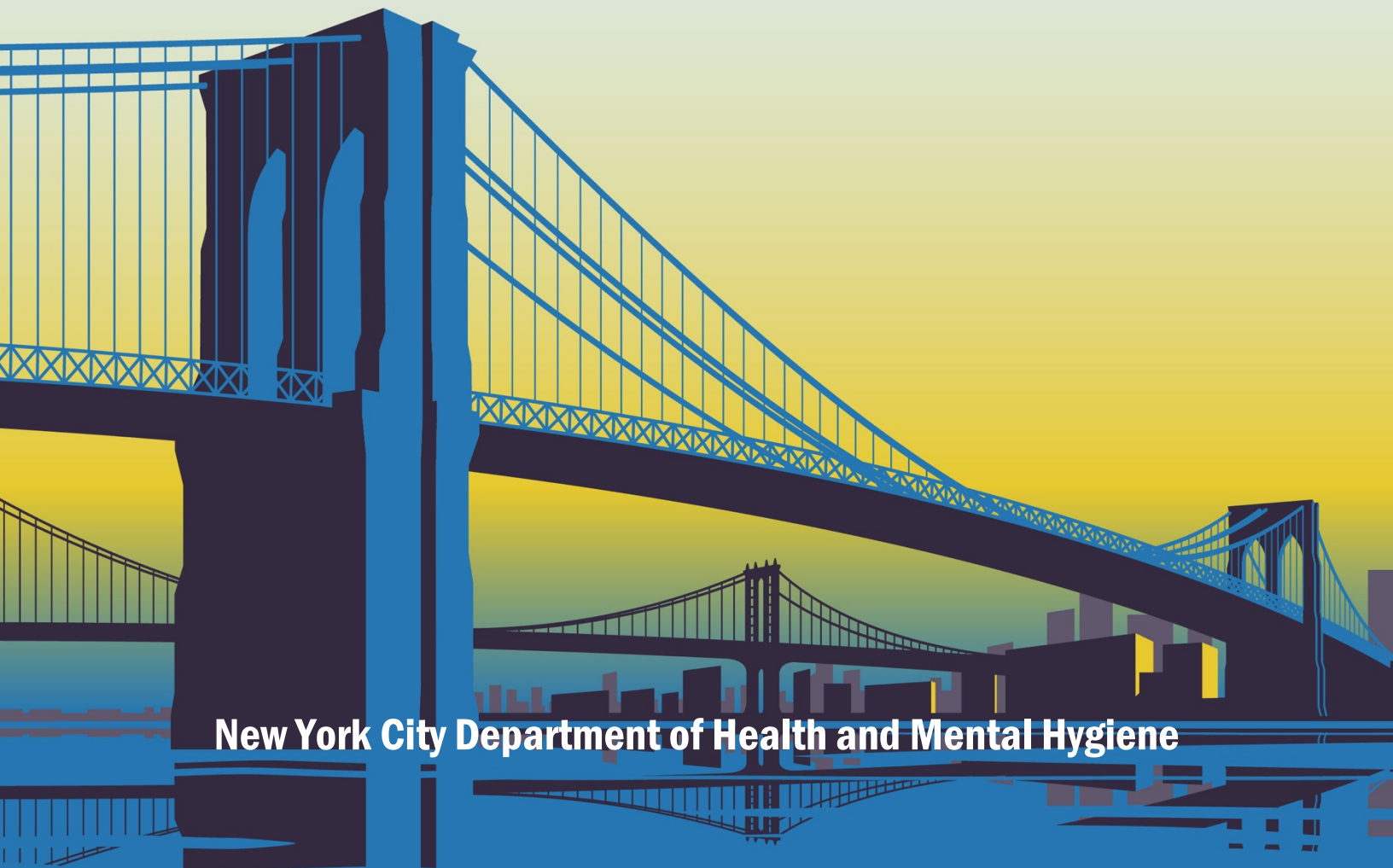


Working Toward a

# Hep Free NYC

**Hepatitis A, B and C in New York City:  
2020 Annual Report**



**New York City Department of Health and Mental Hygiene**

**About This Report:** This report was developed by the New York City Department of Health and Mental Hygiene and provides surveillance data and summaries of viral hepatitis program activities from January 1, 2020, through December 30, 2020. This report is required pursuant to Local Law 43 of 2015. For additional details about the use of denominators and definitions in this report, please see Appendix 1. For more information, email [hep@health.nyc.gov](mailto:hep@health.nyc.gov).

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# Achieving a Hep Free NYC

In 2016, the World Health Organization (WHO) created targets for the global elimination of viral hepatitis by 2030. The New York City (NYC) Department of Health and Mental Hygiene (the Health Department) works to eliminate viral hepatitis through the following activities:



## Using a Data-to-Care Approach to Hepatitis Elimination

Data-to-care is a public health strategy that uses surveillance data to drive interventions. Since 2016, the Health Department has used patterns of reportable hepatitis B and C test results to assess patient engagement in care and cure for hepatitis C. The Health Department is able to identify and link out-of-care patients to hepatitis medical care (see Page 34), as well as identify and provide training and technical assistance to health organizations with the highest number of people with hepatitis B and C (see Page 44).

## Working Toward Health Equity Through Hepatitis Elimination

Health equity is when everyone has the opportunity to be as healthy as possible. Yet, many people with hepatitis B and C face barriers to accessing health care, such as limited health insurance, stigma and discrimination. In NYC, there are large racial disparities in mortality from hepatitis B and C, with Asian and Pacific Islander New Yorkers having the highest rate of death from hepatitis B, and Latino and Black New Yorkers having the highest rates of death from hepatitis C.<sup>1</sup> The Health Department works toward health equity by:

- Promoting hepatitis care that uses a harm reduction and human rights approach<sup>2</sup>
- Building on community strengths to increase access to care by recruiting and training peer and patient navigators from affected communities
- Building capacity of health care providers to provide culturally informed hepatitis care
- Informing policies that increase access to care

In late 2020, the Health Department began developing its 2030 viral hepatitis elimination plan to be completed in 2021. The plan is led by the Hep Free NYC coalition, a community coalition of clinical and community health providers, researchers, advocates, and people with lived experience of hepatitis B and/or C. The NYC hepatitis elimination goals are aligned with global, national and state elimination plans but focus strategically on the specific needs and assets in NYC. The plan will outline the strategies needed to achieve a Hep Free NYC.

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<sup>1</sup> Racial and ethnic disparities in viral hepatitis are driven by social determinants of health that disproportionately affect communities of color, including structural racism that occurs in the context of health care access and provision, criminalization of drug use and access to affordable housing.

<sup>2</sup> UNAIDS. Health, rights and drugs: harm reduction, decriminalization and zero discrimination for people who use drugs. 2019.

# Hepatitis B in NYC: Opportunities for Elimination

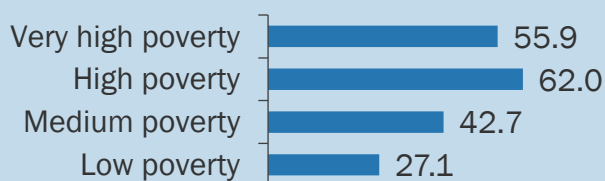
**241,000** Estimated number of people with hepatitis B in NYC\*

**76%** Percentage of children born in 2020 receiving the birth dose of the hepatitis B vaccine within three days after birth

\*For information about how the hepatitis B prevalence estimate is calculated, see Appendix 1.

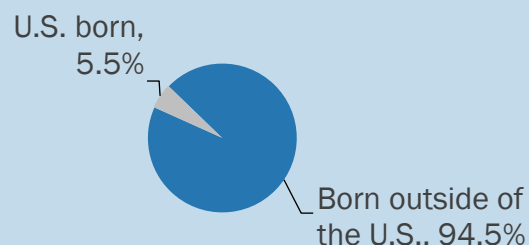
**Elimination of hepatitis B is possible with the vaccine, yet many adults are unvaccinated. Hepatitis B disproportionately affects people who are born outside of the United States (U.S.) and live in high-poverty neighborhoods.**

## Rate of hepatitis B infection per 100,000 people by neighborhood poverty level



The rate of hepatitis B infection in very high-poverty neighborhoods is twice the rate in low-poverty neighborhoods.

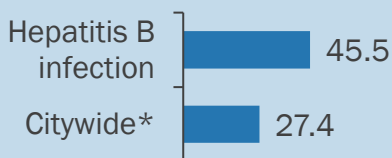
The majority of pregnant people reported with a hepatitis B infection were born outside of the United States.



**Hepatitis B can be treated to reduce the risk of liver disease, liver cancer and premature death, yet almost half of NYC residents with hepatitis B remain undiagnosed.**

**46%** Percentage of NYC residents with hepatitis B estimated to be undiagnosed

## Percentage of people who died prematurely in 2017



The percentage of people with hepatitis B who die prematurely (occurring before age 65) is 1.5 times higher than all premature deaths in NYC.

\*Including hepatitis B infection

## Health Department Response

The Health Department has worked to eliminate hepatitis B by:

- Contacting more than 700 parents each year to ensure newborns receive hepatitis B prophylaxis and complete vaccination to protect them from infection
- Monitoring NYC hospitals to assess coverage of hepatitis B vaccination of newborns
- Expanding hepatitis B patient navigation services in neighborhoods with high rates of hepatitis B, reaching more than 1,800 people to provide hepatitis B testing, linkage to care and care coordination services
- Training more than 1,000 health care providers to screen and treat hepatitis B

# Hepatitis C in NYC: Opportunities for Elimination

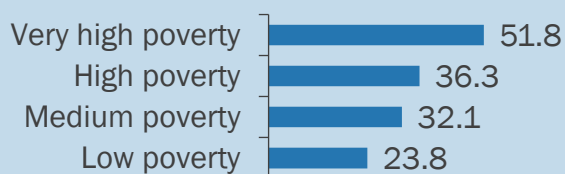
**91,000** Estimated number of people with current hepatitis C infection in NYC\*

**40%** Estimated percentage of NYC residents with chronic hepatitis C who are undiagnosed

\*For information about how the hepatitis C prevalence estimate is calculated, see Appendix 1.

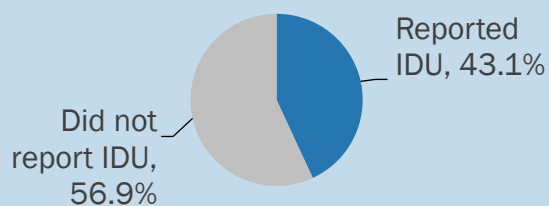
**Hepatitis C can be cured, making elimination of the disease a reality, but 40% of NYC residents with hepatitis C remain undiagnosed.**

## Rate of hepatitis C infection per 100,000 people by neighborhood poverty level



The rate of hepatitis C infection in very high-poverty neighborhoods is more than twice the rate in low-poverty neighborhoods.

Close to half of people ages 18 to 34 newly reported with hepatitis C\* reported injection drug use (IDU).

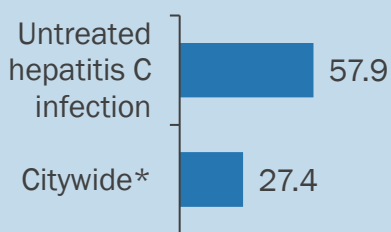


\*Reported through enhanced surveillance

**Hepatitis C can be cured, yet 40% of NYC residents diagnosed with hepatitis C remain untreated.**

**40%** Estimated percentage of people diagnosed with chronic hepatitis C who have not initiated treatment

## Percentage of people who died prematurely in 2017



The percentage of people with hepatitis C who die prematurely (occurring before age 65) is two times higher than all premature deaths in NYC.

\*Including hepatitis C infection

## Health Department Response

The Health Department has worked to eliminate hepatitis C by:

- Expanding hepatitis C patient and peer navigation services in neighborhoods with high rates of hepatitis C, reaching more than 14,000 people since 2014 to provide prevention, testing, linkage to care and care coordination services
- Reaching out to HIV care providers to promote hepatitis C treatment
- Training more than 1,000 health care providers to screen, treat and cure hepatitis C
- Funding dissemination of sterile drug-use equipment to 17,000 people who use drugs annually

# WHO Hepatitis Elimination Indicators: Where NYC Stands

In 2016, the WHO created global targets to eliminate viral hepatitis by 2030.<sup>3</sup> In NYC, new case reports of hepatitis B and C continue to decline. However, the percentage of premature (preventable) deaths from hepatitis B and C and number of people treated for hepatitis C are below target.

## Impact Targets

WHO indicator	WHO 2030 target	Proposed NYC indicator	NYC baseline data	Latest available NYC data	Percentage change from baseline
New cases of chronic hepatitis B infections	90% reduction	Newly reported cases of chronic hepatitis B <sup>4</sup>	8,344 (2016)	4,021 (2020)	51.8% reduction
New cases of chronic hepatitis C infections		Newly reported cases of chronic hepatitis C <sup>4</sup>	6,438 (2016)	2,810 (2020)	56.4% reduction
Hepatitis B deaths	65% reduction	Percentage of people with hepatitis B who died prematurely <sup>4</sup>	53% (2016)	46% (2017)	13.2% reduction
Hepatitis C deaths		Percentage of people with hepatitis C who died prematurely <sup>4</sup>	53% (2016)	48% (2017)	9.4% reduction

<sup>3</sup> World Health Organization. Global Health Sector Strategy on Viral Hepatitis, 2016-2021: Towards Ending Viral Hepatitis. 2016.

<sup>4</sup> NYC Health Department data

# WHO Hepatitis Elimination Indicators: Where NYC Stands (continued)

## Service Coverage Targets

WHO indicator	WHO 2030 target	Proposed NYC indicator	NYC baseline data	Latest available NYC data
Hepatitis B childhood third dose vaccination coverage	90%	<i>Hepatitis B vaccination has been required for elementary school in NYC since 1998; therefore, almost all children complete the hepatitis B vaccine series.</i>		
Hepatitis B virus birth dose vaccination coverage	90%	Percentage of newborns receiving the birth dose within the first three days of life <sup>5</sup>	72% (2017)	76% (2020)
Blood safety and safe injections	90%	<i>Hepatitis B and C transmission in health care facilities has essentially been eliminated due to national blood safety and infection control policies.</i>		
Harm reduction: number of sterile syringes provided per person who injects drugs per year <sup>4</sup>	300 syringes	Number of sterile syringes distributed per syringe service program participant	247 (2017)	266 (2020)
Hepatitis B diagnosis	90% diagnosed	Proportion of people infected with hepatitis B who are diagnosed (as estimated from surveys) <sup>6</sup>	54% (2016)	To be determined
Hepatitis C diagnosis		Proportion of people infected with hepatitis C who are diagnosed (as estimated from surveys) <sup>7</sup>	60% (2015)	To be determined
Hepatitis B treatment	80% eligible for treatment are treated	Hepatitis B treatment rate	Not available	Not available
Hepatitis C treatment		Hepatitis C treatment rate (estimated using surveillance data) <sup>8</sup>	42% (2016)	60% (2020)

<sup>5</sup> NYC Health Department data

<sup>6</sup> Moore MS, Bocour A, Winters A. Surveillance-based estimate of the prevalence of chronic hepatitis B virus infection, New York City, 2016. *Public Health Rep.* 2019;134(6):695-702.

<sup>7</sup> Bocour A, Greene SK, Laraque F, Winters A. Estimating the prevalence of chronic hepatitis C virus infection in New York City, 2015. *Epidemiol Infect.* 2018;146(12):1537-1542.

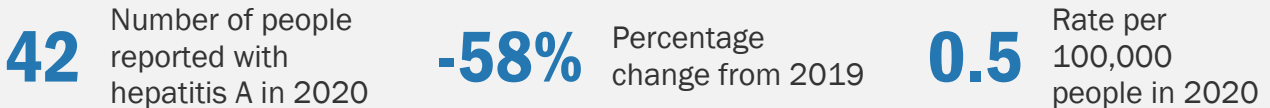
<sup>8</sup> See Page 27 for the hepatitis C care cascade and Appendix 15 for definitions.



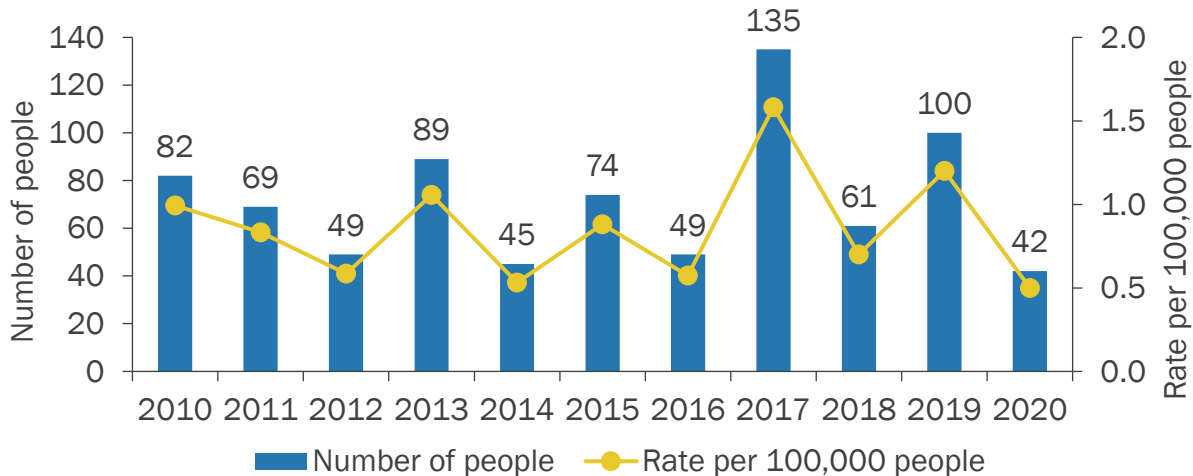
# Surveillance

Each year, the Health Department monitors the number of people with newly reported hepatitis A, B and C infections in NYC. The Health Department uses these data to describe trends over time and across groups, prevent new infections, and promote linkage to care and treatment. Read the surveillance technical notes in Appendix 1.

## Hepatitis A



**Figure 1.** Number and rate of people reported with hepatitis A<sup>9</sup> in NYC by year of diagnosis, 2010–2020



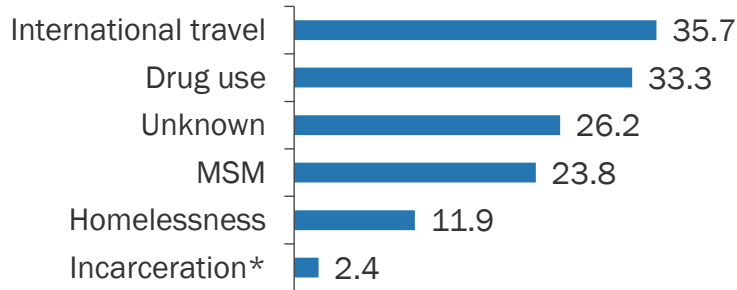
From 2010 through 2012, with the availability of hepatitis A vaccine and universal childhood vaccine recommendations, the number of reported hepatitis A infections declined in NYC. Increases in infections since 2013 were related to food handlers (2013), local clusters associated with restaurants and social networks (2015), or outbreaks among men who have sex with men (MSM) (2017,<sup>10</sup> 2019). The decrease in reported cases in 2020 was likely a result of less international travel, close person-to-person contact, and health care-seeking behavior during the COVID-19 pandemic. In late December 2020, NYC began to receive increasing reports of hepatitis A infections among people who use drugs and people experiencing homelessness, populations affected by ongoing outbreaks of hepatitis A nationwide.<sup>11</sup>

<sup>9</sup> Case definition for acute hepatitis A: discrete onset of symptoms consistent with hepatitis A infection, positive anti-hepatitis A virus IgM or hepatitis A RNA nucleic acid amplification test, either jaundice or elevated total bilirubin levels or elevated serum alanine aminotransferase levels, and the absence of a more likely diagnosis.

<sup>10</sup> For more information, visit <https://dx.doi.org/10.15585/mmwr.mm6637a7>.

<sup>11</sup> For more information, visit <https://cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm>.

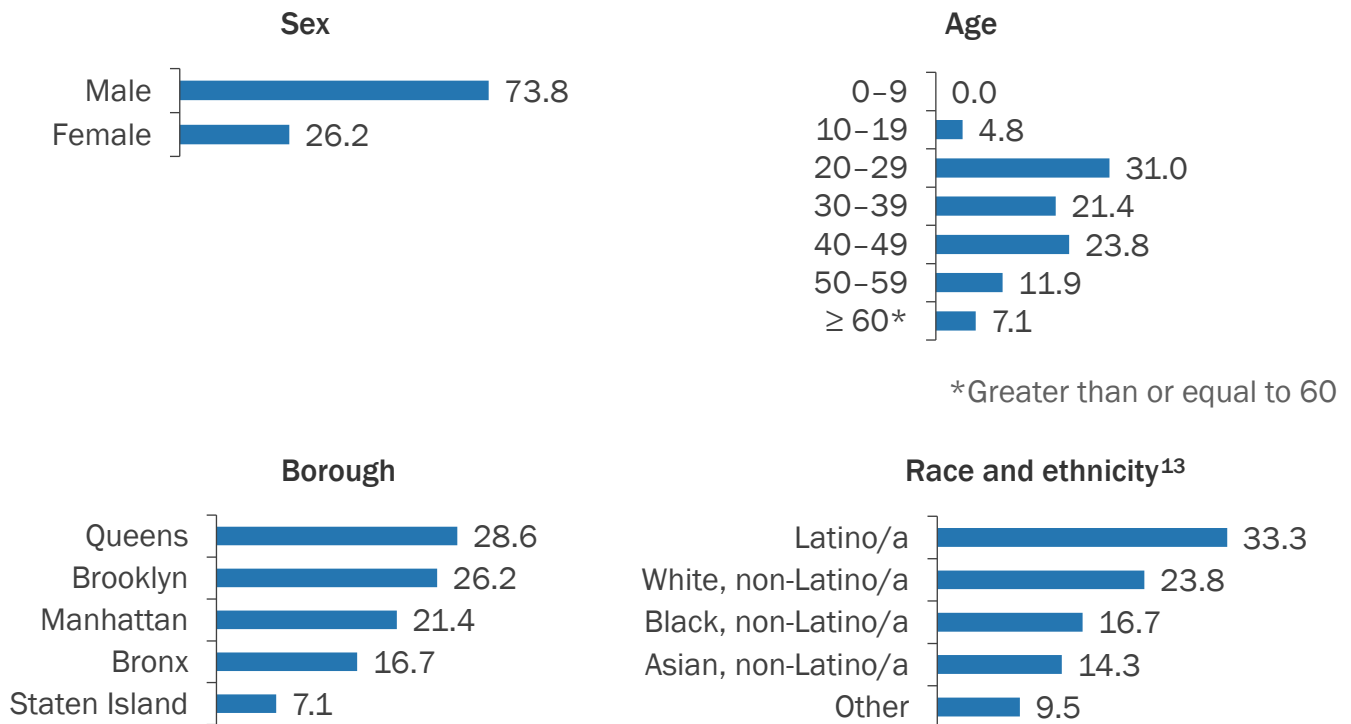
**Figure 2.** Percentage of people reported with hepatitis A in NYC by reported risk factors,<sup>12</sup> 2020



\*Within six months before diagnosis

» For information about how providers can report hepatitis A cases, see Appendix 2.

**Figure 3.** Percentage of people reported with hepatitis A in NYC by sex, age, race and ethnicity, and borough, 2020



\*Greater than or equal to 60

» For full data, see Appendix 3.

<sup>12</sup> Not mutually exclusive

<sup>13</sup> 2.4% of people had unknown race and ethnicity.

### Health Department Recommendation

Clinicians should administer two doses of single-antigen hepatitis A vaccine at least six months apart to children beginning at age 1 year, as well as to the following groups:

- MSM
- Travelers to countries with high rates of hepatitis A, including countries in the Caribbean, Central and South America, Africa, Eastern Europe, and parts of Asia
- People with chronic liver disease, including hepatitis B and C
- People who use drugs (injection and non-injection)
- People experiencing homelessness, including those who live on the street, live in a shelter, access homeless services, or otherwise do not have a permanent address
- People with HIV infection

Read the full recommendations at [cdc.gov/hepatitis/hav/havfaq.htm#vaccine](https://cdc.gov/hepatitis/hav/havfaq.htm#vaccine). People with no or limited health insurance can receive low- or no-cost hepatitis A vaccines at the Health Department’s Immunization Clinics (for more information, go to [nyc.gov/health](https://nyc.gov/health) and search for “immunization.”).

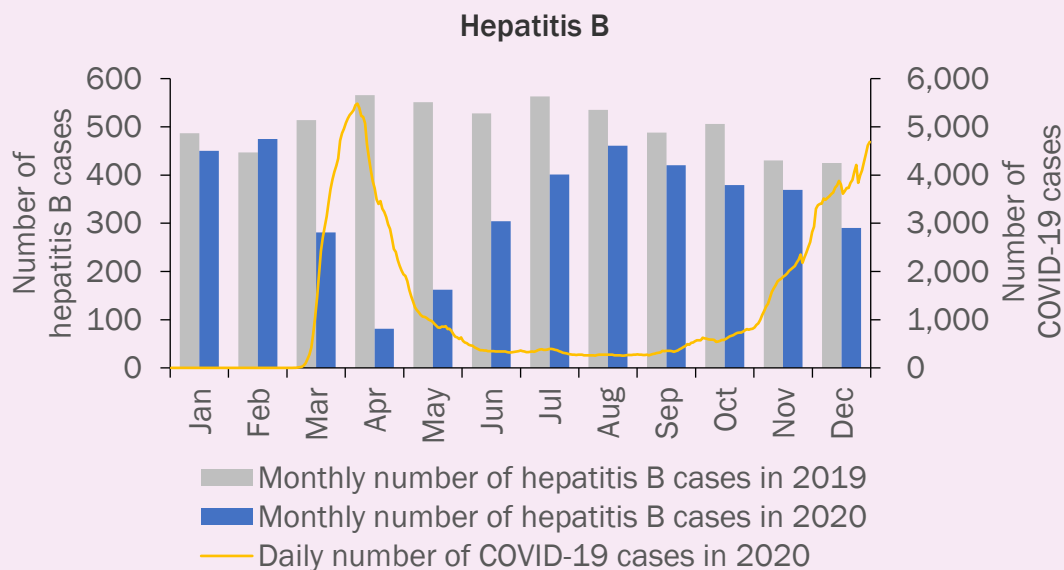
Hepatitis A transmission has continued during the COVID-19 pandemic. Current guidance from the CDC allows for administration of COVID-19 vaccines and other vaccines, such as hepatitis A vaccine, without regard to timing, including vaccine co-administration (at the same time).<sup>14</sup>

### Viral Hepatitis and COVID-19

#### Impact of COVID-19 on hepatitis B and C diagnoses

In 2020, the COVID-19 pandemic led to a significant decrease in health care visits resulting in a lower number of new diagnoses of hepatitis B and C in 2020.

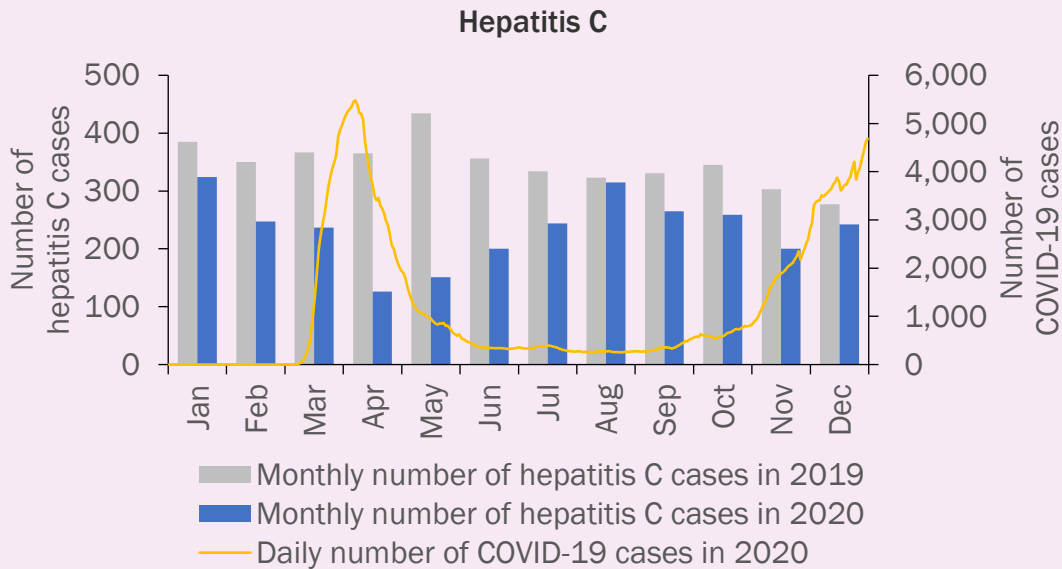
**Figure 4.** Number of people newly reported with chronic hepatitis B, by month, 2019 vs. 2020



<sup>14</sup> For more information, visit [cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html#coadministration](https://cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html#coadministration).

## Viral Hepatitis and COVID-19 (continued)

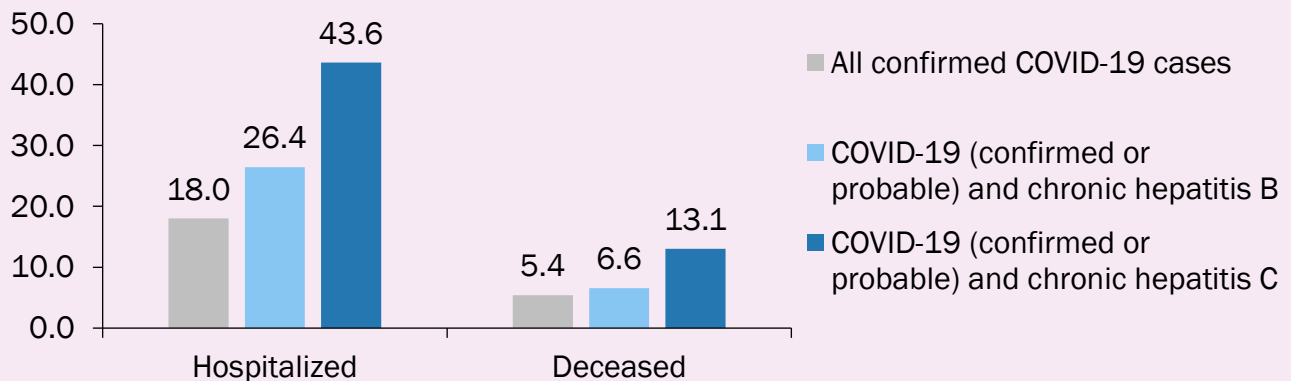
**Figure 5.** Number of people newly reported with chronic hepatitis C, by month, 2019 vs. 2020



### Impact of hepatitis B and C infection on COVID-19 hospitalizations and deaths<sup>15</sup>

In 2020, 1.2% of people with COVID-19 were previously reported with chronic hepatitis C and 0.9% with chronic hepatitis B. There was a higher percentage of hospitalizations and deaths in people with COVID-19 and hepatitis B or C infection than in all people with COVID-19 infection.

**Figure 6.** Percentage of people with confirmed or probable COVID-19 infection who were hospitalized and deceased,<sup>16</sup> by hepatitis B and C infection status, March–December 2020



<sup>15</sup> COVID-19 diagnoses are an undercount because testing was restricted to severe, hospitalized cases in March 2020 and was not commercially available until mid-May 2020.

<sup>16</sup> Hospitalizations were defined by a hospital admission within 14 days of COVID-19 diagnosis, while deaths were defined by the number of people who died within 60 days of a COVID-19 diagnosis.

# Acute Hepatitis B

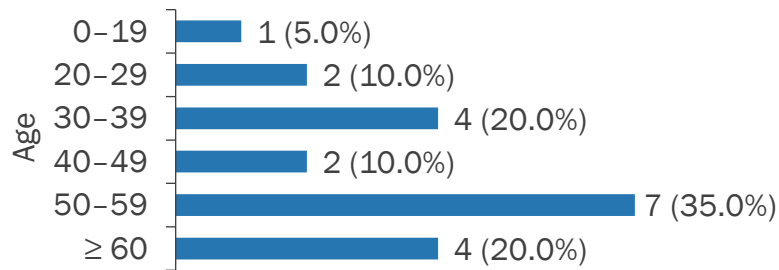
**20** Number of people reported with acute hepatitis B in 2020

**0.2** Rate per 100,000 people in 2020

Monitoring acute (initial infection or the six-month time period following exposure to the virus) hepatitis B infections helps the Health Department determine where new infections occur, who is infected and how to implement effective prevention activities.

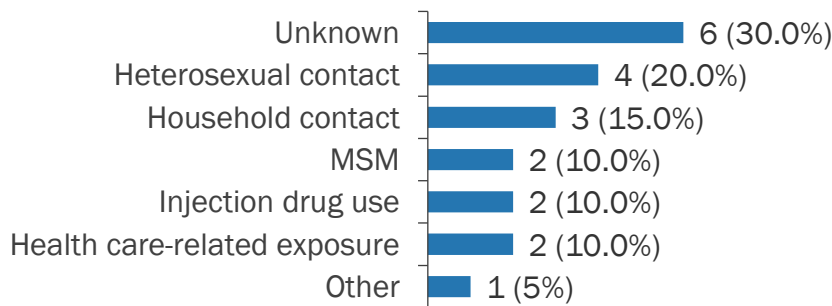
» For information about how providers can report acute hepatitis B cases, see Appendix 2.

**Figure 7.** Number and percentage of people reported with acute hepatitis B in NYC by age, 2020



Sexual transmission was the most common reported risk factor for acute hepatitis B infection.

**Figure 8.** Number and percentage of people reported with acute hepatitis B infection in NYC, by reported risk factors,<sup>17</sup> 2020



» For full data, see Appendix 4.

## Health Department Recommendation

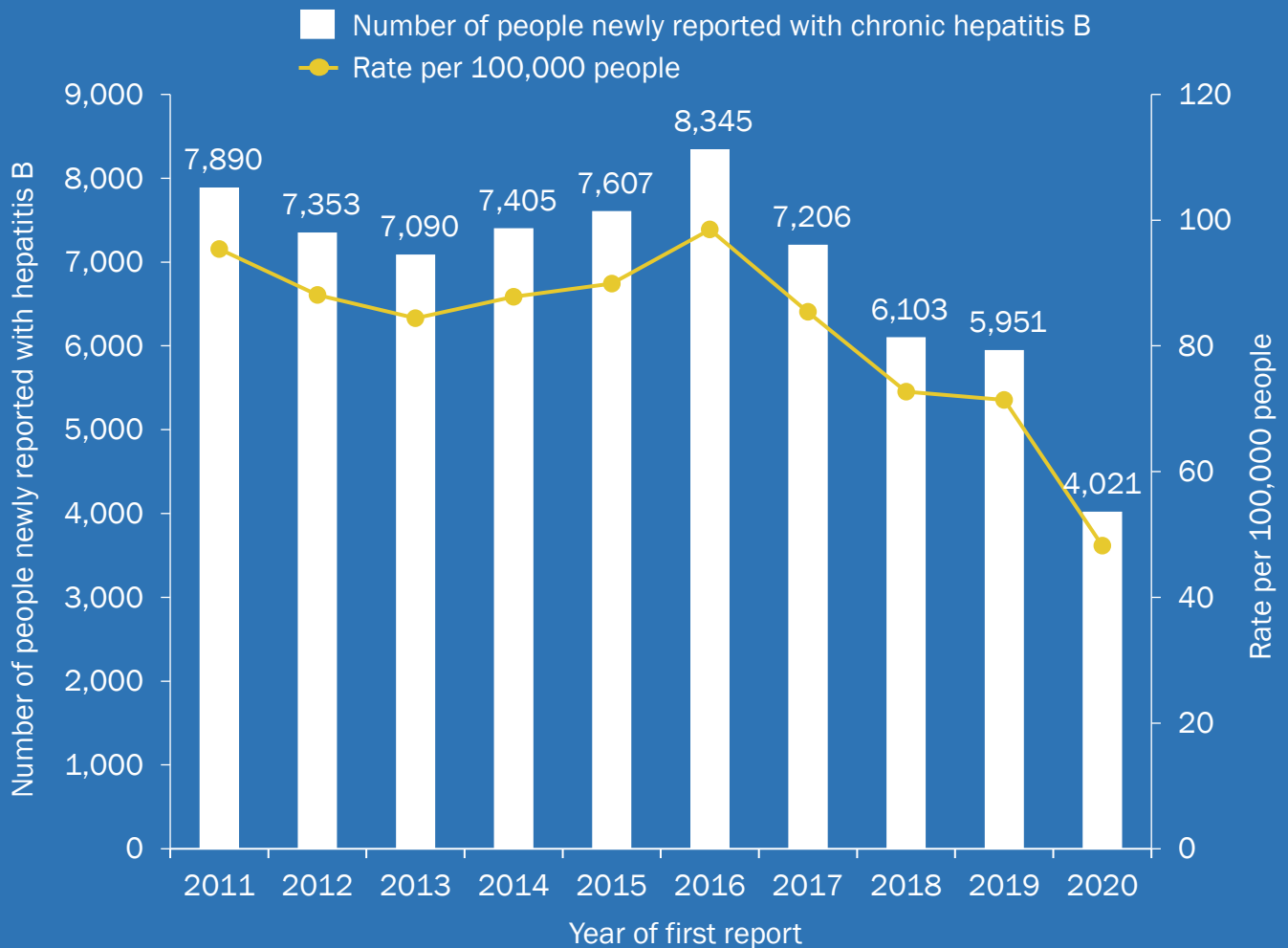
- Clinicians should offer post-exposure prophylaxis (PEP) to people exposed to hepatitis B (for example, through sex, sharing drug use equipment or blood exposure) to prevent infection. For more information, visit [cdc.gov/hepatitis/hbv/pep.htm](https://cdc.gov/hepatitis/hbv/pep.htm).
- Clinicians should offer the hepatitis B vaccine to people at high risk (for example, sexual partners and household contacts of people with hepatitis B, MSM and people who use drugs), as recommended by the Advisory Committee on Immunization Practices. For more information, visit [cdc.gov/hepatitis/hbv/vaccadults.htm](https://cdc.gov/hepatitis/hbv/vaccadults.htm).

<sup>17</sup> Mutually exclusive. Each patient is represented by the risk factor that poses the highest risk of hepatitis B infection. For example, a person who injected drugs and had a health care-related exposure is represented only once in injection drug use.

# Chronic Hepatitis B

**New reports of chronic hepatitis B declined from 2011 to 2013 and have continued to decline since 2016.** During 2020, the lowest number of cases were reported because fewer people accessed health care services during the COVID-19 pandemic and therefore fewer people were screened. Thousands of new cases of chronic hepatitis B continue to be reported each year.

**Figure 9.** Number and rate of people newly reported with chronic hepatitis B in NYC by year of first report, 2011–2020



» In NYC, there are many programs that provide supportive services and no- or low-cost hepatitis B care and treatment. For more information, visit [nyc.gov/health](http://nyc.gov/health) and search for "hepatitis B."

# Chronic Hepatitis B

The Health Department estimates that 241,000 people (2.9% of NYC residents) are living with chronic hepatitis B in NYC.<sup>18</sup>

**4,021**

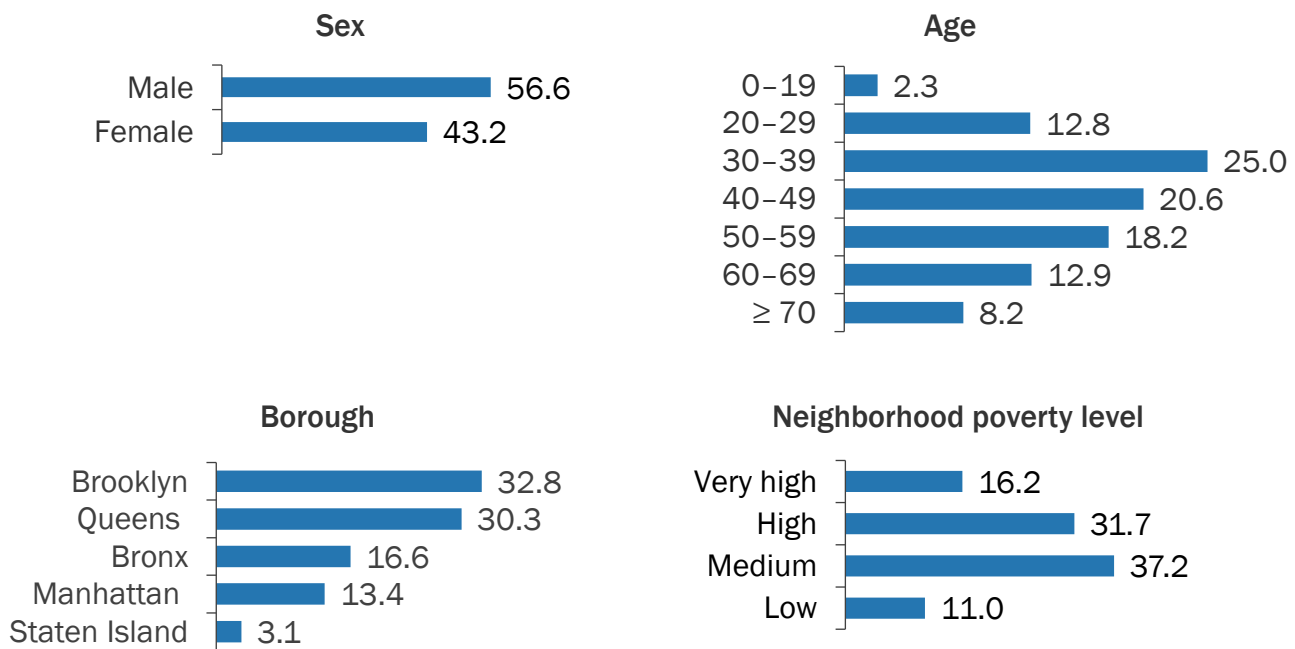
Number of people newly reported with chronic hepatitis B in 2020

**48.2**

Rate of newly reported chronic hepatitis B per 100,000 people in 2020

## Characteristics of People Newly Reported With Chronic Hepatitis B

**Figure 10.** Percentage of people newly reported with chronic hepatitis B in NYC by sex, age, borough and neighborhood poverty level, 2020



» For full data, see Appendix 5.

<sup>18</sup> Estimate as of 2017. Learn about the methods the Health Department uses to calculate the hepatitis B prevalence estimate at [journals.sagepub.com/doi/full/10.1177/0033354919882962](https://journals.sagepub.com/doi/full/10.1177/0033354919882962).

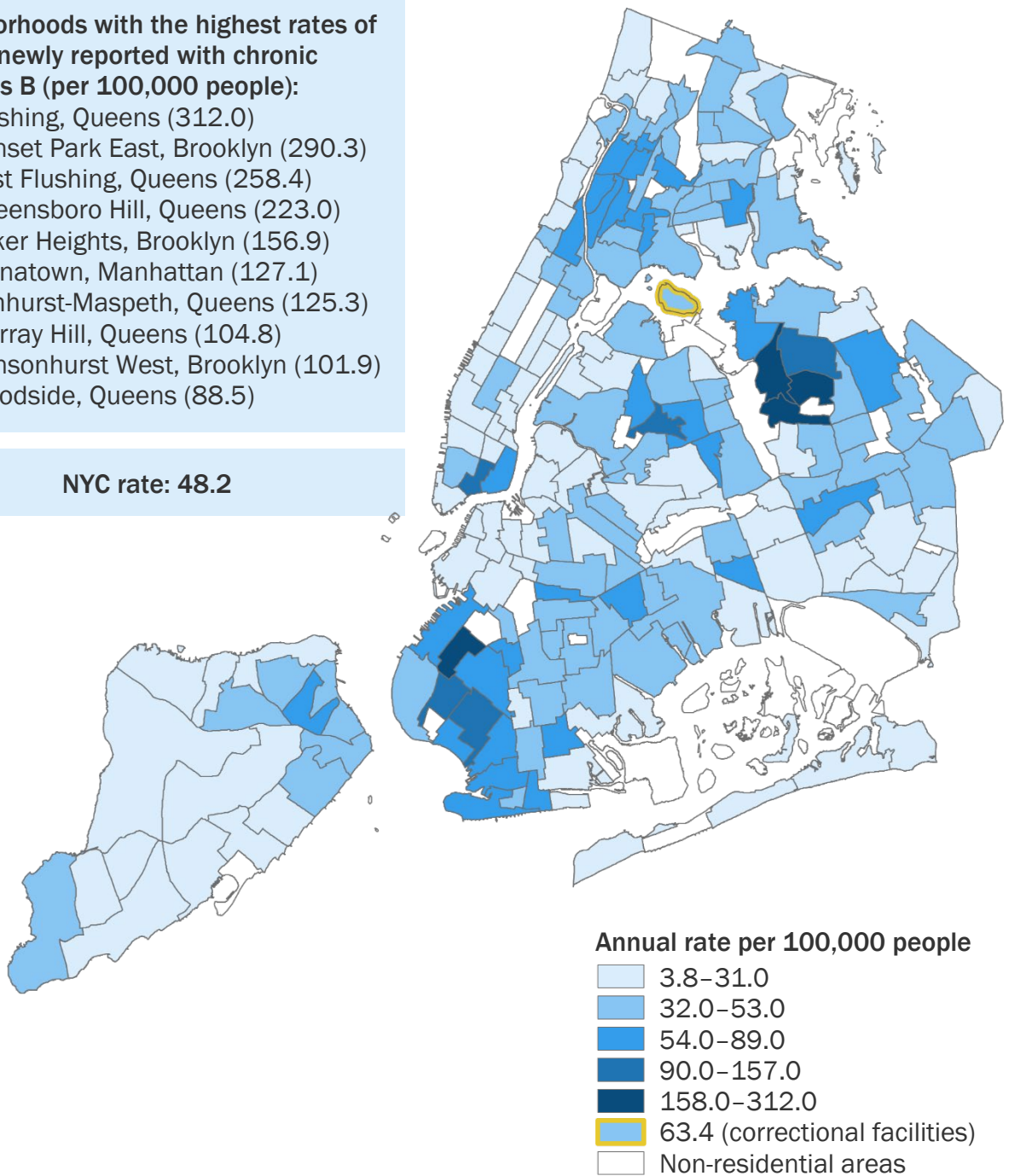
## Chronic Hepatitis B: Geographic Distribution

**Figure 11.** Rate of people newly reported with chronic hepatitis B in NYC by neighborhood tabulation area (NTA), 2020<sup>19</sup>

Neighborhoods with the highest rates of people newly reported with chronic hepatitis B (per 100,000 people):

1. Flushing, Queens (312.0)
2. Sunset Park East, Brooklyn (290.3)
3. East Flushing, Queens (258.4)
4. Queensboro Hill, Queens (223.0)
5. Dyker Heights, Brooklyn (156.9)
6. Chinatown, Manhattan (127.1)
7. Elmhurst-Maspeth, Queens (125.3)
8. Murray Hill, Queens (104.8)
9. Bensonhurst West, Brooklyn (101.9)
10. Woodside, Queens (88.5)

NYC rate: 48.2



>> For full data and map of NTAs, see Appendices 6 and 7.

<sup>19</sup> NTAs could not be determined for 224 people (5.6%) with chronic hepatitis B based on their address at first report.



## Perinatal Hepatitis B

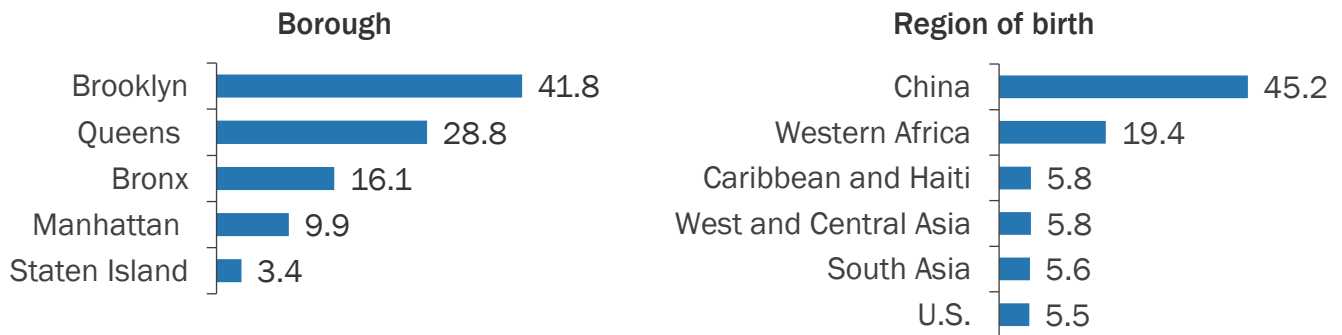
### Pregnant People With Chronic Hepatitis B Who Delivered a Live Birth in 2020

Hepatitis B can be transmitted from a hepatitis B-infected pregnant person to a child during and after pregnancy. The Health Department tracks and provides case management services to pregnant people with hepatitis B to prevent perinatal transmission.

**788** Number of pregnant people with hepatitis B

**94.5%** Percentage of pregnant people with hepatitis B born outside of the U.S.

**Figure 12.** Percentage of people with hepatitis B who delivered a live birth in New York City by borough and region of birth, 2020

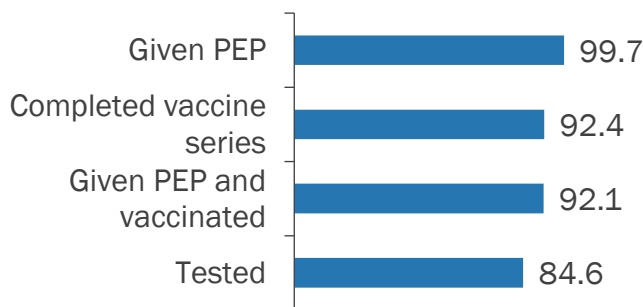


» For full data, see Appendix 8.

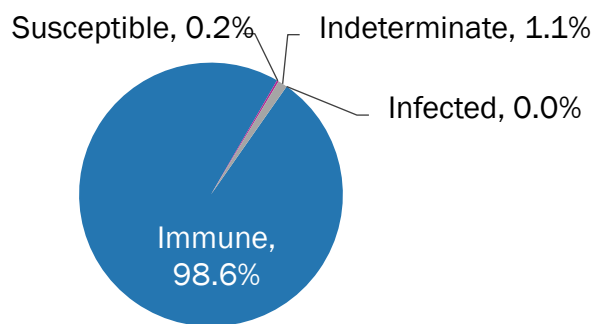
### Hepatitis B Vaccination, Prophylaxis and Testing at Birth for Infants Born in 2019

In 2019, 1,031 infants were born to a pregnant person with hepatitis B infection.

**Figure 13.** Percentage of infants born to pregnant people with hepatitis B who received hepatitis B post-exposure prophylaxis (PEP), vaccination and testing, 2019



**Figure 14.** Test results of infants born to pregnant people with hepatitis B in NYC, 2019



### Health Department Recommendation

Hospitals should give post-exposure prophylaxis (PEP) including hepatitis B immune globulin and hepatitis B vaccine within 12 hours of birth to all infants born to pregnant people with hepatitis B. For more information, visit [cdc.gov/hepatitis/hbv/perinataxmtn.htm](https://cdc.gov/hepatitis/hbv/perinataxmtn.htm).

» For full data, see Appendix 9.

## Hepatitis B Vaccination at Birth

**69.9%** Percentage of 97,085 children born in 2020 who received the birth dose within one day after birth

**75.8%** Percentage of 97,085 children born in 2020 who received the birth dose within three days after birth

### Health Department Recommendation

- The Health Department recommends a universal dose of hepatitis B vaccine to all newborns within 24 hours of birth (known as “the birth dose”), followed by completion of the hepatitis B vaccine series.<sup>20</sup>
- Providers should ensure that children complete the full hepatitis B vaccine series and all household and sexual contacts of people with chronic hepatitis B are screened for and immunized against hepatitis B.

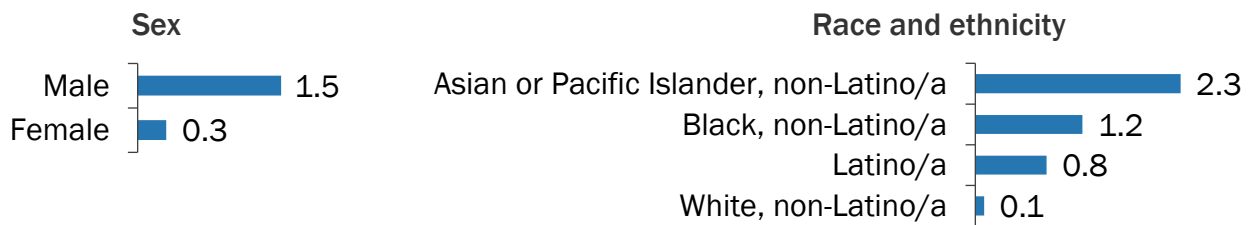
» For more information, go to [nyc.gov/health](https://nyc.gov/health) and search for “perinatal hepatitis B.”

## Hepatitis B: Deaths

**82** Number of deaths reported as caused by hepatitis B in 2019

**0.9** Rate per 100,000 people in 2019

**Figure 15.** Age-adjusted death rate per 100,000 people among NYC residents where hepatitis B is listed as the cause of death in 2019, by sex and race and ethnicity



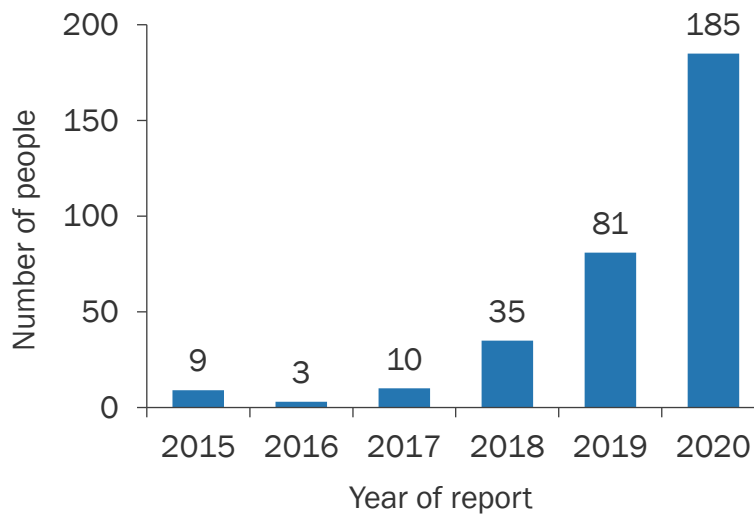
» For full data, see Appendix 10.

<sup>20</sup> The updated hepatitis B birth dose recommendation is the universal hepatitis B vaccination within 24 hours of birth for medically stable infants weighing  $\geq 2,000$  grams.

# Acute Hepatitis C

Monitoring acute (initial infection or the six-month time period following exposure to the virus) hepatitis C infections helps the Health Department determine where new infections occur, who is infected and how to implement effective prevention activities. The Health Department identifies acute infections from provider reports and during enhanced surveillance. During 2019–2020, enhanced surveillance investigations were conducted for newly reported people ages 18 to 34.

**Figure 16.** Number of people reported with acute hepatitis C in NYC, 2015–2020



In 2020, the Council of State and Territorial Epidemiologists (CSTE) implemented a new definition for acute hepatitis C. The clinical criterion of peak elevated serum alanine aminotransferase (ALT) levels > 200 IU/L in conjunction with a positive hepatitis C virus detection test drove the increase in acute hepatitis C cases in 2020. No providers reported cases of acute hepatitis C infection to the Health Department during 2020.

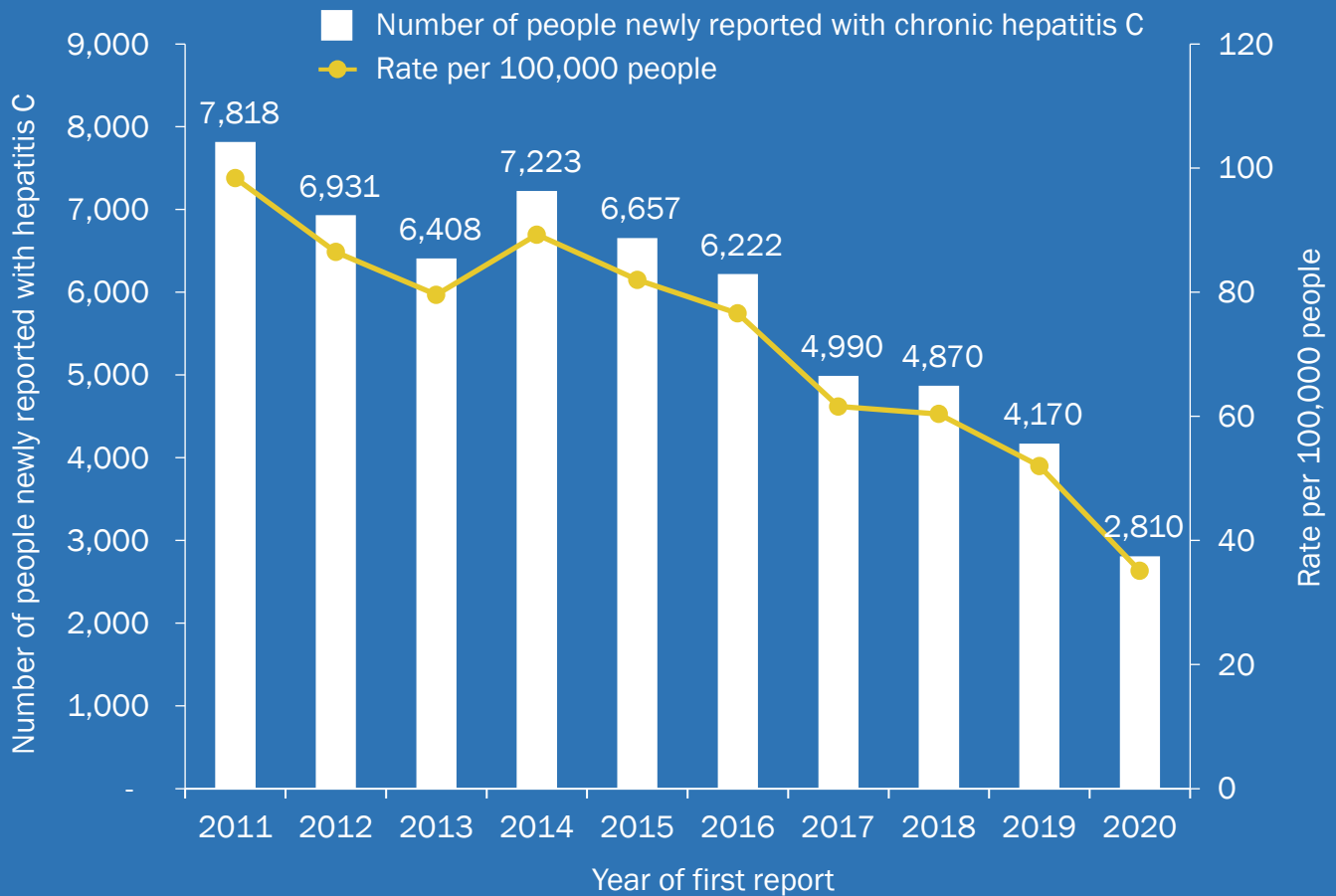
### Health Department Recommendation

Providers should report all acute cases of hepatitis C to the Health Department. Reporting of acute hepatitis C cases can help the Health Department identify outbreaks and inform effective prevention programs. For more information about how providers can report acute hepatitis C cases, see Appendix 2.

# Chronic Hepatitis C

Since 2011, newly reported cases of chronic hepatitis C have declined in NYC. During 2020, the lowest number of cases were reported because fewer people accessed health care services during the COVID-19 pandemic and therefore fewer people were screened. Thousands of new cases of chronic hepatitis C continue to be reported each year.

**Figure 17.** Number and rate of people newly reported with chronic hepatitis C in NYC by year of first report, 2011–2020



Data notes: In 2016 and 2018, CSTE implemented new case definitions for chronic hepatitis C. Since 2018, people first reported with hepatitis C between ages 2 and 36 months were classified using the CSTE’s perinatal hepatitis C case definition and were excluded from total case counts. Perinatal hepatitis C case counts can be found on Page 25.

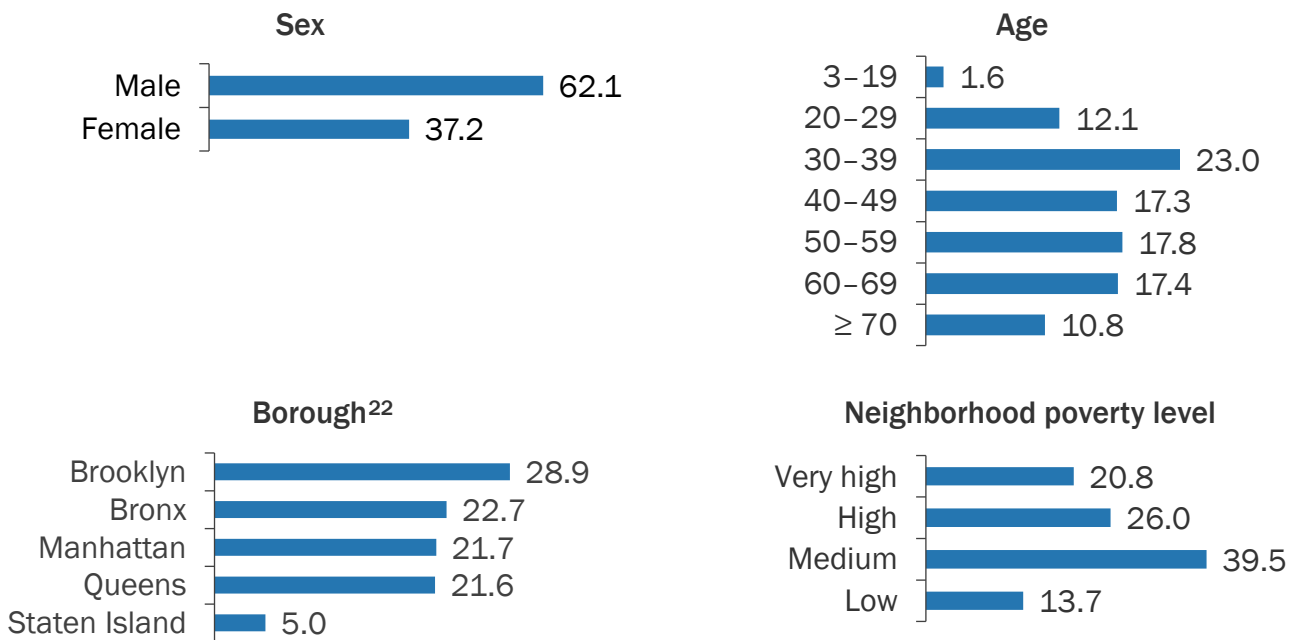
# Chronic Hepatitis C

The Health Department estimates that 91,000 people (1.4% of NYC residents) are living with chronic hepatitis C.<sup>21</sup>

<p><b>2,810</b> Number of people newly reported with chronic hepatitis C in 2020</p>	<p><b>35.1</b> Rate of newly reported chronic hepatitis C per 100,000 people in 2020</p>
--	--

## Characteristics of People Newly Reported With Chronic Hepatitis C

**Figure 18.** Percentage of people newly reported with chronic hepatitis C in NYC by sex, age, borough and neighborhood poverty level, 2020



» For full data, see Appendix 11.

### Health Department Recommendation

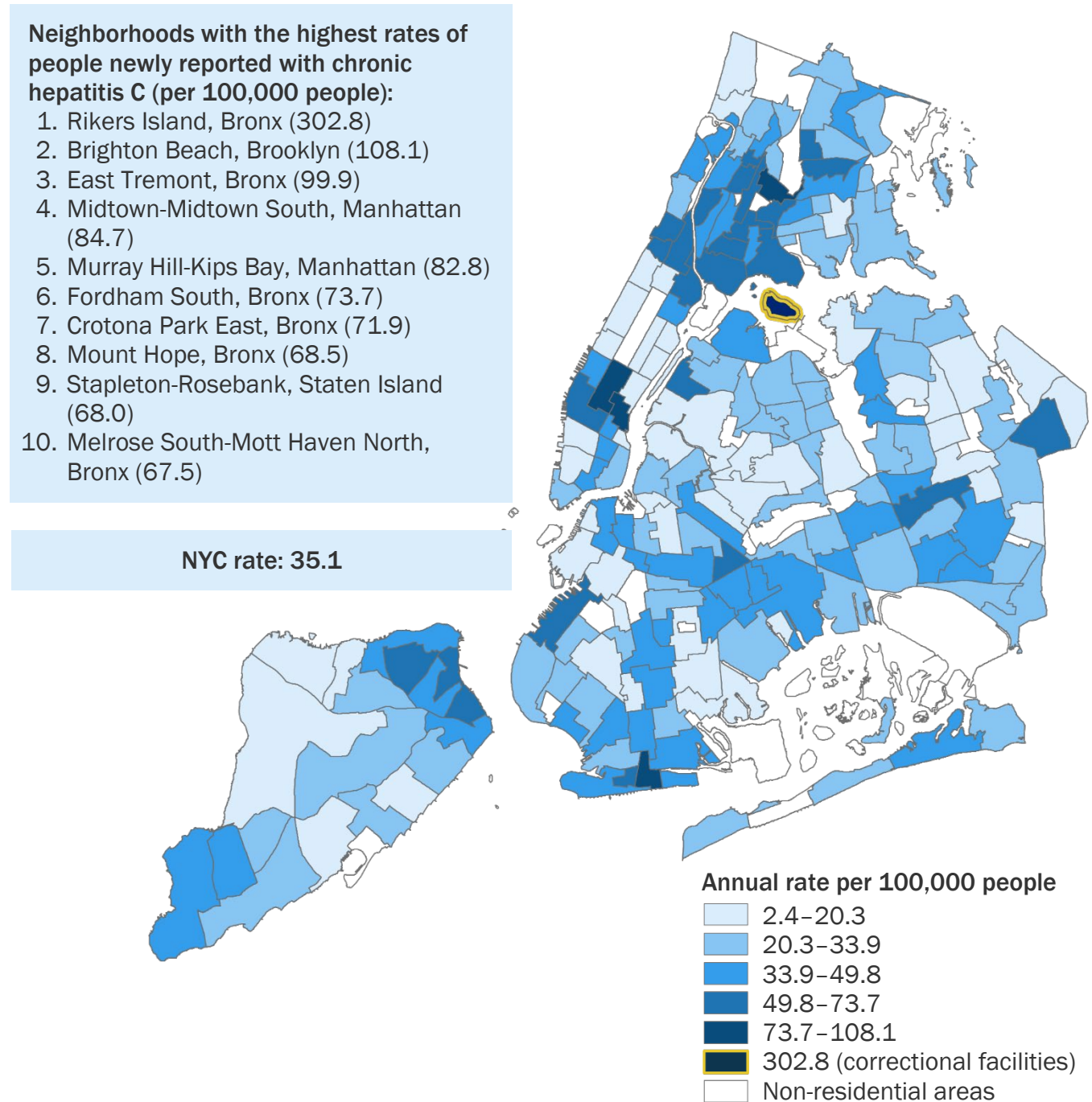
All adults ages 18 to 79 years should be screened for hepatitis C according to 2020 U.S. Preventive Services Task Force guidelines. For more information, visit [uspreventiveservicestaskforce.org/uspstf/recommendation/hepatitis-c-screening](https://uspreventiveservicestaskforce.org/uspstf/recommendation/hepatitis-c-screening).

<sup>21</sup> Estimate as of 2017. To read how the hepatitis C prevalence estimate was calculated, visit [dx.doi.org/10.1017/S095026881800170X](https://dx.doi.org/10.1017/S095026881800170X).

<sup>22</sup> The Bronx includes people in Rikers Island jail facilities.

## Chronic Hepatitis C: Geographic Distribution

**Figure 19.** Rate of people newly reported with chronic hepatitis C in NYC by NTA,<sup>23</sup> 2020



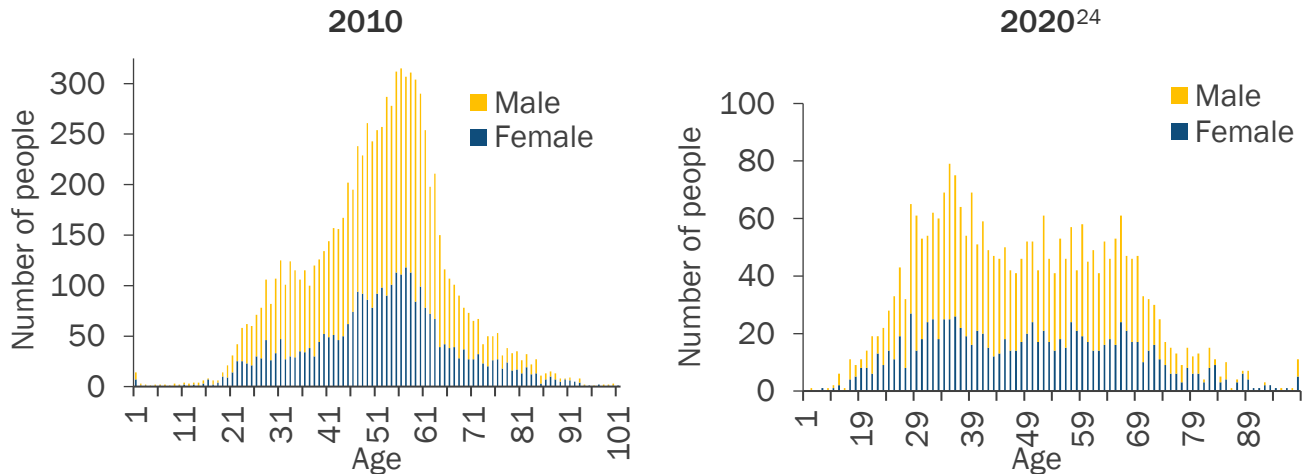
>> For full data and map of NTAs, see Appendices 6 and 12.

<sup>23</sup> NTA could not be determined for 104 people (3.7%) with chronic hepatitis C based on their address at first report.

## Chronic Hepatitis C: Age Distribution

In 2010, the age distribution of hepatitis C cases was concentrated among baby boomers (people born between 1945 and 1965). Ten years later, there was a second peak of hepatitis C cases among younger people. Younger people are likely to have been infected from recent drug use.

**Figure 20.** Age distribution of people reported with chronic hepatitis C in NYC, 2010 and 2020



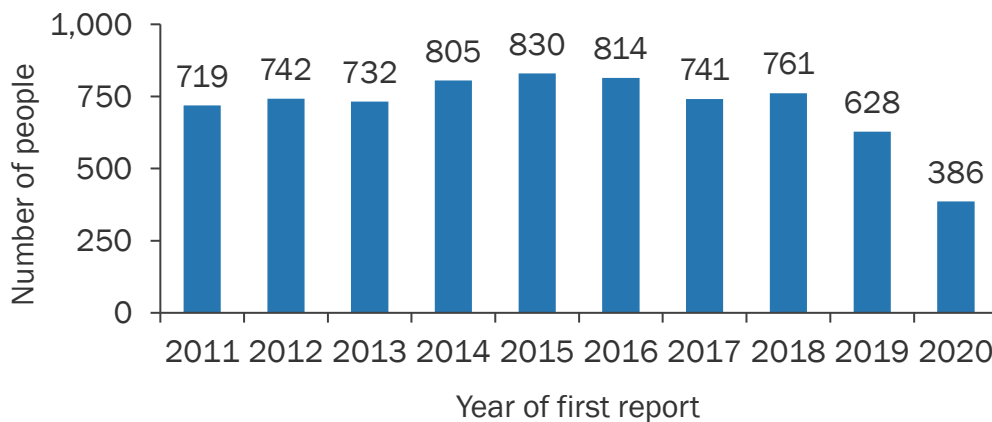
## Hepatitis C: People Ages 3 to 29

The Health Department monitors trends and clusters of hepatitis C in people ages 3 to 29 years because new cases among young people are more likely to be recent infections.<sup>20</sup> In 2020, 88.1% of people ages 3 to 29 years newly reported with chronic hepatitis C were ages 20 to 29 years.

**386** Number of people ages 3 to 29 years newly reported with chronic hepatitis C in 2020

**13.6** Rate of newly reported chronic hepatitis C per 100,000 people ages 3 to 29 years in 2020

**Figure 21.** Number of people ages 3 to 29 years reported with chronic hepatitis C in NYC by year of first report, 2011–2020



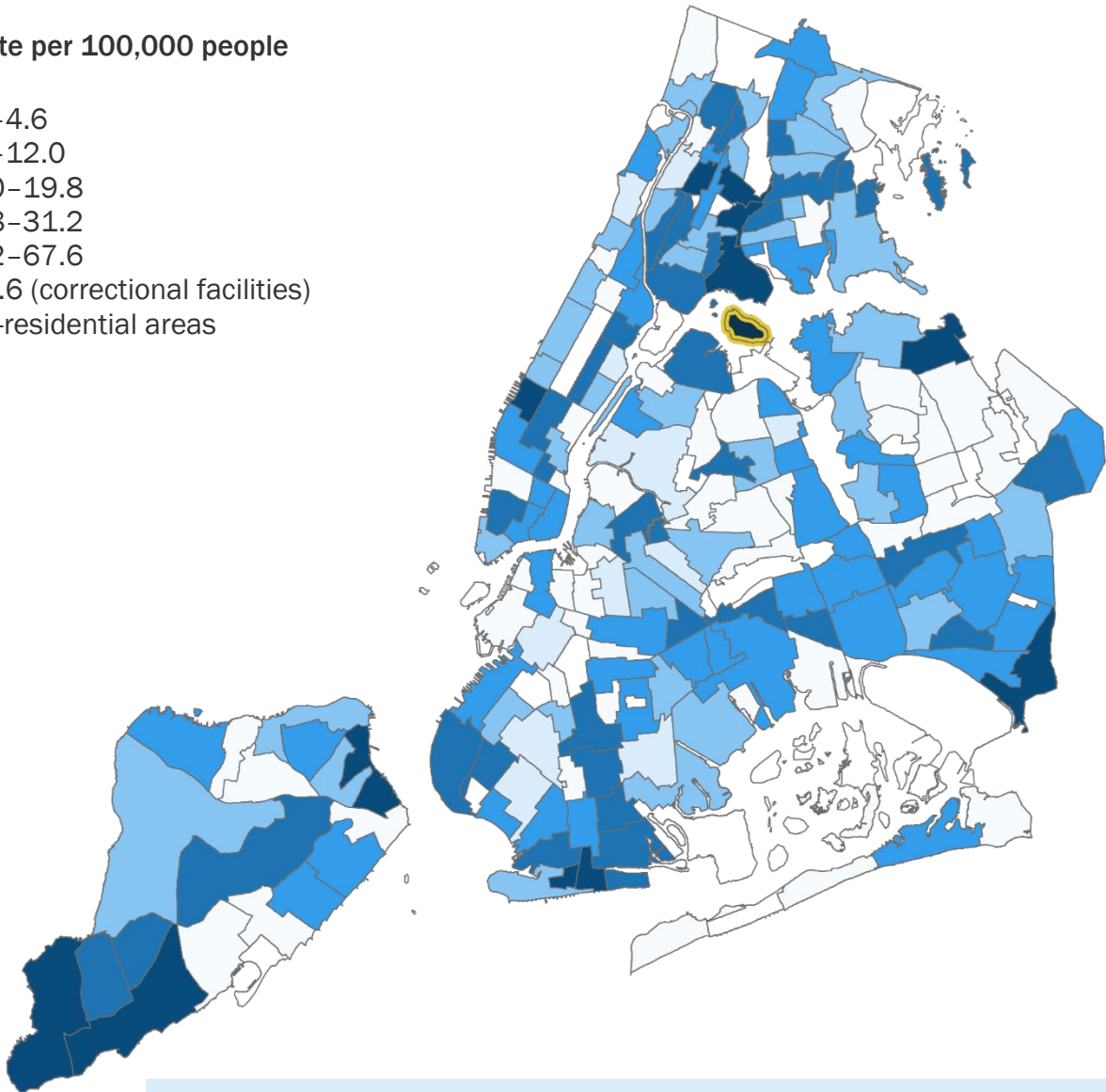
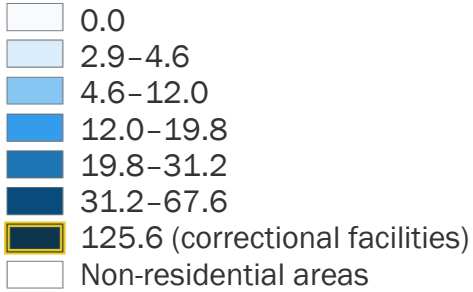
<sup>24</sup> Starting in 2018, children ages 0 to 36 months reported with hepatitis C are reported as perinatal infection.



## Geographic Distribution

**Figure 22.** Rate of people ages 3 to 29 years newly reported with chronic hepatitis C in NYC by NTA,<sup>25</sup> 2020

Annual rate per 100,000 people



**Neighborhoods with the highest rates of people ages 3 to 29 years newly reported with chronic hepatitis C (per 100,000 people):**

1. Rikers Island, Bronx (125.6)
2. West Brighton, Brooklyn (67.6)
3. Hunts Point, Bronx (45.5)
4. Stapleton-Rosebank, Staten Island (43.2)
5. Clinton, Manhattan (42.5)
6. Ft. Totten-Bay Terrace-Clearview, Queens (42.3)
7. Mount Hope, Bronx (36.9)
8. Charleston-Richmond Valley-Tottenville, Staten Island (36.8)
9. Brighton Beach, Brooklyn (35.0)
10. Annadale-Huguenot-Prince's Bay-Eltingville, Staten Island (33.4)

<sup>25</sup> NTA could not be determined for 17 people based on their address at first report.



## Perinatal Hepatitis C

Perinatal transmission is the leading cause of childhood hepatitis C, occurring in 5.8% of infants born to a pregnant person with hepatitis C.<sup>26</sup> The Health Department monitors newly reported hepatitis C in people who can become pregnant (ages 15 to 44 years) as well as in children ages 0 to 36 months to identify perinatal transmission and prevention opportunities.

### Hepatitis C: People Who Can Become Pregnant (Ages 15 to 44 Years)

Nationally, an increasing number of people who can become pregnant are becoming infected with hepatitis C. In NYC, the number of people who can become pregnant newly reported with chronic hepatitis C has been slightly declining since 2014.

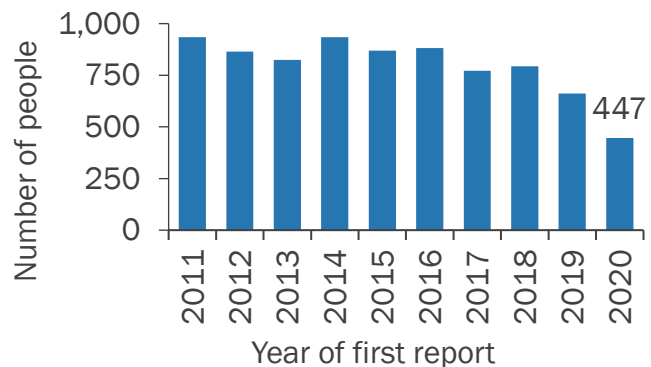
**447**

Number of people who can become pregnant newly reported with chronic hepatitis C in 2020

**24.5**

Rate of people who can become pregnant newly reported with chronic hepatitis C per 100,000 people in 2020

**Figure 23.** Number of people who can become pregnant reported with chronic hepatitis C in NYC by year of first report, 2011–2020



### Health Department Recommendation

All pregnant people should be screened for hepatitis C during each pregnancy according to 2020 CDC guidelines ([cdc.gov/mmwr/volumes/69/rr/rr6902a1.htm](https://www.cdc.gov/mmwr/volumes/69/rr/rr6902a1.htm)).

### Characteristics of Children Newly Reported With Hepatitis C

In 2018, the Health Department began classifying children ages 0 to 36 months newly reported with hepatitis C virus in NYC using the 2018 CSTE perinatal hepatitis C case definition ([cdc.gov/nndss/conditions/hepatitis-c-perinatal-infection/case-definition/2018](https://www.cdc.gov/nndss/conditions/hepatitis-c-perinatal-infection/case-definition/2018)).

**6**

Number of children ages 0 to 36 months newly reported with hepatitis C in 2019

**50%**

Percentage of children tested because the birthing parent was known to have hepatitis C

» For full data, see Appendix 13.

### Health Department Recommendation

All children born to people with hepatitis C should be tested for hepatitis C antibody at age 18 months or older, or hepatitis C RNA at age 2 months or older. For more information, visit [hcvguidelines.org/unique-populations/children](https://hcvguidelines.org/unique-populations/children). All people diagnosed with hepatitis C should be connected to care.

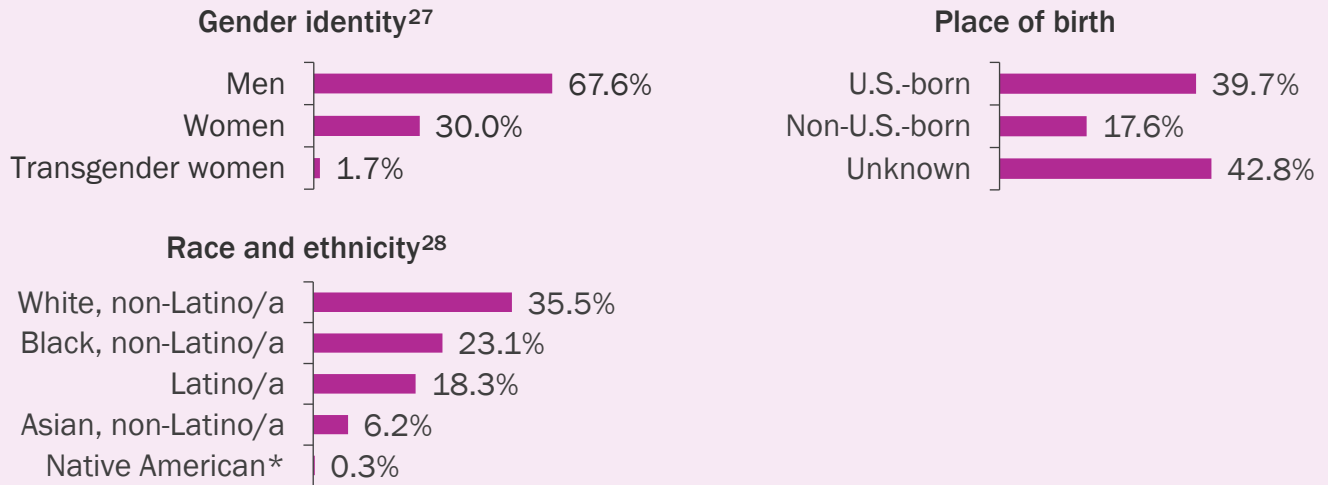
<sup>26</sup> Benova L, Mohamoud YA, Calvert C, et al. Vertical transmission of hepatitis C virus: systematic review and meta-analysis. *Clin Infect Dis*. 2014;59(6):765-773.

## Enhanced Chronic Hepatitis C Surveillance of People Ages 18 to 34

In 2020, the Health Department investigated 290 out of 381 (76%) people ages 18 to 34 years in NYC newly reported with chronic hepatitis C and their health care providers. Patients were interviewed for 163 (56.0%) investigations.

### Patient Demographics

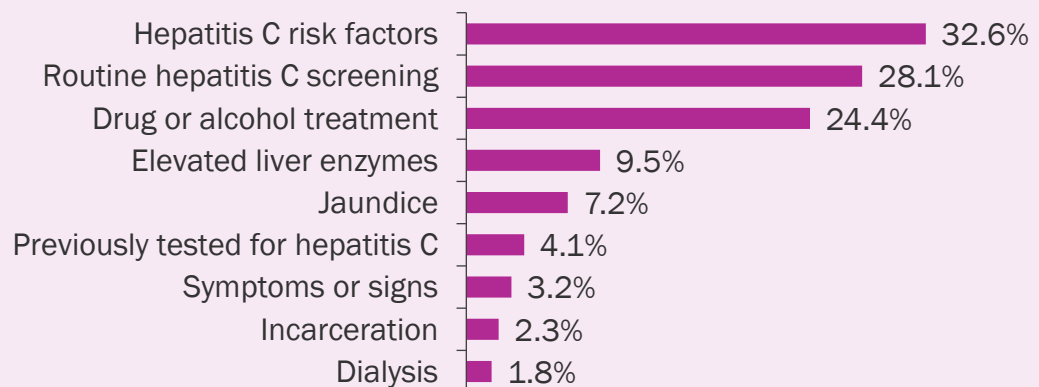
**Figure 24.** Characteristics of people newly reported in 2020 ages 18 to 34 years with chronic hepatitis C interviewed through enhanced surveillance (n=290)



\*Or Alaska Native, non-Latino/a

### Hepatitis C Screening

**Figure 25.** Reason for hepatitis C screening among people ages 18 to 34 years newly reported with chronic hepatitis C in 2020 in NYC, interviewed through enhanced surveillance (n=290)<sup>29</sup>



### Access to Hepatitis C Health Care (n=290)

**82%** Percentage of people ages 18 to 34 years with health insurance

**31%** Percentage of people ages 18 to 34 years referred to Health Department navigator for linkage to care

<sup>27</sup> Gender identity was unknown for two (0.7%) people.

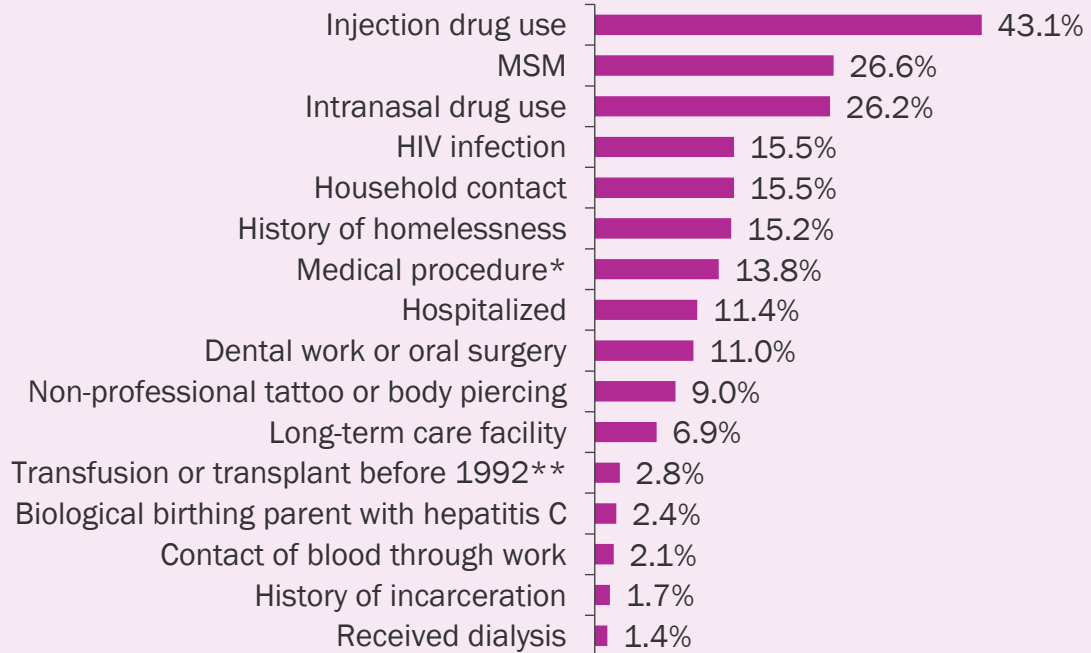
<sup>28</sup> Race and ethnicity were unknown for 35 (12.1%) people.

<sup>29</sup> Not mutually exclusive

### Hepatitis C Risk Factors

In 2020, people with a history of injection or intranasal drug use made up nearly half (43%) of people ages 18 to 34 years newly reported with chronic hepatitis C in NYC.

**Figure 26.** Risk factors for hepatitis C infection of people ages 18 to 34 years newly reported with chronic hepatitis C in NYC in 2020, interviewed through enhanced surveillance (n=290)<sup>30,31</sup>



\*Involving injections, anesthesia, or blood

\*\*Or outside of the U.S.

### Hepatitis C Health Care

In 2020, 5% (50/163) of people ages 18 to 34 years interviewed were linked to harm reduction services.

**21%** Percentage of 290 people ages 18 to 34 years currently being treated for hepatitis C

**26%** Percentage of 290 people ages 18 to 34 years vaccinated against hepatitis A and/or B as per provider interview

» For full hepatitis C enhanced surveillance data, see Appendix 14.

### Health Department Recommendation

All people with chronic hepatitis C should receive vaccination for hepatitis A and B, assessment for fibrosis or cirrhosis, screening for liver cancer if cirrhotic and treatment to cure infection. Read the City Health Information for clinical guidance on care of people diagnosed with hepatitis C at [www1.nyc.gov/assets/doh/downloads/pdf/chi/chi-37-2.pdf](http://www1.nyc.gov/assets/doh/downloads/pdf/chi/chi-37-2.pdf).

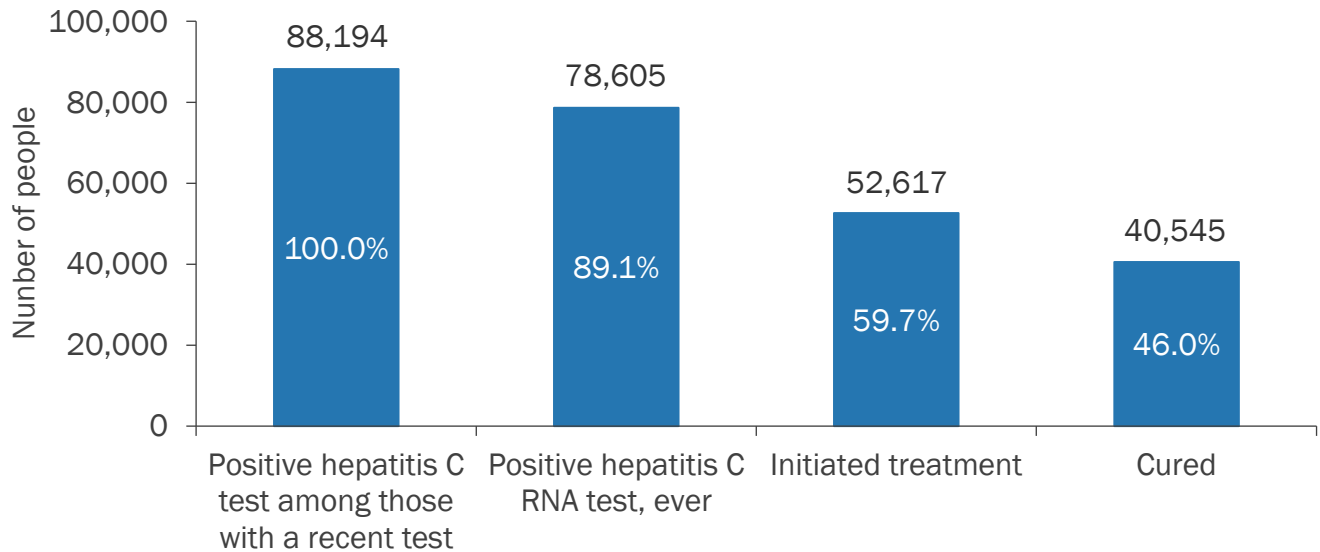
<sup>30</sup> Not mutually exclusive

<sup>31</sup> 39.3% of men interviewed reported as MSM.

## Chronic Hepatitis C Care Cascade

In 2016, the Health Department developed a validated algorithm to determine the number of people treated for and cured of chronic hepatitis C using surveillance data. To read how the validated algorithm was developed, visit [ncbi.nlm.nih.gov/pubmed/29227418](https://pubmed.ncbi.nlm.nih.gov/29227418).

**Figure 27.** Care cascade for people in NYC with chronic hepatitis C recently reported (from July 1, 2014, to June 30, 2020) with a positive hepatitis C test, regardless of year of first report



» Read the definitions for each category in Appendix 15.

In NYC, 89.1% of people with a positive hepatitis C test from July 1, 2014, to June 30, 2020, were reported with confirmed infection (positive RNA tests), in part due to more laboratories implementing automated confirmatory testing (reflex) of hepatitis C screening tests. Close to 60% of people with a positive hepatitis C test initiated treatment and 46.0% had RNA test results indicating cure.

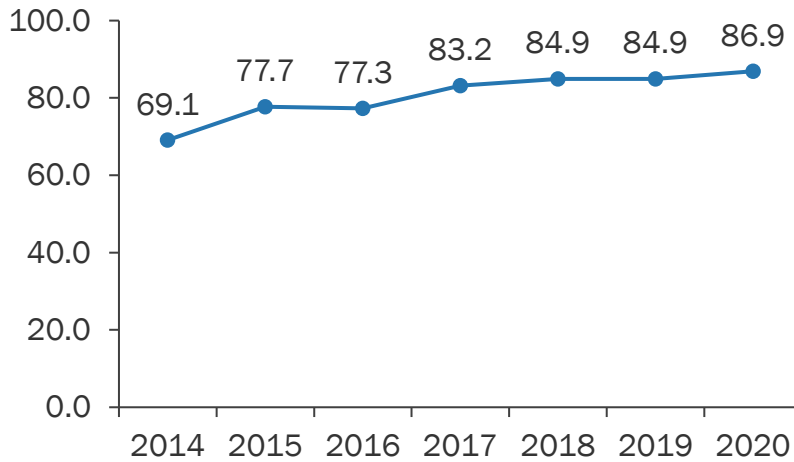
### Detecting Hepatitis C Reinfection Using Surveillance Data

Understanding the timing, frequency and clinical interpretation of hepatitis C recurrence will guide hepatitis C prevention and elimination efforts for NYC. In 2020, the Health Department published an analysis on hepatitis C reinfection among people who were cured during January 2014 to December 2016. Among 6,938 cured individuals, 209 recurrent events (2.7 per 100 person-years) were detected. Investigations were completed for 62 (30%) events. Of 38 investigated events occurring less than 12 months post-cure, 17 (45%) were relapses. In contrast, only one (4%) of 24 events occurring 12 or more months post-cure was a relapse. For more information, visit [pubmed.ncbi.nlm.nih.gov/32956285](https://pubmed.ncbi.nlm.nih.gov/32956285).

### Confirmatory Testing for Hepatitis C Infection

Confirmatory RNA testing is an essential step in hepatitis C diagnosis prior to treatment evaluation and initiation. The Health Department monitors the number of people who receive RNA testing after a positive hepatitis C antibody test to determine how many people are living with hepatitis C.

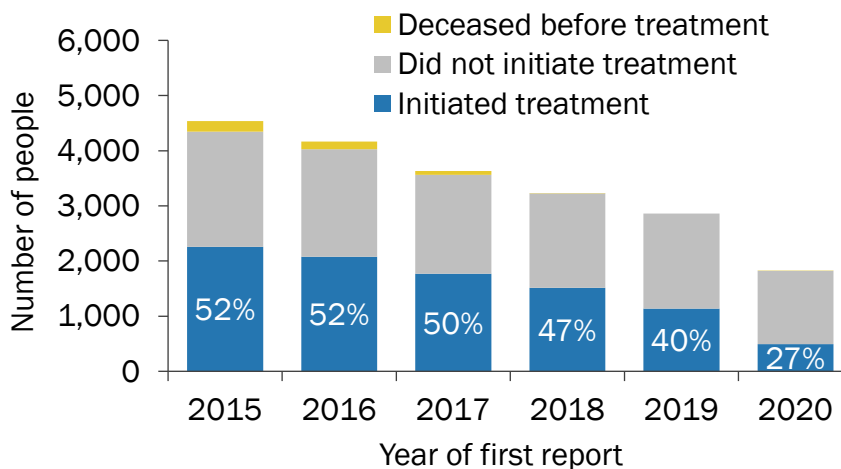
**Figure 28.** Percentage of people with a positive hepatitis C antibody test who receive a confirmatory RNA test, 2014 to 2020



» For data on the RNA and genotype test results of people newly reported with hepatitis C in NYC in 2020, see Appendix 16.

### Hepatitis C Treatment Initiation

**Figure 29.** Treatment initiation among people newly reported with a positive hepatitis C RNA test, by year of first report<sup>32</sup>

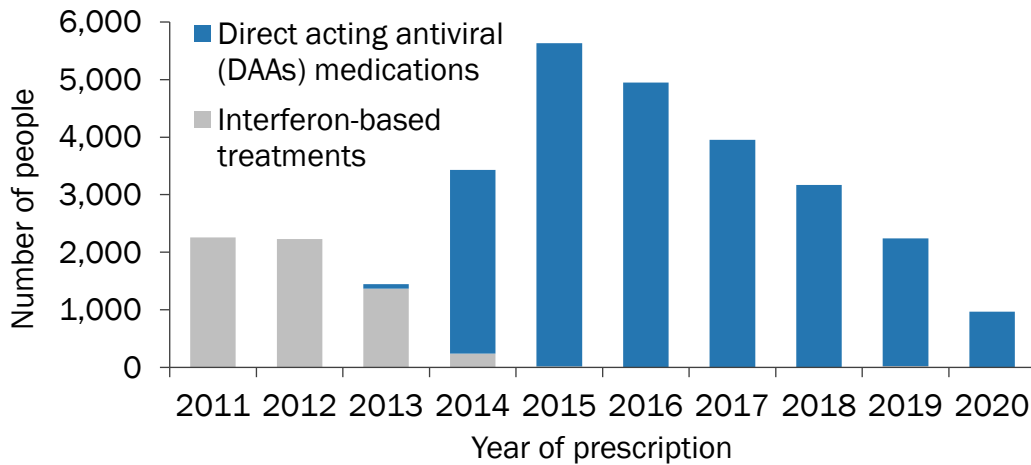


Data source: NYC hepatitis C surveillance registry

Only half of people first reported in 2015 and 2016 have been treated for hepatitis C.

<sup>32</sup> As of March 31, 2021. Matching to 2018-2020 Vital Statistics deaths incomplete.

**Figure 30.** Hepatitis C medication prescriptions for people covered by Medicaid, 2011–2020



Data source: Salient NYS Medicaid Enterprise System

Treatment with all-oral DAAs has declined since 2015 for people with hepatitis C enrolled in Medicaid as fewer people are being diagnosed with hepatitis C and people who are harder to reach are not treated. More intensive efforts may be needed to connect people who are untreated to care.

**Health Department Recommendation**

All people with chronic hepatitis C can be treated and cured, including people who use drugs and alcohol. In NYC, there are many programs that provide supportive services and no- or low-cost hepatitis C care and treatment. For more information, visit [nyc.gov/health/hepc](http://nyc.gov/health/hepc).

**Hepatitis C: Deaths**

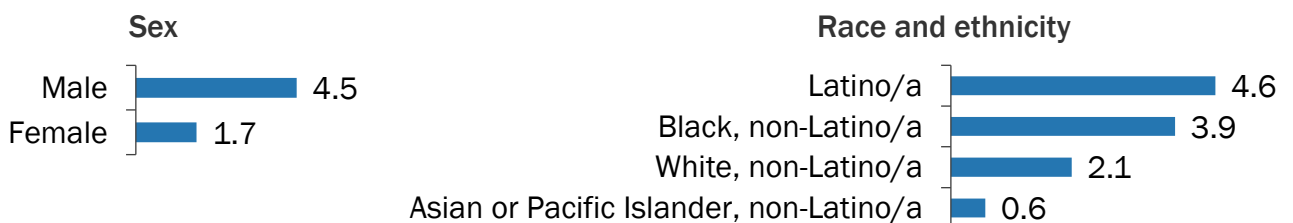
**282**

Number of deaths reported as caused by hepatitis C in 2019

**2.9**

Rate per 100,000 people in 2019

**Figure 31** Age-adjusted death rate per 100,000 people among NYC residents where hepatitis C is listed as the cause of death in 2019, by sex and race and ethnicity

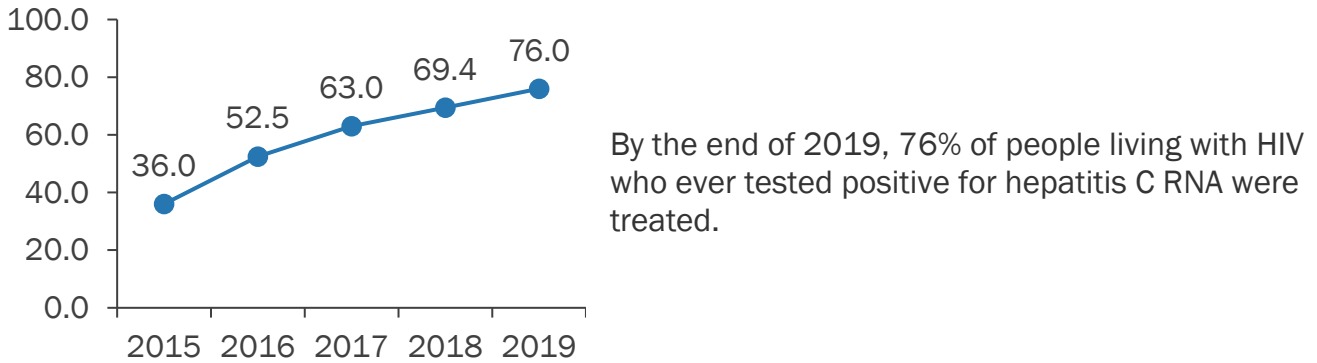


» For full data, see Appendix 17.

## Hepatitis C and HIV Coinfection

People coinfecting with hepatitis C and HIV are at high risk for serious liver disease, liver cancer and premature death.<sup>33</sup> The Health Department matches hepatitis C and HIV surveillance data to characterize NYC’s coinfecting population and identify opportunities to improve access to hepatitis C treatment.

**Figure 32.** Percentage of people living with confirmed chronic hepatitis C and HIV coinfection in NYC who initiated hepatitis C treatment by year, 2015–2019



## Hepatitis C Treatment Initiation Among People Living With HIV

**Figure 33.** Percentage of people with hepatitis C and HIV coinfection who initiated hepatitis C treatment, by gender, race or ethnicity, years since HIV diagnosis and HIV viral load, 2019



\*Non-Latino/a  
 \*\*Viral load at most recent lab in 2019  
 \*\*\*Less than 200 copies/mL

» For full data, see Appendix 18.

### Health Department Recommendation

Health care providers should prioritize hepatitis C screening and treatment in all patients with HIV. For more information, visit [hcvguidelines.org/unique-populations/hiv-hcv](https://hcvguidelines.org/unique-populations/hiv-hcv).

<sup>33</sup> For more information, visit <https://doi.org/10.1093/cid/ciu075>.

# Prevention and Screening

The Health Department promotes hepatitis A, B and C prevention and screening among people at high risk of acquiring these infections, including people who use drugs; people who have sexual partner(s) with hepatitis A, B or C; MSM; and children born to pregnant people with hepatitis B and C. The Health Department provides hepatitis A and B vaccinations at its clinics, including to people who are underinsured or uninsured.

## Hepatitis A and B Vaccinations

	Number of vaccine doses provided at Health Department clinics in 2020	Number of people who completed the vaccine series in NYC in 2020*
Hepatitis A	1,339	95,944
Hepatitis B	2,425	57,460

\*As reported to the Citywide Immunization Registry (CIR); CIR data is less representative of adult vaccination

» For full data, see Appendices 19 and 20.

## Viral Hepatitis in Correctional Facilities

Since 2013, NYC Health + Hospitals (H+H)/Correctional Health Services has screened people in the City’s jails for hepatitis C. In 2018, Correctional Health Services implemented universal hepatitis C screening. Correctional Health Services also provides vaccinations against hepatitis B. In 2020, viral hepatitis clinical services were impacted by Correctional Health Services’ response to COVID-19.

**6,875**

Number of admissions with a hepatitis C screening test performed in 2020\*

**48%**

Percentage of unique admissions receiving a medical intake with a hepatitis C screening test in 2020\*

\*Based on rapid test, antibody or viral load test

**94**

Number of people treated for hepatitis C in NYC jails in 2020\*\*

**143**

Number of people in NYC jails vaccinated against hepatitis B in 2020

\*\*Includes those who completed or partially completed treatment

## Hepatitis C Care Cascade for People With a History of Criminal Justice System Involvement

In 2020, the Health Department and Correctional Health Services developed a care cascade of people with hepatitis C admitted in the NYC jail system from 2014–2017. Of the 33% of patients screened for hepatitis C, 39% were seen by a NYC clinician in jail, and 5% started treatment in jail. Of those who started treatment, 90% (147/164) achieved sustained virologic response (SVR) indicated by test results reported post-treatment in jail. Read more at: [doi.org/10.1016/j.eclinm.2020.100567](https://doi.org/10.1016/j.eclinm.2020.100567).

» See guidance on providing primary care to patients with a history of criminal justice system involvement at [www1.nyc.gov/assets/doh/downloads/pdf/chi/chi-38-2.pdf](http://www1.nyc.gov/assets/doh/downloads/pdf/chi/chi-38-2.pdf).



## Syringe Service Programs and Medications for Addiction Treatment

The Health Department funds 15 syringe service programs to provide health care services to people who use drugs. Services include hepatitis B vaccination, hepatitis C testing and care coordination, overdose prevention and harm reduction education, distribution of sterile syringes and other drug use equipment to prevent the transmission of viral hepatitis and other blood-borne diseases, and access to buprenorphine treatment.

**17,011** Number of syringe service program participants in 2020      **4,520,260** Number of syringes distributed in 2020

» For more data on syringe service programs in NYC, see the Epi Data Brief at [www1.nyc.gov/assets/doh/downloads/pdf/epi/databrief110.pdf](http://www1.nyc.gov/assets/doh/downloads/pdf/epi/databrief110.pdf).

The Health Department works to expand access to methadone and buprenorphine, which are medicines for addiction treatment for people with opioid use disorder. Treatment with methadone and buprenorphine has been shown to reduce a person’s risk of getting hepatitis B and C and their risk of overdose.

**27,113** Number of people in methadone treatment in 2020\*

**15,949** Number of people filling a buprenorphine prescription in 2020\*

**2,885** Number of providers who issued buprenorphine prescriptions to NYC residents in 2020\*

\*As of December 31, 2020

Provisional data show that in 2019, 1,463 people died from drug overdose in NYC. The Health Department estimates there are more than 10,000 non-fatal overdoses each year. People with a history of non-fatal overdose are at risk for hepatitis B and C and should be tested and connected to care and treatment.

» For more data on drug overdose in NYC, see the Epi Data Brief at [www1.nyc.gov/assets/doh/downloads/pdf/epi/databrief122.pdf](http://www1.nyc.gov/assets/doh/downloads/pdf/epi/databrief122.pdf).

### Health Department Recommendation

- Providers should assess all patients for drug use and provide overdose and infection prevention services to patients who use drugs.
- Providers should provide the hepatitis A and B vaccines for patients who report current injection or intranasal drug use, are at risk for sexual transmission or with hepatitis C.
- People who have had a non-fatal overdose should be screened for hepatitis B and C.

# Health Department Tele-Navigation

The Health Department uses hepatitis B and C surveillance data to assess patient diagnosis and engagement in care and perform outreach. From 2017–2020, the Health Department reached out to 2,278 people with hepatitis B or C by telephone to provide health care navigation services to support linkage to care and treatment.

**601** Number of people with hepatitis B or C called to offer tele-navigation services in 2020

**342** Number of people with hepatitis B or C reached and provided tele-navigation in 2020

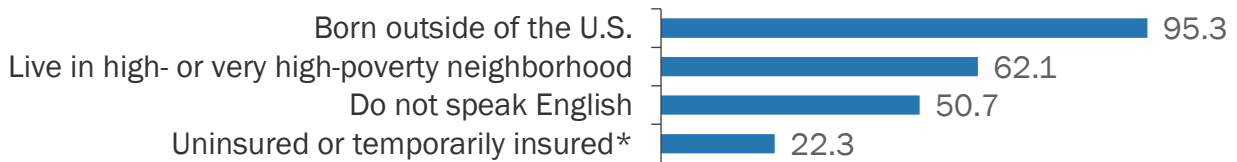
## Hepatitis B Tele-Navigation Program Participants

In 2020, the Health Department enrolled 148 people with hepatitis B.

**59%** Percentage of enrollees linked to hepatitis B medical care in 2020

**62%** Percentage of people linked to hepatitis B medical care who were virally suppressed.

**Figure 34.** Characteristics of people enrolled in hepatitis B tele-navigation services, 2020



\*Temporary Medicaid for pregnant people only

## Hepatitis C Tele-Navigation Program Participants

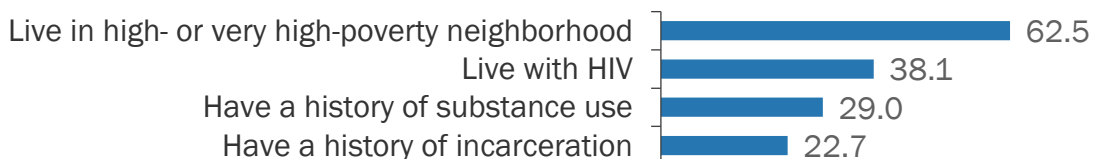
In 2020, the Health Department enrolled 176 people with hepatitis C.

**76%** Percentage of enrollees linked to hepatitis C medical care in 2020

**46%** Percentage of people linked to hepatitis C medical care who initiated treatment.

Of the enrollees living with hepatitis C, the Health Department prioritized outreach to people who were coinfecting with HIV, tested positive in NYC jails, were under the age of 30 and diagnosed with hepatitis C during 2020, who recently gave birth or who had advanced liver disease. Of enrollees, 29% were reported from a substance use treatment facility.

**Figure 35.** Characteristics of people enrolled in hepatitis C tele-navigation services, 2020



# Community Hepatitis Navigation Programs

The New York City Council Viral Hepatitis Initiative provides funding to community organizations to help people at risk overcome barriers to hepatitis B and C testing, care and treatment. Since 2014, the initiative has enabled 33 community health organizations to hire and train hepatitis B and C patient and peer navigators. The initiative also funds three community organizations to train health care providers in hepatitis B and C screening, care, treatment and health care navigation, as well as educate people at risk to promote prevention and care.

## Navigation Description

Peer and patient navigators are trained and employed to provide:

- Outreach and prevention (such as harm reduction) for people at risk
- Health promotion and help accessing supportive services
- Navigation through complete hepatitis B and C testing
- Linkage to hepatitis A and B vaccination and hepatitis B and C care and treatment

## Training Description

Training programs aim to:

- Increase clinical capacity to treat hepatitis B and hepatitis C in NYC
- Build capacity of navigators and other service providers to support hepatitis patients through testing, care and treatment
- Educate people at risk

## Fiscal Year 2015 (FY15) to FY20 Program Outcomes

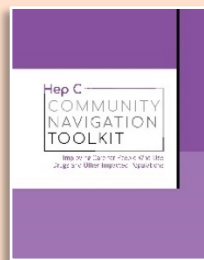
From July 1, 2014, through June 30, 2020:

**16,082** Number of people at risk for or living with hepatitis B or C who received hepatitis education and navigation services

**6,931** Number of people who were linked to hepatitis B or C medical care

**3,772** Number of people who were treated for hepatitis B or C

### Dissemination of the Hepatitis C Community Navigation Model and Toolkit



In 2020, the Health Department partnered with the National Association of State and Territorial AIDS Directors (NASTAD) to develop and disseminate the NYC Health Department Hepatitis C Community Navigation model and toolkit. The development of the toolkit was funded by an Innovation Award from the International Network on Hepatitis in Substance Users (INHSU).

» Access the toolkit at [nastad.org/hepatitis-navigation-toolkit](https://nastad.org/hepatitis-navigation-toolkit).

## Check Hep B Patient Navigation Program

Since 2014, the Viral Hepatitis Initiative has supported hospitals, health centers and community organizations to provide patient navigation to people with chronic hepatitis B. Check Hep B patient navigators help patients complete hepatitis B testing, medical evaluation and treatment. In FY20 (July 1, 2019, through June 30, 2020), the program served 1,008 people living with chronic hepatitis B, including people served in previous years who need ongoing care coordination.

### FY15 to FY20 Program Outcomes

From July 1, 2014, through June 30, 2020:

**1,813**

Number of participants enrolled

**99%**

Percentage of participants linked to care who completed a hepatitis B medical evaluation

**93%**

Percentage of treatment candidates who started hepatitis B treatment

### Participant Characteristics

**90%**

Percentage of participants who were born outside of the U.S.

**72**

Number of countries of birth

**31%**

Percentage of participants who were uninsured

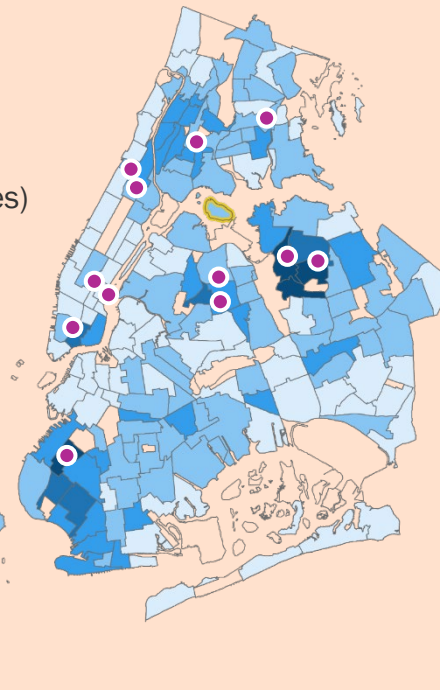
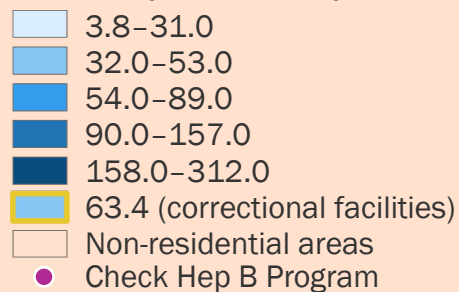
**40**

Number of languages other than English spoken

### Check Hep B Organizations

The map below shows the rate of people newly reported with chronic hepatitis B in NYC in 2020 by NTA and Check Hep B Patient Navigation Program locations.

#### Annual hepatitis B rate per 100,000 people



#### Health Centers and Hospitals

1. APICHA Community Health Center
2. BronxCare Health System
3. Charles B. Wang Community Health Center
4. H+H/Bellevue Hospital
5. H+H/Elmhurst Hospital
6. Montefiore Medical Center
7. NYU Seventh Avenue Family Health Center

#### Community Organizations

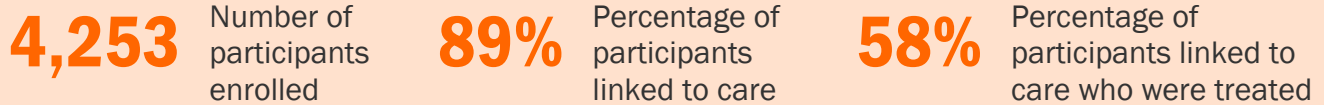
1. African Services Committee
2. Community Health Action of Staten Island
3. Korean Community Services

## Check Hep C Patient Navigation Program

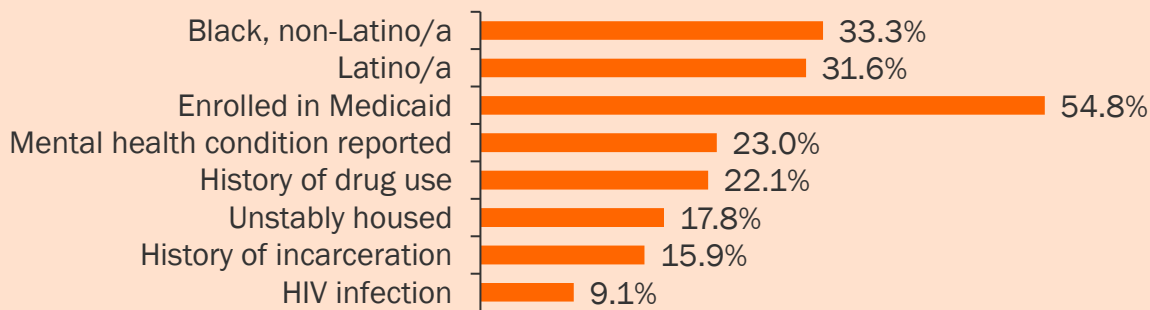
Since 2014, the Viral Hepatitis Initiative has supported health centers and hospitals to provide patient navigation to people living with chronic hepatitis C. Check Hep C patient navigators help patients complete hepatitis C testing, medical evaluation and treatment. In FY20 (July 1, 2019, through June 30, 2020), the program served 656 people living with chronic hepatitis C.

### FY15 to FY20 Program Outcomes

From July 1, 2014, through June 30, 2020:



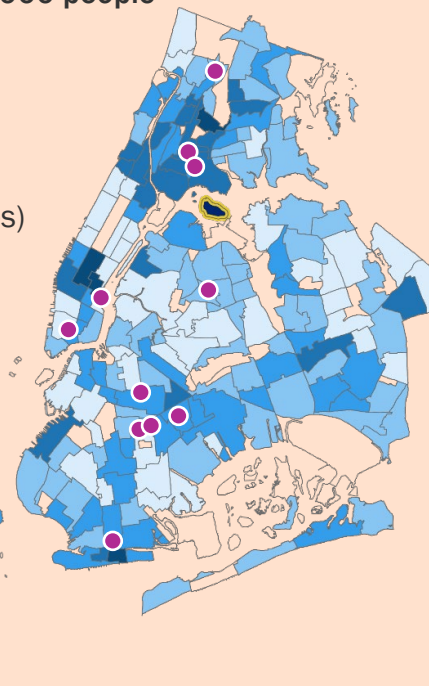
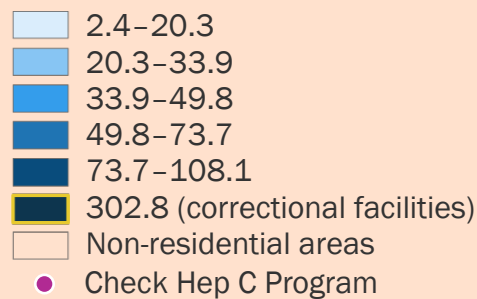
### Participant Characteristics



### Check Hep C Health Centers and Hospitals

The map below shows the rate of people newly reported with chronic hepatitis C in NYC in 2020 by NTA and Check Hep C Patient Navigation Program health center and hospital locations.

#### Annual hepatitis C rate per 100,000 people



#### Health Centers and Hospitals

1. APICHA Community Health Center
2. Bedford-Stuyvesant Family Health Center
3. BronxCare Health System
4. Brownsville Multiservice Family Health Center
5. Community Healthcare Network
6. H+H/Bellevue Hospital
7. H+H/Coney Island Hospital
8. H+H/Elmhurst Hospital
9. H+H/Kings County Hospital
10. Kingsbrook Jewish Medical Center
11. Montefiore Comprehensive Health Care Center



## Hep C Navigation in Syringe Service Programs

Since 2014, the Viral Hepatitis Initiative has supported NYC syringe service programs to provide peer and patient navigation services to people at risk for hepatitis C. Peers used lived experience expertise to conduct outreach, prevention and linkage to care, while patient navigators coordinated care and supported retention in care to complete hepatitis C treatment. In FY20 (July 1, 2019, through June 30, 2020), 1,395 people at risk for hepatitis C were served.

### FY15 to FY20 Program Outcomes

From July 1, 2014, through June 30, 2020:

**10,016** Number of people at risk for hepatitis C who received education and prevention services

**2,251** Number of participants who tested positive for hepatitis C

**1,343** Number of participants with hepatitis C linked to medical care

**553** Number of participants with hepatitis C treated

### Participant Characteristics\*

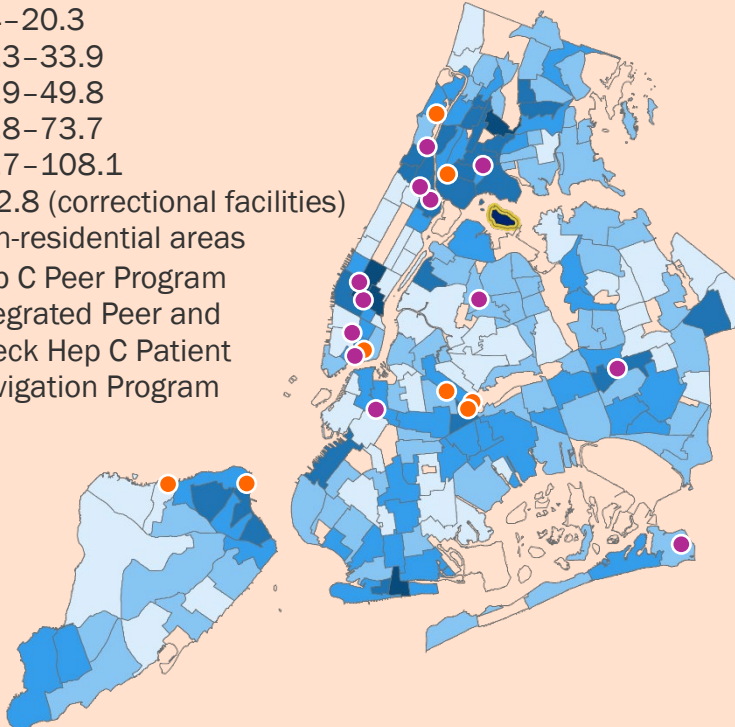
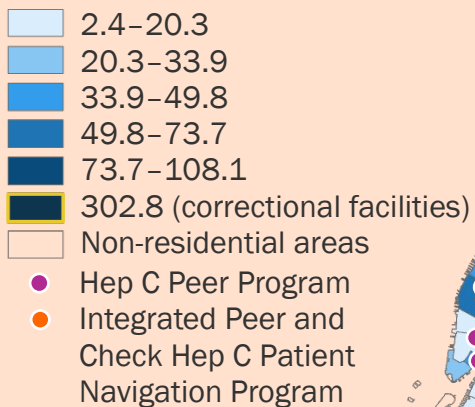
Characteristic	Percentage	Characteristic	Percentage
Black, non-Latino/a	20.0%	History of incarceration	52.8%
Latino/a	47.4%	Unstably housed	45.5%
Enrolled in Medicaid	70.4%	Mental health condition reported	43.9%
History of drug use	55.1%	HIV infection	18.7%

\*Of 1,090 (48%) of 2,251 participants, who tested positive for hepatitis C, with available data

### Program Organizations

The map below shows the rate of people newly reported with chronic hepatitis C in NYC in 2020 by NTA and syringe service program locations.

#### Annual hepatitis C rate per 100,000 people



#### Hep C Peer Program

1. AIDS Center of Queens County
2. Harlem United FROST'D
3. Housing Works
4. NY Harm Reduction Educators
5. Positive Health Project
6. Safe Horizon Streetwork
7. St. Ann's Corner of Harm Reduction
8. VOCAL-NY

#### Integrated Hep C Peer and Check Hep C Program

1. Alliance for Positive Change
2. After Hours Project
3. BOOM!Health
4. Community Health Action of Staten Island
5. Family Services Network of NY
6. Praxis Housing Initiatives
7. Washington Heights CORNER Project

## Evaluation and Expansion of the Hep C Community Navigation Model

### *Hepatitis C Community Navigation Program Evaluation*

In 2019–2020, the Health Department conducted a qualitative evaluation of the implementation of hepatitis C community navigation at syringe service programs. The following strengths were identified: strong knowledge of and relationship building with the community served, effective care coordination, supportive supervision and program management from the Health Department. Humility, trust and empathy were identified as attributes of effective peer and patient navigators.

**“Making sure that you’re humble {is important} because a lot of these clients are not going to trust you. And if they don’t trust you, then what’s the point of [you] even [going] to this doctor’s appointment with [them].... You build relationships with these people, who other people look at like they’re nothing. You turn out to be their support system.”**

- Navigator

Implementation challenges included: staff turnover and service fragmentation, appointment wait time, difficulty navigating the medication prior approval process, experience of stigma against people who use injection drugs, and a lack of cultural humility on the part of clinical providers. A program manager described the following barriers to care:

**“How do you know when you are going to make your next appointment when you don’t know where you are going to sleep today. That’s a systemic or structural barrier. Limited service hours, clinics not open on weekends or evenings, extended wait times. It would be nice to have walk-in care or an urgent care-type setting for Hep C treatment.”**

- Program Manager

Despite these considerable challenges, organizations have met and even exceeded most goals for client engagement, linkage and retention. As a result of the evaluation, the Health Department provided additional support to programs on navigating health insurance requirements and accessing hepatitis C care during the COVID-19 pandemic. The Health Department continued to facilitate community of practice and learning meetings with navigators and coordinated trainings for navigators and clinicians.

### *Integration of Overdose Prevention in Hepatitis C Patient Navigation*

During 2019–2021, the Health Department expanded the scope of the hepatitis C navigation programs with a multi-year Centers for Disease Control and Prevention grant award to include overdose prevention services. From September 1, 2019, through April 30, 2021,\* this funding supported services for:

**2,612**

Number of people with hepatitis C who received overdose prevention counseling

**757**

Number of people linked to integrated hepatitis C and medication-assisted treatment

\*These data are provisional and may be subject to change.

## Health Care Provider Training and Workforce Development

Since 2014, the Viral Hepatitis Initiative has supported the Harm Reduction Coalition, Empire Liver Foundation and, in 2018, the Hep C Mentor and Support Group to train peer and patient navigators and clinical providers in hepatitis B and C prevention, testing, linkage to care, medical evaluation and treatment.

### Harm Reduction Coalition Navigation Training Program Outcomes

From July 1, 2014, through June 30, 2020:

**58** Number of patient navigators trained and employed at health centers, hospitals and community organizations

**111** Number of syringe services program participants trained and employed as hepatitis C peer navigators

### Empire Liver Foundation Clinical Training Program Outcomes

Since 2014, Empire Liver Foundation has trained over 3,000 frontline clinical providers providing care for people at risk for hepatitis B and C. In 2020, training topics included: implementation of universal hepatitis C screening, integration of hepatitis C treatment in opioid treatment facilities and viral hepatitis treatment in the context of COVID-19.

» Visit [empireliverfoundation.org](http://empireliverfoundation.org) to view a full list of training topics and request a training.

From July 1, 2019, through June 30, 2020:

Clinical training event	Number of clinical provider participants
Clinical hepatitis B and C grand rounds at health care facilities across NYC	219
Hepatitis C clinical training series	422
Hepatitis B clinical training series	158
Special topics viral hepatitis trainings	131
Clinical preceptorship in liver clinic	7

Over 90% of grand rounds participants who responded to the post-training evaluation agreed that the sessions increased their understanding of screening and treatment for hepatitis B and C, and that they would apply what they learned in their clinical practice.

**“I am grateful for the information because I have so many patients with hepatitis C and I realize now that I can get them treated for hepatitis C while they are here for methadone, and then I feel like I can really start to save lives in this community.”**

– Participating nurse practitioner from a substance use treatment program

## Hepatitis C Education for People At Risk

Since 2018, the Hepatitis C Mentor and Support Group (HCMSG) has reached 390 people at risk for or living with hepatitis C through educational programs and support groups at more than 30 community-based organizations, substance use treatment and harm reduction programs. In 2020, HCMSG converted their public education curriculum into an online, interactive module reaching 100 people at risk for hepatitis C.

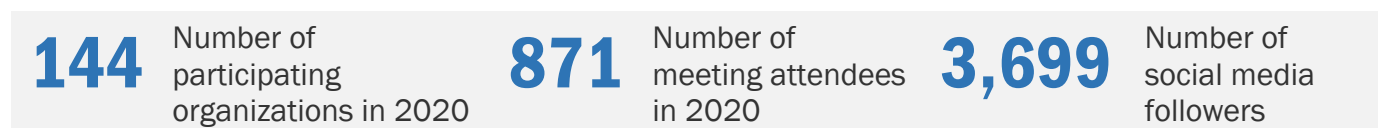


# Capacity Building

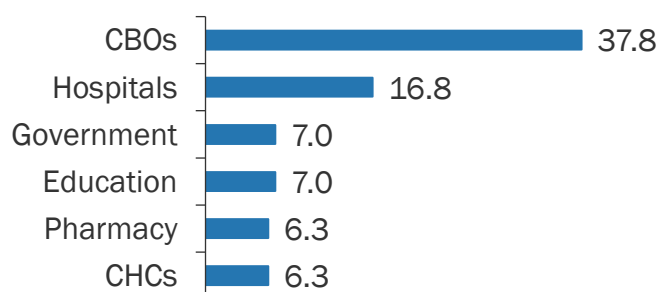
The Health Department engages with organizations throughout NYC to build capacity to prevent, screen and treat hepatitis B and C. The Health Department convenes coalition meetings, trains clinical and non-clinical providers, and conducts data-to-care quality improvement projects.

## Hep Free NYC Community Coalitions

Since 2004, the Health Department has engaged with community health organizations to organize Hep Free NYC, a citywide network of health care providers, patients and public health professionals working together to prevent, manage and treat hepatitis B and C in NYC.

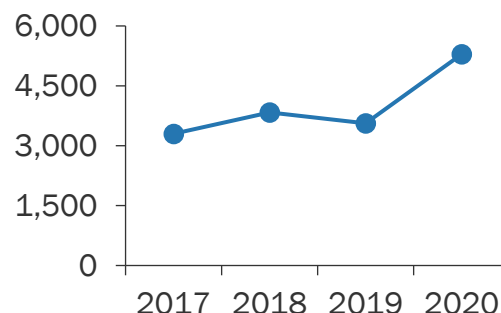


**Figure 36.** Organizational makeup of Hep Free NYC meeting attendees by percentage, 2020\*



\*CBOs is the abbreviation for community-based organizations and CHCs is the abbreviation for community health centers; figure excludes other organizations.

**Figure 37.** Number of Hep Free NYC newsletter subscribers, 2017–2020



At Hep Free NYC meetings, attendees review the latest viral hepatitis data, share best practices in screening, linkage to care and treatment, collaborate on special projects to meet community needs and develop new patient referral relationships.

» To sign up for Hep Free NYC meeting invites and the newsletter, contact [hep@health.nyc.gov](mailto:hep@health.nyc.gov).

## 2020 Hep Free NYC Highlights

- In response to COVID-19 pandemic, transitioned to online events and provided training and technical assistance to partner organizations to support provision of viral hepatitis services via telehealth.
- Led eight active committees including: advocacy, research, public awareness, communications, telehealth and clinical education. Committees developed a range of resources, including multilingual resources for African and South Asian communities.
- Launched the first #HepFreeNYC Twitter Chat during Hepatitis Awareness Month, reaching 1.7 million users and generating more than 2,400 engagements.

## Health Department Training

The Health Department trains non-clinical service providers on effective outreach, prevention, testing, linkage to care and support through treatment. From July 1, 2017, through June 30, 2020, the Health Department delivered the following trainings:

	Number of trainings	Number of participants	Number of organizations represented
Introduction to Viral Hepatitis	14	239	62
Hepatitis C Basics for Communities at Risk	7	230	23
Hepatitis C Rapid Testing	8	137	39
Hepatitis C Patient Navigation	11	242	77

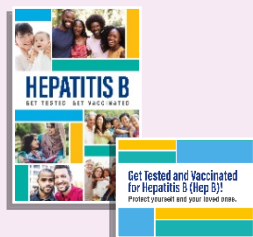
» See the Health Department training catalog at [nyhealthtraining.org/training](https://nyhealthtraining.org/training).

## Public Education

The Health Department produces and distributes free educational materials to promote up-to-date hepatitis B and C health prevention, care and treatment, and referrals to NYC resources.

### Making Education Accessible to Communities

In 2020, the Health Department updated its hepatitis B patient education booklet and vaccine and testing palm card and translated both into five additional languages to support awareness and community education.



The “Hepatitis B: Get Tested, Get Vaccinated” booklet offers basic hepatitis B information on testing, treatment, prevention and self-care. The “Get Tested and Vaccinated for Hepatitis B” palm card tracks hepatitis B vaccinations and offers basic hepatitis B information. Both materials are now available in:

English	French	Albanian
Spanish	Korean	Uzbek
Simplified Chinese	Russian	Twi/Akan
Traditional Chinese	Bengali	Hausa

### Provider Education Materials

The Health Department develops and disseminates clinical guidance for health care providers on hepatitis prevention, diagnosis, care and management. Guidance includes:

- “Preventing, Identifying and Managing Hepatitis B” clinical recommendations
- “Diagnosing and Managing Hepatitis C” clinical recommendations
- “Hepatitis C and HIV Screening and Treatment Recommendations, 2019”
- “Hepatitis B and C Screening, Care and Treatment Recommendations, 2020”
- “Hepatitis A, B and C in NYC: Annual Report”
- “Treat Addiction. Save Lives.” provider information on buprenorphine prescription
- “Alcohol Screening and Counseling for Patients with Hepatitis” clinical brochure

## Public Education Materials

The Health Department disseminates the following resources on viral hepatitis prevention, screening, care and treatment.



**“Hepatitis C and Your Liver”**  
(English, Spanish, Arabic, Russian, Urdu, Bengali and Hindi)  
Booklet with basic hepatitis C information on testing, treatment prevention and care



**“Hepatitis C: Get Checked, Get Cured”** (English, Spanish and Russian): Palm card with basic hepatitis C information promoting testing, care, treatment and prevention



**“Your Liver Keeps You Healthy: Protect It”** (English, Spanish and Chinese): Booklet with information on hepatitis A, B and C testing, treatment, prevention and care



**“Alcohol and Hepatitis”** (English and Spanish): Palm card with alcohol reduction tips and action plan template



**“Take Charge, Take Care”**  
(English, Spanish and Russian)  
Booklet providing information about safer drug use, including preventing hepatitis C infection



**“Buprenorphine”** (English, Spanish, Russian, Traditional Chinese and Arabic): Pamphlet with information on buprenorphine safety, side effects and insurance coverage



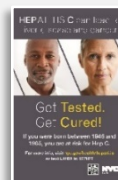
**“Reduce Your Risk of Overdose, Hep C & HIV”** (English, Spanish and Russian): Palm card with tips for reducing the harm of injection drug use



**“Your Guide to Syringe Service Programs”** (English, Spanish and Russian): Palm card listing syringe service programs in NYC



**“Fentanyl”** (English, Spanish, Russian, Simplified Chinese and Traditional Chinese): Postcard with information on preventing opioid overdose



**“Hepatitis C: Get Tested, Get Cured”** (English and Spanish): Poster promoting hepatitis C testing and treatment among baby boomers



**“Hepatitis C Treatment: Before & Now”** (English and Spanish): Poster providing information about new hepatitis C treatments



**“Get Hepatitis C Checked”** (English and Spanish): Posters promoting hepatitis C testing



**“Get Hepatitis C Cured”** (English and Spanish): Posters promoting hepatitis C treatment

» For more information or to order materials, contact [hep@health.nyc.gov](mailto:hep@health.nyc.gov).

## Clinical Practice Facilitation

The Health Department supports acute care hospitals, community-based health centers, and other clinical facilities to improve hepatitis B and C screening and treatment rates. Facilities in high-prevalence neighborhoods or with large populations of hepatitis B and/or C patients are engaged in clinical practice improvement projects grounded in a data-to-care approach, including:

- Coaching on querying electronic health record (EHR) and using surveillance data to assess screening and treatment rates
- Clinical training of providers
- Support to implement quality improvement projects
- Peer-to-peer provider mentoring
- Participation in the Hep Free NYC coalition

Through these projects, participating facilities align workflows, data systems, resources and staff training to increase hepatitis screening and treatment rates. The Health Department works to improve access to care and clinical outcomes in people affected by hepatitis B and C through sustained systemic changes at participating facilities.

### Improving Hepatitis C Screening at Community Health Centers

In 2020, the Health Department completed a clinical practice facilitation project with a network of community-based health centers in NYC to increase the hepatitis C screening rates. The Health Department provided technical assistance to assess the current screening rate using EHR and surveillance data and coordinated clinical and navigation trainings to support patient outreach, linkage to care and treatment. The network increased their screening rate by 12% over the course of the project.

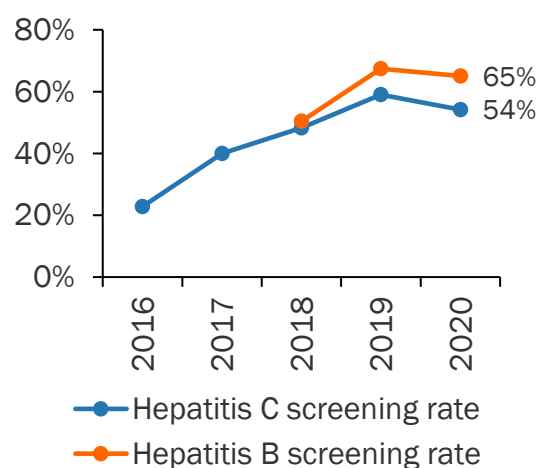
### Improving Hepatitis C Treatment Initiation at Substance Use Treatment Programs

In 2020, the Health Department worked with a multi-site outpatient substance use treatment program in NYC to improve hepatitis C treatment rates. Using surveillance and EHR data, the program identified 234 people living with hepatitis C for linkage to care and treatment. After participating in hepatitis C clinical and navigation trainings, the program treated 22 patients on-site and referred out additional patients for treatment. The program will continue to engage additional patients for treatment and care.

### Building Capacity to Treat Viral Hepatitis via Telemedicine

In 2020, the Health Department and its partners convened a statewide workgroup focused on implementation of viral hepatitis care via telehealth. The participants (67 providers, policy makers and other stakeholders) met monthly to share best practices on telehealth implementation. The workgroup also partnered with the National Alliance of State and Territorial AIDS Directors (NASTAD) to develop a viral hepatitis telemedicine implementation guide ([nastad.org/hep-c-community-navigation-model-and-toolkit/hep-c-telemedicine-implementation-guide](https://nastad.org/hep-c-community-navigation-model-and-toolkit/hep-c-telemedicine-implementation-guide)).

**Figure 38.** Average screening rate at 12 community-based health networks receiving clinical practice facilitation



# Publications and Presentations

## Publications

- Behrends CN, Gutkind S, Deming R, et al. Impact of removing Medicaid fee-for-service hepatitis C Virus (HCV) treatment restrictions on HCV provider experience with Medicaid managed care organizations in New York City. *J Urban Health*. 2020 Feb 3. Epub ahead of print.
- Bocour A, Moore MS, Winters A. Impacts of CDC recommendation and state law on birth cohort hepatitis C screening of New York City Medicaid recipients. *Amer J Prev Med*. 2020;58(6):832–838.
- Chan J, Kaba F, Schwartz J, et al. The hepatitis C virus care cascade in the New York City jail system during the direct acting antiviral treatment era, 2014–2017. *EClinicalMedicine*. 2020
- Chan J, Schwartz J, Kaba F, et al. Outcomes of hepatitis C virus treatment in the New York City jail population: successes and challenges facing scale up of care. *Open Forum Infect Dis*. 2020; 7(7):ofaa263.
- Dimova RB, Rude E, Talal AH. Age and risk-factor based serologic screening for hepatitis C virus among an urban, high-risk population. *J Viral Hepat*. 2020 Jul 2. Epub ahead of print.
- Guerra K, Bocour A, Moore MS, et al. Detection of recurrent hepatitis C viremia using surveillance data, New York City. *J Public Health Manag Pract*. 2020 Sep 9. Epub ahead of print.
- Webster R, Moore MS, Bocour A, et al. Health Department efforts to increase hepatitis C RNA testing among people appearing out of care: comparison of outreach approaches, New York City, 2017. *Public Health Rep*. 2020; 135(5).

## Posters and Presentations

- Brenes A, Schwartz J, Johnson N, et al. Using surveillance data to implement a telephone navigation intervention to improve hepatitis C treatment rates among people who use drugs in New York City, 2018–2020. Presented at 2020 Rx Drug Abuse and Heroin Summit. Apr 2020.
- Johnson N, Kela-Murphy N. Micro elimination of hepatitis C among people living with HIV, New York City, 2016-2019. Presented at 2020 National Ryan White Conference on HIV Care & Treatment. Aug 2020.
- Johnson N, Kela-Murphy N. A health department data-to-care approach to improving hepatitis C screening and treatment rates in clinical facilities in New York City. Presented at SYNChronicity 2020. Sep 2020.
- Kela-Murphy N. How quality improvement informs hepatitis elimination. Presented at NASTAD 2020 National HIV and Hepatitis Technical Assistance Meeting. Oct 2020.
- Schwartz J, Pene F, Tang L, et al. Outcomes of a multi-lingual telephone navigation intervention to improve postpartum engagement in hepatitis B care for immigrant women in New York City. Presented at 2020 North American Refugee Health Conference. Sep 2020.
- Schwartz J, Pene F, Tang L, et al. Outcomes of a multi-lingual telephone navigation intervention to improve postpartum engagement in hepatitis B Care for immigrant women in New York City. Presented at Hep B United Summit. Dec 2020.

- Winters A, Guerra K, Bocour A, et al. The hepatitis B care continuum: Using surveillance data to understand linkage to care and treatment eligibility in New York City, 2016-2018. Presented at Hep B United Summit. Dec 2020.

# References and Resources

## Local and national hepatitis B and C epidemiological data:

- EpiQuery: Provides data on the health of New Yorkers from a variety of sources, including surveys, surveillance data and vital records (births and deaths). <https://a816-health.nyc.gov/hdi/epiquery>.
- New York City Department of Health and Mental Hygiene Hepatitis A, B and C Reports: <https://www1.nyc.gov/site/doh/data/data-publications/hepatitis-abc-surveillance-data.page>.
- Moore MS, Bocour A, Winters A. Surveillance-based estimate of chronic hepatitis B prevalence, New York City, 2016. *Public Health Reports*. 2019; 134(6):695-702.
- Bocour A, Greene SK, Laraque F, Winters A. Estimating the prevalence of chronic hepatitis C virus infection in New York City, 2015. *Epidemiol Infect*. 2018;146(12):1537-1542.

## Viral hepatitis elimination planning:

- World Health Organization. Combating hepatitis B and C to reach elimination by 2030. Geneva, 2016. <https://who.int/hepatitis/publications/hep-elimination-by-2030-brief/en>.
- National Academies of Sciences, Engineering and Medicine, “A National Strategy for the Elimination of Hepatitis B and C: Phase Two Report”: <https://nap.edu/24731>.
- New York State Health Department, “Viral Hepatitis Strategic Plan 2016-2020”: <https://health.ny.gov/publications/1806.pdf>.

## Clinical guidance on hepatitis screening, care and treatment:

- New York City Department of Health and Mental Hygiene, 2018. “Diagnosing and Managing Hepatitis C”: <https://www1.nyc.gov/assets/doh/downloads/pdf/chi/chi-37-2.pdf>.
- New York City Department of Health and Mental Hygiene, 2018. “Diagnosing and Managing Hepatitis B”: <https://www1.nyc.gov/assets/doh/downloads/pdf/chi/chi-37-4.pdf>.
- American Association for the Study of Liver Diseases Practice Guidelines: <https://aasld.org/publications/practice-guidelines-0>.
- Schillie S, Wester C, Osborne M, Wesolowski L, Ryerson AB. CDC recommendations for hepatitis C screening among adults—United States, 2020. *MMWR Recommendations and Reports*. 2020 Apr 3;69(2):1.
- Dieterich DT, Ahn J, Bacon B, et al. A simplified algorithm for the management of hepatitis C infection. *Gastroenterology & Hepatology*. 2019 May;15(5 Suppl 3):1.

## For interpreting Health Department surveillance data:

- Council of State and Territorial Epidemiologists (CSTE) case definitions: <https://ndc.services.cdc.gov>.
- Neighborhood Tabulation Areas (NTAs): <https://www1.nyc.gov/site/planning/data-maps/open-data/dwn-nynta.page>.



# Appendices

## Appendix 1: Surveillance technical data notes

When interpreting NYC hepatitis B and C surveillance data, please note:

- This report includes surveillance data on people who meet the CSTE’s current case definition for chronic hepatitis C confirmed or probable cases, which was implemented in 2016. Therefore, cases that are antibody positive with only negative RNA results are excluded from most analyses, unless otherwise specified. For more information, visit [ndc.services.cdc.gov](http://ndc.services.cdc.gov).
- Laboratories are required to report positive hepatitis B and C tests to the Health Department, as well as negative results for hepatitis C RNA tests and hepatitis B DNA tests. For more information about hepatitis labs reportable to the Health Department, visit [wadsworth.org/sites/default/files/WebDoc/618150225/CDRG%202016%20Complete.pdf](http://wadsworth.org/sites/default/files/WebDoc/618150225/CDRG%202016%20Complete.pdf).
- The Health Department often receives more than one hepatitis B or C laboratory report per person and uses automatic deduplication methods to identify multiple reports for the same person based on name, date of birth and other information. Only the first report is counted in the counts of newly reported cases for the year in which the person was first reported.
- The Health Department does not investigate all chronic hepatitis B and C cases, so only minimal information — patient name, address, date of birth and sex — from laboratory reports is available. Gender identity (how one lives or sees themselves — for example: woman, transgender woman, man, transgender man, nonbinary person, gender nonconforming) is not consistently reported by all laboratories and is therefore underreported.
- The Health Department investigates all positive hepatitis B core IgM antibody reports and other positive hepatitis B reports that include significantly elevated liver function tests as potential cases of acute hepatitis B.
- Veterans Affairs (VA) health care facilities began reporting cases through routine surveillance at the end of 2016; therefore, people with viral hepatitis who receive health care at only VA facilities are not fully represented in this report.
- Differences in data between this report and previous reports may be related to factors such as delays in disease reporting, correction of errors and refinements in data processing (for example, the removal of duplicate reports).
- Many people with acute hepatitis B or C have no or mild symptoms. As a result, these infections might not be diagnosed at the time of infection. Therefore, surveillance data underestimate the true incidence of acute hepatitis B and C in NYC.
- Neighborhood poverty based on ZIP code was defined as the percentage of residents with incomes below 100% of the Federal Poverty Level (FPL), per American Community Survey data from 2014 to 2018. Neighborhood poverty categories are defined as follows:
  - Low (less than 10% below FPL)
  - Medium (10% to less than 20% below FPL)
  - High (20% to less than 30% below FPL)
  - Very high (greater than or equal to 30% below FPL)
 These categories are not applied to people whose first or most recently reported address is a NYC correctional facility.
- All people reported from a NYC correctional facility have been aggregated to Rikers Island in maps.
- Many patients with chronic hepatitis B or C are asymptomatic; as a result, many cases are not diagnosed or reported. Therefore, surveillance data underestimate the true level of chronic hepatitis B and C in NYC.
- Ten-year trends are shown for hepatitis A, chronic hepatitis B and C. Years prior to 2008 can be found on EpiQuery: [a816-health.nyc.gov/hdi/epiquery](http://a816-health.nyc.gov/hdi/epiquery).

## Rates

- Rates presented include people newly reported to the Health Department. They are not prevalence rates or incidence rates.
- Age adjustment was performed using the following age categories: 0-24, 25-44, 45-64, 65-84 and  $\geq 85$  years, and weighted to the U.S. 2000 standard population.
- Rates stratified by age group are presented as age-specific rates (in other words, no age adjusting within a presented age stratum was performed).
- Denominators used throughout this report are intercensal estimates for 2019, except denominators for the Rikers Island population, which were provided by NYC Correctional Health Services.
- The jail at Rikers Island is part of the Bronx, although it has a Queens ZIP code (11370; note that ZIP code 11370 also includes parts of mainland Queens). Therefore, for numbers and rates presented by borough, Rikers Island cases are included with other Bronx cases.
- The Health Department is presenting maps using NYC NTAs, which are aggregations of census tracts that are subsets of NYC's 55 Public Use Microdata Areas. For details on NTAs, please see [www1.nyc.gov/site/planning/data-maps/open-data/dwn-nynta.page](http://www1.nyc.gov/site/planning/data-maps/open-data/dwn-nynta.page).

## Prevalence Estimates

- Hepatitis B and C prevalence estimates were updated for 2017 and used the methods described in Moore MS, et al. Surveillance-based estimate of chronic hepatitis B prevalence, New York City, 2016, and Bocour A, et al. Estimating the prevalence of chronic hepatitis C virus infection in New York City, 2015. Estimates will be updated annually.

## Death Data

- Deaths occurring outside NYC or those of non-NYC residents are not included.
- Both underlying and contributing causes are included. Underlying cause of death is the disease or condition that set off the chain of events leading to death. Contributing causes of death are diseases, morbid conditions or injuries that either resulted in or contributed to death.
- Causes of death are coded using ICD-10 classifications. The codes used for hepatitis B are B16, B170, B180 and B181; and the codes used for hepatitis C are B171 and B182. Both acute and chronic hepatitis B and C are included as causes of death.
- Causes of death are not mutually exclusive.

**Appendix 2:** Hepatitis A, B and C reporting in NYC

Laboratories are required to electronically report chronic hepatitis B and C tests to the Health Department. Providers should report all hepatitis A (IgM positive), and acute B and acute C cases (based on clinical criteria, such as jaundice) to the Health Department. The Health Department uses demographic and risk information to determine the characteristics of those infected with acute hepatitis B and C and to prevent ongoing transmission.

Health care providers can report hepatitis A, B and C cases:

- Online: Visit [nyc.gov/nycmed](http://nyc.gov/nycmed).
- By mail: Download the Universal Reporting Form at [www1.nyc.gov/assets/doh/downloads/pdf/hcp/urf-0803.pdf](http://www1.nyc.gov/assets/doh/downloads/pdf/hcp/urf-0803.pdf).
- By phone: Call the Health Department's Provider Access Line (PAL) at 866-NYC-DOH1 (866-692-3641).

**Appendix 3:** Characteristics of people reported with confirmed hepatitis A infection in NYC, 2020

Characteristics	Number	Percentage of each group	Rate per 100,000 people
Overall	42	100	0.5
<b>Sex</b>			
Female	11	26.2	0.3
Male	31	73.8	0.8
<b>Age at time of report</b>			
0-9	0	0.0	0.0
10-19	2	4.8	0.2
20-29	13	31.0	1.0
30-39	9	21.4	0.7
40-49	10	23.8	1.0
50-59	5	11.9	0.5
≥ 60	3	7.1	0.2
<b>Borough of residence</b>			
Bronx	7	16.7	0.5
Brooklyn	11	26.2	0.4
Manhattan	9	21.4	0.6
Queens	12	28.6	0.5
Staten Island	3	7.1	0.6
<b>Neighborhood poverty level by ZIP code</b>			
Low (< 10% below poverty)	8	19.1	0.5
Medium (10 to < 20%)	15	35.7	0.4
High (20 to < 30%)	13	31.0	0.6
Very high (≥ 30%)	6	14.3	0.5
<b>Race and ethnicity</b>			
Asian, non-Latino/a	6	14.3	0.5
Black, non-Latino/a	7	16.7	0.4
Latino/a	14	33.3	0.6
White, non-Latino/a	10	23.8	0.4
Other	4	9.5	2.3
Unknown	1	2.4	N/A
<b>Risk factors (not mutually exclusive)</b>			
International travel	15	35.7	N/A
Drug use	14	33.3	N/A
MSM	10	23.8	N/A
Homelessness	5	11.9	N/A
Incarceration within 6 months before diagnosis	1	2.4	N/A
Contact with a person with hepatitis A	0	0.0	N/A
Unknown	11	26.2	N/A

**Appendix 4:** Characteristics of people reported with acute hepatitis B in NYC, 2020

Characteristics	Number	Percentage of each group	Rate per 100,000 people
Overall	20	100.0	0.2
<b>Sex</b>			
Female	6	30.0	0.1
Male	14	70.0	0.4
<b>Age at time of first report</b>			
0–19	1	5.0	0.1
20–29	2	10.0	0.2
30–39	4	20.0	0.3
40–49	2	10.0	0.2
50–59	7	35.0	0.7
≥ 60	4	20.0	0.2
<b>Borough of residence</b>			
Bronx	7	35.0	0.5
Brooklyn	5	25.0	0.2
Manhattan	2	10.0	0.1
Queens	5	25.0	0.2
Staten Island	1	5.0	0.2
<b>Neighborhood poverty level by ZIP code</b>			
Low (< 10% below poverty)	4	20.0	0.2
Medium (10 to < 20%)	7	35.0	0.2
High (20 to < 30%)	3	15.0	0.1
Very high (≥ 30%)	6	30.0	0.5
<b>Race and ethnicity</b>			
Asian, non-Latino/a	2	10.0	0.2
Black, non-Latino/a	10	50.0	0.5
Latino/a	2	10.0	0.1
White, non-Latino/a	6	30.0	0.2
Multi-race	0	0.0	0.0
Unknown	0	0.0	0.0
<b>Risk factors (mutually exclusive<sup>1</sup>)</b>			
Injection drug use (IDU)	2	10.0	N/A
Household contact with a person with hepatitis B	3	15.0	N/A
MSM	2	10.0	N/A
Heterosexual contact	4	20.0	N/A
Health care-related exposure	2	10.0	N/A
Other	1	5.0	N/A
Unknown	6	30.0	N/A

<sup>1</sup> “Mutually exclusive” means that each patient is represented by the risk factor that poses the highest risk of hepatitis B infection. For example, a person who injected drugs and had a health care-related exposure is represented only once, in the Injection drug use row. The table lists risk factors from highest to lowest risk.

**Appendix 5:** Characteristics of people reported with chronic hepatitis B in NYC, 2020

Characteristics	People newly reported in 2020			All people reported 2017–2020, regardless of year of first report	
	Number	Percentage of each group	Rate per 100,000 people	Number	Percentage of each group
Overall	4,021	100.0	48.2	93,445	100.0
<b>Sex<sup>1</sup></b>					
Female	1,738	43.2	39.9	41,750	44.7
Male	2,276	56.6	57.2	51,569	55.2
Unknown	7	0.2	N/A	126	0.1
<b>Age at time of first report</b>					
0–19	91	2.3	4.8	4,505	4.8
20–29	516	12.8	40.5	20,640	22.1
30–39	1,005	25.0	75.2	25,364	27.1
40–49	830	20.6	79.6	20,009	21.4
50–59	733	18.2	70.9	13,571	14.5
60–69	518	12.9	59.0	6,809	7.3
≥ 70	328	8.2	37.2	2,547	2.7
<b>Borough of residence</b>					
Bronx <sup>2</sup>	668	16.6	47.1	9,860	10.6
Brooklyn	1,318	32.8	51.5	33,907	36.3
Manhattan	539	13.4	33.1	17,908	19.2
Queens	1,219	30.3	54.1	28,259	30.2
Staten Island	123	3.1	25.8	1,983	2.1
Unknown	154	3.8	N/A	1,528	1.6
<b>Neighborhood poverty level by ZIP code<sup>3</sup></b>					
Low (< 10% below poverty)	441	11.0	27.1	10,700	11.5
Medium (10 to < 20%)	1,494	37.2	42.7	33,952	36.4
High (20 to < 30%)	1,273	31.7	62.0	34,561	37.0
Very high (≥ 30%)	648	16.2	55.9	12,108	13.0
Unknown	156	3.9	N/A	1,974	2.1

<sup>1</sup> People reported as transgender are excluded, as gender identity is not consistently reported by all laboratories and is therefore underreported.

<sup>2</sup> The Bronx includes six people reported from people in Rikers Island facilities and 97 people in 2017–2020.

<sup>3</sup> Neighborhood poverty level data excludes people incarcerated at the time of first report. In 2020, there were seven newly reported people incarcerated at the time of first report. In 2017–2020, there were 150 people who were incarcerated at the time of their most recent report.



### Appendix 6: NYC NTAs



**Appendix 7:** Number and rate of people newly reported with chronic hepatitis B by NTA in NYC, 2020<sup>1</sup>

NTA name (code)	Number of cases	Rate per 100,000 people
Allerton-Pelham Gardens (BX31)	11	34.3
Annadale-Huguenot-Prince's Bay-Eltingville (SI01)	3	10.5
Arden Heights (SI48)	4	15.1
Astoria (QN70)	20	27.9
Auburndale (QN48)	10	49.3
Baisley Park (QN76)	9	23.8
Bath Beach (BK27)	22	66.3
Battery Park City-Lower Manhattan (MN25)	11	24.8
Bay Ridge (BK31)	25	31.6
Bayside-Bayside Hills (QN46)	24	65.9
Bedford (BK75)	24	31.8
Bedford Park-Fordham North (BX05)	24	42.3
Bellerose (QN43)	12	44.4
Belmont (BX06)	9	32.4
Bensonhurst East (BK29)	58	87.7
Bensonhurst West (BK28)	93	101.9
Borough Park (BK88)	58	56.6
Breezy Point-Belle Harbor-Rockaway Park-Broad Channel (QN10)	3	11.1
Briarwood-Jamaica Hills (QN35)	16	37.4
Brighton Beach (BK19)	22	64.0
Bronxdale (BX07)	19	47.9
Brooklyn Heights-Cobble Hill (BK09)	3	12.3
Brownsville (BK81)	31	63.0
Bushwick North (BK77)	21	38.7
Bushwick South (BK78)	23	33.0

NTA name (code)	Number of cases	Rate per 100,000 people
Cambria Heights (QN33)	3	14.0
Canarsie (BK50)	40	47.5
Carroll Gardens-Columbia Street-Red Hook (BK33)	4	9.1
Central Harlem North-Polo Grounds (MN03)	47	56.4
Central Harlem South (MN11)	25	50.4
Charleston-Richmond Valley-Tottenville (SI11)	8	34.4
Chinatown (MN27)	59	127.1
Claremont-Bathgate (BX01)	17	49.4
Clinton (MN15)	12	24.4
Clinton Hill (BK69)	6	15.8
Co-op City (BX13)	17	35.1
College Point (QN23)	19	78.9
Corona (QN25)	23	40.2
Crotona Park East (BX75)	9	41.2
Crown Heights North (BK61)	38	36.0
Crown Heights South (BK63)	23	58.4
Cypress Hills-City Line (BK83)	14	29.8
Douglas Manor-Douglaston-Little Neck (QN45)	8	31.7
DUMBO-Vinegar Hill-Downtown Brooklyn-Boerum Hill (BK38)	9	18.4
Dyker Heights (BK30)	69	156.9
East Concourse-Concourse Village (BX14)	42	65.3
East Elmhurst (QN27)	4	20.8
East Flatbush-Farragut (BK91)	16	31.5

<sup>1</sup> Two hundred thirty-five people could not be assigned to an NTA based on their address at first report.

**Appendix 7:** Number and rate of people newly reported with chronic hepatitis B by NTA in NYC, 2020

NTA name (code)	Number of cases	Rate per 100,000 people
East Flushing (QN52)	66	258.4
East Harlem North (MN34)	29	47.4
East Harlem South (MN33)	23	39.0
East New York (BK82)	43	46.8
East New York (Pennsylvania Ave) (BK85)	12	44.0
East Tremont (BX17)	26	60.3
East Village (MN22)	8	19.4
East Williamsburg (BK90)	8	22.5
Eastchester-Edenwald-Baychester (BX03)	9	24.1
Elmhurst (QN29)	61	75.6
Elmhurst-Maspeth (QN50)	30	125.3
Erasmus (BK95)	12	43.4
Far Rockaway-Bayswater (QN15)	13	23.5
Flatbush (BK42)	50	48.2
Flatlands (BK58)	28	39.9
Flushing (QN22)	224	312.0
Fordham South (BX40)	21	77.0
Forest Hills (QN17)	29	33.3
Fort Greene (BK68)	10	28.5
Fresh Meadows-Utopia (QN41)	8	43.6
Ft. Totten-Bay Terrace-Clearview (QN47)	7	31.0
Georgetown-Marine Park-Bergen Beach-Mill Basin (BK45)	13	27.3
Glen Oaks-Floral Park-New Hyde Park (QN44)	3	12.4
Glendale (QN19)	9	26.4
Gramercy (MN21)	1	3.8
Grasmere-Arrochar-Ft. Wadsworth (SI14)	8	48.2
Gravesend (BK26)	18	59.3
Great Kills (SI54)	7	16.7

NTA name (code)	Number of cases	Rate per 100,000 people
Greenpoint (BK76)	8	22.2
Grymes Hill-Clifton-Fox Hills (SI08)	14	63.0
Hamilton Heights (MN04)	14	27.4
Hammels-Arverne-Edgemere (QN12)	12	30.0
Highbridge (BX26)	25	65.3
Hollis (QN07)	7	33.2
Homecrest (BK25)	21	47.0
Hudson Yards-Chelsea-Flatiron-Union Square (MN13)	22	29.0
Hunters Point-Sunnyside-West Maspeth (QN31)	27	36.4
Hunts Point (BX27)	10	38.7
Jackson Heights (QN28)	38	38.9
Jamaica (QN61)	31	58.6
Jamaica Estates-Holliswood (QN06)	9	34.0
Kensington-Ocean Parkway (BK41)	24	68.1
Kew Gardens (QN60)	2	8.9
Kew Gardens Hills (QN37)	9	24.6
Kingsbridge Heights (BX30)	11	34.3
Laurelton (QN66)	4	15.1
Lenox Hill-Roosevelt Island (MN31)	14	16.8
Lincoln Square (MN14)	19	29.6
Lindenwood-Howard Beach (QN57)	2	7.0
Longwood (BX33)	18	65.4
Lower East Side (MN28)	42	60.2
Madison (BK44)	27	65.9
Manhattanville (MN06)	8	34.9
Marble Hill-Inwood (MN01)	27	52.1

**Appendix 7:** Number and rate of people newly reported with chronic hepatitis B by NTA in NYC, 2020

NTA name (code)	Number of cases	Rate per 100,000 people
Mariner's Harbor-Arlington-Port Ivory-Graniteville (SI12)	6	18.5
Maspeth (QN30)	12	38.9
Melrose South-Mott Haven North (BX34)	18	42.9
Middle Village (QN21)	11	28.2
Midtown-Midtown South (MN17)	12	43.3
Midwood (BK43)	25	46.0
Morningside Heights (MN09)	13	25.2
Morrisania-Melrose (BX35)	25	62.7
Mott Haven-Port Morris (BX39)	25	46.9
Mount Hope (BX41)	40	76.7
Murray Hill (QN51)	53	104.8
Murray Hill-Kips Bay (MN20)	10	21.3
New Brighton-Silver Lake (SI35)	8	46.7
New Dorp-Midland Beach (SI45)	4	19.2
New Springville-Bloomfield-Travis (SI05)	7	16.1
North Corona (QN26)	20	39.1
North Riverdale-Fieldston-Riverdale (BX22)	5	18.4
North Side-South Side (BK73)	11	19.6
Norwood (BX43)	15	35.9
Oakland Gardens (QN42)	12	40.3
Oakwood-Oakwood Beach (SI25)	3	14.7
Ocean Hill (BK79)	12	35.4
Ocean Parkway South (BK46)	6	29.4
Old Astoria (QN71)	7	29.5

NTA name (code)	Number of cases	Rate per 100,000 people
Old Town-Dongan Hills-South Beach (SI36)	13	50.7
Ozone Park (QN56)	15	64.0
Park Slope-Gowanus (BK37)	11	14.7
Parkchester (BX46)	14	45.5
Pelham Bay-Country Club-City Island (BX10)	5	19.0
Pelham Parkway (BX49)	8	27.9
Pomonok-Flushing Heights-Hillcrest (QN38)	19	52.9
Port Richmond (SI28)	3	15.2
Prospect Heights (BK64)	5	23.4
Prospect Lefferts Gardens-Wingate (BK60)	22	32.4
Queens Village (QN34)	27	50.7
Queensboro Hill (QN62)	45	223.0
Queensbridge-Ravenswood-Long Island City (QN68)	5	24.7
Rego Park (QN18)	16	58.0
Richmond Hill (QN54)	19	30.3
Ridgewood (QN20)	14	19.5
Rikers Island (BX98)	9	63.4
Rosedale (QN05)	6	23.8
Rossville-Woodrow (SI32)	4	18.7
Rugby-Renssen Village (BK96)	22	41.4
Schuylerville-Throgs Neck-Edgewater Park (BX52)	16	35.2
Seagate-Coney Island (BK21)	18	57.2

**Appendix 7:** Number and rate of people newly reported with chronic hepatitis B by NTA in NYC, 2020

NTA name (code)	Number of cases	Rate per 100,000 people
Sheepshead Bay-Gerritsen Beach-Manhattan Beach (BK17)	17	25.9
SoHo-TriBeCa-Civic Center-Little Italy (MN24)	21	49.2
Soundview-Bruckner (BX55)	15	40.5
Soundview-Castle Hill-Clason Point-Harding Park (BX09)	12	21.9
South Jamaica (QN01)	17	40.6
South Ozone Park (QN55)	17	21.2
Springfield Gardens North (QN02)	8	28.9
Springfield Gardens South-Brookville (QN03)	11	50.8
Spuyten Duyvil-Kingsbridge (BX29)	9	28.8
St. Albans (QN08)	16	30.6
Stapleton-Rosebank (SI37)	10	38.5
Starrett City (BK93)	6	46.3
Steinway (QN72)	18	39.0
Stuyvesant Heights (BK35)	17	25.6
Stuyvesant Town-Cooper Village (MN50)	3	12.5
Sunset Park East (BK34)	192	290.3
Sunset Park West (BK32)	37	69.2
Todt Hill-Emerson Hill-Heartland Village-Lighthouse Hill (SI24)	4	12.0
Turtle Bay-East Midtown (MN19)	9	17.4
University Heights-Morris Heights (BX36)	34	61.7

NTA name (code)	Number of cases	Rate per 100,000 people
Upper East Side-Carnegie Hill (MN40)	8	13.5
Upper West Side (MN12)	15	11.1
Van Cortlandt Village (BX28)	13	25.8
Van Nest-Morris Park-Westchester Square (BX37)	15	52.9
Washington Heights North (MN35)	13	18.0
Washington Heights South (MN36)	28	30.5
West Brighton (BK23)	9	52.9
West Concourse (BX63)	27	72.2
West Farms-Bronx River (BX08)	18	50.3
West New Brighton-New Brighton-St. George (SI22)	6	18.4
West Village (MN23)	10	15.1
Westchester-Unionport (BX59)	16	56.3
Westerleigh (SI07)	10	41.1
Whitestone (QN49)	13	41.4
Williamsbridge-Olinville (BX44)	34	51.9
Williamsburg (BK72)	5	14.7
Windsor Terrace (BK40)	9	39.1
Woodhaven (QN53)	27	46.1
Woodlawn-Wakefield (BX62)	14	32.5
Woodside (QN63)	38	88.5
Yorkville (MN32)	17	21.5

**Appendix 8:** Demographic characteristics of pregnant people with hepatitis B in NYC who delivered a live birth in 2020

Characteristics	Number	Percentage of each group
Overall	788	100.0
<b>Borough of residence</b>		
Bronx	127	16.1
Brooklyn	329	41.8
Manhattan	78	9.9
Queens	227	28.8
Staten Island	27	3.4
<b>Race and ethnicity</b>		
Asian/Pacific Islander, non-Latino/a	466	59.1
Black, non-Latino/a	169	21.5
Latino/a	27	3.4
White, non-Latino/a	69	8.8
Other	56	7.1
Unknown	1	0.1
<b>Country of birth</b>		
China	356	45.2
U.S.	43	5.5
Uzbekistan	41	5.2
Guinea	27	3.4
Dominican Republic	21	2.7
Ghana	21	2.7
Bangladesh	19	2.4
Nigeria	18	2.3
Senegal	17	2.2
Haiti	13	1.7
Unknown	4	0.5
Other	208	26.4



**Appendix 8:** Demographic characteristics of pregnant people with hepatitis B in NYC who delivered a live birth in 2020 (continued)

Characteristics	Number	Percentage of each group
<b>Region of birth<sup>1</sup></b>		
China	356	45.2
Western Africa	153	19.4
Caribbean and Haiti	46	5.8
West and Central Asia	46	5.8
South Asia	44	5.6
U.S.	43	5.5
Europe	29	3.7
Mexico, Central and South America	19	2.4
East Asia (excluding China)	17	2.2
Southeast Asia	13	1.7
Africa (excluding Western Africa)	10	1.3
Middle East	7	0.9
Pacific Islands	1	0.1
Unknown	4	0.5

<sup>1</sup> Includes countries counted as separate regions for comparison with larger regions. Excludes regions that were not reported as a region of birth for any reported person (Canada and Australia/Oceania).



**Appendix 9:** Hepatitis B vaccination, post-exposure prophylaxis (PEP) and testing for infants born in 2019 to pregnant people with hepatitis B, NYC

Characteristics	Number	Percentage of each group
Overall	1,031	100.0
<b>PEP<sup>1</sup> and vaccination status<sup>2</sup></b>		
PEP	1,028	99.7
Vaccine series completion <sup>3</sup>	953	92.4
PEP and vaccine series completion <sup>3</sup>	950	92.1
<b>Testing status<sup>4</sup></b>		
Tested	872	84.6
Not tested	159	15.4
<b>Test results<sup>5</sup></b>		
Infected	0	0.0
Immune	860	98.6
Susceptible	2	0.2
Indeterminate	10	1.1

<sup>1</sup> Defined as administration of hepatitis B immune globulin and birth dose of hepatitis B vaccine series within one day after birth

<sup>2</sup> Not mutually exclusive

<sup>3</sup> Defined as receiving three valid doses of hepatitis B vaccine including a dose given at age greater than or equal to 164 days

<sup>4</sup> Of the three infants that did not receive PEP, one had complete testing and was immune, one had partial testing (Anti-HB+, HBsAg unknown) and one moved out of the country, and testing results have not been obtained.

<sup>5</sup> Percentage calculated out of those tested (n=872)

**Appendix 10:** Characteristics of decedents where hepatitis B is listed as the underlying cause or contributing cause of death, NYC, 2019

Characteristics	Number	Percentage of each group	Age-adjusted rate per 100,000 people <sup>1</sup>
Overall	82	100.0	0.9
<b>Sex</b>			
Female	16	19.5	0.3
Male	66	80.5	1.5
<b>Age</b>			
0-24	0	0.0	0.0
25-44	8	9.8	0.3
45-64	34	41.5	1.7
65-84	37	45.1	3.4
≥ 85	3	3.7	1.7
<b>Race and ethnicity</b>			
Asian/Pacific Islander, non-Latino/a	32	39.0	2.3
Black, non-Latino/a	25	30.5	1.2
Latino/a	18	22.0	0.8
White, non-Latino/a	5	6.1	0.1
Other/Unknown	2	2.4	N/A

<sup>1</sup> Rates stratified by age group are presented as age-specific rates (in other words, no age adjusting within a presented age stratum was performed).

**Appendix 11:** Characteristics of people reported with chronic hepatitis C in NYC, 2020

Characteristics	People newly reported in 2020			All people reported 2017–2020, regardless of year of first report	
	Number	Percentage of each group	Rate per 100,000 people	Number	Percentage of each group
Overall	2,810	100.0	35.1	87,543	100.0
<b>Sex<sup>1</sup></b>					
Female	1,044	37.2	24.8	32,939	37.6
Male	1,742	62.1	45.7	54,469	62.2
Unknown	19	0.7	N/A	129	0.2
<b>Age at time of first report</b>					
0–2 <sup>2</sup>	N/A	N/A	N/A	40	0.1
3–19	46	1.6	2.9	826	0.9
20–29	340	12.1	26.7	7,102	8.1
30–39	645	23.0	48.3	15,044	17.2
40–49	485	17.3	46.5	24,956	28.5
50–59	501	17.8	48.5	24,894	28.4
60–69	489	17.4	55.7	10,892	12.4
≥ 70	304	10.8	34.5	3,789	4.3
<b>Birth cohort</b>					
1900–1944	159	5.7	31.1	6,610	7.6
1945–1965	906	32.2	51.2	53,048	60.6
1966–1983	941	33.5	49.1	20,663	23.6
1984–2017	804	28.6	21.1	7,222	8.2
<b>Borough of residence</b>					
Bronx <sup>3</sup>	639	22.7	47.1	23,135	26.4
Brooklyn	812	28.9	33.2	25,810	29.5
Manhattan	610	21.7	38.6	19,490	22.3
Queens	608	21.6	28.0	15,284	17.5
Staten Island	141	5.0	30.7	3,823	4.4
Unknown	0	0.0	0.0	1	0.0
<b>Neighborhood poverty level by ZIP code<sup>4</sup></b>					
Low (< 10% below poverty)	375	13.7	23.8	10,148	11.8
Medium (10 to < 20%)	1,084	39.5	32.1	30,345	35.3
High (20 to < 30%)	713	26.0	36.3	22,698	26.4
Very high (≥ 30%)	571	20.8	51.8	20,769	24.2
Unknown	4	0.1	N/A	1,934	2.3

<sup>1</sup> People reported as transgender are excluded, as gender identity is not consistently reported by all laboratories. In 2020, there were five people reported with a transgender identity.

<sup>2</sup> People newly reported in 2020 ages 0 to 2 years are classified using the 2018 CDC perinatal hepatitis C case definition and are reported in Appendix 13.

<sup>3</sup> The Bronx includes 42 people reported from Rikers Island facilities.

<sup>4</sup> Neighborhood poverty level data excludes people incarcerated at the time of first report. In 2019, there were 63 newly reported people incarcerated at the time of first report. In 2016–2019, there were 1,649 people incarcerated at time of their most recent report.

**Appendix 12:** Number and rate of people newly reported with chronic hepatitis C by NTA in NYC, 2020<sup>1</sup>

NTA name (code)	Number of cases	Rate per 100,000 people
Allerton-Pelham Gardens (BX31)	10	32.3
Annadale-Huguenot-Prince's Bay-Eltingville (SI01)	9	32.6
Arden Heights (SI48)	7	27.3
Astoria (QN70)	17	24.5
Auburndale (QN48)	3	15.2
Baisley Park (QN76)	15	41.3
Bath Beach (BK27)	11	34.5
Battery Park City-Lower Manhattan (MN25)	9	21.1
Bay Ridge (BK31)	25	32.8
Bayside-Bayside Hills (QN46)	7	17.0
Bedford (BK75)	12	17.0
Bedford Park-Fordham North (BX05)	24	44.5
Bellerose (QN43)	14	53.6
Belmont (BX06)	8	30.2
Bensonhurst East (BK29)	25	39.2
Bensonhurst West (BK28)	23	26.1
Borough Park (BK88)	16	17.1
Breezy Point-Belle Harbor-Rockaway Park-Broad Channel (QN10)	8	30.7
Briarwood-Jamaica Hills (QN35)	17	41.3
Brighton Beach (BK19)	36	108.1
Bronxdale (BX07)	21	55.1
Brooklyn Heights-Cobble Hill (BK09)	2	8.6
Brownsville (BK81)	19	40.5
Bushwick North (BK77)	7	13.5
Bushwick South (BK78)	28	41.6

NTA name (code)	Number of cases	Rate per 100,000 people
Cambria Heights (QN33)	3	14.4
Canarsie (BK50)	23	28.3
Carroll Gardens-Columbia Street-Red Hook (BK33)	1	2.4
Central Harlem North-Polo Grounds (MN03)	53	66.0
Central Harlem South (MN11)	9	18.9
Charleston-Richmond Valley-Tottenville (SI11)	11	48.9
Chinatown (MN27)	19	41.8
Claremont-Bathgate (BX01)	21	64.3
Clinton (MN15)	23	47.6
Clinton Hill (BK69)	9	24.7
Co-op City (BX13)	14	29.7
College Point (QN23)	4	17.3
Corona (QN25)	14	25.7
Crotona Park East (BX75)	15	71.9
Crown Heights North (BK61)	39	38.5
Crown Heights South (BK63)	10	26.7
Cypress Hills-City Line (BK83)	15	33.4
Douglas Manor-Douglaston-Little Neck (QN45)	1	4.1
DUMBO-Vinegar Hill-Downtown Brooklyn-Boerum Hill (BK38)	16	34.3
Dyker Heights (BK30)	10	23.6
East Concourse-Concourse Village (BX14)	30	48.9
East Elmhurst (QN27)	5	27.1
East Flatbush-Farragut (BK91)	10	20.3

<sup>1</sup> One hundred four people could not be assigned to an NTA based on their address at first report.

**Appendix 12:** Number and rate of people newly reported with chronic hepatitis C by NTA in NYC, 2020

NTA name (code)	Number of cases	Rate per 100,000 people
East Flushing (QN52)	3	12.1
East Harlem North (MN34)	39	66.1
East Harlem South (MN33)	22	38.6
East New York (BK82)	39	44.4
East New York (Pennsylvania Ave) (BK85)	11	42.5
East Tremont (BX17)	41	99.9
East Village (MN22)	20	49.1
East Williamsburg (BK90)	10	28.9
Eastchester-Edenwald-Baychester (BX03)	13	36.1
Elmhurst (QN29)	22	28.3
Elmhurst-Maspeth (QN50)	7	30.3
Erasmus (BK95)	10	37.6
Far Rockaway-Bayswater (QN15)	12	23.1
Flatbush (BK42)	49	49.3
Flatlands (BK58)	11	16.3
Flushing (QN22)	27	38.7
Fordham South (BX40)	19	73.7
Forest Hills (QN17)	12	14.4
Fort Greene (BK68)	14	41.6
Fresh Meadows-Utopia (QN41)	3	17.0
Ft. Totten-Bay Terrace-Clearview (QN47)	6	27.5
Georgetown-Marine Park-Bergen Beach-Mill Basin (BK45)	8	17.5
Glen Oaks-Floral Park-New Hyde Park (QN44)	4	17.0
Glendale (QN19)	8	24.4
Gramercy (MN21)	9	34.4
Grasmere-Arrochar-Ft. Wadsworth (SI14)	8	49.8
Gravesend (BK26)	8	27.5
Great Kills (SI54)	3	7.4

NTA name (code)	Number of cases	Rate per 100,000 people
Greenpoint (BK76)	7	20.0
Grymes Hill-Clifton-Fox Hills (SI08)	9	42.1
Hamilton Heights (MN04)	29	58.6
Hammels-Arverne-Edgemere (QN12)	16	42.0
Highbridge (BX26)	22	60.4
Hollis (QN07)	4	19.6
Homecrest (BK25)	18	42.4
Hudson Yards-Chelsea-Flatiron-Union Square (MN13)	38	51.3
Hunters Point-Sunnyside-West Maspeth (QN31)	11	15.4
Hunts Point (BX27)	16	65.1
Jackson Heights (QN28)	20	21.3
Jamaica (QN61)	31	61.4
Jamaica Estates-Holliswood (QN06)	3	11.7
Kensington-Ocean Parkway (BK41)	8	23.8
Kew Gardens (QN60)	5	23.1
Kew Gardens Hills (QN37)	10	29.1
Kingsbridge Heights (BX30)	7	22.9
Laurelton (QN66)	8	31.0
Lenox Hill-Roosevelt Island (MN31)	11	13.7
Lincoln Square (MN14)	9	14.6
Lindenwood-Howard Beach (QN57)	9	32.8
Longwood (BX33)	9	34.5
Lower East Side (MN28)	21	30.9
Madison (BK44)	11	27.9
Manhattanville (MN06)	13	58.6
Marble Hill-Inwood (MN01)	19	38.0

**Appendix 12:** Number and rate of people newly reported with chronic hepatitis C by NTA in NYC, 2020

NTA name (code)	Number of cases	Rate per 100,000 people
Mariner's Harbor-Arlington-Port Ivory-Graniteville (SI12)	5	16.1
Maspeth (QN30)	5	16.9
Melrose South-Mott Haven North (BX34)	27	67.5
Middle Village (QN21)	5	13.3
Midtown-Midtown South (MN17)	23	84.7
Midwood (BK43)	18	34.8
Morningside Heights (MN09)	10	19.8
Morrisania-Melrose (BX35)	24	63.2
Mott Haven-Port Morris (BX39)	28	55.0
Mount Hope (BX41)	34	68.5
Murray Hill (QN51)	14	28.6
Murray Hill-Kips Bay (MN20)	38	82.8
New Brighton-Silver Lake (SI35)	9	54.5
New Dorp-Midland Beach (SI45)	4	19.9
New Springville-Bloomfield-Travis (SI05)	5	11.9
North Corona (QN26)	11	22.8
North Riverdale-Fieldston-Riverdale (BX22)	3	11.5
North Side-South Side (BK73)	17	31.6
Norwood (BX43)	10	25.1
Oakland Gardens (QN42)	8	27.6
Oakwood-Oakwood Beach (SI25)	5	25.2
Ocean Hill (BK79)	18	55.6
Ocean Parkway South (BK46)	2	10.5
Old Astoria (QN71)	5	21.8

NTA name (code)	Number of cases	Rate per 100,000 people
Old Town-Dongan Hills-South Beach (SI36)	8	32.2
Ozone Park (QN56)	11	48.8
Park Slope-Gowanus (BK37)	14	19.6
Parkchester (BX46)	9	30.4
Pelham Bay-Country Club-City Island (BX10)	6	23.6
Pelham Parkway (BX49)	15	54.5
Pomonok-Flushing Heights-Hillcrest (QN38)	9	25.9
Port Richmond (SI28)	3	15.8
Prospect Heights (BK64)	8	39.3
Prospect Lefferts Gardens-Wingate (BK60)	20	30.6
Queens Village (QN34)	16	31.1
Queensboro Hill (QN62)	9	46.0
Queensbridge-Ravenswood-Long Island City (QN68)	10	51.3
Rego Park (QN18)	9	33.7
Richmond Hill (QN54)	21	35.0
Ridgewood (QN20)	13	18.9
Rikers Island (BX98)	43	302.8
Rosedale (QN05)	6	24.7
Rossville-Woodrow (SI32)	9	43.5
Rugby-Renssen Village (BK96)	18	35.1
Schuylerville-Throgs Neck-Edgewater Park (BX52)	10	22.8
Seagate-Coney Island (BK21)	11	36.2

**Appendix 12:** Number and rate of people newly reported with chronic hepatitis C by NTA in NYC, 2020

NTA name (code)	Number of cases	Rate per 100,000 people
Sheepshead Bay-Gerritsen Beach-Manhattan Beach (BK17)	30	47.2
SoHo-TriBeCa-Civic Center-Little Italy (MN24)	6	14.6
Soundview-Bruckner (BX55)	12	33.9
Soundview-Castle Hill-Clason Point-Harding Park (BX09)	17	32.2
South Jamaica (QN01)	12	29.9
South Ozone Park (QN55)	23	29.7
Springfield Gardens North (QN02)	10	37.4
Springfield Gardens South-Brookville (QN03)	6	29.0
Spuyten Duyvil-Kingsbridge (BX29)	6	20.0
St. Albans (QN08)	18	35.6
Stapleton-Rosebank (SI37)	17	68.0
Starrett City (BK93)	1	7.9
Steinway (QN72)	16	35.8
Stuyvesant Heights (BK35)	20	31.4
Stuyvesant Town-Cooper Village (MN50)	2	8.5
Sunset Park East (BK34)	21	33.4
Sunset Park West (BK32)	30	58.5
Todt Hill-Emerson Hill-Heartland Village-Lighthouse Hill (SI24)	9	27.8
Turtle Bay-East Midtown (MN19)	7	13.9
University Heights-Morris Heights (BX36)	20	38.0

NTA name (code)	Number of cases	Rate per 100,000 people
Upper East Side-Carnegie Hill (MN40)	7	12.2
Upper West Side (MN12)	26	19.9
Van Cortlandt Village (BX28)	15	31.0
Van Nest-Morris Park-Westchester Square (BX37)	11	40.5
Washington Heights North (MN35)	26	37.3
Washington Heights South (MN36)	24	27.0
West Brighton (BK23)	10	59.9
West Concourse (BX63)	17	47.8
West Farms-Bronx River (BX08)	12	35.2
West New Brighton-New Brighton-St. George (SI22)	13	41.6
West Village (MN23)	11	16.9
Westchester-Unionport (BX59)	4	14.7
Westerleigh (SI07)	5	21.2
Whitestone (QN49)	7	23.0
Williamsbridge-Olinville (BX44)	19	30.3
Williamsburg (BK72)	1	3.3
Windsor Terrace (BK40)	4	18.2
Woodhaven (QN53)	12	21.3
Woodlawn-Wakefield (BX62)	9	21.6
Woodside (QN63)	10	24.1
Yorkville (MN32)	10	13.0



**Appendix 13:** Characteristics of children ages 0 to 36 months newly reported with hepatitis C in NYC, 2020

Characteristics	Number	Percentage of each group
Overall	6	100.0
<b>Hepatitis C test results</b>		
Confirmed <sup>1</sup>	1	16.7
Exposed (infection status unknown) <sup>2</sup>	1	16.7
Not currently infected <sup>3</sup>	4	66.7
<b>Reason child was tested for hepatitis C<sup>4</sup></b>		
Birth parent known to have hepatitis C	3	50.0
Birth parent's current or past injection drug use	2	33.3
Other reason	1	16.7
Unknown	2	33.3
<b>Sex</b>		
Female	3	50.0
Male	3	50.0
<b>Race and ethnicity</b>		
Asian, non-Latino/a	0	0.0
Black, non-Latino/a	0	0.0
Latino/a	1	16.7
Multi-race	0	0.0
White, non-Latino/a	1	16.7
Other	1	16.7
Unknown	3	50.0
<b>Borough of residence</b>		
Bronx	1	16.7
Brooklyn	2	33.3
Manhattan	1	16.7
Queens	1	16.7
Staten Island	1	16.7
<b>Other characteristics<sup>5</sup></b>		
Birth parent previously reported to Health Department with hepatitis C	5	83.3
Child lives with biological birth parent	2	33.3

<sup>1</sup> RNA positive between ages 2 to 36 months

<sup>2</sup> Antibody positive between ages 0 to 36 months or RNA positive between ages 0 to 2 months

<sup>3</sup> RNA negative between ages 2 to 36 months or antibody negative between ages 18 to 36 months

<sup>4</sup> Not mutually exclusive

<sup>5</sup> Unknown for two children

**Appendix 14:** Characteristics of people ages 18 to 34 newly reported with chronic hepatitis C in 2020 interviewed through enhanced surveillance (n=290)

Characteristics	Number	Percentage of each group
<b>Interviewed</b>		
Patient interview	163	56.0
Provider interview	221	76.2
<b>Demographic information</b>		
<b>Gender identity</b>		
Men	196	67.6
Women	87	30.0
Transgender women	5	1.7
Transgender men	0	0.0
Unknown	2	0.7
<b>Borough of residence</b>		
Bronx	52	17.9
Brooklyn	82	28.3
Manhattan	75	25.9
Queens	60	20.7
Staten Island	21	7.2
<b>Race and ethnicity</b>		
Asian, non-Latino/a	18	6.2
Black, non-Latino/a	67	23.1
Latino/a	53	18.3
Native American or Alaska Native, non-Latino/a	1	0.3
White, non-Latino/a	103	35.5
Other	13	4.5
Unknown	35	12.1
<b>Place of birth</b>		
U.S.	115	39.7
Outside of the U.S.	51	17.6
Unknown	124	42.8

Characteristics	Number	Percentage of each group
<b>Country of birth</b>		
Venezuela	5	10
China	4	8
Ukraine	4	8
India	3	6
Jamaica	3	6
Russia	3	6
Dominican Republic	2	4
Georgia	2	4
Pakistan	2	4
Armenia	1	2
Bangladesh	1	2
Colombia	1	2
Egypt	1	2
France	1	2
Ghana	1	2
Guatemala	1	2
Guyana	1	2
Moldova	1	2
Morocco	1	2
Nepal	1	2
Panama	1	2
Russia	1	2
Uzbekistan	1	2
Yemen	1	2
Other	1	2
Unknown	7	13.7
<b>Access to care</b>		
<b>Insurance status</b>		
Insured	237	81.7
Not insured	13	4.5
Unknown	20	6.9
Missing	20	6.9
<b>Referrals</b>		
Referred to a linkage to care specialist	50	30.7
Referred to harm reduction services	8	4.9

**Appendix 14:** Characteristics of people ages 18 to 34 newly reported with chronic hepatitis C in 2020 interviewed through enhanced surveillance (n=290) (continued)

Characteristics	Number	Percentage of each group
Hepatitis A and B vaccination (provider question)		
Hepatitis A	9	4.1
Hepatitis B	21	9.5
Hepatitis A and B	28	12.7
Not vaccinated against either	31	14.0
Unknown	132	59.7
Clinical assessment		
Why patient tested for hepatitis C <sup>1</sup>		
Risk factors	72	32.6
Routine screening	62	28.1
Drug or alcohol treatment	54	24.4
Elevated LFTs	21	9.5
Jaundice	16	7.2
Previously tested for hepatitis C	9	4.1
Symptoms or signs	7	3.2
Incarceration	5	2.3
Dialysis	4	1.8
Other	76	34.4
Currently being treated for hepatitis C		
Yes	60	20.7
No	153	52.8
Unknown	77	26.6
Did patient achieve cure?		
Yes	6	10.0
In progress	40	66.7
No	6	10.0
Unknown	8	13.3

Characteristics	Number	Percentage of each group
Risk factors <sup>1</sup>		
IDU	125	43.1
MSM	77	39.3 <sup>2</sup>
Intranasal drug use	76	26.2
Contact with a household member with hepatitis C	45	15.5
HIV infection	45	15.5
History of homelessness	44	15.2
Medical procedure involving injections, anesthesia, or blood	40	13.8
Hospitalized	33	11.4
Dental work or oral surgery	32	11.0
Non-professional tattoo or body piercing	26	9.0
Long term care facility	20	6.9
Transfusion or transplant before 1992, or outside of the U.S.	8	2.8
Biological birthing parent with hepatitis C	7	2.4
Contact with blood through work	6	2.1
History of incarceration	5	1.7
Received dialysis	4	1.4
IDU		
Patient self-reported IDU	56	34.4
Self-reported IDU		
Ever shared needles	31	55.4
Ever shared drug supplies	28	50.0

<sup>1</sup> Not mutually exclusive

<sup>2</sup> 39.3% of men interviewed reported as MSM.

**Appendix 15:** Definitions of hepatitis C care cascade categories

- **Ever reported with chronic hepatitis C:** Ever reported with a positive enzyme immunoassay (EIA), recombinant immunoblot assay (RIBA), ribonucleic acid (RNA) or genotype test
- **Recent hepatitis C test:** A hepatitis C EIA, RNA or genotype test of any result reported between July 1, 2014, and June 30, 2020
- **Positive hepatitis C RNA test:** Ever reported with a positive RNA test
- **Initiated treatment:** A reported negative test in 2014 or later preceded at any time by a positive RNA test with viral load  $\geq 1000$  IU/mL
- **Cured:** From the date of the first identified negative, indeterminate (positive, below the limit of detection), or low positive RNA (viral load  $< 1000$  IU/mL) following the most recently reported high positive (viral load  $\geq 1000$  IU/mL) RNA:
  - At least one additional negative RNA result performed at least four months later
  - No subsequent high positive RNA results
  - Most recent RNA test result is negative

Pre-direct acting antiviral (DAA) medication treatment and cure rates are not included in the cascade. Estimates are based on people with any hepatitis test performed since July 1, 2014, when negative RNA reporting was implemented in NYC.

People reported as antibody positive, but with only negative RNA results, are excluded from the cascade.

For information about how the hepatitis C care cascade was developed, read Public Health Reports’ “A Surveillance-Based Hepatitis C Care Cascade, New York City, 2017” by Miranda Moore, Angelica Bocour, Fabienne Laraqe and Ann Winters.

**Appendix 16:** RNA and genotype test results of people newly reported with chronic hepatitis C in NYC, 2020

Characteristics	Number	Percentage of each group
All new reports of hepatitis C	7,849	100.0
Any RNA test performed <sup>1</sup>	6,819	86.9
<b>Case definition</b>		
Not currently infected: antibody positive, RNA negative only	5,039	64.2
Probable: antibody positive only	1,030	13.1
Confirmed: antibody positive, RNA positive or genotype tested <sup>2</sup>	1,780	22.7
<b>Genotype test performed<sup>3</sup></b>		
Yes	909	51.1
No	871	48.9
<b>Genotype<sup>4</sup></b>		
1a	456	50.2
1b	132	14.5
1 unspecified, 1 other, or 1a/1b	58	6.4
2	90	9.9
3	135	14.9
4	23	2.5
6	12	1.3
Mixed	3	0.3

<sup>1</sup> Based on the Health Department's hepatitis C surveillance data as of March 31, 2021. Reporting of negative RNA test results to the Health Department was mandated on July 21, 2014.

<sup>2</sup> Twenty-four people only had a genotype result and no RNA positive result.

<sup>3</sup> Genotype data are presented for patients who had a positive RNA or genotype test reported (n=1780).

<sup>4</sup> Percentage calculated out of those with a genotype test (n=909).

**Appendix 17:** Characteristics of decedents where hepatitis C is listed as the underlying cause or contributing cause of death, NYC, 2019

Characteristics	Number	Percentage of each group	Age-adjusted rate per 100,000 people <sup>1</sup>
Overall	282	100.0	2.9
<b>Sex</b>			
Female	92	32.6	1.7
Male	190	67.4	4.5
<b>Age</b>			
0-24	0	0.0	0.0
25-44	6	2.1	0.2
45-64	129	45.7	6.4
65-84	138	48.9	12.5
≥ 85	9	3.2	5.0
<b>Race and ethnicity</b>			
Asian/Pacific Islander, non-Latino/a	9	3.2	0.6
Black, non-Latino/a	85	30.1	3.9
Latino/a	110	39.0	4.6
White, non-Latino/a	69	24.5	2.1
Other/Unknown	9	3.2	N/A

<sup>1</sup> Rates stratified by age group are presented as age-specific rates (in other words, no age adjusting within a presented age stratum was performed).

**Appendix 18:** Characteristics of people reported with hepatitis C and HIV coinfection in NYC by end of 2019

Characteristics	Total		Initiated treatment by end of 2019 <sup>3</sup>		Had not initiated treatment by end of 2019	
	Number	Percentage (column)	Number	Percentage (row)	Number	Percentage (row)
Overall	10,139	100.0	7,708	76.0	2,431	24.0
<b>Gender identity</b>						
Male	7,515	74.1	5,710	76.0	1,805	24.0
Female	2,442	24.1	1,871	76.6	571	23.4
Transgender	182	1.8	127	69.8	55	30.2
<b>Age</b>						
0–19	3	0.0	2	66.7	1	33.3
20–29	168	1.7	76	45.2	92	54.8
30–39	776	7.7	458	59.0	318	41.0
40–49	1,211	11.9	852	70.4	359	29.6
50–59	3,341	33.0	2,550	76.3	791	23.7
60–69	3,808	37.6	3,115	81.8	693	18.2
≥ 70	832	8.2	655	78.7	177	21.3
<b>Current borough of residence</b>						
Bronx	3,721	36.7	2,866	77.0	855	23.0
Brooklyn	2,505	24.7	1,934	77.2	571	22.8
Manhattan	2,421	23.9	1,791	74.0	630	26.0
Queens	1,204	11.9	889	73.8	315	26.2
Staten Island	288	2.8	228	79.2	60	20.8
<b>Neighborhood poverty level by ZIP code<sup>4</sup></b>						
Low (< 10% below poverty)	693	6.8	538	77.6	155	22.4
Medium (10 to < 20%)	3,166	31.2	2,402	75.9	764	24.1
High (20 to < 30%)	2,723	26.9	2,120	77.9	603	22.1
Very high (≥ 30%)	3,528	34.8	2,632	74.6	896	25.4
Unknown	29	0.3	16	55.2	13	44.8
<b>Race and ethnicity</b>						
Asian/Pacific Islander, non-Latino/a	141	1.4	96	68.1	45	31.9
Black, non-Latino/a	4,131	40.7	3,042	73.6	1,089	26.4
Latino/a	4,275	42.2	3,312	77.5	963	22.5
White, non-Latino/a	1,548	15.3	1,226	79.2	322	20.8
Other	38	0.4	29	76.3	9	23.7
Unknown	6	0.1	3	50.0	3	50.0



**Appendix 18:** Characteristics of people reported with hepatitis C and HIV coinfection in NYC by end of 2019 (continued)

Characteristics	Total		Initiated treatment by end of 2019 <sup>3</sup>		Had not initiated treatment by end of 2019	
	Number	Percentage (column)	Number	Percentage (row)	Number	Percentage (row)
<b>Birth cohort</b>						
Before 1945	283	2.8	203	71.7	80	28.3
1945–1965	6,988	68.9	5,607	80.2	1,381	19.8
1966–1983	2,379	23.5	1,648	69.3	731	30.7
1984–2018	489	4.8	250	51.1	239	48.9
<b>Years since HIV diagnosis</b>						
< 5	374	3.7	227	60.7	147	39.3
5–9	726	7.2	463	63.8	263	36.2
10–19	3,582	35.3	2,670	74.5	912	25.5
≥ 20	5,457	53.8	4,348	79.7	1,109	20.3
<b>HIV viral load &lt; 200 at most recent lab in 2019</b>						
Yes	7,593	74.9	6,316	83.2	1,277	16.8
No	1,394	13.7	826	59.3	568	40.7
Unknown (no viral loads in 2019)	1,152	11.4	566	49.1	586	50.9

<sup>1</sup> Individuals were diagnosed with HIV and hepatitis C and living as of December 31, 2019, with at least one HIV or hepatitis C lab reported since January 1, 2014. Individuals with a residential address outside of NYC were excluded, as the Health Department only receives hepatitis C lab results for NYC residents. Individuals were considered to have a history of confirmed hepatitis C infection if they had at least one positive hepatitis C RNA test reported prior to the end of 2019.

<sup>2</sup> Demographic characteristics and HIV clinical characteristics were obtained from the NYC HIV surveillance registry. Ryan White Part A service data was obtained from eSHARE. Hepatitis C outcomes were obtained from the NYC hepatitis C surveillance registry.

<sup>3</sup> Individuals were considered to have initiated hepatitis C treatment if they had at least one negative hepatitis C RNA result reported after a positive RNA result prior to the end of 2019.

<sup>4</sup> Based on ZIP code at most recent report

**Appendix 19:** Number of hepatitis A and B vaccines provided by Health Department facilities, 2020

Vaccine	Total hepatitis vaccine doses	Completed hepatitis vaccine series
<b>Immunization clinics</b>		
Hepatitis A only, ages 4 to 18	1,045	290
Hepatitis A only, ages 19 and older	68	44
Hepatitis B only, ages 4 to 18	905	328
Hepatitis B only, ages 19 and older	1,021	251
<b>Sexual health clinics</b>		
Hepatitis A only	226	80
Hepatitis B only	499	84
Hepatitis A/B combination	725	164

<sup>1</sup> Total of hepatitis A and hepatitis B vaccine doses

<sup>2</sup> Total number of individuals who completed either hepatitis A or hepatitis B vaccine series in 2020

**Appendix 20:** Number of hepatitis A and B vaccines provided by NYC providers, 2020

Vaccine	Total hepatitis vaccine doses	Completed hepatitis vaccine series
Hepatitis A only, ages 0 to 18	188,285	93,838
Hepatitis A only, ages 19 and older	6,536	2,106
Hepatitis B only, ages 0 to 18	203,085	51,173
Hepatitis B only, ages 19 and older	45,451	6,287

