HEPATITIS C CLINICAL TRAINING

Hepatitis C: Epidemiology, Natural History and Diagnosis

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Training Development and Funding

- This training is designed in collaboration NYC Department of Homeless Services (DHS)

- This training is funded by the NYC City Council

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Have a question for the presenter

- Type the question into the chat box and Meg will read them aloud to the presenter at the end

Claiming CE

- After the training, you will receive an e-mail with instructions, the course number, and the access code
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For Additional Information

- Visit https://empireliverfoundation.org/about-us/cme-accreditation/

Overarching Learning Objectives

By the end of this presentation, participants will be able to:

- Describe the importance of interprofessional collaboration in effectively meeting the healthcare, educational, and psychosocial needs of patients living with hepatitis B or C infection.
- Describe the epidemiology of hepatitis B and C infections.
- Describe the natural history of hepatitis B and hepatitis C infection.
- Discuss updated guidelines to identify patients at risk for hepatitis B and/or hepatitis C infection
- Identify appropriate antiviral treatments for people living with hepatitis B or hepatitis C
- Explain the efficacy and safety of current and emerging therapies for hepatitis B and C
- Summarize how to counsel patients diagnosed with hepatitis B or C.

Learning Objectives

By the end of this presentation, participants will be able to:

- Recall the epidemiology and natural history of the hepatitis C virus (HCV)
- Identify and interpret diagnostic tests for HCV
- Explain pre-therapy assessment of HCV patients, including assessment of liver fibrosis
- Describe the impact of HCV treatment on patient outcomes

Case Study 1

Patient is a 65-year-old man with a positive HCV antibody with reflex to RNA test, confirming active infection. He has a history of injection drug use as a teenager. He reports feeling well but was noted to have ALT levels of 55 U/L on a routine PE. He was asked to return for additional blood work. Further testing showed his HCV RNA viral load to be 850,000 IU/mL. He currently drinks alcohol, mostly on weekends.

Think about what you would do next.
We will review at end of presentation.

Case Study 2

Patient is a 28-year-old woman with a positive HCV antibody with reflex to RNA test, confirming active infection. She reports being an active intravenous drug user. She reports feeling well but was noted to have ALT levels of 187 U/L on a routine PE. She was asked to return for additional blood work. Further testing showed her HCV RNA viral load to be 550,000 IU/mL.

Think about what you would do next.
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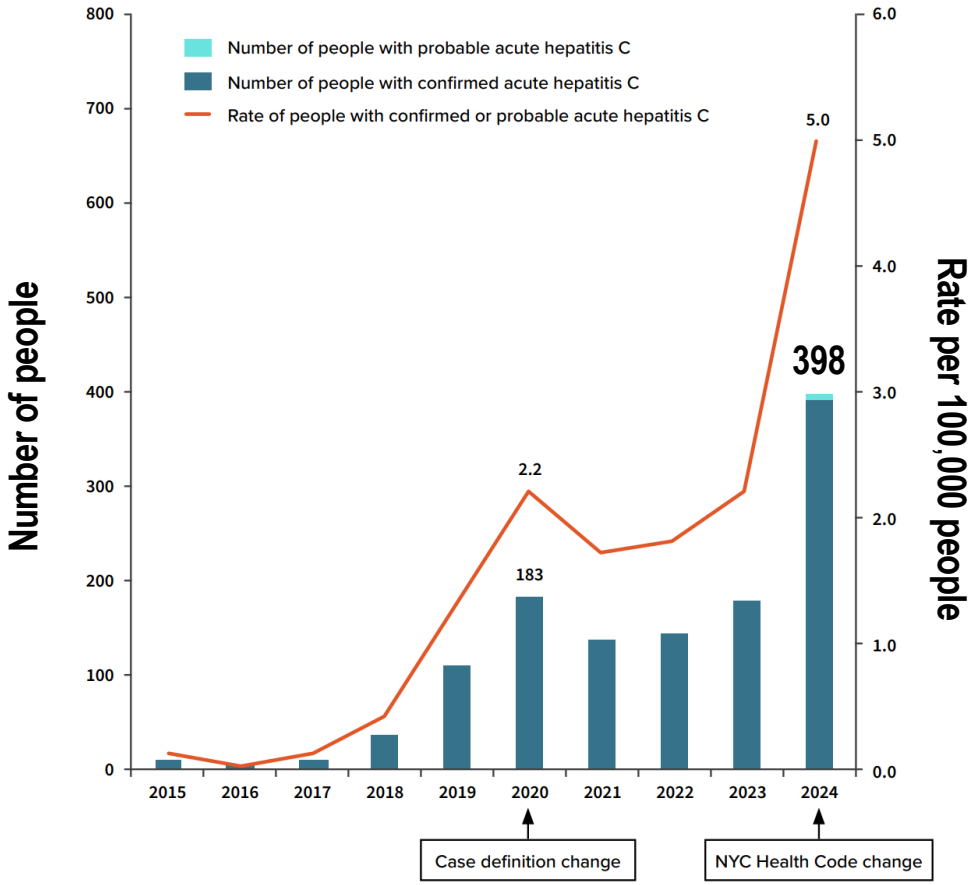
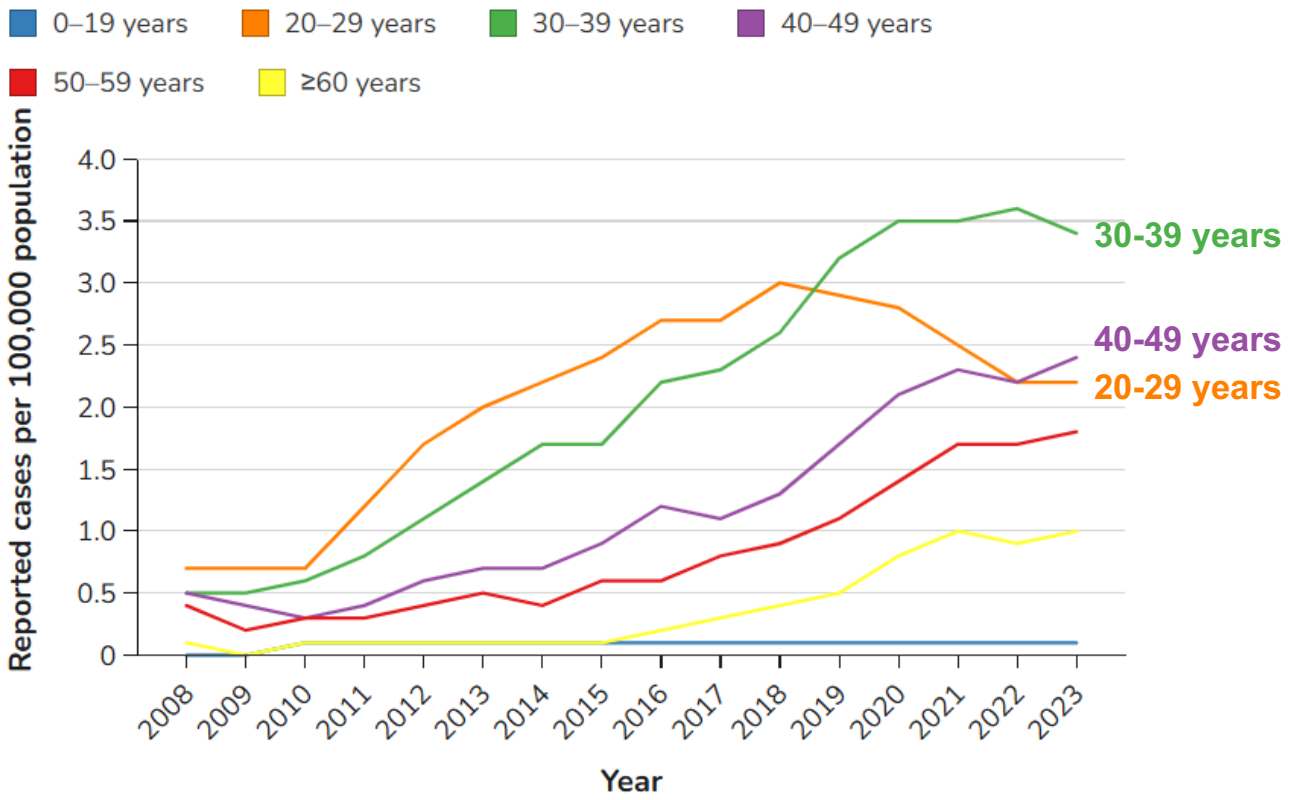
Epidemiology

Number and Rate of People Reported with Acute HCV in NYC, 2015-2024



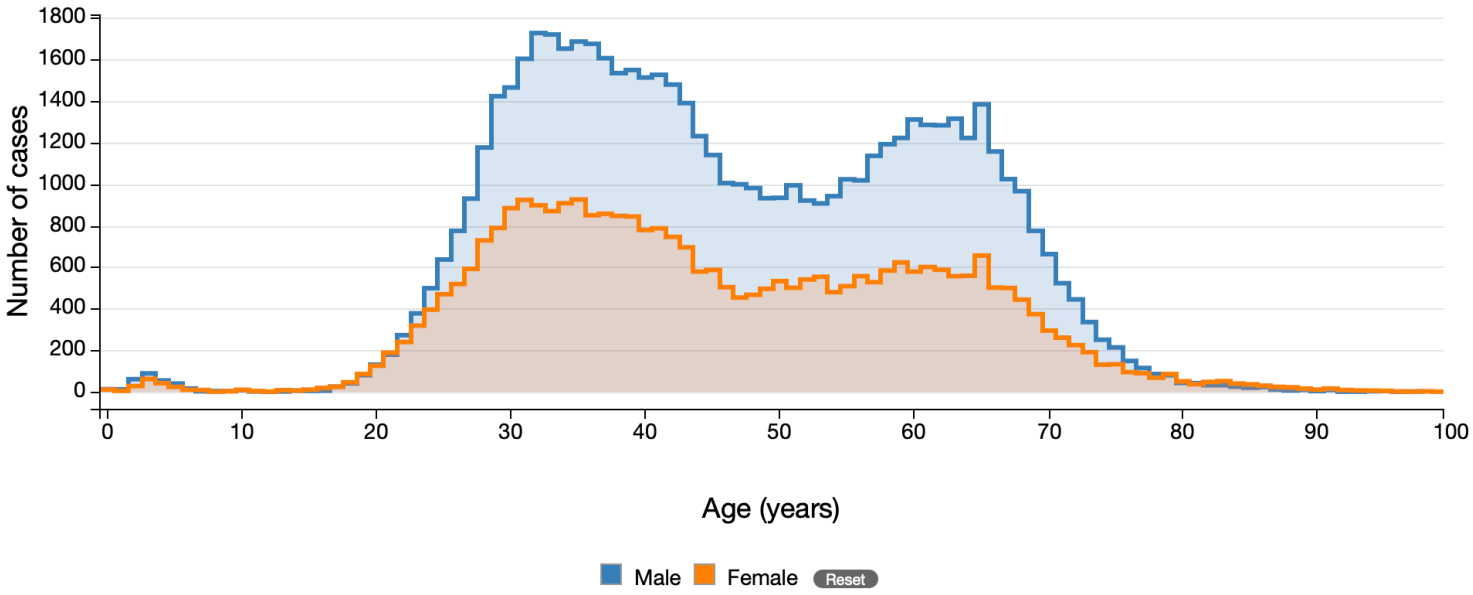
NYC Health Department, 2026.

Rate of Acute HCV Infection by Age, 2008-2023



Source: CDC, National Notifiable Diseases Surveillance System (accessed April 3, 2026).

Number of Newly Reported Cases of Chronic Hepatitis C by Sex and Age, 2022

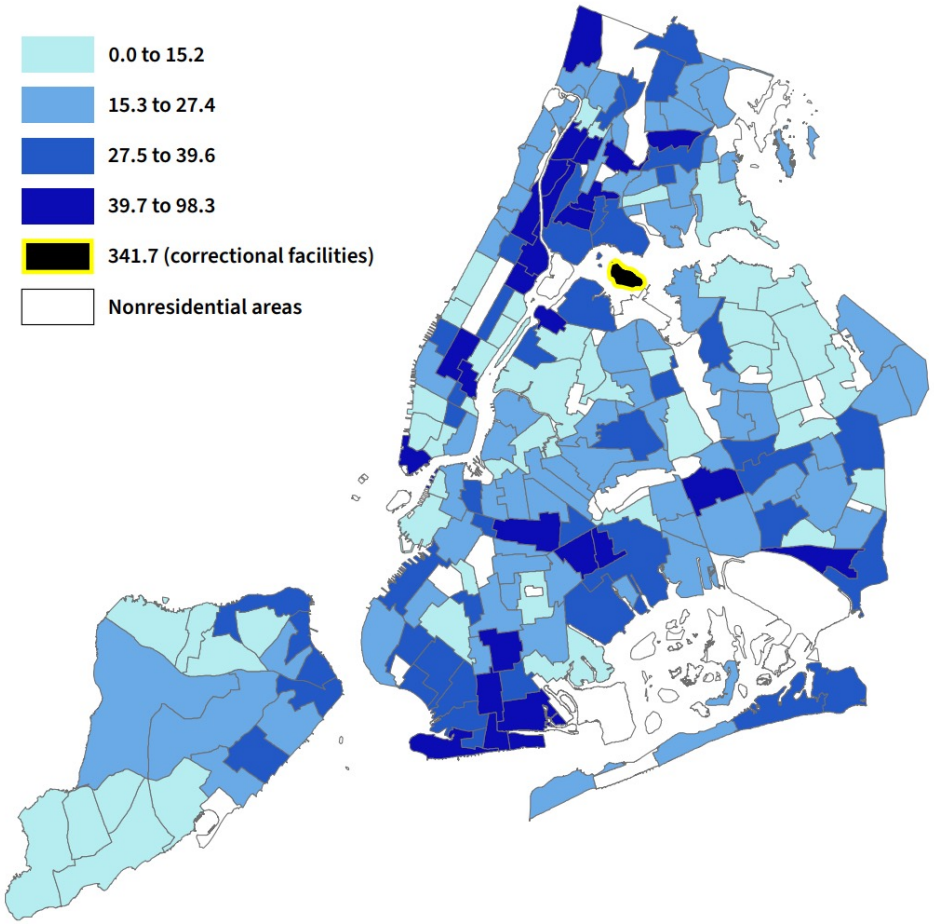


Source: CDC, National Notifiable Diseases Surveillance System. Accessed 9-3-2022

Epidemiology of HCV in NYC, 2024

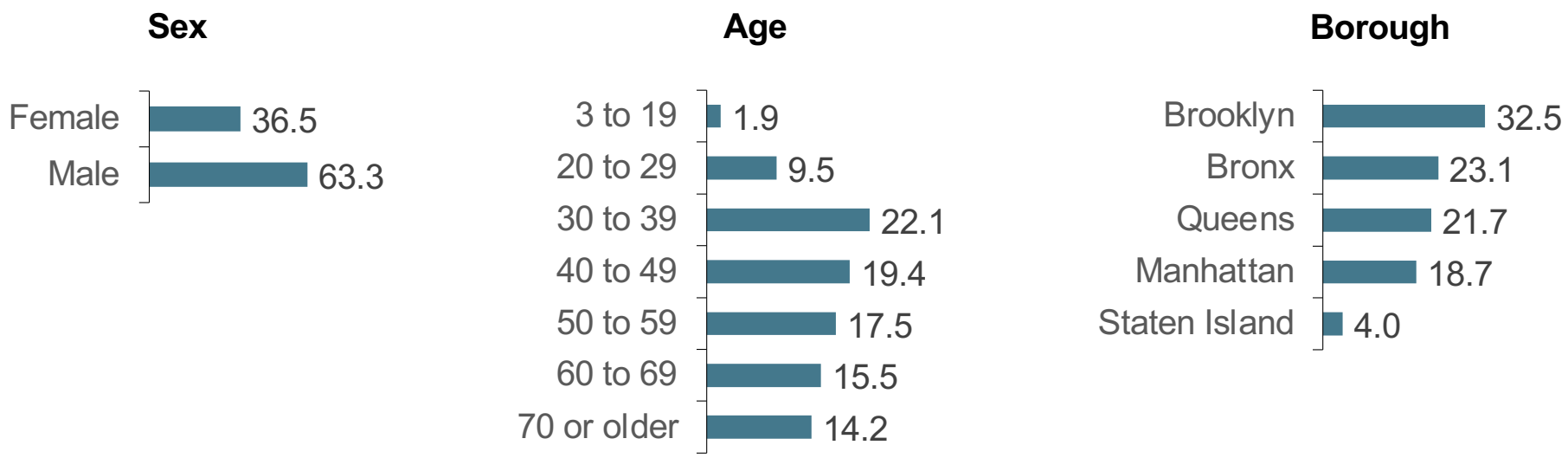
Neighborhoods with the highest rates of people newly reported with hepatitis C (per 100,000 people):

1. Rikers Island, Bronx (341.7)
2. Brighton Beach, Brooklyn (98.3)
3. Melrose South-Mott Haven North, Bronx (68.2)
4. Midtown-Midtown South, Manhattan (65.2)
5. Pelham Parkway, Bronx (64.5)
6. East Tremont, Bronx (64.2)
7. Seagate-Coney Island, Brooklyn (59.5)
8. Morrisania-Melrose, Bronx (57.6)
9. Murray Hill-Kips Bay, Manhattan (52.8)



NYC Health Department, 2026.

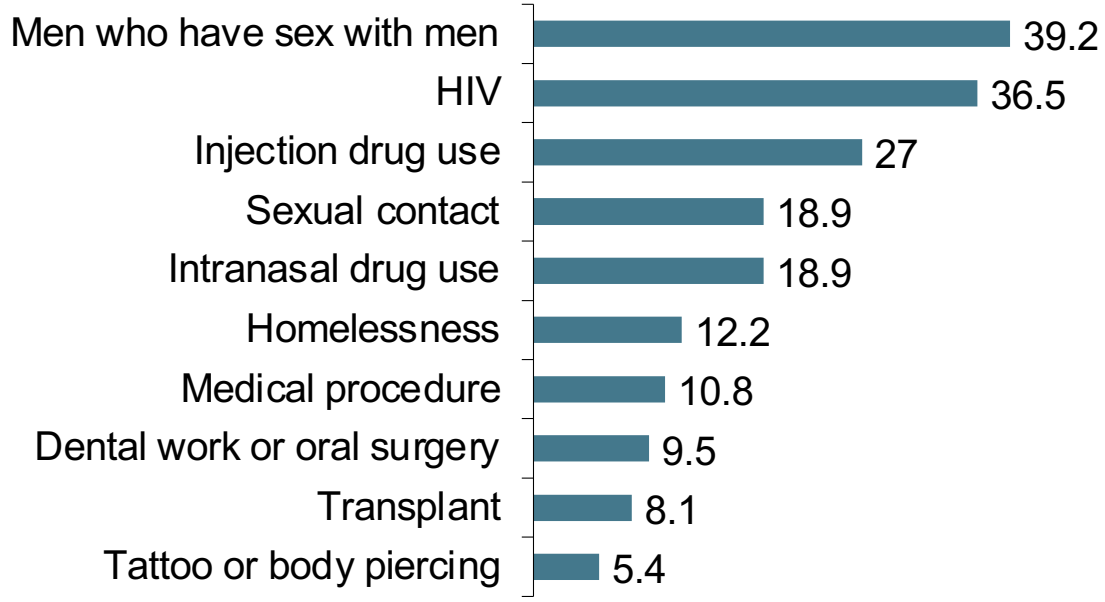
Characteristics of People Newly Reported with Chronic HCV in NYC, 2024



NYC Health Department, 2026.

HCV Risk Factors, NYC, 2024

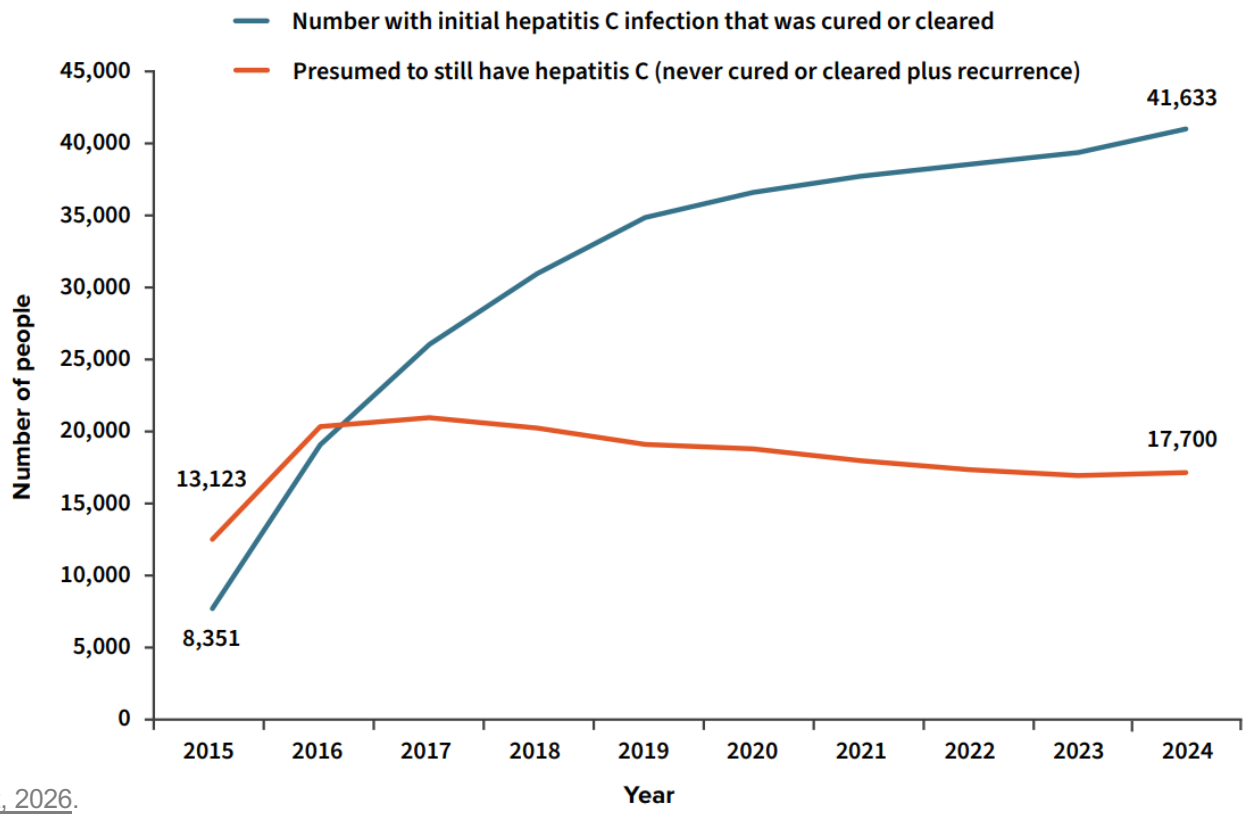
Percentage of People Ages 18 and Older Newly Reported With Acute HCV and Investigated Through Enhanced Surveillance in NYC by Reported Risk Factor, 2024 (n=66)



NYC Health Department, 2026.

HCV Clearance in NYC 2015-2024

Figure 28. Cumulative Number of People With Confirmed Hepatitis C Since July 1, 2014 Who Experienced Cure or Clearance or Are Presumed to Still Have Hepatitis C in NYC, 2015 to 2024

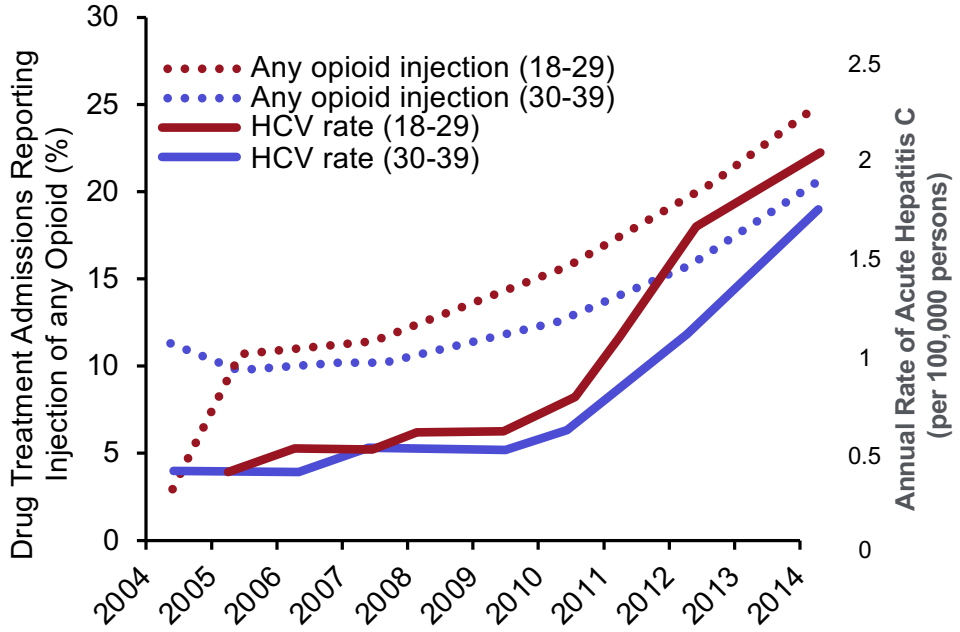


NYC Health Department, 2026.

Risk Factors for Acquiring Hepatitis C

- Injection or intranasal drug use
- Transfusion of blood/blood products prior to 1992
- Organ and tissue transplantation
- Needle stick injury in health care settings
- Sharing personal care items (i.e. straight razors)
- Being born to a mother who has HCV
- Chronic hemodialysis
- Tattoos, body piercing in unregulated, unlicensed setting (e.g. jails)
- Sex with an infected person, especially among MSM, and in particular, MSM who are HIV+

From 2004-2014, HCV and Opioid Injection Drug Use Increased Significantly Among People Aged 18-39 Years[1,2]



Mazumder et al, 2024:[3]

- Long-term injection drug use (IDU) accounts for approximately 60% of new HCV infections
- HCV prevalence:
  - 19% in PWID
  - 1% in general population
- Uninfected PWID can acquire HCV at rates of 10%-40% per year
- HCV prevalence:
  - IDU within last 12 months: 24.7%
  - IDU ever: 19%

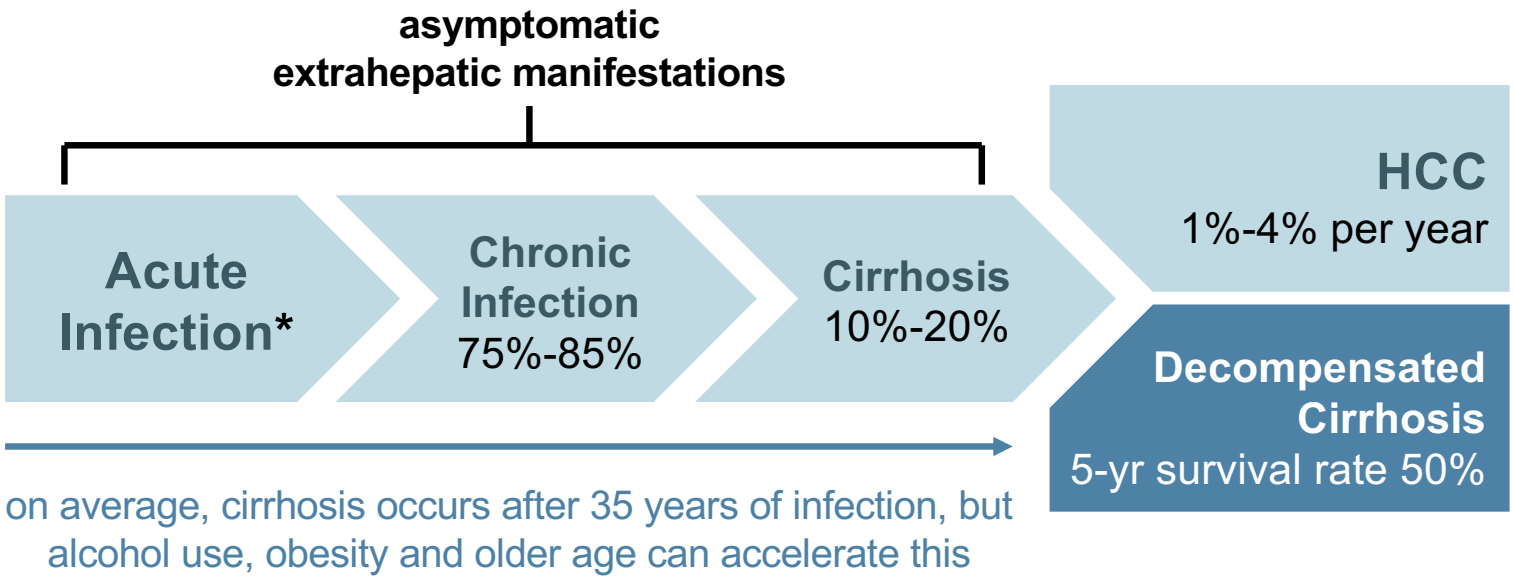
CDC, Centers for Disease Control and Prevention.
1. Zibbell JE, et al. *Am J Public Health*. 2018;108(2):175-181.
2. CDC. December 21, 2017. Accessed August 9, 2019.
3. Mazumder et al, 2024

Counsel to Prevent Transmission

Risk	More Information	Prevention Messages
Sharing drug use equipment	• Transmission rate can exceed 40% • Both injection drug use and snorting	• Use new equipment (needles, cookers, cutters) for drug use
Sex	Risk factors: • Coinfection with HIV • Unprotected anal intercourse • Coincident ulcerative STDs (e.g. syphilis) • Practices that predispose to bleeding	• Get partner tested and cured if needed, until then, practice safe sex (use condoms every time)
Household	Risk factors: • Sharing razors, toothbrushes, nail clippers • Contact with blood	• Clean up blood spills with bleach • Avoid sharing personal care items (such as razors, toothbrushes, nail clippers)
Perinatal	6%-7% of perinatally exposes infants will acquire HCV infection	• Screen and treat (if needed) all women of childbearing age during each pregnancy

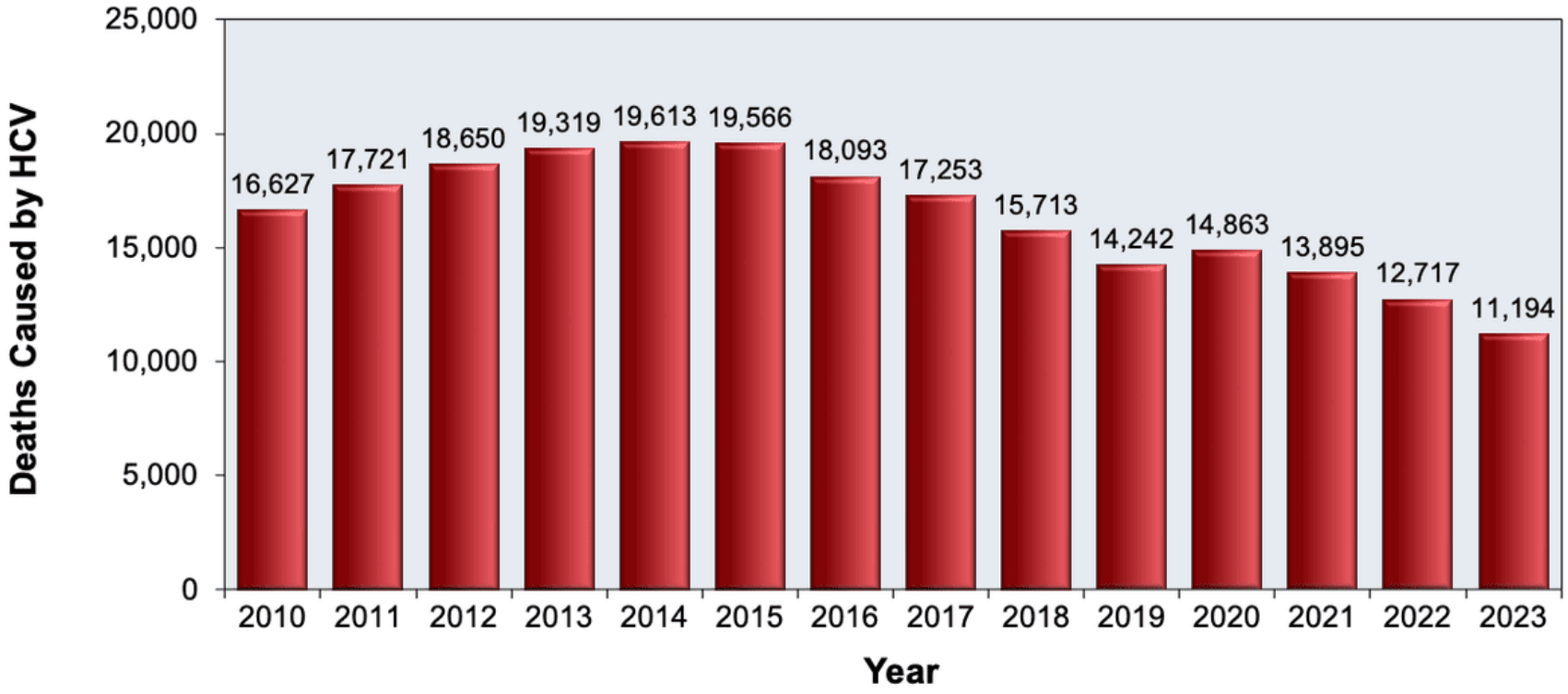
Natural History of Hepatitis C

Natural History of HCV



*Most have minimal symptoms

HCV as a Cause of Death, 2010-2023



CDC. 2023 Viral Hepatitis Surveillance Report (Published April 2025)

Liver Cancer Screening in People with HCV

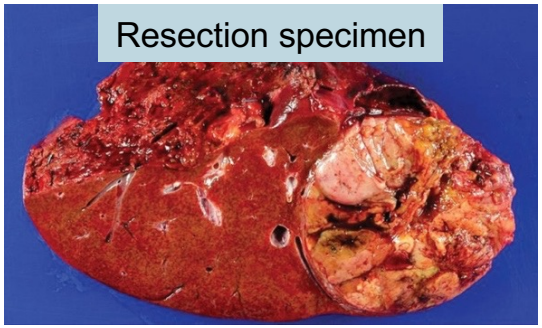
- Approximately 1/3 of liver cancer cases in the US are from HCV
- HCV-related HCC is related mostly to fibrosis/cirrhosis

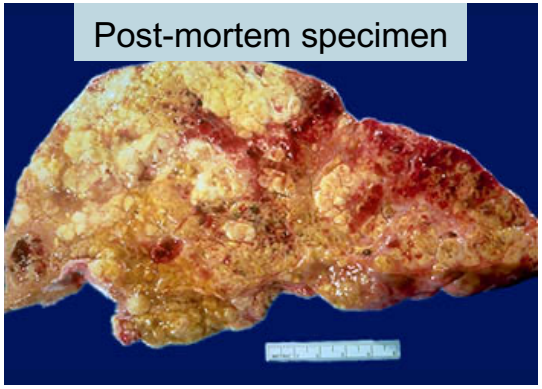
Who should be screened for liver cancer?

- Patients with hepatitis C with cirrhosis (or stage 3 fibrosis) should be screened **every 6 months with ultrasound and AFP**.

Liver cancer is curable if caught early:

- Resection cases: cure rate is about 50%
- Transplant cases: cure rate is about 80%





Marrero JA et al. Diagnosis, staging and management of hepatocellular carcinoma: 2018 practice guidance by the American Association for the Study of Liver Diseases. Hepatology 2018;68:723

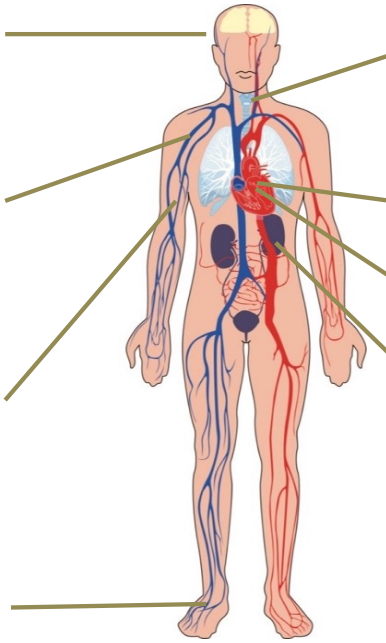
Extrahepatic Manifestations of HCV Infection

Neuropsychiatric manifestations

Mixed cryoglobulinemia

Hematological disorders/ malignancies

Severe peripheral neuropathy



Thyroid dysfunction

Uncontrolled type II diabetes

Cardiovascular/ metabolic diseases

Renal impairment

Cacoub P, *et al. Dig Liver Dis* 2014; **46**(Suppl 5)**:**S165–S173; Negro F, *et al. Gastroenterology* 2015; **149:**1345–1360; Englert Y, *et al. Fertil Steril* 2007; **88:**607–11; Samuel DG & Rees IW. *Frontline Gastroenterol* 2013; **4:**249–254.

Hepatitis C Testing

HCV: Interpretation of Tests

Test	Interpretation
HCV Ab	• May be negative during first 6 weeks after exposure • Seroconversion may be delayed or absent in immunosuppressed individuals • Presence of HCV Ab alone does not distinguish between acute and chronic infection
HCV RNA	• HCV RNA may be transiently negative during acute HCV infection • Presence of HCV RNA alone does not distinguish between acute and chronic infection
ALT	• ALT may fluctuate over the course of the infection • ALT may be normal during acute HCV infection • ALT may be elevated due to other liver conditions, such as ETOH use and MAFLD

www.hcvguidelines.org Accessed August 10, 2018

Summary: 2020 HCV Screening Recommendations

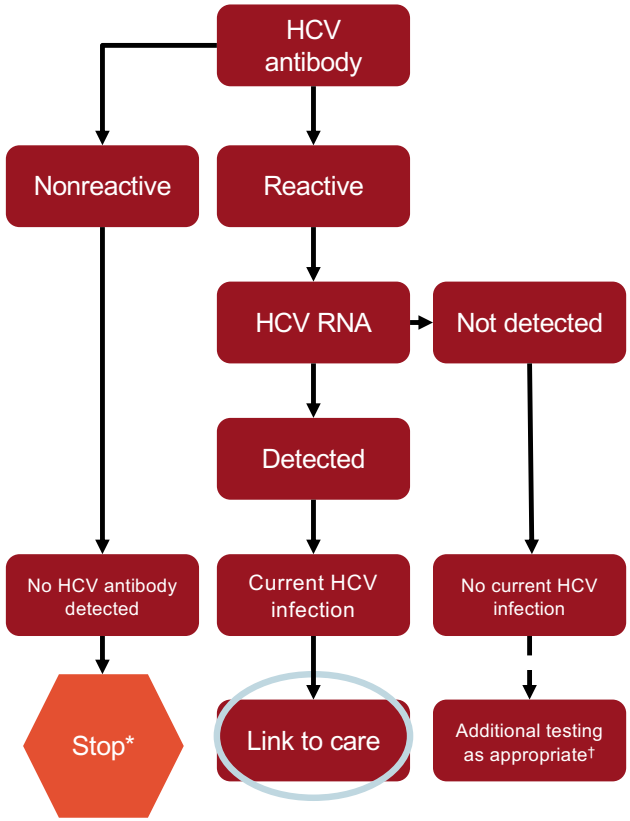
	Adults	Under 18 years
One-time HCV screening	• All adults 18 to 79 years of age • All pregnant people during each pregnancy (CDC, USPSTF)	• All children born to pregnant people infected with HCV • People under 18 with HCV risk factors (AASLD, IDSA, IAS-USA)
Repeat HCV testing (e.g. annual)	Adults with HCV risk factors, including: • People with a history of, or active, injection drug use • HIV-positive men who have unprotected sex with men (CDC, USPSTF, AASLD, IDSA, IAS-USA)	

HCV Testing Recommendations

- Since 2017, NYC Health Code requires labs to automatically perform HCV RNA confirmatory test on all positive antibody test for HCV (reflex test)

- Since 2023, NYS Department of Health requires reflex testing and provides resources for implementation: https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/providers/reflex_testing.htm

CDC Recommended Testing Sequence for Identifying Current HCV Infection



Available at: www.hcvguidelines.org. Accessed March 13, 2018. Adapted from Centers for Disease Control and Prevention (CDC), 2013.

Primary Care Provider Responsibilities
Diagnosing and Confirming HCV

Screen all adults 18-79 years, including pregnant people	In March 2020, USPSTF expanded its recommendation for one-time HCV screening to include all asymptomatic adults ages 18-79 years, including pregnant people: https://jamanetwork.com/journals/jama/fullarticle/2762186
Use HCV antibody with reflex to RNA testing	Since 2017, NYC Health Code requires labs to automatically perform HCV RNA confirmatory test on all positive antibody test for HCV
	Since 2015, NYS Department of Health recommends reflex testing and provides resources for implementation: https://www.health.ny.gov/diseases/communicable/hepatitis/hepatitis_c/providers/reflex_testing.htm

Case Study 1

Patient is a 65-year-old man with a positive HCV antibody with reflex to RNA test, confirming active infection. He has a history of injection drug use as a teenager. He reports feeling well but was noted to have ALT levels of 55 U/L on a routine PE. He was asked to return for additional blood work. Further testing showed his HCV RNA viral load to be 850,000 IU/mL. He currently drinks alcohol, mostly on weekends.

What would you do next?

Case Study 1

- Check HIV, HBV
- Confirm GFR> 30
- Confirm no cirrhosis (Plats > 150 or Fibroscan)
- Pregnancy - N/A
- Start anti-viral therapy
- Screen for hepatocellular carcinoma

Case Study 2

Patient is a 28-year-old woman with a positive HCV antibody with reflex to RNA test, confirming active infection. She reports being an active intravenous drug user. She reports feeling well but was noted to have ALT levels of 187 U/L on a routine PE. She was asked to return for additional blood work. Further testing showed her HCV RNA viral load to be 550,000 IU/mL.

What would you do next?

Case Study 2

- Check HIV, HBV
- Confirm GFR> 30
- Confirm no cirrhosis (Plats > 150 or Fibroscan)
- Pregnancy check
- Start anti-viral therapy
- Provide referrals for:
  - harm reduction services (buprenorphine)
  - drug use treatment
  - write prescription for naloxone and syringes

Summary of Key Messages

- Estimated 2.4 million people with HCV in the US
- All adults 18-79 should be screened at least once
- Pregnant people should be screened during each pregnancy
- Increase in acute HCV cases among young people secondary to opioid crisis
- Oral pan-genotypic DAAs cure greater than 95% of patients
- All patients with bridging fibrosis or cirrhosis should be screened for HCC, even if HCV cured

Chak, Talal, Sherman, Schiff, & Saab. 2011.

Hepatitis C Treatment Guidelines and Resources

- Treatment Guidelines - HCVguidelines.org
  - Includes a simplified treatment algorithm for use by primary care providers
- Drug-Drug Interactions - https://www.hep-druginteractions.org/

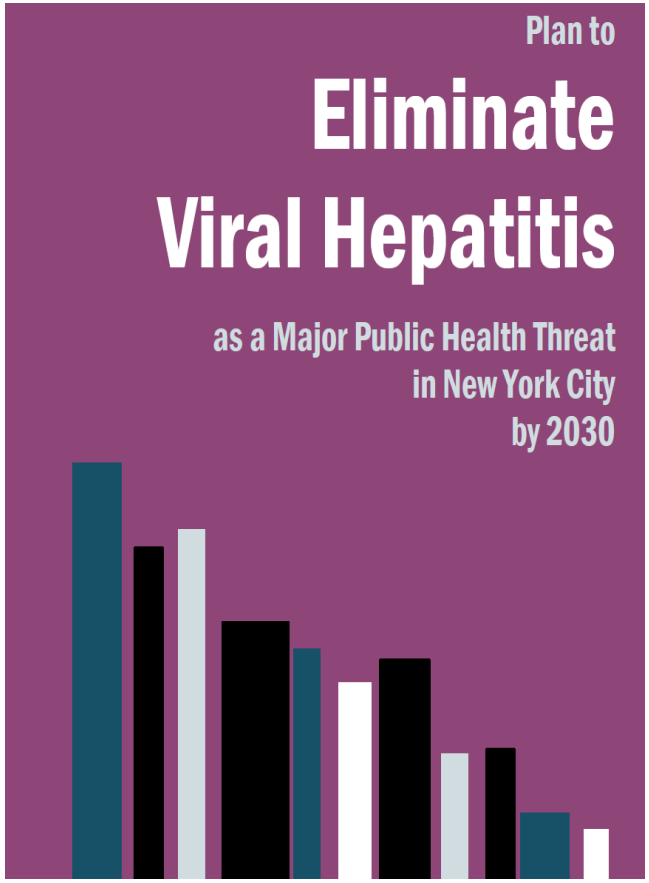
Hepatitis C Resources in NYC

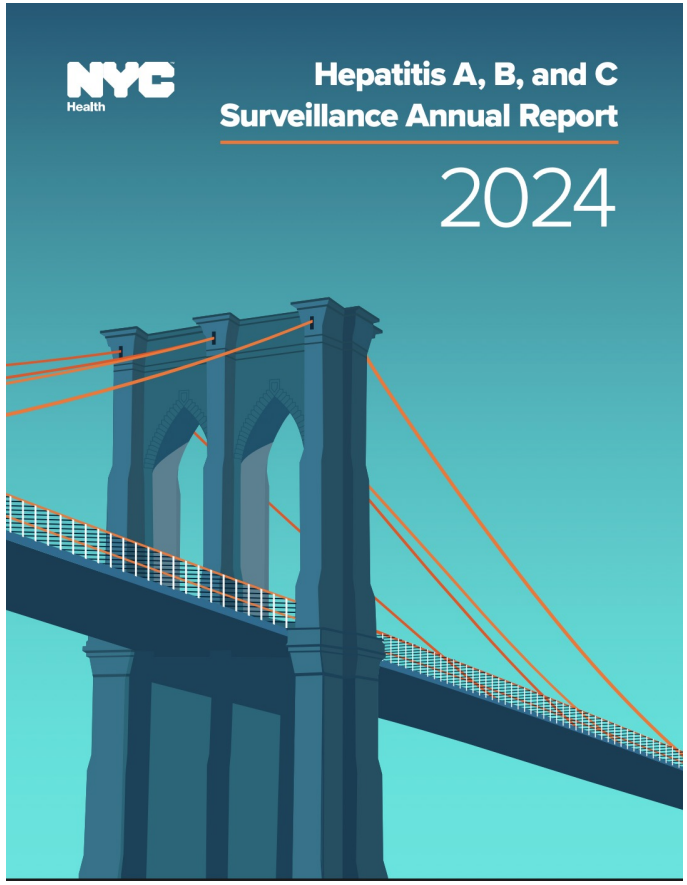
- NYS HCV CEI Clinical Consultation Hotline:
  (866) 637-2342 (leading hepatologist will answer questions)

- www.HepFree.NYC
  - Hep C Task Force
  - Clinical Resources
  - Capacity building tools
  - Advocacy Committee

- Hepatitis C patient information page: www.nyc.gov/health/hepc
  - Free or low-cost testing and treatment

Elimination Plan and Annual Report





Contact Us

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