

HEPATITIS C CLINICAL TRAINING

Hepatitis C: Epidemiology, Natural History and Diagnosis

Abigail Hunter, FNP, MPH



Disclosures

DISCLOSURE: In compliance with continuing education requirements, all planners and presenters/moderators must disclose all financial relationships, in any amount, with ineligible companies during the previous 24 months as well as any use of unlabeled product(s) or products under investigational use.

CDC, our planners, and presenters/moderators wish to disclose they have no financial relationship(s) with ineligible companies with the exception of the following individuals: Helen Adams, PA-C and she wishes to disclose that she is on the Advisory board and speakers bureau for Abbvie Pharmaceuticals and Gilead Pharmaceuticals, Douglas Dieterich, MD and he wishes to disclose that he is part of the Speaker's Bureau, he is also a consultant for Gilead, Abbvie, Arbutus Assembly, David (Dave) E. Bernstein, MD and he wishes to disclose that he is part of the Speaker's Bureau for Intercept, he is also a consultant for OcelotBio and Ipseb, Abigail Hunter and she wishes to disclose she is a consultant for Abbvie and Gilead. All relevant financial relationships listed for these individuals have been mitigated.

Mitigation steps for planner:

- ☒ Recusal from controlling aspects of planning and content with which there is a financial relationship
- ☒ Peer review of planning decisions by persons without relevant financial relationships

Mitigation steps for presenter and others

- ☒ Peer review of content by persons without relevant financial relationships
- ☒ Attest those clinical recommendations are evidence-based and free of commercial bias (e.g., peer-reviewed literature or adhering to evidence-based practice guidelines)

Presentations will not include any discussion of the unlabeled use of a product or a product under investigational use.

CDC did not accept financial or in-kind support from any ineligible company for this continuing education activity.

Disclosures

None

Training Development and Funding

- This training is funded by the NYC City Council

Housekeeping Notes

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
- CE certificate can be printed or stored in your account
- Questions about CEs, contact Joycambe@empireliverfoundation.org

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

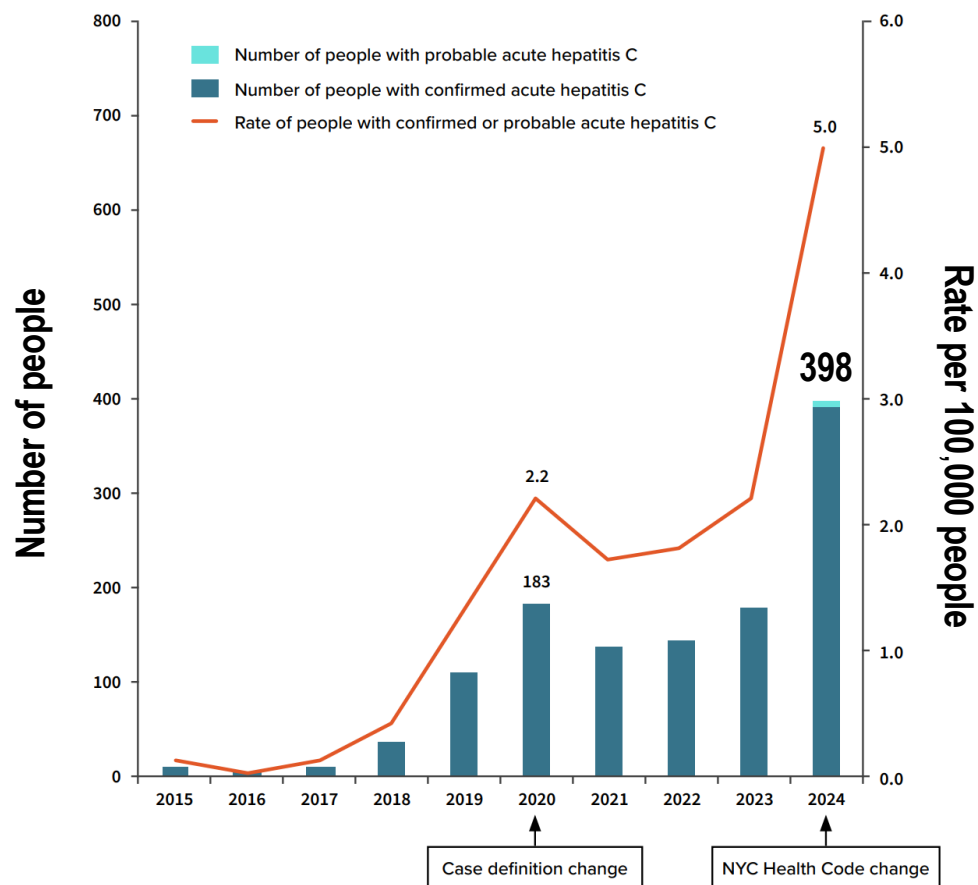
Patient is a 28-year-old woman with a positive HCV antibody with reflex to RNA test, confirming active infection. She reports being an active intravenous drug user. She reports feeling well but was noted to have ALT levels of 187 U/L on a routine PE. She was asked to return for additional blood work.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

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

Epidemiology

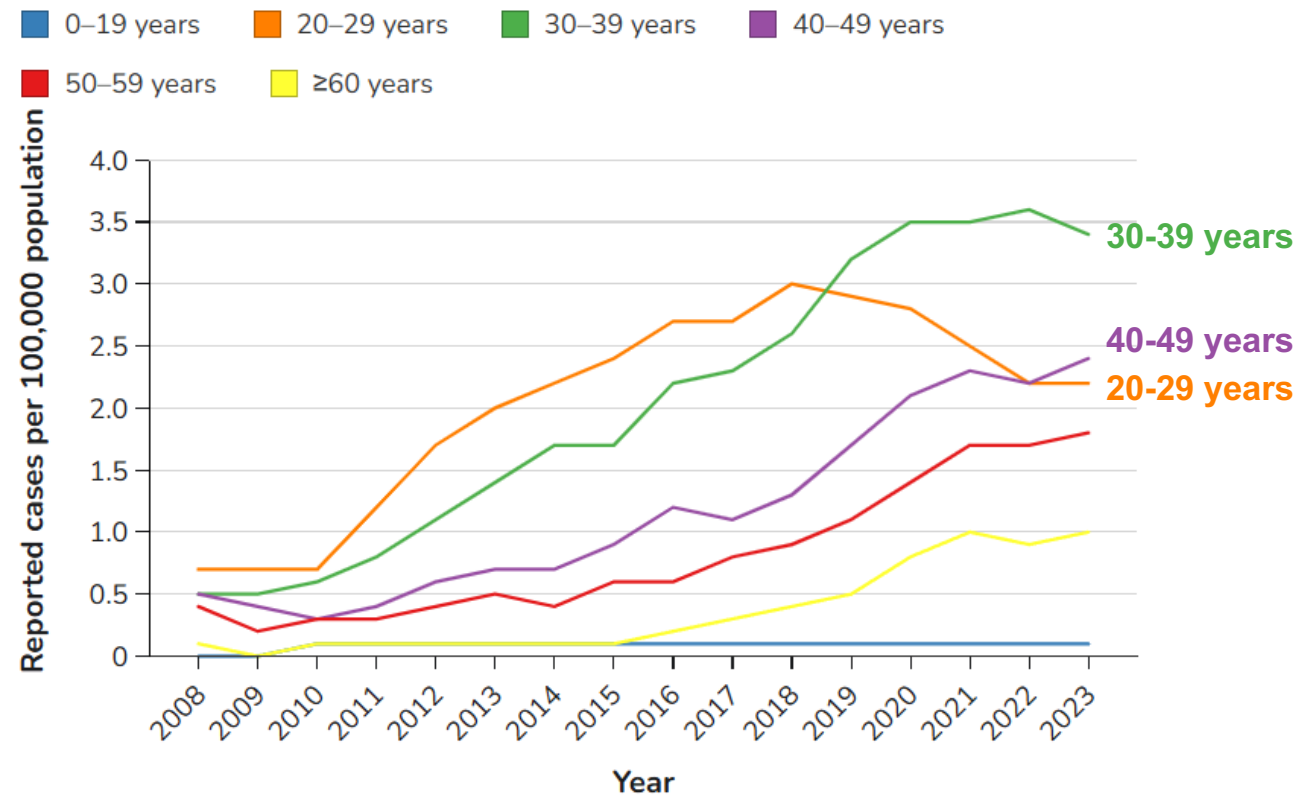
The background of the slide is composed of several geometric shapes. A large light blue rectangle occupies the left and bottom portions. A dark blue triangle is positioned in the bottom right corner. A maroon diagonal band runs from the top right towards the bottom right, separating the light blue area from a light grey area in the top right corner.

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



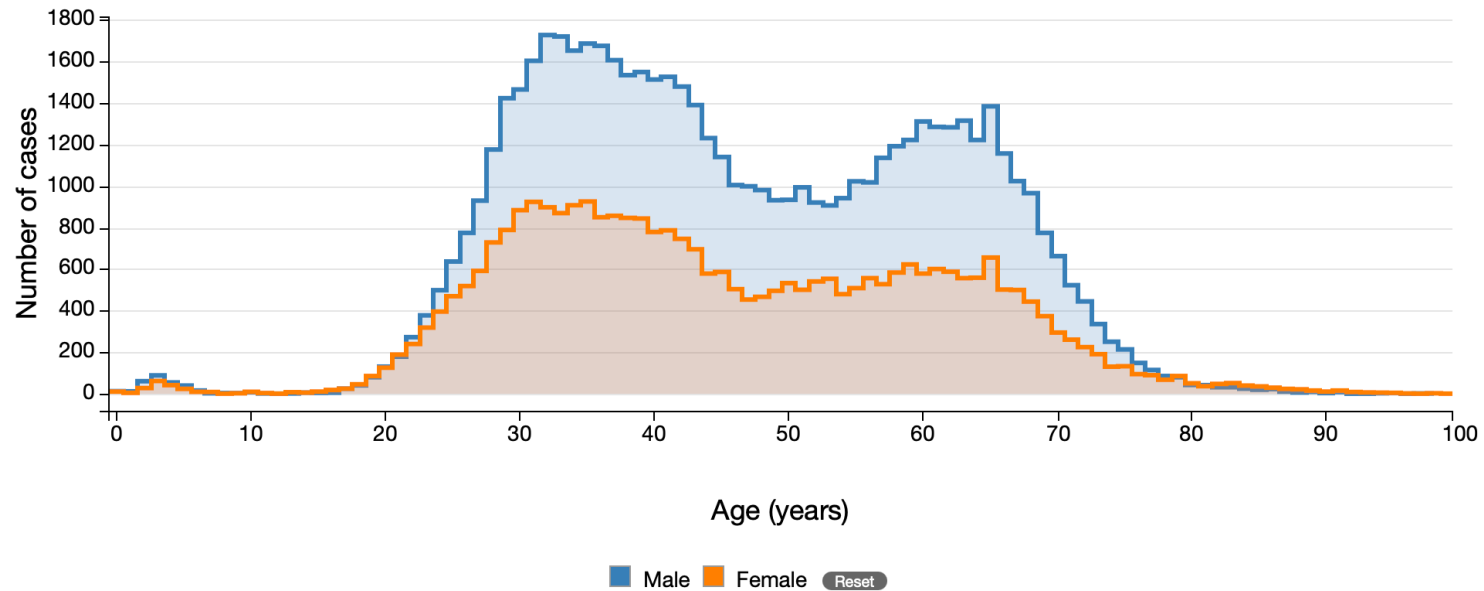
NYC Health Department, 2026.

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

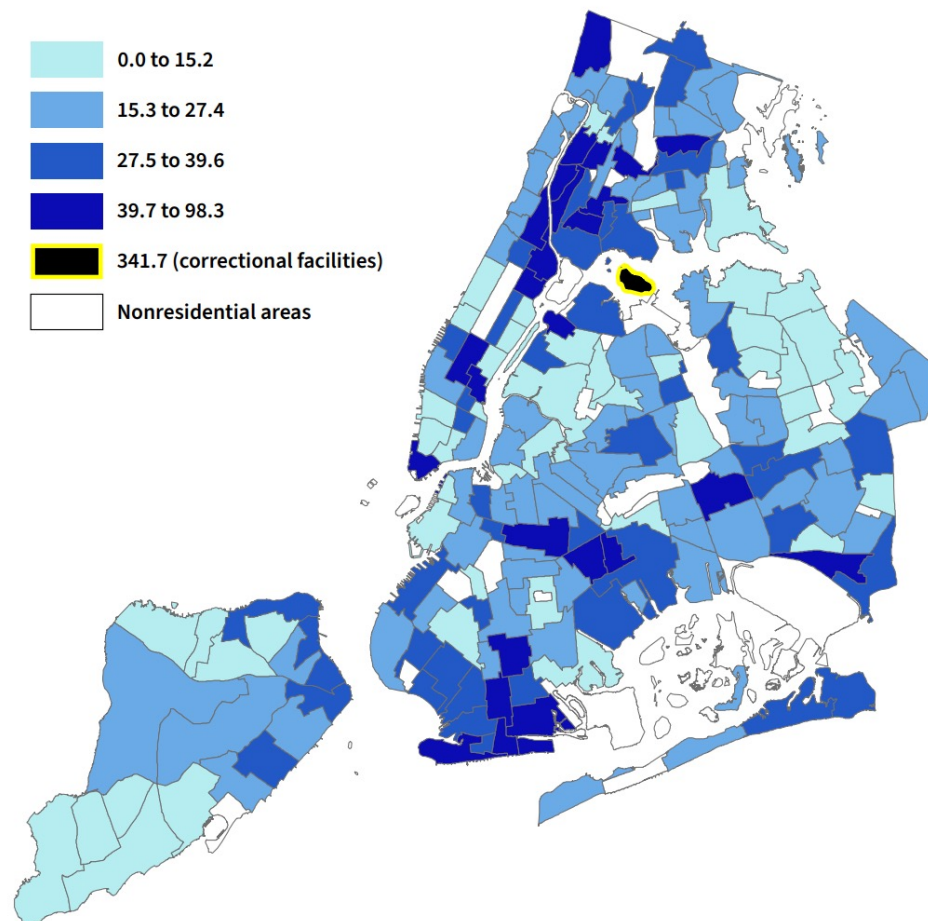


Source: CDC, National Notifiable Diseases Surveillance System. Accessed 9-3-2022

Epidemiology of HCV in NYC, 2024

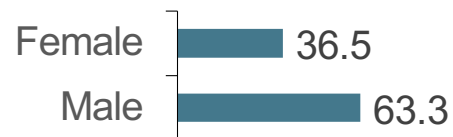
Neighborhoods with the highest rates of people newly reported with hepatitis C (per 100,000 people):

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)

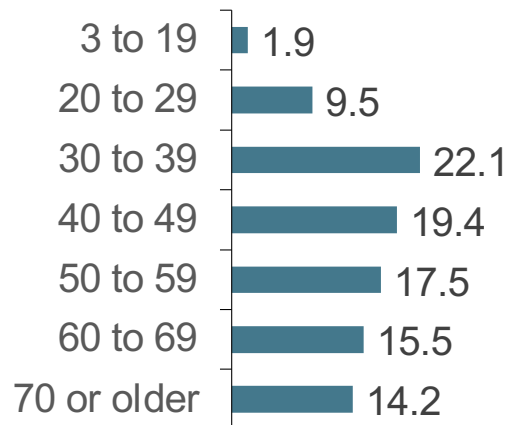


Characteristics of People Newly Reported with Chronic HCV in NYC, 2024

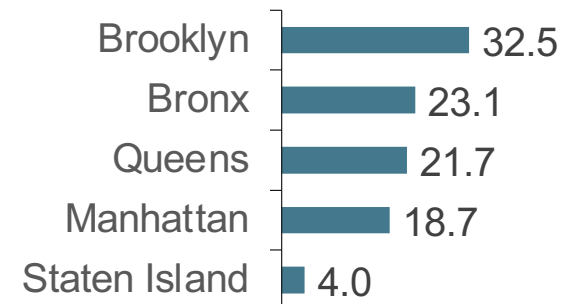
Sex



Age

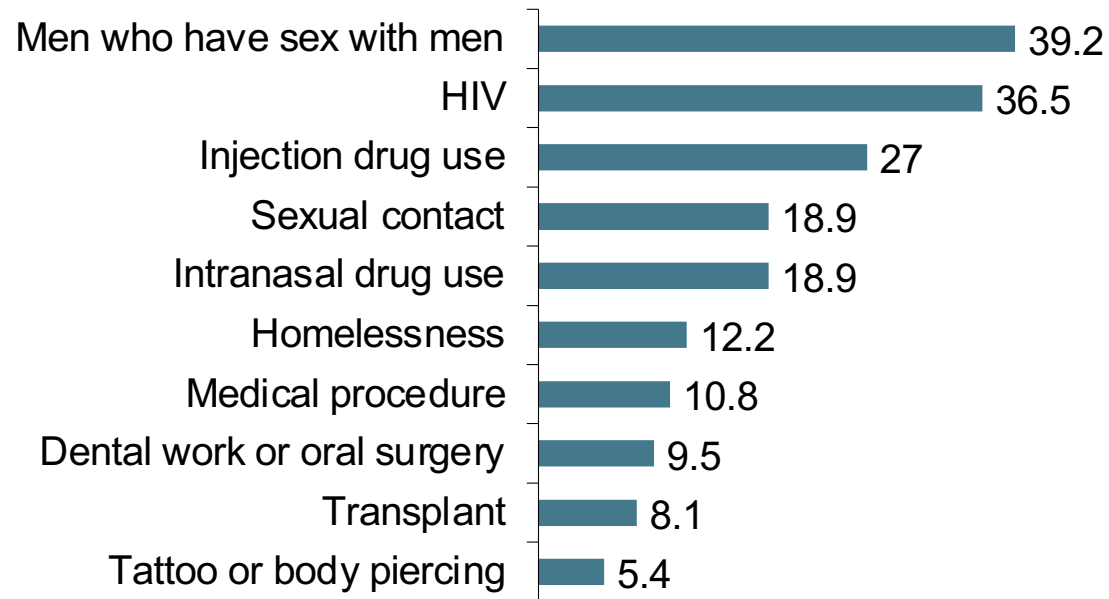


Borough



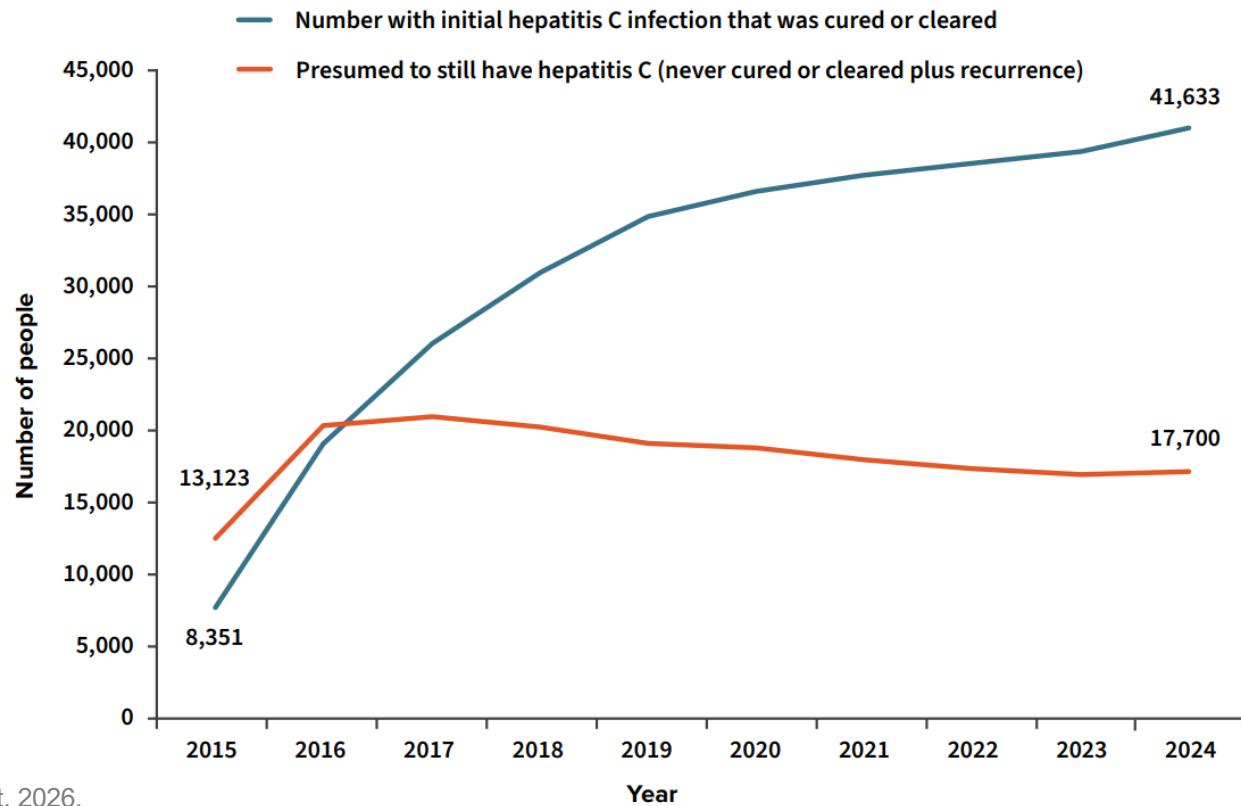
HCV Risk Factors, NYC, 2024

**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)**



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

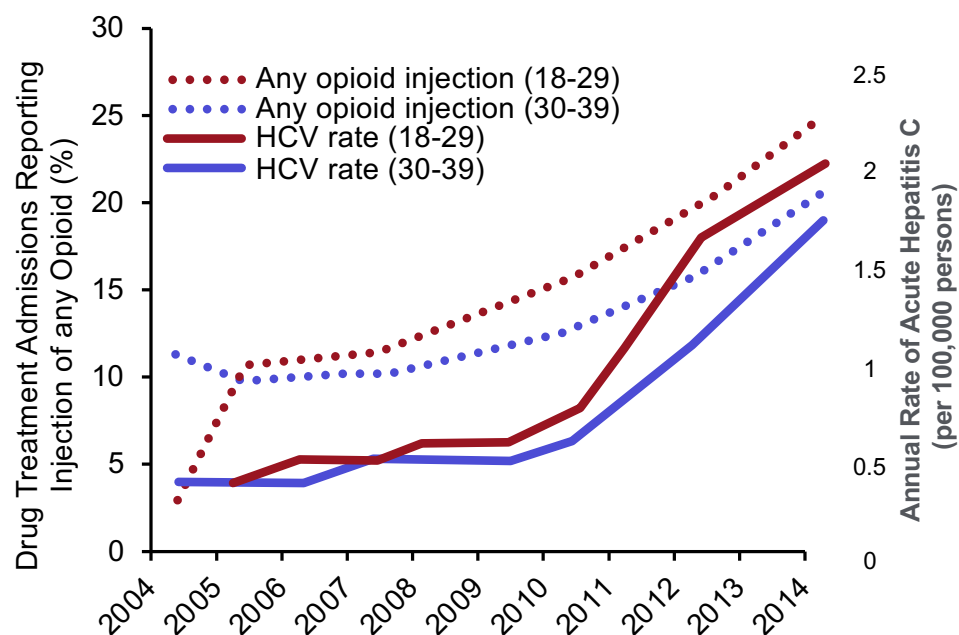


NYC Health Department, 2026.

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](#)



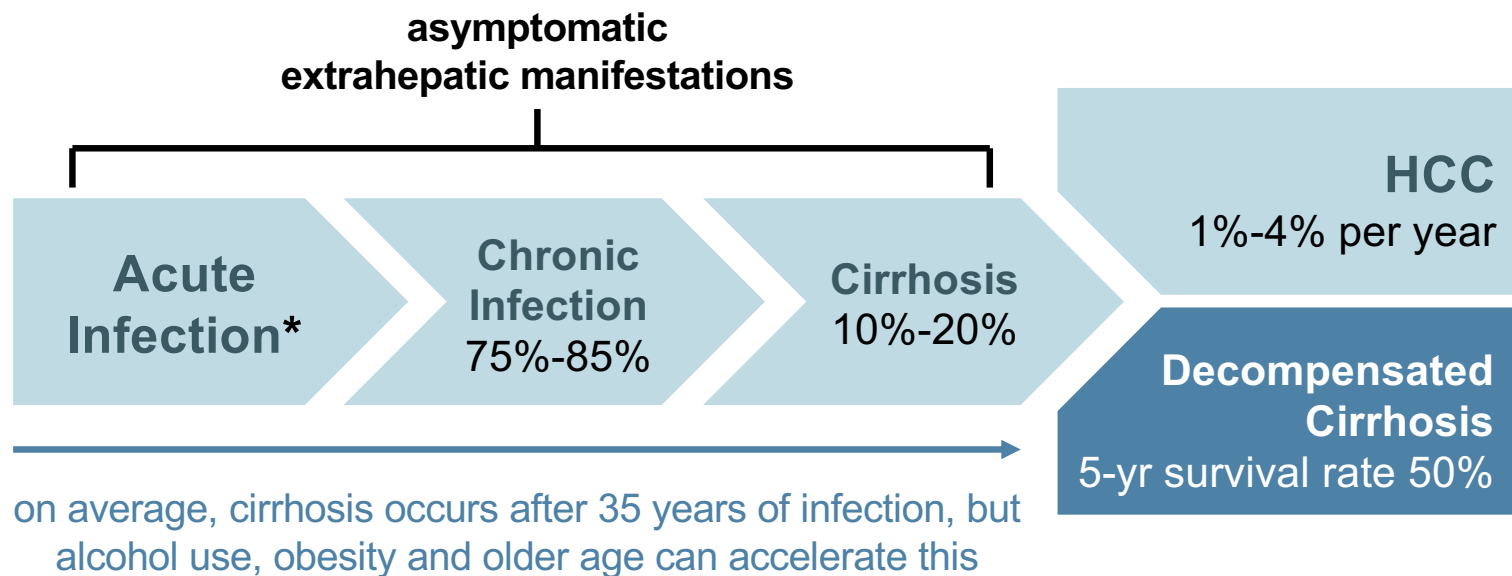
Counsel to Prevent Transmission

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 exposed infants will acquire HCV infection	• Screen and treat (if needed) all women of childbearing age during each pregnancy



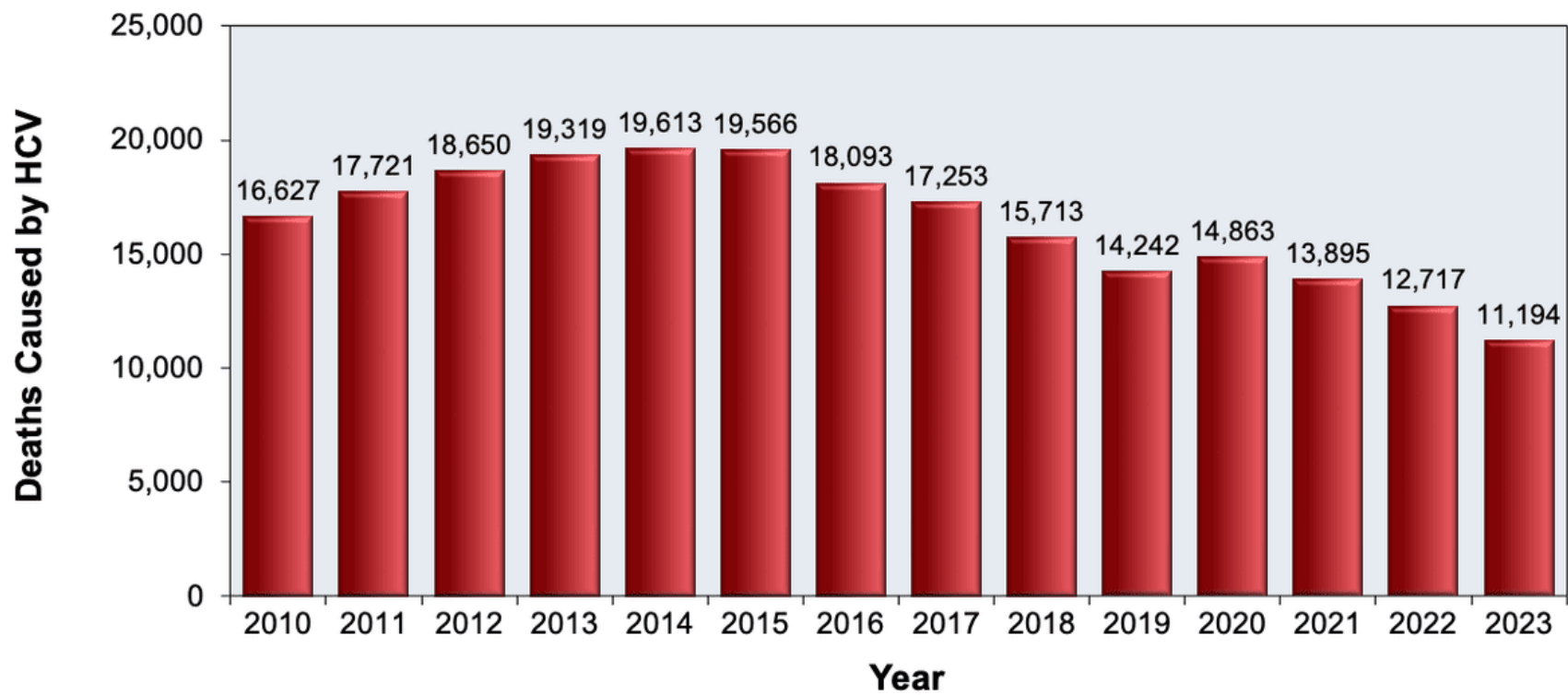
Natural History of Hepatitis C

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

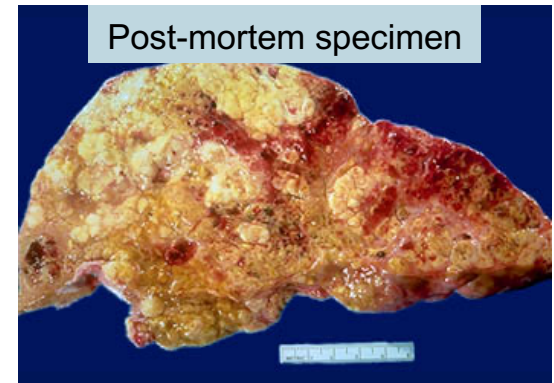
- Approximately 1/3 of liver cancer cases in the US are from HCV
- HCV-related HCC is related mostly to fibrosis/cirrhosis

Who should be screened for liver cancer?

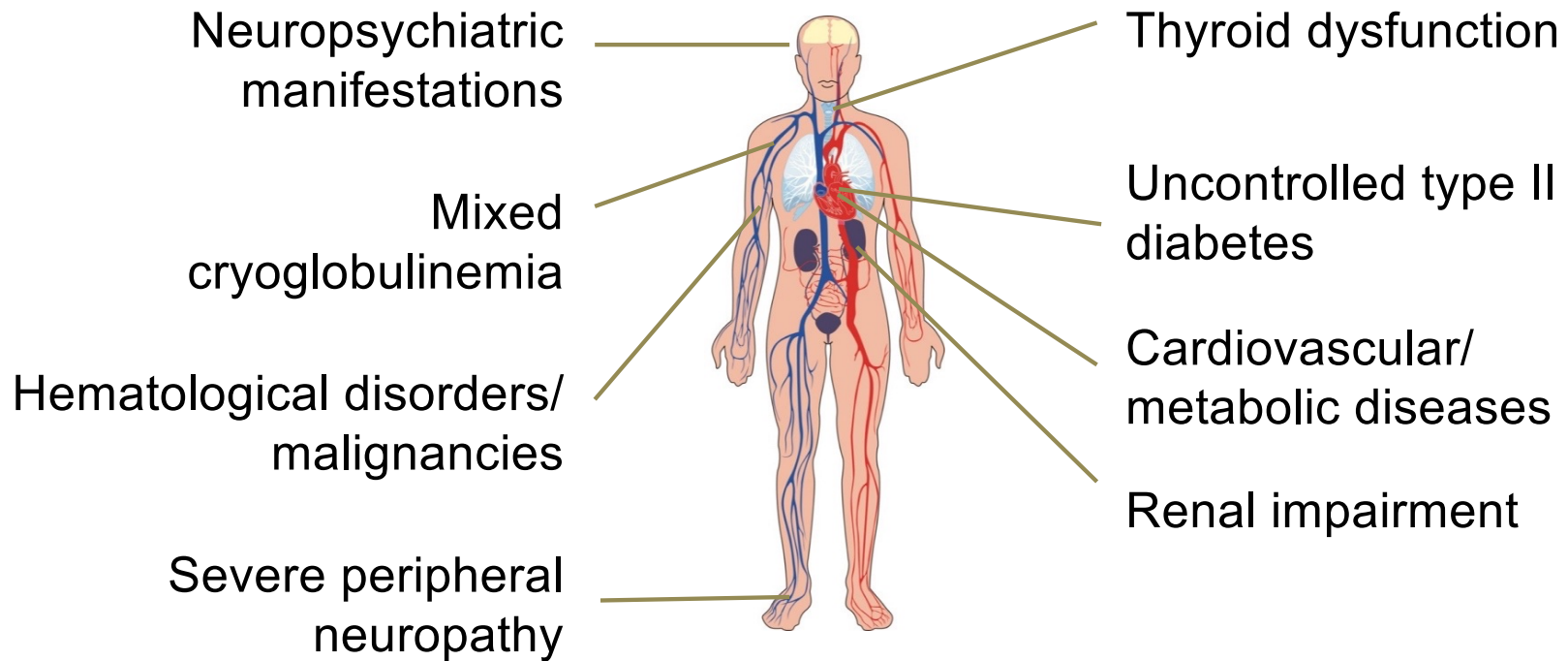
- Patients with hepatitis C with cirrhosis (or stage 3 fibrosis) should be screened **every 6 months with ultrasound and AFP**.

Liver cancer is curable if caught early:

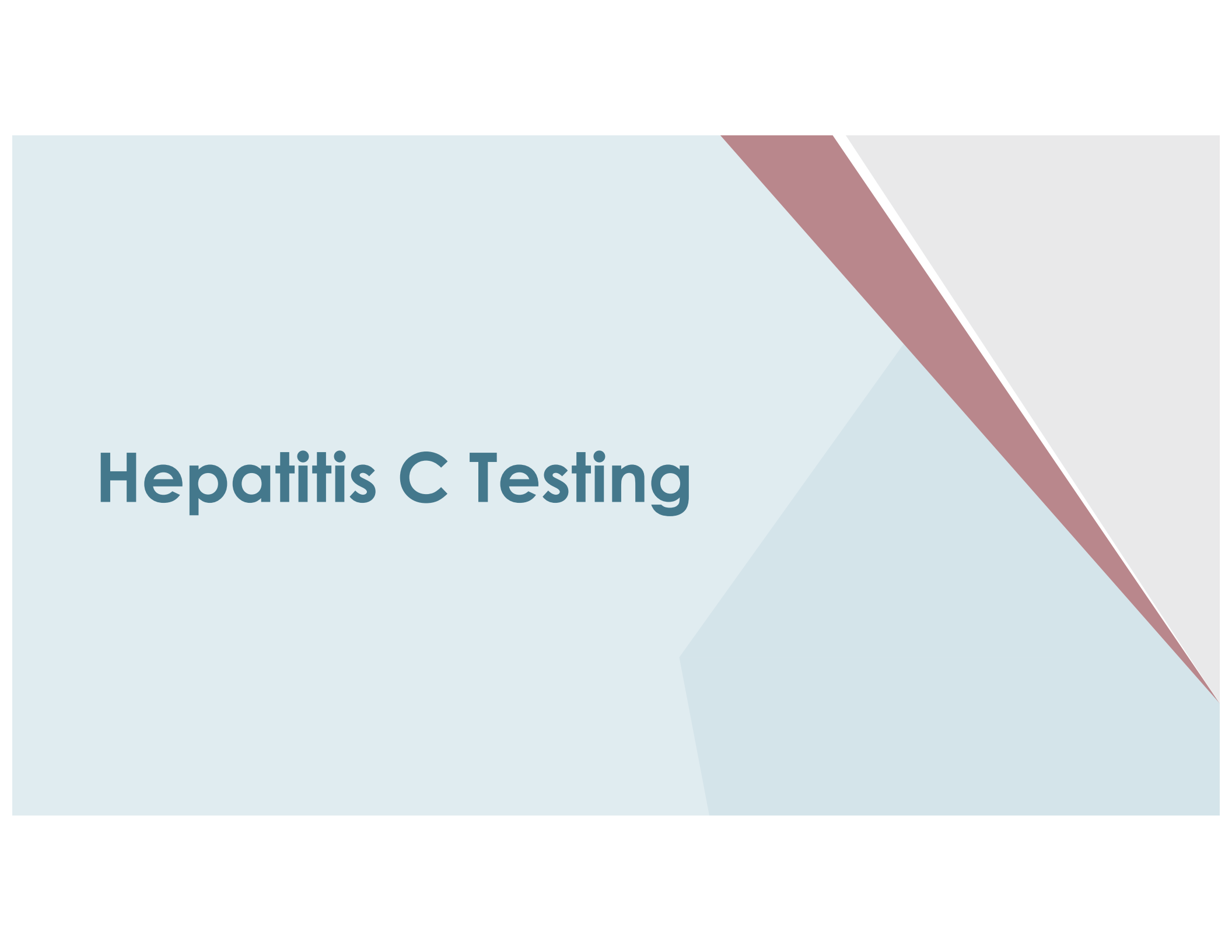
- Resection cases: cure rate is about 50%
- Transplant cases: cure rate is about 80%



Extrahepatic Manifestations of HCV Infection



Hepatitis C Testing

The background features a light blue field on the left. On the right, there are overlapping geometric shapes: a dark blue triangle pointing towards the bottom right, and a maroon triangle pointing towards the top right. A thin white line separates the maroon and dark blue triangles.

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

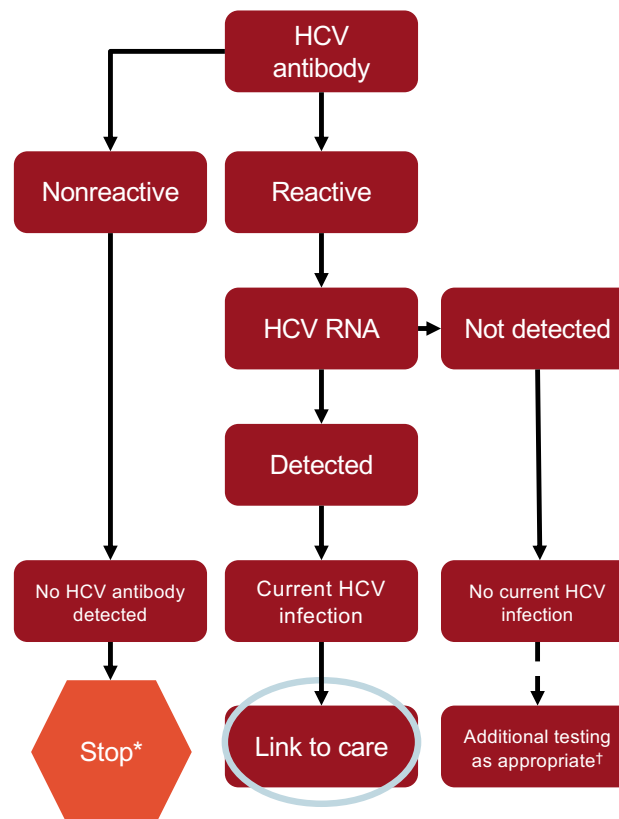
Summary: 2020 HCV Screening Recommendations

	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

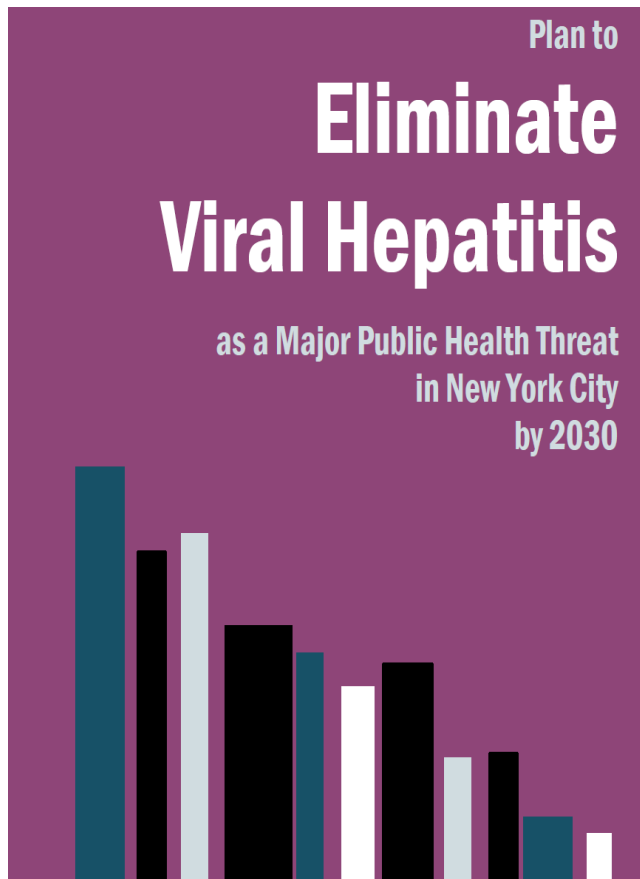
Hepatitis C Treatment Guidelines and Resources

- 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

For CMEs or educational opportunities, contact:

Meg Chappell, MPH
Program Manager

Empire Liver Foundation

megchappell@empireliverfoundation.org

www.empireliverfoundation.org



For questions about resources, contact:

Marie P. Bresnahan, MPH
Director, Training

Viral Hepatitis Program

New York City Health Department

mbresnahan@health.nyc.gov

www.hepfree.nyc

