

The Syndemic of Hepatitis C in Opioid Use Disorder

MACS Webinar
April 12, 2021

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Maryland Addiction Consultation Service (MACS)

Provides support to prescribers and their practices in addressing the needs of their patients with substance use disorders and chronic pain management.

All Services are FREE

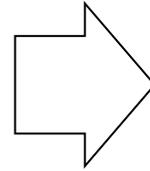
- Phone consultation for clinical questions
- Education and training opportunities related to substance use disorders and chronic pain management
- Assistance with addiction and behavioral health resources and referrals
- Technical assistance to practices implementing or expanding office-based addiction treatment services
- MACS TeleECHO™ Clinics: collaborative medical education through didactic presentations and case-based learning

Disclosures

- Dr. Kattakuzhy was the PI on a grant for investigator-sponsored research from Gilead Sciences paid to the institution (2016)

Why Syndemic?

Epidemic of
Hepatitis C



Syndemic of
Hepatitis C and
Opioid Use
Disorder

What Is A Syndemic?

“A syndemic, or synergistic epidemic, is more than a convenient portmanteau or a synonym for comorbidity. The hallmark of a syndemic is the presence of two or more disease states that adversely interact with each other, negatively affecting the mutual course of each disease trajectory, enhancing vulnerability, and which are made more deleterious by experienced inequities.”

Outline

Viral Characteristics and Epidemiology

Diagnosis, Treatment, and Monitoring

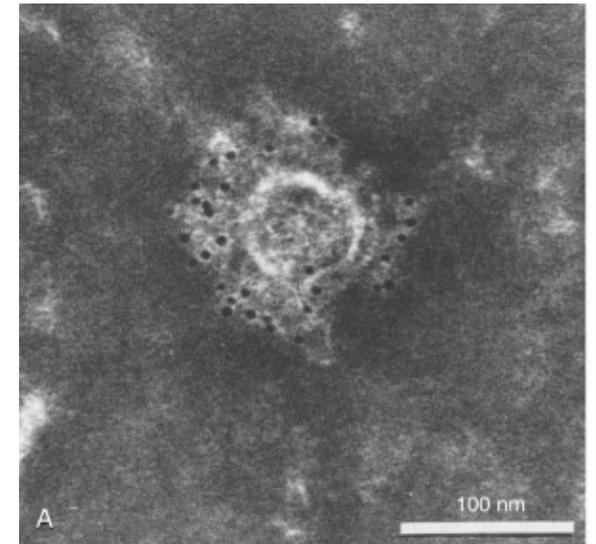
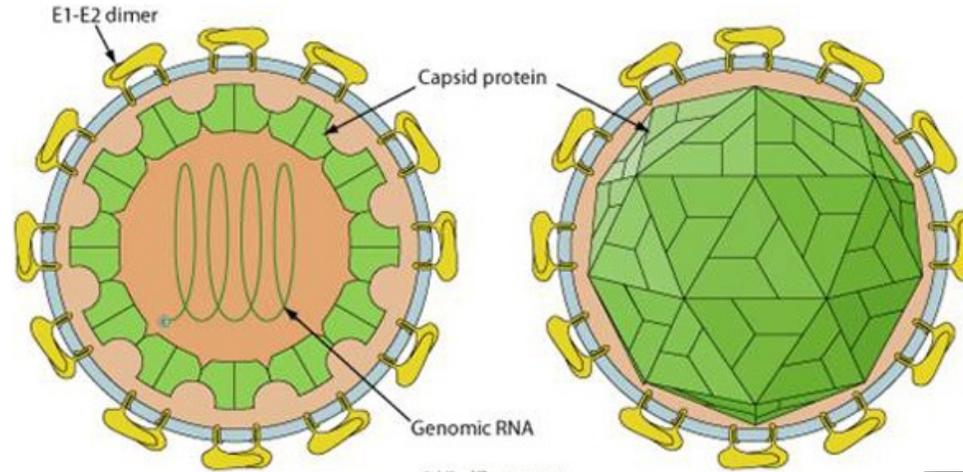
Challenges and Strategies

Viral Characteristics and Epidemiology

HCV Viral Features: Structure

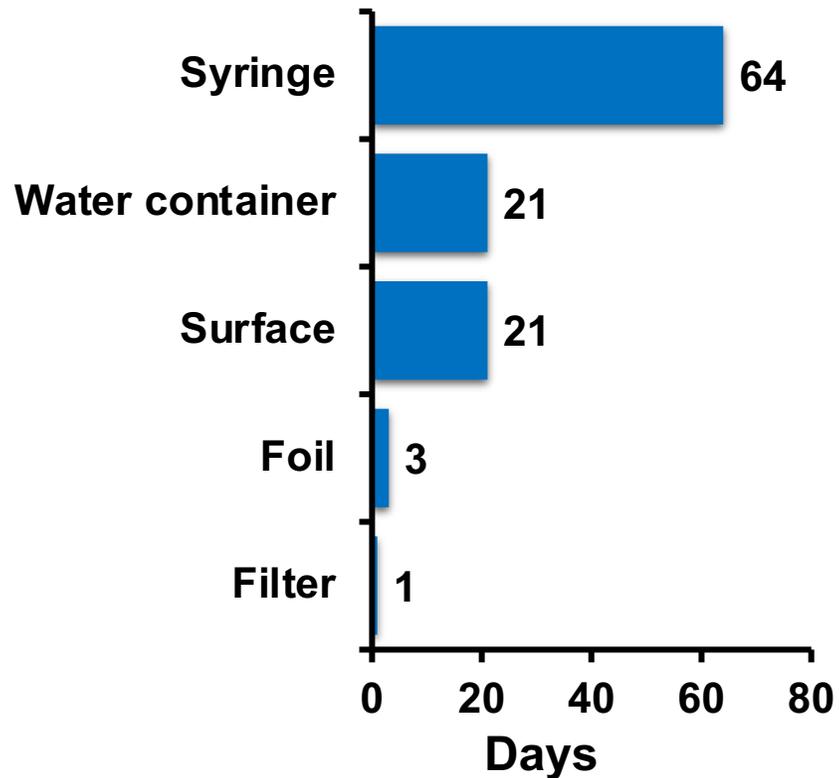
- RNA virus
 - Positive single stranded
 - Family Flaviviridae
 - Genus Hepacivirus

- In vivo replication in hepatocytes
 - Highly error prone, trillions of virions/day

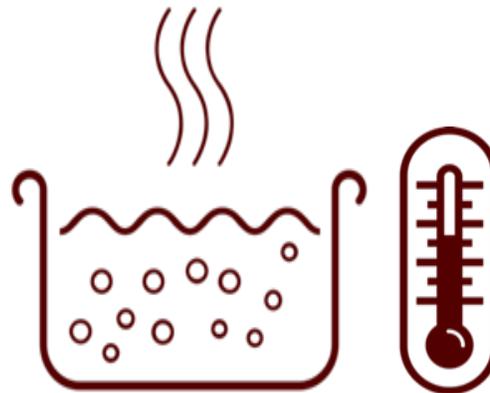


HCV Viral Features: Survival

Survival on Inanimate Objects¹⁻⁵

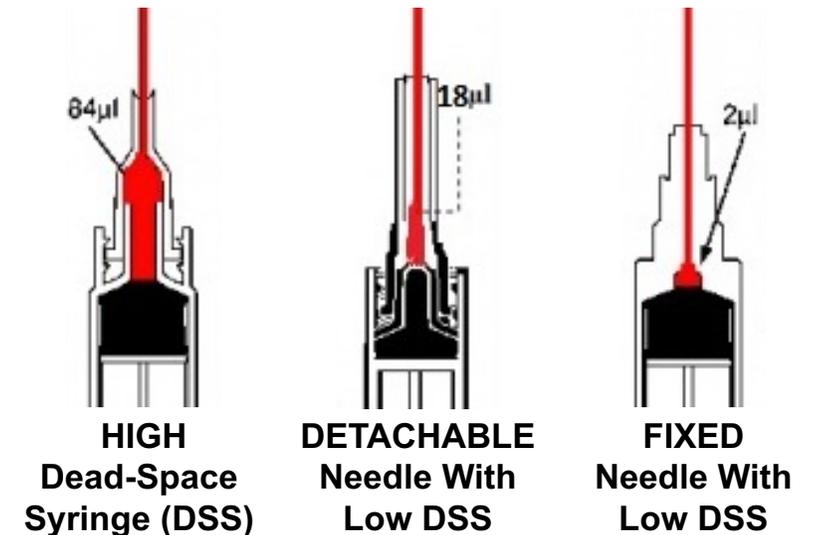


Survival at High Temperature¹⁻⁵



An HCV-contaminated solution needs to be heated for 90 seconds at 144°F for the virus to be at undetectable levels.

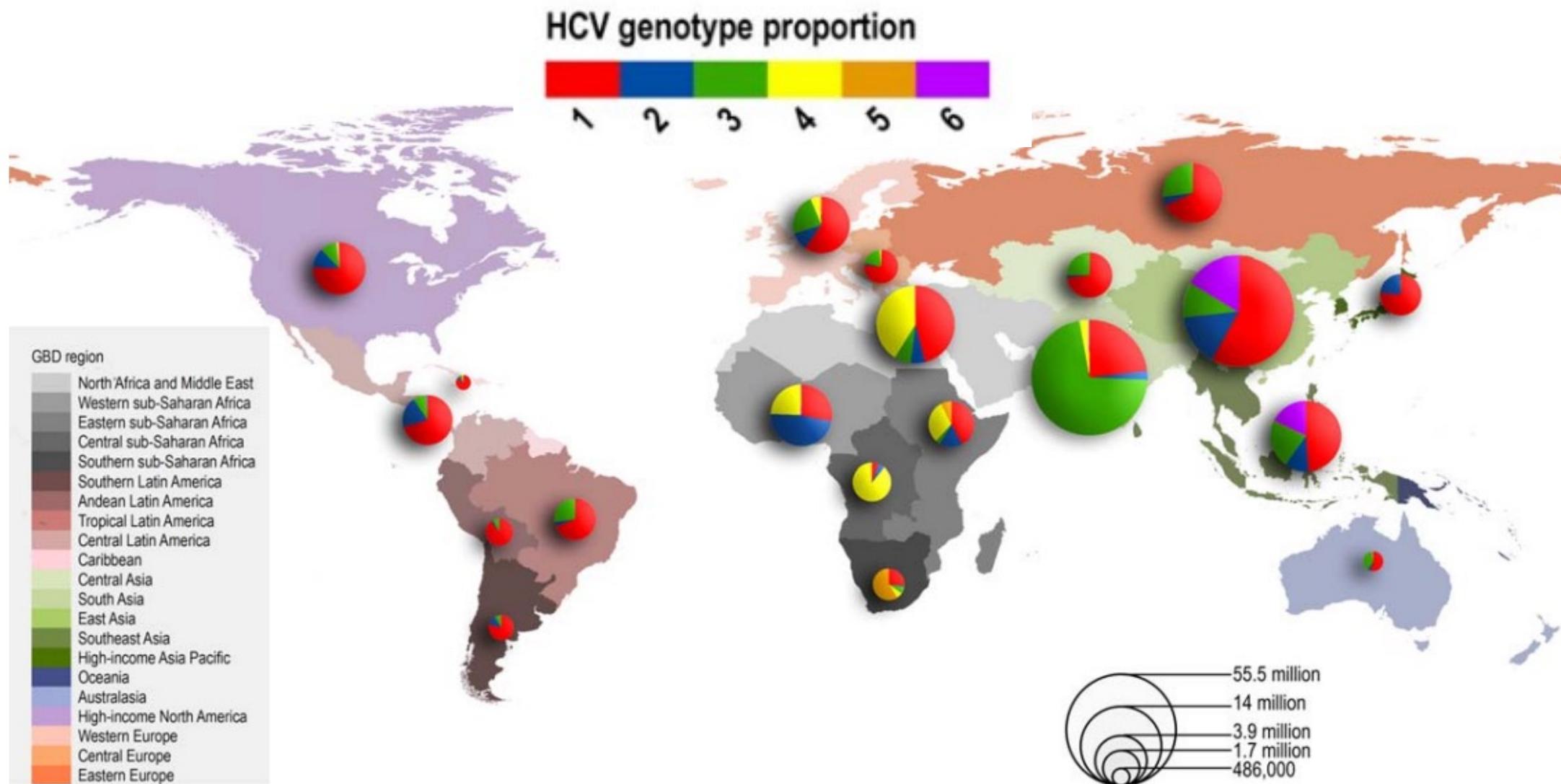
Transmission via Contact With Contaminated Needle/Syringe⁶



Use and sharing of high DSSs is associated with increased risk of HCV infection.

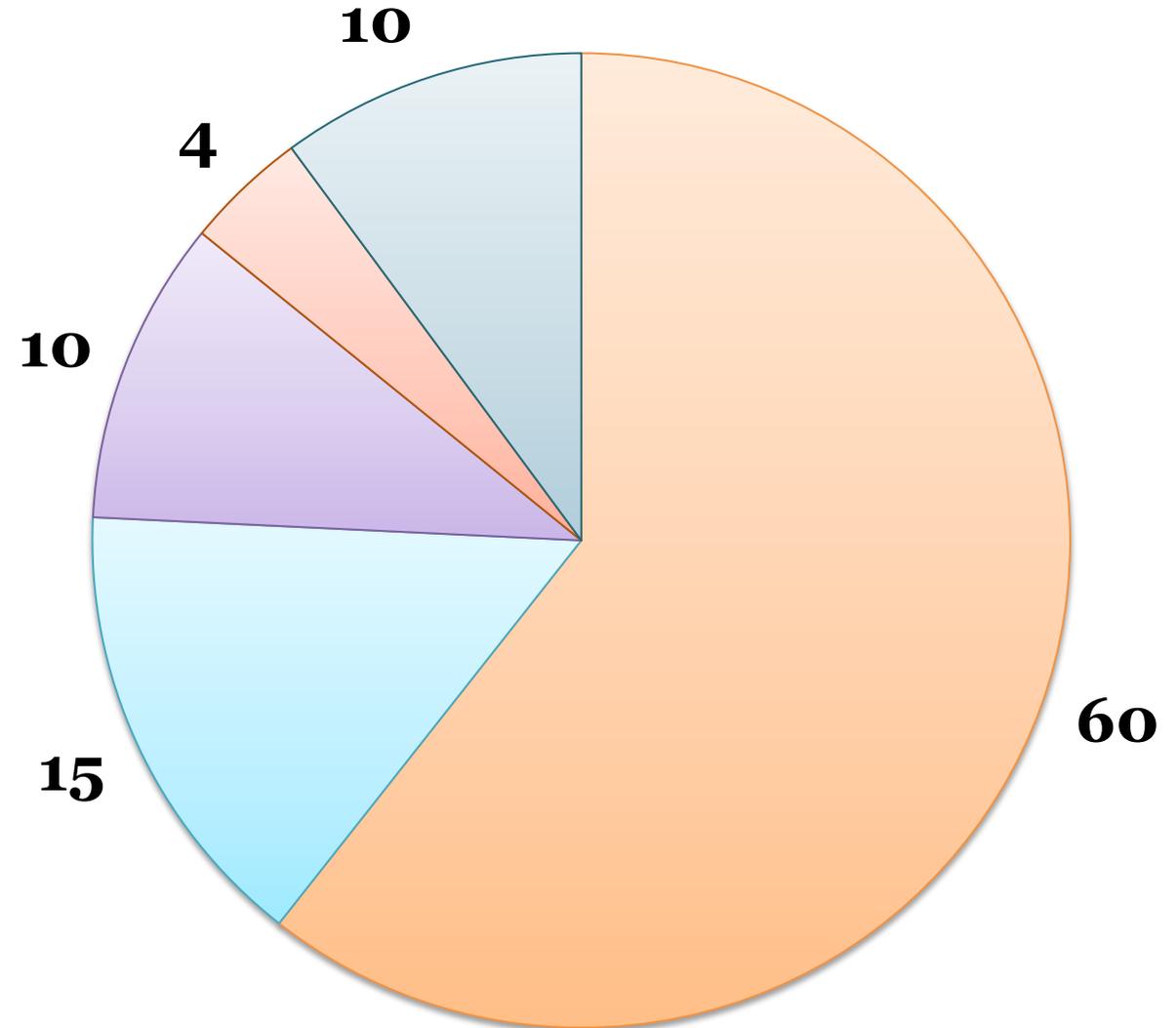
1. Paintsil E, et al. *J Infect Dis.* 2010;202(7):984-990; 2. Doerrbecker J, et al. *J Infect Dis.* 2011;204(12):1830-1838; 3. Thibault V, et al. *J Infect Dis.* 2011;204(12):1839-1842; 4. Doerrbecker J, et al. *J Infect Dis.* 2013;207(2):281-287; 5. Paintsil E, et al. *J Infect Dis.* 2014; 209(8):1205-1211; 5. Zibbell J. Hepatitis C Prevention Opportunities Among PWID. April 28, 2015. Presentation. <https://www.hhs.gov/sites/default/files/hcv-in-pwid-webinar.pdf>. 6. Image source: <http://qdsyringesystems.com>

HCV Viral Features: Genotype



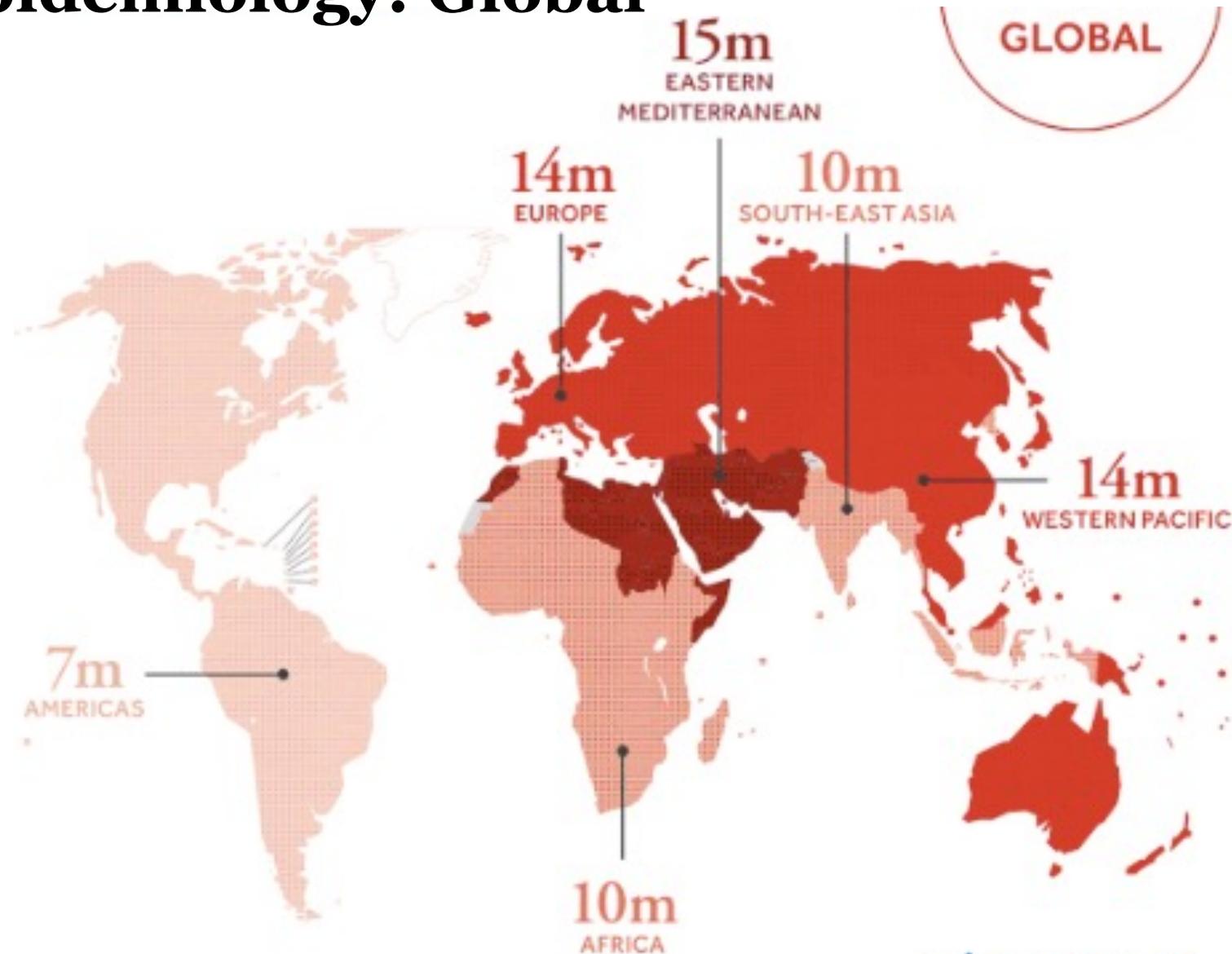
HCV Transmission

- Injection Drug Use
- Sexual
- Transfusion before 1985
- Occupational
- Unknown

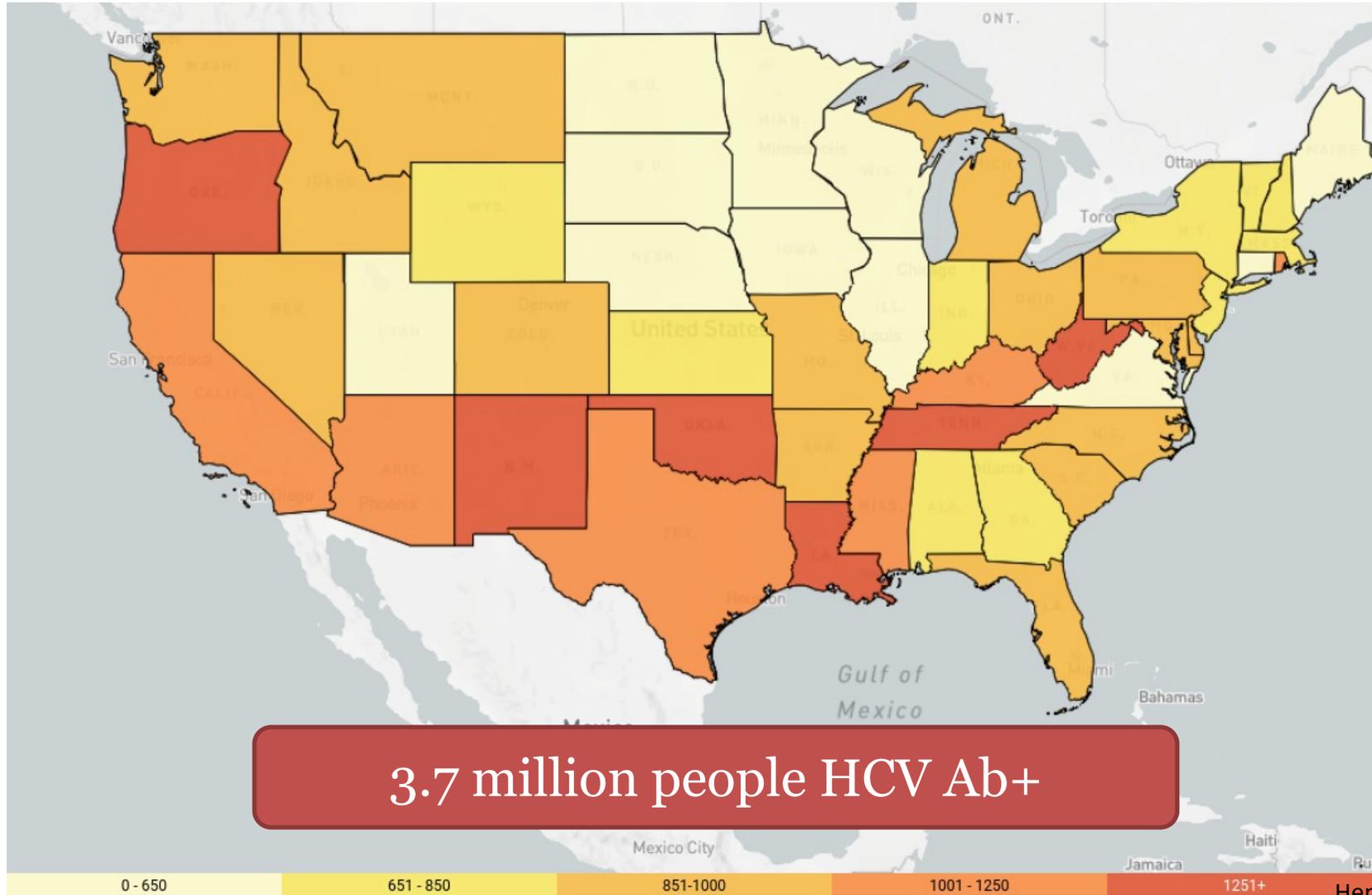


HCV Epidemiology: Global

- **Prevalence:** 71 million
- **Incidence:** 1.75 million/year

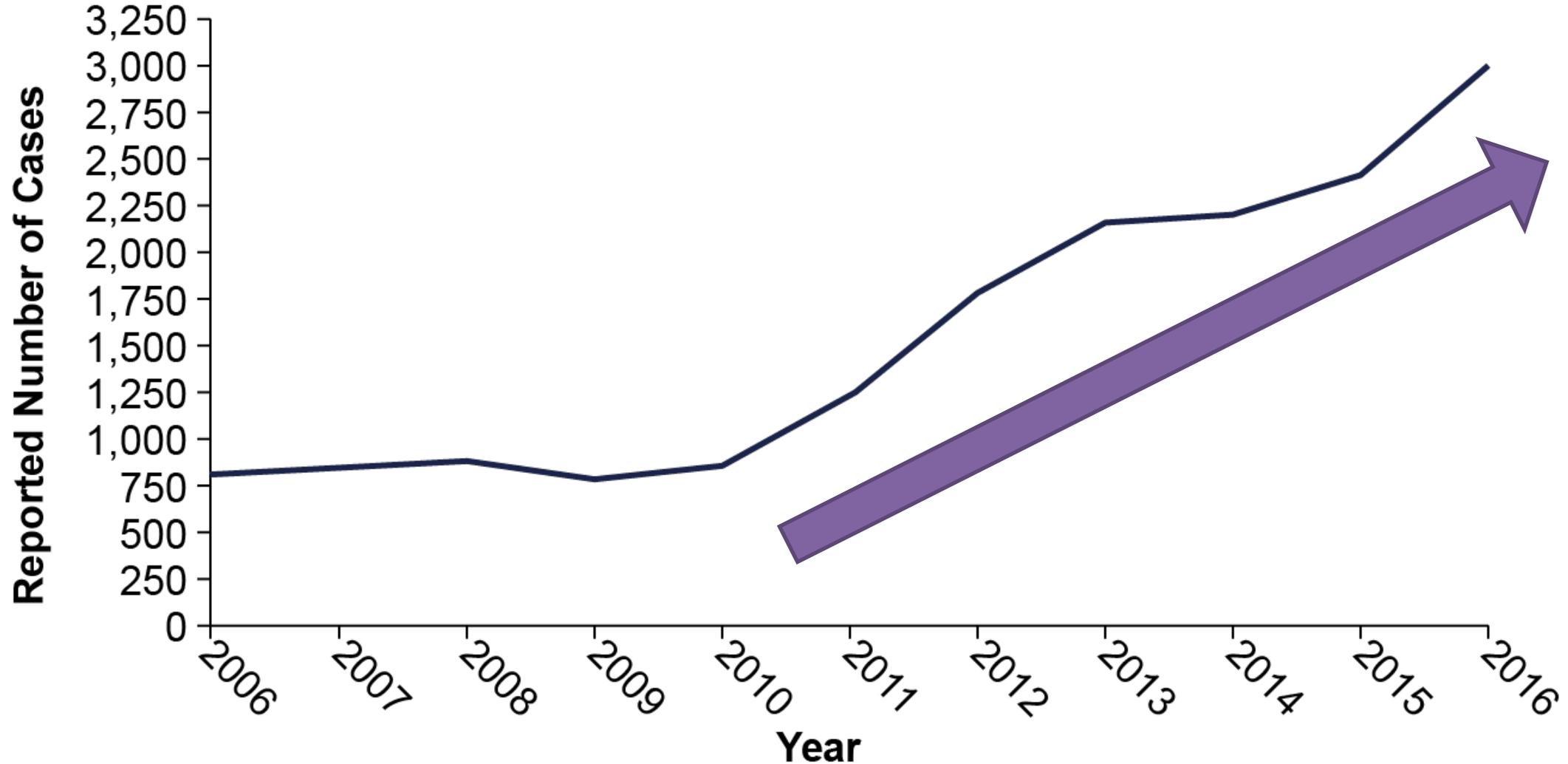


HCV Epidemiology: US



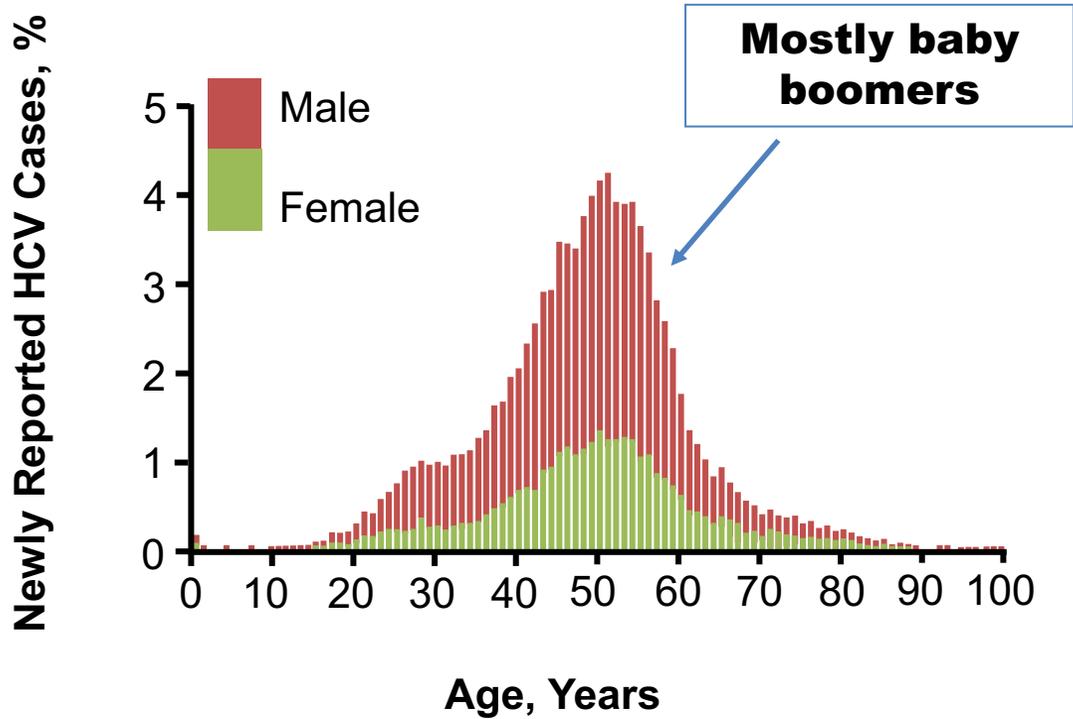
*Data not shown to protect privacy because of a small number of cases and/or a small population.

Incidence of Acute Hepatitis C by Year in the United States, 2006-2016

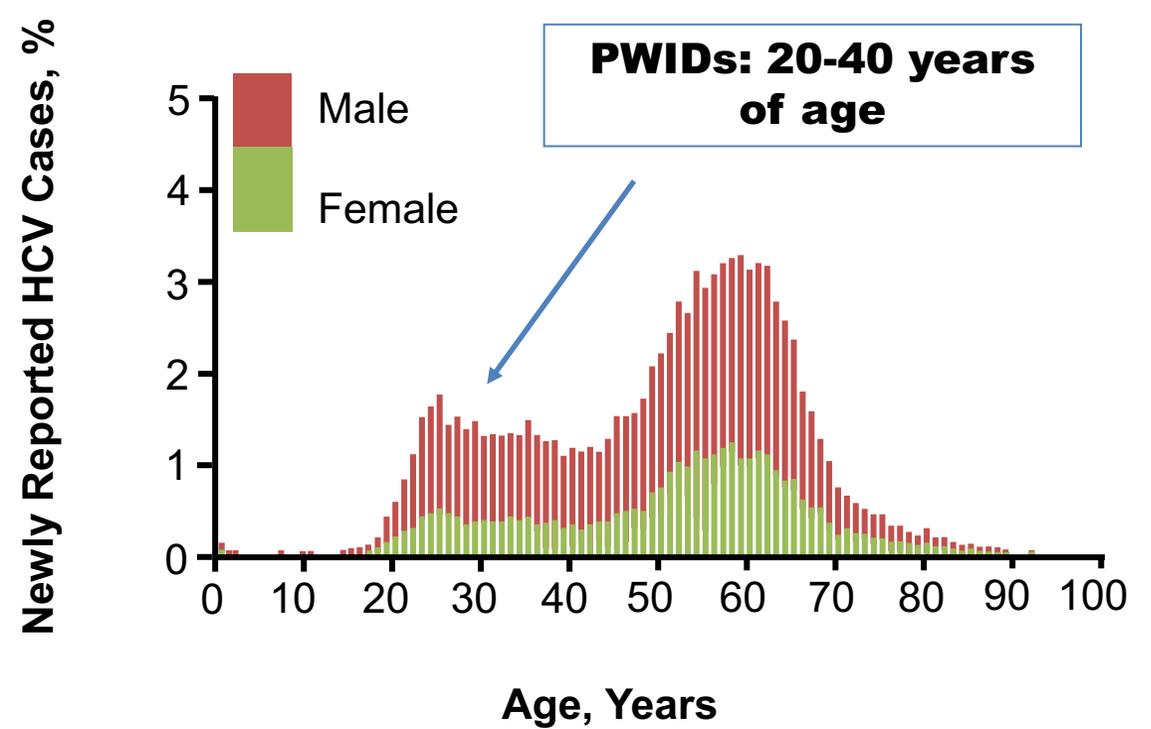


Changing Epidemiology of HCV in the US

2007 (N = 41,037)

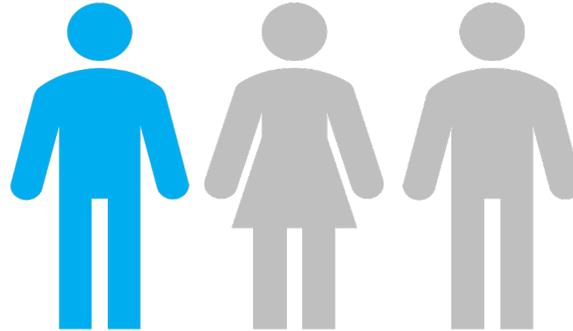


2015 (N = 33,454)



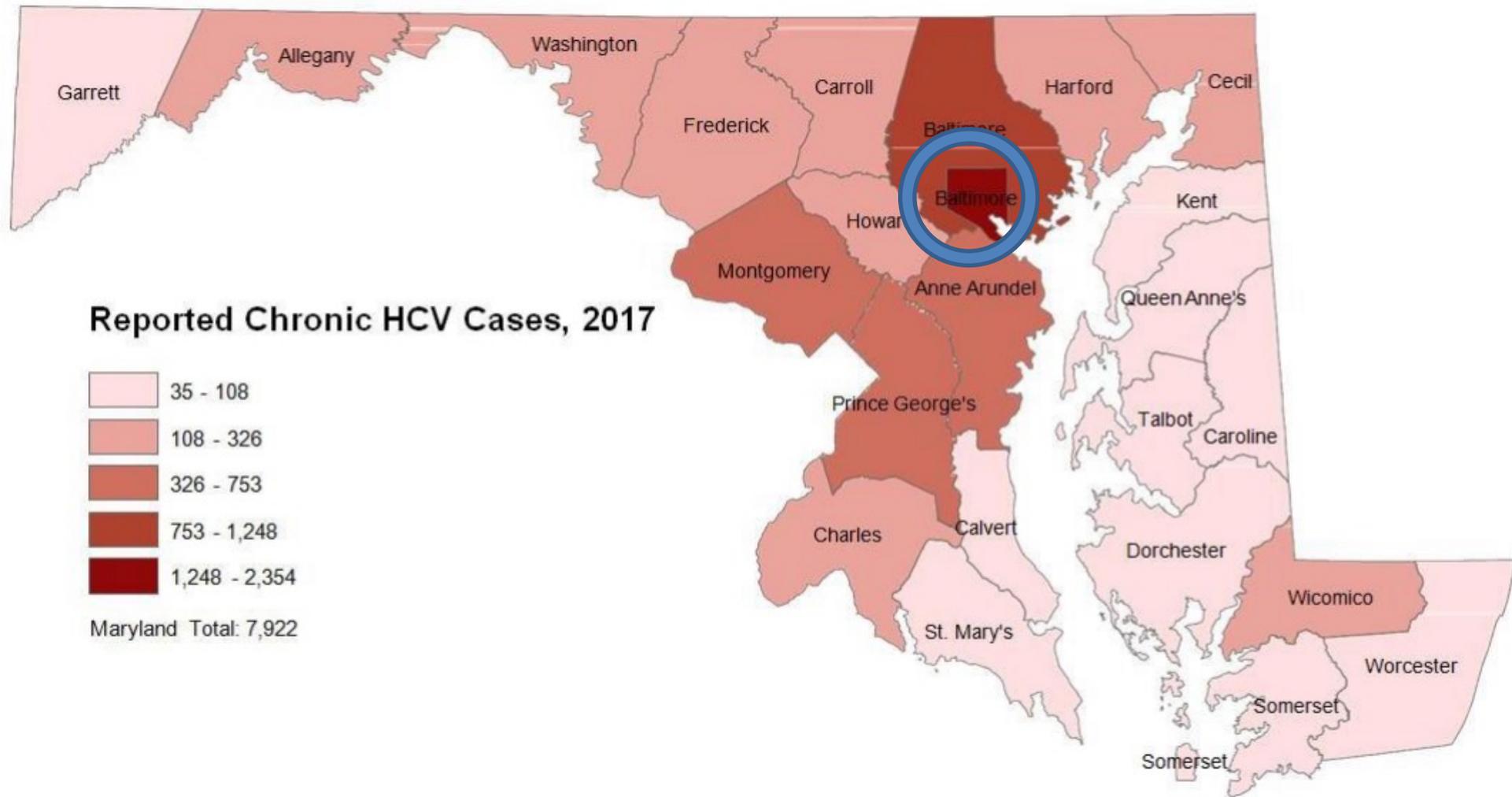
Opioid Use Disorder Is Driving Acute HCV

HCV prevalence among PWID is estimated to be 70%–77%¹

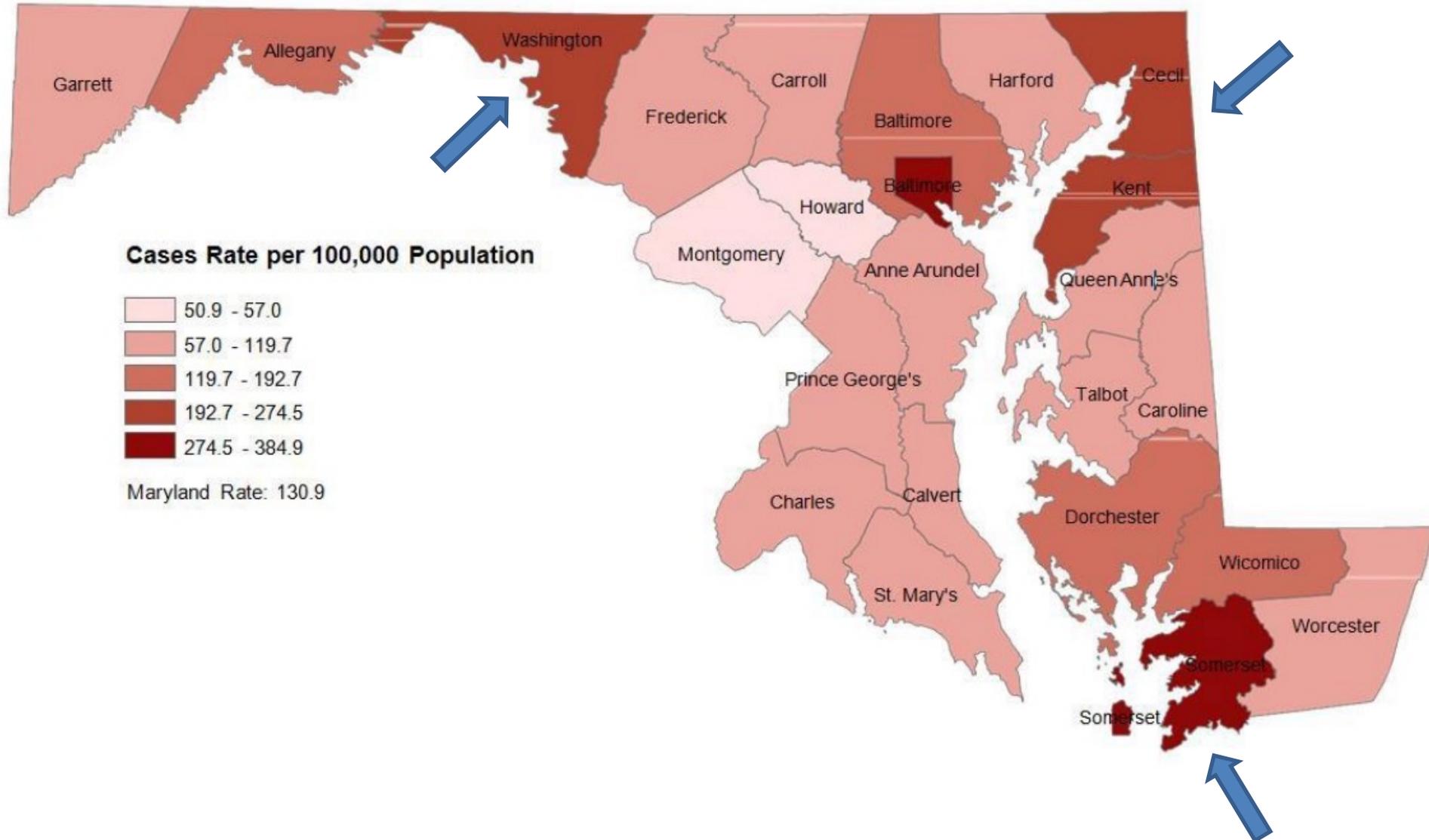


1 in 3 people who inject drugs acquires HCV infection in the first year of injecting²

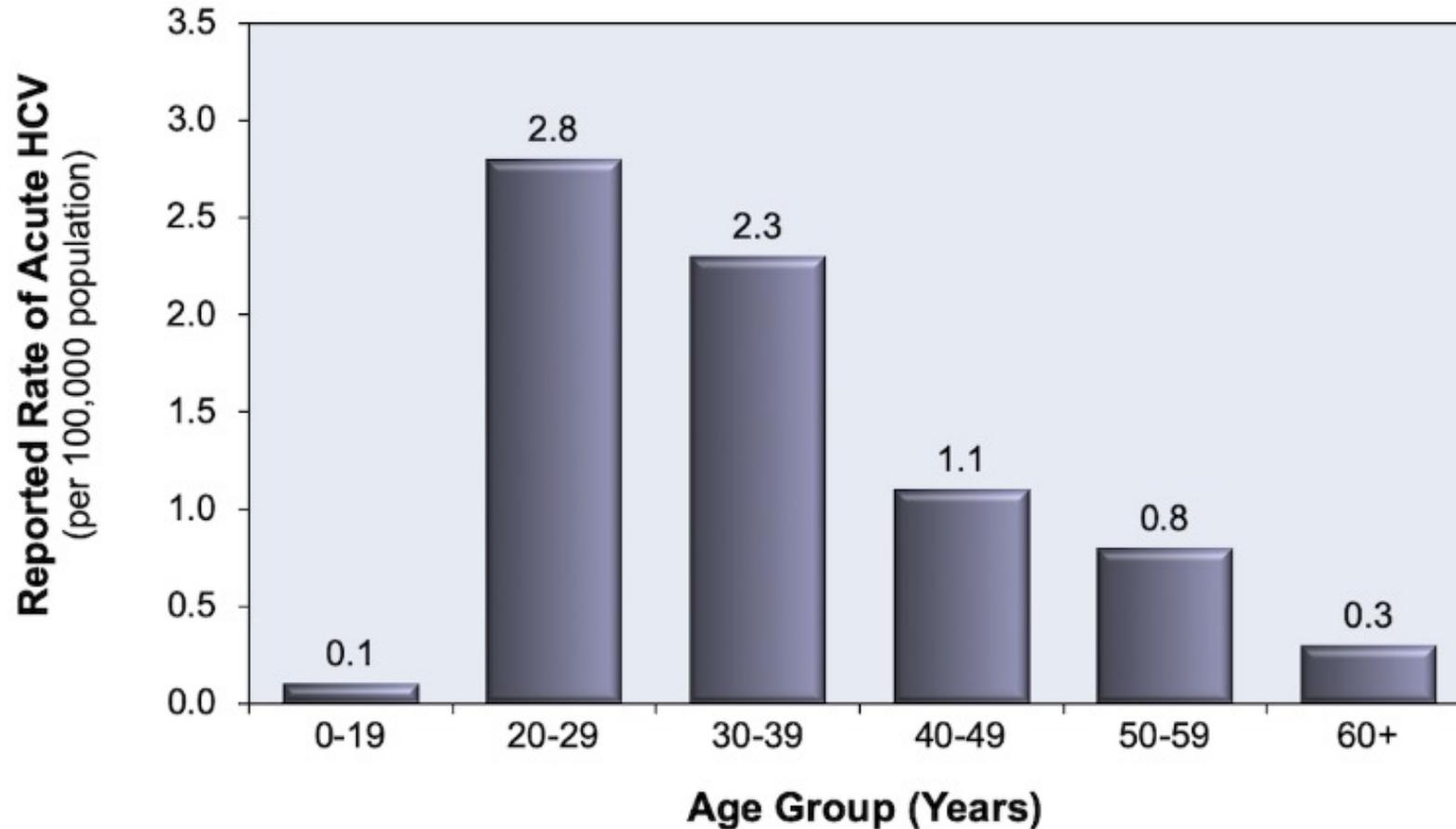
HCV Cases Reported in Maryland by County



HCV in Maryland by County per 100,000 Residents



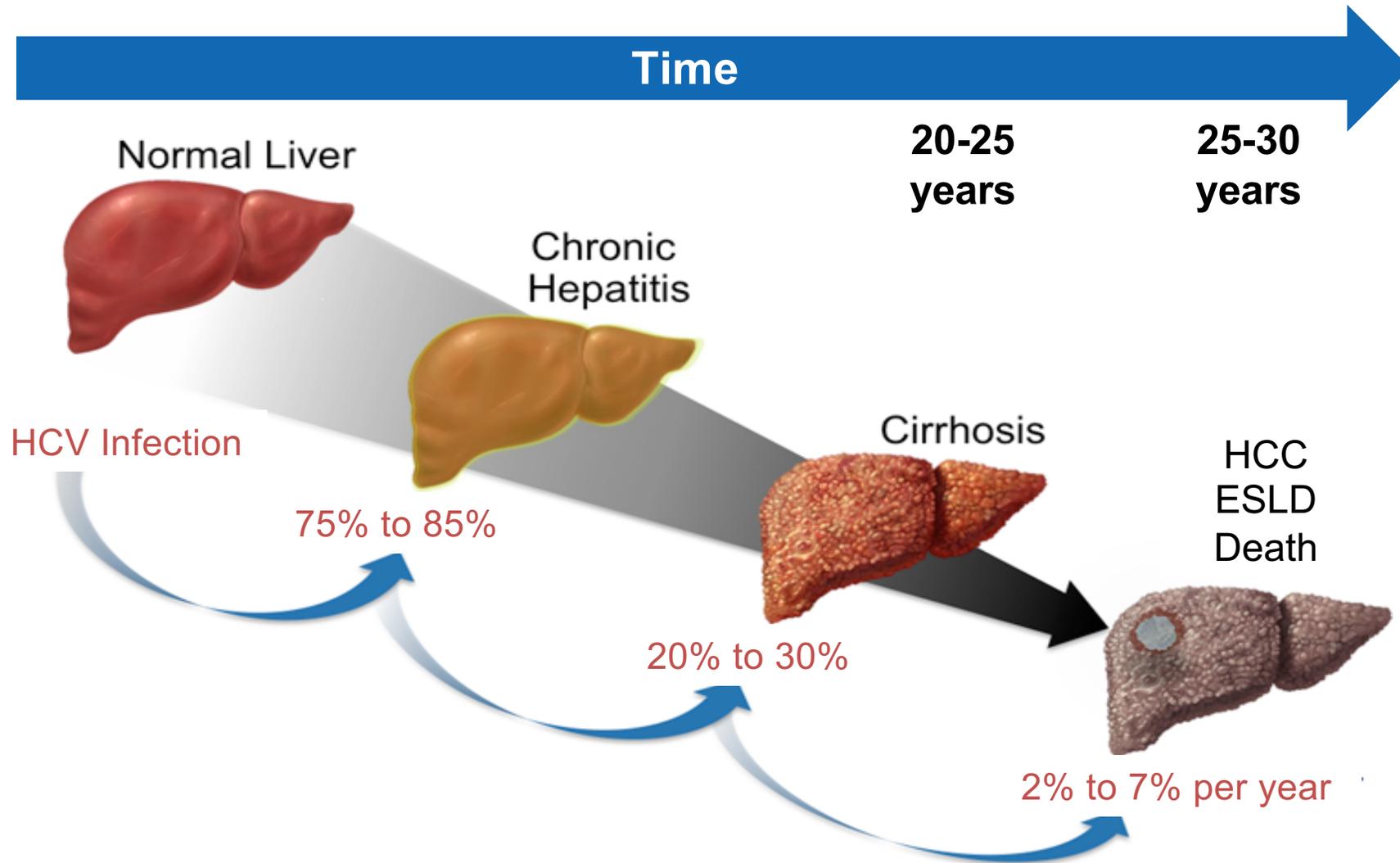
Changing Epidemiology of HCV in the US



March 2020:

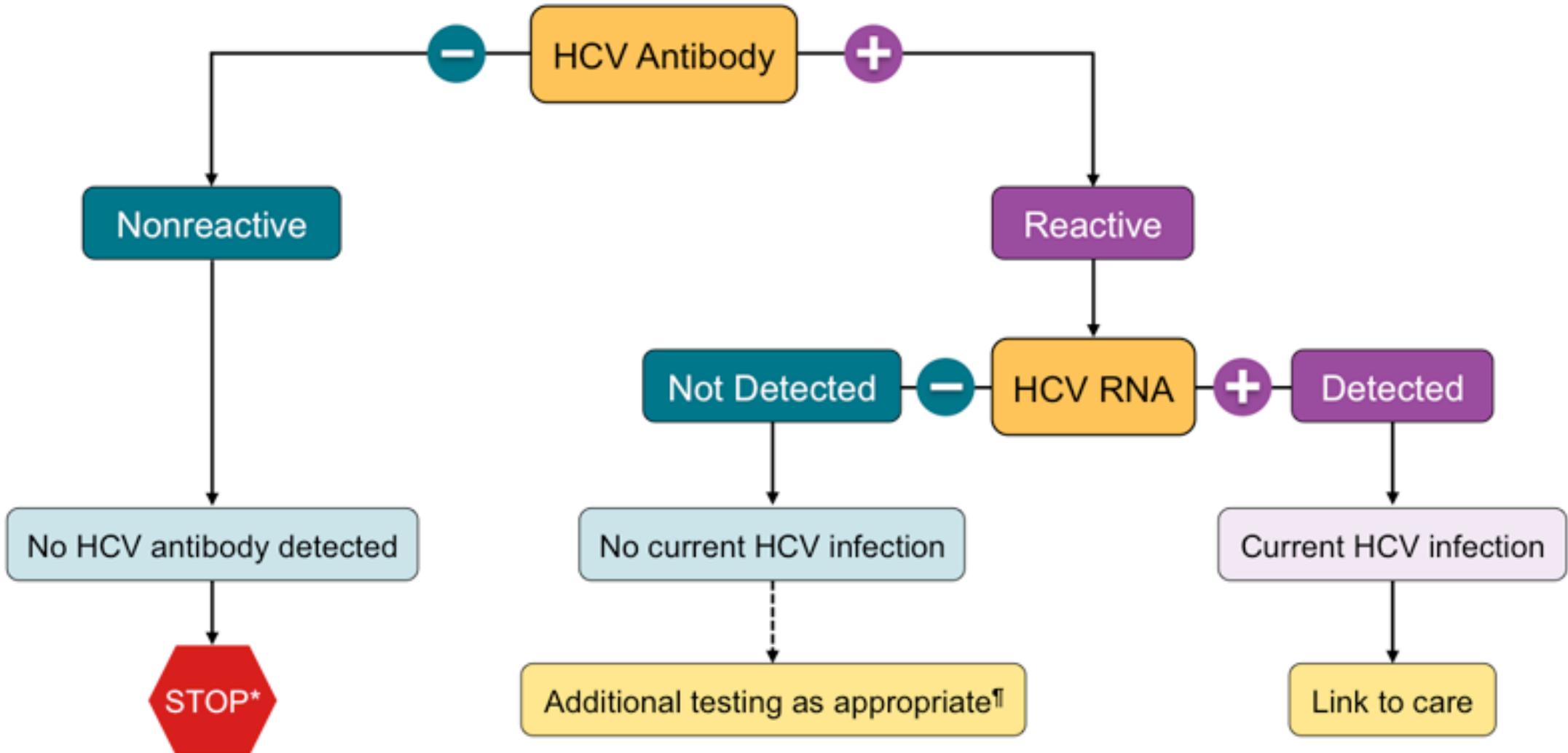
The USPSTF now recommends routine screening for all adults in the United States 18-79 years of age

Natural History Following HCV Infection

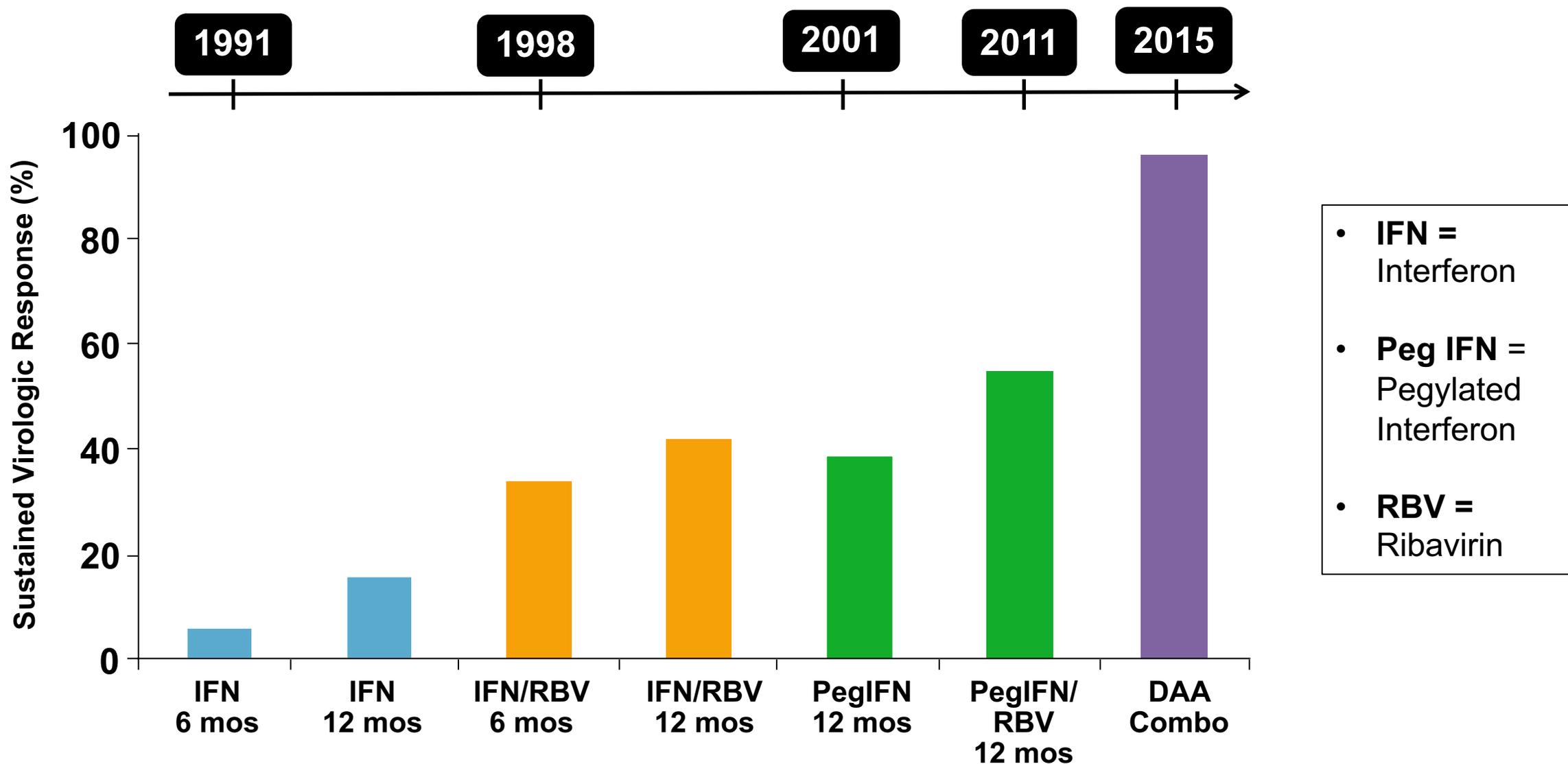


Diagnosis, Treatment, and Monitoring

Diagnosis



HCV Therapy: 1991-Present

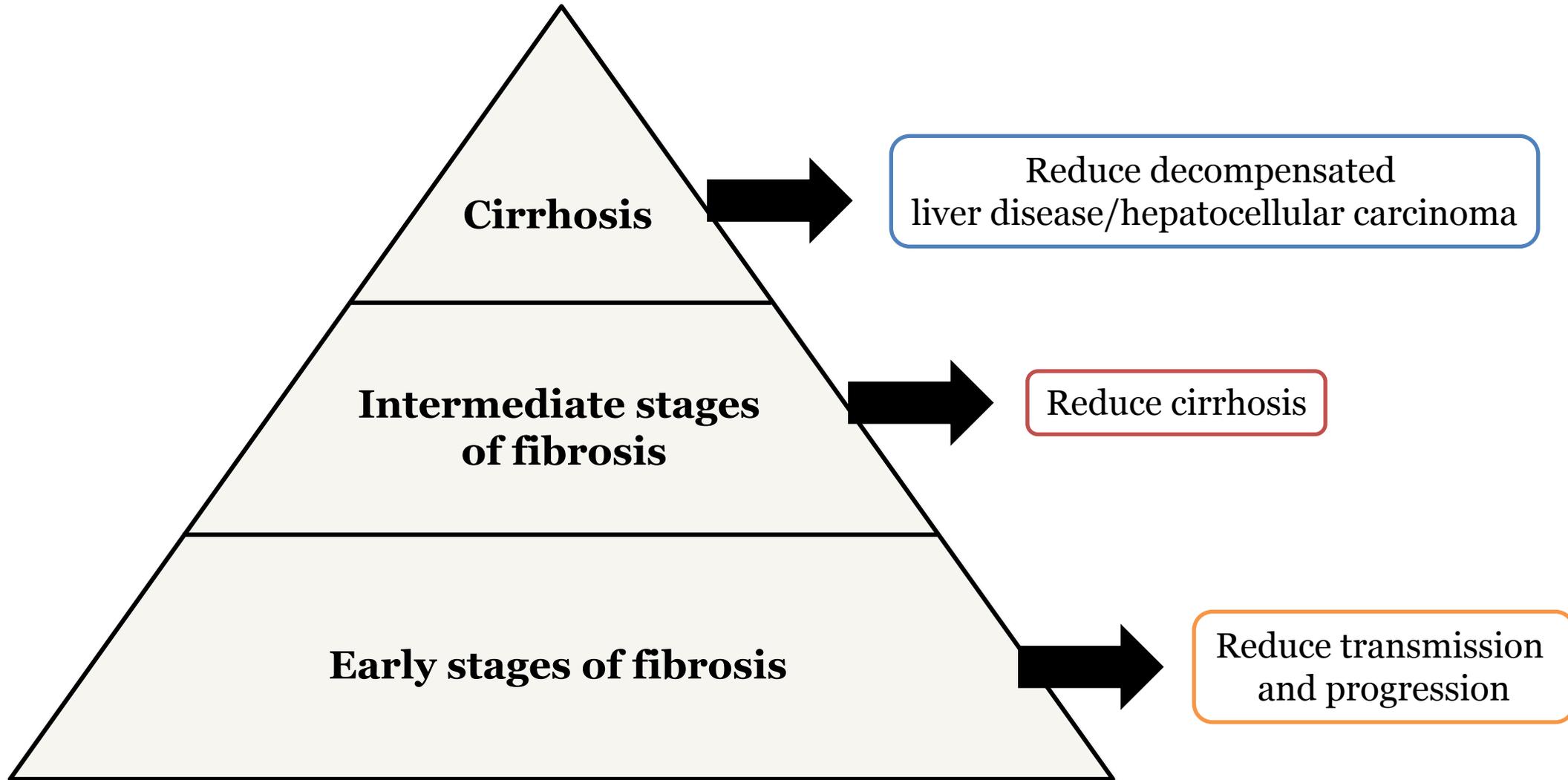


When and in Whom to Initiate HCV Therapy

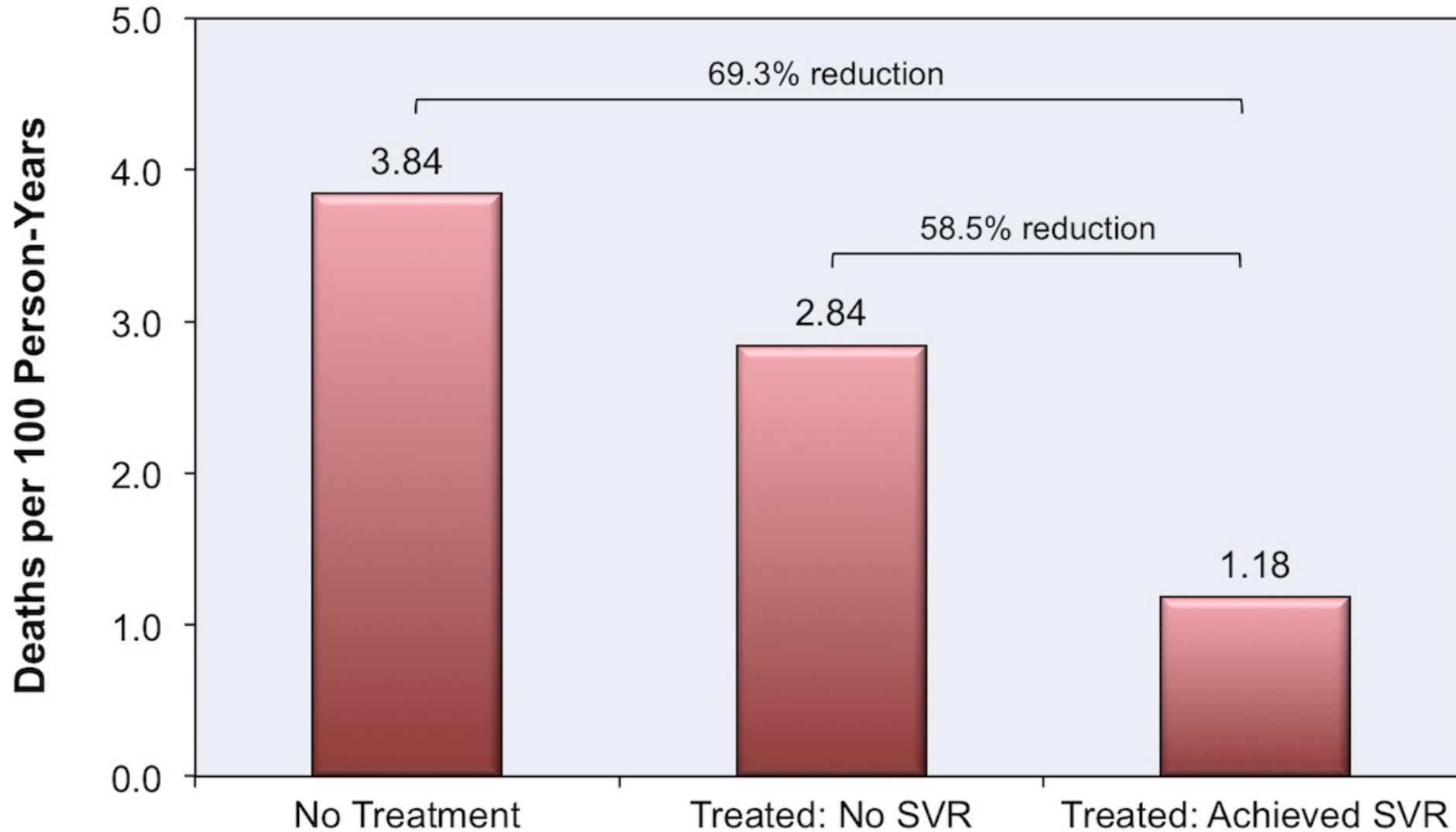
**Treatment is recommended for
all patients with chronic HCV infection**

Rating: Class I, Level A

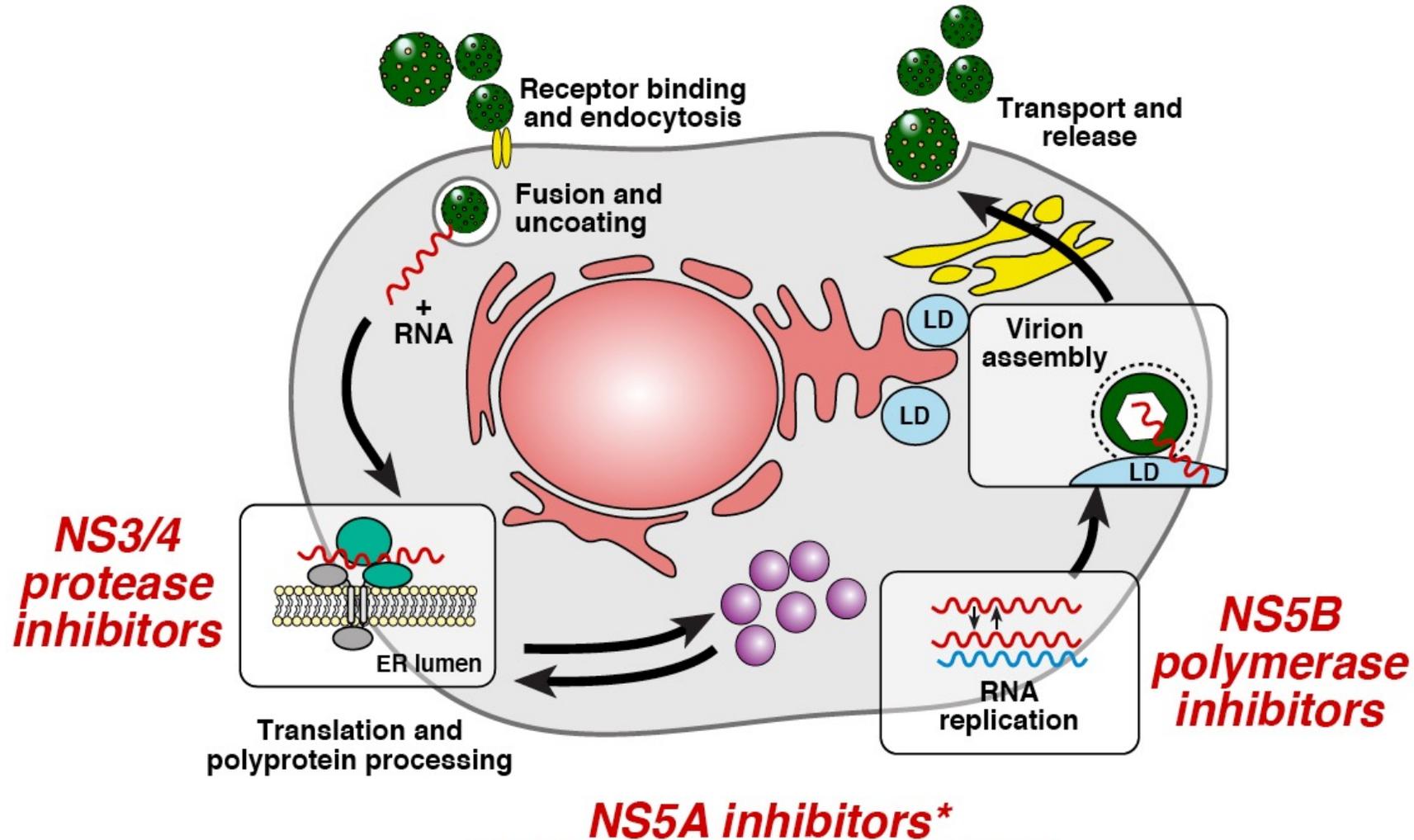
Rationale for HCV Treatment



Rationale for HCV Treatment



Virologic Targets of Treatment



HCV Treatment Regimens

Regimen	Genotype						
	1a	1b	2	3	4	5	6
Elbasvir/ grazoprevir	✓	✓			✓		
Ledipasvir/ sofosbuvir	✓	✓			✓	✓	✓
Sofosbuvir/ velpatasvir	✓	✓	✓	✓	✓	✓	✓
Glecaprevir/ pibrentasvir	✓	✓	✓	✓	✓	✓	✓

Pre-Treatment Workup

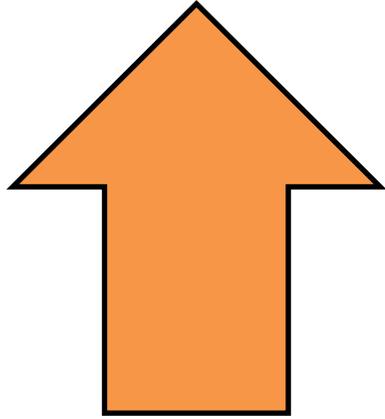


- FIB-4, Transient elastography, FibroSure, clinical, prior biopsy

- AASLD/IDSA guidance
- University of Liverpool drug interaction checker

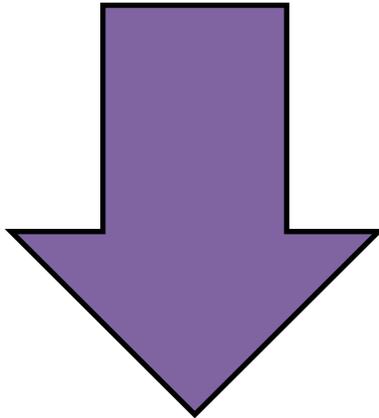
- Platelets, INR
- eGFR
- Hepatic Function Panel
- HCV RNA
- HIV Ag/Ab
- Hep Bs Ag
- bHCG (serum or urine pregnancy)

“Simplified Treatment”



Do use in:

- Treatment naïve
- Non cirrhotic patients



Do not use in:

- Known or suspected hepatocellular carcinoma
- Prior liver transplantation
- HBsAg positive
- Current pregnancy
- HIV positive

“Simplified Treatment” First-Line Agents



Glecaprevir (300mg)/
Pibrentasvir (120mg)
Mavyret



Sofosbuvir (400mg)/
Velpatasvir (100mg)
Epclusa

Factors to Consider in Initial Treatment

GLE/PIB:

- 8-week duration
- Three pills daily
- Taken with food
- Box

SOF/VEL:

- 12-week duration
- Single pill
- With or without food
- Bottle

Insurance Preference

Length of treatment

Pill burden

Packaging

Food Availability

On Treatment Monitoring

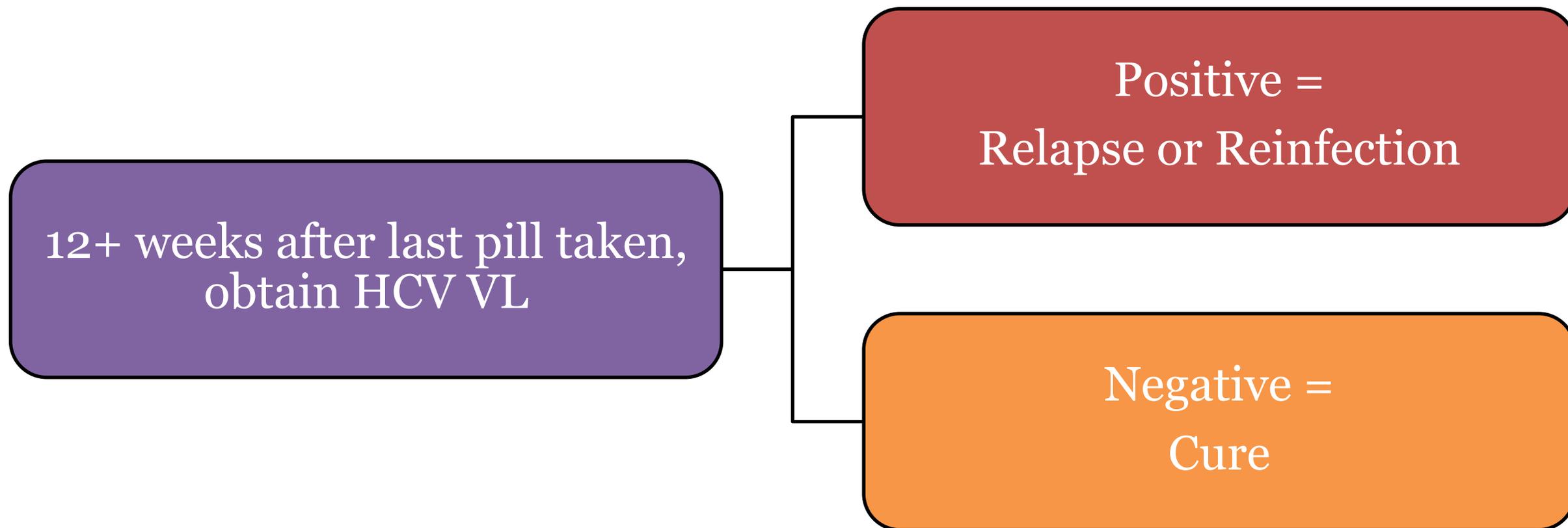
- 
- Check in in some way (phone, telemedicine, in person) at least once

- 
- Ask about adherence

- 
- Ask about common adverse events

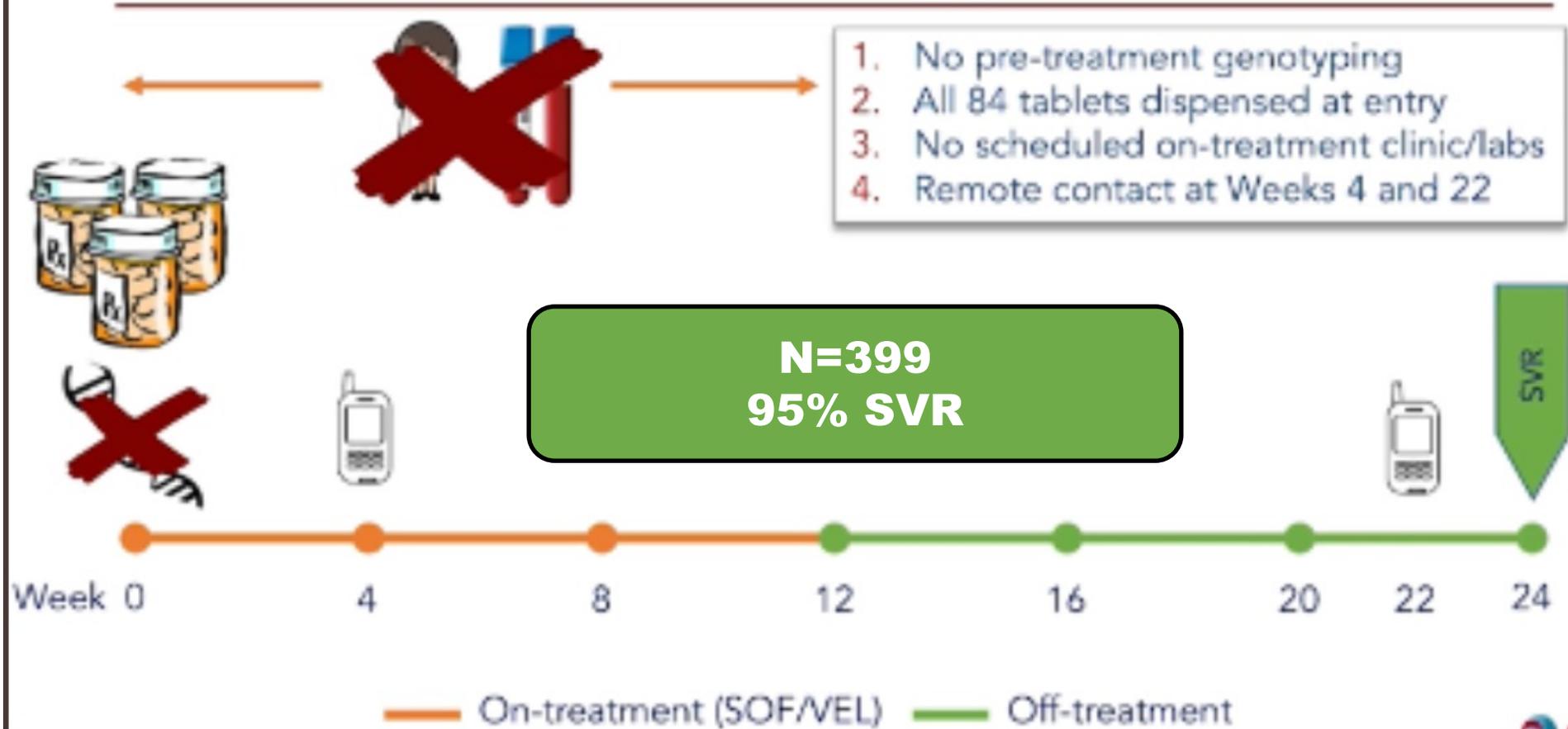
- 
- **NO LABS NEEDED** if everything is going smoothly

Assess Sustained Virologic Response (Cure)

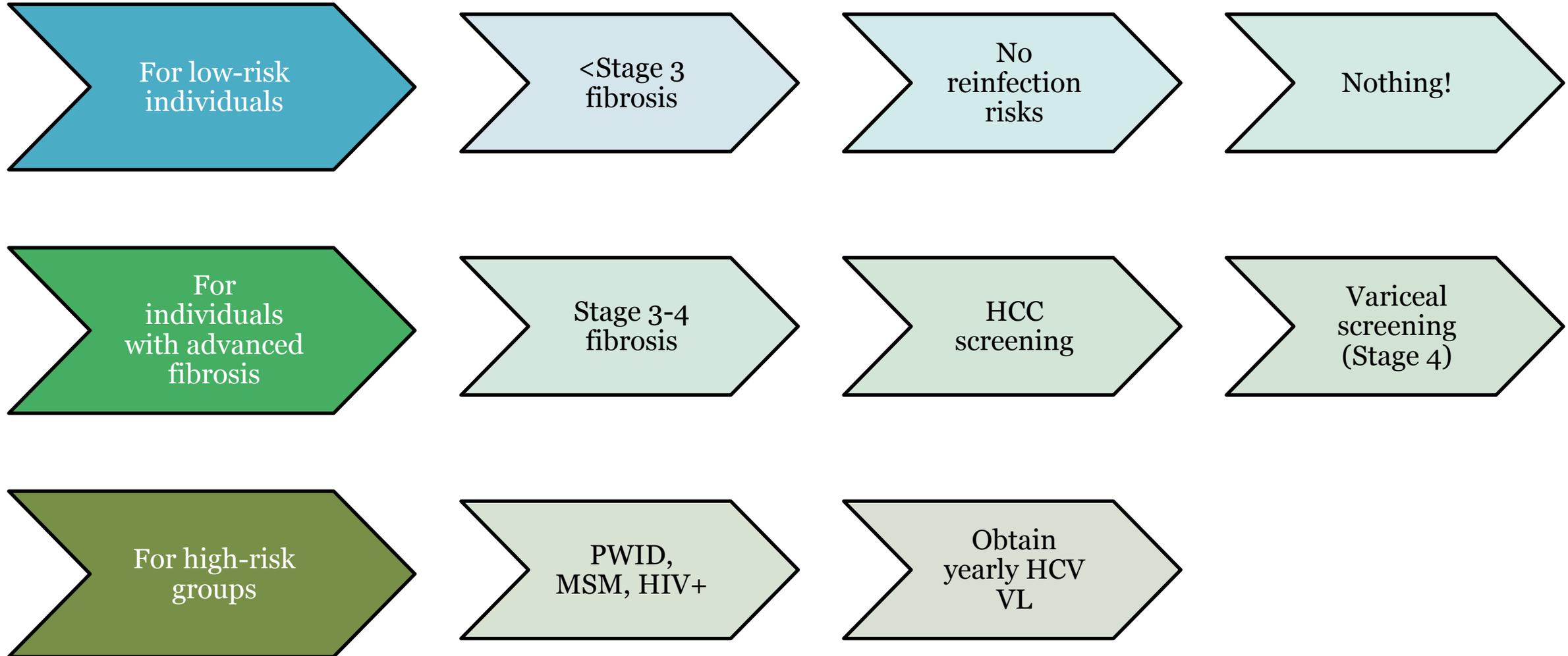


New Data: MINMON Study

The "MINMON" Approach



Post Treatment Monitoring After Cure



Non-Cure: Definitions

Treatment Failure (Relapse)

- Detectable VL at SVR, of same genotype
- Can be re-treated with alternative regimens

Reinfection

- Identified by a genotype switch
 - Can be treated as if initial infection

Non-Cure: Don't Worry!

Viral relapse will occur!

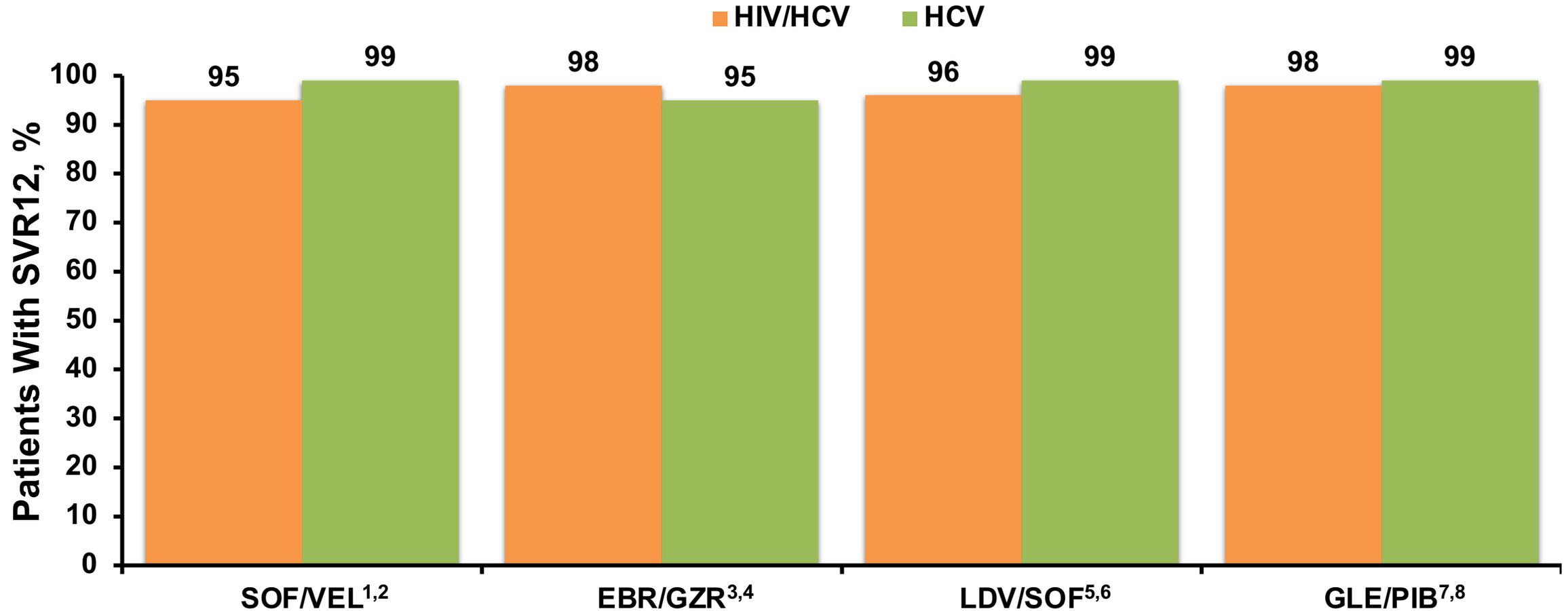
- >90% efficacy with re-treatment regimens
- Address the initial cause of relapse
 - Drug-drug interactions
 - Adherence
 - Life instability/challenges

Reinfection will occur!

- Sign you are in the right population
- Harm reduction is the key

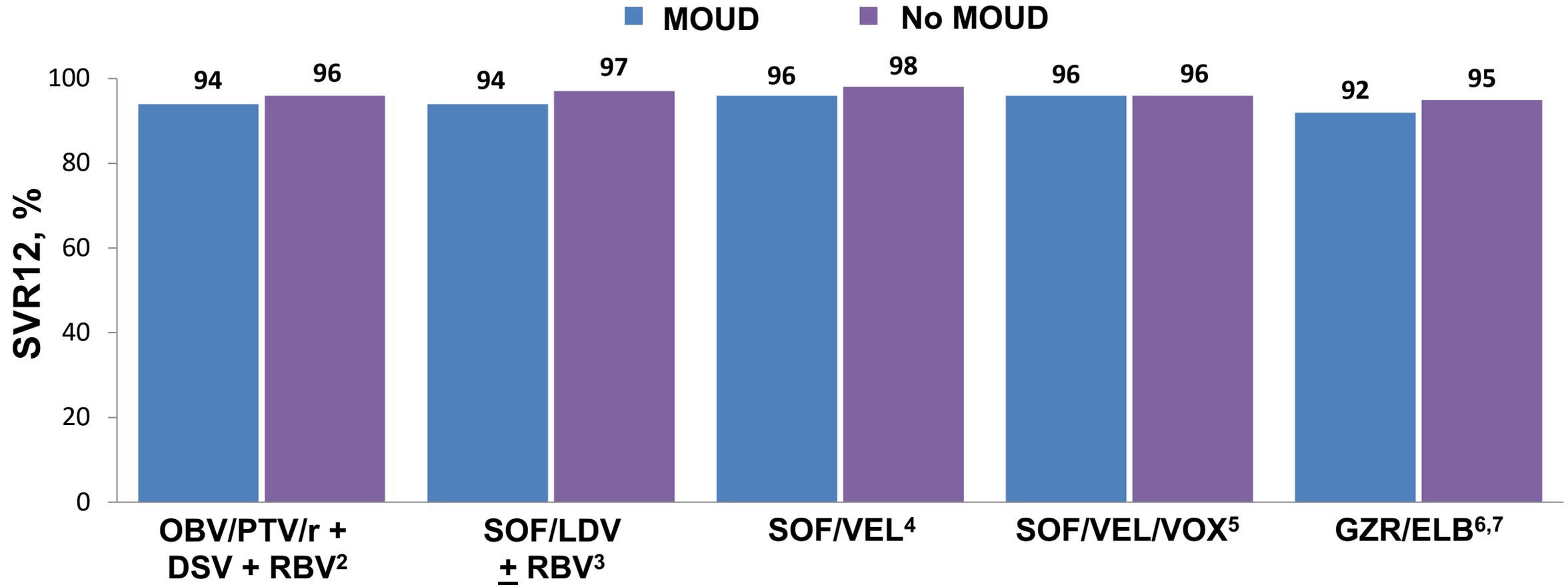
Treatment in “Special” Populations

HCV Cure in HIV/HCV Coinfection



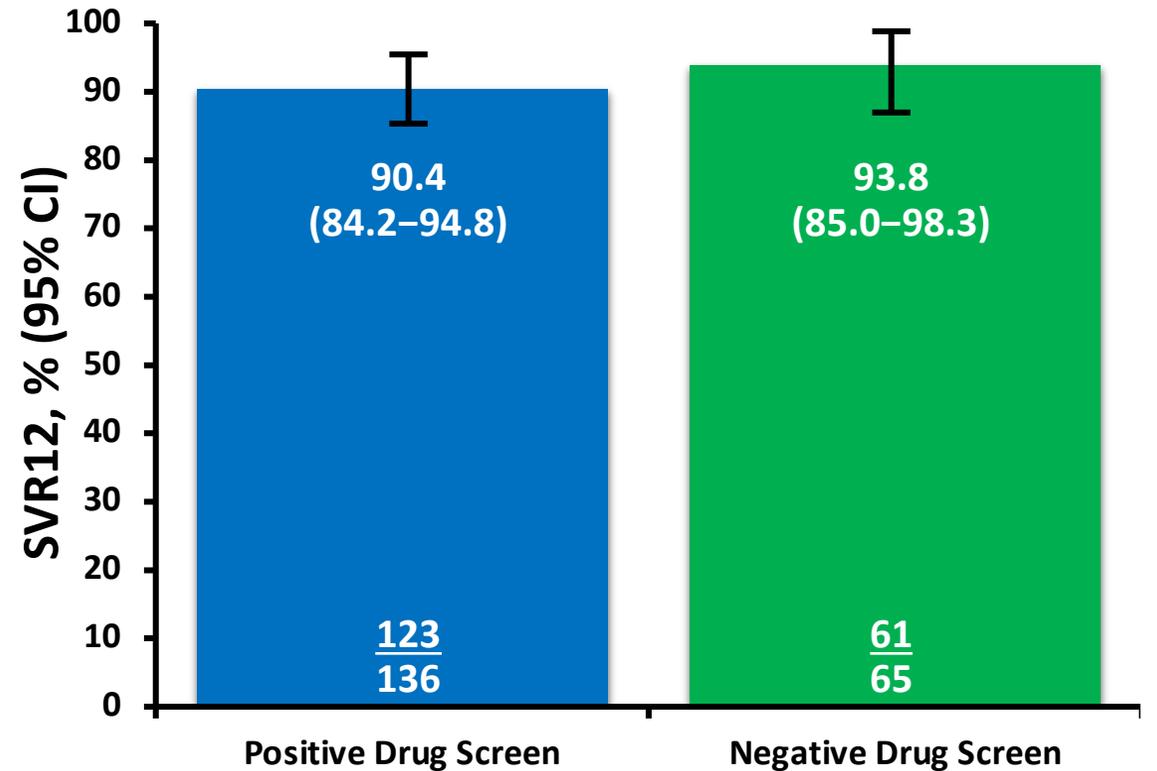
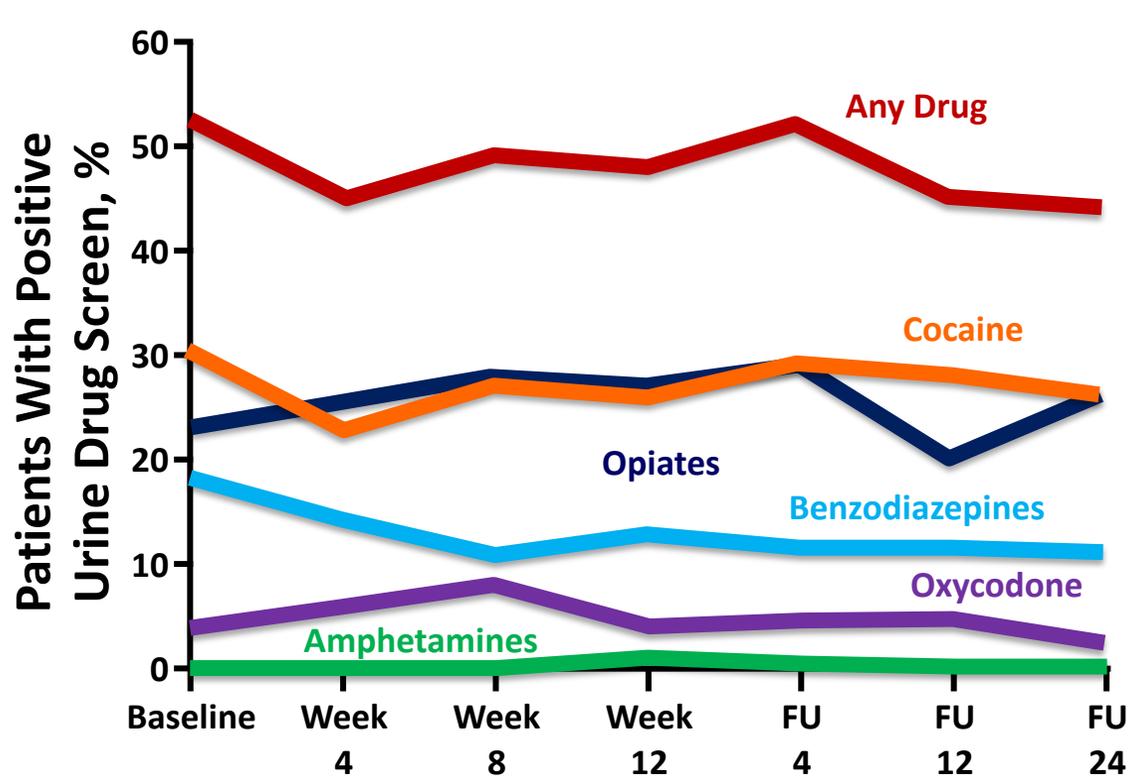
1. Wyles D, et al. *Clin Infect Dis*. 2017;65(1):6-12; 2. Feld JJ, et al. *N Engl J Med*. 2015;373(27):2599-2607; 3. Rockstroh JK, et al. *Clin Infect Dis*. 2018;67(7):1010-1017; 4. Zeuzem S, et al. *Ann Intern Med*. 2015;163(1):1-13; 5. Naggie S, et al. *N Engl J Med*. 2015;373(8):705-713; 6. Afdhal N, et al. *N Engl J Med*. 2014;370(20):1889-1898; 7. Rockstroh JK, et al. *Clin Infect Dis*. 2018;14;67(7):1010-1017; 8. Asselah T, et al. *Clin Gastroenterol Hepatol*. 2018;16(3):417-426.

HCV Cure in People with OUD on MOUD



1. Grebely J et al. *Nat Rev Gastroenterol Hepatol*. 2017;14:641-651. 2. Grebely J. 2017 International Liver Congress (ILC 2017). FRI-236. 3. Grebely J et al. *Clin Infect Dis*. 2016;63:1405-1411. 4. Grebely J et al. *Clin Infect Dis*. 2016;63:1479-1481. 5. Grebely J. ILC 2017. FRI-235. 6. Zeuzem S et al. *Ann Intern Med*. 2015;163:1-13. 7. Dore GJ et al. *Ann Intern Med*. 2016;165:625-634.

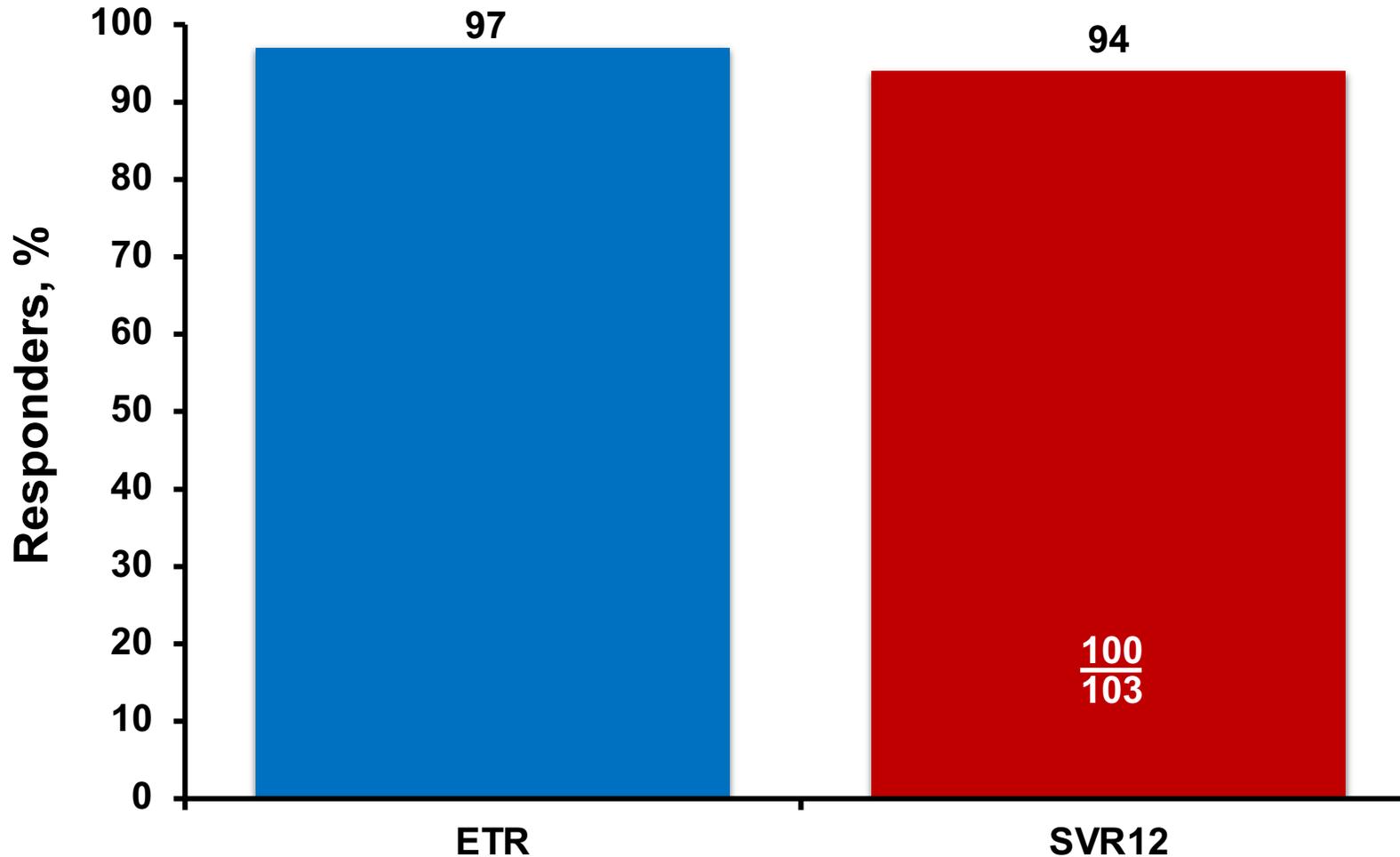
HCV Cure in People Who Use Drugs (C-EDGE Co-STAR)



1. Rockstroh JK. European Association for the Study of the Liver. The International Liver Congress™ – EASL 2017. April 19-23, 2017; Amsterdam, The Netherlands;

2. Dore GJ, et al. *Ann Intern Med.* 2016;165(9):625-634.

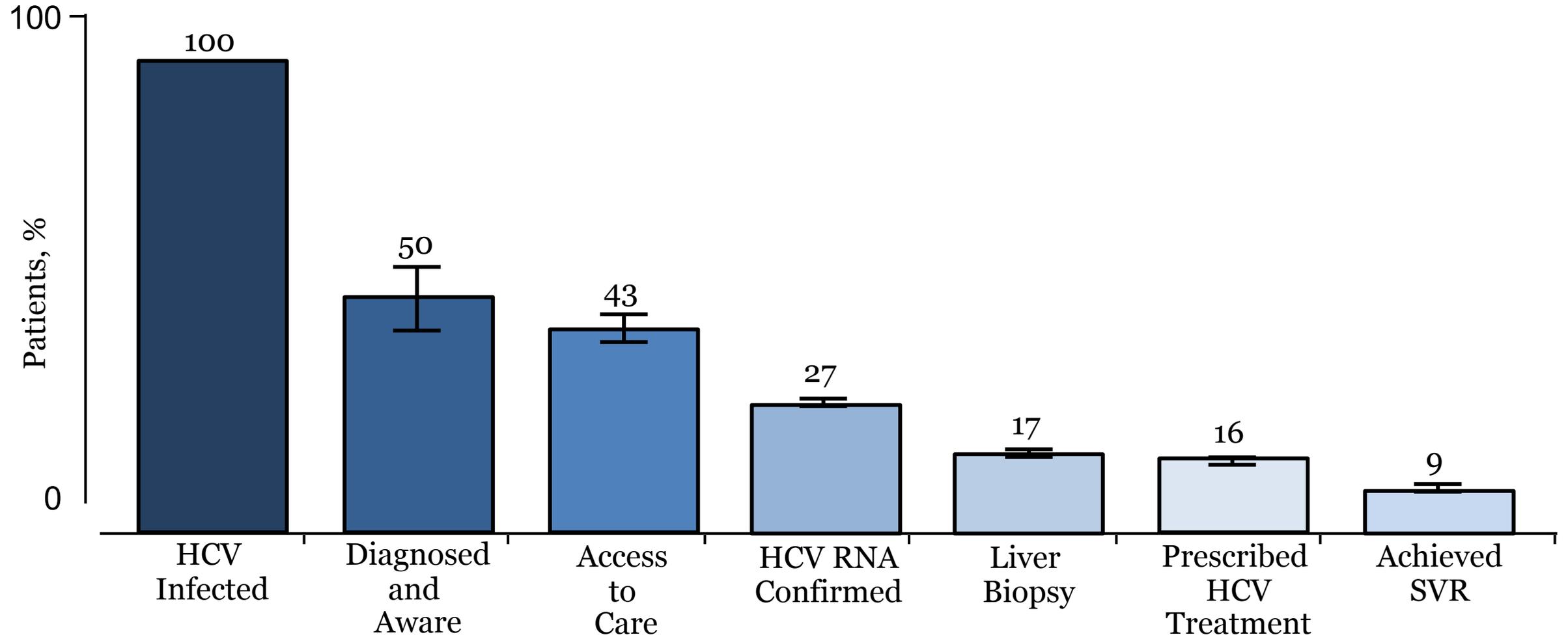
HCV Cure in People Who Inject Opioids (SIMPLIFY)



SOF/VEL x 12 Weeks

Challenges and Strategies in HCV Treatment

HCV Care Continuum in the United States



HCV Treatment Barriers

Structural

- Insufficient number of providers who can treat HCV
- Insufficient resources for case managers/social workers
- Segregated service delivery
- Cost of medications

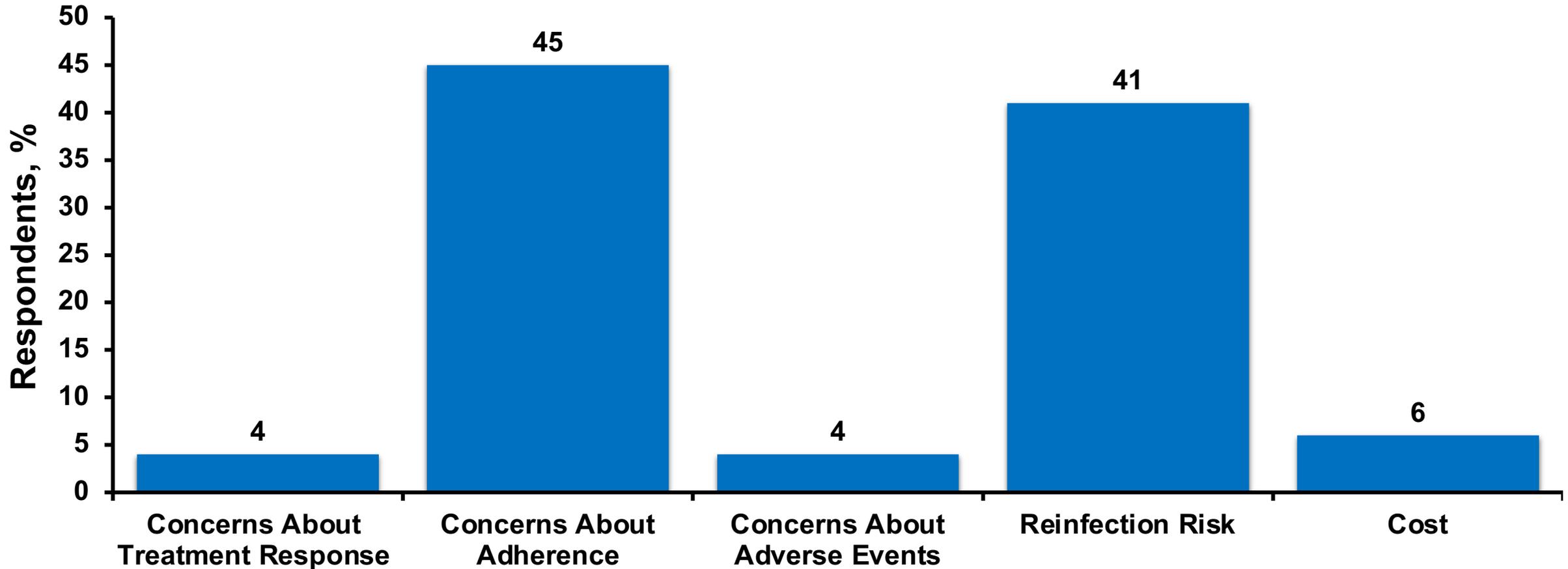
Provider

- Provider knowledge of treatment guidelines
- Provider knowledge of harm reduction
- Patient–provider interactions
- Provider reticence to treat PWID

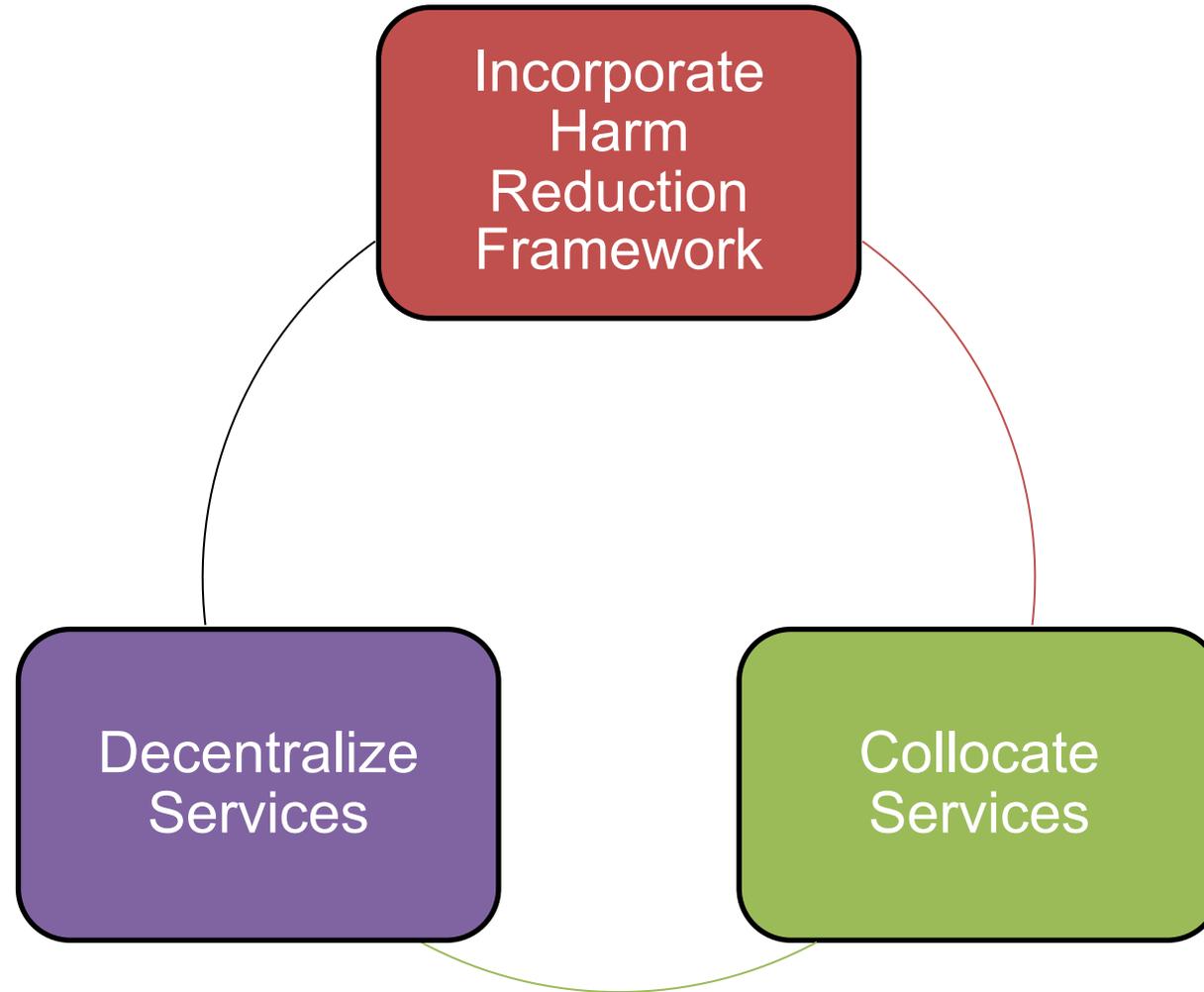
Patient

- Limited knowledge about long-term consequences of HCV
- Asymptomatic disease
- Fear of side effects
- Competing health and social priorities

Clinicians' Assumptions Contribute to Barriers to Care



Principles to Improve the HCV Care Continuum



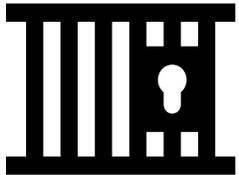
Addressing Stigma and Discrimination



Disregard for the disease model of addiction



Misconceptions about MOUD



Criminalization of substance use disorder

Harm Reduction Framework



Syringe services programs



Shelters and residential drug treatment programs



Streets, encampments, and freeway overpasses



Methadone clinics/ opiate treatment programs

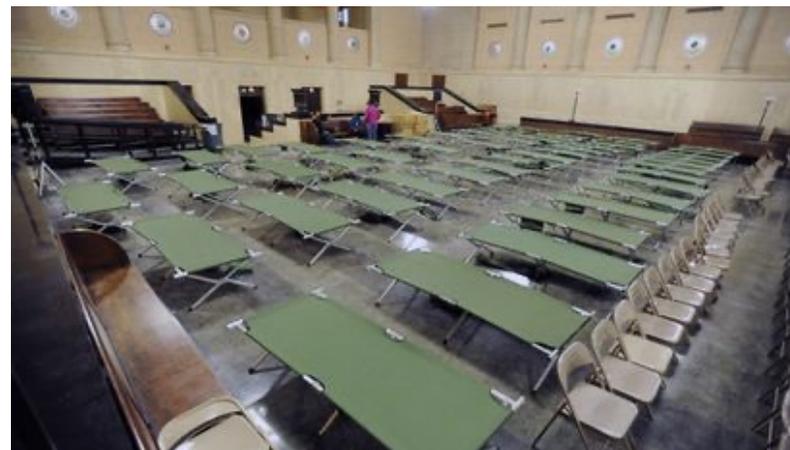
Harm Reduction Framework



**Multiple phone numbers
(cell, friends, family)**



Hangouts, sleeping spots



Programs, shelters, food pantries



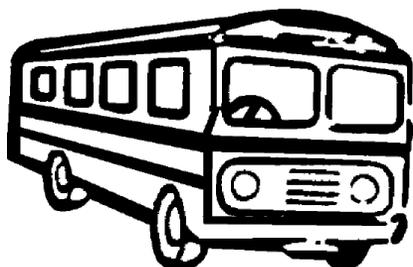
**Social media accounts
(if OK to contact)**

Collocate Services: Linkage and Retention

Pay-as-you-go phones



Appointment reminders and multiple opportunities for reengagement



Transportation, accompaniment, and advocacy

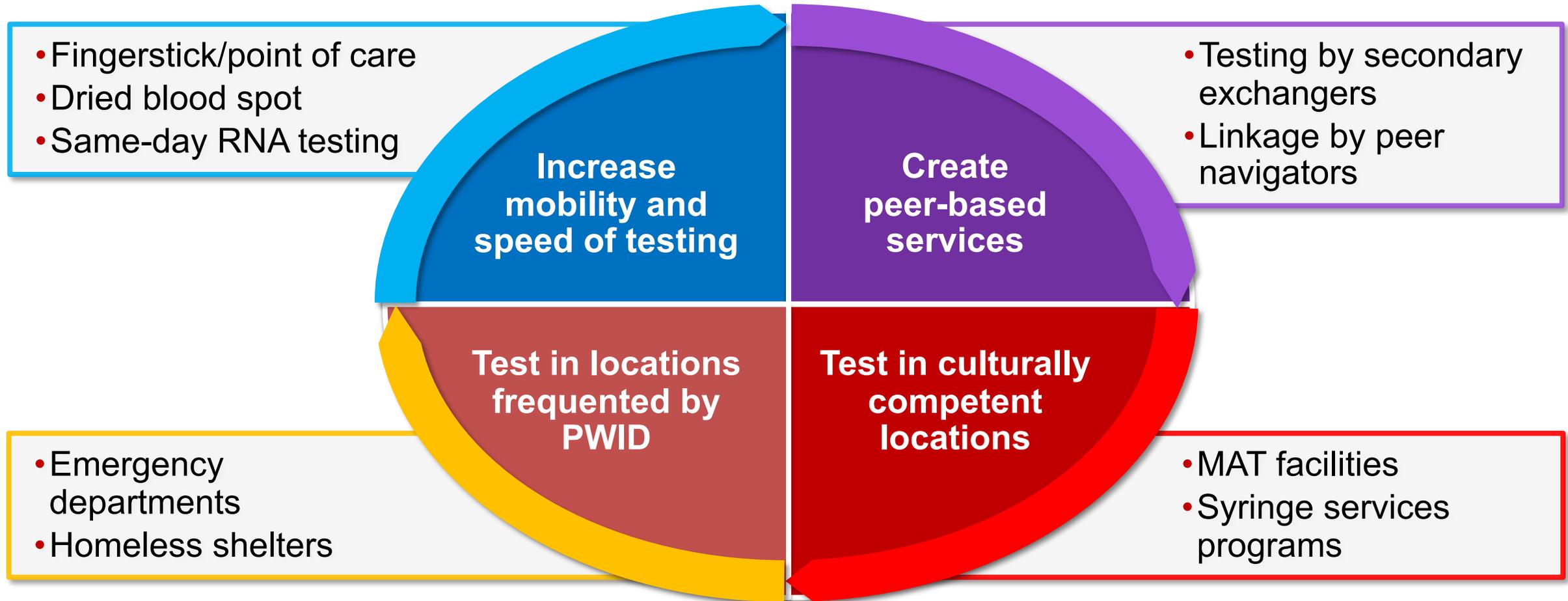
Help getting IDs



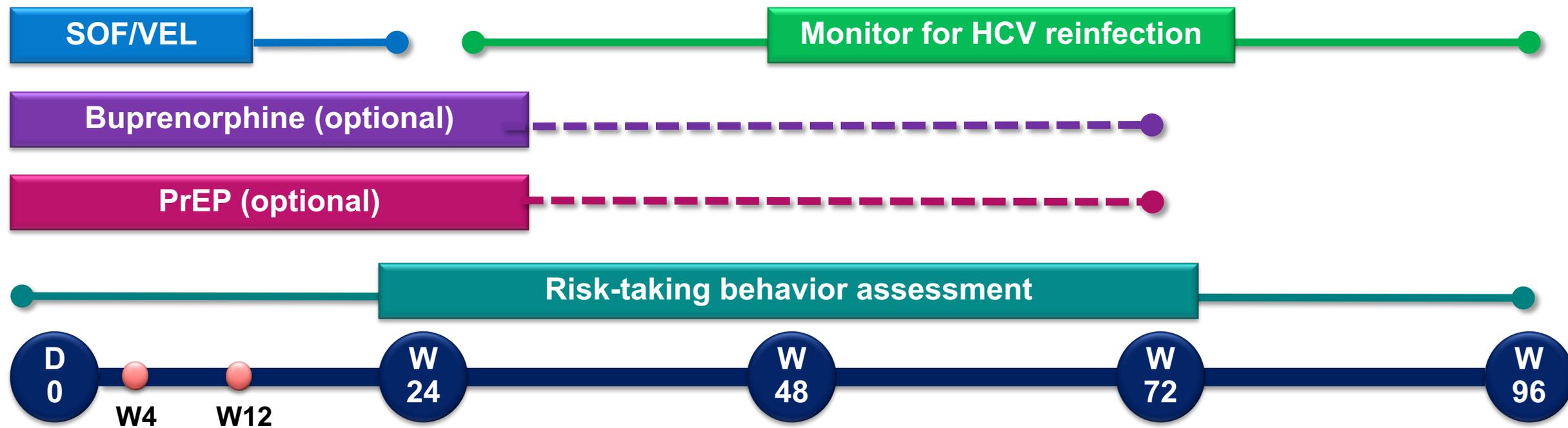
Benefits and insurance enrollment



Collocate Services: Testing



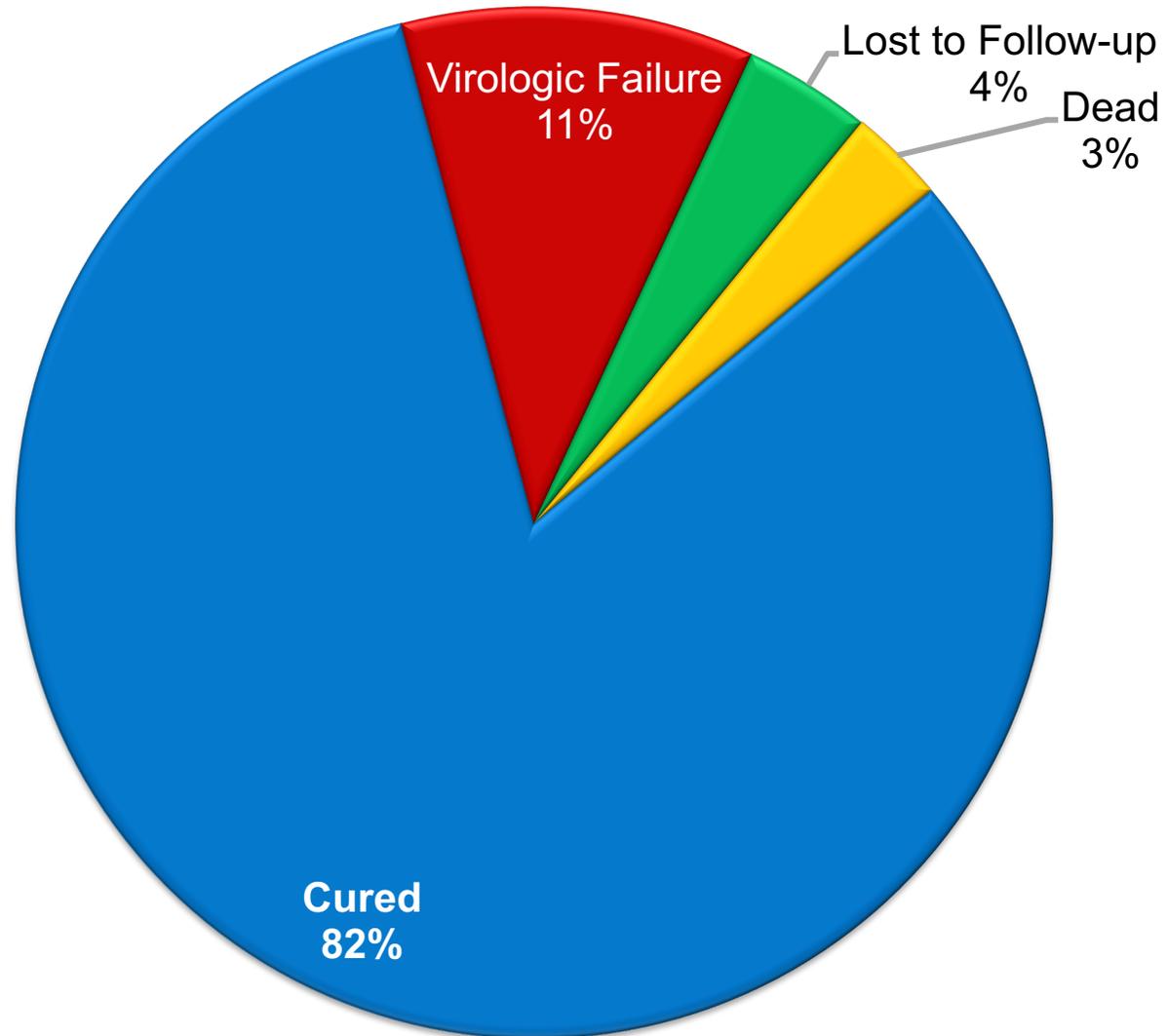
Collocate Services: Treatment ANCHOR Study



D, day; HIV, human immunodeficiency virus; PrEP, HIV preexposure prophylaxis; OAT, opioid agonist therapy; PWID, people who inject drugs; SOF, sofosbuvir; SVR12, sustained virologic response at ≥ 12 weeks after end of treatment; VEL, velpatasvir; W, week.

Rosenthal ES, et al. *Clin Infect Dis*. 2020 (Epub ahead of print).

HCV Cure in ANCHOR Study



OAT Uptake and Impact on HCV Cure in ANCHOR

OAT Uptake

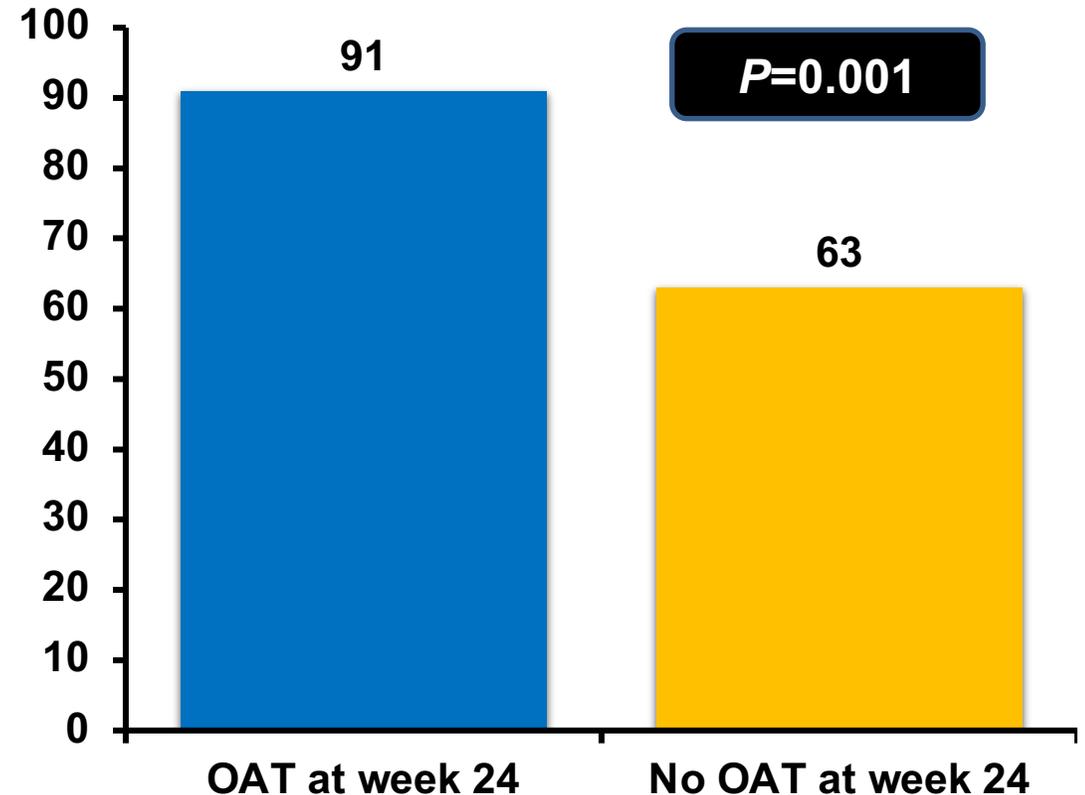
100 PWID with OUD started on HCV treatment

67 (67%) patients not on OAT at baseline

53 (79%) started on OAT

37 (70%) retained on OAT at week 24

Impact of OAT on SVR at Week 24



Decentralize Treatment

Providers



Task shifting to

- Specialists
- Drug and alcohol specialists
- Primary care providers
- Nurses
- Pharmacists
- Peer support workers
- Others

Settings



Sexual
health
clinics



SSP



FQHCs



Drug and
alcohol
clinics



Primary
care clinics



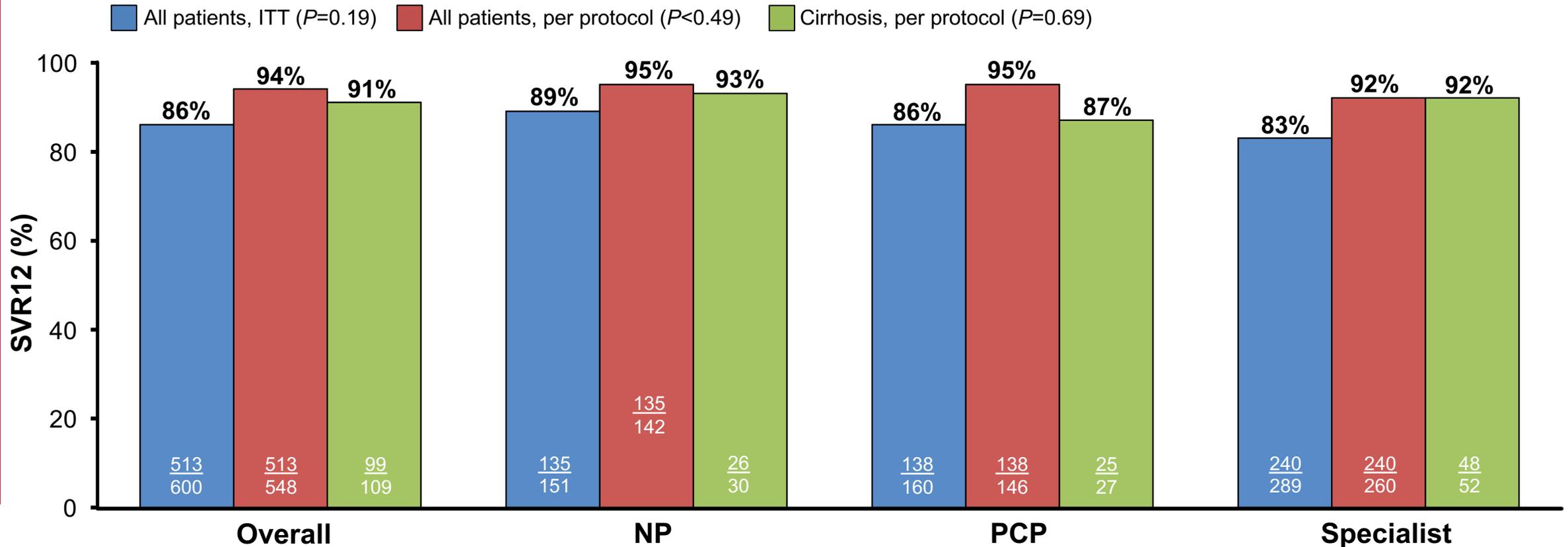
Pharmacies



Prisons

Decentralize Treatment: ASCEND Study

No difference in SVR of HCV treatment provided by NP, PCP, and specialist providers after a targeted 3-hour training



Key Points

- Hepatitis C incidence is rising due to the epidemic of opioid use disorder
- All adults 18+ should be screened for HCV
- Initial treatment of HCV in non-cirrhotic patients is straightforward
- Primary care providers can and should treat HCV
- Improving care for patients with OUD and HCV requires a harm reduction framework, collocation, and decentralization
- The syndemic framework of care will improve outcomes across diseases

Thank You!

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