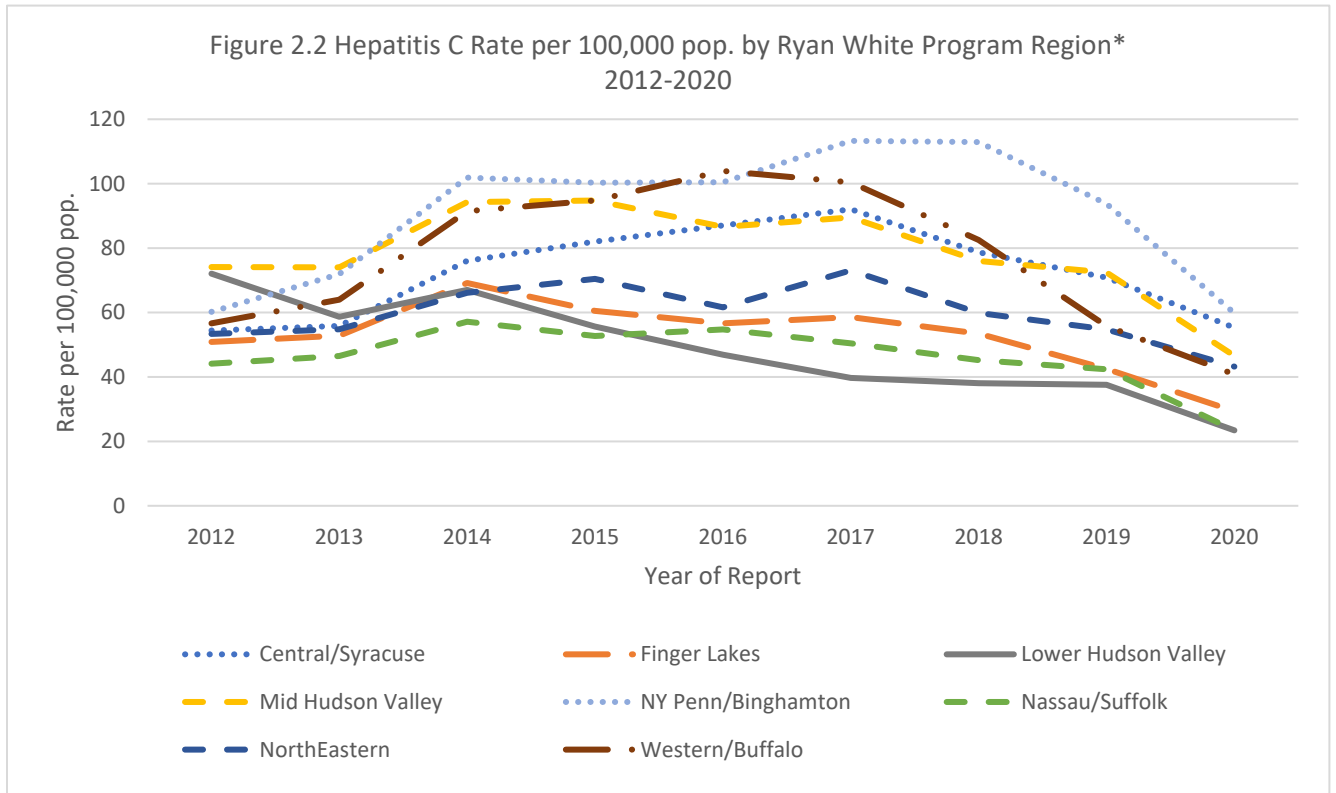
**Rates per 100,000 population are not calculated due to the large number of cases with missing values

Figure 2.1 displays the number and annual rate of newly reported hepatitis C cases during 2020 and the previous eight years. Recent hepatitis C case trends are difficult to discern for at least three reasons. First, since January 2014, a state law (the “Hepatitis C Testing Law”) requires a one-time offer of an HCV screening test to all persons born during 1945-1965 who are receiving services as an inpatient of a hospital or in a primary care setting. An increase in the number of newly reported hepatitis C cases starting in 2014, in all regions, is attributable in part to changes in testing practices resulting from the law. Second, in 2016 and in 2020 there were new case definitions for hepatitis C. Cases reported between 2016 and 2019 followed the 2016 case definition, while cases in 2020 followed the most recent update. These changes have affected the way hepatitis C cases are counted based on laboratory results. Because the case definitions vary substantially, caution should be exercised when comparing numbers of cases of hepatitis C reported during 2020 compared to cases counts in 2016-2019 and case counts in 2012-2015. Finally, the COVID-19 pandemic had a deep influence in hepatitis C testing and diagnoses.

The number of newly reported chronic and acute cases decreased by 27% and 28% (N=3,945; N= 181) respectively compared to 2019 (N=5,398; N=251).



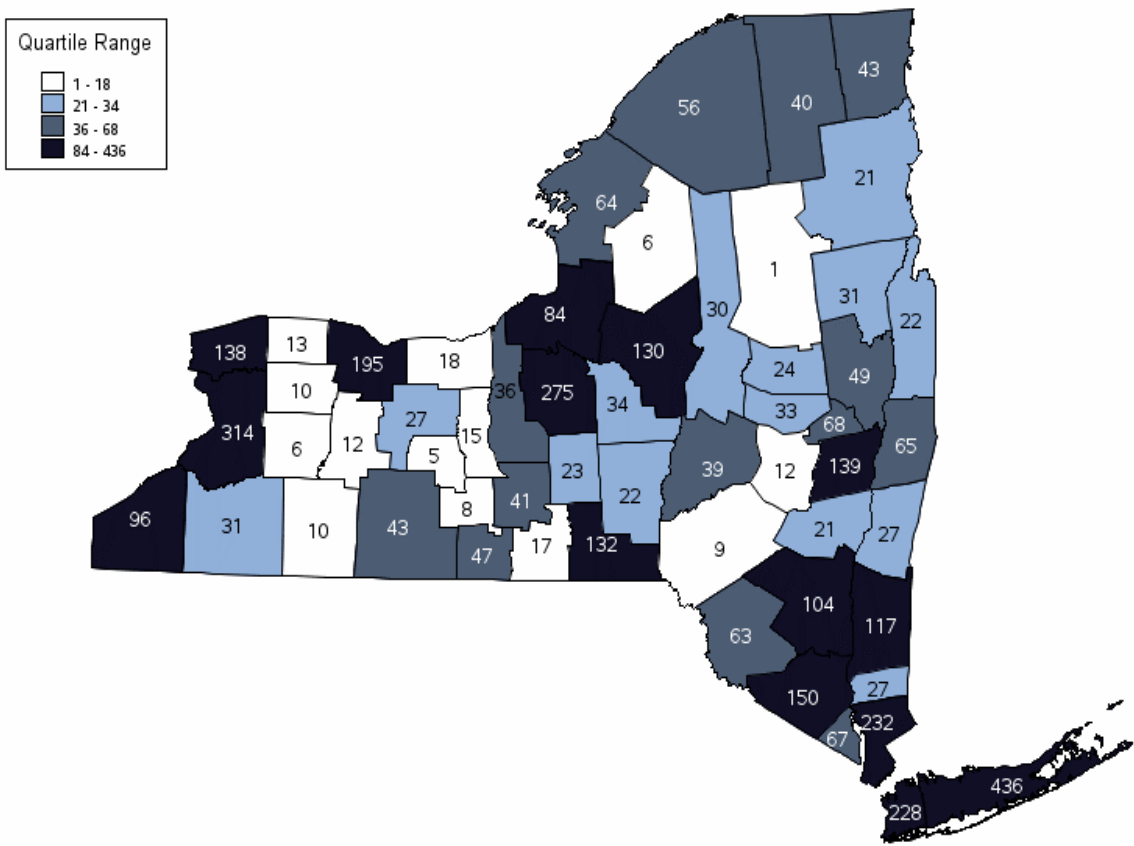
Case rates varied widely by region during 2020. The largest number of cases was in the Central/Syracuse region (N=779), followed by Nassau/Suffolk (N=664) regions. The highest case rates were reported in the NY Penn/Binghamton region (59.8/100,000 persons), followed by Central/Syracuse region (55.3/100,000 persons) Table 2.1 and Fig 2.2).



* Geographic assessments exclude persons incarcerated in DOCCS

However, case rates also varied by county and were not evenly distributed within a region (Fig. 2.3a). The counties with the highest rates were Sullivan, Franklin, Chautauqua, Oswego, and Broome. The counties with the highest case counts were Suffolk, Erie, Onondaga, Westchester, and Nassau (Figure 2.3b).

Figure 2.3b Newly Reported Cases Hepatitis C by County New York State, Including Chronic, Acute, and Perinatal Cases, Excluding Cases in Persons Incarcerated in DOCCS, 2020



Figures 2.4a-c display the number of hepatitis C cases newly reported during 2008, 2012, and 2020 by sex and birth year. A similar trend can be observed for both males and females. During 2008, 67% of reported cases were in baby boomers (persons born 1945-1965), and 15% were in persons aged 15-35 years. During 2012, 53% of cases were in baby boomers, and 28% were in persons aged 15-35. By 2020, more cases were reported in the younger ages than in the baby boomers. In 2020, 26% of reported cases were among baby boomers while the proportion of cases in persons aged 15-35 years of age had increased to 41%.

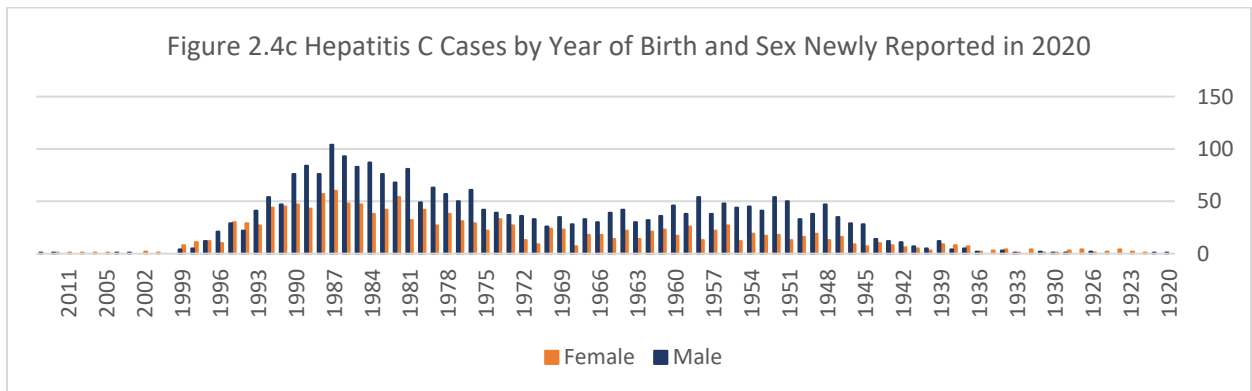
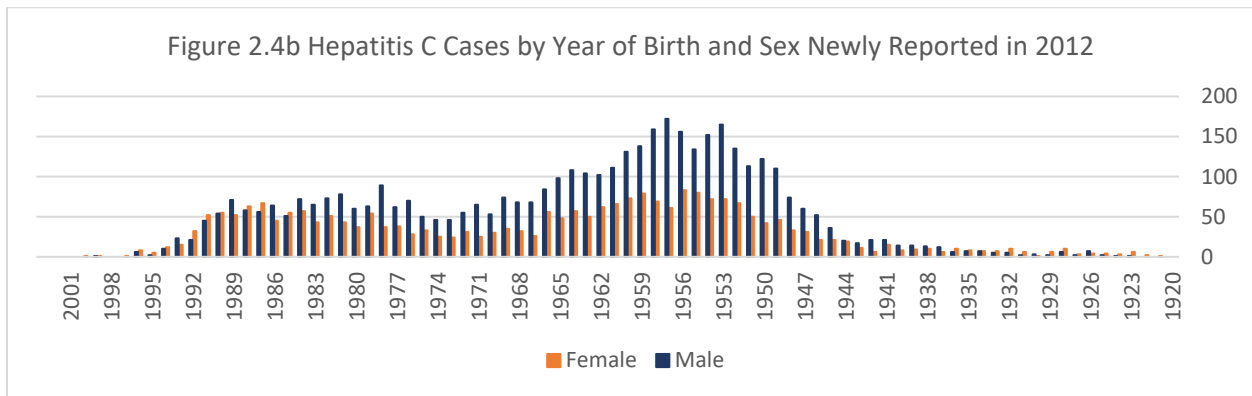
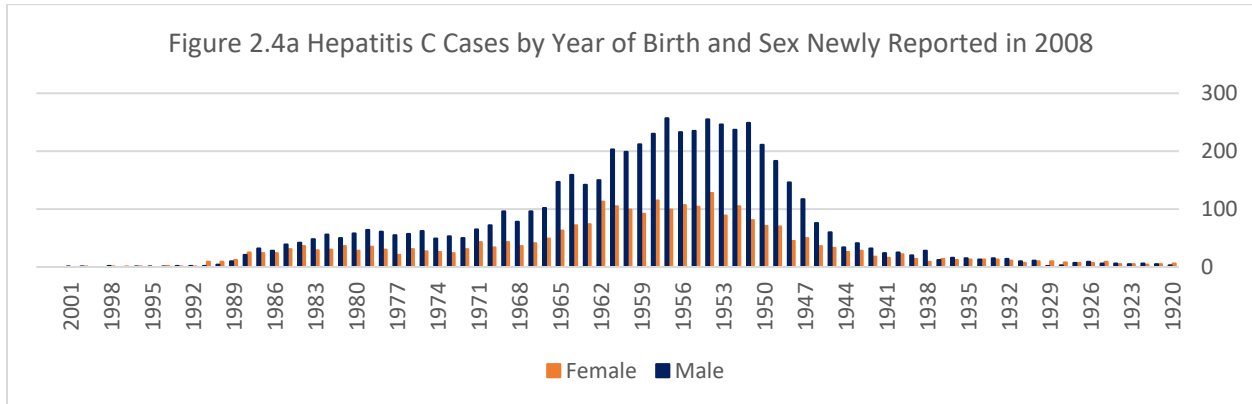


Figure 2.4d shows the steady decline in the median age of cases at time of report during 2012-2020. The median age for females is a few years younger than for males during each year. The increase in median age during 2014 compared with 2013 is likely a result of the initiation of the

Hepatitis C Testing Law, which targeted baby boomers. For both sexes, the median age at the time of report has declined by about 10 years between 2012-2020.

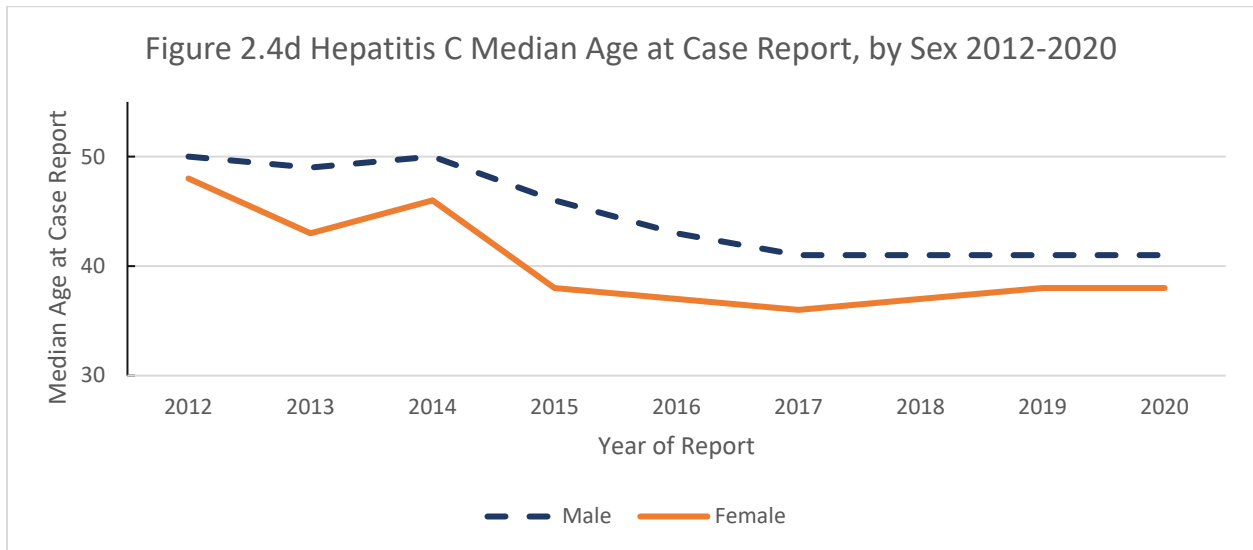
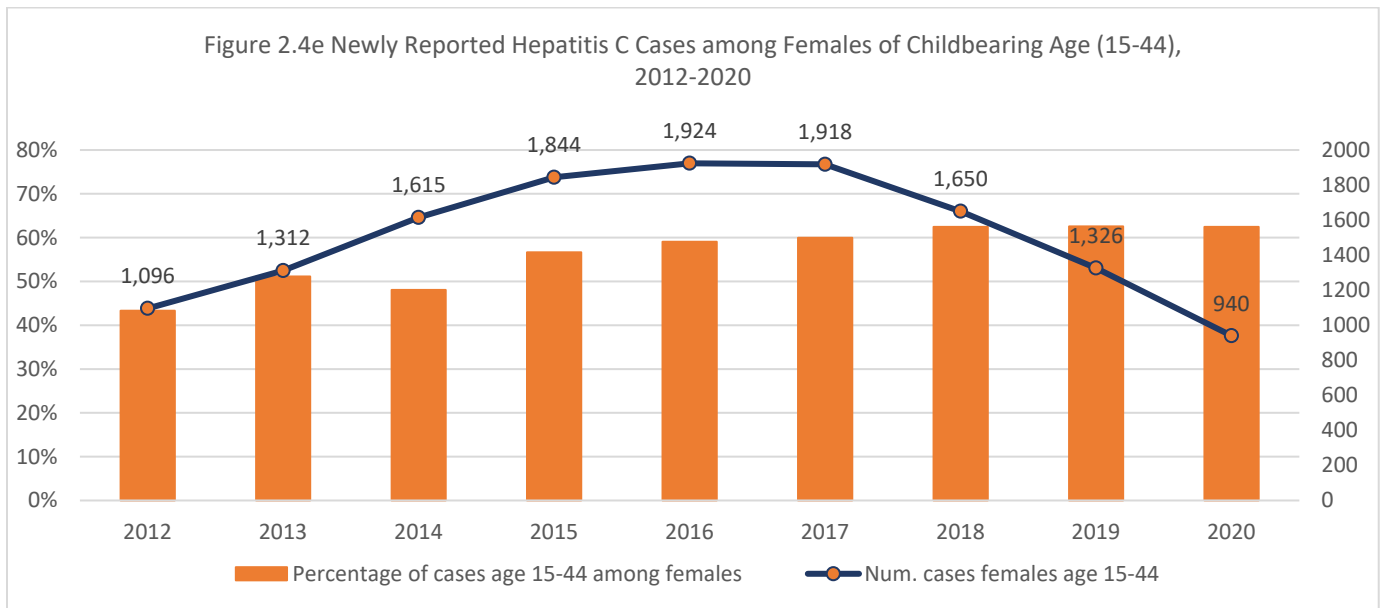
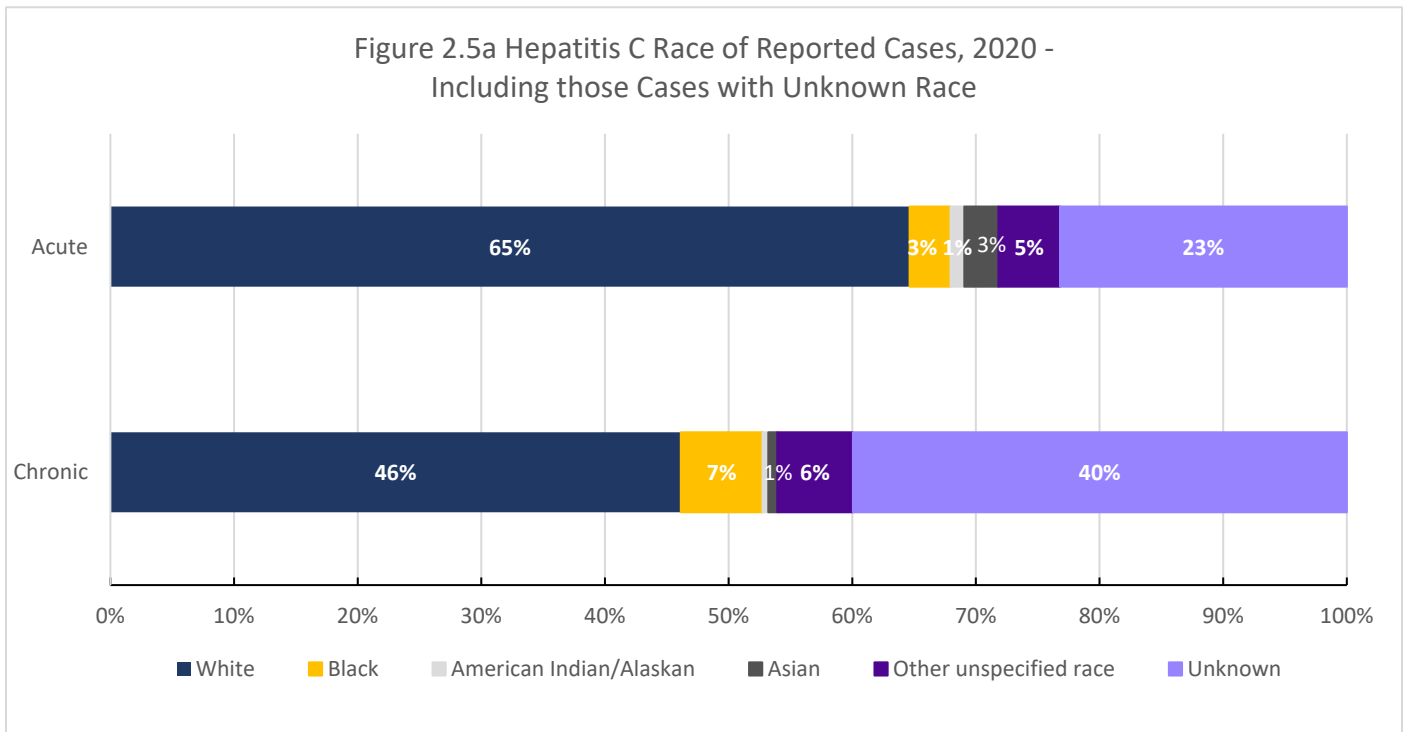


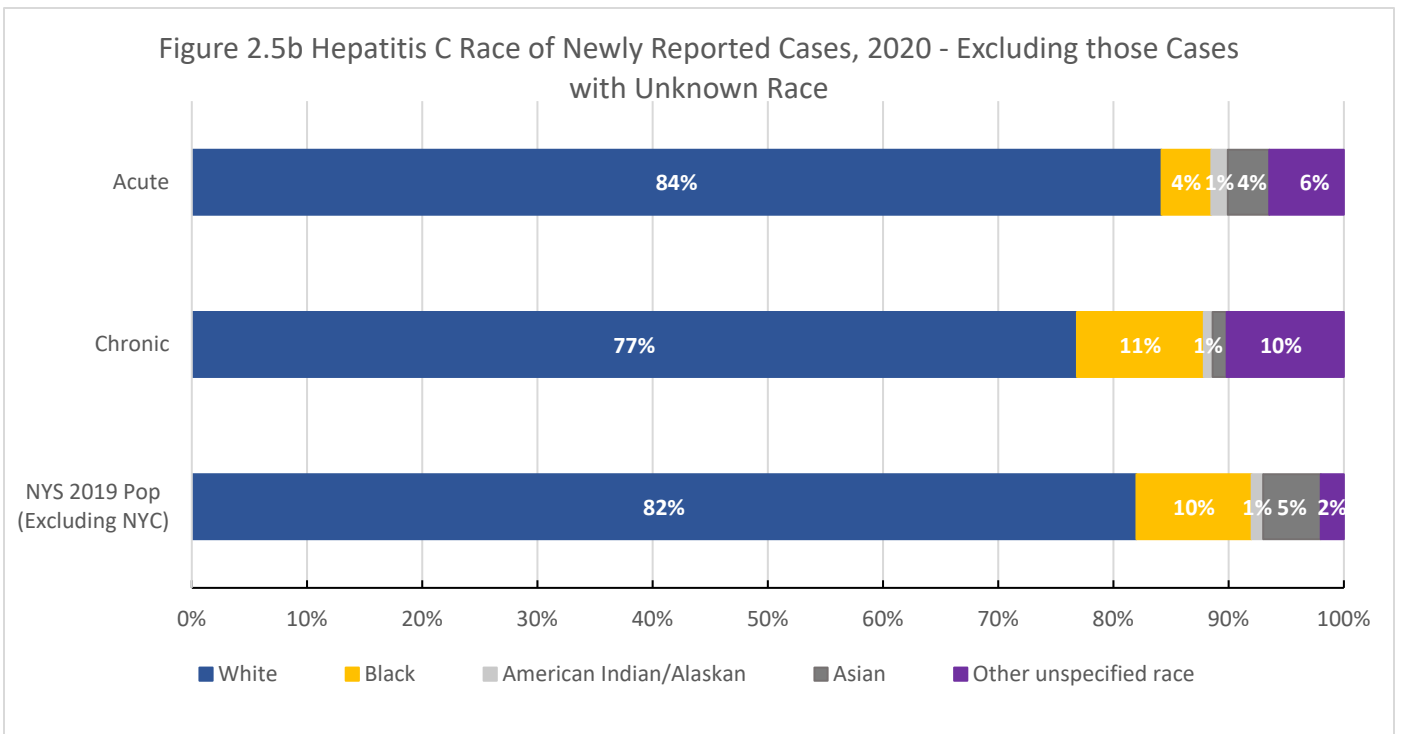
Figure 2.4e presents the trend in newly reported cases among females. Thirty-six percent of all cases are among females: of those almost 63% are among females of childbearing age.



The distribution of race varied with whether the case was classified as acute or chronic hepatitis C. Figure 2.5a shows the distribution of race among all cases of hepatitis C reported during 2020. Note that race data were missing for 23% of acute and 40% of chronic hepatitis C cases.

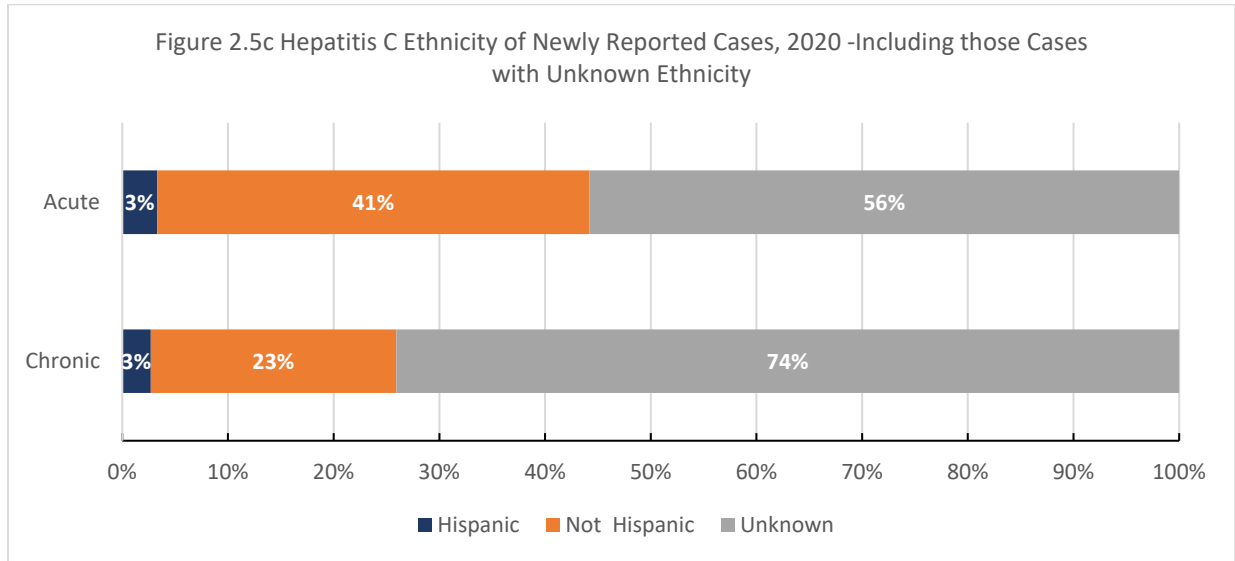


Note. The percentage of chronic hepatitis C cases among American Indian/Alaskan persons is 0% and among Asian persons is 1%.

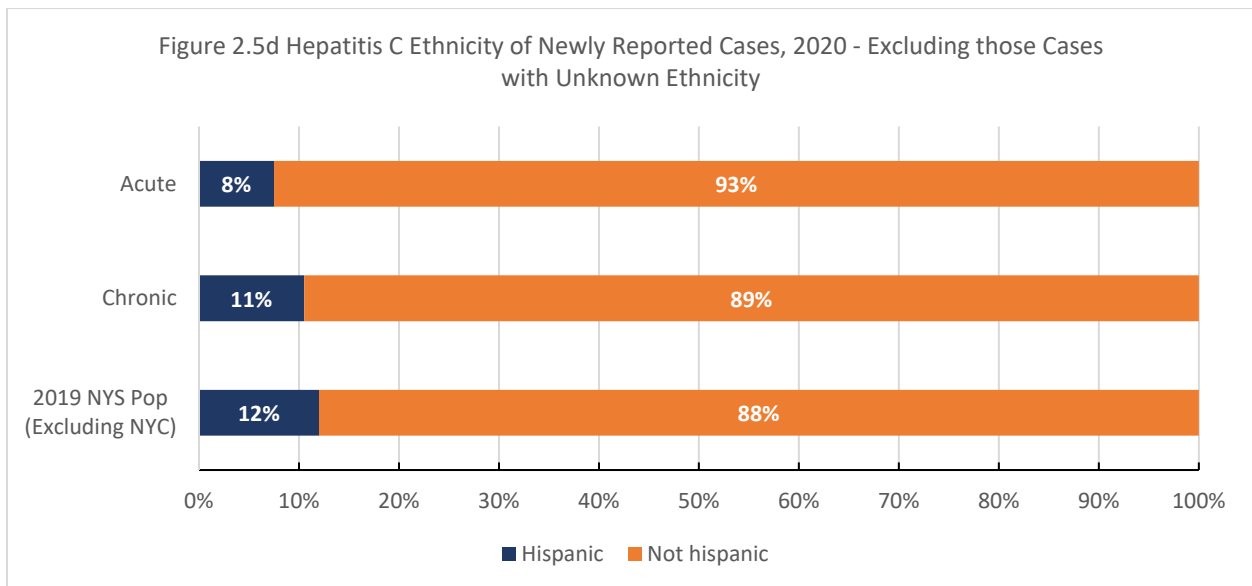


Note. The percentage of chronic hepatitis C cases among American Indian/Alaskan and Asian persons is 1%.

Figure 2.5c shows the distribution of Hispanic ethnicity among all hepatitis C cases reported during 2020. Note that ethnicity data were missing for 56% of acute hepatitis C and 74% of chronic hepatitis C cases.



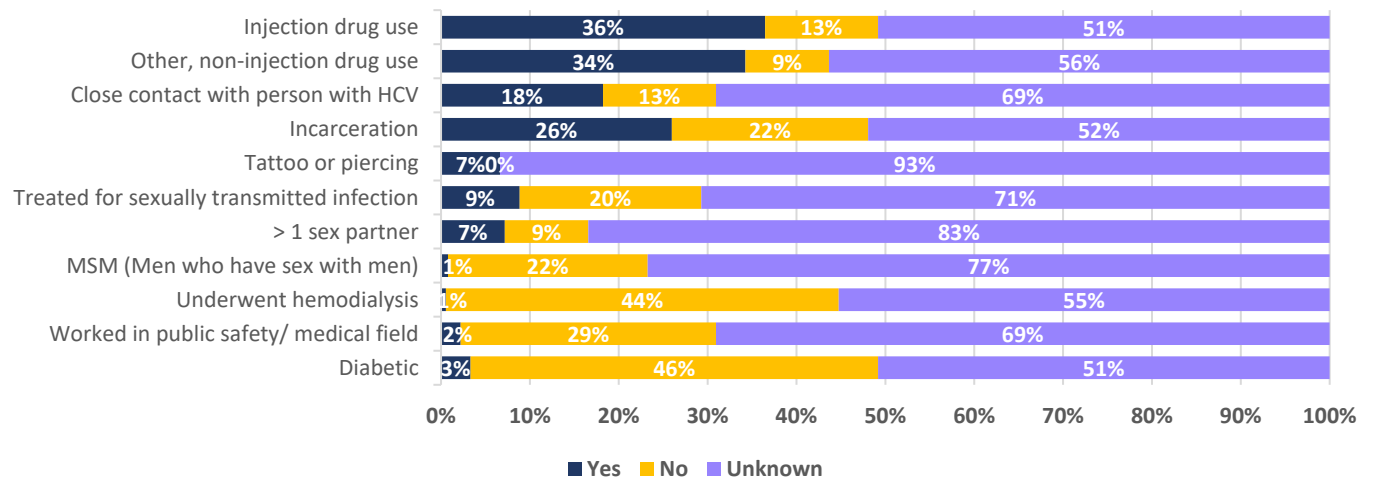
Where ethnicity was reported (i.e., not missing or unknown), ethnicity was non-Hispanic for 93% of acute hepatitis C cases and 89% of chronic hepatitis C cases (Fig 2.5d). Data may be subject to recording error and biases related to the ability of laboratories to report race and ethnicity.



For acute cases, risk factors and exposures are determined for the six-month period before illness onset or test conversion. Selected risk factor information for acute hepatitis C cases is summarized in Table 2.6a. Risk factors are not mutually exclusive; multiple risks can be reported for a single case. Depending on risk factor, the percent of cases with unknown or missing information ranged from 51-93% (Fig. 2.6a).

Table 2.6a Risk Factors in Acute Hepatitis C Cases Newly Reported in 2020				
	Number of cases			Total
	Yes	No	Unknown	
Injection drug use	66	23	92	181
Other, non-injection drug use	62	17	102	181
Close contact with person with hepatitis C	33	23	125	181
Incarceration	47	40	94	181
Tattoo or piercing	12	0	169	181
Treated for sexually transmitted infection	16	37	128	181
> 1 sex partner	13	17	151	181
MSM (Men who have sex with men)	1	29	99	129
Underwent hemodialysis	1	80	100	181
Worked in public safety/ medical field	4	52	125	181
Diabetic	6	83	92	181

Figure 2.6a Acute Hepatitis C Risk Factors for Cases Newly Reported in 2020



For chronic cases, risk factors and exposures are determined over the patient’s lifetime. Selected risk factor information for chronic hepatitis C cases is summarized in Table 2.6b.

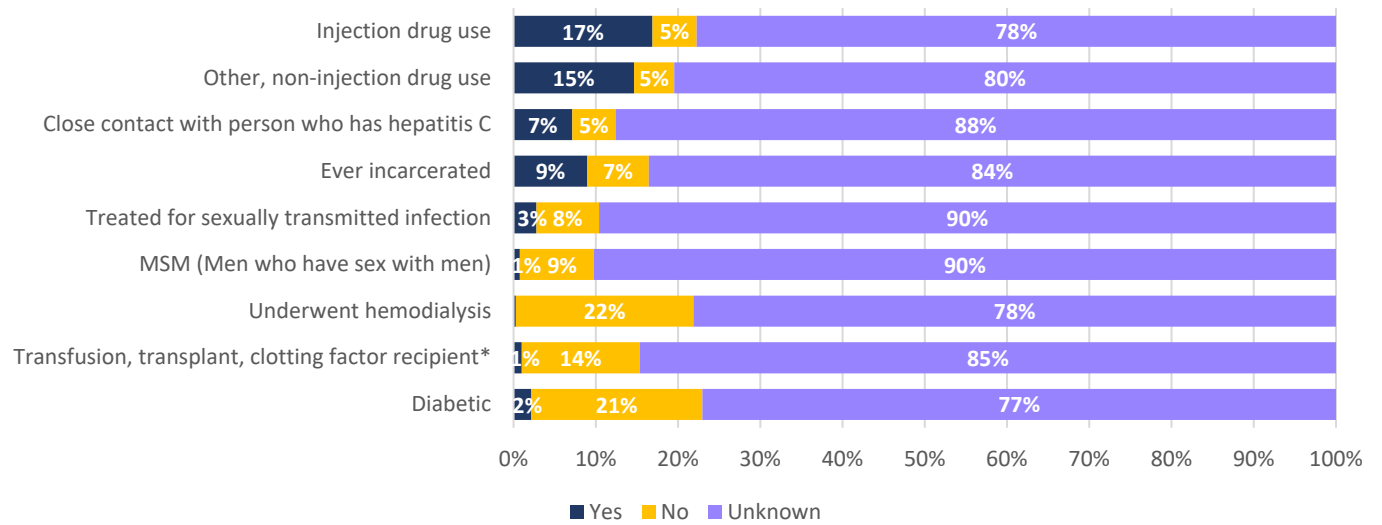
Table 2.6b Risk Factors in Chronic Hepatitis C Cases Newly Reported in 2020

	Number of cases			Total
	Yes	No	Unknown	
Injection drug use	666	212	3,067	3,945
Other, non-injection drug use	578	193	3,174	3,945
Close contact with person who has hepatitis C	282	207	3,456	3,945
Ever incarcerated	354	295	3,296	3,945
Treated for sexually transmitted infection	110	300	3,535	3,945
MSM (Men who have sex with men)	19	224	2,248	2,491
Underwent hemodialysis	11	852	3,082	3,945
Transfusion, transplant, clotting factor recipient*	39	567	3,339	3,945
Diabetic	85	821	3,039	3,945

*Recipient of transfusion and/or transplant before 1992 and/or recipient of clotting factor before 1987

Depending on risk factor, the percent of cases with unknown or missing information ranges from 77-90% (Fig. 2.6b).

Figure 2.6b Chronic Hepatitis C Risk Factors for Cases Newly Reported in 2020



Note. Underwent hemodialysis and transfusion, transplant, clotting factor recipient is less than 1%.

*Recipient of transfusion and/or transplant before 1992 and/or recipient of clotting factor before 1987

**NYS AIDS Institute Hepatitis C Programs,
Initiatives and Special Studies**

Hepatitis C Testing Program

The NYSDOH AIDS Institute Hepatitis C Testing Program provides free hepatitis C virus (HCV) rapid antibody test kits and HCV ribonucleic acid (RNA) testing by dried blood spot (DBS) to agencies serving underinsured individuals at highest risk for HCV infection. DBS testing uses drops of blood collected by a finger stick, making onsite HCV RNA testing more feasible. The less invasive DBS test may be more acceptable to clients.

The HCV Testing Program enrolls a variety of agencies including: LHDs, syringe exchange programs (SEPs), community-based organizations, community health clinics, hospitals performing community outreach, and local county jails. A more detailed description of this program is available online.¹

In 2020, 45 agencies were enrolled at any point during the year, with at least one in each of six regions of the state (including New York City).

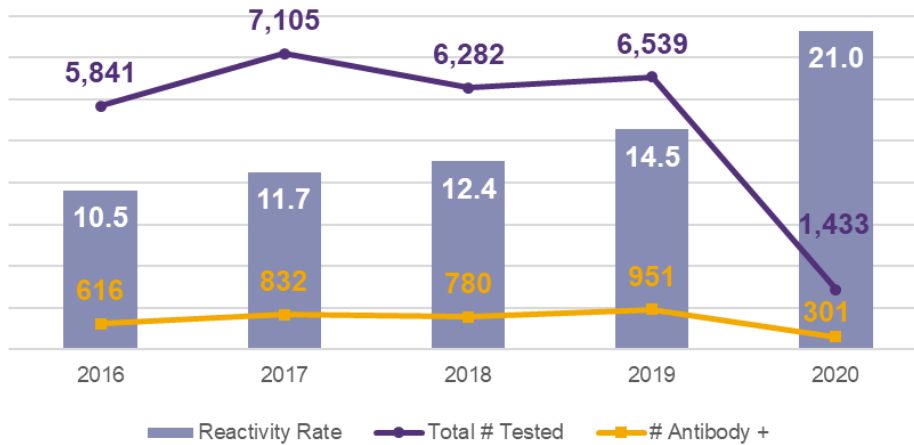
Clients first receive a rapid HCV antibody test. Those with a reactive HCV antibody test (Ab+) must also receive an HCV RNA test in order to diagnose current infection. Eighteen agencies offered referrals for follow-up RNA testing to other offsite providers. The remaining 27 programs offered free onsite HCV RNA testing with 9 collecting whole-blood specimens via venipuncture and 18 collecting specimens through DBS.

In 2020, 1,433 clients received the HCV rapid antibody test. COVID-19 and programmatic changes impacted the volume of HCV testing conducted in 2020. In 2020, the total number of clients tested decreased 78.1% from 6,539 in 2019. (Figure 3.1) In 2019-2020, the program implemented a policy requiring enrolled agencies to maintain an overall reactivity rate of at least 10% by targeting populations most at-risk for HCV. If, after extensive technical assistance, it was determined that an agency was not reaching high risk populations, the agency was disenrolled from the program. This led to the disenrollment of 16 agencies during 2020. A partial year of data was collected from these agencies.

In 2020, 301 clients were found to have a reactive HCV rapid antibody test, resulting in an overall reactivity rate of 21.0%, an increase from 14.5% in 2019.

¹ See New York State Department of Health Hepatitis C Testing Program fact sheet at: <https://www.health.ny.gov/publications/1805.pdf>.

**Figure 3.1 Testing and Reactivity Rate by Year
HCV Rapid Testing Program: 2016-2020**



There was variation in reactivity rates by gender, race, ethnicity, age, injection drug use history, insurance, and housing status. (Table 3.1)

- Injection drug use (IDU) was a commonly reported HCV risk factor (28.9%). Clients reporting a history of IDU had the highest reactivity rate of any primary risk factors (43.7%).
- Clients reporting homelessness or living with relations/friends had higher reactivity rates (39.1%) than clients with other types of housing.

Acceptance of HCV RNA testing was more common at agencies offering onsite RNA testing collected via DBS than via venipuncture or referrals for RNA testing by another provider (Figure 3.2).

Figure 3.2 Acceptance of RNA Testing Among Clients with Positive HCV Antibody Test by Availability and Type of Onsite RNA Testing*

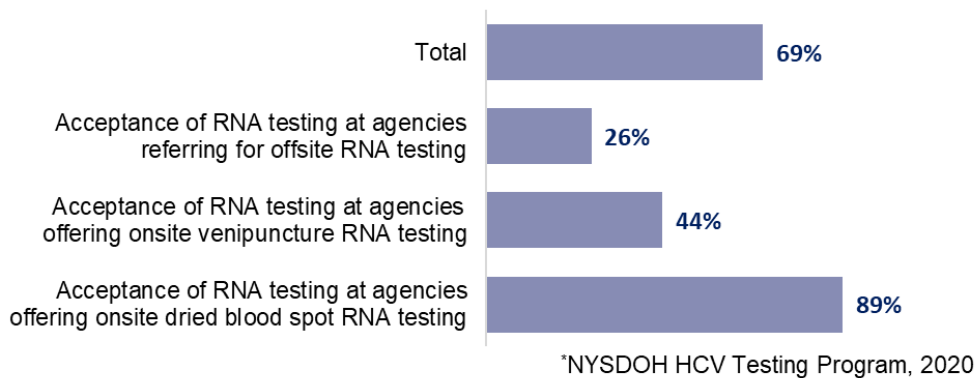


Table 3.1 Client Characteristics and HCV Rapid Testing Reactivity of all Clients Tested for HCV Antibodies (Ab) NYSDOH HCV Testing Program: 2020						
Characteristic	Number Tested	Percent of All Clients Tested	Number Ab+ Clients	Percent of All Ab+ Clients	Reactivity Rate (# Ab+/# Tested)	
Overall	1,433	100.0%	301	100.0%	21.0	
Gender						
Male	988	68.9%	199	66.1%	20.1	
Female	401	28.0%	95	31.6%	23.7	
Transgender	18	1.3%	0	0.0%	0.0	
NonBinary/nonconform	5	0.3%	0	0.0%	0.0	
Not sure/Questioning	4	0.3%	3	1.0%	75.0	
Unknown	17	1.2%	4	1.3%	23.5	
Race						
White	838	58.5%	213	70.8%	25.4	
Black	472	32.9%	62	20.6%	13.1	
Multiple Races	67	4.7%	12	4.0%	17.9	
Other Unspecified Race	29	2.0%	9	3.0%	31.0	
Native American/Alaskan Native	18	1.3%	4	1.3%	22.2	
Asian	8	0.6%	0	0.0%	0.0	
Hawaiian	0	0.0%	0	0.0%	0.0	
Unknown/Refused	1	0.1%	1	0.3%	100.0	
Ethnicity						
Hispanic	404	28.2%	100	33.2%	24.8	
Non-Hispanic	1,027	71.7%	200	66.4%	19.5	
Unknown	2	0.1%	1	0.3%	50.0	
Age						
≤19 years	23	1.6%	2	0.7%	8.7	
20-29 years	350	24.4%	72	23.9%	20.6	
30-39 years	396	27.6%	84	27.9%	21.2	
40-49 years	253	17.7%	60	19.9%	23.7	
50+ years	410	28.6%	82	27.2%	20.0	
Unknown	1	0.1%	1	0.3%	100.0	
History of Injection Drug Use (IDU)						
Yes	414	28.9%	181	60.1%	43.7	
No	1,019	71.1%	120	39.9%	11.8	
Housing*						
Permanent Housing:Owns/Rents	381	34.5%	70	26.4%	24.0	
Correctional Facility (Jail/Prison)	163	14.8%	34	12.8%	20.9	
Homeless On Street	118	10.7%	37	14.0%	31.4	
With Relations / Friends	115	10.4%	45	17.0%	39.1	
Unstable Housing: Homeless/Shelter	107	9.7%	32	12.1%	39.1	
Transitional Housing	93	8.4%	16	6.0%	17.2	
Residential Drug Treatment	31	2.8%	3	1.1%	9.7	
Residential - Group Home	9	0.8%	2	0.8%	22.2	
Unknown	87	7.9%	26	9.8%	29.9	
Insurance*						
Medicaid Managed Care/Fee for Service	264	23.9%	103	38.9%	39.0	
Self Pay	154	13.9%	33	12.5%	21.4	
Medicare/Medicaid	48	4.3%	14	5.3%	29.2	
Private(Employer or Individual)	14	1.3%	1	0.4%	7.1	
Medicare	6	0.5%	1	0.4%	16.7	
Other Insurance**	25	2.3%	5	1.9%	25.0	
Unknown	593	53.7%	108	40.8%	18.2	

* Status shown for 1,104 clients recorded in AIRS, where information on insurance and housing is collected. Data for the remaining clients were from a second data system that did not collect this information.

**Other Insurance includes: HIV Special Needs Plan, AIDS Drug Assistance Program, Medication Assistance Program.

Data obtained Dec. 17, 2021

NYS Hepatitis C Patient Navigation Initiative

The NYS Hepatitis C Patient Navigation (PN) initiative 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 by addressing patient- and systems-level barriers to HCV care and treatment. Additional information about this initiative is available online.²

The PN initiative is based in Drug User Health Hubs (Health Hubs) located outside of New York City. These Health Hubs are expansions of SEPs and are intended to improve the availability and accessibility of an array of appropriate health, mental health, and medication assisted treatment services for people who use drugs, including PWID.

Since November 2018, the NYSDOH AIDS Institute has funded seven Health Hubs, to increase the number of HCV-infected PWID who are successfully linked to medical care and treated for their HCV disease.

A description of clients enrolled during the first two years of the initiative (Nov. 1, 2018 through Oct. 31, 2020), can be seen in Table 4.1.

- 76.2% were identified as White persons, 12.9% were Hispanic persons, and 7.1% were Black persons.
- Most (66.4%) identified their gender as man/boy, 33.0% identified as woman/girl, and 0.2% identified as transgender man/boy.
- The majority of clients (66.4%) were under the age of 40.
- Almost all (95.0%) reported a history of injection drug use.
- Many (46.6%) were on medication-assisted therapy for opioid dependence.
- Almost all (90.3%) were enrolled in Medicaid and/or Medicare.
- Less than half (43.7%) had permanent housing, 34.6% were in temporary or institutional housing (living with friends or relations, residential group home or drug treatment facility), and 13.6% had unstable housing (sheltered or unsheltered homeless).

The HCV Care Continuum (Figure 4.1) describes key steps patients must take to complete the treatment process and be cured of their HCV. A summary of the cumulative results for clients enrolled during the first two years of the initiative (Nov. 1, 2018 through Oct. 31, 2020), reflecting their status as of Sept. 1, 2021 follows.

- Of 575 patients enrolled, 83.7% received an HCV RNA test.
- Of 481 patients who had an RNA test, 88.4% were found to be infected with HCV.
- Of 425 patients with chronic HCV, 72.7% were linked to care.
- Of 309 patients who were linked to care, 82.2% initiated treatment.
- Of 254 patients who initiated treatment, 85.0% completed treatment.
- Of 216 patients who completed treatment, 70.8% were assessed for cure.
- Of 153 patients who were assessed for cure, 93.5% were cured.

² See fact sheet available online at

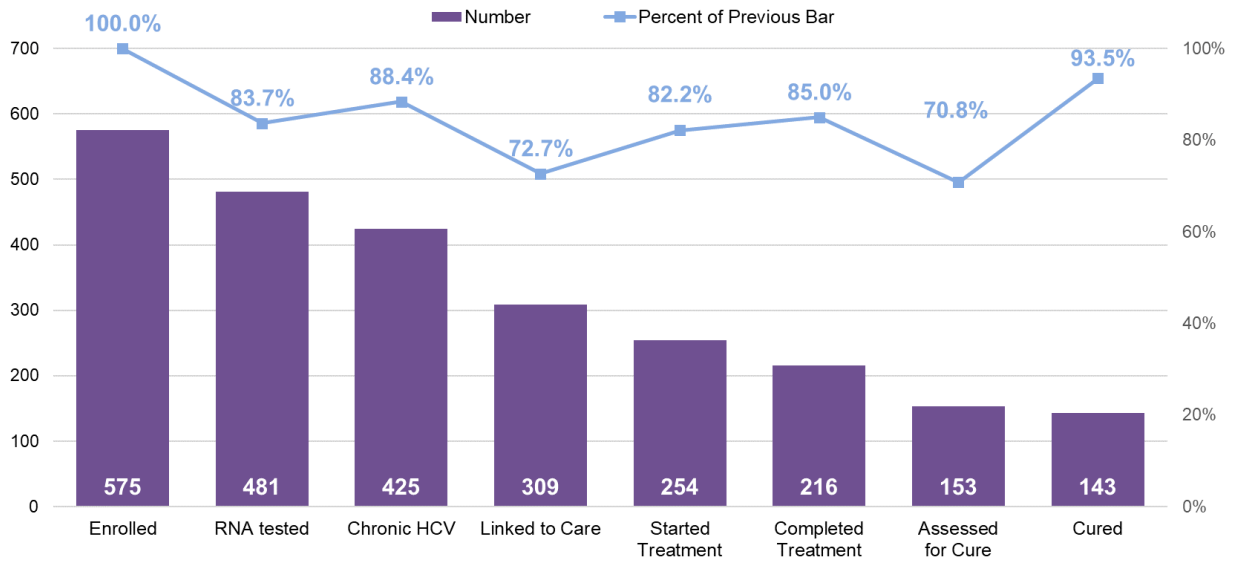
https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/docs/patient_navigation_program.pdf

Table 4.1 Patient Characteristics*
NYSDOH HCV Patient Navigation Initiative, Nov. 1, 2018-Oct. 31, 2020

Characteristic	Number	Percent
Total	575	100.0%
Gender		
Man/Boy	382	66.4%
Woman/Girl	190	33.0%
Chose not to respond	2	0.3%
Transgender Man/Boy	1	0.2%
Race/Ethnicity		
White	438	76.2%
Hispanic	74	12.9%
Black	41	7.1%
Native American/Alaskan Native	15	2.6%
Hawaiian/Pacific Islander	4	0.7%
Asian	1	0.2%
Other Unspecified Race/Ethnicity	2	0.3%
Age		
≤ 29	133	23.1%
30-39	249	43.3%
40-49	127	22.1%
50-59	50	8.7%
60-69	16	2.8%
Injection Drug Use History		
History of IDU	546	95.0%
No IDU	4	0.7%
Unknown	25	4.3%
Any Medication Assisted Therapy (MAT) for Opioid Dependence		
Yes	268	46.6%
No	172	29.9%
Pending	10	1.7%
Unknown	125	21.7%
Insurance		
Medicaid and/or Medicare	519	90.3%
Self-Pay	14	2.4%
Private(Employer or Individual)	14	2.4%
Special Needs Plan (SNP)	1	0.2%
Unknown	27	4.7%
Housing Status		
Permanent Housing:Owns/Rents	251	43.7%
With Relations / Friends	111	19.3%
Residential - Group Home/Drug Treatment	88	15.3%
Homeless On Street	39	6.8%
Shelter: Homeless/Domestic Violence	38	6.6%
Transitional Housing	31	5.4%
Correctional Facility (Jail/Prison)	9	1.6%
Unknown	8	1.4%

Data obtained Sept. 1, 2021

**Figure 4.1 Cumulative HCV Care Continuum
NYSDOH Patient Navigation Initiative Years 1 & 2***



*Includes patients enrolled any time from Nov. 1, 2018 through Oct. 31, 2020 and reflects treatment status as of Sept. 1, 2021.

NYS Hepatitis C Care and Treatment Initiative

From April 2015 through May 2021, the NYSDOH AIDS Institute funded 15 primary care sites across NYS and NYC to integrate linkage to care activities and hepatitis C care, treatment, and supportive services into their existing primary care structure. The purpose of this initiative was to create an innovative hepatitis C care and treatment model that would eliminate patient, provider and health care system barriers and increase the number of HCV-infected people who are linked to care, initiate and complete treatment, and were cured of their disease. Additional information about this initiative is available online.³

Funded sites include community health centers, hospital-based clinics and drug treatment programs, including a methadone maintenance treatment program.

Table 5.1 describes the patient population served during this initiative (April 1, 2015 through May 31, 2021).

- 54.6% identified as persons of color.
- Most (66.5%) identified their gender as man/boy, 32.5% identified as woman/girl, and 0.3% identified as transgender woman/girl or transgender man/boy.
- More than a third (37.1%) were under the age of 40 and 24.5% were in their 50s.
- Almost three quarters (74.0%) reported a history of injection drug use.
- Most (96.2%) had some form of health insurance. Most (87.6%) were covered by Medicaid or Medicare.
- While 60.3% had permanent housing, 26.1% lived in temporary or institutional housing (including living with family/friends, inpatient drug treatment facilities or group homes), and 9.0% had unstable housing (sheltered or unsheltered homeless).

The HCV care continuum describes key steps patients must take to complete the treatment process and be cured of their HCV. Cumulative results from the initiative's first four years can be seen in the HCV care continuum presented in Figure 5.1. Highlights include:

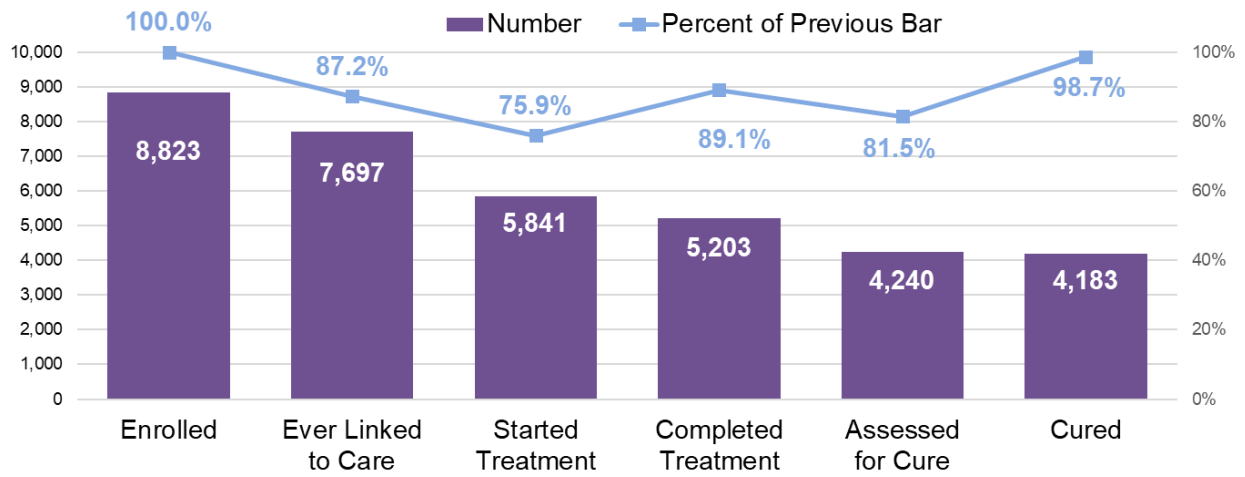
- 8,823 patients were enrolled in the program with a positive HCV antibody test.
- 87.2% of enrolled patients were linked to care.
- 75.9% of patients who were linked to care, initiated treatment for hepatitis C.
- Among those who initiated treatment, 89.1% completed treatment.
- 81.5% of patients who completed treatment received a final HCV RNA test to assess for cure.
- 98.7% of patients who initiated treatment and completed their final HCV RNA test were cured of hepatitis C.

³ See https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/providers/programs.htm

Table 5.1 Patient Characteristics*			
NYSDOH HCV Care and Treatment Initiative, Apr. 1, 2015-May. 31, 2021			
Characteristic		Number	Percent
	Total	8,823	100.0%
Race			
	White	4,007	45.4%
	Hispanic	2,676	30.3%
	Black	2,023	22.9%
	Native American/Alaskan Native	50	0.6%
	Asian	38	0.4%
	Other Unspecified Race/Ethnicity	17	0.2%
	Hawaiian/Pacific Islander	12	0.1%
Gender			
	Man/Boy	5,864	66.5%
	Woman/Girl	2,871	32.5%
	Chose not to respond	49	0.6%
	Transgender Woman/Girl	21	0.2%
	Transgender Man/Boy	9	0.1%
	Not sure/Questioning	5	0.1%
	Non-Binary person	3	0.0%
	Gender Non-Conforming person	1	0.0%
Age			
	≤ 29	1,228	13.9%
	30-39	2,043	23.2%
	40-49	1,716	19.4%
	50-59	2,162	24.5%
	60-69	1,468	16.6%
	70+	206	2.3%
Injection Drug Use (IDU) History			
	History of IDU	6,526	74.0%
	No History of IDU	1,765	20.0%
	Unknown IDU History	532	6.0%
Insurance			
	Medicaid or Medicare	7,726	87.6%
	Private(Employer or Individual)	395	4.5%
	Other Coverage	365	4.2%
	No Insurance, Self-Pay	337	3.8%
Housing Status			
	Permanent Housing: Owns/Rents	5,320	60.3%
	Temporary or Institutional Housing	2,299	26.1%
	Unstable Housing: Homeless/Shelter	793	9.0%
	Transitional Housing	350	4.0%
	Correctional Facility (Jail/Prison)	57	0.6%

* Data obtained Feb. 22, 2022

**Figure 5.1 HCV Care Continuum:
NYSDOH Care and Treatment Initiative Years 1 - 6***



*Includes patients enrolled any time from April 1, 2015 through May 31, 2021 and reflects treatment status as of Feb. 22, 2022.

Hepatitis C Criminal Justice Initiative

State prisons, including NYS DOCCS, house a significant number of incarcerated persons with hepatitis C, presenting an opportunity to screen, diagnose, treat, and cure these individuals and prevent further spread of the disease both during incarceration and upon release to the community. The goal of the NYSDOH Criminal Justice Initiative (CJI) is to facilitate prompt access to HIV/HCV medical care and essential support services during incarceration and upon reentry to the community for people with HCV under NYS DOCCS custody, with priority given to those within 90 days of release. The CJI provides funding to eight (8) community-based organizations (CBOs) to provide in-facility pre-release planning support both to people with HCV who initiate HCV treatment while in DOCCS custody and will be released before treatment completion and people who will begin HCV treatment after release to the community. CBO staff accept client referrals from DOCCS staff; develop a strengths-based, client-centered comprehensive linkage action plan addressing all medical and community reentry needs; schedule post-release appointments; provide HCV education to clients; and report all post-release outcomes to DOCCS. Additional information about this initiative is available online.⁴

Individuals are enrolled in the initiative while incarcerated and follow-up is conducted after release. Clients enrolled in the initiative between Aug. 1, 2019 and July 31, 2020 are described in Table 6.1. A total of 184 clients were enrolled; 45 initiated HCV treatment while incarcerated, and 139 were released prior to treatment initiation.

⁴ See <https://www.health.ny.gov/diseases/aids/general/about/prevsup.htm#cji>

**Table 6.1 Demographic Characteristics of Enrolled Clients,
NYSDOH Criminal Justice Initiative, Aug. 1, 2019 - July 31, 2020**

Characteristic	Released After HCV Treatment Initiation		Released Before HCV Treatment Initiation		Total	
	Number	Percent	Number	Percent	Number	Percent
Total	45	100%	139	100%	184	100%
Gender						
Man/Boy	36	80.0%	117	84.2%	153	83.2%
Woman/Girl	6	13.3%	19	13.7%	25	13.6%
Transgender Woman/Girl	0	0.0%	0	0.0%	0	0.0%
Gender Not Listed	1	2.2%	0	0.0%	1	0.5%
Chose not to respond	2	4.4%	3	2.2%	5	2.7%
Race/Ethnicity						
White	28	62.2%	98	70.5%	126	68.5%
Hispanic	8	17.8%	26	18.7%	34	18.5%
Black	7	15.6%	13	9.4%	20	10.9%
Hawaiian/Pacific Islander	1	2.2%	0	0.0%	1	0.5%
Native American/Alaskan Native	1	2.2%	1	0.7%	2	1.1%
Age						
<20	0	0.0%	0	0.0%	0	0.0%
20-29	9	20.0%	14	10.1%	23	12.5%
30-39	23	51.1%	77	55.4%	100	54.3%
40-49	8	17.8%	28	20.1%	36	19.6%
50-59	3	6.7%	15	10.8%	18	9.8%
60+	2	4.4%	5	3.6%	7	3.8%

Data obtained Feb. 8, 2022

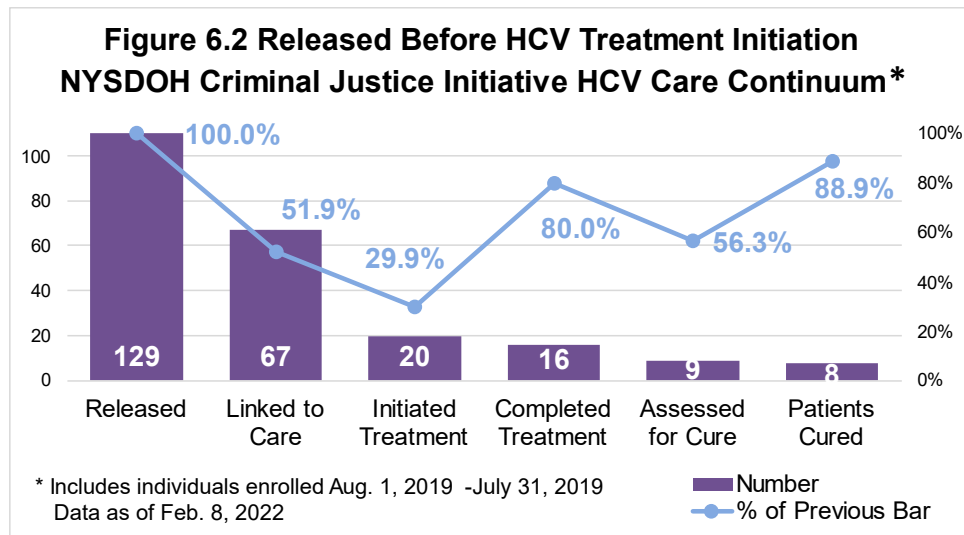
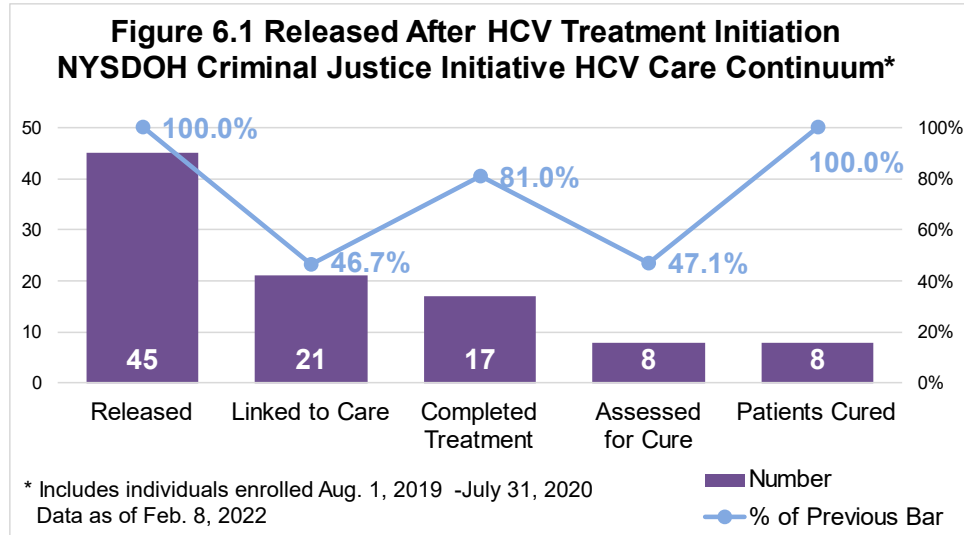
Treatment outcomes are described by HCV care continuums for each group of individuals.

Among the 45 individuals who initiated HCV treatment while incarcerated (Figure 6.1):

- Less than half (46.7%) of individuals who initiated HCV treatment while incarcerated were successfully linked to medical care after release and 81.0% who were linked to care completed treatment.
- While less than half (47.1%) of those who completed treatment were assessed for cure at least 12 weeks after treatment completion, all (100.0%) were cured.

Of the 139 individuals who were released prior to initiating treatment (Figure 6.2):

- More than half (51.9%) of those who were released before treatment initiation were linked to care, and 29.9% of those who were linked to care initiated treatment.
- Most (80.0%) of those who initiated treatment after release were documented to have completed their treatment.
- More than half (56.3%) of those who completed treatment were assessed for cure at least 12 weeks after treatment completion and 88.9% were cured.



Behavioral Risk Factor Surveillance System (BRFSS) in New York State

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual statewide telephone and cellular surveillance survey designed by CDC and administered by the NYSDOH. BRFSS collects and monitors self-reported information on behaviors, risk factors, and utilization of preventive services related to the leading causes of chronic and infectious diseases, disability, injury, and death among the noninstitutionalized, civilian population aged 18 years and older.

In 2020, the following questions about hepatitis C testing and diagnoses were included in the NYS BRFSS survey:

- Have you ever been tested for hepatitis C? Do not count tests you may have had as part of a blood donation.
- Has a doctor, nurse, or other health professional ever told you that you had hepatitis C?

Presented here are the weighted percentages and 95% confidence intervals among the adult population in NYS (including NYC), broken down by age, race/ethnicity, and sex.

- 24.4% of adults reported having ever been tested for hepatitis C. There was no significant difference by age, but testing was more common among non-Hispanic Black persons and males. (Table 7.1)
- 1.2% of adults reported ever being told that they had hepatitis C. Baby Boomers (born from 1945-1965) were four times as likely to report ever being told they had hepatitis C than younger adults. (Table 7.2)

Respondent Characteristic	Percent	95% CI
All Adults	28.0	(25.7, 30.4)
Age		
Younger Adults (Born 1966 or later)	30.1	(26.7, 33.5)
Baby Boomers (Born 1945-1965)	30.5	(26.7, 34.2)
Race/Ethnicity		
White Non-Hispanic	28.1	(25.4, 30.8)
Black Non-Hispanic	41.2	(33.4, 48.9)
Hispanic	21.2	(15.9, 26.5)
Other Non-Hispanic [£]	21.6	(13.1, 30.2)
Sex		
Male	29.8	(26.4, 33.1)
Female	26.4	(23.2, 29.6)

Weighted percents and 95% confidence intervals (95% CI) are shown.

*All adults 18 years and older in New York State, including New York City

[£]Other Non-Hispanic includes Asian, American Indian or Alaskan Native, Native Hawaiian or other Pacific Islander, Multiracial, Other

Respondent Characteristic	Percent	95% CI
All Adults	1.2	(0.8, 1.7)
Age		
Younger Adults (Born 1966 or later)	0.5	(0.2, 0.8)
Baby Boomers (Born 1945-1965)	2.6	(1.4, 3.9)
Race/Ethnicity		
White Non-Hispanic	1.1	(0.6, 1.6)
Other [£]	1.0	(0.3, 1.6)
Sex		
Male	1.5	(0.7, 2.2)
Female	1.0	(0.4, 1.6)

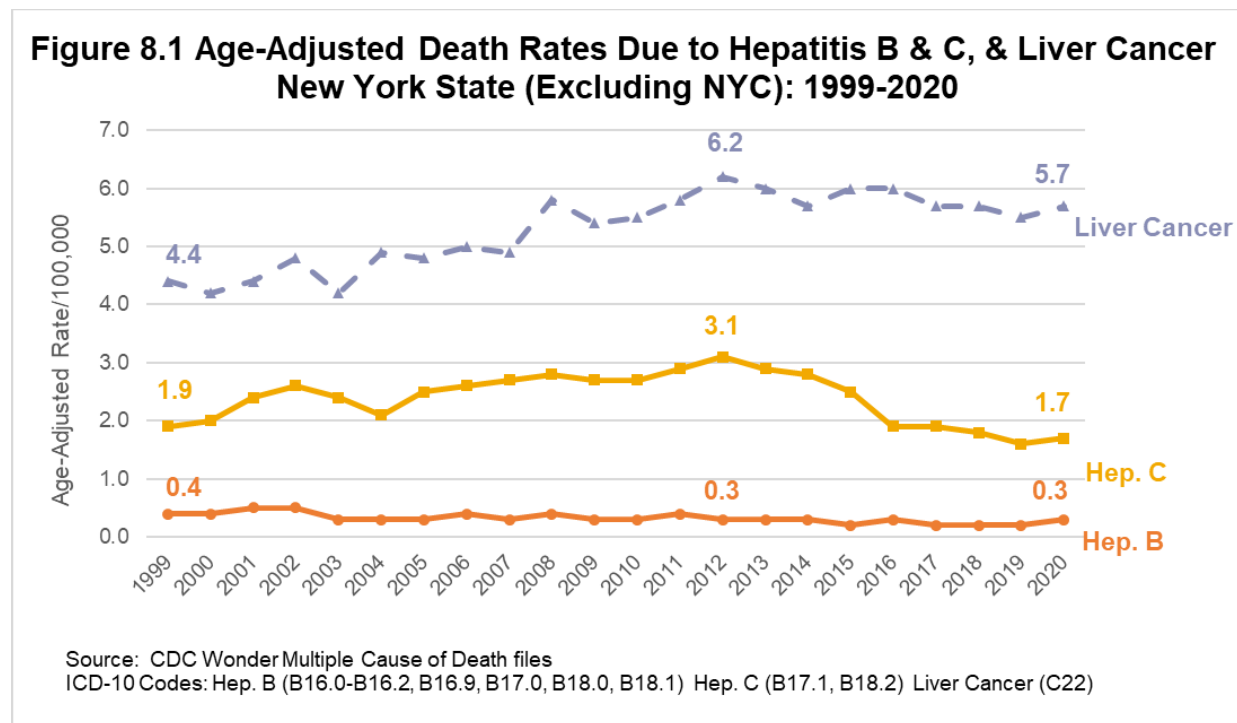
Weighted percents and 95% confidence intervals (95% CI) are shown.

*All adults 18 years and older in New York State, including New York City

[£]Other includes Hispanic; all Non-White/Non-Hispanic races including: Black, Asian, American Indian or Alaskan Native, Native Hawaiian or other Pacific Islander; Multiracial;

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

Data on hepatitis deaths and liver cancer were obtained from the National Center for Health Statistics, multiple causes of death file, available at [Wonder.cdc.gov](https://wonder.cdc.gov). At the time of this report, data were available through 2020. The overall trends in age-adjusted death rates are shown in Figure 8.1.



Liver Cancer

- Age-adjusted rates of liver cancer deaths in NYS (excluding NYC) peaked in 2012 at 6.2 per 100,000. By 2020, the age-adjusted rate dropped 8.1% to 5.7 per 100,000.
- The CDC estimates that approximately 65% of liver cancer cases are related to hepatitis B or C, with nearly 50% attributable to hepatitis C alone.⁵

Hepatitis B

- In NYS (excluding NYC), from 2011-2020 the combined age-adjusted rate of death from hepatitis B was 0.2 per 100,000 persons. (Table 8.1) This was a 50% decrease compared to the combined rate from 1999-2010.
- Rates decreased in all sex, racial/ethnic and age categories, except among people aged 65-84.
- Rates were highest among people who were reported as male, Asian/Pacific Islander, non-Hispanic Black, and Hispanic.

⁵ 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>

Table 8.1 Deaths Due to Hepatitis B: New York State (Excluding NYC), 1999-2010 and 2011-2020

	1999-2010			2011-2020			Change from 1999-2010 to 2011-2020	
	Number of Deaths	% of All Hepatitis B Deaths	Age-Adjusted Rate Per 100,000 Population	Number of Deaths	% of All Hepatitis B Deaths	Age-Adjusted Rate Per 100,000 Population	Change in Age-Adjusted Rate	% Change in Age-Adjusted Rate
Total	556	100.0%	0.4	370	100.0%	0.2	-0.2	-50.0%
Sex								
Male	421	75.7%	0.6	280	75.7%	0.4	-0.2	-33.3%
Female	135	24.3%	0.2	90	24.3%	0.1	-0.1	-50.0%
Race/Ethnicity								
American Indian/Alaskan Native	NA	NA	NA	NA	NA	NA	NA	NA
Asian or Pacific Islander	56	10.1%	1.5	45	12.2%	1.1	-0.4	-26.7%
Black, Non-Hispanic	129	23.2%	1.2	64	17.3%	0.7	-0.5	-41.7%
Hispanic	46	8.3%	0.7	42	11.4%	0.5	-0.2	-28.6%
White, Non-Hispanic	371	66.7%	0.3	161	43.5%	0.1	-0.2	-66.7%
Age at Death**								
<25	NA	NA	NA	NA	NA	NA	NA	NA
25-44	81	14.6%	0.2	22	5.9%	0.1	-0.1	-50.0%
45-64	309	55.6%	0.9	196	53.0%	0.6	-0.3	-33.3%
65-84	141	25.4%	0.9	139	37.6%	0.9	0.0	0.0%
85+	24	4.3%	0.9	12	3.2%	0.4*	-0.5	-55.6%

* Rates are unreliable when death count is < 20.

** Age-specific rates are not age-adjusted.

Note: Due to small cell sizes and missing data, may not add to total. NA indicates 0-9 deaths.

ICD-10 Codes: Hep. B (B16.0, B16.1, B16.2, B16.9, B17.0, B18.0, B18.1)

Source: CDC Wonder Multiple Cause of Death files (<https://wonder.cdc.gov/mcd.html>)

Hepatitis C

- Nationally, in 2013, hepatitis C-related mortality surpassed deaths from 60 other reportable infectious diseases.⁶ Yet, it is estimated that as few as one-fifth of hepatitis C patients who die have it listed as a cause of death.⁷
- In New York (excluding NYC), annual age-adjusted rates decreased 45.2% from 3.1 per 100,000 in 2012, when rates were highest, to 1.7 per 100,000 persons in 2020. (Figure 8.1)
- Hepatitis C death rates were disproportionately high among people reported as non-Hispanic Black and Hispanic compared to non-Hispanic White persons. (Figure 8.2) However, the gap has narrowed for non-Hispanic Black and Hispanic persons in 2011-2020 compared to 1999-2010 with age-adjusted rates decreasing 18.2% and 25.5% respectively, while decreasing 5.0% among non-Hispanic White persons. Age-adjusted rates among American Indian/Alaskan Native persons were also disproportionately high and increased 17.9% during the same time period. (Table 8.2)
- Rates were also higher among males and individuals 45-84 years of age.
- The baby-boomer generation (people born from 1945-1965) have had the highest death rates. Rates in this group peaked at 10.8 per 100,000 in 2012 and have since decreased 25.9% to 8.0 per 100,000 in 2020. (data not shown)

⁶ Kathleen N. Ly et al. Rising Mortality Associated with Hepatitis C Virus in the United States, 2003-2013. *Clinical Infectious Diseases*, 62(10), 1287-1288, <https://doi.org/10.1093/cid/ciw111>

⁷ Reena Mahajan et al. Mortality Among Persons in Care with Hepatitis C Virus Infection: The Chronic Hepatitis Cohort Study (CHeCS), 2006–2010. *Clinical Infectious Diseases*, 58(8), 1055–1061, <https://doi.org/10.1093/cid/ciu077>

Figure 8.2 Hepatitis C Age-Adjusted Death Rates/100,000 by Race/Ethnicity New York State (Excluding NYC): 1999-2020



Source: CDC Wonder Multiple Cause of Death files ICD-10 Codes: Hep. C (B17.1, B18.2)
 Due to small numbers, unable to show year-by-year data for Native Americans or Asians.

Table 8.2 Deaths Due to Hepatitis C: New York State (Excluding NYC), 1999-2010 and 2011-2020

	1999-2010			2011-2020			Change from 1999-2010 to 2011-2020	
	Number of Deaths	% of All Hepatitis C Deaths	Age-Adjusted Rate Per 100,000 Population	Number of Deaths	% of All Hepatitis C Deaths	Age-Adjusted Rate Per 100,000 Population	Change in Age-Adjusted Rate	% Change in Age-Adjusted Rate
Total	3,715	100.0%	2.5	3,534	100.0%	2.3	-0.2	-8.0%
Sex								
Male	2,622	70.6%	3.7	2,565	72.6%	3.5	-0.2	-5.4%
Female	1,093	29.4%	1.4	969	27.4%	1.2	-0.2	-14.3%
Race/Ethnicity								
American Indian/Alaskan Native	20	0.5%	3.9	26	0.7%	4.6	0.7	17.9%
Asian or Pacific Islander	51	1.4%	1.9	62	1.8%	1.5	-0.4	-21.1%
Black, Non-Hispanic	755	20.3%	7.7	675	19.1%	6.3	-1.4	-18.2%
Hispanic	351	9.4%	5.1	348	9.8%	3.8	-1.3	-25.5%
White, Non-Hispanic	2,530	68.1%	2.0	2,389	67.6%	1.9	-0.1	-5.0%
Age at Death*								
<25	NA	NA	NA	NA	NA	NA	NA	NA
25-44	288	7.8%	0.8	101	2.9%	0.4	-0.4	-50.0%
45-64	2,463	66.3%	7.2	2,162	61.2%	6.9	-0.3	-4.2%
65-84	849	22.9%	5.3	1,138	32.2%	7.2	1.9	35.8%
85+	111	3.0%	4.3	121	3.4%	4.4	0.1	2.3%

* Age-specific rates are not age-adjusted.

Note: Due to small cell sizes and missing data, may not add to total. NA indicates 0-9 deaths.
 ICD-10 Codes: Hep. C (B17.1, B18.2)

Source: CDC Wonder Multiple Cause of Death files (<https://wonder.cdc.gov/mcd.html>)

NYSDOH Viral Hepatitis Information:

<https://www.health.ny.gov/diseases/communicable/hepatitis/>

NYCDOHMH Hepatitis A, B and C in New York City: 2018 Annual Report:

<https://www1.nyc.gov/assets/doh/downloads/pdf/cd/hepatitis-abc-annual-report-2018.pdf>

NYS Hepatitis C Care and Treatment Initiative:

https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/providers/programs.htm

NYS Hepatitis C Continuity Program Fact Sheet:

https://www.health.ny.gov/diseases/aids/providers/corrections/hcv_factsheet.htm

Health Data NY Hepatitis B Birth Dose Vaccination Rates:

<https://healthdata.ny.gov/en/browse?q=birth+dose>

Give birth to the end of Hep B: <http://www.immunize.org/protect-newborns/>

NYS Hepatitis C Elimination:

https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/elimination.htm

Surveillance Case definitions:

Acute hepatitis B

<https://wwwn.cdc.gov/nndss/conditions/hepatitis-b-acute/case-definition/2012>

Chronic hepatitis B

<https://wwwn.cdc.gov/nndss/conditions/hepatitis-b-chronic/case-definition/2012>

Acute hepatitis C

<https://wwwn.cdc.gov/nndss/conditions/hepatitis-c-acute/case-definition/2016>

Chronic hepatitis C

<https://wwwn.cdc.gov/nndss/conditions/hepatitis-c-chronic/case-definition/2016>

US Census Population Data: <https://data.census.gov/cedsci/>

CDC Bridged-Race Population Estimates: <https://wonder.cdc.gov/bridged-race-population.html>

AI – AIDS Institute

AIRS – AIDS Institute Reporting System

ALT – alanine aminotransferase

BRFSS - Behavioral Risk Factor Surveillance System

CBO - community-based organization

CDC – Centers for Disease Control and Prevention

CDESS - Communicable Disease Electronic Surveillance System

CJI - Criminal Justice Initiative

CSTE - Council of State and Territorial Epidemiologists

DBS - dried blood spot

DNA – deoxyribonucleic acid

DOCCS - Department of Corrections and Community Supervision

ECLRS - Electronic Clinical Laboratory Reporting System

HBeAg - hepatitis B e antigen

HBIG - hepatitis B immune globulin

HBsAG - hepatitis B surface antigen

HBV – hepatitis B virus

HCV – hepatitis C virus

HIV - human immunodeficiency virus

IDU - injection drug use

LHD - local health department

NHBS - National HIV Behavioral Surveillance

NYC – New York City

NYCDOHMH – New York City Department of Health and Mental Hygiene

NYS – New York State

NYSDOH – New York State Department of Health

NYSIIS – New York State Immunization Information System

PHBPP - Perinatal Hepatitis B Prevention Program

PN - Patient Navigation

PVST - post vaccination serologic testing

PWID - persons who inject drugs

RNA - ribonucleic acid

SEP - Syringe Exchange Program

SVR - sustained virologic response