HEPATITIS C PROVIDER SERIES

Hepatitis C Complications

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Disclosures

- None

Training Development and Funding

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

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Overarching Learning Objectives

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

1. Describe the importance of interprofessional collaboration in effectively meeting the healthcare, educational, and psychosocial needs of patients living with hepatitis B or C infection.
2. Describe the epidemiology and natural history of hepatitis B and hepatitis C infection.
3. Use updated guidelines to identify patients at risk for hepatitis B and/or hepatitis C infection and provide screening according to these guidelines.
4. Select appropriate antiviral treatments for people living with hepatitis B or hepatitis C, including special populations such as people with advanced liver disease or HIV co-infection.
5. Explain the efficacy and safety of current and emerging therapies for hepatitis B and C, including use in special populations such as people who use drugs or alcohol or have substance use disorders.
6. Illustrate how to counsel patients diagnosed with hepatitis B or C regarding risks and benefits of therapies and involve them in shared treatment decisions.

Learning Objectives

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

- List complications of hepatitis C virus (HCV) infection warranting referral to a liver specialist
- Describe the recommended management of acute HCV infection
- Recall the symptoms of and recommended methods for assessing cirrhosis
- Apply calculations for assessing fibrosis severity and predicted survival in patients with cirrhosis

HCV Complications Warranting Referral to GI/Hepatologist

1. Extra-hepatic manifestations
2. Acute hepatitis C
3. Cirrhosis

Cirrhosis places patients at risk of decompensation and hepatocellular carcinoma

Compensated:
- Largely asymptomatic

Decompensated:
- Ascites
- Bleeding Esophageal Varices
- Hepatic Encephalopathy

Case Study #1: Extrahepatic Manifestations

- A 44-year-old male
- Diagnosed with hepatitis C, genotype 1a
- Complains of joint pain
- ALT 42, AST 30, total bilirubin 1.1
- Cr 1.9, 2+ proteinuria
- HCV RNA 1,000,000 IU
- 2+ cryoglobulinemia

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

Case Study #2: Acute Hepatitis C

- A 24-year-old female
- History of injection drug use, heroin
- ALT 860, AST 750
- Total bilirubin 2.5
- INR 1.0

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

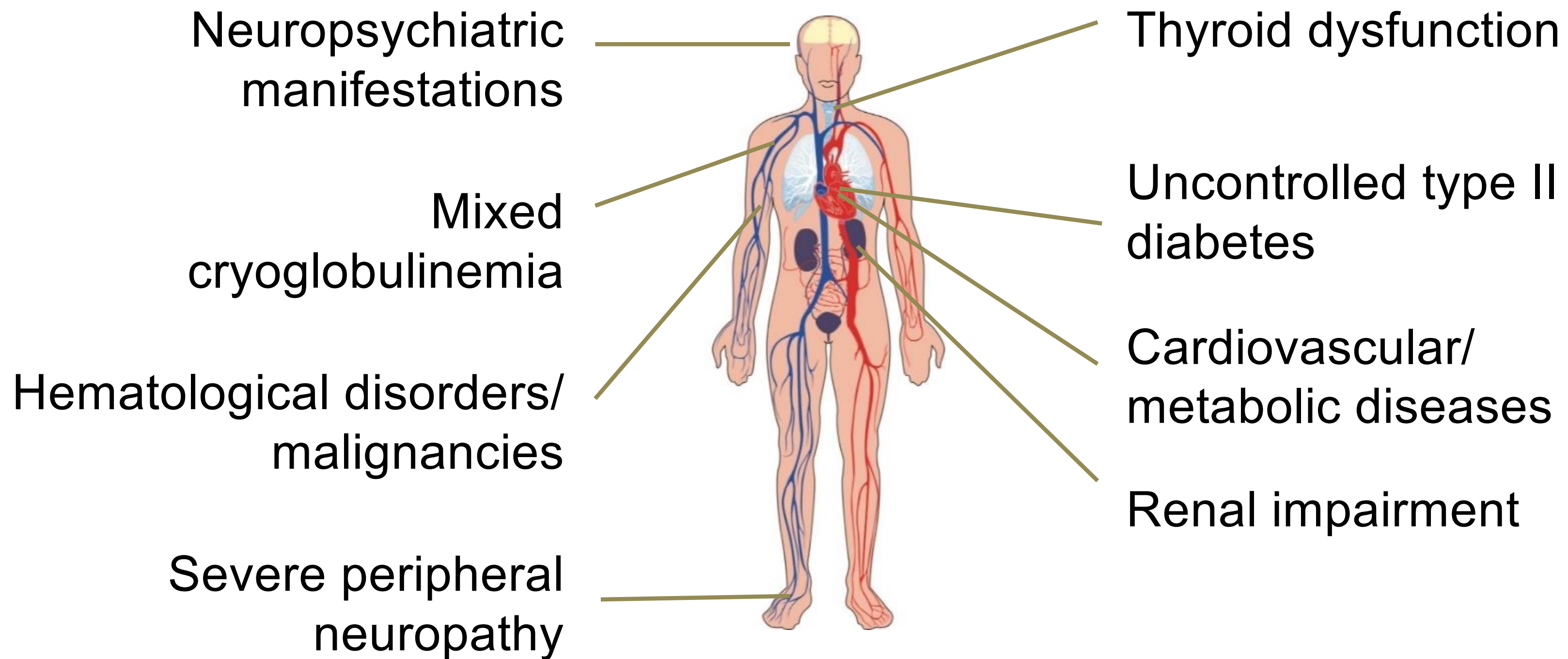
Case Study #3: Decompensated Cirrhosis

- A 64-year-old female
- HCV+, genotype 3, viral load 623,000 I/L
- Platelet count 140,000
- INR 1.2, Total bilirubin 1.8
- Mild ascites

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

Extrahepatic
Manifestations of HCV

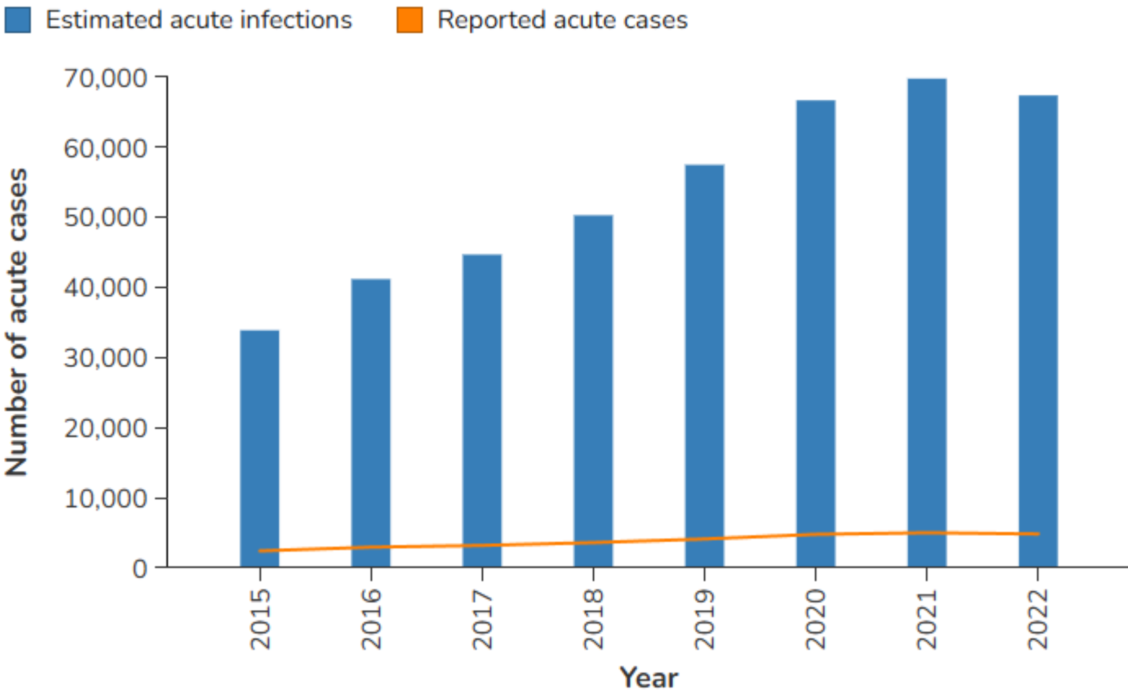
Extrahepatic Manifestations of HCV Infection Warranting Referral



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.

Acute Hepatitis C

Incidence Rate of Acute HCV in the US



- Provider reports of acute HCV can help the NYC Health Department identify outbreaks
- Report suspected cases to the NYC Health Department at nyc.gov/med

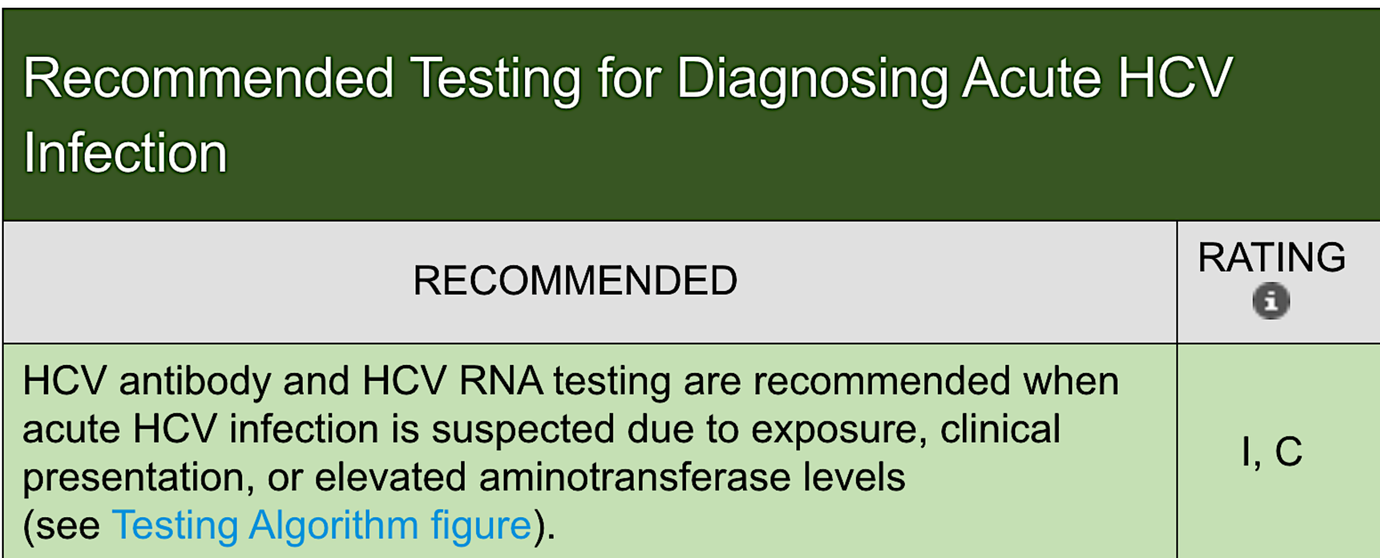
CDC, National Notifiable Diseases Surveillance System (accessed 3/30/2025)

Spontaneous Clearance of Acute HCV

- HCV infection spontaneously clears in 20% to 50% of patients
- Most patients with acute HCV are asymptomatic
- Predictors of spontaneous clearance include jaundice, elevated ALT level, HBsAg positivity, female sex, younger age, genotype 1 infection
- Detectable HCV RNA at 6 months after infection will identify most persons who need antiviral therapy
- Single undetectable HCV RNA test result is insufficient to declare spontaneous clearance
- If acute HCV is diagnosed, DO NOT WAIT for spontaneous clearance to treat

https://www.hcvguidelines.org accessed 10/5/2022

Acute HCV: AASLD Treatment Recommendations



Diagnosis of Acute HCV

Recommended Testing for Diagnosing Acute HCV Infection	
RECOMMENDED	RATING
HCV antibody and HCV RNA testing are recommended when acute HCV infection is suspected due to exposure, clinical presentation, or elevated aminotransferase levels (see Testing Algorithm figure).	I, C

AASLD Guidance Document Accessed April 21,2021

Acute HCV: AASLD Treatment Recommendations

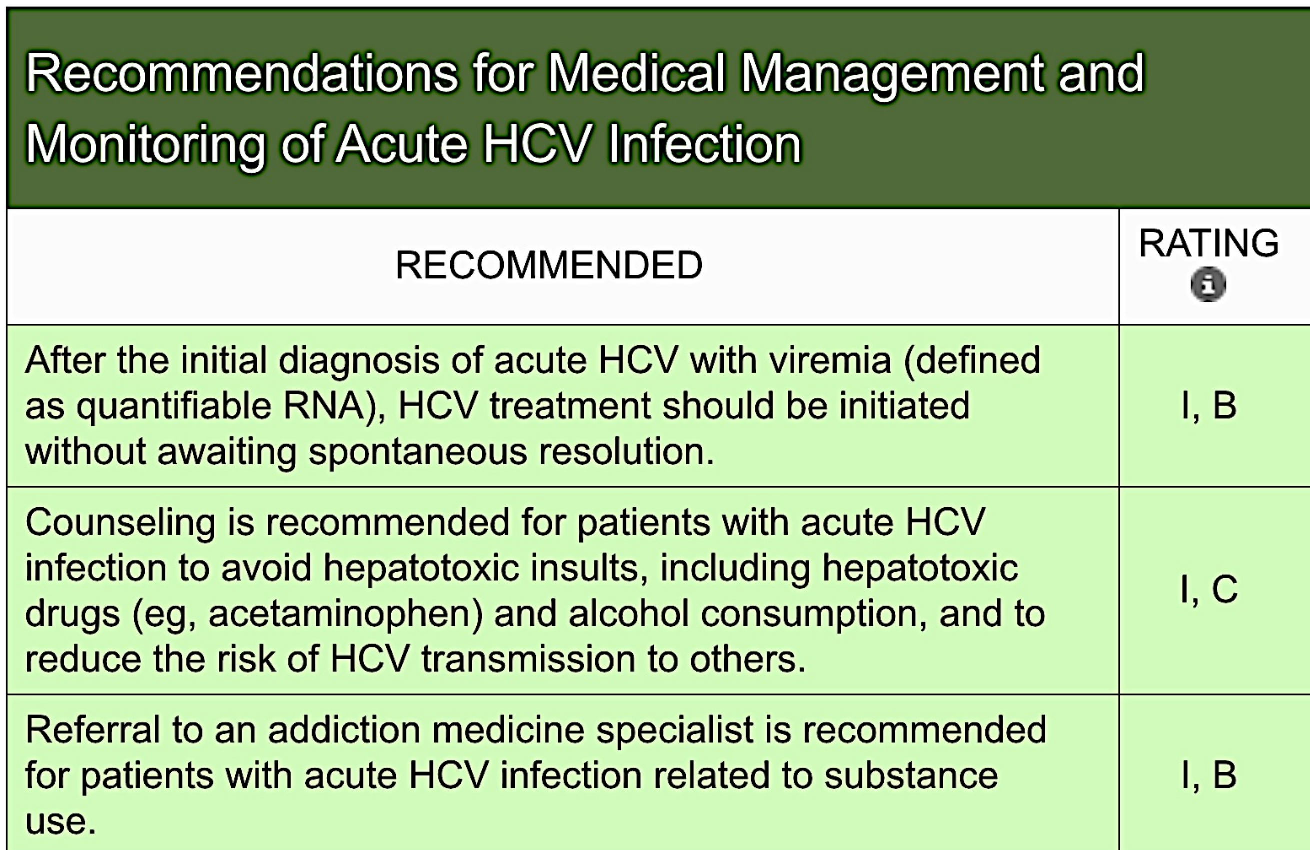
Pharmacologic Prophylaxis

Pharmacologic Prophylaxis Not Recommended	
NOT RECOMMENDED	RATING
Pre-exposure or post-exposure prophylaxis with antiviral therapy is not recommended.	III, C

There are no data on the efficacy or cost-effectiveness of antiviral therapy for pre-exposure or post-exposure prophylaxis of HCV infection.

AASLD Guidance Document Accessed April 21,2021

Acute HCV: AASLD Treatment Recommendations

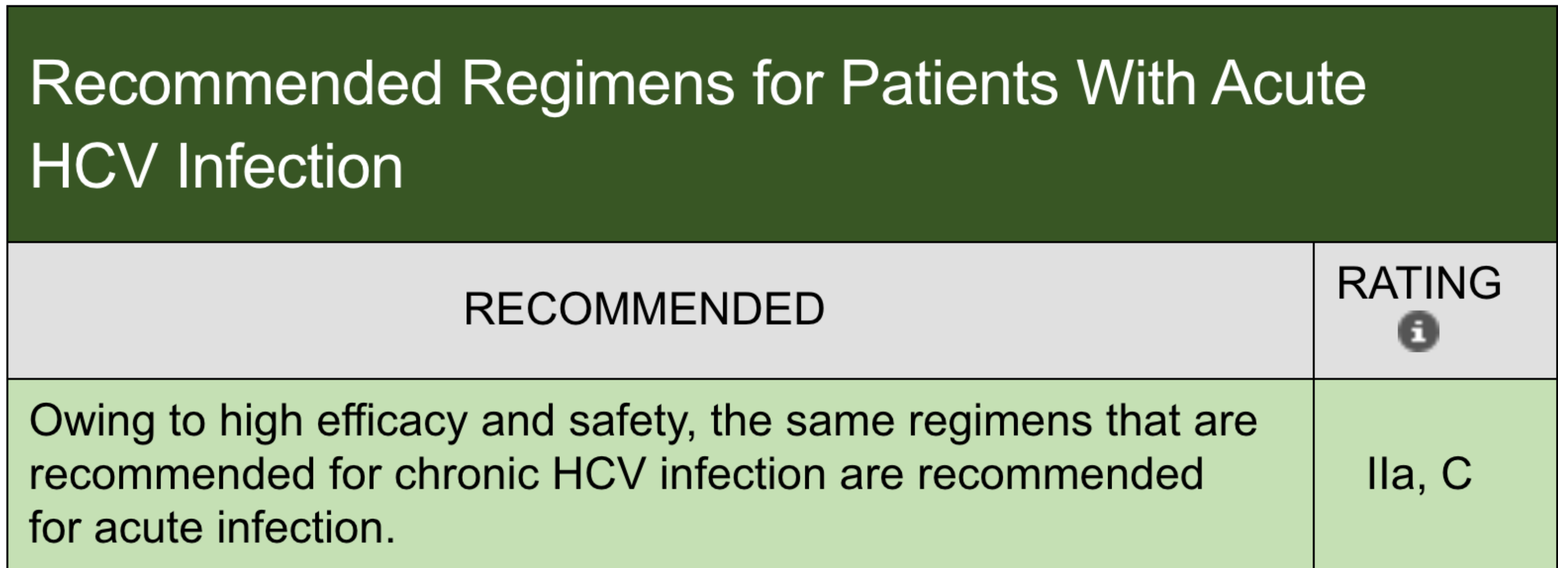


Recommendations for Medical Management and Monitoring of Acute HCV Infection	
RECOMMENDED	RATING
After the initial diagnosis of acute HCV with viremia (defined as quantifiable RNA), HCV treatment should be initiated without awaiting spontaneous resolution.	I, B
Counseling is recommended for patients with acute HCV infection to avoid hepatotoxic insults, including hepatotoxic drugs (eg, acetaminophen) and alcohol consumption, and to reduce the risk of HCV transmission to others.	I, C
Referral to an addiction medicine specialist is recommended for patients with acute HCV infection related to substance use.	I, B

AASLD Guidance Document Accessed April 21,2021

Acute HCV: AASLD Treatment Recommendations

Antiviral Therapy



Recommended Regimens for Patients With Acute HCV Infection	
RECOMMENDED	RATING
Owing to high efficacy and safety, the same regimens that are recommended for chronic HCV infection are recommended for acute infection.	IIa, C

AASLD Guidance Document Accessed April 21,2021

HCV Cirrhosis

Prevalence of Cirrhosis (all etiologies)

0.27%

Estimated prevalence of cirrhosis in US

633,323

Estimated number of Americans with cirrhosis

69%

Patients with cirrhosis are **unaware of their disease**

Compensated cirrhosis often undetected for long periods of time

Scaglione S, et al. *J Clin Gastroeneterol*. 2015. 49(8):690-696.

Management of Patients with Cirrhosis

- Compensated cirrhosis patients can be treated with the same regimens as noncirrhotic patients
  - Need HCC and varices screening so can be referred to specialist after treatment
- Decompensated cirrhosis patients should be referred
  - Consideration of liver transplant
  - Treatment regimens require duration adjustment, addition of ribavirin or may be contraindicated

Compensated Cirrhosis May Be Difficult to Recognize

- Most patients remain asymptomatic until decompensation occurs[1]
- ALT/AST may be normal or mildly elevated
- Subtle clues may be overlooked
  - Thrombocytopenia
  - Nodular liver or enlarged spleen on imaging
  - AST>ALT without alcohol consumption
  - Muscle wasting
- Etiology may not be obvious
  - Diabetes mellitus and obesity
  - Prior alcohol use

1. Tsochatzis EA et al. *Lancet*. 2014;383:1749-1761; Heidelbaugh JJ, Bruderly M. *Am Fam Phys*. 2006;74:756-762.

Tools to Assess: Fibrosis/Cirrhosis/Portal Hypertension

- **Physical exam**
  - Nodular liver, splenomegaly
  - Presence of gynecomastia, caput medusa, lower extremity edema, ascites
- **Radiology**
  - Helpful if studies reveal:
    - Nodular liver
    - Enlarged caudate lobe
    - Enlarged spleen
    - Reversal of flow in portal vein or the presence of portal vein collaterals

Noninvasive Methods to Assess Hepatic Fibrosis

Serum Tests

- AST to platelet ratio (APRI)
- FIB4: Age, AST, ALT, platelets
- Enhanced Liver Fibrosis (ELF) score

Measurement of Liver Stiffness

- Transient elastography
- Acoustic radiation force impulse imaging
- Magnetic resonance elastography

Castera L. *Gastroenterology*. 2012;142:1293-1302.

Liver Biopsy

Pros

- Gold standard for intermediate fibrosis stages
- Assess activity (inflammation)
- Rule out other diagnoses (fatty liver, autoimmune)

Cons

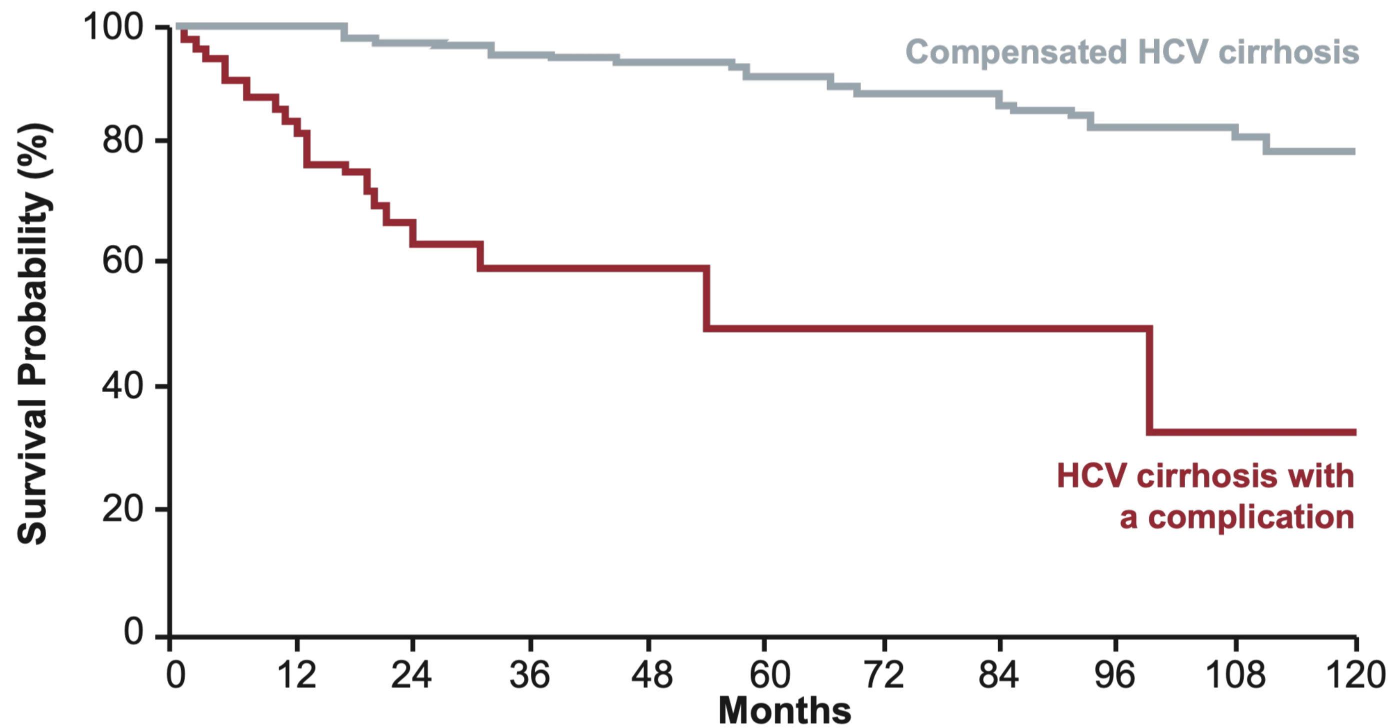
- Invasive
- Complications*
- Sampling error
- Expensive
- Requires experts (biopsy, pathology)

*Complications include: pain, bleeding, hollow viscus perforation – mortality in 0.005%

Decompensated Cirrhosis

- Patients with decompensated cirrhosis can have one or more of the following complications
  - Ascites
  - Hepatic encephalopathy
  - Variceal bleeding (esophageal, gastric)
  - Hepatorenal syndrome

Poor Survival Rates in Patients with Decompensated Cirrhosis



Patients with HCC at time zero were excluded

Fattovich, et al. *Gastro*. 1997:112:463-72.

AASLD Guidelines: Decompensated Cirrhosis

Recommended for All Patients With HCV Infection Who Have Decompensated Cirrhosis

RECOMMENDED	RATING
Patients with HCV infection who have decompensated cirrhosis—moderate or severe hepatic impairment, ie, Child-Turcotte-Pugh (CTP) class B or class C—should be referred to a medical practitioner with expertise in that condition, ideally in a liver transplant center.	I, C

www.hcvguidelines.org Accessed 4/21/2019

Methods to Predict Outcomes in Patients with Liver Disease

Child-Turcotte-Pugh (CTP) Classification

	Points*		
	1	2	3
Encephalopathy	None	Grade 1-2 (or precipitant-induced)	Grade 3-4 (or chronic)
Ascites	None	Mild/Moderate (diuretic-responsive)	Severe (diuretic-refractory)
Bilirubin (mg/dL)	<2	2-3	>3
Albumin (g/dL)	>3.5	2.8-3.5	<2.8
PT (sec prolonged) or INR	<4 <1.7	4-6 1.7-2.3	>6 >2.3

CTP score: Obtained by adding the score for each parameter
CTP class: A=5-6 points; B=7-9 points; C=10-15 points

Calculator: https://www.hepatitisc.uw.edu/page/clinical-calculators/ctp

MELD 3.0

This calculator is recommended for ages 12 and older.

Date of Birth (mm/dd/yyyy)

Date added to the Waitlist (mm/dd/yyyy)

Sex for purposes of adult MELD calculation (only required if age at registration is 18 years and older)

Male Female

Bilirubin (mg/dL)

Serum Sodium (mEq/L)

INR

Albumin (g/dL)

Serum Creatinine (mg/dL)

Had dialysis twice, or 24 hours of CVVHD, within a week prior to the serum creatinine test?

Yes No

Note: If Yes is selected above, the system will default to a value of 3 mg/dL for serum creatinine.

Reset

Calculate

MELD 3.0: Sample

Stanford MEDICINE | Medical Calculators
Department of Medicine

MELD 3.0 Calculator

Field	Value	Unit
Gender	○ Male ● Female	
Bilirubin	2	mg/dL
Na	125	mEq/L
INR	2	
Creatinine	1.8	mg/dL
Albumin	3.1	g/dL

Scores

Original MELD	22
MELD Na (UNOS version)	29
MELD 3.0	31

Kim WR et al Gastro. 2021 Sep 2:S0016-5085(21)03469-7. doi:

Summary: HCV Complications Warranting Referral to a Liver Specialist

1. Extra-hepatic manifestations
2. Acute hepatitis C
3. Advanced liver disease
   - Jaundice
   - Abnormal INR
   - Ascites
   - Esophageal Varices
   - Hepatic Encephalopathy
   - Hepatocellular carcinoma

Case Study #1: Extrahepatic Manifestations

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What would you do next?

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- Platelet count 140,000
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What would you do next?

Summary of Key Messages

- Acute HCV is increasing nationally, most patients are asymptomatic
- If acute HCV is diagnosed, treat at time of diagnosis
- Assess fibrosis in HCV patients: physical exam, serum tests and elastography
- Follow patients with compensated cirrhosis and survey for HCC and portal HTN
- Refer patients with decompensated cirrhosis to a liver specialist or transplant center

Hepatitis C Treatment Guidelines and Resources

- Treatment Guidelines - HCVguidelines.org
  - Includes a simplified treatment algorithm for use by primary care providers
  - https://www.hcvguidelines.org/sites/default/files/full-guidance-pdf/HCV%20Test%20and%20Treat%20Final%20011725.pdf
- Drug-Drug Interactions - https://www.hep-druginteractions.org/

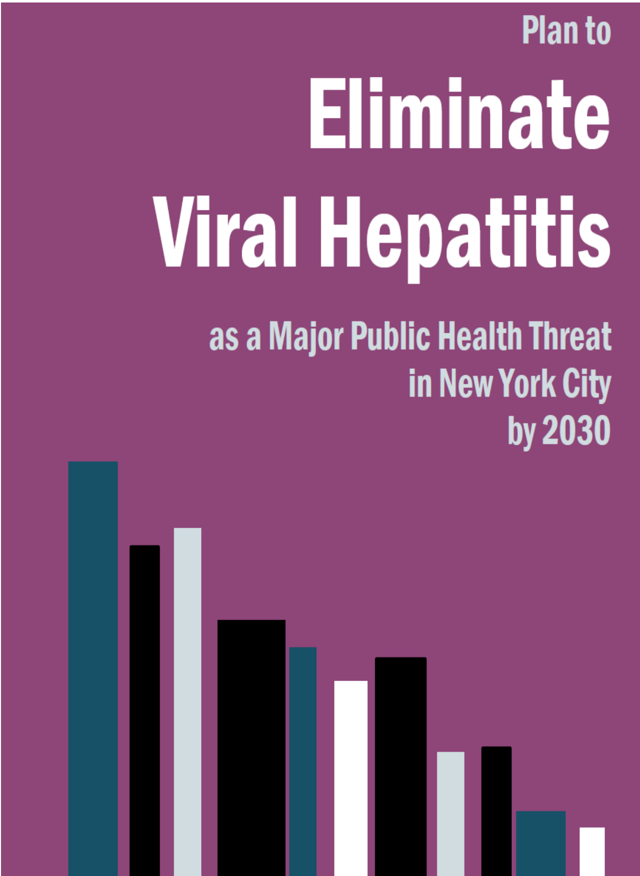
Hepatitis C Resources in NYC

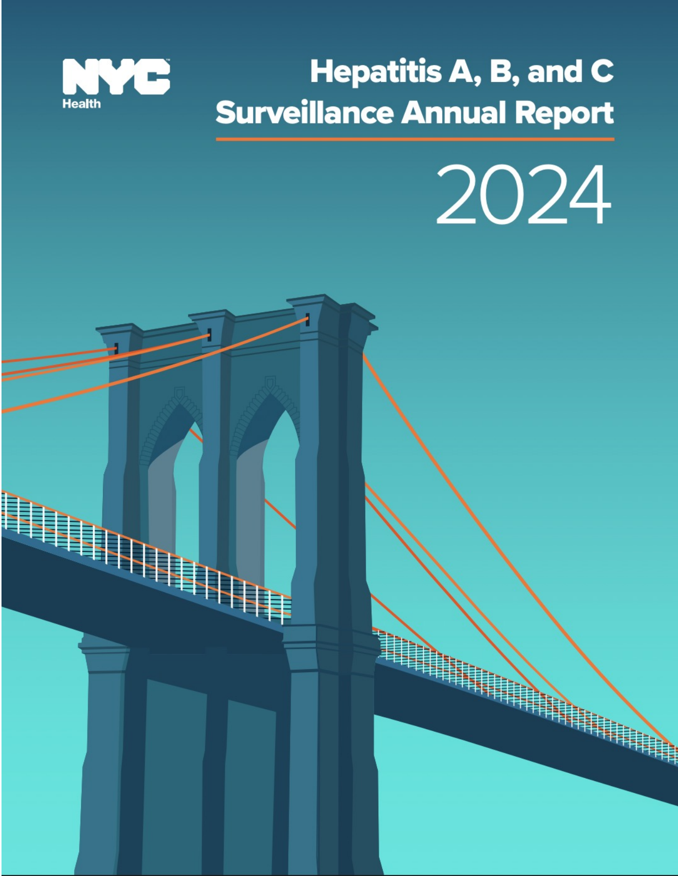
- NYS HCV CEI Clinical Consultation Hotline:
  (866) 637-2342 (leading hepatologist will answer questions)

- 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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