CLINICIAN CONSULTATION CENTER

National rapid response for HIV management and bloodborne pathogen exposures.

Hepatitis C Virus: An Overview

IHS/CCUIH Hepatitis C Warmline

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The Challenge: Hepatitis C Virus (HCV) in 2016

3.5 million infected

New treatments which are safe and curative

Opportunity to end the epidemic

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We Are: The Clinician Consultation Center

The Clinician Consultation Center (CCC) at the University of California at San Francisco provides immediate, state-of-the-art HIV/AIDS clinical consultation to health care providers (physicians, nurse practitioners, physician assistants, pharmacists and other health care professionals) across the country through four telephone and online consultation services:

HIV/AIDS Management Consultation Service: 6:00 a.m.-5:00 p.m. PST
Perinatal HIV Consultation and Referral Service: 24/7
Post-Exposure Prophylaxis Consultation Service(PEPline): 6:00 am – 11:00 pm PST
Pre-Exposure Prophylaxis Consultation Service (PrEPline): 6:00 a.m.-5:00 p.m. PST

Health Resources and Services Administration (HRSA) HIV/AIDS Bureau
AIDS Education and Training Centers (AETCs)
and
Centers for Disease Control and Prevention (CDC)

Indian Health Services
Hepatitis C Consultation Service

9 am – 8 pm EST, Monday - Friday

Hepatitis C Mono- and Co-infection Consultation: 844-437-4636

The Clinician Consultation Center (CCC) provides IHS clinicians of all experience levels free, confidential, and timely expert consultation by physicians and clinical pharmacists with expertise in HIV and HCV care.

Advice is based on Federal treatment guidelines, VHA guidelines, current medical literature, and clinical best practices.

Our team includes: Betty Dong , Joanna Eveland, Rena Fox , Alex Monto, Marion Peters

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Objectives

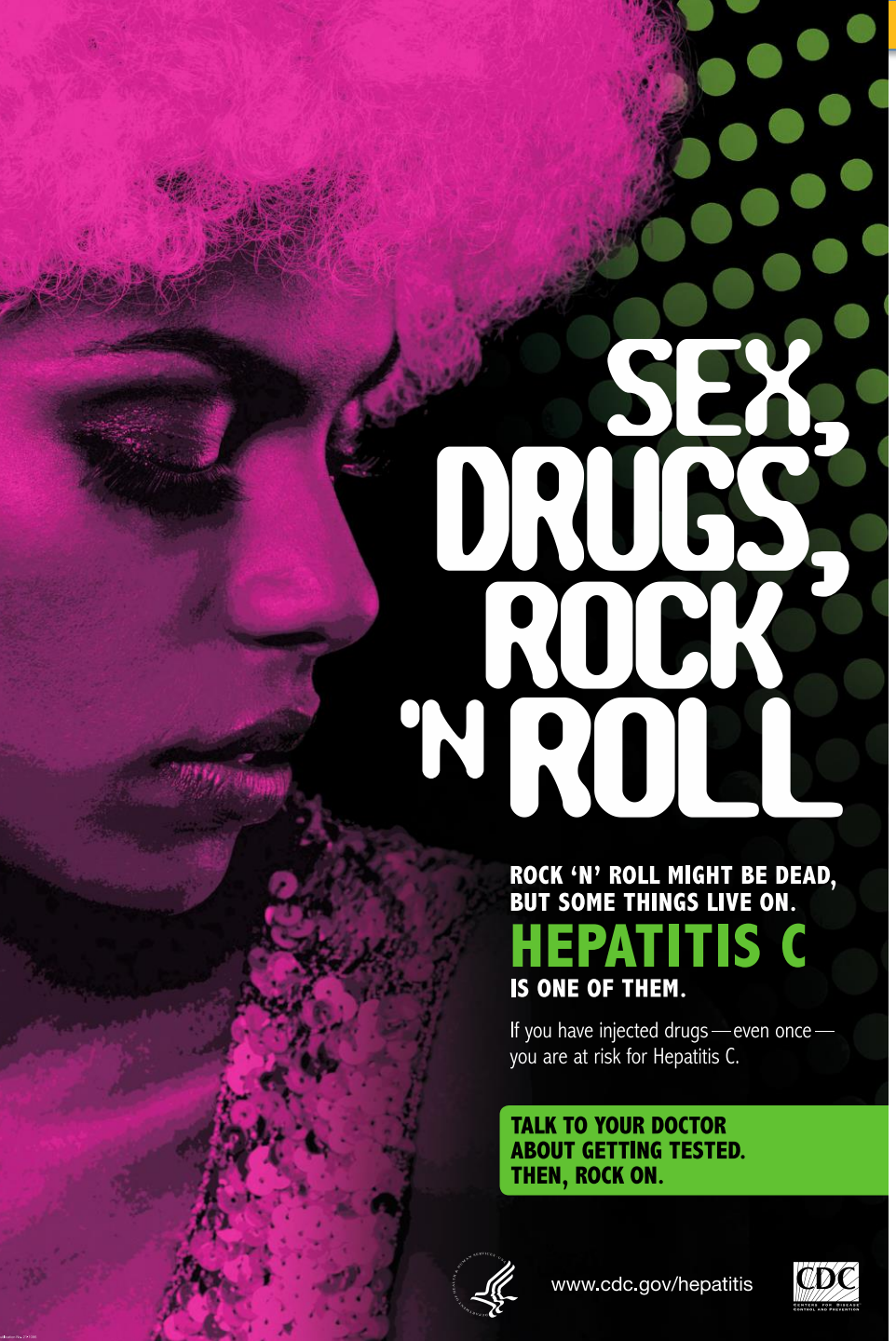
Understand HCV..

Natural history

Epidemiology

Screening

Staging of liver disease



HCV Has a Broad Reach

1.0% US prevalence

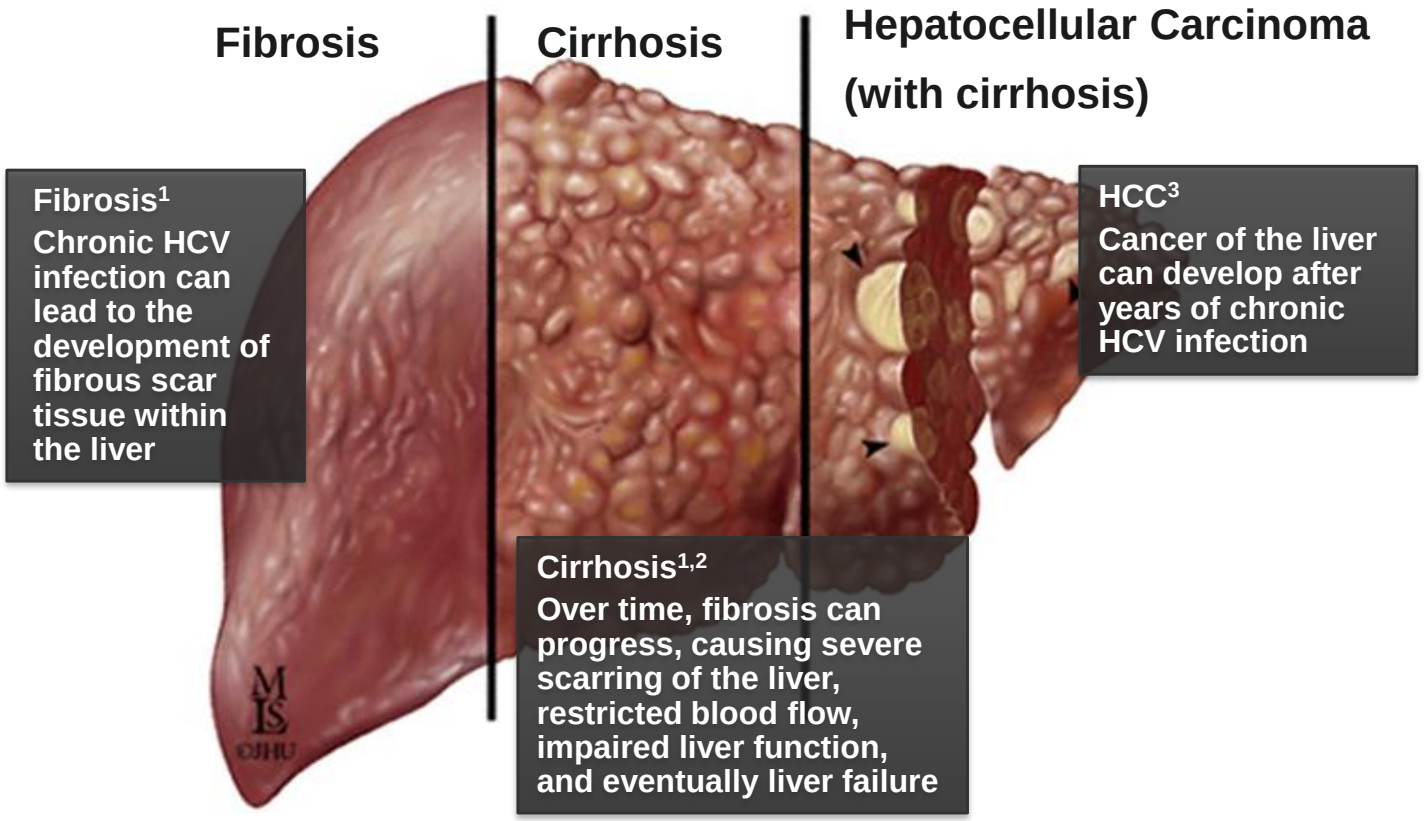
~3.5 million Americans

11.5-36% in IHS Clinics

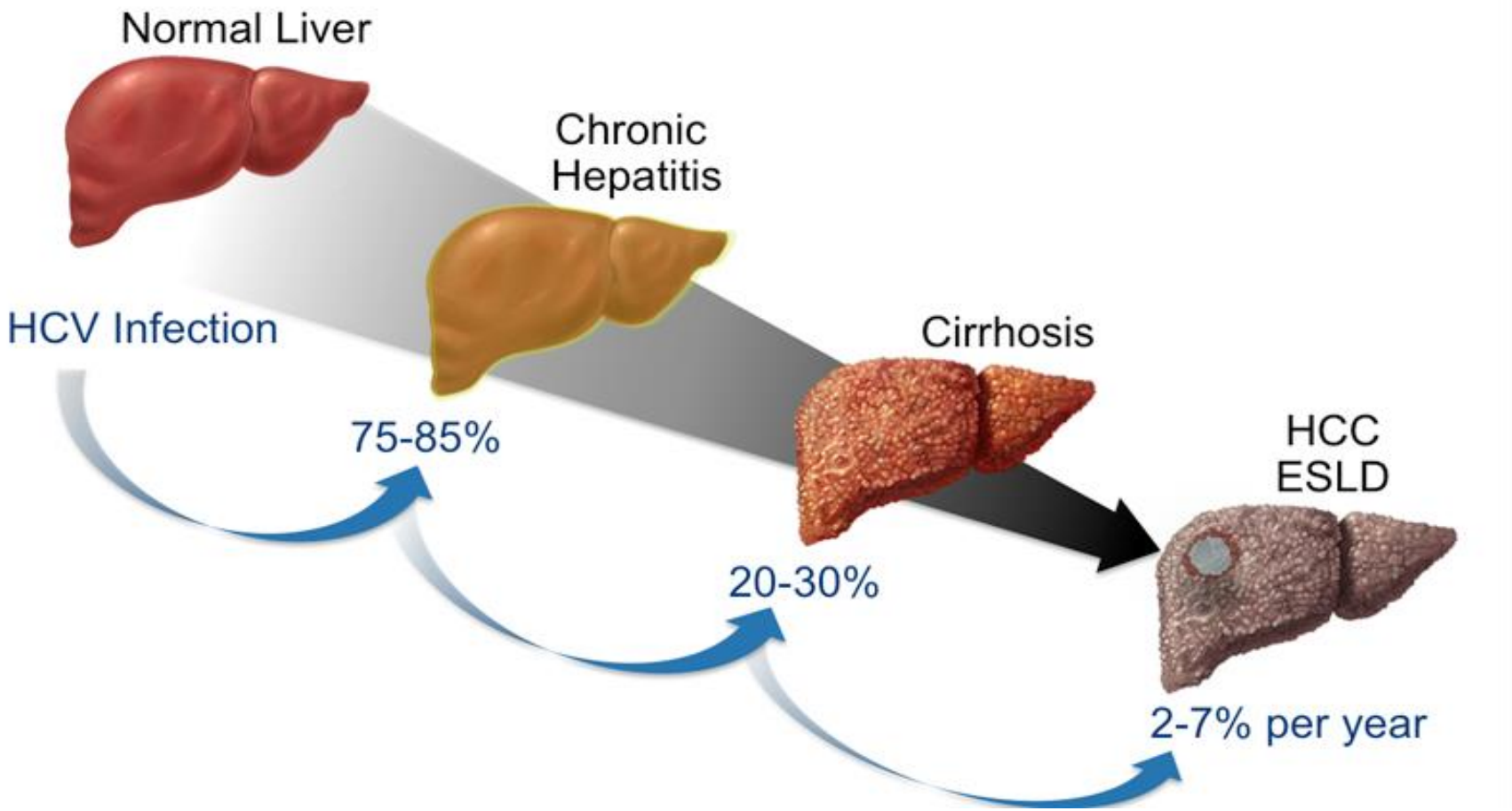
22-52% in Health Care for the Homeless programs

12-35% in incarcerated populations

Chronic HCV Infection May Lead to Chronic Liver Disease and Liver Cancer



Natural History of HCV



HCV Warmline Case

65 year old man recently co-infected with HIV (now well controlled) and HCV. Drinks 6-12 beers on weekends. No evidence of cirrhosis on labs or ultrasound. Patient is requesting HCV treatment but caller not sure if it's indicated as patient has no liver disease.

Risk Factors for HCV Progression

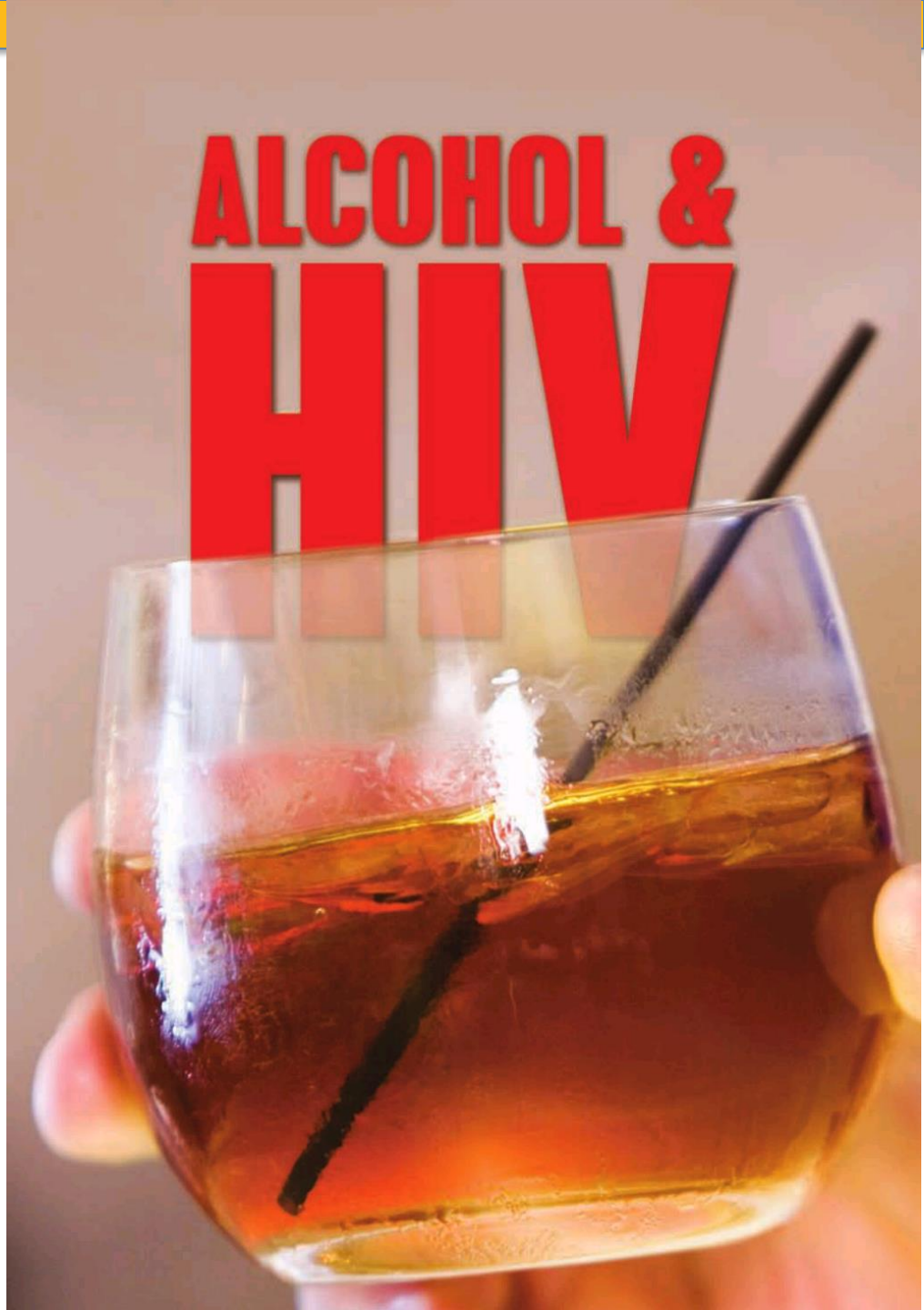
HIV or other co-infection

Alcohol use

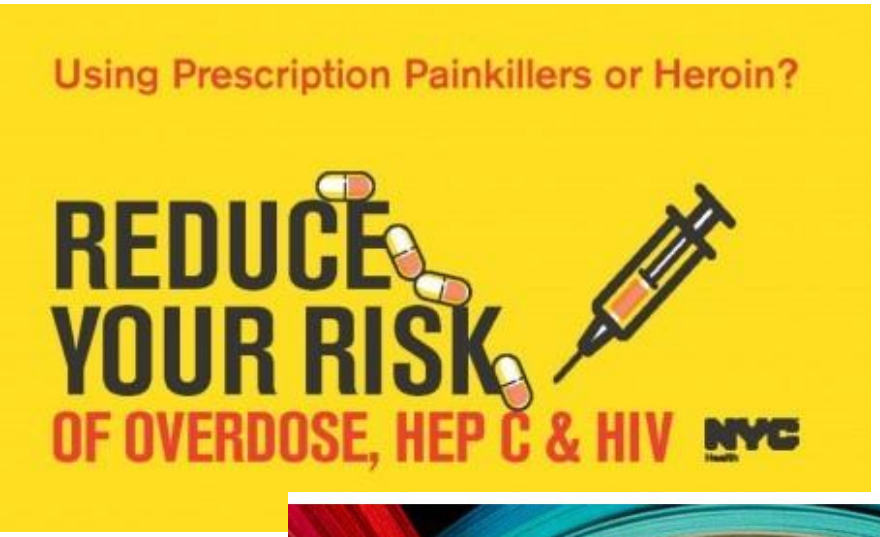
Older age at infection

Male gender

Insulin resistance



Hepatitis C and Opioid Epidemics Intersect



30-90% of IDUs infected with HCV

Opportunities for harm reduction, substance use disorder treatment

HCV testing and treatment of active drug users prevents new infections

Post-exposure Hotline Case

Prison guard stuck with homemade tattoo needle recently used by 55 year old inmate with history of injection drug use. Inmate is HIV negative but should they worry about HCV?

The USPSTF recommends…

Screening for HCV infection in persons at high risk

1-time screening for HCV infection to adults born 1945-1965

PATIENT SCREENING FOR HCV

Birth Cohort Screening

Persons Born Between 1945 and 1965[1,2]

- The 1945-1965 birth cohort was selected on the basis of HCV prevalence and disease burden
- One-time screening for HCV infection in the birth cohort may identify infected patients at earlier stages of disease

Risk Factor–Based Screening

Important Risk Factors[1,2]

- Past or current injection drug use
- Receiving a blood transfusion before 1992
- Long-term hemodialysis
- Being born to an HCV-infected mother
- Incarceration
- Intranasal drug use
- Getting an unregulated tattoo
- Other percutaneous exposures

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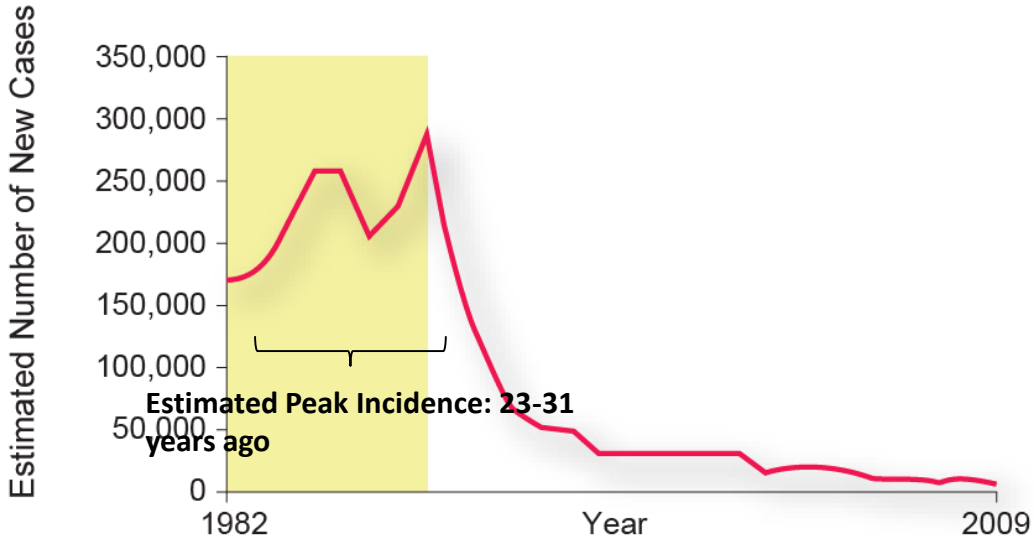
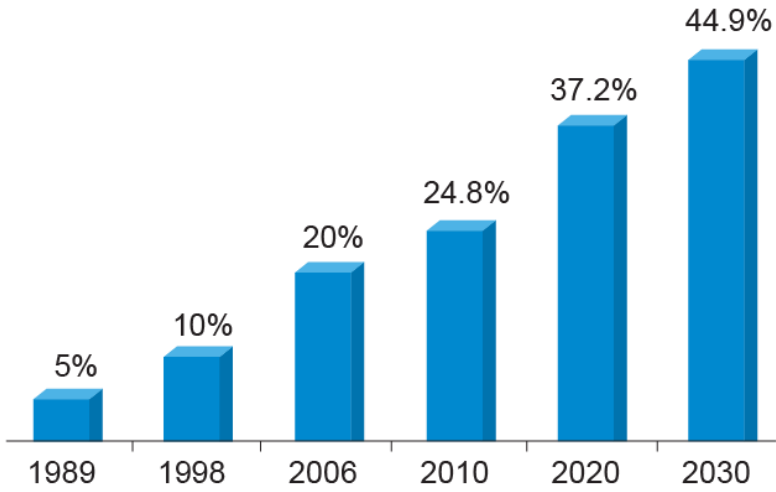
While HCV Incidence Has Peaked, Cirrhosis Is Projected to Peak in the Coming Decades

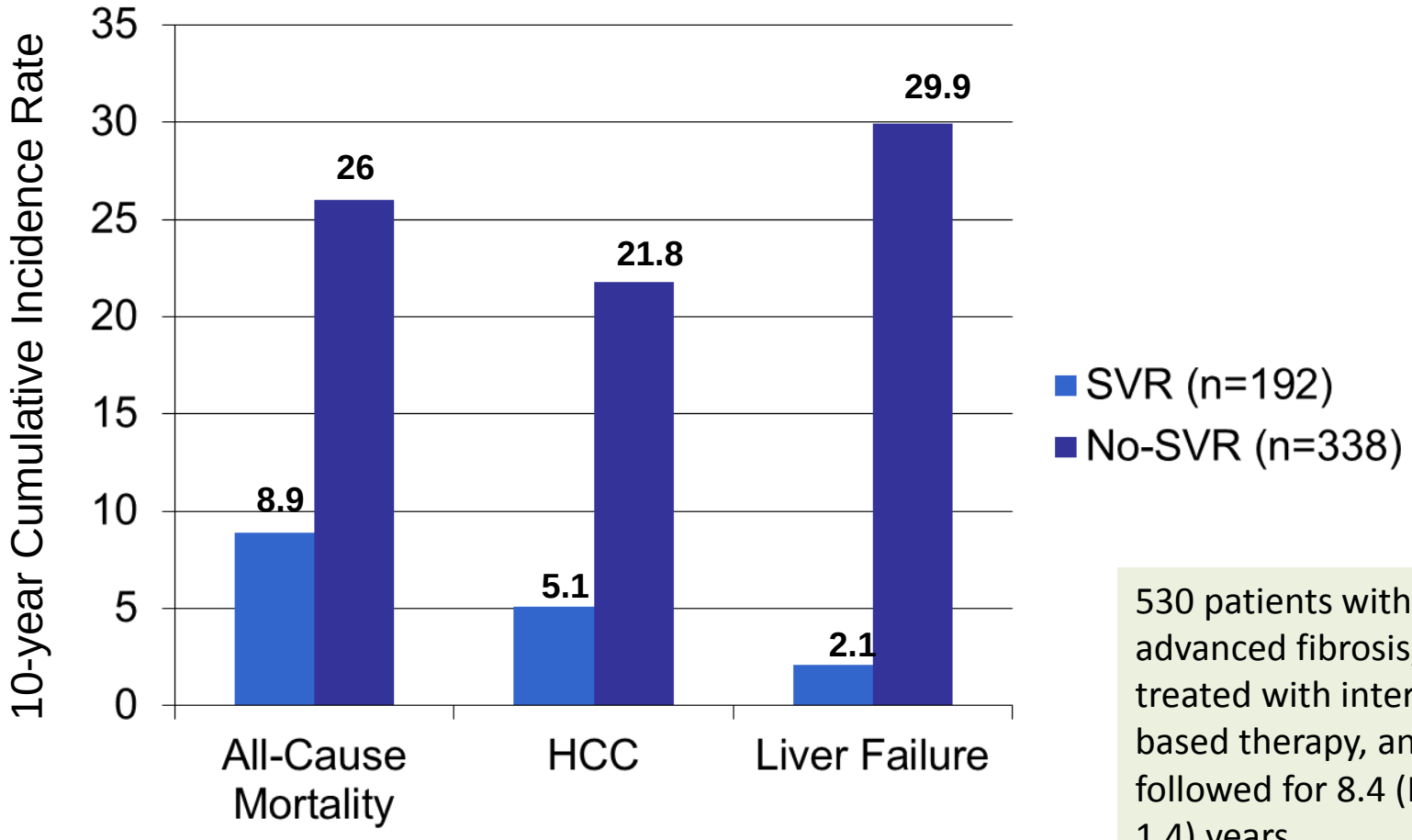
Incidence of Hepatitis C by Year United States, 1982-2009[1]



Historical and Projected % Prevalence of Cirrhosis Among HCV Patients[2]



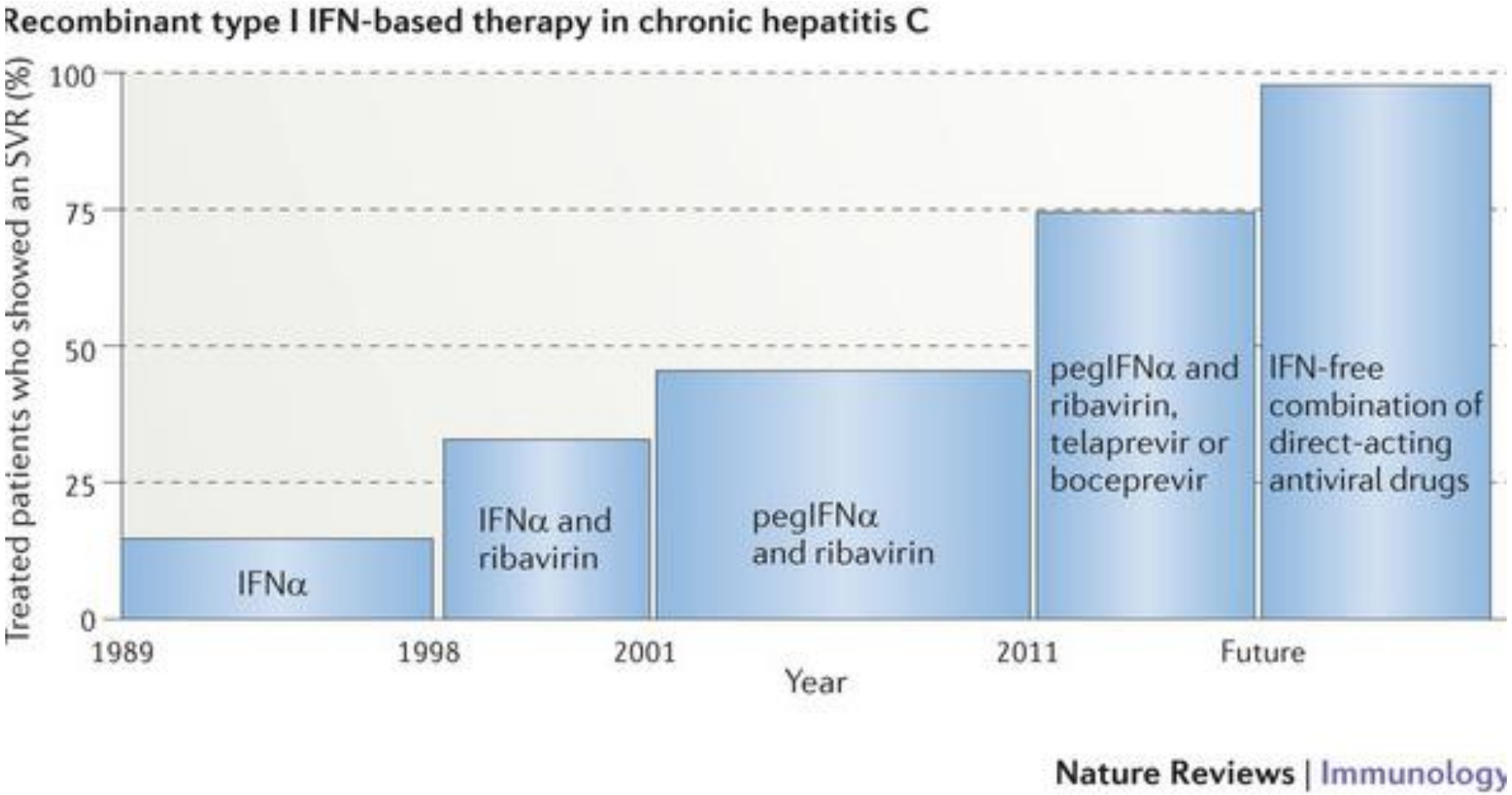
HCV Cure Associated with Decreased All-Cause Mortality



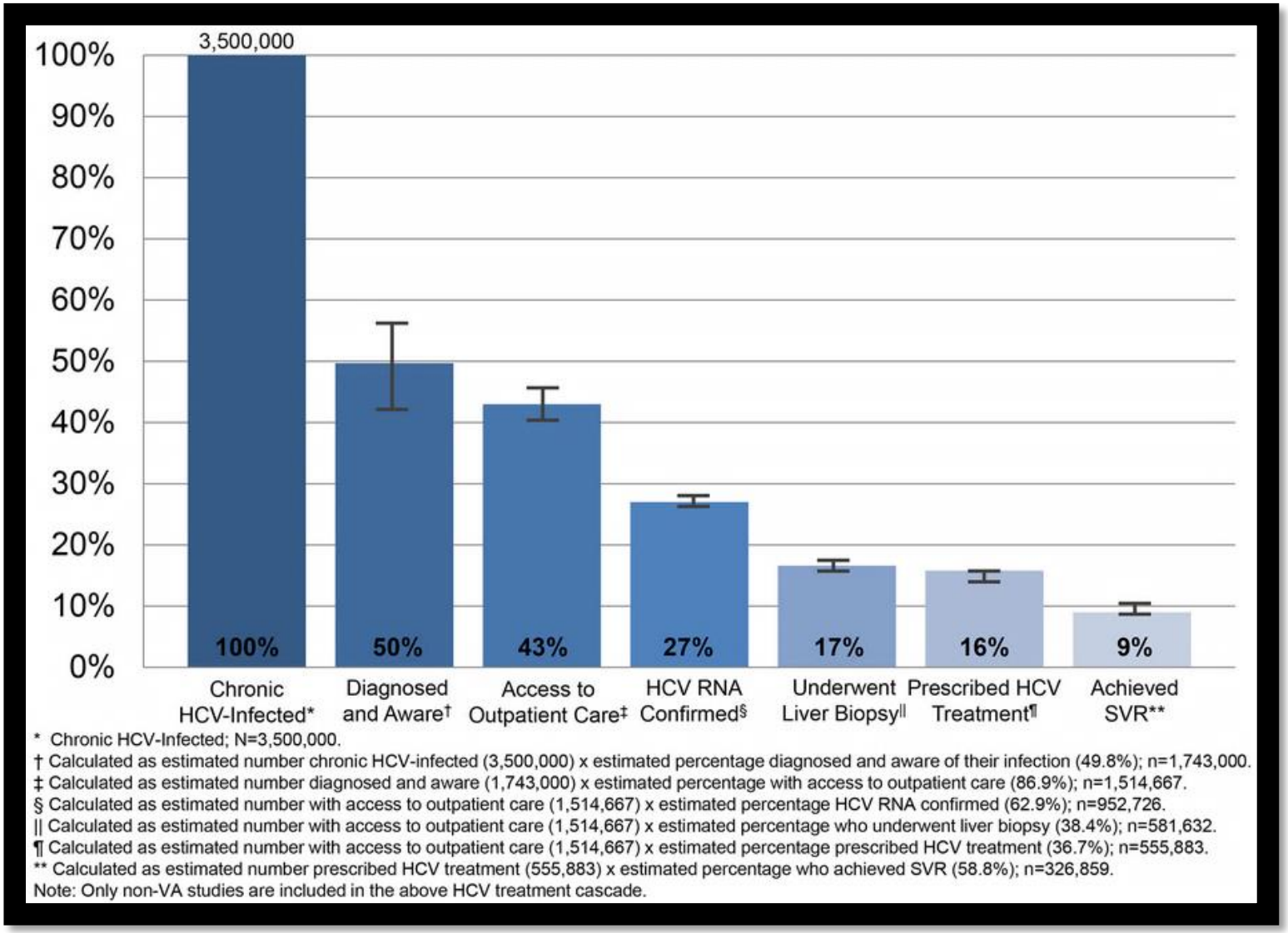
530 patients with advanced fibrosis, treated with interferon-based therapy, and followed for 8.4 (IQR 6.4-1.4) years

Van der Meer et al. JAMA 2012; 308:2584

History of HCV Treatment: In a New Era



The National HCV Treatment Cascade



Yehia BR, Schranz AJ, Umscheid CA, Lo Re V III (2014) The Treatment Cascade for Chronic Hepatitis C Virus Infection in the United States: A Systematic Review and Meta-Analysis. PLoS ONE 9(7): e101554. doi:10.1371/journal.pone.0101554

Types of HCV Tests

Test	Comments
HCV Antibody	• Screening test • Positive in past or current infection
HCV Viral load	• RNA PCR test • Does not correlate with degree of liver disease • Only recheck if treating • Quant>Qual
HCV Genotype	• “Strain” of HCV • 1-6 • NOT like HIV genotype

HCV Genotypes: Common in US

Genotype	Notes
1	• Most common in US (75%) and worldwide (45%) • Used to be hardest to treat with Interferon (IFN) • Includes subtypes 1a + 1b
2	• 13-15% of US Infxns • Used to be “the good one” (easier tx with IFN)
3	• 10% of US Infxns • Used to be grouped w/ geno 2 • May progress faster • Now the hardest to treat

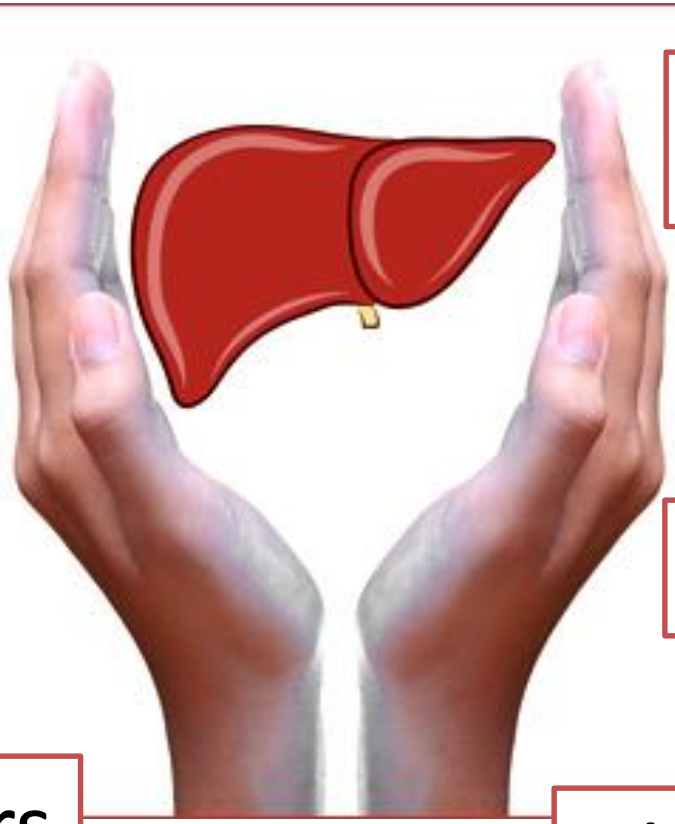
HCV Genotypes: Rare in US

Genotype	Notes
4	Predominant in Egypt, Middle East, Central Africa
5	Predominant in South Africa
6	Predominant in Asia

Liver Disease Staging Modalities

Biopsy

Clinical findings



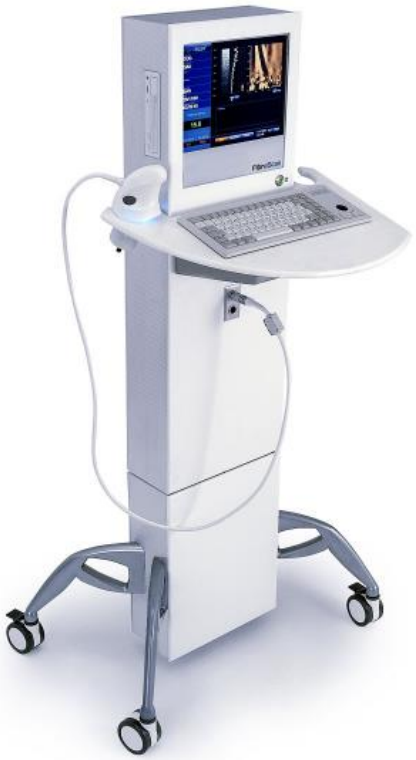
Ultrasound

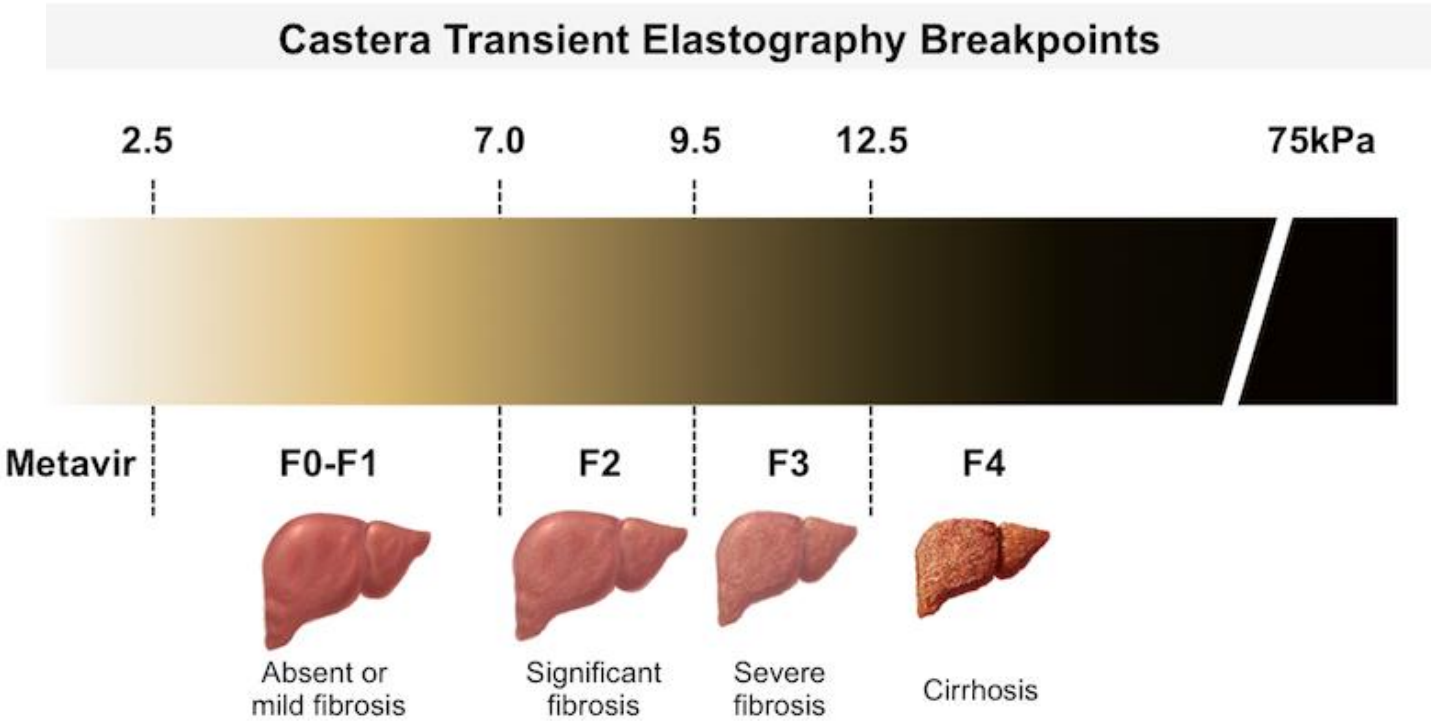
MR Elastography

Biomarkers

Fibroscan

Fibroscan




Castera Transient Elastography Breakpoints
2.5
7.0
9.5
12.5
75kPa
Metavir
F0-F1
F2
F3
F4
Absent or mild fibrosis
Significant fibrosis
Severe fibrosis
Cirrhosis

Staging with Serum Biomarkers

Serum Markers of Fibrosis/Cirrhosis	Comments
APRI	APRI >1= advanced fibrosis APRI >2 = cirrhosis (sensitivity 76%, specificity 72%)
FIB-4	FIB-4 >3.25 =advanced fibrosis/cirrhosis (specificity 98%) FIB-4 <1.4= no significant fibrosis (sensitivity 74%, specificity 80%)
Fibrosure Fibrotest Fibrospect	Combos of biomarkers Proprietary

Adapted from VA HCV Guidance

FIB-4: Fibrosis 4

$$\textbf{FIB-4} = \frac{\text{Age (years)} \times \text{AST (U/L)}}{\text{Platelet Count } (10^9/\text{L}) \times \sqrt{\text{ALT (U/L)}}}$$

http://gihep.com/calculators/hepatology/fibrosis-4-score/

HCV Warmline Case

28 year old man infected with HCV 2 years ago. History of heavy EtOH use and recent UGIB due to esophageal varices by verbal report.

Ultrasound is WNL, FIB-4 score 0.6, Fibroscan not available.

Should HCV be treated as if this patient has cirrhosis?

HCV Warmline Case

40 year old woman with history of IDU recently tested HCV+ at local ED, now presenting to begin primary care. What to do next?

Primary Care for HCV Patients

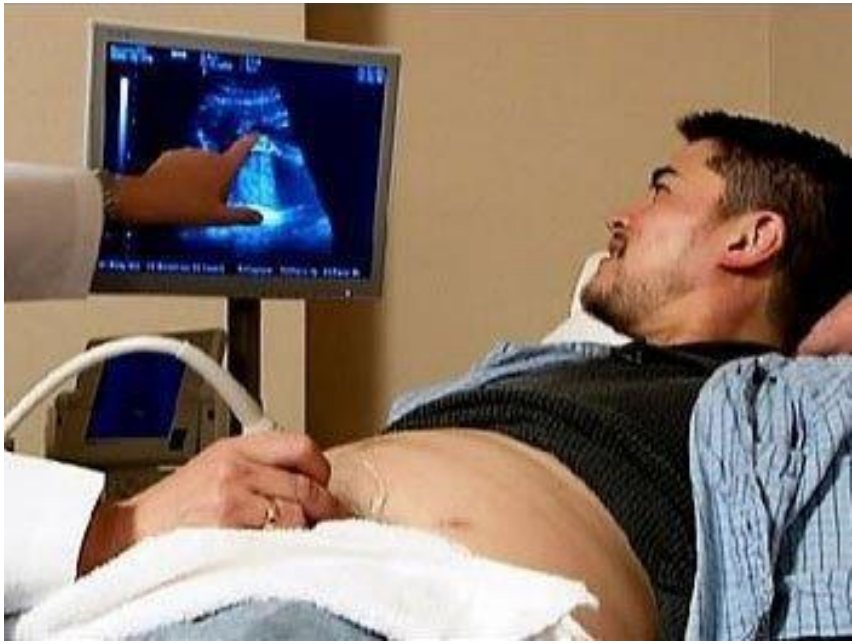
Education to prevent transmission and progression

Assess EtOH

Vaccinate for HAV/HBV

Treat comorbidities

HCC screening if cirrhotic



Conclusions

SCREEN	Implement age cohort and risk based screening
STAGE	Stage liver disease for HCV+ patients and prioritize treatment
PROVIDE PRIMARY CARE	Educate, assess EtOH use, offer vaccinations, treat comorbidities, screen for HCC
TREAT	Build capacity for treatment or enhanced referrals

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Thank you!