



HCV & Project ECHO Overview

March 12, 2024

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INDIAN + COUNTRY

ECHO

LEADING THE WAY ➡➡➡

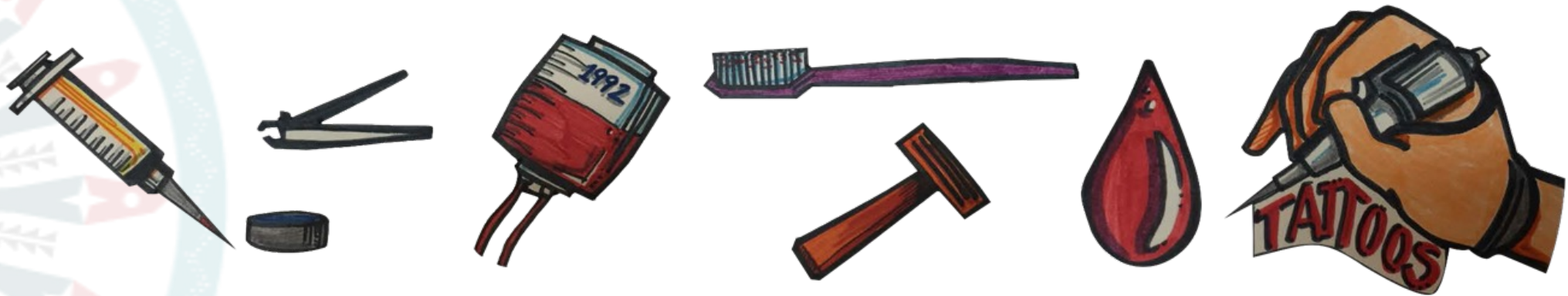
Growing the Ability to Deliver Quality Healthcare to American Indian and Alaska Native People.

Role of the Primary Care Team in HCV

- **Screening for HCV**
- Staging of liver disease
- HCC surveillance
- Recognition of extra-hepatic manifestations
- HCV treatment (with mentoring) or referral



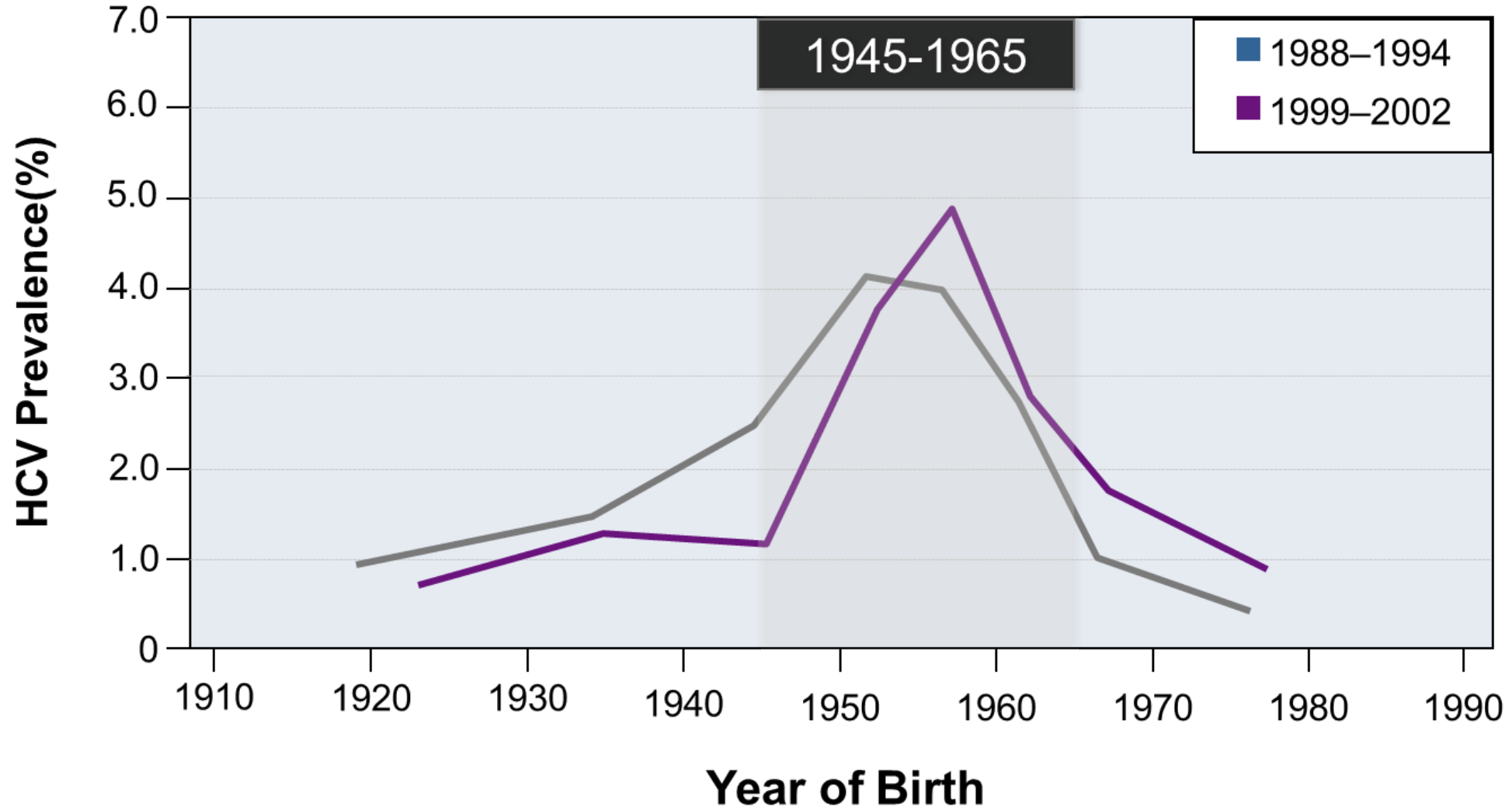
WHO SHOULD BE SCREENED FOR HCV?



Drawing by peer educators from the NM Peer Education Project, NM State prisons

NHANES Survey: United States, 1988-1994 and 1999-2002

Prevalence of HCV Antibody, by Year of Birth



Source: Armstrong GL, et al. Ann Intern Med. 2006;144:705-14.

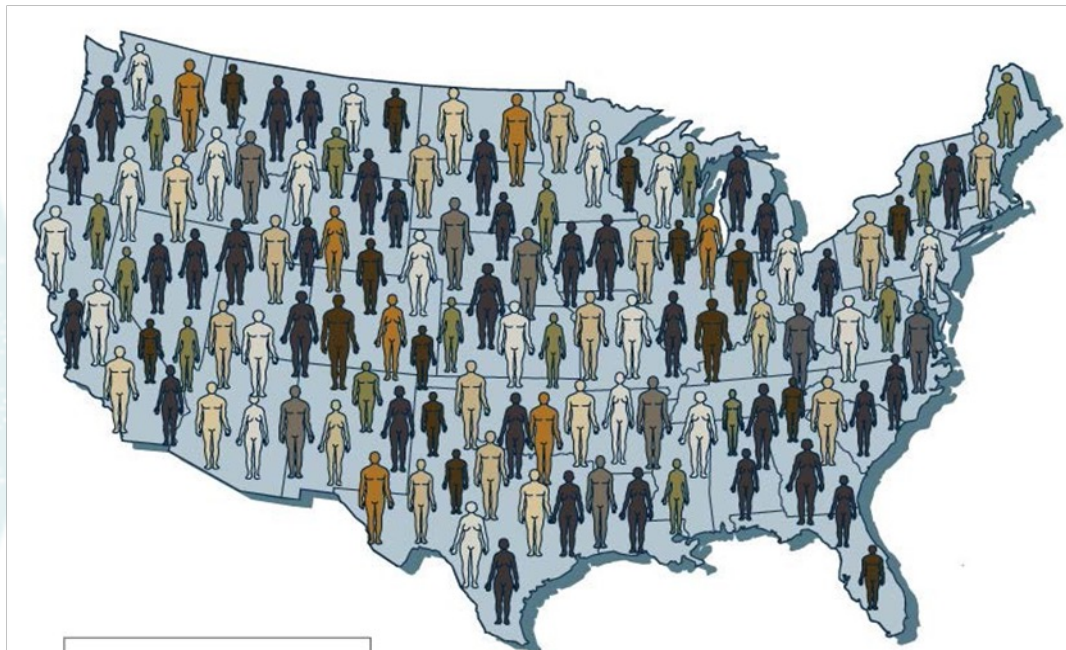
**Recommendations for the Identification of
Chronic Hepatitis C Virus Infection Among
Persons Born During 1945-1965**



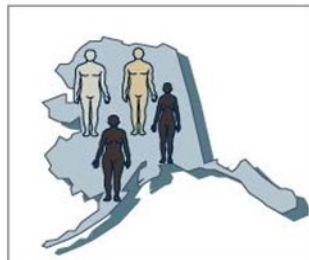
NHANES SURVEY, UNITED STATES, 2013-2016

AWARENESS OF HCV INFECTION STATUS

Knowledge of HCV Infection



50% of people unaware of their HCV infection



Zhou K, Terrault NA. Gaps in Viral Hepatitis Awareness in the United States in a Population-based Study. *Clin Gastroenterol Hepatol.* 2020 Jan;18(1):188-195.e4. doi: 10.1016/j.cgh.2019.05.047. Epub 2019 Jun 4. PMID: 31173892; PMCID: PMC8028744.

Rates of reported cases of acute Hepatitis C virus infection, by age group – United States, 2006-2021

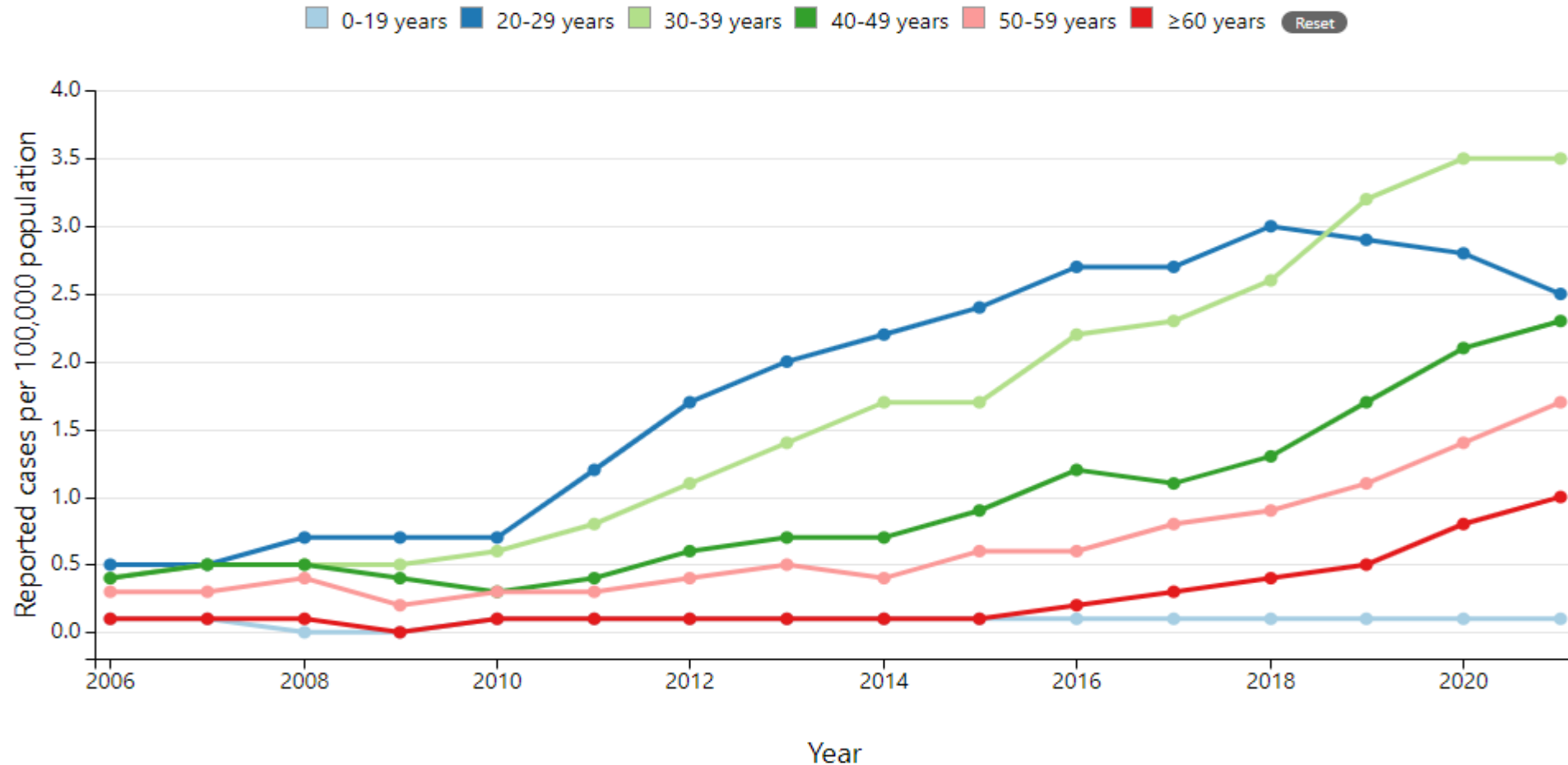
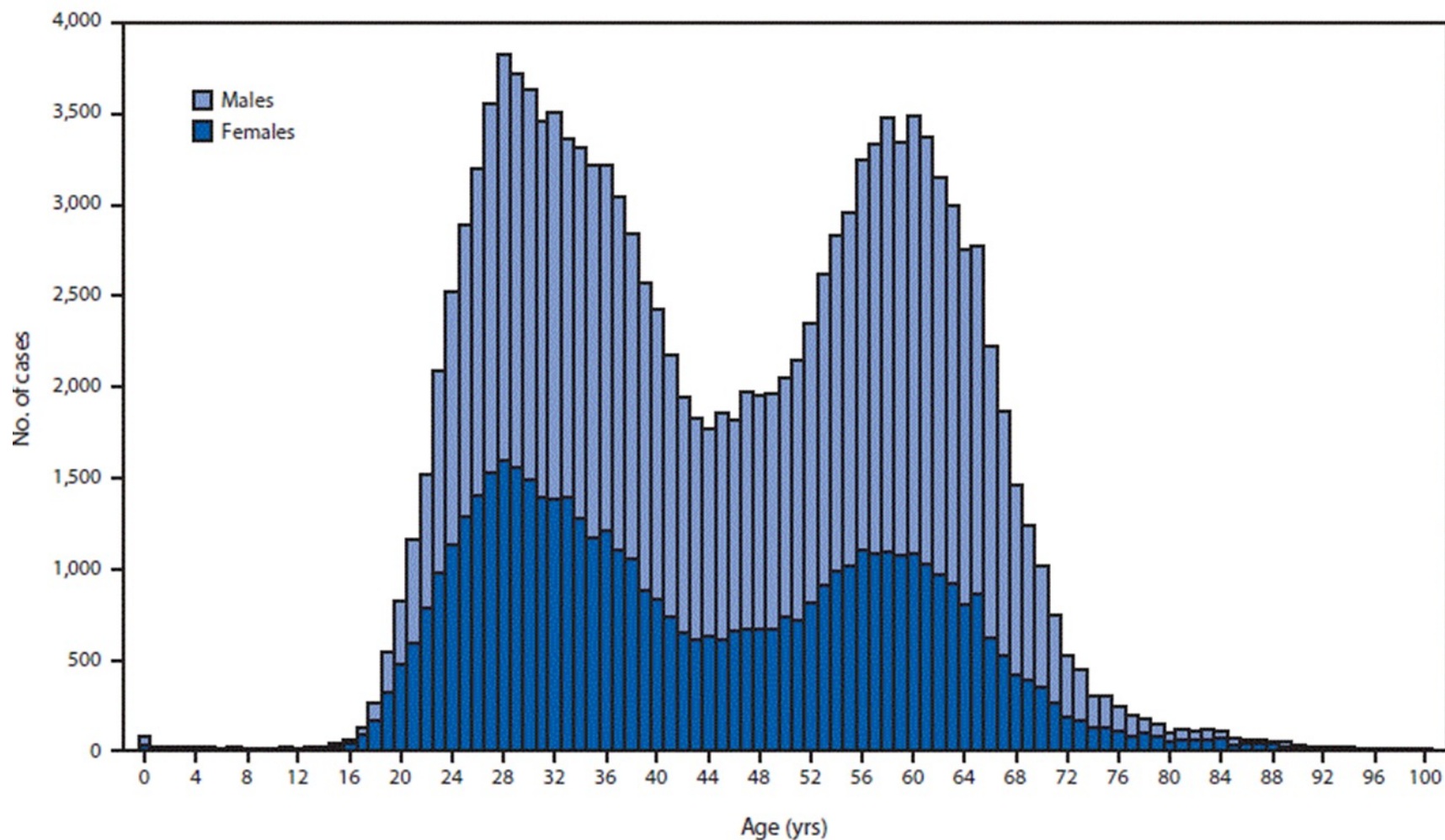
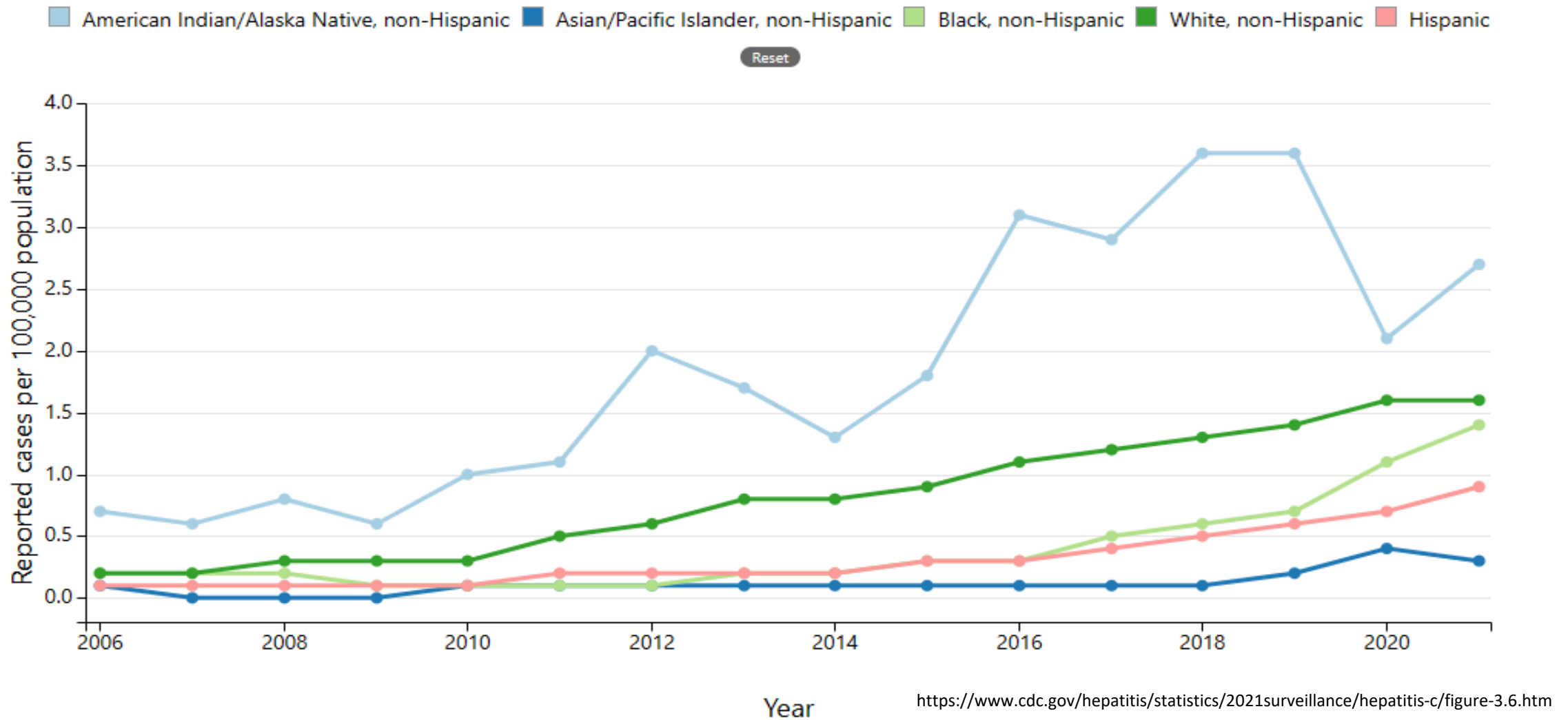


FIGURE 2. Number of newly reported* chronic hepatitis C cases,† by sex and age — National Notifiable Diseases Surveillance System, United States, 2018



Rates* of reported cases† of acute Hepatitis C virus infection, by race/ethnicity — United States, 2006–2021



Numbers and rates* of deaths with Hepatitis C virus infection listed as a cause of death† among residents, by demographic characteristics — United States, 2017–2021

| Characteristics | 2017 No. | 2017 Rate* (95% CI) | 2018 No. | 2018 Rate* (95% CI) | 2019 No. | 2019 Rate* (95% CI) | 2020 No. | 2020 Rate* (95% CI) | 2021 No. | 2021 Rate* (95% CI) |
|--|------------|---------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|
| Race/Ethnicity [§] | | | | | | | | | | |
| White, non-Hispanic | 10,781 | 3.70 (3.63–3.78) | 9,858 | 3.35 (3.28–3.42) | 9,056 | 3.08 (3.01–3.14) | 9,397 | 3.18 (3.12–3.25) | 8,752 | 2.98 (2.91–3.04) |
| Black, non-Hispanic | 3,262 | 7.03 (6.79–7.28) | 2,978 | 6.31 (6.08–6.54) | 2,646 | 5.44 (5.23–5.65) | 2,743 | 5.63 (5.42–5.85) | 2,442 | 5.01 (4.81–5.22) |
| Hispanic | 2,399 | 5.29 (5.08–5.51) | 2,190 | 4.64 (4.44–4.84) | 1,865 | 3.84 (3.66–4.02) | 1,979 | 4.00 (1.28–1.60) | 1,901 | 3.67 (3.50–3.84) |
| Asian/Pacific Islander, non-Hispanic | 368 | 1.86 (1.67–2.05) | 300 | 1.43 (1.27–1.60) | 308 | 1.43 (1.27–1.59) | 324 | 1.44 (1.28–1.60) | 293 | 1.32 (1.17–1.48) |
| <i>Asian, non-Hispanic</i> | <i>n/a</i> | <i>n/a</i> | <i>258</i> | <i>1.35 (1.18–1.51)</i> | <i>269</i> | <i>1.35 (1.19–1.52)</i> | <i>295</i> | <i>1.40 (1.24–1.57)</i> | <i>272</i> | <i>1.27 (1.12–1.43)</i> |
| <i>Native Hawaiian or Other Pacific Islander, non-Hispanic</i> | <i>n/a</i> | <i>n/a</i> | <i>20</i> | <i>3.49 (2.10–5.45)</i> | <i>16</i> | <i>UR</i> | <i>5</i> | <i>UR</i> | <i>21</i> | <i>3.23 (2.00–4.94)</i> |
| American Indian/Alaska Native, non-Hispanic | 299 | 10.24 (9.04–11.44) | 240 | 9.21 (8.01–10.41) | 233 | 8.55 (7.42–9.68) | 287 | 10.64 (9.37–11.90) | 279 | 9.99 (8.78–11.19) |
| Multiple-race, non-Hispanic | <i>n/a</i> | <i>n/a</i> | 126 | 2.97 (2.44–3.49) | 118 | 2.79 (2.27–3.30) | 113 | 2.54 (2.06–3.01) | 133 | 2.81 (2.33–3.30) |

HEPATITIS C PREVALENCE NHANES ESTIMATE



2,400,000 HCVRNA positive (2013-2016)

4,043,200 HCVRNA positive (2017-2020)

**5030-C | ESTIMATING PREVALENCE OF
HEPATITIS C VIRUS INFECTION IN THE
UNITED STATES, 2017–2020**

Estimating Prevalence of Hepatitis C Virus Infection in the United States, 2013-2016. Hofmeister, M.G., et al., *Hepatology*, Vol. 69, No. 3, 2019.
Toward a more accurate estimate of the prevalence of hepatitis C in the United States. Edlin, B. R., *Hepatology*, 62(5), 2015

Eric Hall¹, Heather Bradley², Neil Gupta³, Laurie Barker³, Karon Lewis³, Jalissa Shealey², Eduardo Valverde³, Patrick Sullivan² and Megan G. Hofmeister³, (1)Oregon Health and Science University, (2)Emory University, (3)Centers for Disease Control and Prevention

Final Recommendation Statement

Hepatitis C Virus Infection in Adolescents and Adults: Screening

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

Recommendation Summary

| Population | Recommendation | Grade (What's This?) |
|----------------------------|--|-------------------------|
| Adults aged 18 to 79 years | The USPSTF recommends screening for hepatitis C virus (HCV) infection in adults aged 18 to 79 years. | B |

To read the recommendation statement in *JAMA*, select [here](#).

To read the evidence summary in *JAMA*, select [here](#).

See the [Clinician Summary](#) for a more detailed summary of the recommendation for clinicians.

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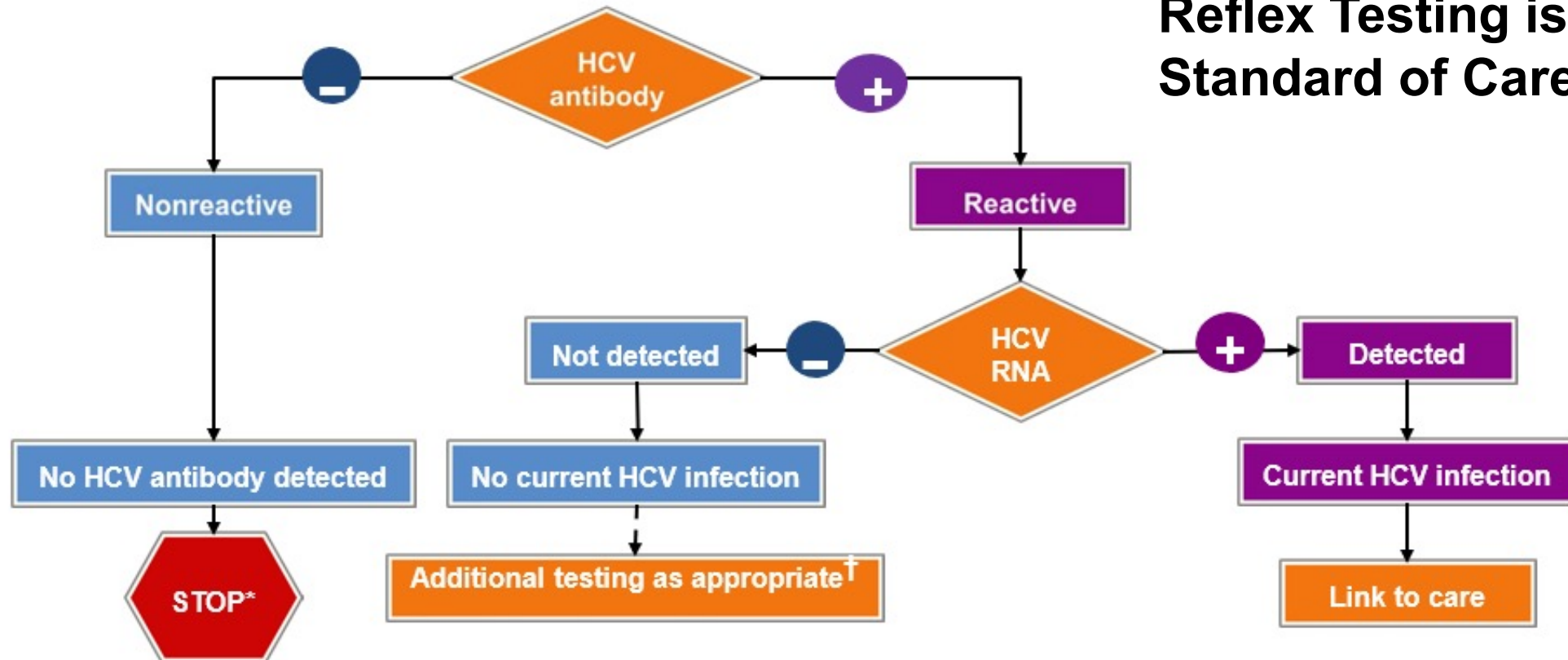
[Members of the U.S. Preventive Services Task Force](#)

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[References](#)

Recommended Testing Sequence for Identifying Current Hepatitis C Virus (HCV) Infection

Reflex Testing is Standard of Care



* For persons who might have been exposed to HCV within the past 6 months, testing for HCV RNA or follow-up testing for HCV antibody is recommended. For persons who are immunocompromised, testing for HCV RNA can be considered.

† To differentiate past, resolved HCV infection from biologic false positivity for HCV antibody, testing with another HCV antibody assay can be considered. Repeat HCV RNA testing if the person tested is suspected to have had HCV exposure within the past 6 months or has clinical evidence of HCV disease, or if there is concern regarding the handling or storage of the test specimen.

Role of the Primary Care Team in HCV

- Screening for HCV
- **Staging of liver disease**
- **HCC surveillance**
- Recognition of extra-hepatic manifestations
- HCV treatment (with mentoring) or referral



Hepatitis C: Progression of Disease

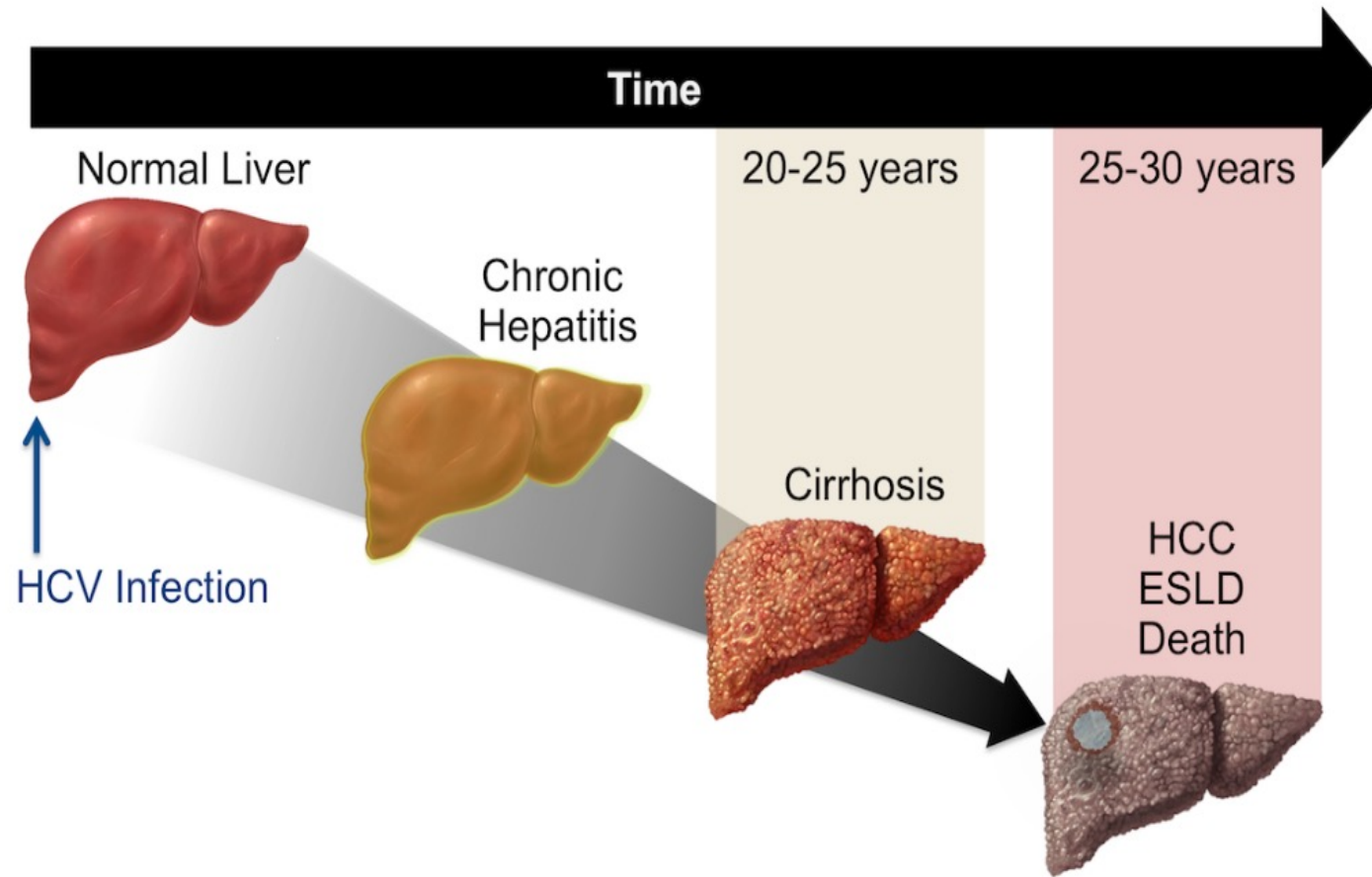


Figure 2 - Time Course of Progression with Chronic Hepatitis C Infection

This graphic shows the time course for the natural history of chronic hepatitis C infection. Following initial HCV infection, there is typically a lag of 20 to 25 years before cirrhosis develops.

Abbreviations: HCC = hepatocellular cancer; ESLD = end-stage liver disease

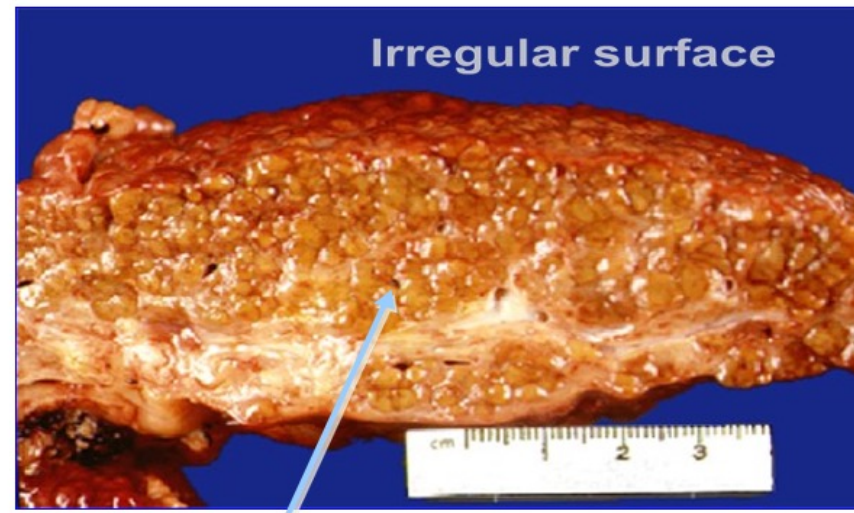
Illustration: David H. Spach, MD

Cirrhosis

Normal

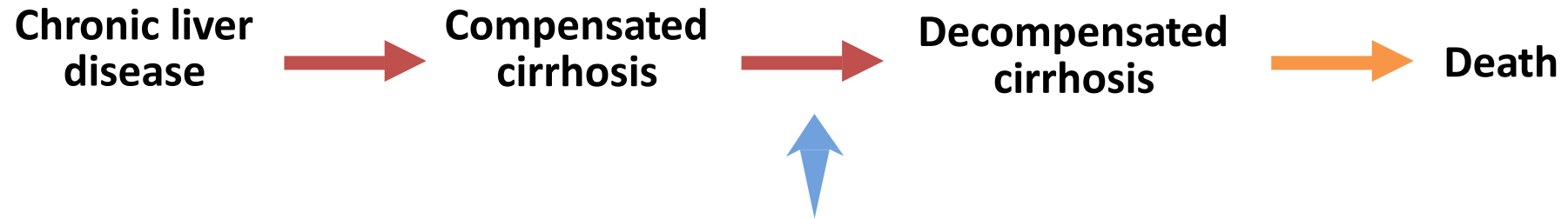


Cirrhosis



Nodules

Natural History of Chronic Liver Disease



Development of complications:

- Variceal hemorrhage
- Ascites
- Encephalopathy
- Jaundice

Natural History of Cirrhosis

| Stage | Definition | 1-year mortality | Median Survival |
|-------|--|------------------|-----------------|
| 1 | Compensated without varices | 1% | >12 years |
| 2 | Compensated with varices | 3% | |
| 3 | Decompensated with ascites without variceal hemorrhage | 20% | ~2 years |
| 4 | Decompensated with/out ascites with variceal hemorrhage | 57% | |

How do you assess
degree of liver
fibrosis/cirrhosis?



Clinical Presentation

- Spider angiomata
- Firm liver
- Palmar erythema
- Gynecomastia
- Testicular atrophy
- Jaundice

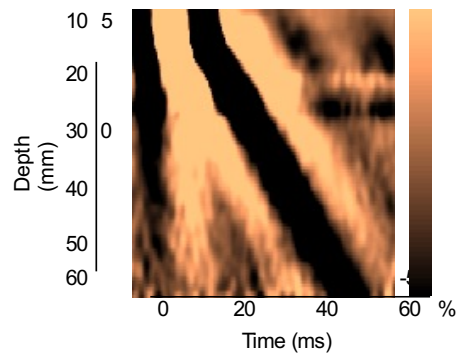


Markers of Fibrosis/Cirrhosis

- Platelet $\leq 150,000$
- AST/ALT ratio > 0.8 is 90% predictive of $\geq F3$
- AST and ALT can be completely normal
 - Women 19 IU/L
 - Men 30 IU/L
- High direct bilirubin
- Low serum albumin
- Prolonged prothrombin time

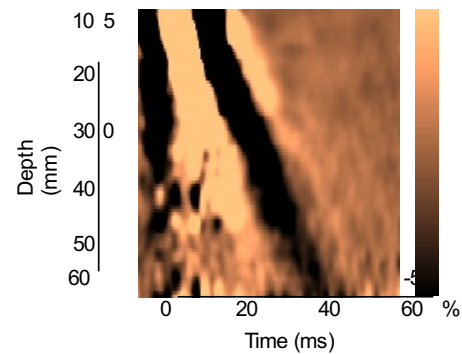


HCV: Transient Elastography



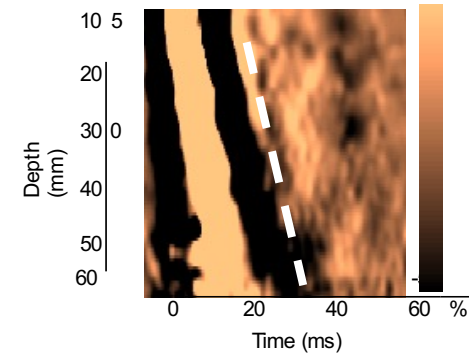
$V_s = 1.0 \text{ m/s}$
 $E = 3.0 \text{ kPa}$

F0



$V_s = 1.6 \text{ m/s}$
 $E = 7.7 \text{ kPa}$

F2




$V_s = 3.0 \text{ m/s}$
 $E = 27.0 \text{ kPa}$


F4

- www.myliverexam.com/en/lexamen-fibroscan.html

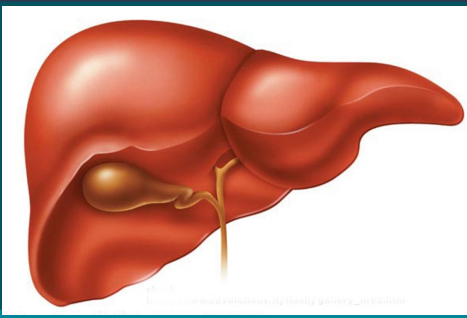
Cirrhosis: What do I do now?

- 
- Abdominal ultrasound and AFP for HCC surveillance
 - Stop all NSAIDs
 - Endoscopy for esophageal varices screening
 - If decompensated or MELD \geq 15, referral to specialist

Role of the Primary Care Team in HCV

- 
- Screening for HCV
 - Staging of liver disease
 - HCC surveillance
 - **Recognition of extra-hepatic manifestations**
 - HCV treatment (with mentoring) or referral

HCV is not just a liver disease



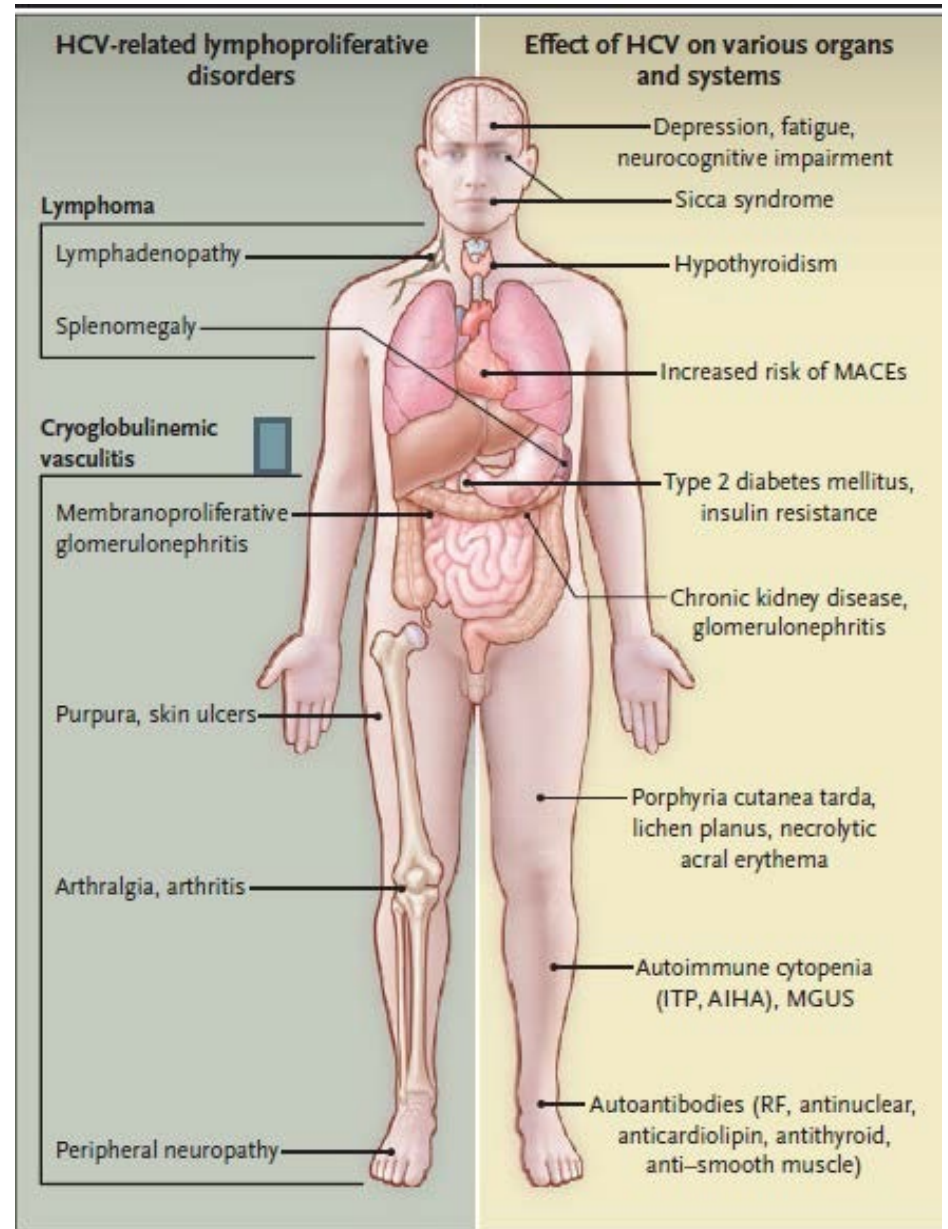
- 40 to 70% of HCV patients will develop at least one extrahepatic manifestation
- HCV is the virus most often associated with extrahepatic manifestations
- Often not clinically recognized
- Many patients may be asymptomatic and without concurrent evidence of liver disease



Extrahepatic Manifestations of HCV Infection

Figure 1. Extrahepatic Manifestations of Hepatitis C Virus (HCV) Infection.

The left side shows HCV-related lymphoproliferative disorders, which can be benign (cryoglobulinemic vasculitis) or malignant (lymphoma). The right side shows the effect of HCV infection on various organs and systems. AIHA denotes autoimmune hemolytic anemia, ITP immune thrombocytopenia, MACE major adverse cardiovascular event, MGUS monoclonal gammopathy of undetermined significance, and RF rheumatoid factor.



Cacoub P, Saadoun D. Extrahepatic Manifestations of Chronic HCV Infection. *N Engl J Med*. 2021 Mar 18;384(11):1038-1052. doi: 10.1056/NEJMra2033539. PMID: 33730456.

Common Symptoms of HCV in the Absence of Cirrhosis

- Fatigue
- Impaired cognitive function
- Migratory arthralgia or myalgia
- Depression



Extrahepatic Manifestations

- **Diabetes**
- Renal Disease
- Cardiovascular Events
- Peripheral Neuropathy
- Dermatologic Manifestations
- Lymphomas



Type 2 Diabetes

- Risk of incident DM increased 50-70% compared to non-infected controls
- Successful HCV treatment associated with decrease in insulin resistance

Butt AA, et al. Hepatitis C Virus (HCV) Treatment With Directly Acting Agents Reduces the Risk of Incident Diabetes: Results From Electronically Retrieved Cohort of HCV Infected Veterans (ERCHIVES). *Clin Infect Dis*. 2020 Mar 3;70(6):1153-1160. doi: 10.1093/cid/ciz304. PMID: 30977808.

White DL, et al. Hepatitis C infection and risk of diabetes: a systematic review and meta-analysis. *Hepatology*. 2008;49(5):831.

Who should be treated for HCV?

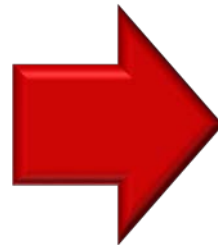
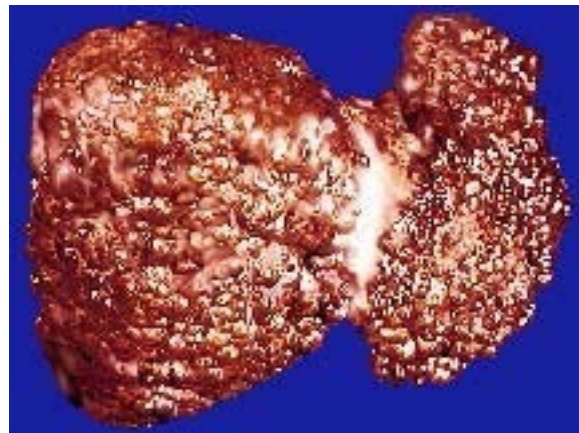
Persons with HCV infection



What do we get with HCV Treatment?

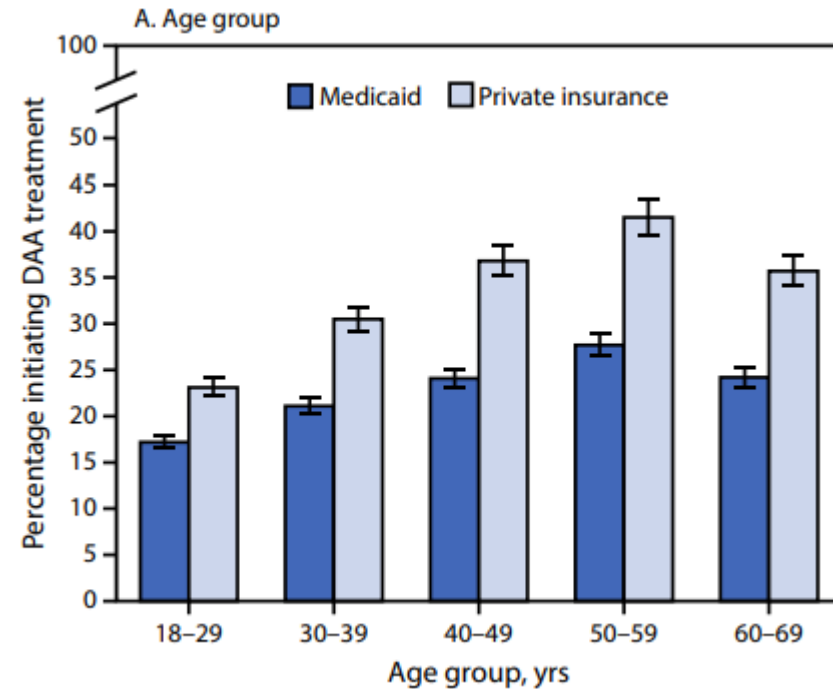
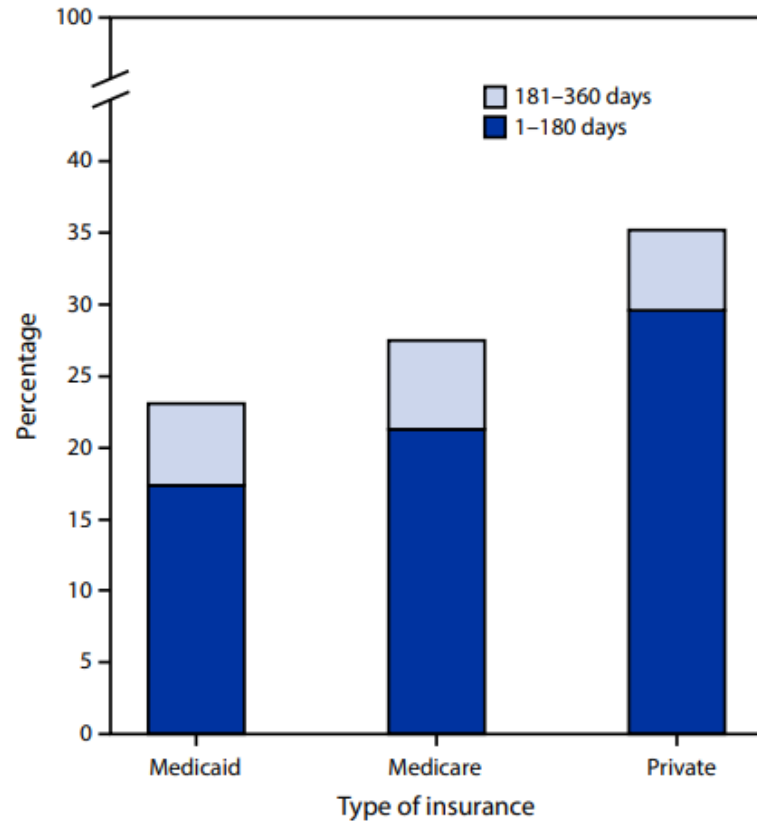
SVR (cure) of HCV is associated with:

- 70% Reduction of Liver Cancer
- 90% Reduction in Liver Related Mortality
- 60% Reduction in All-cause Mortality




Vital Signs: Hepatitis C Treatment Among Insured Adults — United States, 2019–2020

MMWR Weekly / August 12, 2022 / 71(32);1011-1017



Role of the Primary Care Team in HCV

- 
- Screening for HCV
 - Staging of liver disease
 - HCC surveillance
 - Recognition of extra-hepatic manifestations
 - **HCV treatment (with mentoring) or referral**



Moving Knowledge Instead of Patients

Hepatitis C in New Mexico (2004)

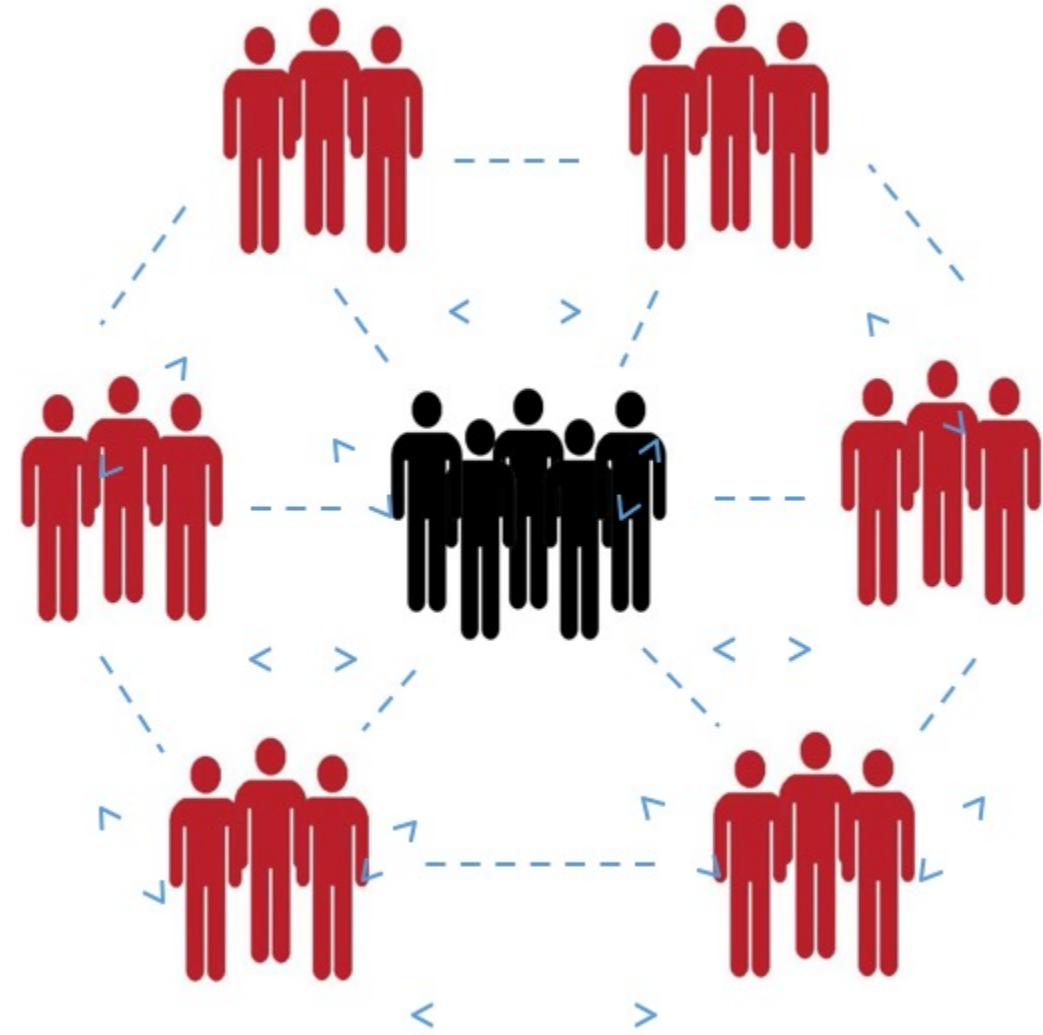


- Large geographic area, low population density
- Few health care providers and no specialists
- More than 35,000 reported HCV cases, < 5% had been treated
- Highest rate of chronic liver disease/cirrhosis



Learning Loops

- Interactive Learning Environment
- Co-management of Cases
- Learning by doing
- Learning from brief lectures
- Learning from each other
- Collaborative Problem Solving

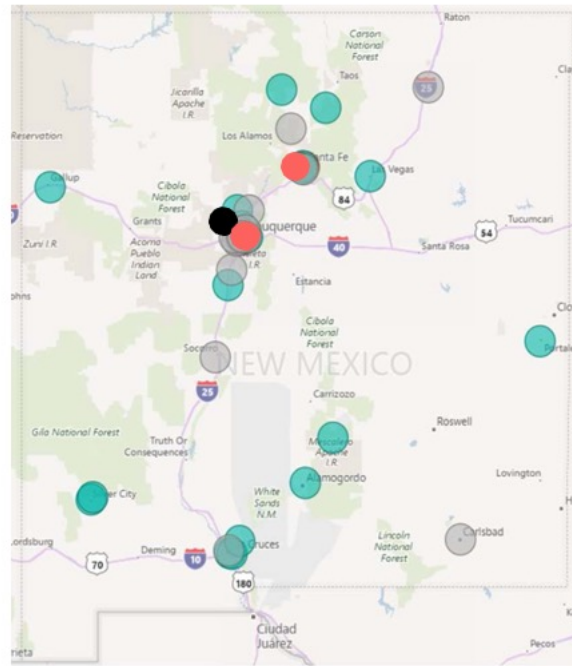


Outcomes of Treatment for Hepatitis C Virus Infection by Primary Care Providers

Results of the HCV Outcomes Study

Arora S, Thornton K, Murata G, Deming P, et al. Outcomes of treatment for hepatitis C virus infection by primary care providers. *N Engl J Med*. 2011 Jun 9;364(23):2199-207. doi: 10.1056/NEJMoa1009370. Epub 2011 Jun 1. PMID: 21631316; PMCID: PMC3820419.

Project ECHO HCV Community TeleECHO Clinic



- Project ECHO Hub
- PCP Only
- MAT Only
- PCP and MAT

HCV Community TeleECHO Clinic Faculty and Staff



HCV Community TeleECHO Clinic Spokes



A National Initiative to Eliminate Hepatitis C in the United States

Rachael L. Fleurence, MSc, PhD
Senior Advisor to Dr Francis Collins
Executive Office of the President

Presentation to the USC IDEAS Initiative

April 10, 2023



Slide Acknowledgment, Risha Irvin and Rachel Fleurence



Components of the President's National Initiative on Hepatitis C

1) Point-Of-Care (POC) diagnostic tests

- RNA POC tests are currently available outside of the United-States, but not yet in the United-States.
- Plan: leverage the RADx ITAP program, with NIH, FDA and CMS, to accelerate clearance and achieve reimbursement in the US.
- Enable hepatitis C single-visit “test and treat” programs to enhance cascade of care

2) Providing broad access to curative hepatitis C medications

a) National subscription model

- Federal government negotiates a fixed sum for drug access with participating manufacturers, following the model of Louisiana’s so-called “Netflix Model” – but for the entire United States
- Already paid-for drugs are made readily available to Medicaid beneficiaries, justice-involved populations, individuals in opioid treatment programs, the uninsured, and American Indians and Alaskan Natives.

b) Medicare Co-Pay Assistance

- Additional co-pay assistance is provided to Medicare beneficiaries for whom current costs are a barrier.

c) Commercial insurance

- Private insurers will be strongly encouraged to increase coverage for hepatitis C testing and treatment, and to limit out-of-pocket costs.

Components of the President's National Initiative on Hepatitis C (cont.)

3) Empower implementation efforts: To reach, test and treat all affected individuals, the initiative proposes to support the:

- Expansion of **screening strategies and settings**, especially for high-risk populations;
- Expansion of the **number of providers** who can screen and treat hepatitis C using innovative telehealth methods such as the ECHO program;
- Expansion of the **number of community health workers and case managers** who can link people to care;
- Re-energizing of **vaccine research** and support for **preventive services**.

Components of the President's National Initiative on Hepatitis C (cont.)

JAMA Published online March 9, 2023

VIEWPOINT

A National Hepatitis C Elimination Program in the United States A Historic Opportunity

Rachael L. Fleurence, MSc, PhD
Executive Office
of the President,
The White House,
Washington, DC.

Francis S. Collins, MD, PhD
Executive Office
of the President,
The White House,
Washington, DC.



Multimedia



Related article

One of the most dramatic scientific achievements of the last few decades has been the development of direct-acting antivirals (DAAs) that can cure hepatitis C in more than 95% of people infected. But 9 years after the first such treatment was approved in the United States, the simple 8- to 12-week oral cure is not reaching a significant fraction of the more than 2.4 million US residents chronically infected with hepatitis C.¹ More than 15 000 US residents die of hepatitis C every year unnecessarily. In its fiscal year 2024 budget proposal, the Biden-Harris administration has put forward a bold 5-year program to put the nation on course to eliminate hepatitis C in the United States.

The consequences of untreated hepatitis C can be severe: cirrhosis, liver failure, hepatocellular cancer, and death. Curative treatment stops transmission, prevents liver cancer and liver failure, and saves lives. It is even likely to be cost-saving, by avoiding expensive medical treatments for liver failure and liver cancer. So why is this not a public health success story? One major reason is that many people with hepatitis C have poor access to health care and experience other chronic health and social

tion goals. Only about one-third of people diagnosed with hepatitis C who have private insurance, Medicare, or Medicaid get treated, and the proportion is probably even lower for those without insurance.⁴ This is in part due to current restrictions, such as requirements for patient sobriety, requirements to document evidence of liver fibrosis, and the restriction of access to treatment only to those seen by specialists, that have been put in place by public and private insurers in reaction to the high cost of DAAs (\$90 000 per patient initially, still around \$20 000). Low rates of treatment may also reflect the complexity of traversing the full cascade of care in our health care delivery system.

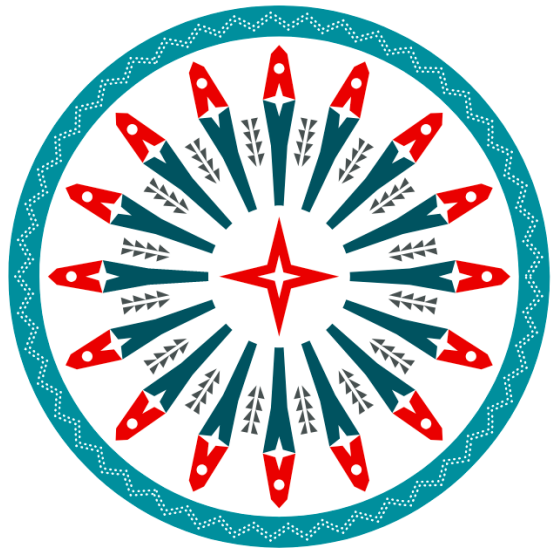
Addressing this missed opportunity can save both lives and money. A national effort can build on lessons from programs launched by jurisdictions such as the states of Louisiana and Washington, the Cherokee Nation, the Veterans Health Administration, and the Federal Bureau of Prisons. For example, the Veterans Health Administration has treated more than 92 000 veterans with hepatitis C virus since 2014, with cure rates exceeding 90%.⁵ A key lesson from these initiatives is that success requires both managing the cost of the medications and developing a comprehensive public health effort to identify persons with hepatitis C and link them to care.

To bring these efforts to a national scale, the Biden-Harris administration is calling on Congress to embrace its proposed 5-year program to eliminate hepatitis C in the United States. This program was developed through extensive con-

It is rare to have the opportunity, using a simple and safe oral medication, to eliminate a lethal disease. But that is the situation facing the United States with hepatitis C.

Questions?





INDIAN + COUNTRY

ECHO

Visit: IndianCountryECHO.org

Karla Thornton, MD, MPH Professor, Division of Infectious Diseases
Senior Associate Director, Project ECHO

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