

Hepatitis B and C Surveillance Report

New York City, 2013
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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

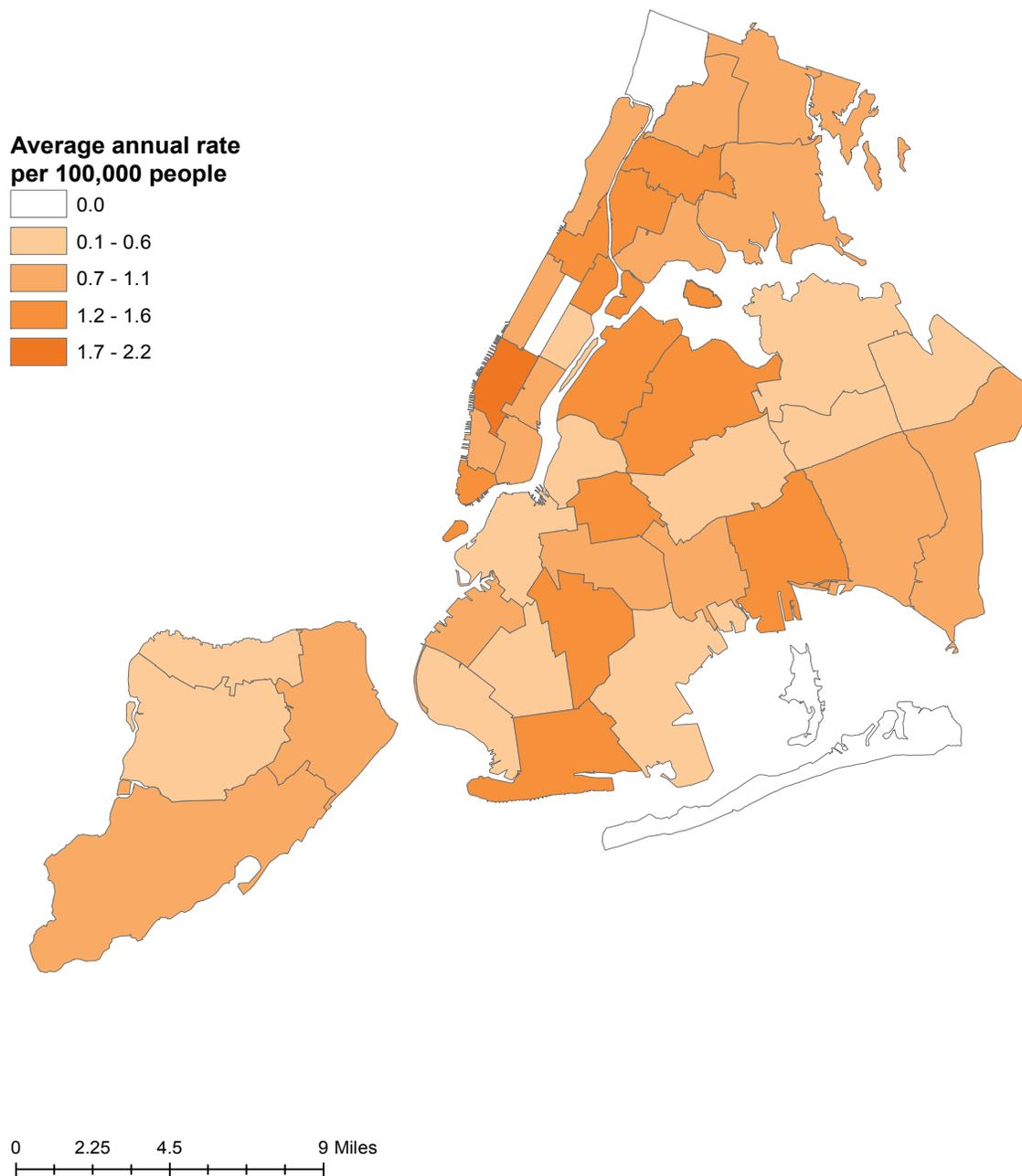


Table 1. Acute Hepatitis B in New York City Residents, 2010 to 2013

Group	2010			2011			2012			2013			2010 to 2013 combined		
	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Average annual rate per 100,000 people
Overall	79	N/A	1.0	80	N/A	1.0	64	N/A	0.8	69	N/A	0.8	292	N/A	0.9
Sex															
Male	49	62.0	1.2	53	66.3	1.3	49	76.6	1.2	50	72.5	1.2	201	68.8	1.3
Female	30	38.0	0.7	27	33.8	0.6	15	23.4	0.3	19	27.5	0.4	91	31.2	0.5
Age at Time of First Report (in years)															
0-19	0	0	N/A	0	N/A	0.0									
20-29	13	16.5	0.9	11	13.8	0.8	10	15.6	0.7	8	11.6	0.6	42	14.4	0.8
30-39	25	31.6	2.0	20	25	1.6	17	26.6	1.3	15	21.7	1.1	77	26.4	1.5
40-49	12	15.2	1.1	27	33.8	2.4	17	26.6	1.5	21	30.4	1.9	77	26.4	1.7
50-59	16	20.2	1.6	11	13.8	1.1	12	18.8	1.1	16	23.2	1.5	55	18.8	1.3
60-69	4	5.1	0.6	6	7.5	0.8	5	7.8	0.7	7	10.1	0.9	22	7.5	0.7
70-79	4	5.1	1.0	4	5.0	1.0	1	1.6	0.2	1	1.4	0.2	10	3.4	0.6
80+	5	6.3	1.7	1	1.3	0.4	2	3.1	0.7	1	1.4	0.3	9	3.1	0.8
Year of Birth															
2000-2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1990-1999	0	0	0	1	1.3	0.1	0	0	0	1	1.4	0.1	2	0.7	0.1
1980-1989	13	16.5	0.9	14	17.5	1.0	12	18.8	0.8	10	14.5	0.7	49	16.8	0.9
1970-1979	25	31.6	2.2	20	25.0	1.7	19	29.7	1.6	21	30.4	1.8	85	29.1	1.8
1960-1969	13	16.5	1.2	25	31.3	2.2	15	23.4	1.4	20	29.0	1.8	73	25.0	1.6
1950-1959	15	19.0	1.7	10	12.5	1.1	12	18.8	1.3	12	17.4	1.3	49	16.8	1.3
Before 1949	13	16.5	1.3	10	12.5	1.0	6	9.4	0.6	5	7.2	0.5	34	11.6	0.8
Race/Ethnicity															
Hispanic	25	31.6	1.1	16	20.0	0.7	12	18.8	0.5	20	29.0	0.8	73	25.0	0.8
White, non-Hispanic	18	22.8	0.7	30	37.5	1.5	19	29.7	0.7	26	37.7	0.9	92	31.5	0.8
Black, non-Hispanic	27	34.2	1.4	25	31.3	1.3	28	43.8	1.5	19	27.5	1.0	99	33.9	1.3
Asian, non-Hispanic	9	11.4	0.8	6	7.5	0.6	4	6.3	0.4	3	4.3	0.3	22	7.5	0.5
Unknown	0	0.0	0	3	3.8	0.04	1	1.6	0.01	1	1.4	0.01	5	1.7	0.02
Borough of Residence															
Bronx	12	15.2	0.9	18	22.5	1.3	10	15.6	0.7	12	17.4	0.9	52	17.8	0.9
Brooklyn	28	35.4	1.1	21	26.3	0.8	14	21.9	0.6	20	29.0	0.8	83	28.4	0.8
Manhattan	17	21.5	1.1	17	21.3	1.1	17	26.6	1.1	14	20.3	0.9	65	22.3	1.0
Queens	19	24.1	0.8	21	26.3	0.9	20	31.3	0.9	20	29.0	0.9	80	27.4	0.9
Staten Island	3	3.8	0.1	3	3.8	0.6	3	4.7	0.6	3	4.3	0.6	12	4.1	0.6

Table 1. Acute Hepatitis B in New York City Residents, 2010 to 2013 (continued)

Group	2010			2011			2012			2013			2010 to 2013 combined		
	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Average annual rate per 100,000 people
Overall	79	N/A	1.0	80	N/A	1.0	64	N/A	0.8	69	N/A	0.8	292	N/A	0.9
Neighborhood Poverty Level¹															
Low (<10% below)	9	11.4	0.5	9	11.3	0.5	11	17.2	0.7	10	14.5	0.6	39	13.4	0.6
Medium (10 to <20%)	27	34.2	0.9	34	42.5	1.1	6	37.5	0.8	35	50.7	1.1	120	41.1	1.0
High (20 to <30%)	26	32.9	1.3	19	23.8	1.0	23	35.9	1.2	11	15.9	0.6	79	27.1	1.0
Very high (>=30%)	17	21.5	1.1	18	22.5	1.2	24	9.4	0.4	13	18.8	0.8	54	18.5	0.9
Risk Factors (mutually exclusive²)															
Injection Drug Use	1	1.3	N/A	2	2.5	N/A	1	1.6	N/A	2	2.9	N/A	6	2.1	N/A
Contact with hepatitis B-infected individuals	6	7.6	N/A	6	7.5	N/A	3	4.7	N/A	5	7.2	N/A	20	6.8	N/A
Men who have sex with men	10	12.7	N/A	16	20.0	N/A	7	10.9	N/A	16	23.2	N/A	49	16.8	N/A
Heterosexual contact (multiple partners)	13	16.5	N/A	7	8.8	N/A	13	20.3	N/A	9	13.0	N/A	42	14.4	N/A
Heterosexual contact (one partner)	31	39.2	N/A	22	27.5	N/A	23	36.0	N/A	17	24.6	N/A	93	31.8	N/A
Health care-related exposure	2	2.5	N/A	1	1.3	N/A	2	3.1	N/A	2	2.9	N/A	7	2.4	N/A
Dental Care	1	1.3	N/A	5	6.3	N/A	0	0	N/A	0	0.0	N/A	6	2.1	N/A
Occupational risk	1	1.3	N/A	0	0	N/A	0	0	N/A	0	0.0	N/A	1	0.3	N/A
Other	5	6.3	N/A	5	6.3	N/A	2	3.1	N/A	4	5.8	N/A	16	5.5	N/A
Unknown	9	11.4	N/A	16	20.0	N/A	13	20.3	N/A	14	20.3	N/A	52	17.8	N/A

¹Neighborhood 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.

Map 2. People Newly Reported with Chronic Hepatitis B in New York City by Zip Code, 2012 and 2013

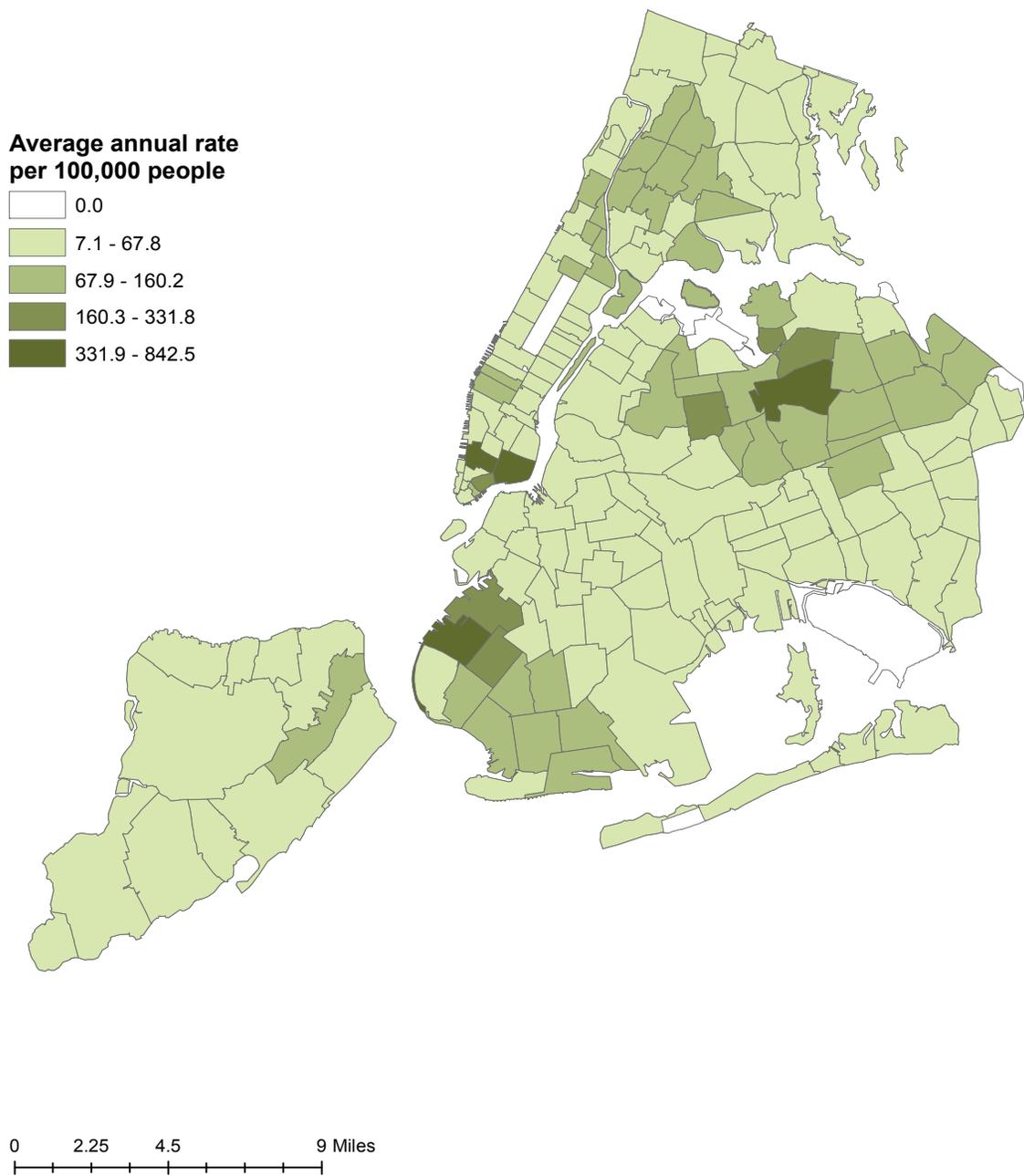


Table 2. People Reported with Chronic Hepatitis B in New York City, 2010 to 2013

Group	NEWLY REPORTED												Total of all people reported 2010 to 2013, regardless of year of initial report				
	2010			2011			2012			2013					2010 to 2013 combined		
	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	rate per 100,000 people	Number	Percentage (%) of each group
Overall	9,922	N/A	120.2	8,643	N/A	104.5	7,949	N/A	95.3	7,558	N/A	89.9	34,072	N/A	102.4	83,420	N/A
Sex																	
Male	5,563	56.1	141.9	4,822	55.8	122.4	4,415	55.5	111.0	4,252	56.3	106.0	19,052	55.9	130.0	45,677	54.8
Female	4,305	43.4	99.4	3,763	43.5	86.8	3,488	43.9	79.9	3,270	43.3	74.4	14,826	43.5	67.6	37,426	44.9
Transgender	0	0.0	N/A	0	0.0	N/A	0	0.0	N/A	1	0.0	N/A	1	0.0	N/A	1	0.0
Unknown	54	0.5	N/A	58	0.7	N/A	46	0.6	N/A	35	0.5	N/A	193	0.6	N/A	316	0.4
Age at Time of First Report (in years)																	
0-19	494	5.0	24.6	356	4.1	17.9	252	3.2	12.7	232	3.1	11.7	1,334	3.9	16.8	4,961	5.9
20-29	2,423	24.4	175.0	2,070	24.0	148.7	1,820	22.9	130.0	1,648	21.8	117.7	7,961	23.4	142.7	21,090	25.3
30-39	2,694	27.2	213.8	2,236	25.9	176.5	2,096	26.4	162.7	1,959	25.9	149.5	8,985	26.4	175.3	22,421	26.9
40-49	2,020	20.4	177.0	1,737	20.1	152.5	1,582	19.9	138.9	1,523	20.2	134.8	6,862	20.1	150.9	17,405	20.9
50-59	1,303	13.1	126.5	1,319	15.3	127.2	1,222	15.4	116.2	1,204	15.9	112.8	5,048	14.8	120.6	10,767	12.9
60-69	593	6.0	82.0	585	6.8	78.8	667	8.4	87.4	647	8.6	82.7	2,492	7.3	82.8	4,705	5.6
70-79	267	2.7	64.0	226	2.6	53.9	231	2.9	54.1	234	3.1	53.4	958	2.8	56.3	1,531	1.8
80+	128	1.3	44.4	114	1.3	39.4	79	1.0	27.2	111	1.5	37.8	432	1.3	37.2	540	0.6
Borough of Residence																	
Bronx	1,005	10.1	72.5	941	10.9	67.4	950	12.0	67.5	970	12.8	68.4	3,866	11.3	68.9	7,844	9.4
Brooklyn	3,533	35.6	138.2	3,078	35.6	121.1	2,789	35.1	108.6	2,545	33.7	98.2	11,945	35.1	116.4	29,550	35.4
Manhattan	2,028	20.4	127.8	1,536	17.8	95.6	1,427	18.0	88.0	1,341	17.7	82.5	6,332	18.6	98.3	18,625	22.3
Queens	2,659	26.8	118.0	2,475	28.6	109.6	2,219	27.9	97.5	1,971	26.1	85.8	9,324	27.4	102.7	23,514	28.2
Staten Island	204	2.1	43.5	157	1.8	33.3	142	1.8	30.2	139	1.8	29.4	642	1.9	34.1	1,591	1.9
Unknown	493	5.0	N/A	456	5.3	N/A	422	5.3	N/A	592	7.8	N/A	1,963	5.8	N/A	2,296	2.8
Neighborhood Poverty Level*																	
Low (<10% below poverty)	844	8.5	50.4	856	9.9	51.0	788	9.9	46.7	675	8.9	40.0	3,163	9.3	47.0	8,323	10.0
Medium (10 to <20%)	3,426	34.5	112.0	3,069	35.5	100.2	2,816	35.4	91.2	2,665	35.3	86.3	11,976	35.1	97.4	30,543	36.6
High (20 to <30%)	3,639	36.7	184.5	2,918	33.8	147.6	2,670	33.6	133.9	2,436	32.2	122.1	11,663	34.2	146.9	30,502	36.6
Very High (>=30%)	1,461	14.7	94.4	1,286	14.9	82.9	1,213	15.3	77.5	1,159	15.3	74.1	5,119	15.0	82.2	11,461	13.7
Unknown	552	5.6	N/A	514	5.9	N/A	462	5.8	N/A	623	8.2	N/A	2,151	6.3	N/A	2,591	3.1

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

- 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.

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.

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:
 - Centers for Disease Control and Prevention. Surveillance for Chronic Hepatitis B Virus Infection – New York City. MMWR 2012;61(No. RR-1):6-9.

Table 3. People Newly Reported with Chronic Hepatitis B in New York City, Enhanced Surveillance, January 2010 to July 2012

Group	Number	Percentage (%) of each group
Overall	268	N/A
Race/Ethnicity		
Hispanic	20	7.5
White, non-Hispanic	15	5.6
Black, non-Hispanic	38	14.2
Asian, non-Hispanic	160	59.7
Other	7	2.6
Unknown	28	10.4
Birthplace		
United States	14	5.2
China	133	49.3
Dominican Republic	6	2.2
Ghana	5	1.9
Former Soviet Union	5	1.9
Jamaica	4	1.5
Nigeria	4	1.5
Haiti	3	1.1
Philippines	3	1.1
South Korea	3	1.1
Taiwan	3	1.1
Other ¹	31	12.3
Unknown	54	20.1
Reason for Testing (not mutually exclusive)		
Born in high-prevalence country	121	45.1
Routine screening - no risk factors	97	36.2
Risk factors for chronic hepatitis B	12	4.5
Follow-up to previously detected hepatitis marker	11	4.1
Elevated liver function tests	27	10.1
Prenatal screening	26	9.7
Hepatitis symptoms	5	1.9
Donor screening	1	0.4
Risk Factors for Hepatitis B Infection (not mutually exclusive)		
Perinatal exposure	19	7.1
Household contact	11	4.1
Injection drug use	5	1.9
Heterosexual contact	4	1.5
Homosexual contact	1	0.4
Other	11	4.1
Unknown and None	184	68.7

Table 3. People Newly Reported with Chronic Hepatitis B in New York City, Enhanced Surveillance, January 2010 to July 2012 (continued)

Group	Number	Percentage (%) of each group
Overall	268	N/A
Hepatitis A Status		
Immune or received at least one vaccine dose	94	35.1
Susceptible	23	8.6
Unknown	151	56.3
Currently Seeing a Physician for Hepatitis B Care		
Yes	195	72.8
No	38	14.2
Unknown	35	13.1
Counseled by Provider About Avoiding Alcohol		
Yes	148	55.2
No	21	7.8
No, patient never drinks	62	23.1
No, will counsel at next visit	1	0.4
Unknown	36	13.4
Counseled by Provider About Notifying Close Contacts so They Can be Tested/ Vaccinated		
Yes	193	72.0
No	16	6.0
No, will counsel next visit	21	7.8
Unknown	38	14.2
Counseled by Provider About Avoiding Transmission of Hepatitis B to Others		
Yes	200	74.6
No	15	5.6
No, will counsel at next visit	22	8.2
Unknown	31	11.6

¹Other 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

Group	2010			2011			2012			2013		
	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people
Overall	1,808	N/A	884	1869	N/A	929	1928	N/A	992	1,802	N/A	927
Borough of Residence												
Bronx	194	10.7	450	184	9.8	438	228	11.8	574	200	11.1	504
Brooklyn	807	44.6	1,119	859	46.0	1,226	862	44.7	1,264	793	44.0	1,162
Manhattan	276	15.3	836	257	13.8	751	231	12.0	687	217	12.0	646
Queens	494	27.3	1,041	521	27.9	1,127	557	28.9	1,245	551	30.6	1,232
Staten Island	36	2.0	405	46	2.5	538	50	2.6	621	41	2.3	509
Unknown	1	0.1	N/A	2	0.1	N/A	0	0	N/A	0	0.0	N/A
Race/Ethnicity												
Hispanic	69	3.8	N/A	73	3.9	N/A	78	4.1	N/A	66	3.7	N/A
White Non-Hispanic	133	7.4	N/A	112	6.0	N/A	122	6.3	N/A	139	7.7	N/A
Black Non-Hispanic	285	15.8	N/A	287	15.4	N/A	268	13.9	N/A	252	14.0	N/A
Asian/Pacific Islander	1,272	70.4	N/A	1,340	71.7	N/A	1,360	70.5	N/A	1,259	69.9	N/A
Other	23	1.3	N/A	29	1.6	N/A	48	2.5	N/A	51	2.8	N/A
Unknown	26	1.4	N/A	28	1.5	N/A	52	2.7	N/A	35	1.9	N/A
Birthplace												
China	1,084	60.0	N/A	1,152	61.6	N/A	1,149	59.6	N/A	1,058	58.7	N/A
Ghana	33	1.8	N/A	45	2.4	N/A	43	2.2	N/A	60	3.3	N/A
Uzbekistan	44	2.4	N/A	28	1.5	N/A	37	1.9	N/A	60	3.3	N/A
United States	47	2.6	N/A	51	2.7	N/A	84	4.4	N/A	58	3.2	N/A
Dominican Republic	57	3.2	N/A	48	2.6	N/A	54	2.8	N/A	41	2.3	N/A
Haiti	23	1.3	N/A	30	1.6	N/A	19	1.0	N/A	28	1.6	N/A
South Korea	13	0.7	N/A	21	1.1	N/A	19	1.0	N/A	28	1.6	N/A
Bangladesh	20	1.1	N/A	16	0.9	N/A	15	0.8	N/A	27	1.5	N/A
Taiwan	24	1.3	N/A	27	1.4	N/A	15	0.8	N/A	26	1.4	N/A
Guinea	32	1.8	N/A	28	1.5	N/A	25	1.3	N/A	21	1.2	N/A
Senegal	17	0.9	N/A	20	1.1	N/A	20	1.0	N/A	21	1.2	N/A
Albania	24	1.3	N/A	14	0.7	N/A	20	1.0	N/A	20	1.1	N/A
Other	286	15.8	N/A	324	17.3	N/A	260	18.8	N/A	307	17.0	N/A
Unknown	104	5.8	N/A	65	3.5	N/A	84	4.5	N/A	47	2.7	N/A

*Based on 204,610 pregnancies in 2010 (Vital Statistics Report, 2010; nyc.gov/html/doh/downloads/pdf/vs/2010sum.pdf); 201,087 pregnancies in 2011 (Vital Statistics Report, 2011 nyc.gov/html/doh/downloads/pdf/vs/2011sum.pdf); and 194,322 pregnancies in 2012 and 2013 (Vital Statistics Report, 2012; nyc.gov/html/doh/downloads/pdf/vs/vs-appendix-a-2012.pdf).

- 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

	2009 Births			2010 Births			2011 Births			2012 Births		
	Number	Percentage (%) of each group	Rate per** 100,000 people	Number	Percentage (%) of each group	Rate per** 100,000 people	Number	Percentage (%) of each group	Rate per** 100,000 people	Number	Percentage (%) of each group	Rate per** 100,000 people
Infants Born	1,833	N/A	1,570	1,692	N/A	1,472	1,770	N/A	1,560	1,852	N/A	1,632
Testing Status												
Tested	1,472	80.3	N/A	1,382	81.7	N/A	1,419	80.2	N/A	1,442	77.9	N/A
Not Tested	361	19.7	N/A	310	18.3	N/A	351	19.8	N/A	410	22.1	N/A
Test Results												
Infected	21	1.4	N/A	9	0.7	N/A	8	0.6	N/A	9	0.6	N/A
Immune	1,378	93.6	N/A	1,329	96.2	N/A	1,359	95.8	N/A	1,381	95.8	N/A
Susceptible	49	3.3	N/A	31	2.2	N/A	32	2.3	N/A	31	2.2	N/A
Indeterminate	24	1.6	N/A	13	0.9	N/A	20	1.4	N/A	21	1.5	N/A

*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.

**Based on 116,752 live births for 2009 (Vital Statistics Report, 2009 nyc.gov/html/doh/downloads/pdf/vs/2009sum.pdf); 114,908 live births for 2010 (Vital Statistics Report, 2010 nyc.gov/html/doh/downloads/pdf/vs/2010sum.pdf); 113,486 live births for 2011 (Vital Statistics Report, 2011 nyc.gov/html/doh/downloads/pdf/vs/2011sum.pdf); and 113,461 live births for 2012 (Vital Statistics Report, 2012 nyc.gov/html/doh/downloads/pdf/vs/vs-appendix-a-2012.pdf).

- 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.
- Online: use Reporting Central at nyc.gov/html/doh/html/hcp/hcp-urfl.shtml. If you need assistance, call the Provider Access Line at 866-692-3641.

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.

Map 3. People Newly Reported with Chronic Hepatitis C in New York City by Zip Code, 2012 and 2013

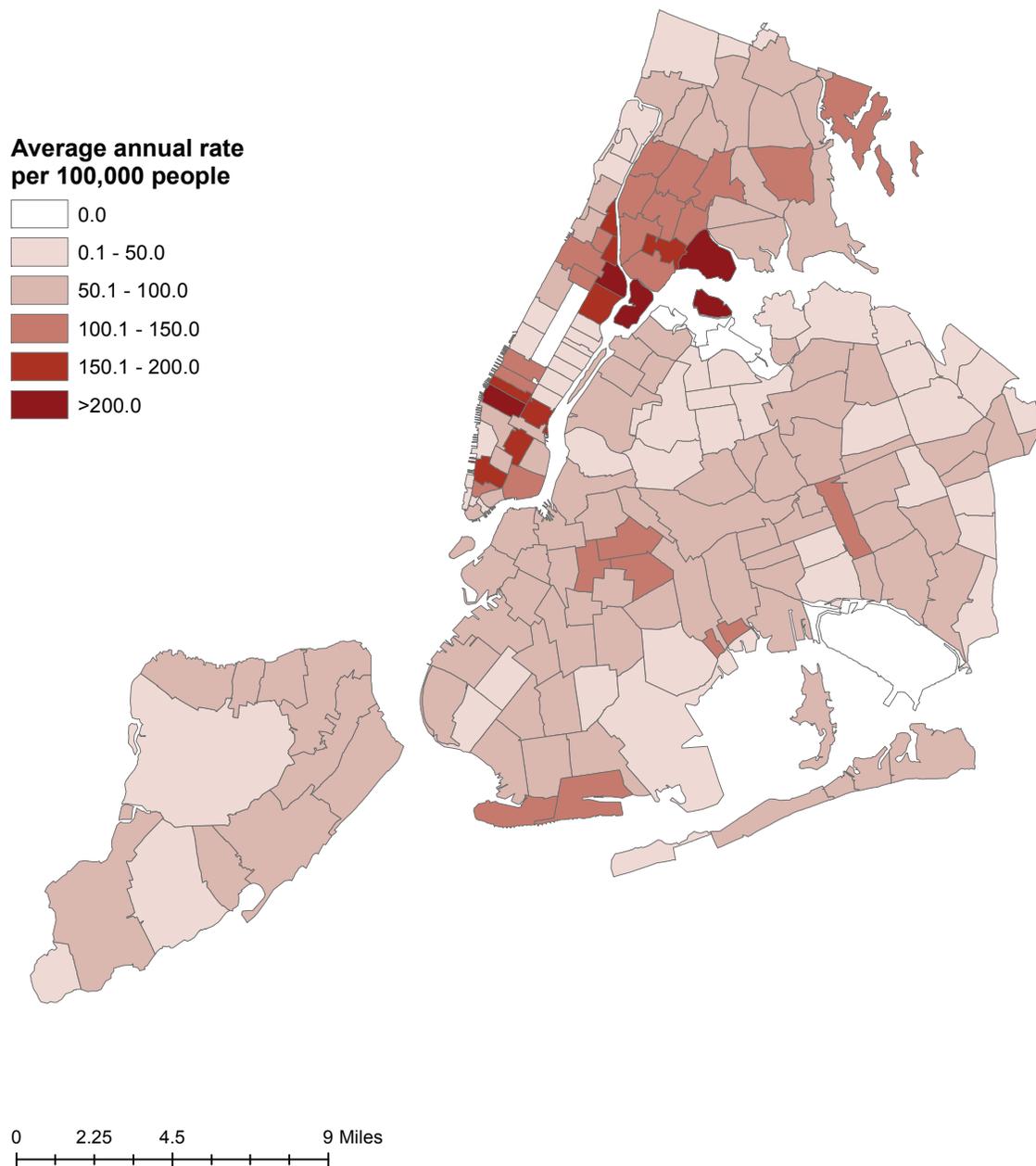


Table 6. People Reported with Chronic Hepatitis C in New York City, 2010 to 2013

Group	NEWLY REPORTED												Total of all people reported 2010 to 2013, regardless of year of initial report				
	2010			2011			2012			2013					2010 to 2013 combined		
	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group
Overall	9,619	N/A	116.6	8,423	N/A	101.8	7,524	N/A	90.2	6,822	N/A	81.2	32,388	N/A	97.3	91,699	N/A
Sex																	
Male	6,212	64.6	158.4	5,327	63.2	135.3	4,793	63.7	120.5	4,272	62.6	106.5	20,604	63.6	130.0	58,678	64.0
Female	3,407	35.4	78.7	3,096	36.8	71.4	2,731	36.3	62.5	2,550	37.4	58.0	11,784	36.4	67.6	32,991	36.0
Age at Time of First Report (in years)																	
0-19 ¹	119	1.2	5.9	109	1.3	5.5	113	1.5	5.7	83	1.2	4.2	424	1.3	5.3	880	1.0
20-29 ¹	752	7.8	54.3	692	8.2	49.7	689	9.2	49.2	683	10.0	48.8	2,816	8.7	50.5	5,793	6.3
30-39	1,263	13.1	100.3	1,188	14.1	93.8	1,103	14.7	85.6	1,035	15.2	79.0	4,589	14.2	89.5	13,729	15.0
40-49	2,145	22.3	188.0	1,804	21.4	158.4	1,458	19.4	128.0	1,284	18.8	113.6	6,691	20.7	147.1	27,437	29.9
50-59	3,151	32.8	306.0	2,584	30.7	249.2	2,132	28.3	202.7	1,844	27.0	172.7	9,711	30.0	232.0	28,699	31.3
60-69	1,474	15.3	203.7	1,396	16.6	188.2	1,387	18.4	181.8	1,291	18.9	165.0	5,548	17.1	184.3	10,783	11.8
70-79	494	5.1	118.4	451	5.4	107.5	401	5.3	94.0	393	5.8	89.7	1,739	5.4	102.2	3,159	3.4
80+	221	2.3	76.6	199	2.4	68.9	241	3.2	82.9	209	3.1	71.3	870	2.7	74.9	1,189	1.3
Year of Birth																	
1900-1944	1,144	11.9	162.1	904	10.7	127.6	814	10.8	113.5	702	10.3	96.0	3,564	11.0	124.5	10,326	11.3
1945-1965	5,552	57.7	297.7	4,691	55.7	248.2	3,940	52.4	204.7	3,401	49.9	173.6	17,584	54.3	230.2	59,669	65.1
1966-1983	2,403	25	112.4	2,257	26.8	105.4	2,099	27.9	97.2	1,982	29.1	91.3	8,741	27.0	101.5	18,448	20.1
1984-2014	520	5.4	14.7	571	6.8	16.2	671	8.9	18.9	737	10.8	20.8	2,499	7.7	17.6	3,226	3.5
Borough of Residence																	
Bronx ²	2,562	26.6	184.8	2,094	24.9	150.0	1,789	23.8	127.1	1,671	24.5	117.8	8,116	25.1	144.7	24,803	27.0
Brooklyn	2,629	27.3	102.8	2,222	26.4	87.5	1,981	26.3	77.1	1,818	26.6	70.1	8,650	26.7	84.3	25,565	27.9
Manhattan	2,011	20.9	126.7	1,756	20.8	109.3	1,607	21.4	99.1	1,456	21.3	89.5	6,830	21.1	106.0	20,425	22.3
Queens	1,613	16.8	71.6	1,547	18.4	68.5	1,375	18.3	60.4	1,238	18.1	53.9	5,773	17.8	63.6	15,064	16.4
Staten Island	410	4.3	87.4	390	4.6	82.8	305	4.1	64.8	248	3.6	52.5	1,353	4.2	71.8	3,853	4.2
Unknown	394	4.1	N/A	414	4.9	N/A	467	6.2	N/A	391	5.7	N/A	1,666	5.1	N/A	1,959	2.1

Table 6. People Reported with Chronic Hepatitis C in New York City, 2010 to 2013 (continued)

Group	NEWLY REPORTED												Total of all people reported 2010 to 2013, regardless of year of initial report				
	2010			2011			2012			2013					2010 to 2013 combined		
	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group	Rate per 100,000 people	Number	Percentage (%) of each group
Overall	9,619	N/A	116.6	8,423	N/A	101.8	7,524	N/A	90.2	6,822	N/A	81.2	32,388	N/A	97.3	91,699	N/A
Neighborhood Poverty Level*																	
Low (<10% below poverty)	1,108	11.5	66.2	1,101	13.1	65.6	952	12.7	56.4	819	12.0	48.5	3,980	12.3	59.1	11,007	12.0
Medium (10 to <20%)	3,355	34.9	109.7	2,847	33.8	93.0	2,597	34.5	84.1	2,503	36.7	81.0	11,302	34.9	91.9	30,789	33.6
High (20 to <30%)	2,351	24.4	119.2	1,971	23.4	99.7	1,736	23.1	87.0	1,560	22.9	78.2	7,618	23.5	96.0	22,847	24.9
Very high (>=30%)	2,370	24.6	153.2	2,052	24.4	132.3	1,755	23.3	112.2	1,524	22.3	97.4	7,701	23.8	123.7	24,812	27.1
Unknown	435	4.5	N/A	452	5.4	N/A	484	6.4	N/A	416	6.1	N/A	1,787	5.5	N/A	2,214	2.4

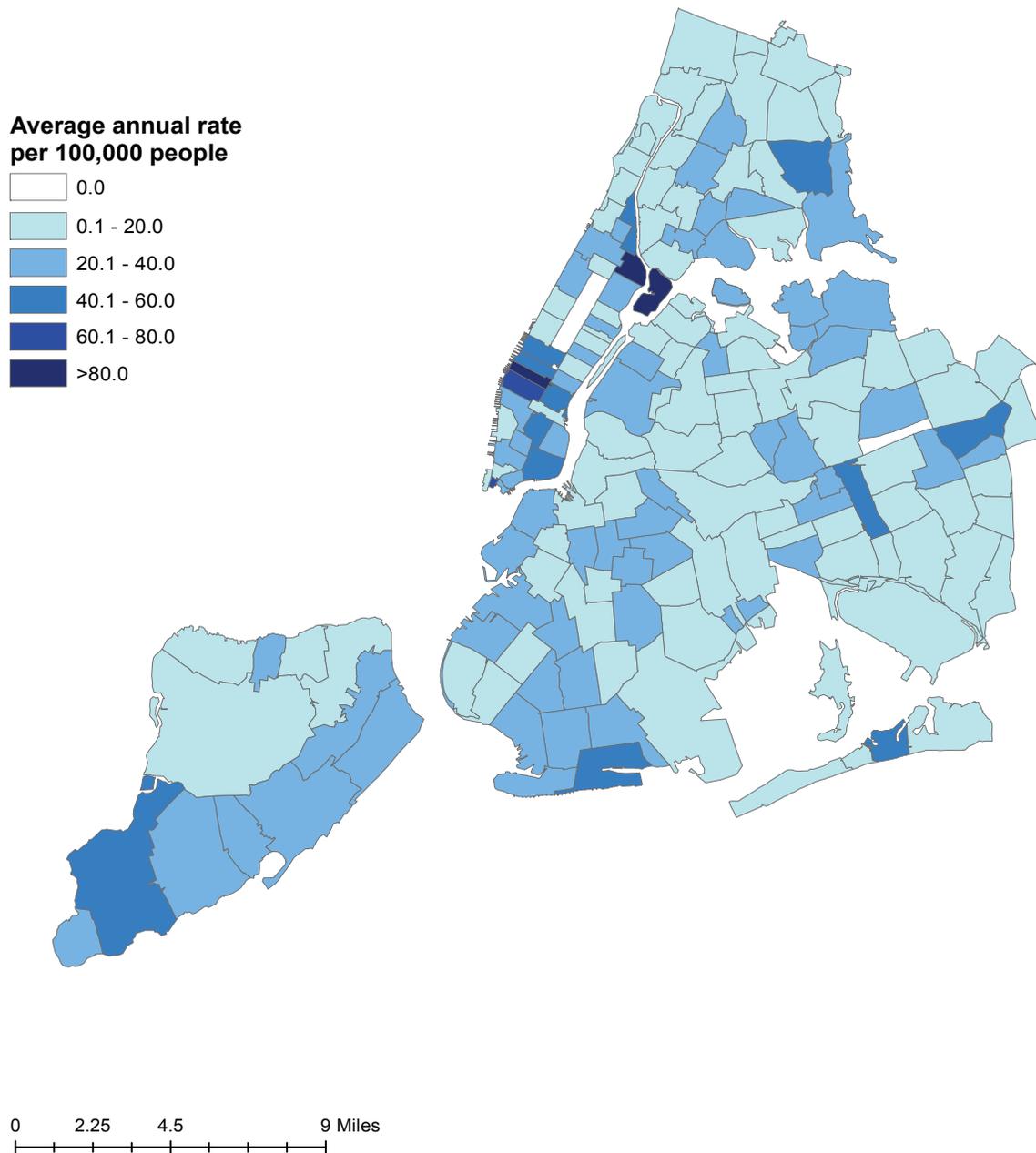
¹See Map 4 (People 0 to 29 Years of Age Newly Reported with Hepatitis C in New York City by Zip Code, 2012 and 2013) for the geographic distribution.

²The Bronx includes inmate 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.

*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.

- 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.
- Most people newly reported with chronic hepatitis C were born between 1945 and 1965, the “baby boomer” generation.
- Nearly two-thirds of people newly reported with chronic hepatitis C are male.
- Rates of new hepatitis C reports are highest in neighborhoods with very high poverty.
- 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.

Map 4. People 0 to 29 Years of Age Newly Reported with Hepatitis C in New York City by Zip Code, 2012 and 2013



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).
- More information can be found in: Enhanced Chronic Hepatitis C Surveillance in New York City, April 2009-January 2011, Drezner et al, Public Health Reports. 2013 Nov-Dec;128(6):510-8 and Half a Diagnosis: Gap in Confirming Infection among Hepatitis C Antibody-positive Patients, McGibbon et al, Am J Med. 2013 Aug;126(8):718-22.

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

Group	Number	Percentage (%) of each group
Overall¹	306	N/A
Sex		
Male	200	65.4
Female	106	34.6
Age group (in years)		
0-19	1	0.3
20-29	22	7.2
30-39	48	15.7
40-49	64	20.9
50-59	99	32.4
60-69	48	15.7
70-79	14	4.6
80+	10	3.3
Year of Birth		
1900-1944	35	11.4
1945-1965	170	55.6
1966-1981	79	25.8
1982-1990	21	6.9
1991-2012	1	0.3
Birthplace		
United States (including Puerto Rico)	155	50.7
Former Soviet Union	14	4.6
Dominican Republic	6	2.0
Pakistan	6	2.0
Haiti	5	1.6
China	4	1.3
Egypt	3	1.0
Other ²	18	5.9
Unknown	95	31.0
Race/Ethnicity		
Hispanic	94	30.7
Black, non-Hispanic	92	30.1
White, non-Hispanic	65	21.2
Asian, non-Hispanic	17	5.6
Other	7	2.3
Unknown	31	10.1

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

Group	Number	Percentage (%) of each group
Risk Factors (not mutually exclusive³)		
Injection drug use	119	38.9
Intranasal drug use	109	35.6
Men who had sex with men	11	3.6
Health care-related exposure	11	3.6
Heterosexual contact (multiple partners)	87	28.4
Heterosexual contact (one partner)	22	7.2
Occupational risk	19	6.2
Frequent blood sugar tests/use of glucometer	58	19.0
Ever been in jail or prison	92	30.1
Tattoo/body piercing at a location other than a professional tattoo parlor	42	13.7
Ever been diagnosed with a sexually transmitted disease	58	19.0
Other	9	2.9
Unknown	69	22.5
Risk Factors (mutually exclusive³)		
Injection drug use	119	38.9
Intranasal drug use	37	12.1
Men who had sex with men	5	1.6
Health care-related exposure	9	2.9
Heterosexual contact (multiple partners)	24	7.8
Heterosexual contact (one partner)	18	5.9
Occupational risk	2	0.7
Frequent blood sugar tests/use of glucometer	7	2.3
Ever been in jail or prison	9	2.9
Tattoo/body piercing at a location other than a professional tattoo parlor	4	1.3
Ever been diagnosed with a sexually transmitted disease	3	1.0
Unknown	69	22.5
Reason for Testing (not mutually exclusive)		
Risk factors for chronic hepatitis C	147	48.0
Symptoms/elevated liver function tests	98	32.0
Asymptomatic, prenatal, or donor screening	78	25.5
Follow-up to previously detected hepatitis C marker	45	14.7
Other	18	5.9

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

Group	Number	Percentage (%) of each group
Hepatitis A Status		
Immune	81	26.5
Susceptible	31	10.1
Unknown	194	63.4
Hepatitis B Status		
Chronic	3	1.0
Immune	89	29.1
Susceptible	49	16.0
Unknown	165	53.9
Clinician Provided Patient Counseling on Hepatitis C Transmission⁴		
Yes	80	54.8
No	8	5.5
No, will counsel at next visit	10	6.8
Unknown	48	32.9
Clinician Provided Patient Counseling on Alcohol Intake⁴		
Yes	75	51.4
No	20	13.7
No, will counsel at next visit	6	4.1
Unknown	45	30.8
Patient has a Primary Care Physician⁵		
Yes	96	71.6
No	23	15.8
Unknown	15	11.2
Patient Requested Hepatitis C Educational Booklet⁵		
Yes	73	54.5
No	32	21.9
Unknown	29	21.6
Patient Interest in Attending Support Group for People with Hepatitis C⁵		
Yes	32	23.9
No	54	40.3
Unknown	47	35.1
Already attend	1	0.7

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

Group	Number	Percentage (%) of each group
Patient's Reason for Interest in Attending Hepatitis C Support Group (not mutually exclusive)⁶		
Learn about hepatitis C	23	71.9
Get emotional support	14	43.8
Get help with treatment/side effects	17	53.1
Learn to deal with drinking less alcohol	4	12.5

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

Group	Number	Percentage (%) of each group
RNA Testing Status at Time of Initial Investigation (n=369)		
RNA positive	146	39.6
RNA negative	52	14.1
RNA not done	171	46.3
RNA Testing Status at Nine Month Follow-Up (among those with RNA not done at time of initial investigation, n=171)¹		
RNA positive	34	19.9
RNA negative	11	6.4
RNA not done	126	73.7

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

Group	People 0 to 21 years of age (n=126)	People 22 to 30 years of age (n=276)
	Percentage (%) in each group	Percentage (%) in each group
Overall¹	N/A	N/A
Sex		
Male	50.8	62.7
Female	49.2	37.3
Birthplace		
United States (including Puerto Rico)	35.7	30.8
Former Soviet Union	7.1	4.3
China	0.8	1.1
Pakistan	0.8	1.1
Egypt	–	1.1
India	1.6	0.4
Other ²	3.2	3.3
Unknown	50.8	58.0
Race/Ethnicity		
Hispanic	25.4	30.1
Black, non-Hispanic	16.7	10.5
White, non-Hispanic	39.7	45.7
Asian, non-Hispanic	11.1	7.6
Other	1.6	1.1
Unknown	5.6	5.1
Risk Factors (not mutually exclusive)		
Injection drug use	30.2	48.6
Perinatal exposure	15.1	0.4
Intranasal drug use	13.5	25.4
Men who had sex with men	5.6	8.0
Health care-related exposure	4.0	2.2
Heterosexual - multiple partners	9.5	9.4
Heterosexual – 1 partner	4.8	5.1
Occupational risk	N/A	1.8
Frequent blood sugar tests/use of glucometer	0.8	2.2
Other	19.8	37.3
Unknown	30.2	25.4

Table 9. People 0 to 30 Years of Age Newly Reported with Chronic Hepatitis C in New York City, Enhanced Surveillance, 2013 (continued)

Group	Percentage (%) in each group	Percentage (%) in each group
Risk Factors (mutually exclusive³)		
Injection drug use	30.2	48.6
Perinatal exposure	15.1	0.4
Intranasal drug use	4.0	6.5
Men who had sex with men	4.0	5.8
Health care-related exposure	4.0	2.2
Heterosexual contact (multiple partners)	4.0	2.5
Heterosexual contact (one partner)	3.2	2.2
Occupational risk	N/A	0.7
Frequent blood sugar tests/use of glucometer	0.8	1.1
Other	4.8	4.7
Unknown	30.2	25.4
Reason for Testing (not mutually exclusive)		
Risk factors for chronic hepatitis C	51.6	50.4
Symptoms/elevated liver function tests	21.4	19.2
Asymptomatic, prenatal, or donor screening	31.7	24.6
Follow-up to previously detected hepatitis C marker	6.3	12.0
Other	5.6	4.7
RNA Status at Time of Investigation		
RNA Positive	36.5	37.7
RNA Negative	27.0	17.0
RNA not done	36.5	45.2

¹Patients 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.

²Country= 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)

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.

- 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

