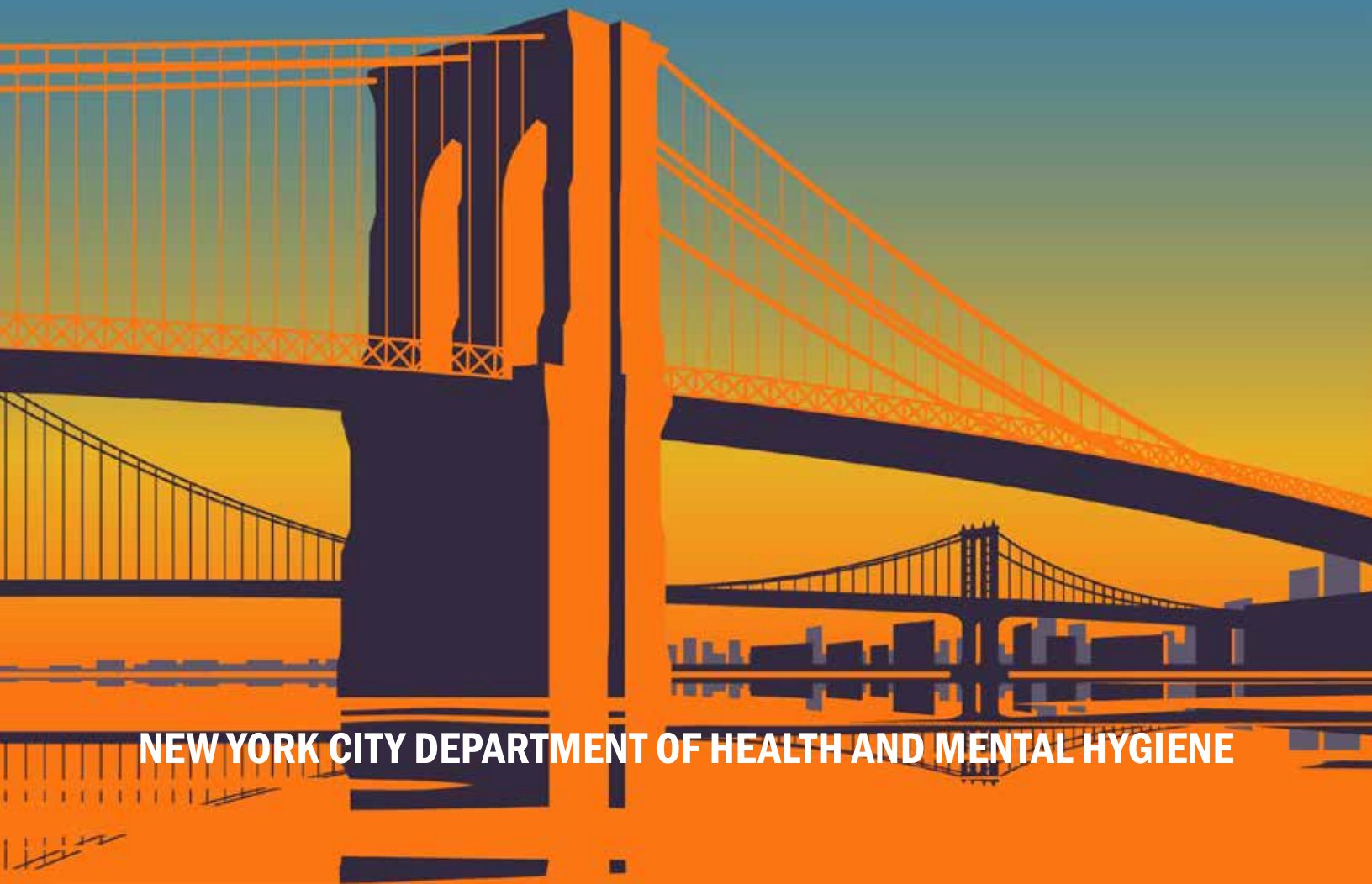
WORKING TOWARD A

HEP FREE NYC

HEPATITIS A, B AND C IN NEW YORK CITY: 2017 ANNUAL REPORT



NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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›› For questions or comments about this report, contact hep@health.nyc.gov.

SUMMARY

The New York City Department of Health and Mental Hygiene is a committed partner in global, national and statewide efforts to eliminate viral hepatitis by 2030. All New Yorkers living with viral hepatitis should know their diagnosis and should receive care to manage or cure their disease.

POPULATION ESTIMATES

100,000 people estimated to be currently diagnosed with chronic hepatitis B (2008 data)

116,000 people currently estimated to have chronic hepatitis C (diagnosed and undiagnosed), (2015 data)

PREVENTION AND SCREENING

99% of the 1,539 infants who were born in 2016 to women with chronic hepatitis B received post-exposure prophylaxis

16,269 people used syringe exchange services

18,492 doses of hepatitis A, B or A/B combined vaccines were administered at Health Department clinics

PATIENT NAVIGATION AND CARE COORDINATION

10,036 people were served by Health Department community hepatitis navigation programs

2,775 people were enrolled in Project INSPIRE hepatitis C care coordination

CLINICAL CAPACITY BUILDING

1,244 clinical providers were trained in hepatitis B and C care and treatment

60 clinical providers participated in the Hepatitis C Clinical Exchange Network

SURVEILLANCE

In 2017:

135 people were reported with hepatitis A

7,204 people were newly reported with chronic hepatitis B

5,308 people were newly reported with chronic hepatitis C

4,436 people were living with HIV and current hepatitis C infection

COMMUNITY ENGAGEMENT AND POLICY

644 participants attended Hep Free NYC meetings

130 organizations signed the Consensus Statement on Hepatitis C Elimination in New York State

SURVEILLANCE

Each year, the Health Department monitors the number of people with newly reported hepatitis A, B and C infections in New York City (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 surveillance technical notes in Appendix 1.

HEPATITIS A

135 Number of people reported with hepatitis A in 2017*

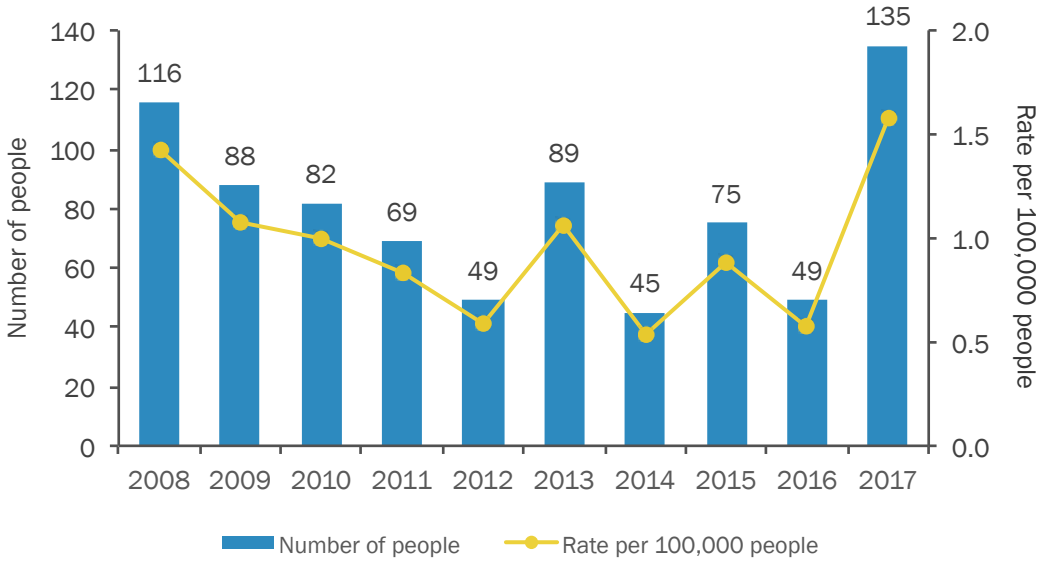
176% Percentage increase from 2016 to 2017

1.6 Rate per 100,000 people in 2017

From 2008 through 2012, with the availability of hepatitis A vaccine and universal childhood vaccine recommendations, the number of hepatitis A infections declined in NYC. Subsequent increases in hepatitis A in NYC were related to food handlers (2013) or local clusters associated with restaurants and social networks (2015). The increase in 2017 was largely driven by an outbreak among men who have sex with men (MSM).

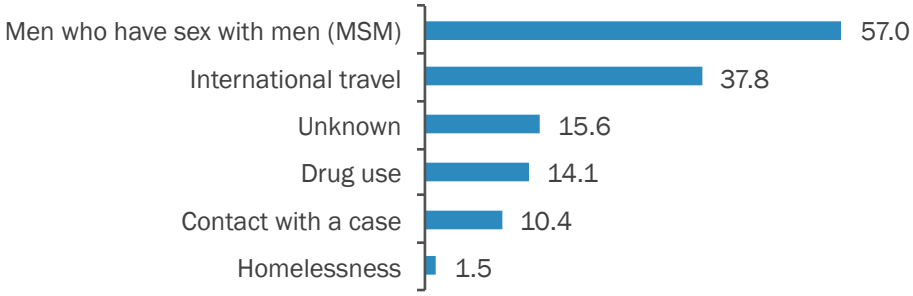
» For more information, review the CDC MMWR: http://dx.doi.org/10.15585/mmwr.mm6637a7.

FIGURE 1. Number of people with hepatitis A* in New York City, 2008–2017



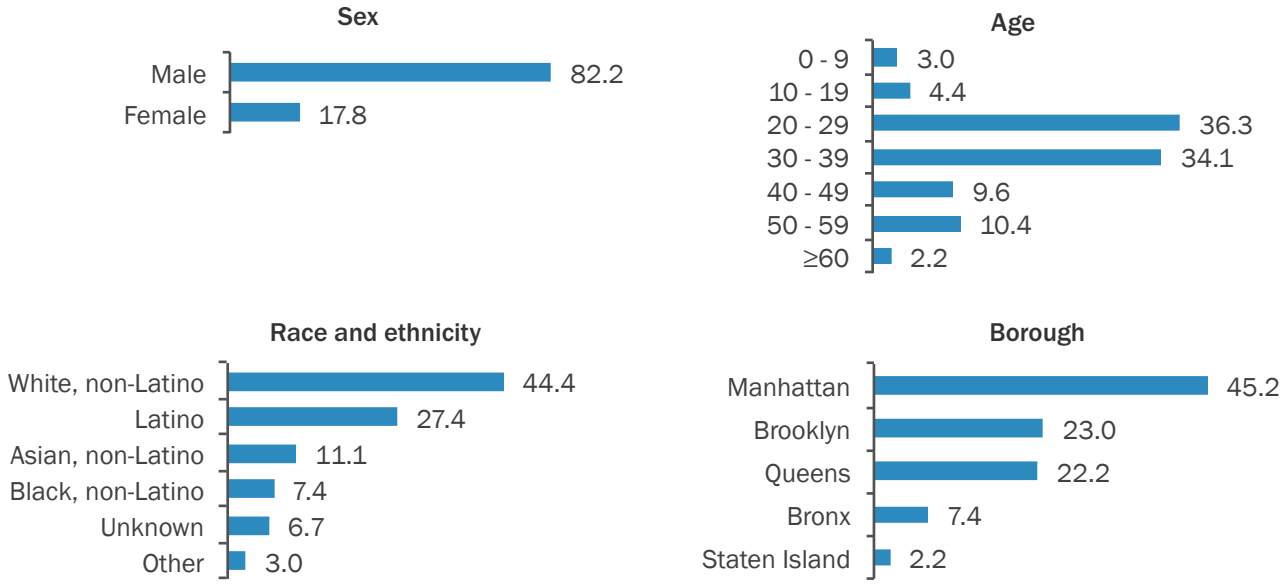
* Case definition for acute hepatitis A: discrete onset of symptoms consistent with hepatitis A infection, positive anti-hepatitis A virus IgM and either jaundice or elevated serum alanine aminotransferase levels

FIGURE 2. Percentage of people with hepatitis A in New York City by reported risk factors,[1] 2017



Characteristics of People Reported With Hepatitis A

FIGURE 3. Percentage of people with hepatitis A in New York City by sex, age, race and ethnicity, and borough, 2017



›› For full data, see Appendix 3.

HEALTH DEPARTMENT RECOMMENDATION

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

- Men who have sex with men (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 who work with hepatitis A virus in a laboratory
- People who live or go to school in a place with a high rate of hepatitis A

[1] Not mutually exclusive

ACUTE HEPATITIS B

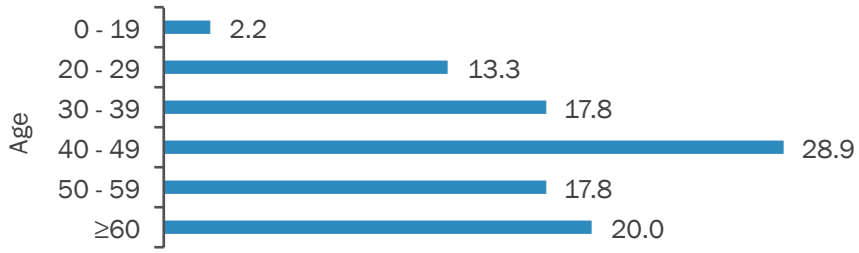
45 Number of people reported with acute hepatitis B in 2017

0.5 Rate per 100,000 people in 2017

Monitoring acute hepatitis B infections helps the Health Department determine where new infections occur, who is affected and how to implement effective prevention activities.

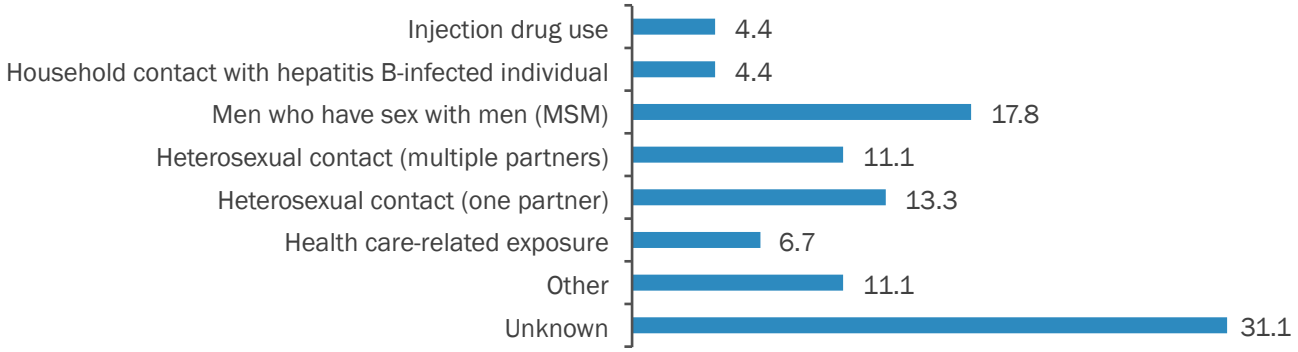
For information on how providers can report acute hepatitis B cases, see Appendix 2.

FIGURE 4. Percentage of people reported with acute hepatitis B in New York City by age, 2017



In 2017, no children younger than 18 years old were reported with acute hepatitis B infection because of effective vaccination and perinatal prevention policies and programs. Sexual transmission was the most common reported risk factor for acute hepatitis B infection.

FIGURE 5. Percentage of people reported with acute hepatitis B infection in New York City, by reported risk factors,[2] 2017



For full data, see Appendix 4.

HEALTH DEPARTMENT RECOMMENDATION

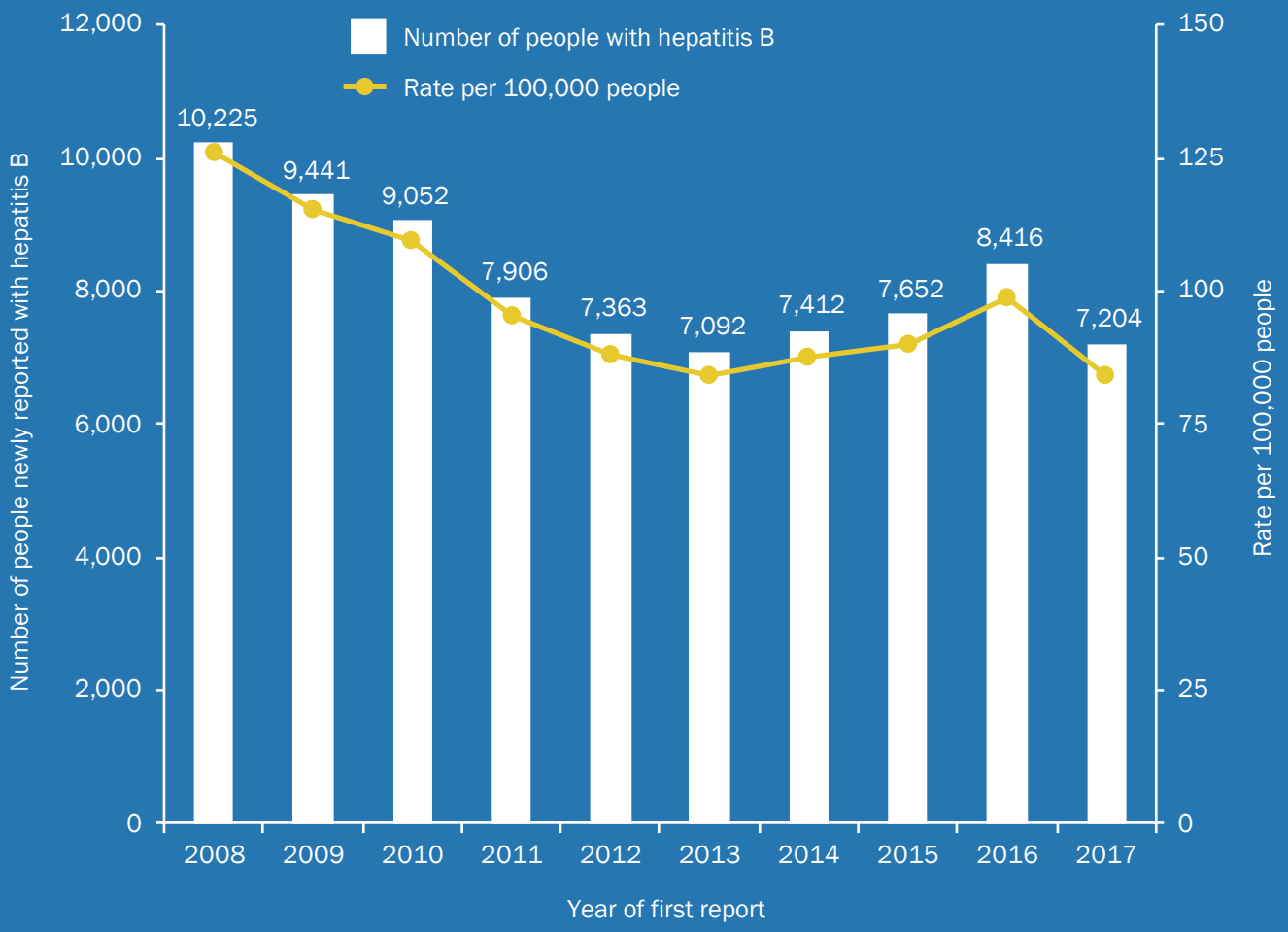
Clinicians should offer the hepatitis B vaccine to sexual partners of people infected with hepatitis B, MSM, people with multiple sex partners and as recommended by the Advisory Committee on Immunization Practices. For more information, visit cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm.

[2] 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. The risk factors are organized by highest to lowest risk from top to bottom.

CHRONIC HEPATITIS B

New reports of chronic hepatitis B declined from 2008 to 2013. Reports increased from 2014 to 2016. From 2016 to 2017, there was a 14.4% decrease in reported cases.

FIGURE 6. Number and rate of people newly reported with chronic hepatitis B in New York City by year of first report, 2008–2017



CHRONIC HEPATITIS B

91,578 Number of people reported with chronic hepatitis B during 2014–2017*

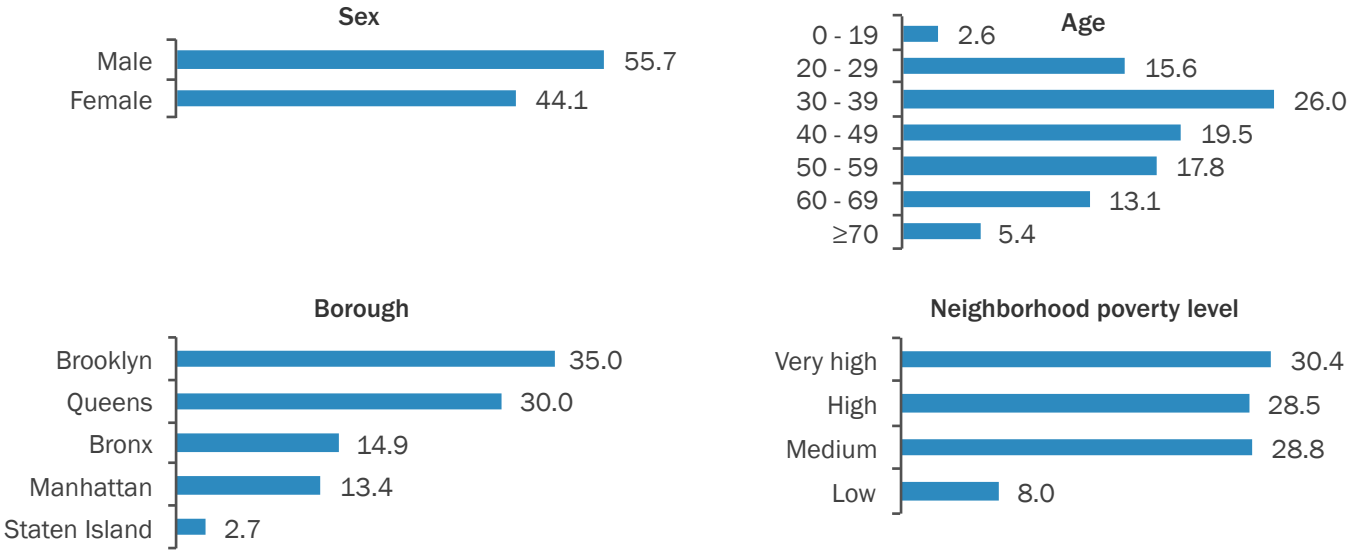
*Number of people reported with a hepatitis B test during 2014–2017, regardless of year of initial report, can serve as a proxy for all people currently living with and accessing care for hepatitis B in New York City

7,204 Number of people newly reported with chronic hepatitis B in 2017

84.4 Rate of newly reported chronic hepatitis B per 100,000 people in 2017

Characteristics of People Newly Reported With Chronic Hepatitis B

FIGURE 7. Percentage of people newly reported with hepatitis B in New York City by sex, age, borough and neighborhood poverty level, 2017

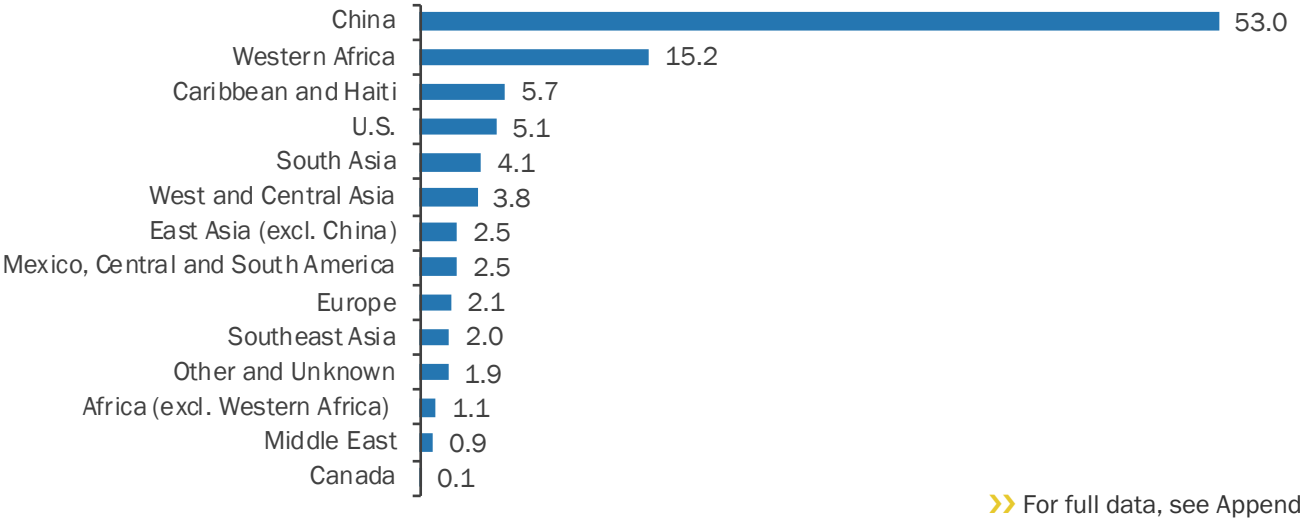


For full data, see Appendix 5.

Characteristics of Pregnant Women With Chronic Hepatitis B

Hepatitis B can be transmitted from mother to child during and after pregnancy. In 2017, 1,256 infants were born to women with hepatitis B; 95% of these women were born outside of the U.S.

FIGURE 8. Percentage of women with hepatitis B infection who delivered a live birth by mother's birthplace, 2017



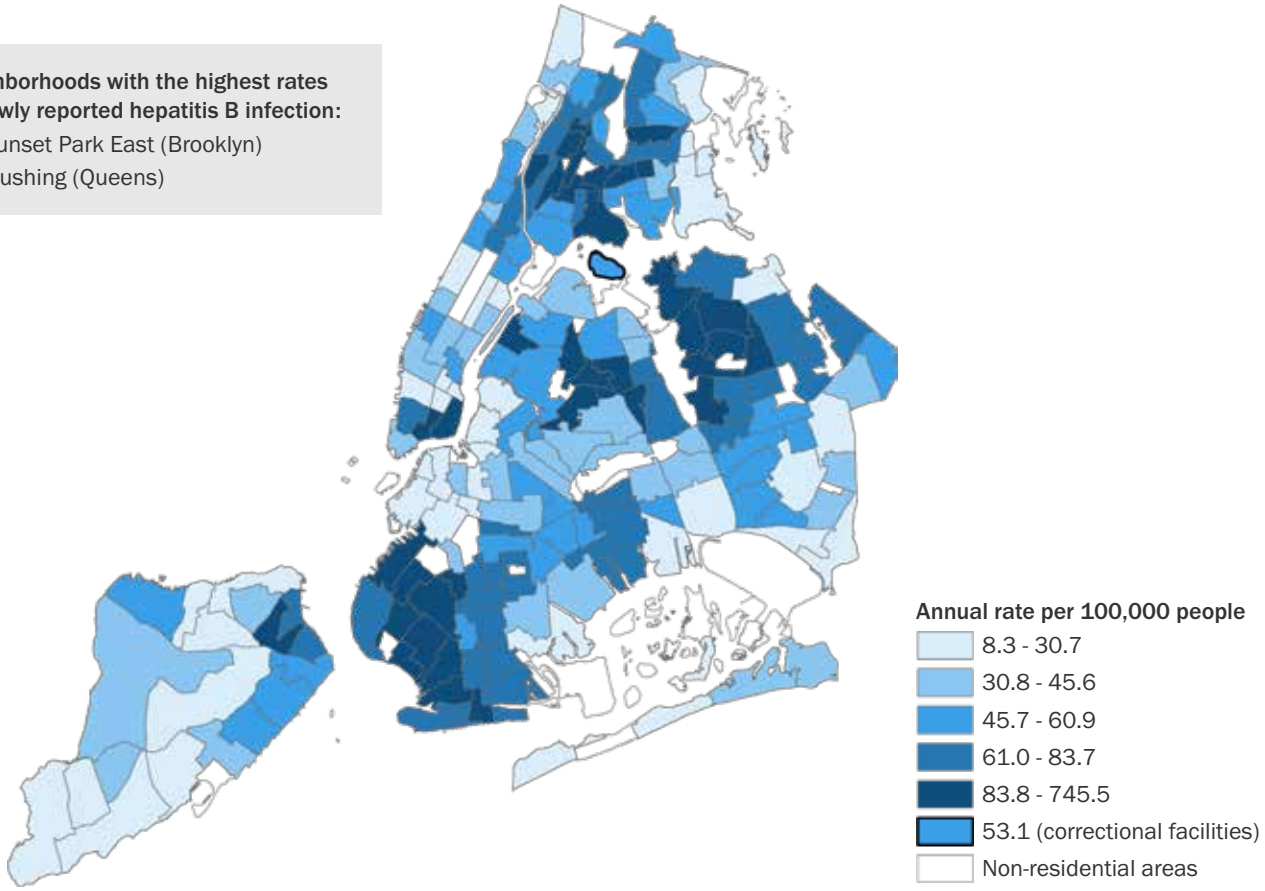
For full data, see Appendix 6.

CHRONIC HEPATITIS B: GEOGRAPHIC DISTRIBUTION

FIGURE 9. Rate of people newly reported with chronic hepatitis B in New York City by neighborhood tabulation area,[3] 2017

Neighborhoods with the highest rates of newly reported hepatitis B infection:

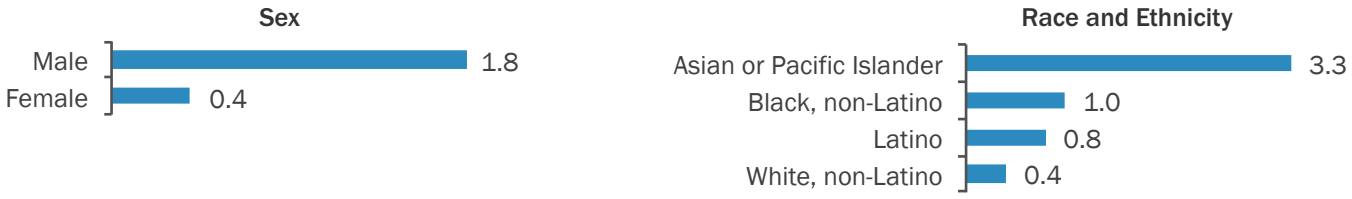
- Sunset Park East (Brooklyn)
- Flushing (Queens)



HEPATITIS B: DEATHS

99	Number of deaths in 2016	**+22.0%**	Percentage change from 2015	**1.1**	Rate per 100,000 people in 2016

FIGURE 10. Age-adjusted death rate per 100,000 people among New York City residents where hepatitis B is listed as the cause of death by sex and race and ethnicity, 2016



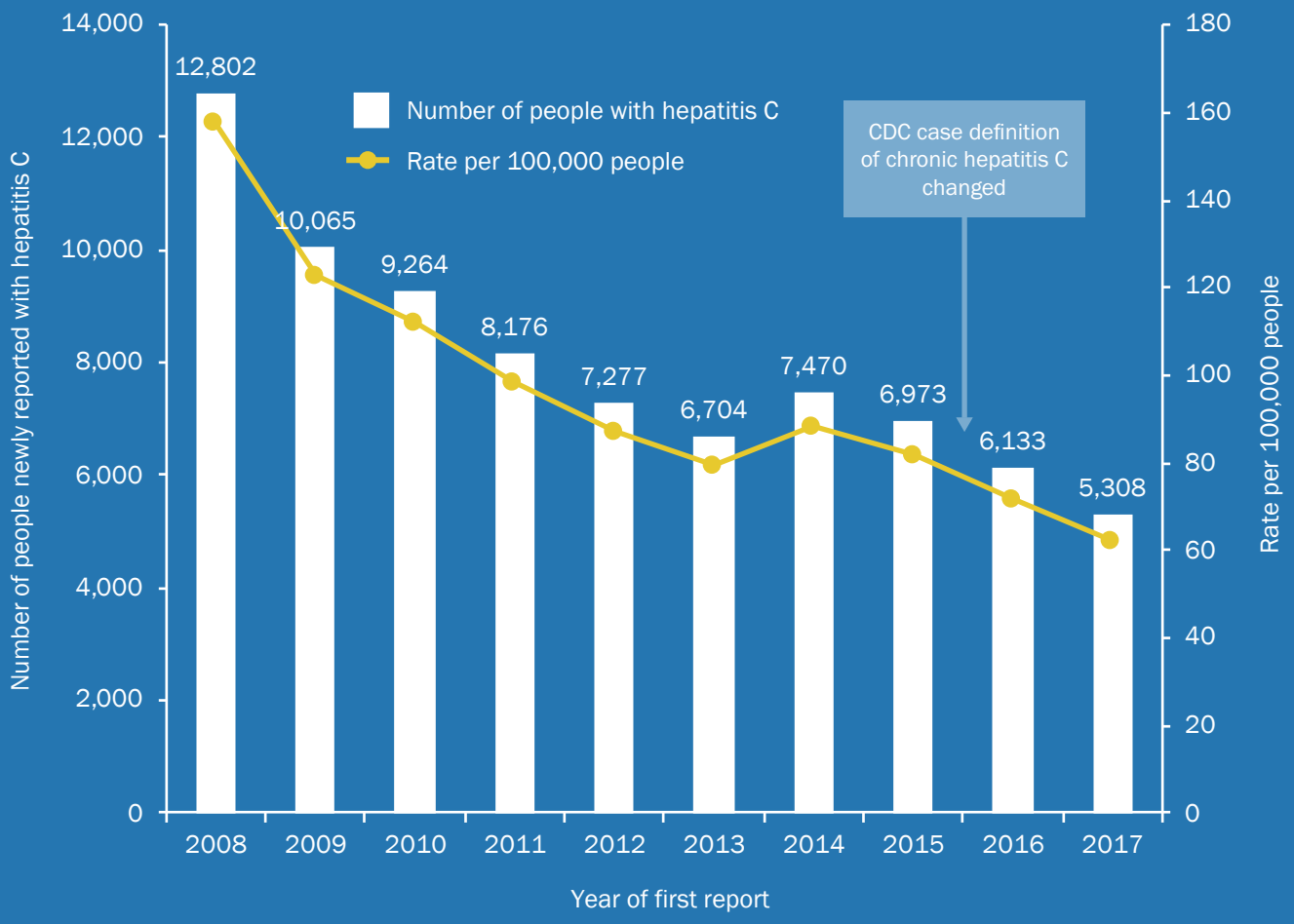
›› For full data, see Appendix 9.

[3] Neighborhood tabulation area could not be determined for 710 people (9.9%) with chronic hepatitis B based on their address at first report.

CHRONIC HEPATITIS C

Since 2008, newly reported cases of chronic hepatitis C have declined in NYC. From 2016 to 2017, there was a 13.5% decrease in reported cases.

FIGURE 11. Number and rate of people newly reported with chronic hepatitis C in New York City by year of first report, 2008–2017



Data notes: In 2016, the Centers for Disease Control and Prevention (CDC) changed the case definition for chronic hepatitis C. In response, the Health Department began requiring laboratories to report all positive hepatitis C antibody tests, regardless of signal-to-cutoff ratio, for New York City residents. The CDC's 2016 case definition of chronic hepatitis C can be found at cdc.gov/nndss/conditions/hepatitis-c-chronic/case-definition/2016. The CDC 2016 case definition is used for people first reported with chronic hepatitis C in NYC in 2016 and 2017. Prior years use the previous case definition for past or present hepatitis C infection. Visit cdc.gov/nndss/conditions/hepatitis-c-chronic/case-definition/2012/ for the previous case definition.

CHRONIC HEPATITIS C

99,178 Number of people reported with chronic hepatitis C during 2014–2017*

*Number of people reported with a hepatitis C test during 2014–2017, regardless of year of initial report, can serve as a proxy for all people currently living with and accessing care for hepatitis C in New York City

5,308 Number of people newly reported with chronic hepatitis C** in 2017

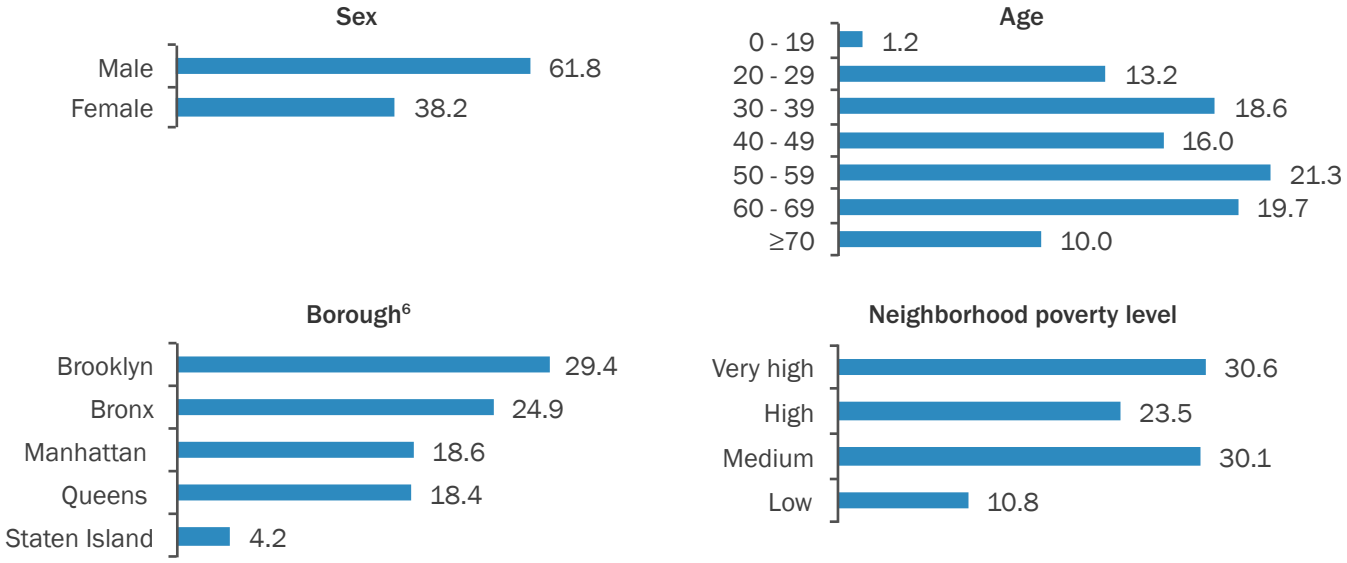
62.2 Rate of newly reported chronic hepatitis C per 100,000 people in 2017

**Number of people who meet the 2016 case definition for confirmed or probable chronic hepatitis C

In 2017, there were 5,308 people newly reported with a positive hepatitis C antibody result (RNA positive or RNA unknown), more than twice the number of new HIV diagnoses.[4] An additional 6,478 cases (55.0%) were antibody positive, RNA negative and therefore not currently infected.[5] The following data are for the 5,308 people with newly reported hepatitis C, RNA positive or RNA unknown.

Characteristics of People Newly Reported With Chronic Hepatitis C

FIGURE 12. Percentage of people newly reported with chronic hepatitis C in New York City by sex, age, borough and neighborhood poverty level, 2017



›› For full data, see Appendix 6.

HEALTH DEPARTMENT RECOMMENDATION

Providers should report acute hepatitis C cases to the Health Department. In 2017, the Health Department received few provider reports of acute hepatitis C cases, but estimates the actual number to be higher. Provider reporting of acute hepatitis C cases can inform effective prevention programs.

›› Providers can find more information on how to report acute hepatitis C cases in Appendix 2.

[4] HIV Surveillance Annual Report, 2016 (New York City Department of Health and Mental Hygiene: https://www1.nyc.gov/assets/doh/downloads/pdf/dires/hiv-surveillance-annualreport-2016.pdf

[5] Antibody positive/RNA negative tests suggest that people either naturally cleared the infection or were previously cured, or that the antibody result was a false positive.

[6] The Bronx includes people in Rikers Island jail facilities. In 2017, 204 people were reported with hepatitis C from Rikers Island.

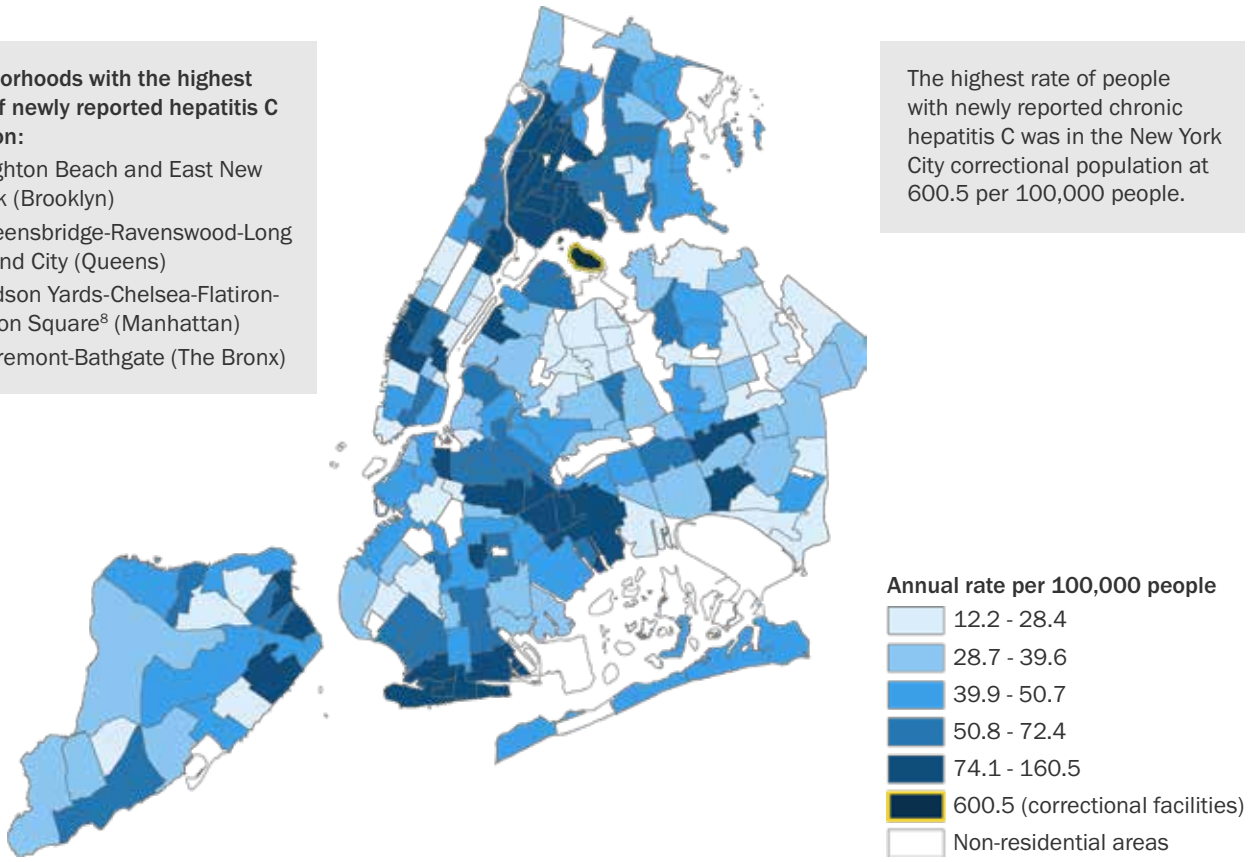
CHRONIC HEPATITIS C: GEOGRAPHIC DISTRIBUTION

FIGURE 13. Rate of people newly reported with chronic hepatitis C in New York City by neighborhood tabulation area,[7] 2017

Neighborhoods with the highest rates of newly reported hepatitis C infection:

- Brighton Beach and East New York (Brooklyn)
- Queensbridge-Ravenswood-Long Island City (Queens)
- Hudson Yards-Chelsea-Flatiron-Union Square[8] (Manhattan)
- Claremont-Bathgate (The Bronx)

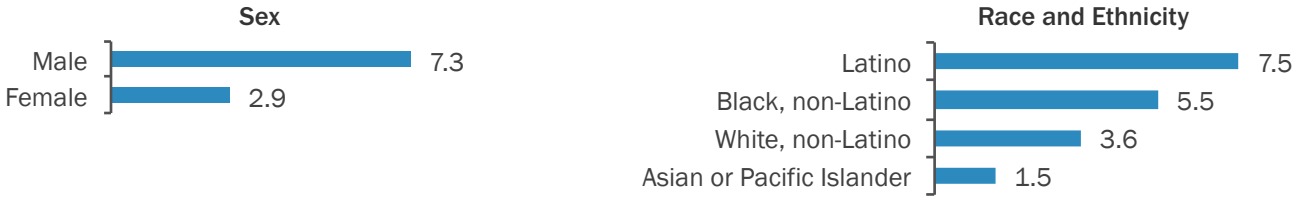
The highest rate of people with newly reported chronic hepatitis C was in the New York City correctional population at 600.5 per 100,000 people.



HEPATITIS C: DEATHS

454	-19.4%	4.9
Number of deaths in 2016	Percentage change from 2015	Rate per 100,000 people in 2016

FIGURE 14. Age-adjusted death rate per 100,000 deaths among New York City residents where hepatitis C is listed as the cause of death in 2016, by sex and race and ethnicity



›› For full data, see Appendix 10.

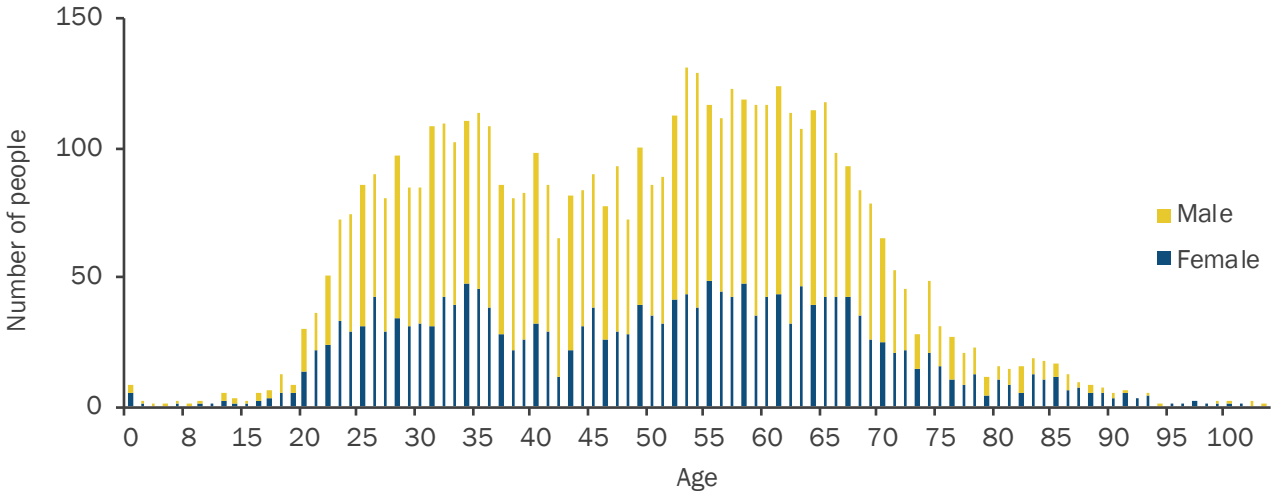
[7] Neighborhood tabulation area could not be determined for 608 people (11.5%) with chronic hepatitis C based on their address at first report.

[8] Many of the people reporting an address in this neighborhood use Manhattan's main post office address, which is often used by people without a permanent residence to receive mail.

CHRONIC HEPATITIS C: AGE DISTRIBUTION

In 2017, there was a distinct peak of hepatitis C cases among younger people in addition to baby boomers (people born between 1945 and 1965), whereas a decade ago there was one peak concentrated among baby boomers. Younger people have most likely been infected as a result of more recent injection drug use.

FIGURE 15. Age distribution of people reported with chronic hepatitis C in New York City, 2017



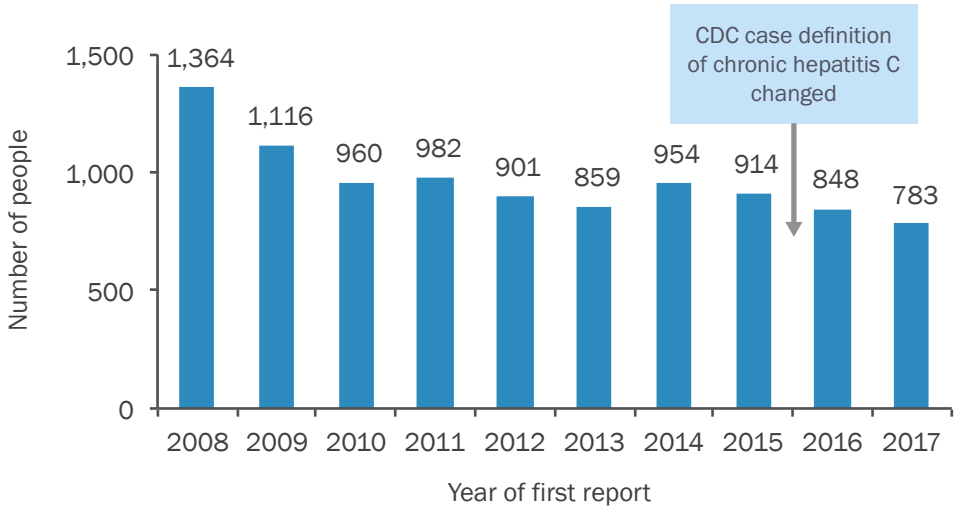
HEPATITIS C: WOMEN OF CHILDBEARING AGE

Nationally, an increasing number of women of childbearing age (ages 15 to 44) are becoming infected with hepatitis C. Hepatitis C can be transmitted to infants during birth. In New York City, the number of women of childbearing age with chronic hepatitis C has remained above 700 since 2010.

783 Number of women of childbearing age newly reported with hepatitis C infection in 2017

40.7 Rate per 100,000 people in 2017

FIGURE 16. Number of women of childbearing age reported with chronic hepatitis C in New York City by year of first report, 2008–2017



HEPATITIS C: PEOPLE AGES 0 TO 29

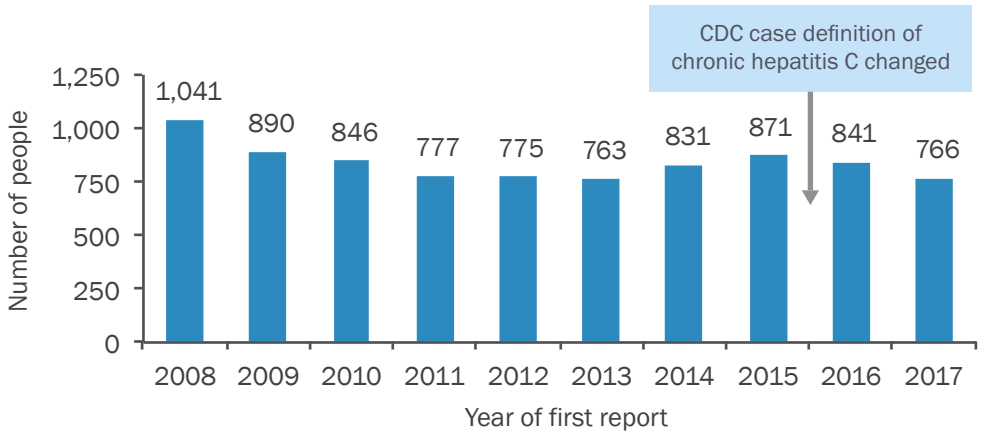
The Health Department monitors trends and clusters of hepatitis C cases in people ages 0 to 29 because new cases among young people are more likely to be recent infections.

766 Number of people ages 0 to 29 newly reported with hepatitis C infection in 2017

22.7 Rate per 100,000 people in 2017

92% Among people ages 0 to 29, percentage of whom are 20 to 29

FIGURE 17. Number of people ages 0 to 29 reported with chronic hepatitis C in New York City by year of first report, 2008–2017



Geographic Distribution

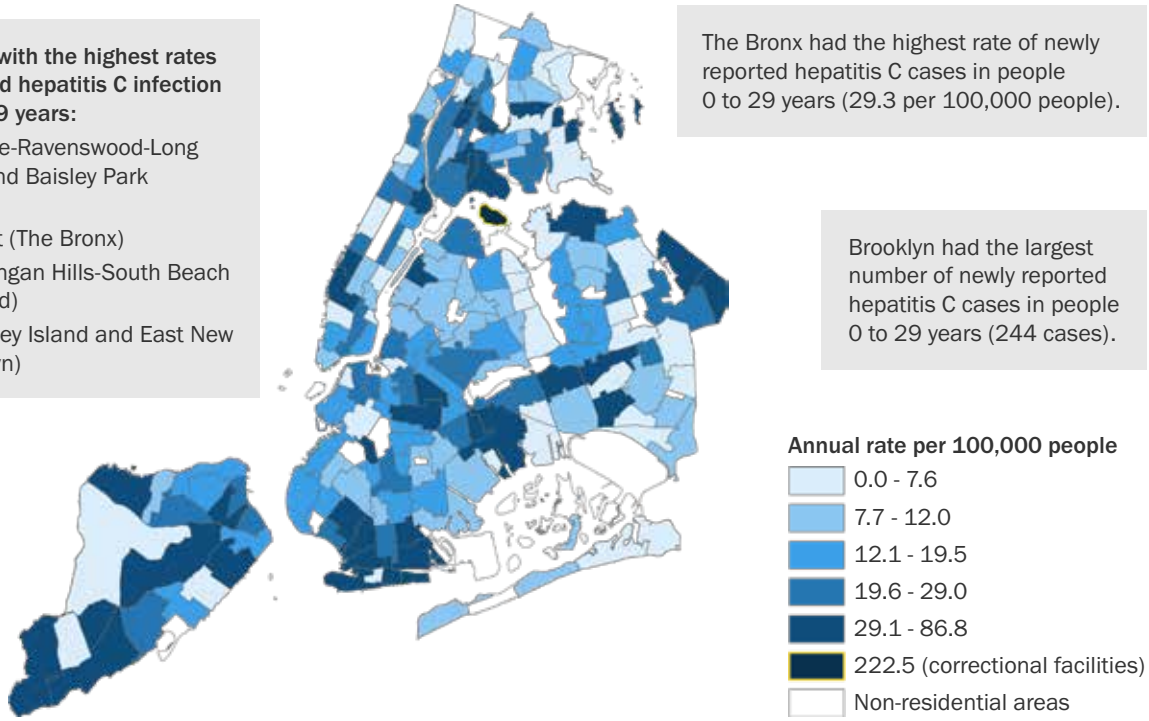
FIGURE 18. Rate of newly reported chronic hepatitis C infection in people ages 0 to 29 years in New York City by neighborhood tabulation area,[9] 2017

Neighborhoods with the highest rates of newly reported hepatitis C infection in people 0 to 29 years:

- Queensbridge-Ravenswood-Long Island City and Baisley Park (Queens)
- East Tremont (The Bronx)
- Old Town-Dongan Hills-South Beach (Staten Island)
- Seagate-Coney Island and East New York (Brooklyn)

The Bronx had the highest rate of newly reported hepatitis C cases in people 0 to 29 years (29.3 per 100,000 people).

Brooklyn had the largest number of newly reported hepatitis C cases in people 0 to 29 years (244 cases).



[9] Neighborhood tabulation area could not be determined for 71 people (9.3%) ages 0 to 29 with chronic hepatitis C based on their address at first report.

HEPATITIS C SURVEILLANCE-BASED PREVALENCE ESTIMATE, 2015

The Health Department estimates that **116,000** people (1.4% of New York City residents) are living with hepatitis C infection.

Read about how the hepatitis C prevalence estimate is calculated at dx.doi.org/10.1017/S095026881800170X.

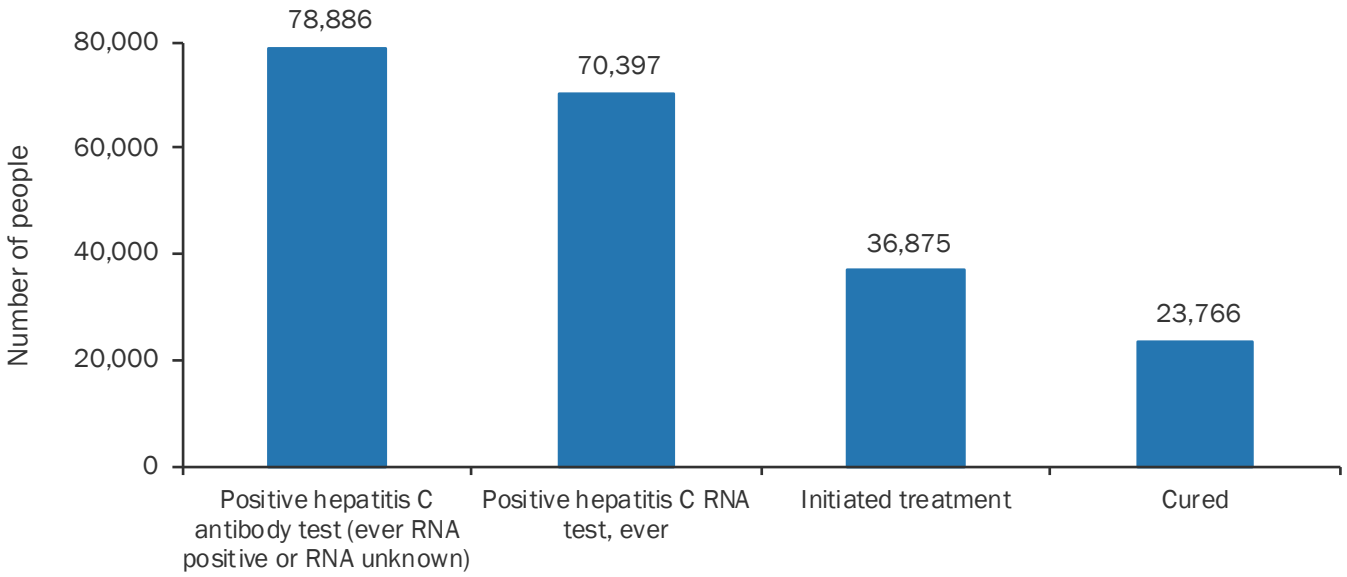
CHRONIC HEPATITIS C CARE CASCADE

There are several stages from hepatitis C infection to cure:

Infected but undiagnosed › Screened with antibody test › Infection confirmed with hepatitis C RNA test › Treated with antiviral medication › Cured

In 2016, the Health Department developed a validated algorithm to determine the number of people treated for and cured of hepatitis C using surveillance data.

FIGURE 19. Care cascade for people in New York City reported with a hepatitis C test from July 1, 2014, to June 30, 2017



Read the definitions for each category in Appendix 12.

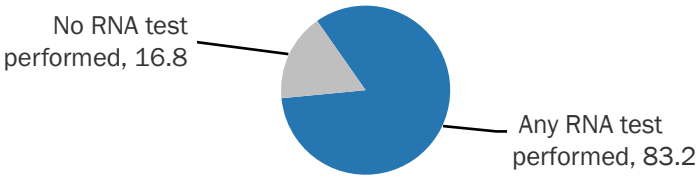
HEALTH DEPARTMENT RECOMMENDATION

Close to half of people with a positive hepatitis C RNA test have not started treatment. Anyone with confirmed hepatitis C should be linked to care and treated to cure the infection.

Confirmatory Testing for Hepatitis C Infection

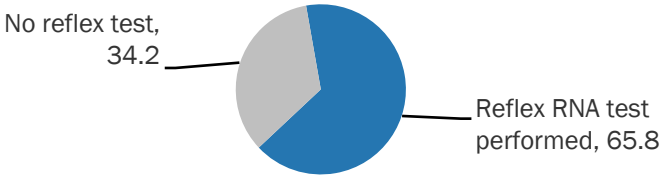
Confirmatory RNA testing is an essential step in hepatitis C diagnosis and is the standard of care. The Health Department uses confirmatory RNA test results to determine whether people who screen positive for hepatitis C antibodies receive RNA testing and how many people are infected with hepatitis C. Among all people newly reported with a positive hepatitis C antibody test in 2017 (11,786), the majority (83.2%; 9,801) had a confirmatory RNA test, an increase from 77.3% in 2016.

FIGURE 20. Percentage of people newly reported with hepatitis C who received RNA testing, 2017



Reflex testing is immediate confirmatory RNA testing when the hepatitis C antibody test result is positive. It is performed on the initial specimen or a second specimen collected at the same time as the initial specimen.

FIGURE 21. Percentage of people newly reported with RNA testing who had a reflex RNA test, 2017



HEALTH DEPARTMENT RECOMMENDATION

Since 2017, the New York City Health Code requires laboratories to perform confirmatory hepatitis C RNA reflex testing when there is a positive hepatitis C antibody test result. The Health Department is evaluating compliance with the Health Code mandate and providing technical assistance to health care facilities and laboratories to support implementation.

Hepatitis C Medical Evaluation

Hepatitis C genotype testing is used to determine which direct acting antiviral (DAA) treatment is appropriate. As a result, this type of testing suggests that patients are being considered for treatment. Genotype 1 is the most common genotype in the United States.

FIGURE 22. Percentage of people newly reported with hepatitis C who received genotype testing, 2017

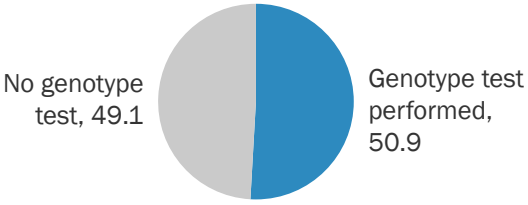
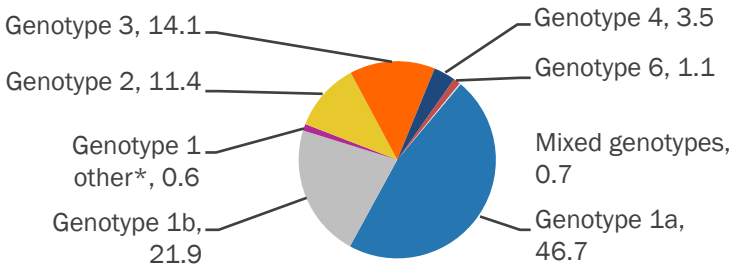


FIGURE 23. Percentage of people with each hepatitis C genotype among people newly reported with hepatitis C, 2017



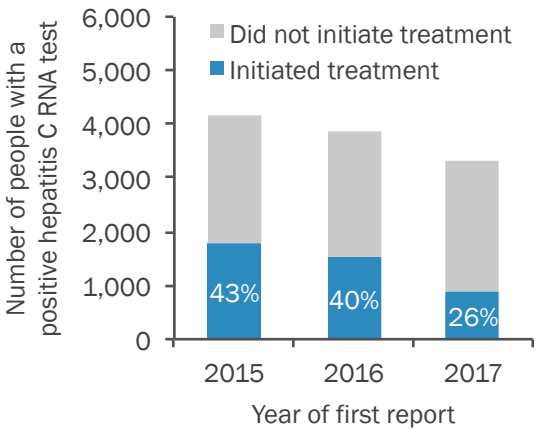
*1 unspecified, other, or 1a/1b

›› See full data in Appendix 13.

Hepatitis C Treatment Initiation and Medication Prescriptions

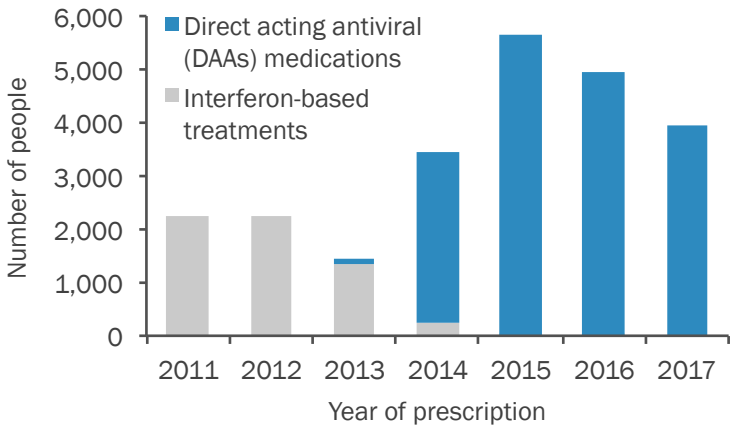
The majority of people in New York City with chronic hepatitis C have not been treated. Among people first reported with chronic hepatitis C in 2015, less than half started treatment by the end of 2017, even though at least two years had passed since their case was first reported. Treatment initiation rates for people newly reported with hepatitis C between 2015 and 2017 should increase as more people are linked to care. Treatment delay may lead to development of liver fibrosis, cirrhosis, hepatocellular carcinoma, and death.

FIGURE 24. Treatment initiation among people newly reported with a positive hepatitis C RNA test, 2015–2017*



*As of April 6, 2018

FIGURE 25. Hepatitis C medication prescriptions for people covered by Medicaid, 2011–2017



Data source: Salient NYS Medicaid Enterprise System

Treatment with all oral DAAs has declined since 2015 for people with hepatitis C who are enrolled in Medicaid. From 2016 to 2017, there was a 20% decrease in the number of people covered by Medicaid who were prescribed DAAs. This might be because those who remain untreated might be harder to connect to medical care.

HEALTH DEPARTMENT RECOMMENDATION

Health care facilities should provide care coordination services to support complete diagnosis and treatment of people infected with hepatitis C.

HEPATITIS C AND HIV CO-INFECTION

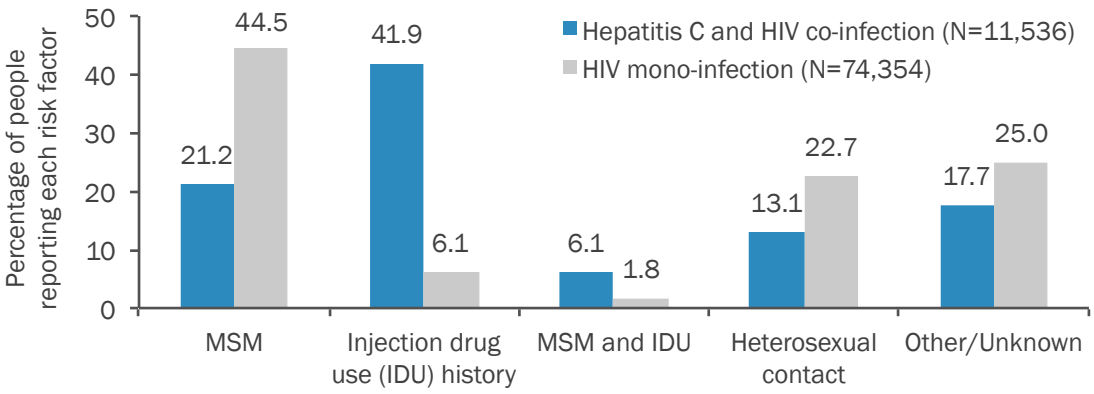
In 2016, the Health Department launched a new initiative — Project SUCCEED — to promote linkage to care and treatment among people co-infected with HIV and hepatitis C. In 2017, the Health Department matched HIV and hepatitis C surveillance data to characterize New York City's co-infected population and identify opportunities to improve hepatitis C treatment initiation in this population.

4,436 Number of people with HIV and current hepatitis C infection as of January 1, 2017

HIV Transmission Risk Factors

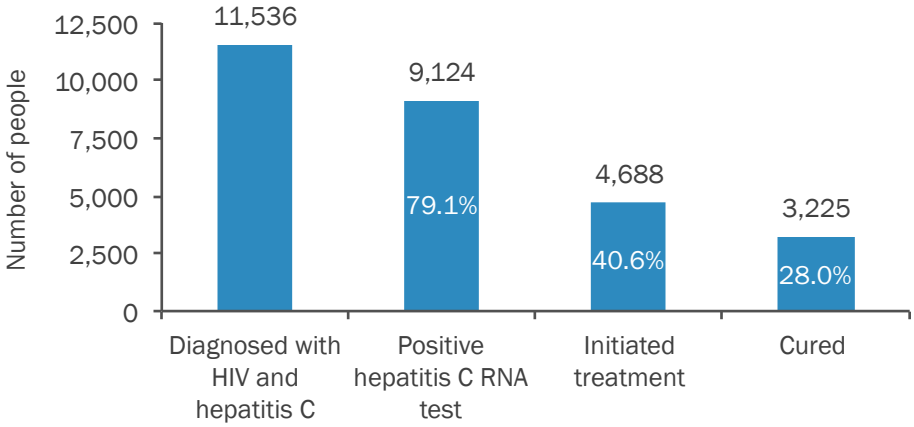
Hepatitis C virus is transmitted through exposure to blood; therefore, co-infection with HIV and hepatitis C is common among people who inject drugs.

FIGURE 26. Risk factors[11] for HIV transmission among people with HIV and hepatitis C co-infection versus HIV infection only, 2016



Hepatitis C Care Outcomes

FIGURE 27. Hepatitis C care cascade for people with hepatitis C and HIV co-infection, 2016



In 2016, 9,124 people living with HIV ever had a positive hepatitis C RNA test and 4,688 started treatment, leaving 4,436 people living with HIV and untreated for hepatitis C infection as of January 2017.

›› For full data, see Appendix 14.

[11] Mutually exclusive. Each patient is represented by the risk factor that poses the highest risk of HIV infection.

PREVENTION AND SCREENINGS

The Health Department promotes hepatitis A, B and C prevention and detection among people at high risk of acquiring these infections, including people who use drugs, people who have a sexual partner with hepatitis, men who have sex with men, and children born to hepatitis B- and C-infected mothers. The Health Department provides hepatitis A and B vaccinations at its clinics, including to at-risk, uninsured or underinsured people.

HEPATITIS A VACCINATIONS

5,934 Number of people who received the hepatitis A vaccine at Health Department clinics in 2017

1,835 Number of people who received the second dose of the hepatitis A vaccine at Health Department clinics in 2017

›› See page 6 for recommended groups for hepatititis A vaccination

HEPATITIS B VACCINATIONS

111,069 Number of children ages 4 to 18 who received the third dose of the hepatitis B vaccine by a New York City provider in 2017[11]

3,044 Number of people who received the third dose of the hepatitis B vaccine in Health Department clinics in 2017[11]

›› For full data, see Appendix 15.

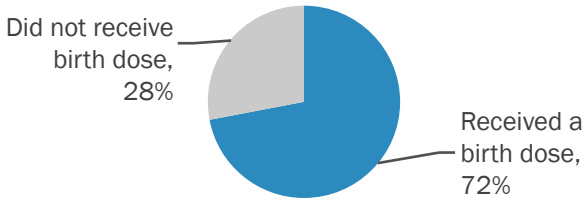
HEALTH DEPARTMENT RECOMMENDATION

People at risk for hepatitis B infection and anyone else who wants vaccination should receive all recommended doses of the hepatitis B vaccine to ensure immunity. See the Advisory Committee on Immunization Practices' recommended groups for hepatitis B vaccination at cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm.

›› For clinics offering low- or no-cost hepatitis B vaccines at nyc.gov/health/clinics.

The Health Department recommends a universal dose of hepatitis B vaccine to all newborns within 24 hours of birth, followed by completion of the vaccine series over approximately one year. Of the 115,785 children born in NYC in 2017, 72% received a birth dose[12] of the hepatitis B vaccine within the first three days of life.

FIGURE 28. Proportion of all infants born in 2017 in New York City who received a birth dose of the hepatitis B vaccine within the first three days of life



[11] Complete hepatitis B vaccination requires three doses; therefore, the number of third doses of hepatitis B vaccine can be used as a proxy for the number of individuals fully vaccinated against hepatitis B.

[12] A birth dose is defined as a dose of hepatitis B vaccine administered within the first three days of life.

PERINATAL HEPATITIS B PREVENTION AND SCREENING

Hepatitis B Immunization, Prophylaxis and Testing at Birth

The Health Department tracks and provides case management for post-exposure prophylaxis (PEP) with hepatitis B immune globulin, vaccination and hepatitis B testing of infants born to women with hepatitis B infection who live in New York City. In 2016, 1,539 infants were born to women with hepatitis B infection.

FIGURE 29. Percentage of infants born to women with hepatitis B infection who received post-exposure prophylaxis (PEP), vaccination and testing for hepatitis B, 2016[13]

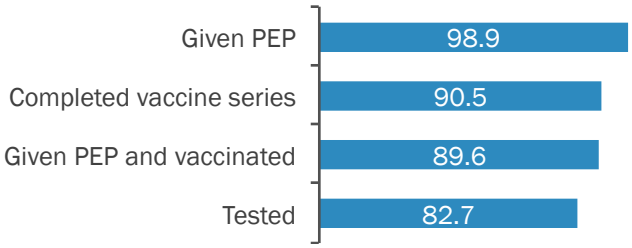
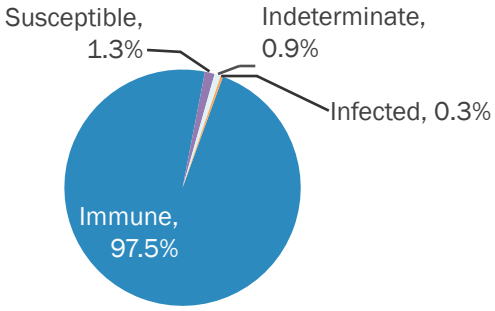


FIGURE 30. Test results of infants born to women with hepatitis B infection in New York City, 2016



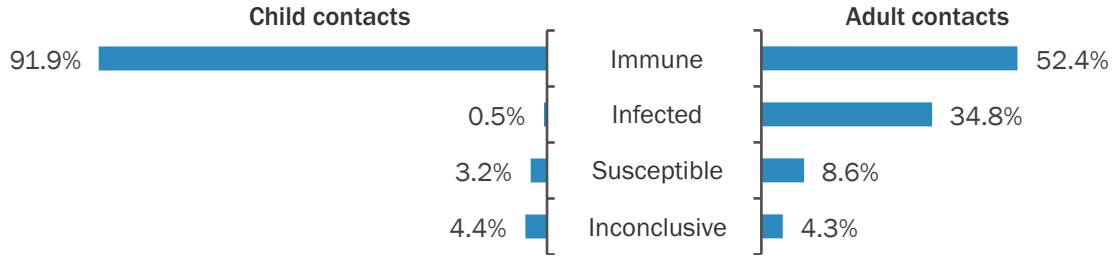
Hepatitis B Immunization and Testing of Sexual and Household Contacts

The Health Department identifies the household and sexual contacts of pregnant women with hepatitis B infection and refers them for testing and vaccination. With additional resources, the Health Department could navigate more contacts through complete testing and vaccination.

949 Child contacts identified | **85%** Child contacts tested

807 Adult contacts identified | **26%** Adult contacts tested

FIGURE 31. Distribution of hepatitis B test results of child and adult contacts of pregnant women with hepatitis B infection, 2017



›› For full data, see Appendices 7 and 8.

HEALTH DEPARTMENT RECOMMENDATION

- Hospitals should give PEP (hepatitis B immune globulin and a dose of hepatitis B vaccine) to all infants born to women infected with hepatitis B within 12 hours of birth.
- Pediatricians should ensure that all children complete the full hepatitis B vaccine series.
- All household and sexual contacts of infected women should be screened for and immunized against hepatitis B.

[13] The Health Department's Perinatal Hepatitis B Prevention Program reports on PEP after follow up is completed, which occurs more than nine months after birth.

SYRINGE EXCHANGE PROGRAMS AND MEDICINES FOR ADDICTION TREATMENT

The Health Department funds 14 syringe exchange 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, as well as access to buprenorphine treatment.

16,269 Number of people who used syringe exchange services in 2017

4,012,632 Number of syringes distributed in 2017

The Health Department works to expand access to methadone and buprenorphine, medicines for addiction treatment for people with opioid use disorder. Treatment with methadone and buprenorphine has been shown to reduce an individual's risk of hepatitis B and C infection as well as risk of overdose.

27,886 Number of people in methadone treatment in 2017*

14,103 Number of people filling a buprenorphine prescription in 2017*

1,923 Number of providers who issued buprenorphine prescriptions to NYC residents in 2017*

*As of December 31, 2017

HEALTH DEPARTMENT RECOMMENDATION

- Providers should assess all patients for drug use history and provide overdose and infection prevention services to those at risk.
- People who have had a nonfatal overdose should be screened for hepatitis B and C.

Provisional data show that in 2017, 1,441 people died from drug overdose in New York City. The Health Department estimates there are more than 10,000 nonfatal overdoses each year. The number of overdoses is an indicator of the number of people at high risk for hepatitis B and C exposure.

VIRAL HEPATITIS IN CORRECTIONAL FACILITIES

Since 2013, NYC Health + Hospitals/Correctional Health Services has screened people in the city's jails for hepatitis C. Correctional Health Services also provides vaccinations against hepatitis B.

621 Number of people in New York City jails vaccinated against hepatitis B

9,005 Number of hepatitis C antibody (screening) tests performed in 2017

9% Percentage of screening tests that were positive in 2017

PATIENT NAVIGATION AND CARE COORDINATION

The Health Department promotes patient navigation and care coordination for people at risk for and infected with hepatitis B and C in New York City. People living with hepatitis B and C in New York City often have low income, have limited or no health insurance and face unique barriers to accessing health care. The Health Department designs, delivers and oversees programs that help patients overcome barriers to hepatitis testing, care and treatment.

Since 2014, with funding from the New York City Council and private funders, the Health Department has supported 30 community health organizations to hire and train hepatitis B and C patient and peer navigators.

FIGURE 32. Number of people who received hepatitis B and C outreach and patient navigation services through Health Department-administered programs, July 2014 through December 2017

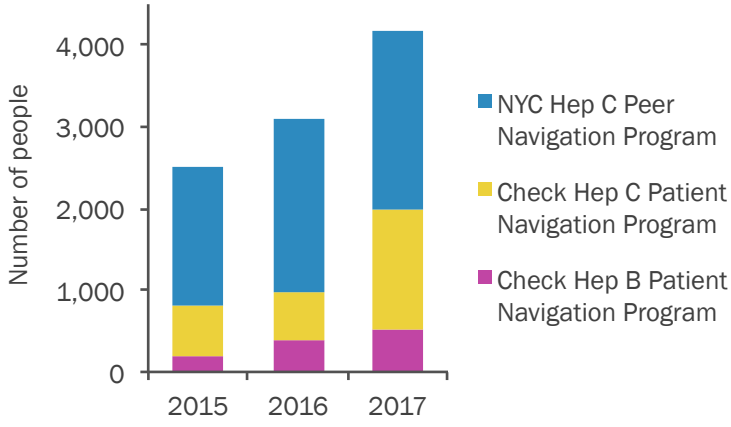
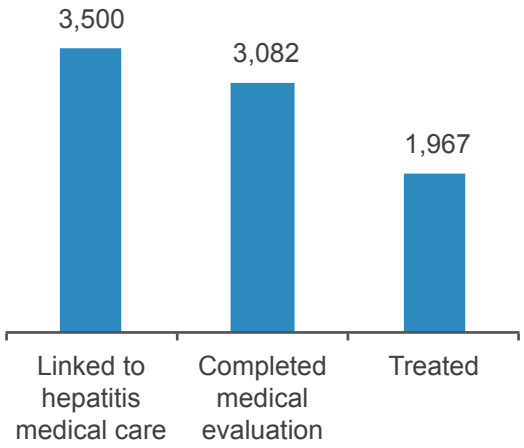


FIGURE 33. Number of people who accessed hepatitis B and C medical care at Health Department supported organizations, July 2014 through December 2017



HEPATITIS B

CHECK HEP B PATIENT NAVIGATION PROGRAM

Since 2015, the Health Department has developed and implemented a program that provides training and technical assistance to community organizations, health centers and hospitals to support patient navigation for people with hepatitis B.

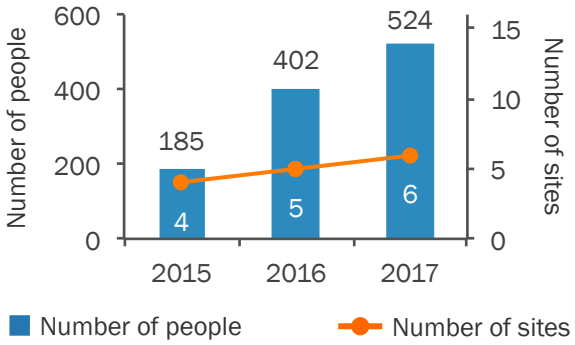
835 Number of unique people with hepatitis B enrolled*

95% Percentage of enrolled people who have completed a hepatitis B medical evaluation*

92% Percentage of treatment candidates who started hepatitis B treatment*

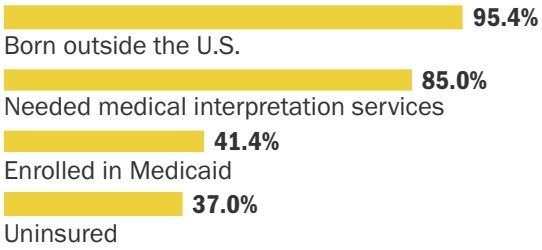
*From January 1, 2015, through December 31, 2017

FIGURE 34. Number of program sites and number of people with hepatitis B served each year,* 2015-2017



*A person can be included in more than one year

FIGURE 35. Participant characteristics, July 2014 through December 2017



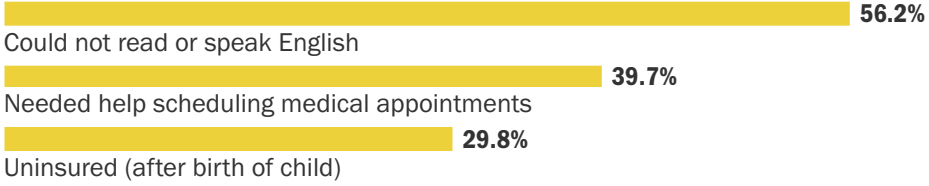
LINKAGE TO HEPATITIS B CARE FOR POSTNATAL WOMEN

In 2017, the Health Department piloted a new telephone-based linkage to care program for postnatal women reported with hepatitis B infection.

121 Number of postnatal women enrolled in the program

89.3% Percentage of participants linked to hepatitis B care after telephone-based linkage to care intervention

FIGURE 36. Characteristics of postnatal women with hepatitis B infection receiving telephone-based patient navigation services, 2017



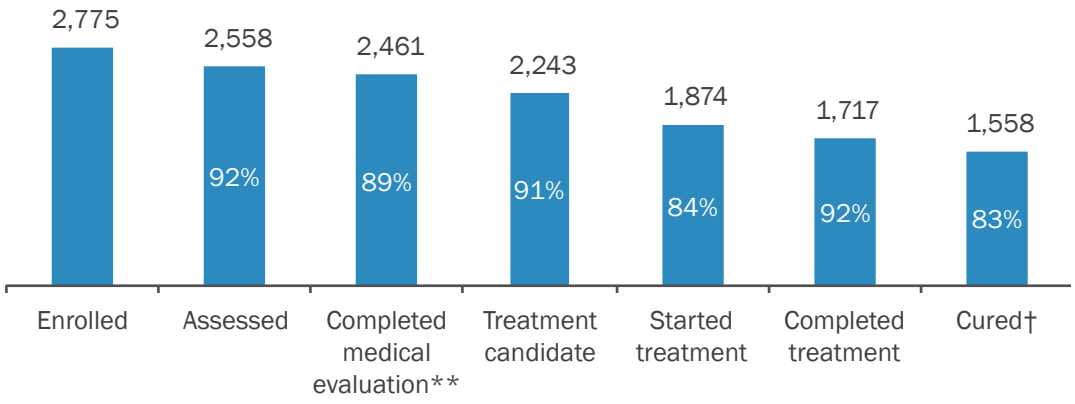
HEPATITIS C

PROJECT INSPIRE HEPATITIS C CARE COORDINATION

From January 2015 to February 2017, the Health Department implemented Project INSPIRE, a comprehensive model of care coordination at two major hospital systems in New York City for people with chronic hepatitis C enrolled in Medicaid and/or Medicare.

Program Outcomes

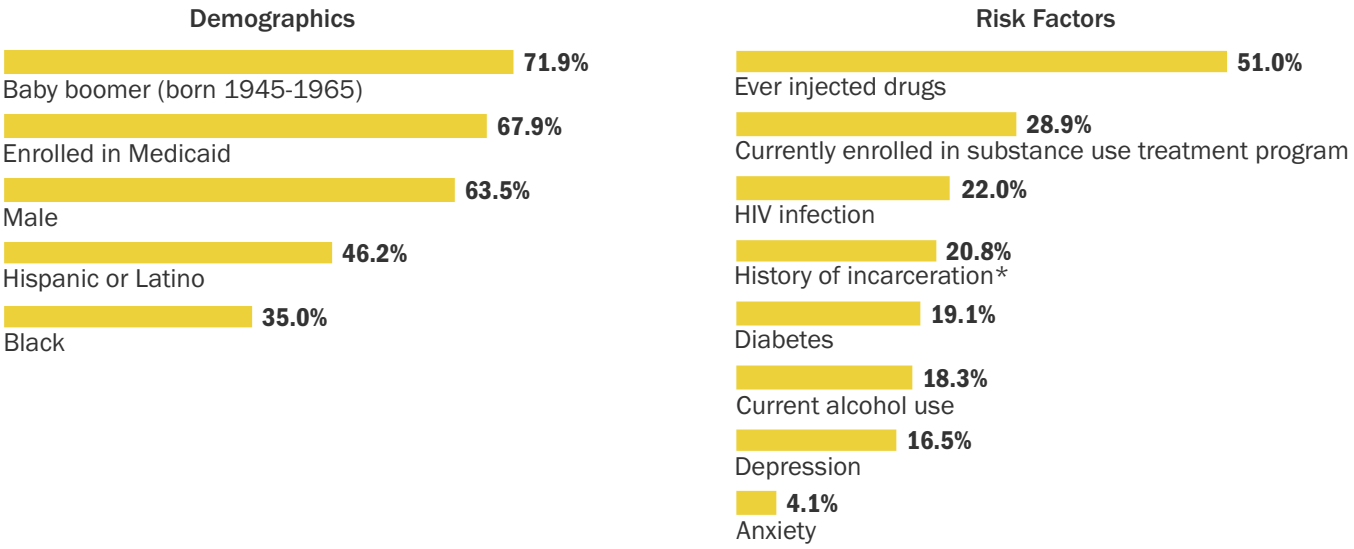
FIGURE 37. Project INSPIRE hepatitis C care cascade, 2015–2017*



* Percent is calculated based on the previous column unless otherwise noted.
** Percent is calculated based on the total overall enrolled.
† Of those who initiated treatment, 26 achieved cure but did not complete treatment. Cure is calculated as a percent of those who initiated treatment; of those who completed treatment 91% achieved cure.

Participant Characteristics

FIGURE 38. Percentage of Project INSPIRE participants with specific demographic characteristics and risk factors, 2015–2017



*Only collected in year two; 1,416 participants (51%) are missing history of incarceration information.

CHECK HEP C PATIENT NAVIGATION PROGRAM

Since 2014, the Health Department has provided training and technical assistance to community organizations and health facilities providing patient navigation to people with hepatitis C.

2,908 Number of hepatitis C RNA positive people enrolled*

2,030 Number of people who completed hepatitis C medical evaluation*

1,402 Number of people treated*

*From July 1, 2014, through December 31, 2017

FIGURE 39. Number of program sites and people with hepatitis C served each year[14]

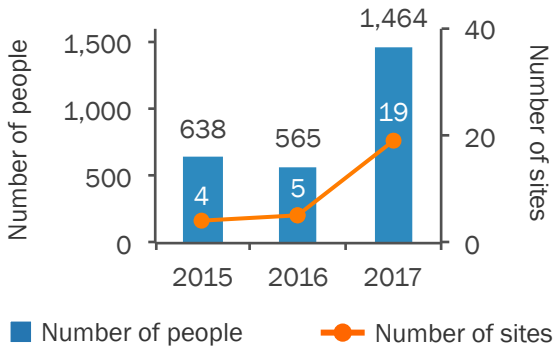
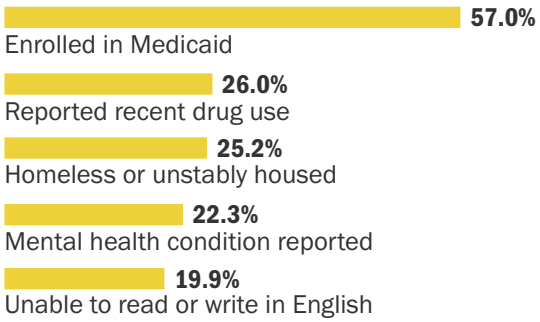


FIGURE 40. Participant characteristics, July 2014 through December 2017



HEP C PEER NAVIGATION FOR PEOPLE WHO USE DRUGS

Since 2014, the Health Department NYC Hep C Peer Navigation Program has provided hepatitis C outreach, education, prevention and linkage to care services at 15 syringe exchange and harm reduction organizations.

6,293 Number of people enrolled who received education and prevention services*

3,357 Number of people tested for hepatitis C*

520 Number of people with a positive hepatitis C RNA test*

257 Number of people treated for hepatitis C*

*From July 1, 2014, through December 31, 2017

FIGURE 41. Number of people at risk for hepatitis C served each year,[14] 2015-2017

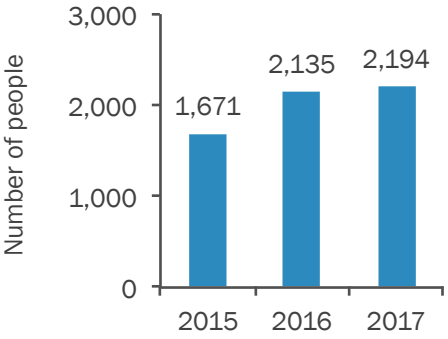
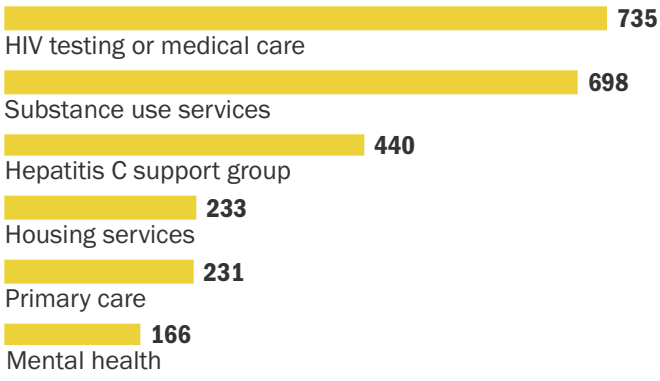


FIGURE 42. Number of referrals to supportive services provided, July 2014 through December 2017



[14] A person can be included in more than one year.

COMMUNITY ENGAGEMENT

Since 2004, the Health Department has organized a citywide network of community health organizations to facilitate referrals, collaboration and shared learning around hepatitis prevention and care. The Hep Free NYC network, which includes the NYC Hep B Coalition and the NYC Hep C Task Force, brings together hepatitis care providers and advocates at semimonthly meetings throughout New York City.

207 Number of Hep Free NYC participating organizations in 2017

644 Number of meeting attendees in 2017

3,300 Number of Hep Free NYC email subscribers in 2017

Meeting attendees review the latest surveillance, programmatic, policy and advocacy and research data. They also discuss opportunities for strengthening patient referrals and engaging in group advocacy for increased hepatitis resources.

Photo: Hepatitis Awareness Month event on the steps of City Hall, May 2017

ORGANIZING FOR HEPATITIS AWARENESS

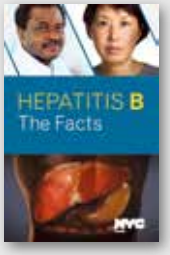
In 2017, Hep Free NYC activities included:

- The annual Hepatitis Awareness Month event on the steps of City Hall in NYC with 140 advocates, health care leaders and New York City Council members
- Hep Free NYC committees convened to develop tailored public education resources and outreach activities for special populations affected by viral hepatitis, such as young people who use drugs, African and Asian immigrants and LGBTQ populations.

PUBLIC EDUCATION

In 2017, the Health Department produced and distributed 58,288 free patient education materials to 129 community-based organizations and health care facilities to promote consistent and up-to-date hepatitis B and C health promotion and referrals to New York City resources.

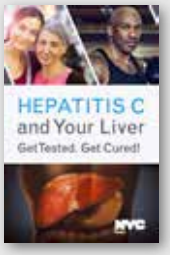
Hepatitis B Public Education Materials



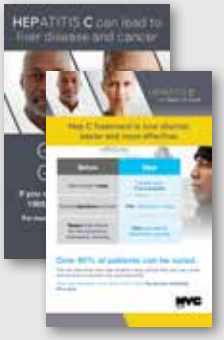
The “Hepatitis B: The Facts” booklet offers basic hepatitis B information, as well as guidance on testing, treatment, prevention and self-care.

The "Hepatitis B Vaccine" palm card allows people with hepatitis B to track their hepatitis B vaccinations.

Hepatitis C Public Education Materials



The “Hepatitis C and Your Liver” booklet offers basic hepatitis C information, and testing, treatment, prevention, and self-care guidance.



Hepatitis C posters promote hepatitis C testing among baby boomers and explain the effectiveness of new treatments.

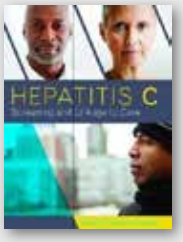
Hepatitis C Public Education Materials

The “Hepatitis C: Get Checked, Get Cured” palm card provides key prevention and care messages for people at risk or living with hepatitis C.

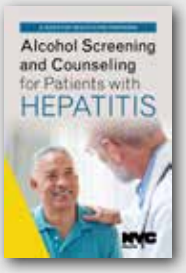
The “Alcohol and Hepatitis” palm card for people with hepatitis includes tips for drinking less alcohol.

The “Reduce your Risk of Overdose, Hep C & HIV” palm card for people who use drugs has information on preventing overdose, hepatitis C and HIV.

Hepatitis C Provider Education Materials



This toolkit gives medical providers clinical guidelines and tools for increasing hepatitis C screening and linkage to care.



The "Alcohol Screening and Counseling for Patients with Hepatitis" booklet includes guidance on providing alcohol counseling to patients with hepatitis C, including the AUDIT-C screening tool.

›› To order these materials, call 311 and ask to order hepatitis B or hepatitis C literature and materials.

CAPACITY BUILDING

The Health Department engages with community and clinical providers to disseminate best practices and improve the quality of viral hepatitis care. The Health Department delivers trainings and technical assistance to improve the capacity of the city's hospitals and community health organizations to screen people at risk for viral hepatitis and navigate them through care and treatment.

TRAINING

In 2017, the Health Department trained clinical providers, navigators, testers and other health professionals to strengthen their ability to screen people at risk and help those infected access hepatitis B and C care and treatment.

266 Number of health professionals trained

8 Number of trainings

30 Number of organizations represented at trainings

Trainings for patient navigators, testers and other health professionals include:

- Hepatitis C Basics for Communities at Risk
- Introduction to Viral Hepatitis
- Hepatitis C Point-of-Care Testing
- Hepatitis C Patient Navigation

›› See the Health Department training catalog at www.nychealthtraining.org/training.

In 2016, the Health Department collaborated with the Empire Liver Foundation — an association of New York State liver specialists — to create the Hepatitis Clinical Training Program. This program aims to increase the number of New York City physicians who screen, diagnose, manage and treat hepatitis B and C according to national guidelines.

1,244 Number of clinical providers trained

65 Number of organizations represented at trainings

›› IMPROVING HEALTH OUTCOMES OF PEOPLE WITH HIV AND HEPATITIS C CO-INFECTION

In 2016, the Health Department launched Project SUCCEED to improve screening, linkage to care and treatment rates among people co-infected with HIV and hepatitis C. In 2017, the Health Department identified health care facilities with the greatest number of out-of-care patients co-infected with HIV and hepatitis C. Staff from these facilities received hepatitis C training to promote linkage to care and treatment among their co-infected patients.

HEPATITIS C CLINICAL EXCHANGE NETWORK (HepCX)

Since 2014, the Health Department has facilitated HepCX, a peer-to-peer learning collaborative that improves hepatitis C screening and treatment practices in New York City's acute care hospitals.

60 Participating physicians (HepCX Champions)

39 Number of HepCX hospitals

Since 2015, HepCX has helped increase the number of hospitals that implement hepatitis C antibody with reflex to RNA testing by creating hospital-specific dashboards and delivering public health detailing. Hospitals with reflex testing had higher rates of hepatitis C RNA testing, which is necessary for complete hepatitis C diagnosis and linkage to care.

FIGURE 43. Number of HepCX hospitals implementing reflex to RNA testing, 2015-2017

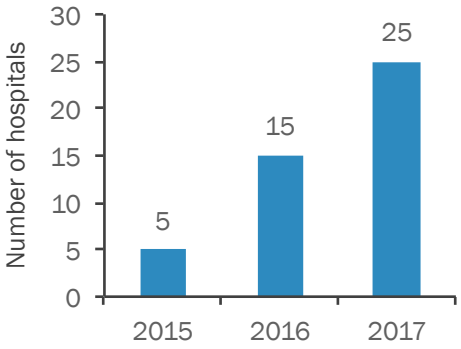
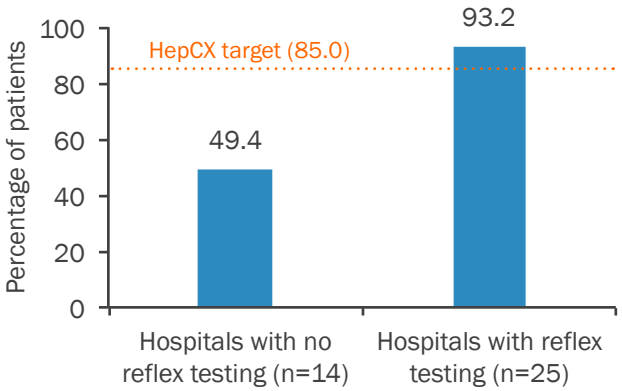


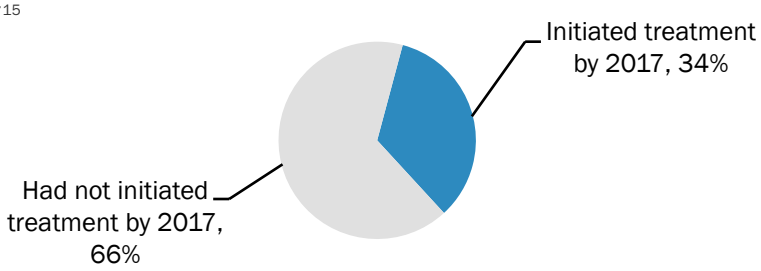
FIGURE 44. Percentage of patients receiving a hepatitis C RNA test within three months of a positive antibody test at HepCX hospitals, 2017



›› For more information about hospital-specific testing rates, see the New York City hepatitis C hospital dashboards at nyc.gov/health and search for "hepatitis resources for health care providers."

In 2017, the Health Department conducted a survey of HepCX hospitals to assess clinical providers' knowledge and capacity to diagnose and treat hepatitis C.

FIGURE 45. Percentage of the 10,764 patients with a positive hepatitis C RNA test at HepCX hospitals in 2016 who initiated treatment by 2017[15]



The Health Department supported six hospitals with mini-grants to improve screening, provider training, linkage to care and treatment initiation at these facilities.

[15] Treatment could have been initiated at any NYC facility but most patients initiated treatment at the same facility that performed RNA testing.

POLICY

The Health Department supports the development of State and City policies to improve access to viral hepatitis care and treatment. In 2017, the Health Department worked with the New York State Department of Health and community advocates to develop the country's first state-level hepatitis C elimination strategy. The Health Department also amended the New York City Health Code to increase hepatitis C confirmatory testing and strengthen hepatitis B surveillance data.

NEW YORK STATE HEPATITIS C ELIMINATION INITIATIVE

Initiated in 2016, the New York State Hepatitis C Elimination Initiative (endhepcny.org) is a statewide coalition of health care, social service and harm reduction providers, community and patient advocates and government representatives dedicated to eliminating hepatitis C in New York State. In 2017, these stakeholders convened the country's first state-level Hepatitis C Elimination Summit in Albany, NY. Thirty recommendations for hepatitis C elimination were organized in five overlapping areas: prevention; testing and linkage; care and treatment access; data, surveillance and metrics; and social determinants of health. The Consensus Statement on Hepatitis Elimination in New York State was signed by more than 130 organizations and delivered to the New York State Governor in March 2017. From May to August 2017, advocates led 20 listening sessions across the state to receive feedback on the elimination plan. In April 2018, the Governor allocated $10 million over two years to support hepatitis C elimination.

130 organizations signed the Consensus Statement on Hepatitis Elimination in New York State

$10m allocated by New York State to support the hepatitis C elimination plan

HEALTH CODE AMENDMENTS

Hepatitis C Antibody With Reflex to RNA Testing

Nearly one-fifth of people who screened hepatitis C antibody positive in 2017 have not received confirmatory RNA testing. In October 2017, the New York City Health Code was amended to require laboratories to perform a confirmatory hepatitis C RNA test after obtaining a positive hepatitis C antibody test result. This requirement aims to increase hepatitis C confirmation and diagnosis among infected individuals.

Hepatitis B Negative DNA Test Reporting

In April 2018, the New York City Health Code was amended to require laboratories to report all hepatitis B virus DNA test results, including negative results. Previously, only positive test results were reported. This information will enable the Health Department to assess whether hepatitis B patients are in care and to identify hepatitis B care and treatment gaps.

PUBLICATIONS AND PRESENTATIONS

In 2017, the Health Department shared surveillance, research and direct service program data and findings in peer-reviewed journals and at local, regional and national conferences.

PUBLICATIONS

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- 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-healthpsi.nyc.gov/epiquery.
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- National Academies of Sciences, Engineering and Medicine, "A National Strategy for the Elimination of Hepatitis B and C: Phase Two Report": nap.edu/24731.
- New York State Health Department, "Viral Hepatitis Strategic Plan 2016-2020": health.ny.gov/publications/1806.pdf.
- U.S. Preventive Services Task Force, "Guide to Clinical Preventive Services 2014": uspreventiveservicestaskforce.org/Home/GetFileByID/989.

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- AASLD Practice Guidelines: aasld.org/publications/practice-guidelines-0.
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- 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.

For interpreting Health Department surveillance data:

- CDC Case Definitions: cdc.gov/nndss/case-definitions.html.
- 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 CDC's 2016 case definition for chronic hepatitis C confirmed or probable cases. Therefore, cases that are antibody positive with only negative RNA results are excluded from most analyses, unless otherwise specified. For more information, visit www.cdc.gov/osels/ph_surveillance/nndss/casedef/case_definitions.htm.
- Laboratories are required to report hepatitis B and C cases to the Health Department, including negative results for hepatitis C RNA tests. For more information on hepatitis labs reportable to the Health Department, visit www.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 data presented here.
- 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 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 (e.g., the removal of duplicate reports).
- Many people with acute hepatitis B or C have no or mild symptoms. As a result, these infections may 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 percent of the Federal Poverty Level (FPL), per American Community Survey data from 2011 to 2015.
  - Low (less than 10 percent below FPL)
  - Medium (10 to less than 20 percent below FPL)
  - High (20 to less than 30 percent below FPL)
  - Very high (greater than or equal to 30 percent below FPL)

  These categories are not applied to people whose most recently reported address is a New York City correctional facility.
- All people reported from a New York City 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: https://a816-healthpsi.nyc.gov/epiquery/CDSS/index.html

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 ≥85 years and weighting to the U.S. 2000 standard population.
- Rates stratified by age group are presented as age-specific rates (i.e., no age adjusting within a presented age stratum was performed).
- Denominators used throughout this report are intercensal estimates for 2016, except denominators for the Rikers Island population, which were provided by NYC Correctional Health Services.
- The jail at Rikers Island is part of the borough 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 Neighborhood Tabulation Areas (NTAs) which are aggregations of census tracts that are subsets of NYC's 55 Public Use Microdata Areas. For details on NTAs, please see https://www1.nyc.gov/site/planning/data-maps/open-data/dwn-nynta.page.

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 were coded using ICD-10 classifications. The codes used for hepatitis B were: B16, B170, B180 and B181; and for hepatitis C, B171, B182. Both acute and chronic hepatitis B and C were included as causes of death.
- Causes of death were not mutually exclusive.

APPENDIX 2. Hepatitis 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 acute hepatitis B and C cases based on clinical criteria (e.g., jaundice) to the Health Department. The Health Department uses demographic and risk information to determine the characteristics of those recently infected with acute hepatitis B and C and to prevent ongoing transmission.

Health care providers can report acute hepatitis B and C cases:

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

APPENDIX 3: Characteristics of people reported with confirmed hepatitis A infection in New York City, 2017

Characteristics	People newly reported in 2017		
	Number	Percent of each group	Rate per 100,000 people
Overall	135	100.0	1.6
Sex			
Female	24	17.8	0.5
Male	111	82.2	2.7
Age at time of first report			
0–9	4	3.0	0.4
10–19	6	4.4	0.6
20–29	49	36.3	3.5
30–39	46	34.1	3.4
40–49	13	9.6	1.2
50–59	14	10.4	1.3
≥60	3	2.2	0.2
Race and ethnicity			
Latino	37	27.4	1.5
White, non-Latino	60	44.4	2.2
Black, non-Latino	10	7.4	0.5
Asian, non-Latino	15	11.1	1.2
Other	4	3.0	2.4
Unknown	9	6.7	N/A
Borough of residence			
Bronx	10	7.4	0.7
Brooklyn	31	23.0	1.2
Manhattan	61	45.2	3.7
Queens	30	22.2	1.3
Staten Island	3	2.2	0.6
Neighborhood poverty level by ZIP code			
Low (<10% below poverty)	27	20.0	1.7
Medium (10 to <20%)	53	39.3	1.7
High (20 to <30%)	28	20.7	1.5
Very high (≥30%)	27	20.0	1.4
Risk factors (not mutually exclusive)			
Men who have sex with men	77	57.0	N/A
International travel	51	37.8	N/A
Drug use	19	14.1	N/A
Contact with a case	14	10.4	N/A
Homelessness	2	1.5	N/A
Unknown	21	15.6	N/A

APPENDIX 4: Characteristics of people reported with acute hepatitis B in New York City, 2017

Characteristics	People newly reported in 2017		
	Number	Percent of each group	Rate per 100,000 people
Overall	45	N/A	0.5
Sex			
Female	17	37.8	0.4
Male	28	62.2	0.7
Age at time of first report			
0–19	1	2.2	0.1
20–29	6	13.3	0.4
30–39	8	17.8	0.6
40–49	13	28.9	1.2
50–59	8	17.8	0.7
≥60	9	20.0	0.6
Race and ethnicity			
Latino	11	24.4	0.4
White, non-Latino	14	31.1	0.5
Black, non-Latino	12	26.7	0.6
Asian, non-Latino	3	6.7	0.2
Other	5	11.1	3.4
Borough of residence			
Bronx	12	26.7	0.8
Brooklyn	14	31.1	0.5
Manhattan	7	15.6	0.4
Queens	9	20.0	0.4
Staten Island	3	6.7	0.6
Neighborhood poverty level by ZIP code			
Low (<10% below poverty)	4	8.9	0.2
Medium (10 to <20%)	17	37.8	0.5
High (20 to <30%)	10	22.2	0.5
Very high (≥30%)	14	31.1	0.7
Risk factors (mutually exclusive[1])			
Injection drug use	2	4.4	N/A
Household contact with hepatitis B-infected individual	2	4.4	N/A
Men who have sex with men	8	17.8	N/A
Heterosexual contact (multiple partners)	5	11.1	N/A
Heterosexual contact (one partner)	6	13.3	N/A
Health care-related exposure	3	6.7	N/A
Other	5	11.1	N/A
Unknown	14	31.1	N/A

[1] "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 New York City, 2017

Characteristics	People newly reported in 2017			All people reported 2014-2017, regardless of year of first report	
	Number	Percent of each group	Rate per 100,000 people[2]	Number	Percent of each group
Overall	7,204	100.0	84.4	91,578	100.0
Sex[1]					
Female	3,177	44.1	71.2	41,023	44.8
Male	4,012	55.7	98.5	50,390	55.0
Unknown	15	0.2	N/A	162	0.2
Age at time of first report					
0–19	189	2.6	9.5	4,858	5.3
20–29	1,127	15.6	80.9	21,966	24.0
30–39	1,872	26.0	138.2	24,691	27.0
40–49	1,402	19.5	127.1	18,976	20.7
50–59	1,282	17.8	118.2	12,628	13.8
60–69	944	13.1	110.7	6,236	6.8
≥70	388	5.4	50.6	2,223	2.4
Borough of residence					
Bronx[2]	1,075	14.9	73.8	9,364	10.2
Brooklyn	2,518	35.0	95.8	33,124	36.2
Manhattan	963	13.4	58.6	18,662	20.4
Queens	2,160	30.0	92.6	27,078	29.6
Staten Island	191	2.7	40.1	1,808	2.0
Unknown	297	4.1	-	1,542	1.7
Neighborhood poverty level by ZIP code[3]					
Low (<10% below poverty)	578	8.0	35.8	6,881	7.5
Medium (10 to <20%)	2,071	28.8	66.7	25,622	28.1
High (20 to <30%)	2,044	28.5	108.0	24,650	27.0
Very high (≥30%)	2,184	30.4	113.5	32,549	35.6
Unknown	305	4.2	N/A	1,641	1.8

[1] People reported as transgender are excluded. Gender identity is not consistently reported by all laboratories and is therefore underreported. From 2014-2017, there were three people reported with transgender identity.

[2] The Bronx includes people in Rikers Island facilities. In 2017, 15 people were reported from Rikers Island.

[3] Neighborhood poverty level data excludes people incarcerated at the time of first report. In 2017, there were 22 newly reported people incarcerated at the time of first report. From 2014-2017, there were 235 reported people incarcerated at time of first report.

APPENDIX 6: Demographic characteristics of pregnant women with hepatitis B infection in New York City who delivered a live birth in 2017

Characteristics	Number	Percent of each group	Rate per 100,000 live births
Overall	1,256	100.0	1,152.8
Borough of residence			
Bronx	184	14.6	944.8
Brooklyn	502	40.0	1,251.1
Manhattan	133	10.6	773.3
Queens	395	31.4	1,474.2
Staten Island	42	3.3	784.0
Race and ethnicity			
Latino	52	4.1	160.8
White, Non-Latino	84	6.7	243.1
Black, Non-Latino	119	9.5	566.4
Asian/Pacific Islander, Non-Latino	835	66.5	4,266.5
Other	160	12.7	n/a
Unknown	6	0.5	n/a
Country of birth			
China	666	53.0	8,549.4
U.S.	64	5.1	128.8
Uzbekistan	41	3.3	3,080.4
Dominican Republic	40	3.2	525.3
Ghana	31	2.5	4,725.6
Bangladesh	25	2.0	888.7
Guinea	24	1.9	6,282.7
Mali	24	1.9	9,195.4
Nigeria	24	1.9	3,108.8
Guyana	23	1.8	1,322.6
Other	270	21.5	n/a
Unknown	24	1.9	n/a

APPENDIX 6: Demographic characteristics of pregnant women with hepatitis B infection in New York City who delivered a live birth in 2017 (cont.)

Characteristics	Number	Percent of each group	Rate per 100,000 live births
Birthplace[1]			
China	666	53.0	8,549.4
Western Africa	191	15.2	5,557.2
Caribbean and Haiti	71	5.7	536.7
U.S.	64	5.1	128.8
South Asia	51	4.1	888.2
West and Central Asia	48	3.8	2,342.6
East Asia (excl. China)	32	2.5	2,792.3
Mexico, Central and South America	31	2.5	239.2
Europe	27	2.1	492.8
Southeast Asia	25	2.0	2,136.8
Africa (excl. Western Africa)	14	1.1	983.8
Middle East	11	0.9	453.0
Canada	1	0.1	173.6
Other and Unknown	24	1.9	4,293.4

[1] Excludes regions that were not reported as a region of birth for any case (Australia/Oceania and Pacific Islands).

APPENDIX 7: Hepatitis B vaccination, post-exposure prophylaxis (PEP) and testing for infants born to mothers with hepatitis B infection in New York City, 2016

Group	Number	Percent of each group
Overall	1,539	100.0
PEP[1] and vaccination status		
PEP	1,522	98.9
Vaccine series completion[2]	1,393	90.5
PEP and vaccine series completion[2]	1,379	89.6
Testing status		
Tested	1,273	82.7
Test results (among those tested)		
Infected	4	0.3
Immune	1,241	97.5
Susceptible	17	1.3
Indeterminate	11	0.9

[1] Defined as administration of hepatitis B immune globulin and birth dose of hepatitis B vaccine series within one day of life.

[2] Defined as receiving all three doses of hepatitis B vaccine with final dose given at ≥164 days of age.

APPENDIX 8: Hepatitis B status for sexual and household contacts of pregnant women with hepatitis B infection in New York City, 2017

Contacts	Number	Percent of each group
Total identified	1,756	100.0
Children aged 18 or younger[1]	949	54.0
Children tested	803	84.6
Immune	738	91.9
Infected	4	0.5
Susceptible	26	3.2
Inconclusive	35	4.4
Adults	807	45.9
Adults tested	210	26.0
Immune	110	52.4
Infected	73	34.8
Susceptible	18	8.6
Inconclusive	9	4.3

[1] Excludes children born in 2017.

APPENDIX 9: Characteristics of decedents where hepatitis B is listed as the underlying cause or contributing cause of death, New York City, 2016

Characteristics	Number	Percentage of each group	Age-adjusted rate per 100,000 people[1]
Overall	99	100.0	1.1
Age			
0–24	0	0.0	0.0
25–44	14	14.1	0.5
45–64	47	47.5	2.2
65–84	35	35.4	3.5
≥85	3	3.0	1.9
Sex			
Female	23	23.2	0.4
Male	76	76.8	1.8
Race and ethnicity			
Black, non-Latino	22	22.2	1.0
White, non-Latino	13	13.1	0.4
Asian/Pacific Islander, non-Latino	43	43.4	3.3
Latino	17	17.2	0.8
Other/Unknown	4	4.0	3.3

[1] Rates stratified by age group are presented as age-specific rates (i.e., no age adjusting within a presented age stratum was performed).

APPENDIX 10: Characteristics of decedents where hepatitis C is listed as the underlying cause or contributing cause of death, New York City, 2016

Characteristics	Number	Percentage of each group	Age-adjusted rate per 100,000 people[1]
Overall	454	100.0	4.9
Age			
0–24	0	0.0	0.0
25–44	12	2.6	0.4
45–64	251	55.3	11.9
65–84	171	37.7	17.2
≥85	20	4.4	12.4
Sex			
Female	152	33.5	2.9
Male	302	66.5	7.3
Race and ethnicity			
Black, non-Latino	119	26.2	5.5
White, non-Latino	120	26.4	3.6
Asian/Pacific Islander, non-Latino	18	4.0	1.5
Latino	172	37.9	7.5
Other/Unknown	25	5.5	19.4

[1] Rates stratified by age group are presented as age-specific rates (i.e., no age adjusting within a presented age stratum was performed).

APPENDIX 11: Characteristics of people reported with chronic hepatitis C in New York City, 2017

Characteristics	People newly reported in 2017			All people reported 2014-2017, regardless of year of first report	
	Number	Percent of each group	Rate per 100,000 people[2]	Number	Percent of each group
Overall	5,308	100.0	62.2	99,178	100.0
Sex[1]					
Female	2,025	38.2	45.4	37,173	37.5
Male	3,278	61.8	80.4	61,787	62.3
Unknown	5	0.1	N/A	213	0.2
Age at time of first report					
0–19	63	1.2	3.2	923	0.9
20–29	703	13.2	50.5	7,269	7.3
30–39	987	18.6	72.9	15,703	15.8
40–49	848	16.0	76.9	28,047	28.3
50–59	1,133	21.3	104.5	29,712	30.0
60–69	1,045	19.7	122.5	12,991	13.1
≥70	529	10.0	69.0	4,533	4.6
Birth cohort					
1900–1944	386	7.3	64.6	9,097	9.2
1945–1965	2,203	41.5	117.4	62,640	63.2
1966–1983	1,595	30.1	76.2	21,432	21.6
1984–2017	1,124	21.2	28.3	6,009	6.1
Borough of residence					
Bronx[2]	1,323	24.9	90.9	26,351	26.6
Brooklyn	1,560	29.4	59.3	28,396	28.6
Manhattan	985	18.6	59.9	22,137	22.3
Queens	977	18.4	41.9	17,003	17.1
Staten Island	221	4.2	46.4	4,200	4.2
Unknown	242	4.6	N/A	1,091	1.1
Neighborhood poverty level by ZIP code[3]					
Low (<10% below poverty)	544	10.8	33.7	11,521	12.2
Medium (10 to <20%)	1,521	30.1	49.0	28,544	30.2
High (20 to <30%)	1,189	23.5	62.8	22,466	23.8
Very high (≥30%)	1,548	30.6	80.5	30,671	32.5
Unknown	258	5.1	N/A	1,216	1.3

[1] People reported as transgender are excluded. Gender identity is not consistently reported by all laboratories and is therefore underreported. From 2014-2017, there were five people reported with transgender identity.

[2] The Bronx includes people in Rikers Island facilities. In 2017, 204 people were reported from Rikers Island.

[3] Neighborhood poverty level data excludes people incarcerated at the time of first report. In 2017, there were 248 newly reported people incarcerated at the time of first report. From 2014-2017, there were 4,760 newly reported people incarcerated at time of first report.

APPENDIX 12: Definitions of hepatitis C care cascade categories

- **Any positive hepatitis C test:** Ever reported with a positive enzyme immunoassay (EIA), recombinant immunoblot assay (RIBA), ribonucleic acid (RNA) or genotype test
- **Positive hepatitis C RNA test:** Ever reported with a positive RNA test
- **Initiated treatment:** A reported negative test in 2014 or later preceded by any positive RNA test with viral load ≥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 ≥1000 IU/ml) RNA:
  - At least one additional negative RNA result performed at least 4 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 New York City.

APPENDIX 13: RNA and genotype test results of people newly reported with chronic hepatitis C in New York City, 2017

Characteristics	Number	Percent of each group
All new reports of hepatitis C	11,786	100.0
Any RNA test performed[1]	9,801	83.2
Reflex RNA test performed[2]	6,447	65.8
Case definition		
Not currently infected: antibody positive, RNA negative only	6,478	55.0
Probable: antibody positive only	1,985	16.8
Confirmed: antibody positive, RNA positive	3,323	28.2
Genotype test performed[3]		
Yes	1,691	50.9
No	1,632	49.1
Genotype[4]		
1a	790	46.7
1b	371	21.9
1 unspecified, 1 other, or 1a/1b	10	0.6
2	193	11.4
3	238	14.1
4	59	3.5
6	19	1.1
Mixed	11	0.7

[1] Based on the Health Department's hepatitis C surveillance data as of April 2018. Reporting of negative RNA test results to the Health Department was mandated July 21, 2014.

[2] Reflex RNA is defined as an RNA test performed on the same day as or with the same accession number as a positive antibody test. Percent with a reflex RNA test performed is calculated out of all people with a reported RNA test.

[3] Genotype data are presented for patients who had a positive RNA reported (n=3,323).

[4] Percent calculated out of those with a genotype test (n=1,691).

APPENDIX 14: Characteristics of people reported with HIV and hepatitis C co-infection in New York City, 2016

Characteristics	People with a history of HIV and hepatitis C co-infection[1]		People mono-infected with HIV[2]	
	Number	Percentage	Number	Percentage
Overall	11,536	100.0	74,354	100.0
Race and ethnicity				
Black	4,668	40.5	33,860	45.5
Latino/Hispanic	4,858	42.1	23,623	31.8
White	1,826	15.8	14,512	19.5
Asian/Pacific Islander	132	1.1	1,818	2.4
Native American	26	0.2	193	0.3
Multiracial	13	0.1	211	0.3
Other/Unknown	13	0.1	137	0.2
Age				
<20	6	0.1	487	0.7
20–29	198	1.7	7,604	10.2
30–39	848	7.4	13,051	17.6
40–49	1,864	16.2	17,127	23.0
50–59	4,538	39.3	23,062	31.0
≥60	4,078	35.4	13,005	17.5
Unknown	4	0.0	18	0.0
Birth cohort				
Before 1945	308	2.7	2,080	2.8
1945–1965	7,966	69.1	31,495	42.4
After 1965	3258	28.2	40,761	54.8
Unknown	4	0.0	18	0.0
Gender				
Male	8,365	72.5	52,697	70.9
Female	3,051	26.4	20,709	27.9
Transgender	116	1.0	930	1.3
Unknown	4	0.0	18	0.0
HIV transmission risk[3]				
Men who have sex with men-injection drug use	704	6.1	1331	1.8
Men who have sex with men	2,445	21.2	33,076	44.5
Injection drug use	4,838	41.9	4,531	6.1
Heterosexual contact	1,510	13.1	16,851	22.7
Other/Unknown	2,039	17.7	18,565	25.0
HIV viral suppression in 2016				
Yes	8,591	74.5	56,779	76.4
No	2,945	25.5	17,575	23.6

[1] Diagnosed with HIV and living as of December 31, 2016 and if they had at least one HIV or HCV lab reported since January 1, 2014. Co-infected individuals were diagnosed with HCV by December 31, 2016.

[2] Diagnosed with HIV and living as of December 31, 2016 with at least one HIV lab reported since January 1, 2014.

[3] Transmission risk categories are listed from highest to lowest potential risk of HIV infection, according to associated behaviors or activities.

APPENDIX 14: Characteristics of people reported with HIV and hepatitis C co-infection in New York City, 2016 (cont.)

Characteristics	People with a history of HIV and hepatitis C co-infection[1]		People mono-infected with HIV[2]	
	Number	Percentage	Number	Percentage
Current borough of residence[4]				
Bronx	4,066	35.2	19,125	25.7
Brooklyn	2,857	24.8	18,538	24.9
Manhattan	2,633	22.8	18,903	25.4
Queens	1,413	12.2	11,046	14.9
Staten Island	301	2.6	1,510	2.0
Outside NYC/Unknown	266	2.3	5,232	7.0
Current neighborhood poverty level by ZIP code[4]				
Low (<10% below poverty)	934	8.1	7,564	10.2
Medium (10 to <20%)	2,896	25.1	20,886	28.1
High (20 to <30%)	2,526	21.9	16,565	22.3
Very high (≥30%)	4,883	42.3	23,852	32.1
Unknown	297	2.6	5,487	7.4
Ryan White Part A client in 2016				
Ryan White Part A participant	2,743	23.8	11,420	15.4
Not a Ryan White Part A participant	8,793	76.2	62,934	84.6

[4] Based on address associated with most recent HIV labs as of December 31, 2016.

APPENDIX 15: Number of hepatitis A and B vaccines provided by Health Department facilities, 2017

Facility	Total hepatitis vaccine doses	Completed hepatitis vaccine series
Immunization clinic (hepatitis A only, ages 4 to 18)	4,569	1,295
Immunization clinic (hepatitis A only, ages 19 and older)	259	110
Immunization clinic (hepatitis B only, ages 4 to 18)	3,486	1,262
Immunization clinic (hepatitis B only, ages 19 and older)	5,462	1,094
Sexual health clinics (hepatitis A only)	1,106	430
Sexual health clinics (hepatitis B only)	2,435	492
Sexual health clinics (hepatitis A/B combination)	1,175	196
Total	18,492	4,879


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