Hepatitis B and C Surveillance Report

New York City, 2013
(Published February 2015)

New York City Department of Health and Mental Hygiene
Division of Disease Control
Bureau of Communicable Diseases
Executive Summary

Viral hepatitis B and C are bloodborne pathogens that are prevalent in New York City. If untreated, they can lead to severe liver disease and death. An estimated 1.2 percent of New Yorkers (about 100,000 people) have hepatitis B, and 2.4 percent (about 146,000 people) have hepatitis C. Key findings from this hepatitis B and C surveillance data report include:

Hepatitis B

Acute hepatitis B

- From 2010 to 2013:
  - New Yorkers aged 40 to 49 had the highest average annual acute hepatitis B rate (1.7 per 100,000 people).
  - No cases of acute hepatitis B were identified among children. The rate remains very low because of near-universal childhood vaccinations.
- The most commonly reported risk factor, at 46 percent, is heterosexual sex.

Chronic hepatitis B

- The highest rates of newly-reported cases are in the three neighborhoods with large Chinese populations: Chinatown in Lower Manhattan, Flushing in Queens and Sunset Park in Brooklyn.
- From 2010 to 2013, 70 percent of newly reported cases were among New Yorkers aged 20 to 49.
- Chronic hepatitis B surveillance data from 2010 to 2012 showed that:
  - Sixty percent of newly-reported patients were of Asian descent.
  - Fifty percent of newly-reported patients were born in China.

Hepatitis B in Pregnant Women

- From 2010 to 2013:
  - The Health Department identified an annual average of 1,852 pregnant women with hepatitis B.
  - Most pregnant women found to have hepatitis B were born in China.
  - On average, 80 percent of infants born to mothers with hepatitis B were tested, and of those tested, 0.8 percent had hepatitis B infection.

Hepatitis C

Acute hepatitis C is often unrecognized and unreported. Due to limited data, acute hepatitis C is not presented in this report.

Chronic hepatitis C

- From 2010 to 2013, 54 percent of newly reported cases were among New Yorkers born between 1945 and 1965.
- Nearly two-thirds of people newly reported with chronic hepatitis C are male.
- Newly reported hepatitis C cases are highest in neighborhoods with very high poverty.
- Chronic hepatitis C surveillance data from 2009 to 2012 showed that 46 percent of patients had not received the recommended hepatitis C RNA testing; as a result, their infection status remained unknown.
- For New Yorkers aged 0 to 30 years, the highest proportion of hepatitis C cases were non-Hispanic Whites (40 percent of those 0 to 21 years of age and 46 percent of those 22 to 30 years of age).
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Acute Hepatitis B

Consider these factors when interpreting New York City’s acute hepatitis B surveillance data:

- Health care providers and laboratories are required to report hepatitis B cases to the Health Department, including positive results for hepatitis B core IgM antibody.

- The Health Department investigates all positive hepatitis B core IgM antibody reports. The Health Department also investigates other positive hepatitis B reports if liver function tests are significantly elevated.

- This report includes data on patients who meet the Centers for Disease Control and Prevention (CDC) and Council of State and Territorial Epidemiologists’ (CSTE) case definition for acute hepatitis B. The definition includes symptoms consistent with acute hepatitis. For more information, please visit: http://wwwn.cdc.gov/nndss/script/casedefDefault.aspx

- Many individuals with acute hepatitis B have no symptoms or mild symptoms. As a result, the infection may not be diagnosed or reported to the Health Department. Also, if there is a positive hepatitis B surface antigen test but no hepatitis B core IgM antibody test result, the Health Department does not routinely investigate the report to determine if the patient has acute or chronic hepatitis B. Therefore, the data in this report may under-represent the true incidence of new hepatitis B infection in New York City.

- Acute hepatitis B rates are very low among children because policies support vaccination:
  - Since 1992, infants have been routinely vaccinated.
  - Since 2000, vaccination has been required before a student can start middle school in New York City.

- The source of infection is not always clear.
  - Patient concerns may also affect this data: Health Department staff interview acute hepatitis B patients about risk factors by telephone. Some patients may not disclose sensitive risk factors, such as sexual behavior or drug use.
  - Since the exposure period is long (up to 150 days), patients may report more than one risk behavior, and patients may not recall or reveal all risk behaviors.
  - In some cases, risk factor information is also obtained from clinicians or medical records.
Map 1. Acute Hepatitis B in New York City Residents, by United Hospital Fund Neighborhood, 2010 to 2013
### Table 1. Acute Hepatitis B in New York City Residents, 2010 to 2013

<table>
<thead>
<tr>
<th>Group</th>
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<th>2012</th>
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<th>2010 to 2013 combined</th>
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<td>Rate per 100,000 people</td>
<td>Number</td>
<td>Percentage (%)</td>
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Table 1. Acute Hepatitis B in New York City Residents, 2010 to 2013 (continued)

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<tr>
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<th>2012</th>
<th>2013</th>
<th>2010 to 2013 combined</th>
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<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percentage (%) of each group</td>
<td>Rate per 100,000 people</td>
<td>Number</td>
<td>Percentage (%) of each group</td>
</tr>
<tr>
<td>Overall</td>
<td>79</td>
<td>N/A</td>
<td>1.0</td>
<td>80</td>
<td>N/A</td>
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<td>Neighborhood Poverty Level</td>
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<td>Low (&lt;10% below)</td>
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<td>11.4</td>
<td>0.5</td>
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<td>Medium (10 to &lt;20%)</td>
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<td>High (20 to &lt;30%)</td>
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<td>32.9</td>
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<td>Very high (&gt;=30%)</td>
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<td>Risk Factors (mutually exclusive)</td>
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<td>Men who have sex with men</td>
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<td>Heterosexual contact (multiple partners)</td>
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<td>Dental Care</td>
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<td>9</td>
<td>11.4</td>
<td>N/A</td>
<td>16</td>
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</tbody>
</table>

1 Neighborhood poverty based on zip code was defined as the percentage of residents with incomes below 100 percent of the Federal Poverty Level, per American Community Survey data from 2007 to 2011.

2 “Mutually exclusive” means that each patient is represented by the risk factor, among risks reported, that poses the highest risk of hepatitis B infection.

The table shows risk factors in order from highest to lowest risk. For example, a person who injected drugs and had health-care related exposure is represented only once, in the “Injection drug use” row.

- Rates are higher among people 30 to 59 years of age. Blacks and people living in neighborhoods with higher levels of poverty.
- The most commonly reported risk factor among people with acute hepatitis B is heterosexual sex.
Chronic Hepatitis B

Consider these factors when interpreting New York City chronic hepatitis B surveillance data:

- Laboratories are required to report hepatitis B cases to the Health Department, including positive results for:
  - Hepatitis B surface antigen
  - Hepatitis B e antigen
  - Hepatitis B Nucleic Acid Test (DNA)
  - Hepatitis B genotype

- This report reflects data reported to the Health Department for people who tested positive for one of the above tests and had no evidence of acute hepatitis B.

- Most people who tested positive have chronic hepatitis B; however, a small percentage may have had acute hepatitis B and are no longer infected, or had a false-positive test result.

- Some people with chronic hepatitis B have never been tested or diagnosed; as a result, their information was not reported to the Health Department and is not included in this report.

- The Health Department often receives more than one hepatitis B laboratory report per person and, therefore, uses automatic methods to link multiple laboratory reports for the same person. These methods may be imperfect and, as a result, certain cases may inadvertently be counted more than once (e.g., if there is a discrepancy in the person’s name or date of birth).

- The rates presented reflect people newly reported with chronic hepatitis B. They are not prevalence rates or incidence rates.

- The Health Department sends its educational booklet “Hepatitis B: The Facts” to people newly reported with hepatitis B. The booklet was designed to help those infected with hepatitis B learn how to stay healthy. It is available in English, Chinese, Korean, Spanish and French, and can be ordered for free by calling 311. To download the booklet, visit [nyc.gov/html/doh/downloads/pdf/cd/cd-hepb-bro.pdf](http://nyc.gov/html/doh/downloads/pdf/cd/cd-hepb-bro.pdf).
Map 2. People Newly Reported with Chronic Hepatitis B in New York City by Zip Code, 2012 and 2013
Table 2. People Reported with Chronic Hepatitis B in New York City, 2010 to 2013

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<td>83,420 N/A</td>
<td>34,072 N/A</td>
<td>7,949 N/A</td>
<td>9,922 N/A</td>
<td>7,558 N/A</td>
<td>7,949 N/A</td>
<td>8,643 N/A</td>
<td>7,949 N/A</td>
<td>9,922 N/A</td>
<td>34,072 N/A</td>
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<td>Overall</td>
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<td>83,420 N/A</td>
<td>7,949 N/A</td>
<td>9,922 N/A</td>
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</tr>
<tr>
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<td><strong>Neighborhood Poverty Level</strong></td>
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<tr>
<td>Low (&lt;10% below poverty)</td>
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<tr>
<td>Medium (10 to &lt;20%)</td>
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<tr>
<td>High (20 to &lt;30%)</td>
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<tr>
<td>Very High (30% or higher)</td>
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<td></td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Note: Surveillance data cannot provide demographic breakdowns for everyone living with hepatitis B in New York City (i.e., prevalent cases). As a proxy, the last two columns describe everyone reported from 2010 to 2013, regardless of when they were initially reported. These data provide our best estimate of the demographic characteristics of people living with hepatitis B in New York City.  

Overall, chronic hepatitis B rates in New York City are very high.  
Most cases are in people 20 to 49 years of age.  
Chronic hepatitis B rates are lower among children because of successful infant and childhood vaccination strategies.
Chronic Hepatitis B Enhanced Surveillance

From September 2008 to October 2012, in an effort to learn more about patients newly reported with chronic hepatitis B, the Health Department conducted an enhanced chronic hepatitis B surveillance project. Every two months, the Health Department selected a simple random sample of 20 newly-reported patients and collected more detailed information from their health care providers. In some cases, the Health Department also collected information from the patients.

When interpreting New York City’s enhanced chronic hepatitis B surveillance data, please consider:

- This report includes patients newly reported to the Health Department and diagnosed with hepatitis B for the first time from January 2010 to July 2012.
- Most patients have chronic hepatitis B, but a small percentage may have had acute hepatitis B and are no longer infected.
- The data from this enhanced surveillance effort were collected from health care providers. For people newly diagnosed from December 2011 to May 2012, data were also collected from patients.
- Patients’ hepatitis A immunity status is of interest because national guidelines recommend hepatitis A vaccination for people with chronic hepatitis B, to prevent further liver damage.
- Whether patients received counseling to avoid alcohol, notify close contacts and avoid transmitting hepatitis B to others is of interest because national guidelines recommend these services to reduce viral transmission and lower the chances of further liver damage.
- It is difficult to determine when people newly reported were first infected. It is likely that many were infected at birth.
- Earlier findings from this enhanced surveillance project were published as:
Table 3. People Newly Reported with Chronic Hepatitis B in New York City, Enhanced Surveillance, January 2010 to July 2012

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>268</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>20</td>
<td>7.5</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>15</td>
<td>5.6</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>38</td>
<td>14.2</td>
</tr>
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<td>Asian, non-Hispanic</td>
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<tr>
<td>Other</td>
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<td>2.6</td>
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<tr>
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<td><strong>Birthplace</strong></td>
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<td></td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>Former Soviet Union</td>
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<td>1.9</td>
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<td>Jamaica</td>
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<tr>
<td>Nigeria</td>
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</tr>
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</tr>
<tr>
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<td>1.1</td>
</tr>
<tr>
<td>South Korea</td>
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<td>Taiwan</td>
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<td>1.1</td>
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<td>Routine screening - no risk factors</td>
<td>97</td>
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<td>Risk factors for chronic hepatitis B</td>
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<td>4.5</td>
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<tr>
<td>Follow-up to previously detected hepatitis marker</td>
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<td>4.1</td>
</tr>
<tr>
<td>Elevated liver function tests</td>
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<tr>
<td>Prenatal screening</td>
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<td>9.7</td>
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<tr>
<td>Hepatitis symptoms</td>
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<td>1.9</td>
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<tr>
<td>Donor screening</td>
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<td>0.4</td>
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<tr>
<td><strong>Risk Factors for Hepatitis B Infection</strong></td>
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</tr>
<tr>
<td>Perinatal exposure</td>
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<tr>
<td>Household contact</td>
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<td>4.1</td>
</tr>
<tr>
<td>Injection drug use</td>
<td>5</td>
<td>1.9</td>
</tr>
<tr>
<td>Heterosexual contact</td>
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<td>1.5</td>
</tr>
<tr>
<td>Homosexual contact</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>4.1</td>
</tr>
<tr>
<td>Unknown and None</td>
<td>184</td>
<td>68.7</td>
</tr>
</tbody>
</table>
**Table 3.** People Newly Reported with Chronic Hepatitis B in New York City, Enhanced Surveillance, January 2010 to July 2012 (continued)

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>268</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Hepatitis A Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immune or received at least one vaccine dose</td>
<td>94</td>
<td>35.1</td>
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<tr>
<td>Susceptible</td>
<td>23</td>
<td>8.6</td>
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<tr>
<td>Unknown</td>
<td>151</td>
<td>56.3</td>
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<tr>
<td><strong>Currently Seeing a Physician for Hepatitis B Care</strong></td>
<td></td>
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<tr>
<td>Yes</td>
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<td>72.8</td>
</tr>
<tr>
<td>No</td>
<td>38</td>
<td>14.2</td>
</tr>
<tr>
<td>Unknown</td>
<td>35</td>
<td>13.1</td>
</tr>
<tr>
<td><strong>Counseled by Provider About Avoiding Alcohol</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>148</td>
<td>55.2</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>7.8</td>
</tr>
<tr>
<td>No, patient never drinks</td>
<td>62</td>
<td>23.1</td>
</tr>
<tr>
<td>No, will counsel at next visit</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Unknown</td>
<td>36</td>
<td>13.4</td>
</tr>
<tr>
<td><strong>Counseled by Provider About Notifying Close Contacts so They Can be Tested/ Vaccinated</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>193</td>
<td>72.0</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>6.0</td>
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<tr>
<td>No, will counsel next visit</td>
<td>21</td>
<td>7.8</td>
</tr>
<tr>
<td>Unknown</td>
<td>38</td>
<td>14.2</td>
</tr>
<tr>
<td><strong>Counseled by Provider About Avoiding Transmission of Hepatitis B to Others</strong></td>
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</tr>
<tr>
<td>Yes</td>
<td>200</td>
<td>74.6</td>
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<tr>
<td>No</td>
<td>15</td>
<td>5.6</td>
</tr>
<tr>
<td>No, will counsel at next visit</td>
<td>22</td>
<td>8.2</td>
</tr>
<tr>
<td>Unknown</td>
<td>31</td>
<td>11.6</td>
</tr>
</tbody>
</table>

1 Other Countries include: Albania (2), Bangladesh (2), Guinea (2), Indonesia (2), Pakistan (2), Senegal (2), Uzbekistan (2), Belarus (1), Brazil (1), Cameroon (1), Congo (1), Cote D’ Ivoire (1), Ecuador (1), Greece (1), Liberia (1), Macedonia (1), Nepal (1), Paraguay (1), Poland (1), Sierra Leone (1), Thailand (1), Trinidad and Tobago (1), Vietnam (1), Yemen (1)

- Most newly-reported patients were of Asian descent.
- Half of newly-reported patients were born in China.
- The most common reason for testing was that the patient was born in a high-prevalence country.
Hepatitis B in Pregnant Women

- Hepatitis B can be transmitted from an infected mother to her newborn, resulting in a perinatal hepatitis B infection. Transmission occurs primarily during childbirth; only 5 percent of perinatal infections are estimated to occur prenatally.

- Within 12 hours of birth, infants born to hepatitis B-infected mothers need to receive post-exposure prophylaxis, consisting of the first dose of hepatitis B vaccine and one dose of hepatitis B immune globulin.

- In the absence of post-exposure prophylaxis, up to 90 percent of infants born to a hepatitis B-positive mother will become perinatally infected.

- Among infants infected perinatally, 90 percent develop chronic infection, compared with 6 to 10 percent for those infected after 5 years of age.

- Post-exposure prophylaxis and timely completion of the hepatitis B three-dose vaccination series prevents approximately 95 percent of perinatal hepatitis B infections.

- Children born to hepatitis B-infected mothers must be tested for both hepatitis B surface antibody and hepatitis B surface antigen to confirm immunity or detect infection.

The Health Department’s Perinatal Hepatitis B Prevention Program receives the disease reports of pregnant and post-partum women with hepatitis B infection and provides case management to help prevent perinatal hepatitis B infections. The program’s main objectives are to:

- Conduct disease surveillance to identify cases of hepatitis B during pregnancy and cases of perinatal hepatitis B infection.

- Educate infected pregnant and post-partum women about the health risks associated with hepatitis B, the importance of regular medical visits, how hepatitis B is transmitted to others and the need for hepatitis B vaccination and testing of their newborns and other children.

- Track and provide case management to ensure that newborns and other children living with the hepatitis B-infected mother complete their three-dose hepatitis B vaccination series and post-vaccination testing in accordance with the recommended schedules.

- Refer sex partners and other adult household members for screening and vaccination if needed.
Table 4. Hepatitis B in Pregnant Women Living in New York City, 2010 to 2013

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>1,808</td>
<td>N/A</td>
<td>884</td>
<td>1869</td>
<td>N/A</td>
<td>929</td>
<td>1928</td>
<td>N/A</td>
<td>992</td>
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<tr>
<td><strong>Borough of Residence</strong></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Bronx</td>
<td>194</td>
<td>10.7</td>
<td>450</td>
<td>184</td>
<td>9.8</td>
<td>438</td>
<td>228</td>
<td>11.8</td>
<td>574</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>807</td>
<td>44.6</td>
<td>1,119</td>
<td>859</td>
<td>46.0</td>
<td>1,226</td>
<td>862</td>
<td>44.7</td>
<td>1,264</td>
</tr>
<tr>
<td>Manhattan</td>
<td>276</td>
<td>15.3</td>
<td>836</td>
<td>257</td>
<td>13.8</td>
<td>751</td>
<td>231</td>
<td>12.0</td>
<td>687</td>
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<tr>
<td>Queens</td>
<td>494</td>
<td>27.3</td>
<td>1,041</td>
<td>521</td>
<td>27.9</td>
<td>1,127</td>
<td>557</td>
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<td>1,245</td>
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<td>Staten Island</td>
<td>36</td>
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<td>405</td>
<td>46</td>
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<td>538</td>
<td>50</td>
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<td><strong>Race/Ethnicity</strong></td>
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<tr>
<td>Hispanic</td>
<td>69</td>
<td>3.8</td>
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<td>73</td>
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<tr>
<td>White Non-Hispanic</td>
<td>133</td>
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<tr>
<td>Black Non-Hispanic</td>
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<td>Asian/Pacific Islander</td>
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<td>1,360</td>
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<td>51</td>
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<td>84</td>
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<td>South Korea</td>
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<td>N/A</td>
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<td>N/A</td>
<td>19</td>
<td>1.0</td>
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<td>15</td>
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<td>25</td>
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<td>1.0</td>
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<td>20</td>
<td>1.0</td>
<td>N/A</td>
</tr>
<tr>
<td>Other</td>
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<td>324</td>
<td>17.3</td>
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<td>260</td>
<td>18.8</td>
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<td>Unknown</td>
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<td>N/A</td>
<td>65</td>
<td>3.5</td>
<td>N/A</td>
<td>84</td>
<td>4.5</td>
<td>N/A</td>
</tr>
</tbody>
</table>


- The Health Department identified an annual average of 1,852 hepatitis B cases in pregnant women living in New York City.
- The most common race/ethnicity was Asian/Pacific Islander, and most patients were born in China.
### Table 5. Hepatitis B Testing for Infants Born to Mothers with Hepatitis B in New York City, 2009 to 2012

<table>
<thead>
<tr>
<th></th>
<th>2009 Births</th>
<th>2010 Births</th>
<th>2011 Births</th>
<th>2012 Births</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants Born</td>
<td>1,833 N/A</td>
<td>1,692 N/A</td>
<td>1,770 N/A</td>
<td>1,852 N/A</td>
</tr>
<tr>
<td>Tested</td>
<td>1,472 80.3%</td>
<td>1,382 81.7%</td>
<td>1,419 80.2%</td>
<td>1,442 77.9%</td>
</tr>
<tr>
<td>Not Tested</td>
<td>361 19.7%</td>
<td>310 18.3%</td>
<td>351 19.8%</td>
<td>410 22.1%</td>
</tr>
<tr>
<td>Test Results</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infected</td>
<td>21 1.4%</td>
<td>9 0.7%</td>
<td>8 0.6%</td>
<td>9 0.6%</td>
</tr>
<tr>
<td>Immune</td>
<td>1,378 93.6%</td>
<td>1,329 96.2%</td>
<td>1,359 95.8%</td>
<td>1,381 95.8%</td>
</tr>
<tr>
<td>Susceptible</td>
<td>49 3.3%</td>
<td>31 2.2%</td>
<td>32 2.3%</td>
<td>31 2.2%</td>
</tr>
<tr>
<td>Indeterminate</td>
<td>24 1.6%</td>
<td>13 0.9%</td>
<td>20 1.4%</td>
<td>21 1.5%</td>
</tr>
</tbody>
</table>

*Infants are tested between 9 and 16 months of age, so the reporting period for infants is one year prior to the reporting period for mothers.


- On average, 1,787 infants are born each year to hepatitis B-infected mothers in New York City; this represents approximately 1.6 percent of all live births in New York City.
- On average, 80 percent of the infants were tested for hepatitis B; of those tested, an average of 95 percent were immune, 0.8 percent were infected, 2.5 percent were susceptible and 1.4 percent had indeterminate results.
Acute Hepatitis C

Acute hepatitis C infection is very difficult to identify because:

- There are usually no symptoms with initial hepatitis C infection; as a result, it may not be diagnosed at the time of infection.
- There is no laboratory test that is specific for acute hepatitis C, so the Health Department relies on health care providers to report cases.
- When a patient is first diagnosed with hepatitis C, it is difficult to determine when he or she first became infected.

The Health Department identifies fewer than 20 cases each year; this is a vast underestimate of the true number of new hepatitis C infections. Therefore, acute hepatitis C surveillance data are not included in this report.

Data on new hepatitis C infections are useful for planning effective prevention programs; therefore, the Health Department asks that health care providers report acute hepatitis C cases.

- By phone: call the Health Department’s Bureau of Communicable Diseases at 347-396-2600.

In the absence of comprehensive acute hepatitis C surveillance data, the Health Department’s enhanced surveillance project on hepatitis C in youth provides information that can be used to understand trends in recent infection among youth and to plan effective prevention strategies. Please see the section on “Chronic Hepatitis C: Enhanced Surveillance for People 0 to 30 Years of Age.”
Chronic Hepatitis C

Consider these factors when interpreting chronic hepatitis C surveillance data:

- Laboratories are required to report hepatitis C test results to the Health Department, including:
  - Positive results for antibody test with a high signal-to-cutoff value
  - Positive Recombinant ImmunoBlot Assay results (until the test was discontinued in 2012)
  - Positive results for Nucleic Acid Tests (RNA)
  - Negative results for Nucleic Acid Tests (RNA), beginning July 2014
  - Genotype results, if a genotype was detected

- Many patients with chronic hepatitis C are asymptomatic; as a result, many cases are not diagnosed and reported. These data, therefore, underestimate the true level of chronic hepatitis C in New York City.

- Individuals may have a positive antibody test and no longer have the virus, but are included in the data in this report. Based on studies, 15 to 20 percent may fall into this category.

- It is difficult to determine when people newly diagnosed with chronic hepatitis C were first infected; most were probably infected many years before their diagnosis.

- The rates reflect people reported with chronic hepatitis C and are not prevalence rates or incidence rates.

- The Health Department often receives more than one hepatitis C laboratory report per person and, therefore, uses automatic methods to link together multiple laboratory reports for the same person. These methods may be imperfect; as a result, certain cases may inadvertently be counted more than once (e.g., if there is a discrepancy in the person’s name or date of birth).

- The Health Department sends its educational booklet “Hepatitis C: The Facts” to people newly reported with hepatitis C. The booklet was designed to help people infected with hepatitis C learn how to stay healthy. It is available in English, Spanish, Russian, Arabic and Urdu, and can be ordered for free by calling 311. To download the booklet, visit [nyc.gov/html/doh/html/living/hep-c-pubs.shtml](nyc.gov/html/doh/html/living/hep-c-pubs.shtml).
Map 3. People Newly Reported with Chronic Hepatitis C in New York City by Zip Code, 2012 and 2013

Average annual rate per 100,000 people:
- 0.0
- 0.1 - 50.0
- 50.1 - 100.0
- 100.1 - 150.0
- 150.1 - 200.0
- >200.0
Table 6. People Reported with Chronic Hepatitis C in New York City, 2010 to 2013

<table>
<thead>
<tr>
<th>Group</th>
<th>2010 Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
<th>2011 Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
<th>2012 Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
<th>2013 Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
<th>2010 to 2013 combined Number</th>
<th>Percentage (%) of each group</th>
<th>Rate per 100,000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>9,619</td>
<td>N/A</td>
<td>116.6</td>
<td>8,423</td>
<td>N/A</td>
<td>101.8</td>
<td>7,524</td>
<td>N/A</td>
<td>90.2</td>
<td>6,822</td>
<td>N/A</td>
<td>81.2</td>
<td>32,388</td>
<td>N/A</td>
<td>97.3</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>6,212</td>
<td>64.6</td>
<td>158.4</td>
<td>5,327</td>
<td>63.2</td>
<td>135.3</td>
<td>4,793</td>
<td>63.7</td>
<td>120.5</td>
<td>4,272</td>
<td>62.6</td>
<td>106.5</td>
<td>20,604</td>
<td>63.6</td>
<td>130.0</td>
</tr>
<tr>
<td>Female</td>
<td>3,407</td>
<td>35.4</td>
<td>78.7</td>
<td>3,096</td>
<td>36.8</td>
<td>71.4</td>
<td>2,731</td>
<td>36.3</td>
<td>62.5</td>
<td>2,550</td>
<td>37.4</td>
<td>58.0</td>
<td>11,784</td>
<td>36.4</td>
<td>67.6</td>
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<tr>
<td><strong>Age at Time of First Report (in years)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-191</td>
<td>119</td>
<td>1.2</td>
<td>5.9</td>
<td>109</td>
<td>1.3</td>
<td>5.5</td>
<td>113</td>
<td>1.5</td>
<td>5.7</td>
<td>83</td>
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<td>4.2</td>
<td>424</td>
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<tr>
<td>20-29</td>
<td>752</td>
<td>7.8</td>
<td>54.3</td>
<td>692</td>
<td>8.2</td>
<td>49.7</td>
<td>689</td>
<td>9.2</td>
<td>49.2</td>
<td>663</td>
<td>10.0</td>
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<td>2,816</td>
<td>8.7</td>
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<tr>
<td>30-39</td>
<td>1,263</td>
<td>13.1</td>
<td>100.3</td>
<td>1,188</td>
<td>14.1</td>
<td>93.8</td>
<td>1,103</td>
<td>14.7</td>
<td>85.6</td>
<td>1,035</td>
<td>15.2</td>
<td>79.0</td>
<td>4,589</td>
<td>14.2</td>
<td>89.5</td>
</tr>
<tr>
<td>40-49</td>
<td>2,145</td>
<td>22.3</td>
<td>188.0</td>
<td>1,804</td>
<td>21.4</td>
<td>158.4</td>
<td>1,458</td>
<td>19.4</td>
<td>128.0</td>
<td>1,284</td>
<td>18.8</td>
<td>113.6</td>
<td>6,691</td>
<td>20.7</td>
<td>147.1</td>
</tr>
<tr>
<td>50-59</td>
<td>3,151</td>
<td>32.8</td>
<td>306.0</td>
<td>2,584</td>
<td>30.7</td>
<td>249.2</td>
<td>2,132</td>
<td>28.3</td>
<td>202.7</td>
<td>1,844</td>
<td>27.0</td>
<td>172.7</td>
<td>9,711</td>
<td>30.0</td>
<td>232.0</td>
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<tr>
<td>60-69</td>
<td>1,474</td>
<td>15.3</td>
<td>182.2</td>
<td>1,396</td>
<td>15.6</td>
<td>166.2</td>
<td>1,387</td>
<td>19.2</td>
<td>181.3</td>
<td>1,291</td>
<td>18.9</td>
<td>165.0</td>
<td>5,548</td>
<td>17.1</td>
<td>184.3</td>
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<td>70-79</td>
<td>494</td>
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<td>451</td>
<td>5.4</td>
<td>107.5</td>
<td>401</td>
<td>5.3</td>
<td>94.0</td>
<td>393</td>
<td>5.8</td>
<td>89.7</td>
<td>1,739</td>
<td>5.4</td>
<td>102.2</td>
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<td>80+</td>
<td>221</td>
<td>2.3</td>
<td>76.6</td>
<td>199</td>
<td>2.4</td>
<td>68.9</td>
<td>241</td>
<td>3.2</td>
<td>82.9</td>
<td>209</td>
<td>3.1</td>
<td>71.3</td>
<td>870</td>
<td>2.7</td>
<td>74.9</td>
</tr>
<tr>
<td><strong>Year of Birth</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1900-1944</td>
<td>1,144</td>
<td>11.9</td>
<td>162.1</td>
<td>904</td>
<td>10.7</td>
<td>127.6</td>
<td>814</td>
<td>10.8</td>
<td>113.5</td>
<td>702</td>
<td>10.3</td>
<td>96.0</td>
<td>3,564</td>
<td>11.0</td>
<td>124.5</td>
</tr>
<tr>
<td>1945-1965</td>
<td>5,552</td>
<td>57.7</td>
<td>297.7</td>
<td>4,691</td>
<td>55.7</td>
<td>248.2</td>
<td>3,940</td>
<td>52.4</td>
<td>204.7</td>
<td>3,401</td>
<td>49.9</td>
<td>173.6</td>
<td>17,584</td>
<td>54.3</td>
<td>230.2</td>
</tr>
<tr>
<td>1966-1983</td>
<td>2,403</td>
<td>25.7</td>
<td>209.6</td>
<td>2,257</td>
<td>26.8</td>
<td>105.4</td>
<td>2,099</td>
<td>27.9</td>
<td>97.2</td>
<td>1,982</td>
<td>29.1</td>
<td>91.3</td>
<td>8,741</td>
<td>27.0</td>
<td>101.5</td>
</tr>
<tr>
<td>1984-2014</td>
<td>520</td>
<td>5.4</td>
<td>227.7</td>
<td>571</td>
<td>6.8</td>
<td>16.2</td>
<td>671</td>
<td>8.9</td>
<td>18.9</td>
<td>737</td>
<td>10.8</td>
<td>20.8</td>
<td>2,499</td>
<td>7.7</td>
<td>17.6</td>
</tr>
<tr>
<td><strong>Borough of Residence</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronx</td>
<td>2,562</td>
<td>26.6</td>
<td>184.8</td>
<td>2,094</td>
<td>24.9</td>
<td>150.0</td>
<td>1,789</td>
<td>23.8</td>
<td>127.1</td>
<td>1,671</td>
<td>24.5</td>
<td>117.8</td>
<td>8,116</td>
<td>25.1</td>
<td>144.7</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>2,629</td>
<td>27.3</td>
<td>102.8</td>
<td>2,222</td>
<td>26.4</td>
<td>87.5</td>
<td>1,981</td>
<td>26.3</td>
<td>77.1</td>
<td>1,818</td>
<td>26.6</td>
<td>70.1</td>
<td>8,650</td>
<td>26.7</td>
<td>84.3</td>
</tr>
<tr>
<td>Manhattan</td>
<td>2,011</td>
<td>20.9</td>
<td>126.7</td>
<td>1,756</td>
<td>20.8</td>
<td>109.3</td>
<td>1,607</td>
<td>21.4</td>
<td>99.1</td>
<td>1,456</td>
<td>21.3</td>
<td>89.5</td>
<td>6,830</td>
<td>21.1</td>
<td>106.0</td>
</tr>
<tr>
<td>Queens</td>
<td>1,613</td>
<td>16.8</td>
<td>71.6</td>
<td>1,547</td>
<td>18.4</td>
<td>68.5</td>
<td>1,375</td>
<td>18.3</td>
<td>60.4</td>
<td>1,238</td>
<td>18.1</td>
<td>53.9</td>
<td>5,773</td>
<td>17.8</td>
<td>63.6</td>
</tr>
<tr>
<td>Staten Island</td>
<td>410</td>
<td>4.3</td>
<td>87.4</td>
<td>390</td>
<td>4.6</td>
<td>82.8</td>
<td>305</td>
<td>4.1</td>
<td>64.8</td>
<td>248</td>
<td>3.6</td>
<td>52.5</td>
<td>1,353</td>
<td>4.2</td>
<td>71.8</td>
</tr>
<tr>
<td>Unknown</td>
<td>394</td>
<td>N/A</td>
<td>414</td>
<td>414</td>
<td>N/A</td>
<td>467</td>
<td>467</td>
<td>N/A</td>
<td>62.2</td>
<td>391</td>
<td>N/A</td>
<td>5.7</td>
<td>1,666</td>
<td>N/A</td>
<td>5.1</td>
</tr>
</tbody>
</table>
### Table 6. People Reported with Chronic Hepatitis C in New York City, 2010 to 2013 (continued)

<table>
<thead>
<tr>
<th>Group</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2010 to 2013 combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate per 100,000 people</td>
<td>Number</td>
<td>Rate per 100,000 people</td>
<td>Number</td>
</tr>
<tr>
<td>Overall</td>
<td>9,619</td>
<td>N/A</td>
<td>116.6</td>
<td>8,423</td>
<td>N/A</td>
</tr>
<tr>
<td>Percentage (%)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Rate per 100,000 people</td>
<td>12.0</td>
<td>11.5</td>
<td>952</td>
<td>12.7</td>
<td>56.4</td>
</tr>
<tr>
<td>Neighborhood Poverty Level*</td>
<td>Low (&lt;10% below poverty)</td>
<td>1,108</td>
<td>11.5</td>
<td>66.2</td>
<td>952</td>
</tr>
<tr>
<td>Medium (10 to &lt;20%)</td>
<td>3,355</td>
<td>34.9</td>
<td>109.7</td>
<td>2,847</td>
<td>33.8</td>
</tr>
<tr>
<td>High (20 to &lt;30%)</td>
<td>2,351</td>
<td>24.4</td>
<td>119.2</td>
<td>1,971</td>
<td>23.4</td>
</tr>
<tr>
<td>Very high (&gt;=30%)</td>
<td>2,370</td>
<td>24.6</td>
<td>153.2</td>
<td>2,052</td>
<td>24.4</td>
</tr>
<tr>
<td>Unknown</td>
<td>435</td>
<td>4.5</td>
<td>N/A</td>
<td>452</td>
<td>5.4</td>
</tr>
</tbody>
</table>

---

1. The number of people newly reported with chronic hepatitis C decreases each year. This decline is due to increased testing and diagnosis among people living with the virus, and there are fewer undiagnosed people remaining each year.
2. Most people newly reported with chronic hepatitis C were born between 1945 and 1965, the “baby boomer” generation.
3. Nearly two-thirds of people newly reported with chronic hepatitis C are male.
4. Rates of new hepatitis C reports are highest in neighborhoods with very high poverty.
5. Note that surveillance data cannot provide demographic breakdowns for everyone living with hepatitis C in New York City (i.e., prevalent cases). As a proxy, the last two columns included describe everyone reported from 2010 to 2013, regardless of when they were initially reported. These data are the best estimate of the demographic characteristics of those living with hepatitis C in New York City.

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*Neighborhood poverty based on zip code was defined as the percentage of residents with incomes below 100 percent of the Federal Poverty Level, per American Community Survey data from 2007 to 2011.

---

1See Map 4 (People 0 to 29 Years of Age Newly Reported with Hepatitis C in New York City by Zip Code, 2012 and 2013) for the geographic distribution.

2The Bronx includes inmates patients in Rikers Island facilities. In 2010, 474 patients were from Rikers Island; in 2011, 337; in 2012, 285; and in 2013, 367, for a total of 1,462.
Map 4. People 0 to 29 Years of Age Newly Reported with Hepatitis C in New York City by Zip Code, 2012 and 2013

Average annual rate per 100,000 people
- 0.0
- 0.1 - 20.0
- 20.1 - 40.0
- 40.1 - 60.0
- 60.1 - 80.0
- >80.0
Chronic Hepatitis C *Enhanced Surveillance*

From July 2009 to October 2012, the Health Department conducted enhanced surveillance for patients of all ages newly reported with chronic hepatitis C. Every two months, staff collected clinical and epidemiologic data from health care providers of 20 randomly selected hepatitis C patients newly reported within the previous two to three months.

When interpreting New York City’s enhanced chronic hepatitis C data, please consider:

- Hepatitis A and B immunity status is of interest because national guidelines recommend vaccination for people with chronic hepatitis C to prevent further liver damage.

- Hepatitis C surveillance data reflect the time of testing, not the time of initial infection. This is because most people are not diagnosed when they are first infected.

- Information from health care providers was sometimes limited because many patients were tested in settings where they were not getting routine medical care (e.g., jail, emergency rooms, drug treatment facilities).

### Table 7. People Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, July 2009 to October 2012

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall</strong></td>
<td>306</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>200</td>
<td>65.4</td>
</tr>
<tr>
<td>Female</td>
<td>106</td>
<td>34.6</td>
</tr>
<tr>
<td><strong>Age group (in years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-19</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>20-29</td>
<td>22</td>
<td>7.2</td>
</tr>
<tr>
<td>30-39</td>
<td>48</td>
<td>15.7</td>
</tr>
<tr>
<td>40-49</td>
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<td>50-59</td>
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<td>60-69</td>
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<td>70-79</td>
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<td>80+</td>
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<td>1982-1990</td>
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<td>White, non-Hispanic</td>
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<td>Asian, non-Hispanic</td>
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<td>Other</td>
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<td>Unknown</td>
<td>31</td>
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Table 7. People Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, July 2009 to October 2012 (continued)

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (% of each group)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Factors (not mutually exclusive³)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injection drug use</td>
<td>119</td>
<td>38.9</td>
</tr>
<tr>
<td>Intranasal drug use</td>
<td>109</td>
<td>35.6</td>
</tr>
<tr>
<td>Men who had sex with men</td>
<td>11</td>
<td>3.6</td>
</tr>
<tr>
<td>Health care-related exposure</td>
<td>11</td>
<td>3.6</td>
</tr>
<tr>
<td>Heterosexual contact (multiple partners)</td>
<td>87</td>
<td>28.4</td>
</tr>
<tr>
<td>Heterosexual contact (one partner)</td>
<td>22</td>
<td>7.2</td>
</tr>
<tr>
<td>Occupational risk</td>
<td>19</td>
<td>6.2</td>
</tr>
<tr>
<td>Frequent blood sugar tests/use of glucometer</td>
<td>58</td>
<td>19.0</td>
</tr>
<tr>
<td>Ever been in jail or prison</td>
<td>92</td>
<td>30.1</td>
</tr>
<tr>
<td>Tattoo/body piercing at a location other than a professional tattoo parlor</td>
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<td>13.7</td>
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<tr>
<td>Ever been diagnosed with a sexually transmitted disease</td>
<td>58</td>
<td>19.0</td>
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<tr>
<td>Other</td>
<td>9</td>
<td>2.9</td>
</tr>
<tr>
<td>Unknown</td>
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<td>22.5</td>
</tr>
<tr>
<td><strong>Risk Factors (mutually exclusive³)</strong></td>
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<td></td>
</tr>
<tr>
<td>Injection drug use</td>
<td>119</td>
<td>38.9</td>
</tr>
<tr>
<td>Intranasal drug use</td>
<td>37</td>
<td>12.1</td>
</tr>
<tr>
<td>Men who had sex with men</td>
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<td>1.6</td>
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<tr>
<td>Health care-related exposure</td>
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<td>2.9</td>
</tr>
<tr>
<td>Heterosexual contact (multiple partners)</td>
<td>24</td>
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<tr>
<td>Occupational risk</td>
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<td>0.7</td>
</tr>
<tr>
<td>Frequent blood sugar tests/use of glucometer</td>
<td>7</td>
<td>2.3</td>
</tr>
<tr>
<td>Ever been in jail or prison</td>
<td>9</td>
<td>2.9</td>
</tr>
<tr>
<td>Tattoo/body piercing at a location other than a professional tattoo parlor</td>
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<td>1.3</td>
</tr>
<tr>
<td>Ever been diagnosed with a sexually transmitted disease</td>
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<td>1.0</td>
</tr>
<tr>
<td>Unknown</td>
<td>69</td>
<td>22.5</td>
</tr>
<tr>
<td><strong>Reason for Testing (not mutually exclusive)</strong></td>
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<td></td>
</tr>
<tr>
<td>Risk factors for chronic hepatitis C</td>
<td>147</td>
<td>48.0</td>
</tr>
<tr>
<td>Symptoms/elevated liver function tests</td>
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<td>32.0</td>
</tr>
<tr>
<td>Asymptomatic, prenatal, or donor screening</td>
<td>78</td>
<td>25.5</td>
</tr>
<tr>
<td>Follow-up to previously detected hepatitis C marker</td>
<td>45</td>
<td>14.7</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>5.9</td>
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</tbody>
</table>
### Table 7. People Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, July 2009 to October 2012 (continued)

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hepatitis A Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Immune</td>
<td>81</td>
<td>26.5</td>
</tr>
<tr>
<td>Susceptible</td>
<td>31</td>
<td>10.1</td>
</tr>
<tr>
<td>Unknown</td>
<td>194</td>
<td>63.4</td>
</tr>
<tr>
<td><strong>Hepatitis B Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic</td>
<td>3</td>
<td>1.0</td>
</tr>
<tr>
<td>Immune</td>
<td>89</td>
<td>29.1</td>
</tr>
<tr>
<td>Susceptible</td>
<td>49</td>
<td>16.0</td>
</tr>
<tr>
<td>Unknown</td>
<td>165</td>
<td>53.9</td>
</tr>
<tr>
<td><strong>Clinician Provided Patient Counseling on Hepatitis C Transmission</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>80</td>
<td>54.8</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>5.5</td>
</tr>
<tr>
<td>No, will counsel at next visit</td>
<td>10</td>
<td>6.8</td>
</tr>
<tr>
<td>Unknown</td>
<td>48</td>
<td>32.9</td>
</tr>
<tr>
<td><strong>Clinician Provided Patient Counseling on Alcohol Intake</strong></td>
<td></td>
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</tr>
<tr>
<td>Yes</td>
<td>75</td>
<td>51.4</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>13.7</td>
</tr>
<tr>
<td>No, will counsel at next visit</td>
<td>6</td>
<td>4.1</td>
</tr>
<tr>
<td>Unknown</td>
<td>45</td>
<td>30.8</td>
</tr>
<tr>
<td><strong>Patient has a Primary Care Physician</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>96</td>
<td>71.6</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
<td>15.8</td>
</tr>
<tr>
<td>Unknown</td>
<td>15</td>
<td>11.2</td>
</tr>
<tr>
<td><strong>Patient Requested Hepatitis C Educational Booklet</strong></td>
<td></td>
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</tr>
<tr>
<td>Yes</td>
<td>73</td>
<td>54.5</td>
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<tr>
<td>No</td>
<td>32</td>
<td>21.9</td>
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<tr>
<td>Unknown</td>
<td>29</td>
<td>21.6</td>
</tr>
<tr>
<td><strong>Patient Interest in Attending Support Group for People with Hepatitis C</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>23.9</td>
</tr>
<tr>
<td>No</td>
<td>54</td>
<td>40.3</td>
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<tr>
<td>Unknown</td>
<td>47</td>
<td>35.1</td>
</tr>
<tr>
<td>Already attend</td>
<td>1</td>
<td>0.7</td>
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</tbody>
</table>
### Table 7. People Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, July 2009 to October 2012 (continued)

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn about hepatitis C</td>
<td>23</td>
<td>71.9</td>
</tr>
<tr>
<td>Get emotional support</td>
<td>14</td>
<td>43.8</td>
</tr>
<tr>
<td>Get help with treatment/side effects</td>
<td>17</td>
<td>53.1</td>
</tr>
<tr>
<td>Learn to deal with drinking less alcohol</td>
<td>4</td>
<td>12.5</td>
</tr>
</tbody>
</table>

1 Patients were excluded if they were reported due to a laboratory/reporting error (n=31) or had a negative result for hepatitis C RNA (n=63).

2 Countries= Other includes: Cuba (2), Greece (2), Albania (1), Bangladesh (1), Brazil (1), Guinea (1), Guyana (1), Jamaica (1), Mali (1), Mexico (1), Myanmar (1), Panama (1), South Korea (1), Spain (1), Togo (1), Trinidad and Tobago (1).

3 “Mutually exclusive” means that each patient is represented by the risk factor, among risks reported, that poses the highest risk of hepatitis C infection. The table shows risk factors from highest to lowest risk. For example, a person who injected drugs and had health-care related exposure, will be represented only once, in the “Injection drug use” row.

4 Only includes patients who were RNA positive at time of investigation (n=146)

5 Only includes patients who were interviewed by DOHMH (n=134)

6 Among patients interested in attending support group (n=32)
### Table 8. Testing Status of People Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, July 2009 to October 2012

<table>
<thead>
<tr>
<th>Group</th>
<th>Number</th>
<th>Percentage (%) of each group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RNA Testing Status at Time of Initial Investigation (n=369)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RNA positive</td>
<td>146</td>
<td>39.6</td>
</tr>
<tr>
<td>RNA negative</td>
<td>52</td>
<td>14.1</td>
</tr>
<tr>
<td>RNA not done</td>
<td>171</td>
<td>46.3</td>
</tr>
<tr>
<td><strong>RNA Testing Status at Nine Month Follow-Up (among those with RNA not done at time of initial investigation, n=171)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RNA positive</td>
<td>34</td>
<td>19.9</td>
</tr>
<tr>
<td>RNA negative</td>
<td>11</td>
<td>6.4</td>
</tr>
<tr>
<td>RNA not done</td>
<td>126</td>
<td>73.7</td>
</tr>
</tbody>
</table>

1For patients who did not have an RNA test completed at the time of initial investigation, the Health Department reminded the clinician that the RNA test is recommended. Nine months later, staff followed up to determine if the RNA test had been completed.

- Many patients are not getting the recommended hepatitis C RNA testing; as a result, their hepatitis C infection status remains unknown.
- This surveillance project found that 46 percent of patients did not receive RNA testing at the time of initial investigation. At the time of their nine-month follow-up, 126 patients still needed to receive the RNA test. This represents 34 percent of patients overall and 74 percent of those who did not have an RNA test at the time of initial investigation.
Chronic Hepatitis C Enhanced Surveillance for People 0 to 30 Years of Age

From January 2013 through October 2014, the Health Department conducted enhanced surveillance for people 0 to 30 years of age. Every two months, staff collected clinical and epidemiologic data from health care providers for all hepatitis C patients 0 to 21 years of age and a random 50 percent sample of patients 22 to 30 years of age newly reported within the previous two to three months. Patients were not interviewed.

When interpreting New York City’s enhanced chronic hepatitis C data, please consider:

- Hepatitis A and B immunity status is of interest because national guidelines recommend vaccination for people with chronic hepatitis C to prevent further liver damage.

- Hepatitis C surveillance data reflect the time of testing, not the time of initial infection. This is because most people are not diagnosed at the time of their initial infection.

- Information from health care providers was sometimes limited because many patients were tested in settings where they were not getting routine medical care (e.g., jail, emergency rooms, drug treatment facilities).

- Most young people have relatively recent hepatitis C infections. Understanding how they acquired the infection and their risk factors guides the Health Department’s hepatitis C prevention program.

- Please see page 28 for the map of People 0 to 29 Years of Age Newly Reported with Hepatitis C in New York City by Zip Code, 2012 and 2013.
Table 9. People 0 to 30 Years of Age Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, 2013

<table>
<thead>
<tr>
<th>Group</th>
<th>People 0 to 21 years of age (n=126)</th>
<th>People 22 to 30 years of age (n=276)</th>
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</thead>
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<tr>
<td></td>
<td>Percentage (%) in each group</td>
<td>Percentage (%) in each group</td>
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<tr>
<td>Overall&lt;sup&gt;1&lt;/sup&gt;</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Sex</td>
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<tr>
<td>Male</td>
<td>50.8</td>
<td>62.7</td>
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<tr>
<td>Female</td>
<td>49.2</td>
<td>37.3</td>
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<tr>
<td>Birthplace</td>
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<td></td>
</tr>
<tr>
<td>United States (including Puerto Rico)</td>
<td>35.7</td>
<td>30.8</td>
</tr>
<tr>
<td>Former Soviet Union</td>
<td>7.1</td>
<td>4.3</td>
</tr>
<tr>
<td>China</td>
<td>0.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Pakistan</td>
<td>0.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Egypt</td>
<td>–</td>
<td>1.1</td>
</tr>
<tr>
<td>India</td>
<td>1.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Other&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3.2</td>
<td>3.3</td>
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<tr>
<td>Race/Ethnicity</td>
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<td>Hispanic</td>
<td>25.4</td>
<td>30.1</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>16.7</td>
<td>10.5</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>39.7</td>
<td>45.7</td>
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<tr>
<td>Asian, non-Hispanic</td>
<td>11.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Other</td>
<td>1.6</td>
<td>1.1</td>
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<tr>
<td>Unknown</td>
<td>5.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Risk Factors (not mutually exclusive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injection drug use</td>
<td>30.2</td>
<td>48.6</td>
</tr>
<tr>
<td>Perinatal exposure</td>
<td>15.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Intranasal drug use</td>
<td>13.5</td>
<td>25.4</td>
</tr>
<tr>
<td>Men who had sex with men</td>
<td>5.6</td>
<td>8.0</td>
</tr>
<tr>
<td>Health care-related exposure</td>
<td>4.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Heterosexual - multiple partners</td>
<td>9.5</td>
<td>9.4</td>
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<tr>
<td>Heterosexual – 1 partner</td>
<td>4.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Occupational risk</td>
<td>N/A</td>
<td>1.8</td>
</tr>
<tr>
<td>Frequent blood sugar tests/use of glucometer</td>
<td>0.8</td>
<td>2.2</td>
</tr>
<tr>
<td>Other</td>
<td>19.8</td>
<td>37.3</td>
</tr>
<tr>
<td>Unknown</td>
<td>30.2</td>
<td>25.4</td>
</tr>
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</table>
### Table 9. People 0 to 30 Years of Age Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, 2013 (continued)

<table>
<thead>
<tr>
<th>Group</th>
<th>Percentage (%) in each group</th>
<th>Percentage (%) in each group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk Factors (mutually exclusive&lt;sup&gt;3&lt;/sup&gt;)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injection drug use</td>
<td>30.2</td>
<td>48.6</td>
</tr>
<tr>
<td>Perinatal exposure</td>
<td>15.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Intranasal drug use</td>
<td>4.0</td>
<td>6.5</td>
</tr>
<tr>
<td>Men who had sex with men</td>
<td>4.0</td>
<td>5.8</td>
</tr>
<tr>
<td>Health care-related exposure</td>
<td>4.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Heterosexual contact (multiple partners)</td>
<td>4.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Heterosexual contact (one partner)</td>
<td>3.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Occupational risk</td>
<td>N/A</td>
<td>0.7</td>
</tr>
<tr>
<td>Frequent blood sugar tests/use of glucometer</td>
<td>0.8</td>
<td>1.1</td>
</tr>
<tr>
<td>Other</td>
<td>4.8</td>
<td>4.7</td>
</tr>
<tr>
<td>Unknown</td>
<td>30.2</td>
<td>25.4</td>
</tr>
<tr>
<td><strong>Reason for Testing (not mutually exclusive)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk factors for chronic hepatitis C</td>
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<td>50.4</td>
</tr>
<tr>
<td>Symptoms/elevated liver function tests</td>
<td>21.4</td>
<td>19.2</td>
</tr>
<tr>
<td>Asymptomatic, prenatal, or donor screening</td>
<td>31.7</td>
<td>24.6</td>
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<tr>
<td>Follow-up to previously detected hepatitis C marker</td>
<td>6.3</td>
<td>12.0</td>
</tr>
<tr>
<td>Other</td>
<td>5.6</td>
<td>4.7</td>
</tr>
<tr>
<td><strong>RNA Status at Time of Investigation</strong></td>
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</tr>
<tr>
<td>RNA Positive</td>
<td>36.5</td>
<td>37.7</td>
</tr>
<tr>
<td>RNA Negative</td>
<td>27.0</td>
<td>17.0</td>
</tr>
<tr>
<td>RNA not done</td>
<td>36.5</td>
<td>45.2</td>
</tr>
</tbody>
</table>

<sup>1</sup>Patients were excluded if their follow-up antibody test was negative, follow-up RNA test was negative or if the Health Department was unable to reach their provider.

<sup>2</sup>Country= Other: For 0 to 21 years of age: Dominican Republic (2), Bangladesh (2), unknown African country (1), Kuwait (1), Yemen (1). For 22 to 30 years of age: Honduras (1), Mexico (1), Mongolia (1), Nigeria (1), Peru (1), Philippines (1)

<sup>3</sup>“Mutually exclusive” means that each patient is represented by the risk factor, among risks reported, that poses the highest risk of hepatitis C infection. The table shows risk factors from highest to lowest risk. For example, a person who injected drugs and had health care-related exposure, will be represented only once, in the “Injection drug use” row.

- About one-third of cases among patients 0 to 30 years of age did not receive an RNA test, so their infection status was unknown.
- The highest proportion of hepatitis C cases among patients 30 years of age and younger were non-Hispanic Whites.
- Between 19 to 21 percent of patients were tested because of symptoms or elevated liver function tests, suggesting missed opportunities for earlier diagnosis.
Notes

- Denominators used throughout this report are intercensal estimates for the corresponding year.
  - Intercensal estimates for 2011 through 2013 are preliminary.
  - For 2013 poverty level, 2012 intercensal estimates were used to calculate rates.
- Neighborhood poverty based on zip code was defined as the percentage of residents with incomes below 100 percent of the Federal Poverty Level, per American Community Survey data from 2007 to 2011.
- Differences in data between this report and previous reports may be due to factors such as delays in disease reporting, correction of errors and refinements in data processing (for example, the removal of duplicate reports).
- For details on the United Hospital Fund (UHF) neighborhoods, please see nyc.gov/html/doh/downloads/pdf/ah/zipcodetable.pdf
- Rates based on small numerators may not be reliable and should be interpreted with caution.
- Veterans Affairs (VA) healthcare facilities do not report cases through routine surveillance, therefore, people with hepatitis who only receive healthcare at VA facilities are not represented in this report.
- A note on Rikers Island data: 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 includes parts of mainland Queens as well as Rikers Island.) Therefore:
  - For numbers and rates presented by borough, Rikers cases are included with other Bronx cases.
  - For numbers and rates presented by zip code, Rikers is included in zip code 11370.
  - For numbers and rates presented by UHF neighborhood, Rikers is included in the UHF neighborhood of West Queens.

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Questions? Need more information? Please call the Health Department’s Bureau of Communicable Diseases at 347-396-2600, or visit nyc.gov/health

Users can run their own data queries using the Health Department’s EpiQuery module, available at nyc.gov/health

To send feedback on this Hepatitis B and C Surveillance Report, or to request additional information on future reports, please email hep@health.nyc.gov