Universal Screening and Vaccination to Achieve Viral Hepatitis Elimination

Rebecca Roediger, MD
Anna Mageras, MPH

April 7, 2022
1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. HBV epidemiology
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. HBV epidemiology
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
Epidemiology: Acute HCV in United States 2002-2017

Increased rates in ages 20-29 and 30-39, group most affected by opioid epidemic

Source: CDC, National Notifiable Diseases Surveillance System.
Changing Age Distribution of Chronic HCV in NYC

**Chronic Hepatitis C: Age Distribution**

In 2010, the age distribution of hepatitis C cases was concentrated among baby boomers (people born between 1945 and 1965). Ten years later, there was a second peak of hepatitis C cases among younger people. Younger people are likely to have been infected from recent drug use.

*Figure 20.* Age distribution of people reported with chronic hepatitis C in NYC, 2010 and 2020

Relevance: High Rates of Newly Reported HCV in NYC in 2020

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

1. Rikers Island, Bronx (502.8)
2. Brighton Beach, Brooklyn (108.1)
3. East Tremont, Bronx (99.9)
4. Midtown-Midtown South, Manhattan (84.7)
5. Murray Hill-Kips Bay, Manhattan (82.8)
6. Fordham South, Bronx (73.7)
7. Crotona Park East, Bronx (71.9)
8. Mount Hope, Bronx (68.5)
9. Stapleton-Rosebank, Staten Island (68.0)
10. Melrose South-Mott Haven North, Bronx (67.6)

NYC rate: 35.1

Hepatitis C in NYC (2020): Demographics

Hepatitis C in NYC: Opportunities for Elimination

91,000 Estimated number of people with current hepatitis C infection in NYC*

40% Estimated percentage of NYC residents with chronic hepatitis C who are undiagnosed

*For information about how the hepatitis C prevalence estimate is calculated, see Appendix 1.

Hepatitis C can be cured, making elimination of the disease a reality, but 40% of NYC residents with hepatitis C remain undiagnosed.

Hepatitis C can be cured, yet 40% of NYC residents diagnosed with hepatitis C remain untreated.

40% Estimated percentage of people diagnosed with chronic hepatitis C who have not initiated treatment

Percentage of people who died prematurely in 2017

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated hepatitis C infection</td>
<td>57.9</td>
</tr>
<tr>
<td>Citywide*</td>
<td>27.4</td>
</tr>
</tbody>
</table>

The percentage of people with hepatitis C who die prematurely (occurring before age 65) is two times higher than all premature deaths in NYC.

*Including hepatitis C infection
Hepatitis C in NYC: DOHMH 2030 Viral Elimination Goals

- **Goal 1**: Reduce new HCV infections among people in NYC by 90% by 2030

- **Goal 2**: Reduce premature deaths among people with chronic HBV and HCV in NYC by 65% by 2030; Improve the health of people with HBV and HCV in NYC

- **Goal 3**: Reduce health inequities related to viral hepatitis infection among people in NYC

<table>
<thead>
<tr>
<th>Progress Indicators</th>
<th>Baseline</th>
<th>2030 (goal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90% of participants in the NYC Health Department Viral Hepatitis Program-contracted programs will be screened for hepatitis C</td>
<td>42% (2018)</td>
<td>90%</td>
</tr>
<tr>
<td>Data source: organizations that contract with the NYC Health Department and report screening data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80% of adults newly diagnosed with hepatitis C will be RNA negative within one year of diagnosis</td>
<td>29% (2018)</td>
<td>80%</td>
</tr>
<tr>
<td>Data source: NYC surveillance data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80% of people in NYC reported with hepatitis C since 2014 will be RNA negative</td>
<td>62% (2019)</td>
<td>80%</td>
</tr>
<tr>
<td>Data source: NYC surveillance data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HCV Epidemiology

- Cases increasing especially for 20-40 year-olds
- 40% of New Yorkers with HCV are undiagnosed
- Even when diagnosed, 40% remain untreated
- NYC DOH 2030 Viral Hepatitis Elimination goals aims to increase screening and treatment of HCV
Overview

1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. HBV epidemiology
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
The American College of Obstetricians and Gynecologists is updating its hepatitis C screening guidance to recommend screening for all pregnant individuals during each pregnancy.
Effectiveness of Routine HCV Screening

**Hepatitis C Screening**

*Figure 25.* Reason for hepatitis C screening among people ages 18 to 34 years newly reported with chronic hepatitis C in 2020 in NYC, interviewed through enhanced surveillance (n=290)

- Hepatitis C risk factors: 32.6%
- Routine hepatitis C screening: 28.1%
- Drug or alcohol treatment: 24.4%
- Elevated liver enzymes: 9.5%
- Jaundice: 7.2%
- Previously tested for hepatitis C: 4.1%
- Symptoms or signs: 3.2%
- Incarceration: 2.3%
- Dialysis: 1.8%
How to Screen for Hepatitis C

HCV Ab with reflex to RNA

**Interpretation:**
- If negative Ab: screening is complete
  - Cleared spontaneously
  - Previously treated
  - False positive
- If positive Ab and RNA: treat HCV
  - Refer to hepatology
  - Treat in clinic

*Source: CDC. Testing for HCV infection: An update of guidance for clinicians and laboratorians. MMWR 2013;62(18).*
Interval for Screening

- Unless risk factors for infection, one time screening is adequate

- If risk factors: recommend annual screening
  - Persons with injection drug use
  - Healthcare workers
  - Chronic dialysis
  - Anyone requesting testing

- If known exposure:
  - HCV RNA positive 1-2 weeks
  - HCV Ab positive 8-11 weeks
Overview

1. HCV epidemiology
2. HCV screening guidelines update
3. **HCV treatment overview**
4. HBV epidemiology
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
HCV Treatment

Pan-genotypic direct acting antivirals are highly efficacious with minimal side effects
- Velpatasvir/Sofosbuvir (Epclusa), also panfibrotic
- Glecaprevir/Pibrentasvir (Mavyret)
- Treatment after failing the above DAA is available, recommend referral to hepatology

Insurance barriers minimized in NY State, easily accessible with specialty pharmacy

| FIBROSIS | # of states with fibrosis restrictions | 4 (8%) | F2: Nebraska, Texas  
F3: Arkansas, South Dakota |
|----------|-------------------------------------|--------|-----------------------|
| SOBRIETY | # of states requiring a period of abstinence | 13 (6%) | 1 month: Florida  
3 months: Arizona, Iowa, Kansas, North Dakota, Texas, West Virginia  
6 months: Alabama, Arkansas, Mississippi, Nebraska, South Dakota, Tennessee |
|          | # of states who require drug or alcohol screening or counseling | 15 (28%) | Alaska, Colorado, Delaware, District of Columbia, Georgia, Hawaii, Idaho, Illinois, Maryland, Minnesota, Montana, New Hampshire, Oklahoma, South Carolina, Wyoming |
| PRESCRIBER | # of states with prescriber restrictions | 18 (35%) | Specialist: Arkansas, New Jersey  
By or in consultation with a specialist: Arizona, Colorado, District of Columbia, Hawaii, Illinois, Iowa, Mississippi, Nevada, New Hampshire, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Texas, West Virginia |
Ongoing IV Drug Use

- Not a contraindication if will not interfere with adherence
  - Treatment can prevent spread

- Does not prevent against re-infection
  - Future screening with HCV RNA
  - HCV Ab will remain positive after cure and is not a screening test for re-infection
Evaluation Prior to Treatment

- Screen for HBV
  - Treatment has been associated with HBV reactivation
- Medication review for drug-drug interactions
  - PPIs
  - Statins
- Cirrhosis evaluation
  - Affects duration of treatment
  - Ribavirin
  - Cannot use protease inhibitors (Mavyret) in decompensated cirrhosis
- Renal failure

University of Liverpool HEP Drug Interactions
www.hep-druginteractions.org/checker
Overview

1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. **HBV epidemiology**
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
HBV Prevalence in the U.S.

- NHANES:
  - U.S. prevalence of HBsAg+ ~ 0.30%
  - ~1.59 million persons.

- This is underestimate:
  - Institutionalized & homeless excluded
  - Immigrant populations under-sampled
NYC DOHMH HBV Data 2020

Chronic Hepatitis B

- **5,964** Number of people newly reported with chronic hepatitis B in 2019
- **71.0** Rate of newly reported chronic hepatitis B per 100,000 people in 2019

**HEPATITIS B PREVALENCE ESTIMATE**
In 2019, the Health Department updated the prevalence of chronic hepatitis B in NYC.

- **241,000** Estimated number of people with chronic hepatitis B in NYC

  The prevalence of chronic hepatitis B in NYC in 2017 was **2.9%** approximately 241,000 people.

Hepatitis B can be treated to reduce the risk of liver disease, liver cancer and premature death, yet almost half of NYC residents with hepatitis B remain undiagnosed.

- **46%** Almost half of NYC residents with hepatitis B are estimated to be undiagnosed.

**Percentage of people who died prematurely**

- Hepatitis B infection: 45.5%
- Citywide (including hepatitis B): 27.4%

The percentage of people with hepatitis B who die prematurely is 1.5 times higher than all premature deaths in NYC.
HBV Epidemiology

- Prevalence of HBV in NYC is ~2.9%
- 46% of people with chronic HBV are undiagnosed
- Rates of HBV are increasing in >40yo
  - Stable or decreasing in 0-39yo
  - Universal newborn vaccination instituted 1991

Hepatitis B in NYC: DOHMH 2030 Viral Elimination Goals

- **Goal 1**: Reduce new HCV infections among people in NYC by 90% by 2030
- **Goal 2**: Reduce premature deaths among people with chronic HBV and HCV in NYC by 65% by 2030; Improve the health of people with HBV and HCV in NYC
- **Goal 3**: Reduce health inequities related to viral hepatitis infection among people in NYC

### Progress Indicators

<table>
<thead>
<tr>
<th>Progress Indicators</th>
<th>Baseline</th>
<th>2030 (goal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90% of participants in the NYC Health Department Viral Hepatitis Program-contracted programs at risk for hepatitis B infection will be screened</td>
<td>57% (2018)</td>
<td>90%</td>
</tr>
<tr>
<td>Data source: organizations that contract with the NYC Health Department and report screening data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80% of people in NYC reported with hepatitis B since 2018 who meet American Association for the Study of Liver Diseases (AASLD) treatment criteria will be virally suppressed</td>
<td>Being assessed in 2021</td>
<td>80%</td>
</tr>
<tr>
<td>Data source: NYC surveillance data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Overview

1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. HBV epidemiology
5. **HBV vaccination guidelines**
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
In 2021, the Advisory Committee on Immunization Practices (ACIP) for the CDC recommended universal HBV vaccination for all adults <60 years

- "Risk-based [recommendation] is a failed policy. The evidence is overwhelming." — Former ACIP chair Carol Baker, MD
- Nationally only 25% of adults are vaccinated
  - Only 39% of those with chronic liver diseases

Hepatitis B vaccination

<table>
<thead>
<tr>
<th>Routine vaccination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age 19 through 59 years</strong>: complete a 2- or 3-, or 4-dose series</td>
</tr>
<tr>
<td>- 2-dose series only applies when 2 doses of Heplisav-B are used at least 4 weeks apart</td>
</tr>
<tr>
<td>- 3-dose series Engerix-B or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks]</td>
</tr>
<tr>
<td>- 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])</td>
</tr>
<tr>
<td>- 4-dose series HepA-HepB (Twinrix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months</td>
</tr>
<tr>
<td>- 4-dose series Engerix-B at 0, 1, 2, and 6 months for persons on adult hemodialysis (note: each dosage is double that of normal adult dose, i.e., 2 mL instead of 1 mL)</td>
</tr>
</tbody>
</table>

*Note: Heplisav-B not recommended in pregnancy due to lack of safety data in pregnant women*

<table>
<thead>
<tr>
<th>Special situations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age 60 years or older</strong> and at risk for hepatitis B virus infection: 2-dose (Heplisav-B) or 3-dose (Engerix-B, Recombivax HB) series or 3-dose series HepA-HepB (Twinrix) as above</td>
</tr>
</tbody>
</table>

https://www.medpagetoday.com/meetingcoverage/acip/95427
https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html#note-hepb
HBV Vaccination Series

Recommended
• Heplisav: two doses one month apart
  – 90-95% seroprotection rate
• Twinrix: three doses at 0, 1, and 6 months
  – Immunizes against HAV and HBV

Other
• Engerix-B: three doses at 0, 1, and 6 months
  – 71-90% seroprotection rate
• Recombivax HB: three doses at 0, 1, and 6 months
  – 88-92% seroprotection rate
• PreHevbrio: three doses at 0, 1, and 6 months
  – 89-91% seroprotection rate
HBV Vaccine Non-Responders

Risk Factors
- Older age (40+)
- Male
- Smoker
- Diabetes
- Chronic illness
- ESRD
- Obesity
- HBV infection

Adequate response after 1 additional dose in 15-25% of non-responders

If no response and not infected, recommend re-initiating vaccine series
- Heplisav
- PreHevbio
Overview

1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. HBV epidemiology
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
Implements patient outcomes

- 7.4 cases of compensated cirrhosis
- 3.3 cases of decompensated cirrhosis
- 5.5 cases of HCC
- 1.9 liver transplants
- 10.3 HBV-related deaths

Cost Effective

- Savings of $263,000 per 100,000 people aged 18–69 years screened
  - HBV treatment < $894/year, and test, $10.33

Potentially higher improvement in NYC due to higher prevalence compared to the U.S.

Mehlika Toy, David Hutton, Aaron M Harris, Noele Nelson, Joshua A Salomon, Samuel So, Cost-Effectiveness of 1-Time Universal Screening for Chronic Hepatitis B Infection in Adults in the United States, *Clinical Infectious Diseases*, 2021; ciab405, https://doi.org/10.1093/cid/ciab405
## Benefits Far Outweigh Harms

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Decreases in risk for continuous transmission of HBV infection, HBV-associated morbidity and mortality, and health care costs  \</td>
</tr>
<tr>
<td></td>
<td>Increases in number of persons aware of their status, receiving hepatitis B–directed care, and receiving treatment and increases in care and treatment of HBV-infected mothers in order to reduce risk for perinatal transmission</td>
</tr>
<tr>
<td>Harms</td>
<td>Vaccination: Rare but can include mild fever, soreness at the injection site, anaphylaxis (1 case per 1.1 million doses), and adverse effects of treatment  \</td>
</tr>
<tr>
<td></td>
<td>Screening: Potential emotional trauma from a rare false-positive test result; feelings of shame and depression in some HBV-infected persons</td>
</tr>
<tr>
<td></td>
<td>Linkage to care: None</td>
</tr>
</tbody>
</table>
Current CDC guidelines for screening recommend screening for:

- **Persons born in regions of high and intermediate HBV endemicity (HBsAg prevalence 2%)**
- **US born persons not vaccinated as infants whose parents were born in regions with high HBV endemicity (8%)**
CDC Changing Recommendations

CDC Recommendations for Hepatitis B Screening and Testing—United States, 2022; Request for Comment

A Notice by the Centers for Disease Control and Prevention on 04/04/2022

“The Centers for Disease Control and Prevention (CDC), located within the Department of Health and Human Services (HHS), announces the opening of a docket to obtain comment on proposed updated recommendations for hepatitis B virus (HBV) infection screening and testing (Proposed Updated Recommendations), including hepatitis B screening at least once in a lifetime for persons 18 years of age and older, using a three-test panel.”

Hepatitis B Screening

- HBV Surface Ag and Ab
- HBV Core Ab

**Interpretation:**
- If all negative: needs vaccine
- If Surface Ag positive: has chronic HBV. Refer to hepatology
- If Surface Ab and Core Ab positive: previously exposed and cleared
- If Surface Ab positive, Core Ab negative: previously vaccinated
- Indeterminate Surface Ab:
  - If Core Ab negative: check again in 3 months. May need to re-initiate vaccine series
  - If Core Ab positive: check DNA and check Surface Ab in 3 months
1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. HBV epidemiology
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
Hepatitis Delta Virus (HDV) requires HBV Surface Ag for viral entry

HDV is the most severe form of viral hepatitis
• Progresses to cirrhosis in 5 years, HCC in 10 years
• Coinfection with HDV has higher rates of:
  – liver failure
  – nonalcoholic cirrhosis
  – portal hypertension
  – Ascites
  – thrombocytopenia

EASL recommends anti-HDV antibody testing in all HBsAg regardless of other risk factors.
• Prevalence rates estimated 4.5-13% of HBV Surface Ag positive patients

<table>
<thead>
<tr>
<th>Progression to Cirrhosis</th>
<th>(10 - 20% \text{ within 20 Years})</th>
<th>(20% \text{ within 5 Years})</th>
<th>(70% \text{ within 5 – 10 Years})</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV</td>
<td></td>
<td>HBV</td>
<td>HDV</td>
</tr>
</tbody>
</table>

HDV Geographic Footprint Is Growing

U.S. major metro hotspots identified

Top 10 U.S. Cities in 2016
1. Chicago, Illinois
2. Berwyn, Illinois
3. Brooklyn, New York
4. Corona, New York
5. Waukegan, Illinois
6. New York, New York
7. Bronx, New York
8. Jamaica, New York
9. Lombard, New York
10. Aurora, Illinois

Increased Screening Leads to Increased HBV and HDV Diagnosis

- Identifying HDV patients is key as multiple treatments are coming to market

Overview

1. HCV epidemiology
2. HCV screening guidelines update
3. HCV treatment overview
4. HBV epidemiology
5. HBV vaccination guidelines
6. Screening for HBV
7. Hepatitis Delta
8. Case Study: Mount Sinai Health System
Mount Sinai Health System (MSHS)

- Large, urban, multicenter health system
- 47% of hospital discharges in NYC
- Serves diverse population of metropolitan NYC area
- Hospitals with EDs and PCP practices:
  - 4 in Manhattan
  - 1 in Queens
  - 1 in Brooklyn
  - 1 in Nassau County
- Large ambulatory care network across NYC, Long Island, and Westchester
HCV Program Implementation

Screening
- Screening events in at-risk communities since 2011 (HONE)
- Since 2015 for baby boomers and pregnant women
- Since 2020 for all adults 18+
- EMR alert prompting PCPs to screen
- Automatic RNA reflex testing for Ab+
- Outreach to PCPs and patients

Treatment
- Patient navigation and care coordination (340B funding)
New EMR Alert Prompting PCPs to Screen All Adults

Hepatitis C Screening is Due

2020 CDC Hepatitis C Screening Guidelines
The CDC recommends Hepatitis C screening for all adults (≥18yo) at least once. To satisfy this alert please open the Hepatitis C SmartSet below. If the patient has already satisfied screening, you may override this alert. Alternatively, you may postpone this alert.

Last HCVAB collected/resulted: DD/MM/YYYY = Result value
Hepatitis C Screening last satisfied: DD/MM/YYYY

- Open Order Set
- Override
- Postpone

HEPATITIS C SCREENING ORDER SMARTSET Preview

- Do Not Open
- Do Not Override
- Do Not Postpone

Hepatitis C Screening Edit details

- Address Hepatitis C Screening HM Topic
- HM Activity (Add patient reported, Postpone, Override)
- Add relevant diagnosis to History

Accept
Dismiss
Dear Dr. Vega,

As part of a system-wide effort to eliminate Hepatitis C at Mount Sinai, I am sharing a list of your patients eligible for Hepatitis C screening who are scheduled to see you in the coming week.

Based on new guidelines from the CDC and USPSTF, providers are now advised to screen all adults for Hepatitis C at least once, regardless of risk factors.

<table>
<thead>
<tr>
<th>Date</th>
<th>APPT_TIME</th>
<th>MRN</th>
<th>Patient</th>
<th>Enc_Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/23/2021</td>
<td>10:00 AM</td>
<td></td>
<td></td>
<td>VEGA, AIDA C [136946]</td>
</tr>
<tr>
<td>11/23/2021</td>
<td>2:30 PM</td>
<td></td>
<td></td>
<td>VEGA, AIDA C [136946]</td>
</tr>
<tr>
<td>11/23/2021</td>
<td>3:00 PM</td>
<td></td>
<td></td>
<td>VEGA, AIDA C [136946]</td>
</tr>
<tr>
<td>11/24/2021</td>
<td>9:00 AM</td>
<td></td>
<td></td>
<td>VEGA, AIDA C [136946]</td>
</tr>
<tr>
<td>11/24/2021</td>
<td>10:00 AM</td>
<td></td>
<td></td>
<td>VEGA, AIDA C [136946]</td>
</tr>
<tr>
<td>11/24/2021</td>
<td>11:00 AM</td>
<td></td>
<td></td>
<td>VEGA, AIDA C [136946]</td>
</tr>
</tbody>
</table>

If any of your patients test positive for Hepatitis C, my team would be happy to offer assistance linking them to liver care. We can provide assistance with scheduling, transportation, pharmacy/insurance coordination, health education, and other referrals.

If you have any questions or feedback, feel free to contact me, our program manager, Anna Mageras (copied here), or our medical director, Dr. Douglas Dieterich.

Thank you,
Direct Prompt in Patient Portal

Preventive Care

Preventive medicine plays an important part in your health and overall well-being. The following procedures are recommended for people of your age, sex, and medical history.

Overdue

Hepatitis C Screening

Learn more
Hide reminder from home page

Not due

Hepatitis C Screening

Completed on October 9, 2017
Previously done: 10/9/2017

Learn more
Dear [PATIENT NAME],

I am working with your primary care provider on a health initiative to promote testing for hepatitis C virus (HCV). The U.S. Centers for Disease Control and Prevention (CDC) now recommend that all adults get tested at least once in their lifetime. Many patients with an HCV infection have no symptoms for many years, but the virus may still be causing serious liver damage.

Our records indicate that you have not had an HCV test at Mount Sinai. We encourage you to ask your provider about HCV testing at your upcoming visit.

The great news is that HCV is curable, usually in 8-12 weeks with minimal side effects. Nearly all insurance plans cover HCV treatment and financial assistance plans may be available to cover gaps.

If you have any questions or need help scheduling HCV care after testing, please contact me directly by MyChart, phone, or email.

For more information about HCV, please visit https://www.cdc.gov/hepatitis/hcv/cfaq.htm.

Sincerely,

[PATIENT NAVIGATOR SIGNATURE]
Say YES to the Test!
Everyone ages 18+ should be screened at least once for hepatitis C.
Ask your doctor about getting tested today.

Questions or follow-up regarding results?
Contact the Patient Navigation Team!
Call or Text: (516) 595 9315
Email: hepc@mssm.edu

DID YOU KNOW?

- Hepatitis C can cause liver damage for many years without noticeable symptoms.
- Hepatitis C can be cured in most patients, usually in 8-12 weeks, with oral medication and few or no side effects.
- Most insurances now cover hepatitis C treatment, and there is financial assistance available for patients who need it.
HAVE A PATIENT WITH HEP C?

Contact the Patient Navigation Team!
Email: HepC@mssm.edu or # HepC
Call or text: (929) 344-1525
www.mountsinai.org/hepatitisc

We can help with:
- Linkage to liver care
- Insurance & pharmacy coordination
- Rx adherence support
- Health education
- Peer support
- Referrals to:
  - Other medical care
  - Social services
HCV Ab Screening Rate in Primary Care (Baby Boomers)

- Baseline: 59%
- Post Intervention: 83%
HCV PCR Screening Rate for Ab+ in Primary Care

- **Baseline**: 68%
- **Post Intervention**: 100%
ED Screening Program

- Universal, non-targeted HCV screening for 18+
- Initial nurse offer
- Health educators follow up
- Linkage to care
- Under direction of Dr. Yvette Calderon and Dr. Ethan Cowan
- “Birth cohort-targeted screening would have identified 48% of the patients with Ab+ tests and 47% of those who were VL+.”

LEAP: Liver Education & Action Program
Supporting Patients through the HCV Care Continuum

www.mountsinai.org/hepatitisc
Step 1: Finding RNA+ Patients

A. Weekly EMR Reports
B. ED Health Educators
C. Other Referrals

LEAP Patient Navigators
Step 2: Navigating RNA+ Patients to HCV Care

1. Identify RNA+ patients
2. Reach out to those in need of HCV care
3. Health education & appointment scheduling
4. Appointment reminders & Referrals to:
   - PCPs
   - Insurance
   - Transportation
   - Etc.
Step 3: Care Coordination for HCV Patients Through SVR

- Psychosocial assessment (PREP-C)
- Appointments & reminders
- Follow-up & check-ins
- Accompaniment to appointments
- Health system navigation
- Health education
- Referrals:
  - Mental health; alcohol and substance use
  - Primary care
  - Social services, financial assistance, and other benefits
- Insurance and pharmacy coordination
- Medication adherence support
- Monitoring and case conferencing
- Case closure and referrals
HCV Linkage to Care Rate from Primary Care

- Baseline: 52%
- Post Intervention: 80%
Care Coordination Works!

All RNA+ patients in NYC (Source: 2020 DOHMH Viral Hepatitis Annual Report)²

Patients enrolled in LEAP care coordination at Sinai through June 30, 2020
Current Project
Implementing Universal One-time HBV Screening for Adults in Primary Care
Making the Case for Universal HBV Screening

- Updated vaccination guidelines
- High NYC prevalence
- Complexity and risk-based screening

→ Approval from Ambulatory Leadership
Implementation of Universal HBV Screening and Vaccination at Sinai

- EMR alert prompting PCPs to screen
- Outreach to PCPs and patients
- Patient navigation and care coordination
18+ and doesn’t have HBV results (HBsAg, HBsAb, HBcAb) in EMR

EMR Alert: Screen Patient

- All 3 Labs Negative → EMR Alert: Vaccinate Patient
- HBsAg Positive → EMR Alert: Refer to Liver
- HBcAb Positive → PCP to counsel patient (no alert)
New HBV Screening EMR Alert

Hepatitis Screening is Due because NYC is a high prevalence area.

To satisfy this alert please open the Hepatitis B SmartSet below. If the patient has already satisfied screening, you may override this alert. Alternatively, you may postpone this alert. CLICK => Clinical Guideline

- Open Order Set [Do Not Open] MS AMB HEPATITIS B SCREENING Preview
- Override [Do Not Override] Hepatitis B Screen Edit details
- Postpone [Do Not Postpone] Hepatitis B Screen Edit details

- Address Hepatitis B Screening HM Topic
- HM Activity (Add patient reported, Postpone, Override)
- Add relevant diagnosis to History

[Accept] [Dismiss]
Future Directions: HBV to HDV Reflex Testing

One study found only 40% of HBsAg+ patients tested with manual order for HDV Ab, compared to 99% with reflex testing.

Future Directions: HBV Patient Navigation/Coordination

Based on

- LEAP model
- NYC DOHMH Check Hep B
Planning New Screening Policy in Your Health System

- Existing Practices
- Official Guidelines
- Local Epidemiology
- Stakeholders

Buy-In & Implementation
Have a Patient with Hep C or Hep B?

Contact the LEAP Patient Navigation and Care Coordination Team:

LEAP@mssm.edu
212-824-9727
www.mountsinai.org/hepatitisc

English and Spanish
Summary

HCV
- Screen all adults at least once
- Link positive patients to care or treat yourself

HBV
- Vaccinate all adults under 60
- Case for universal screening in NYC
- Link HBsAg positive patients to hepatology

Case Study
- Avenues to increase screening and care rates in your practice or hospital system
Thank You/Any Questions?