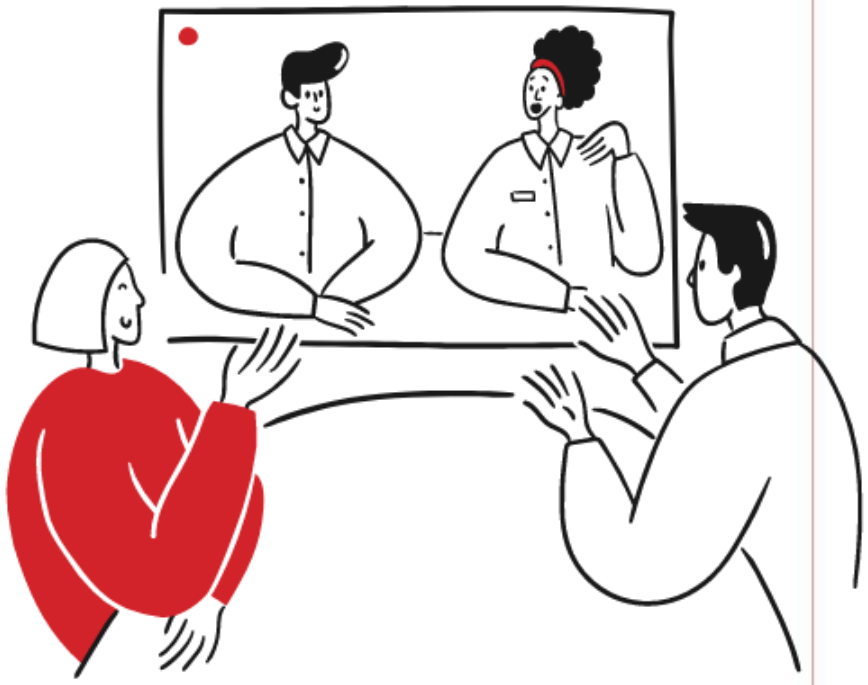
Housekeeping

- Welcome!
- Let’s get to know each other - Take a moment to introduce yourself in the chat!
- **Please change your name to your full First and Last Name**
- **Please add your Health Center/Organization Name next to your name!**



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CLINICAL EDUCATION INITIATIVE

Hepatitis C and HIV Coinfection

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Mount Sinai *Institute for Advanced Medicine*

CLINICAL EDUCATION INITIATIVE
NEW YORK STATE DEPARTMENT OF HEALTH AIDS INSTITUTE

Financial Relationships of Speaker(s)

The following presenter(s) and other(s) have either indicated financial relationships with ineligible companies or that no financial relationships exist. An *ineligible company* is any entity whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients. ACCME Standards for Integrity and Independence in Accredited Continuing Education

Daniel Fierer

Merck | Researcher; funds paid to institution

Gilead Sciences | Researcher; funds paid to institution

All of the relevant financial relationship(s) listed have been mitigated.

Learning Objectives

1. Describe the epidemiology of hepatitis C among people living with HIV
2. Discuss strategies to prevent hepatitis C among people living with HIV
3. Describe the clinical management of hepatitis C and HIV coinfection

Syndemic: HIV, Hepatitis C and Substance Use Disorder

Two or more diseases states that *adversely interact* with each other, *negatively affecting* the mutual course of *each disease trajectory* and enhancing *vulnerability*.

Editorial – The Lancet. Vol 389 March 4, 2017

HIV/HCV Coinfection: Common but Unhelpful Terminology

- ~25% of people with HIV also have/had HCV, due to shared routes of transmission
- The route that everyone was aware of was through injecting drugs
  - » By this route, HCV is more infectious, hence acquired first, resulting in a high HCV prevalence of 62-80%
- But subsequently, people were shown to acquire HCV sexually, through semen in the rectum
  - » By this route, HCV is less infectious, hence acquired after HIV, and leading to lower HCV prevalence

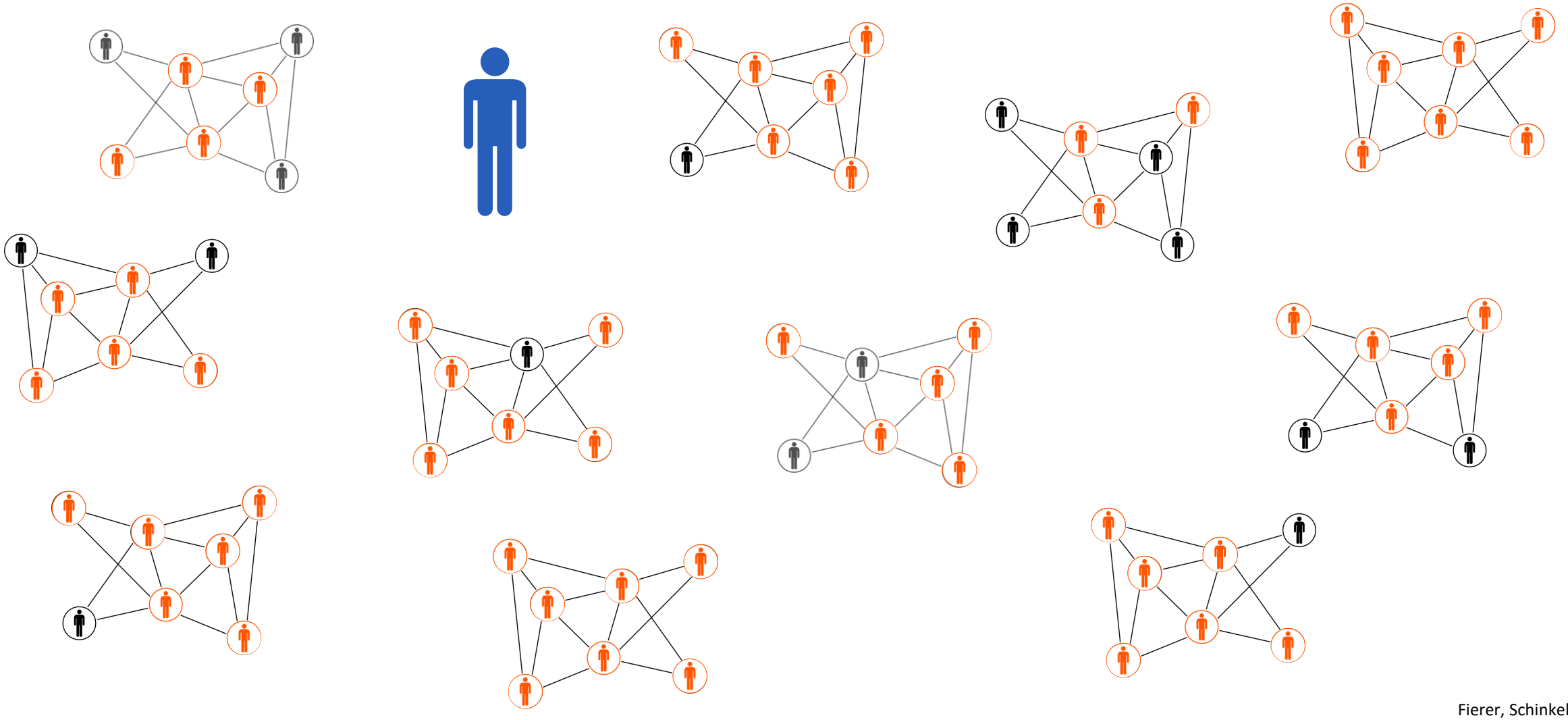
Bosh et al. Epidemiol Infect. 2018 May; 146(7): 920–930
Fierer et al. , MMWR 2011 Jul; 60 (28): 945-950
Fierer, JID 2016 Oct; 214:1134-1136

Patterns of Hepatitis C in Networks

- People who inject drugs (PWID) encounter a very high HCV prevalence when they initiate injecting
  - » PWID become HCV-infected at a very high (primary) rate, ~23/100 person years
- After cure, and with medication-assisted recovery: Reinfection rate over an order of magnitude *lower* (1.4/100 person years)
  - » Despite the same very high HCV prevalence in network

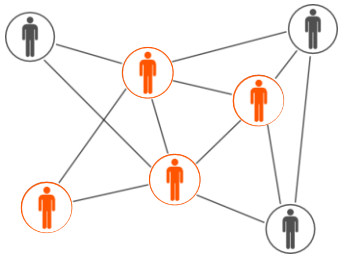
Morris et al., CID 2017; Hajarizadeh et al., J Hepatol 2020; Gabai et al., Sex Transm Infect 2020; Fierer et al., CID 2024

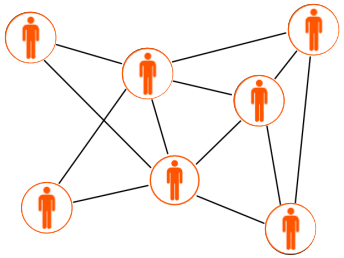
Injecting Networks in People Who Inject Drugs

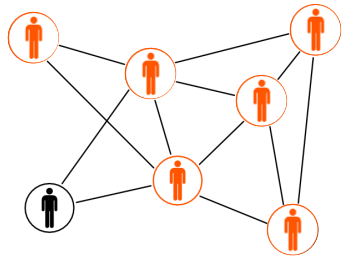


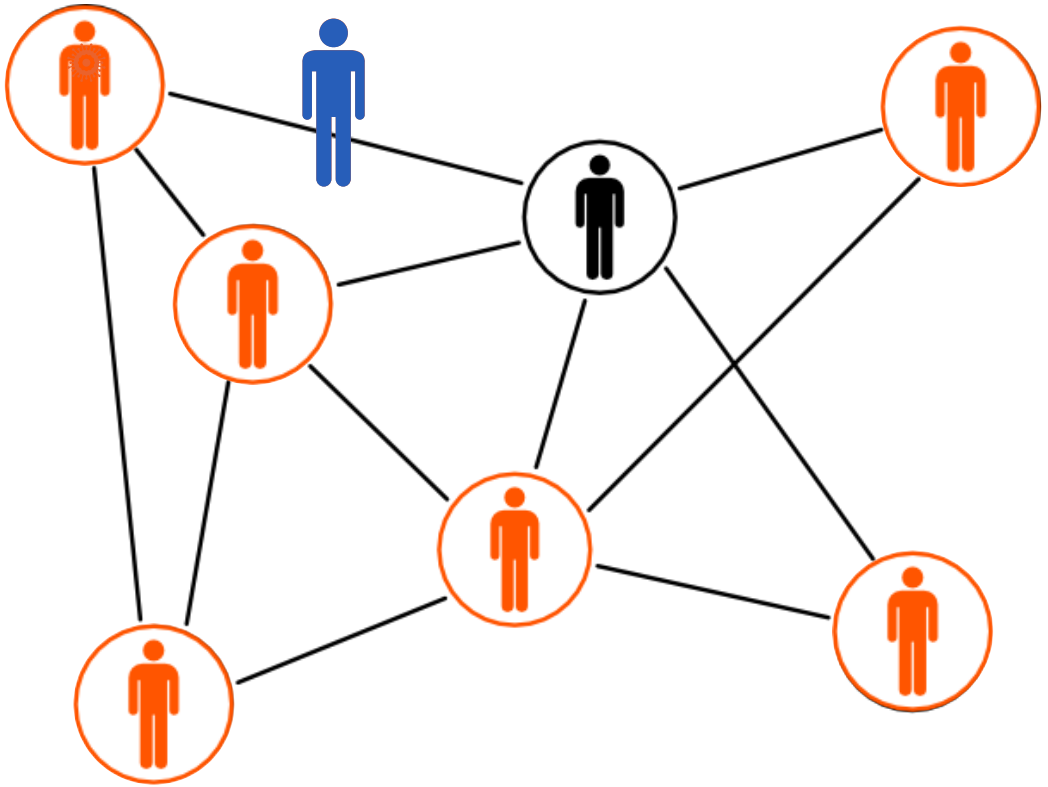
Fierer, Schinkel, JID 2023

Injecting Networks in People Who Inject Drugs





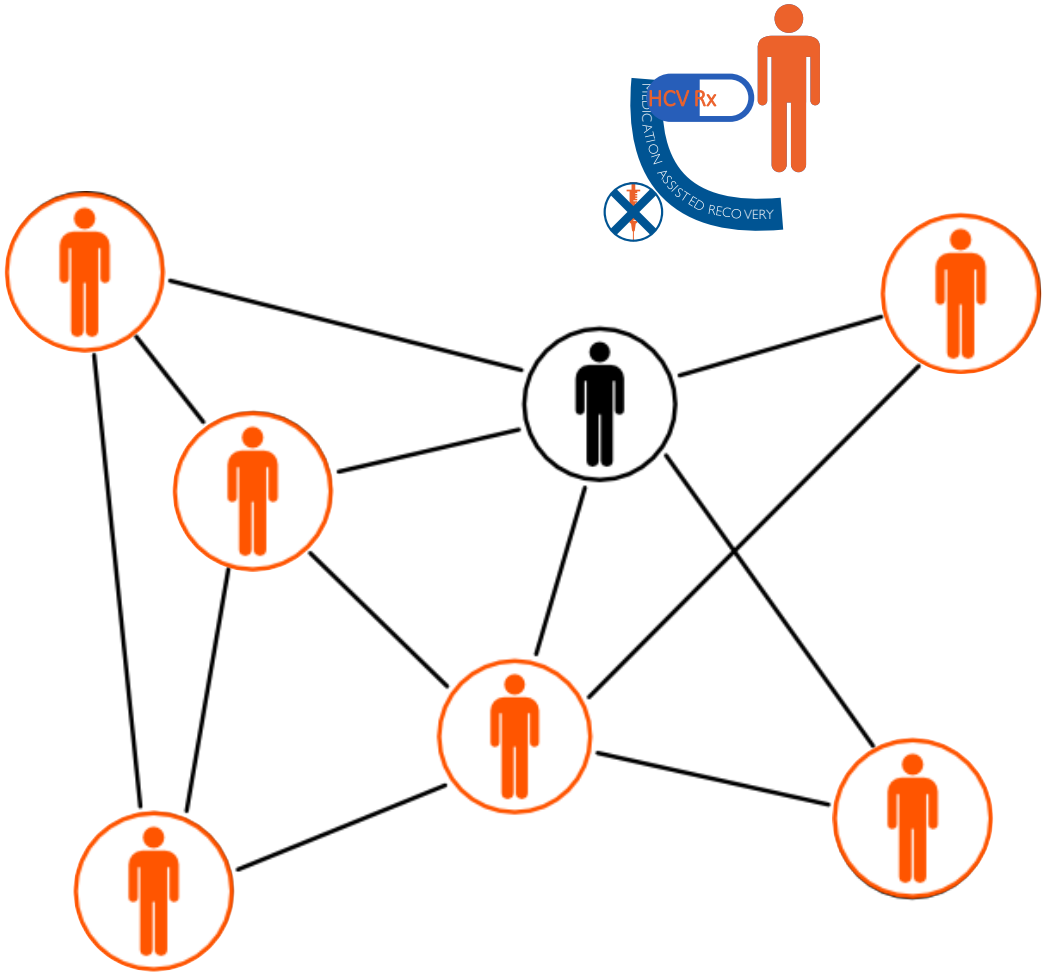


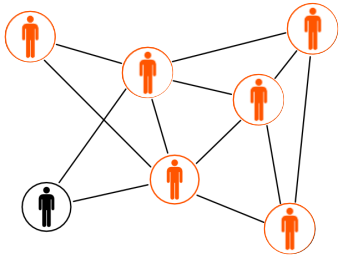


Fierer, Schinkel, JID 2023

Injecting Networks in People Who Inject Drugs

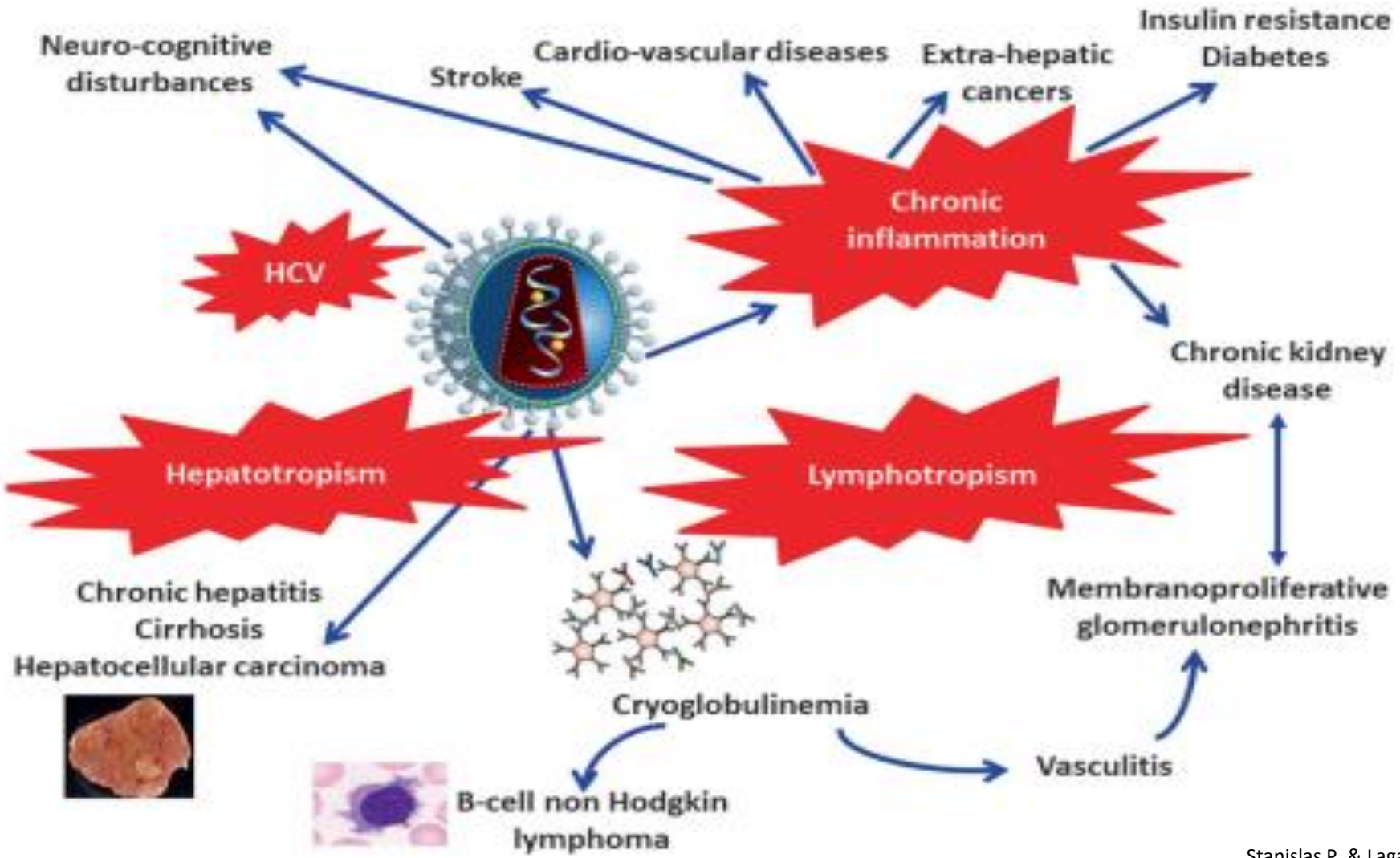
- Key component of medication-assisted recovery that leads to lower HCV reinfection: Desire to decrease injection use, leading to:
  - » Opioid substitution
  - » Clean injection equipment





Fierer, Schinkel, JID 2023

Hepatitis C is A Multisystem Disease



Stanislas P. & Lagaye S.; Genes & Immunity (2019) 20:436–446

HIV/HCV Coinfection: Clinical Consequences

- Tolerance of antiviral agents is poorer in patients with chronic HCV, with greater risk of hepatotoxicity
- Coinfected individuals historically (i.e., early ART era) had higher rate of progression to cirrhosis than those with acute HCV alone
  - » Control of HIV viremia and higher CD4 counts with more modern ART seem to abrogate this effect, however
- Good news: Cure of HCV associated with regression of liver fibrosis

Cooper et al. Can J Infect Dis 2001:12 (3): 157-163
Soriano, V. et al. Antiviral Research 2010 85(1): 303 – 315
Brau N, et al. J Hepatol 2006; 44:47–55.

Preventing HCV in People with HIV

- Two main approaches: Harm reduction and treatment as prevention
- But main risk groups have very different issues
- Harm reduction programs work for people who inject drugs:
  - » Include syringe services and opioid substitution, which essentially eliminated HIV transmission among people who inject drugs, have reduced but not eliminated transmission of the hardier and more infectious HCV
  - » There are no such interventions for sexual transmission, which is not considered a “harm” to reduce
- Treatment as prevention has not been shown to work among people who inject drugs

Bosh et al. Epidemiol Infect. 2018 May; 146(7): 920–930
Factor, Fierer. J Viral Hepat. 2022 Jun; 29(2):1048-1049
Fierer et al. CID 2024 Dec; 79(6):1420-1427

Preventing HCV in People with HIV: Operational Considerations

- Automated electronic medical record orders can provide testing reminders as per published guidelines and help remove barriers to patient screening, testing and vaccination
- Reflex testing automatically from HCV antibody to viral load
- Health departments and clinic systems should consider collocating and integrating HIV and viral hepatitis testing, prevention and treatment services to reduce barriers in access to care for HIV, viral hepatitis or both

Bosh et al. Epidemiol Infect. 2018 May ; 146(7): 920–930.

https://www.idsociety.org/globalassets/idsa/practice-guidelines/hcv/ciad319.pdf

Clinical Infectious Diseases

IDSA GUIDELINES

Hepatitis C Guidance 2023 Update: American Association for the Study of Liver Diseases– Infectious Diseases Society of America Recommendations for Testing, Managing, and Treating Hepatitis C Virus Infection

Debika Bhattacharya,[1] Andrew Aronsohn,[2] Jennifer Price,[3] and Vincent Lo Re III[4]; the American Association for the Study of Liver Diseases–Infectious Diseases Society of America HCV Guidance Panel[a]

Concordant with NYSDOH AIDS Institute Clinical Guidelines:
https://www.hivguidelines.org/collection/hepatitis-care/

Clinical Infectious Diseases

IDSA GUIDELINES

Hepatitis C Guidance 2023 Update: American Association for the Study of Liver Diseases– Infectious Diseases Society of America Recommendations for Testing, Managing, and Treating Hepatitis C Virus Infection

Debika Bhattacharya,[1,©] Andrew Aronsohn,[2] Jennifer Price,[3] and Vincent Lo Re III[4]; the American Association for the Study of Liver Diseases–Infectious Diseases Society of America HCV Guidance Panel[a]

- Universal HCV screening is recommended.
- The simplified HCV treatment algorithm now includes persons living with HIV.
- A new algorithm for incomplete treatment adherence is included with a key recommendation for persons who have missed ≤7 days of DAA therapy.
- HCV treatment is recommended for infected persons residing in jail or prison.
- Emerging data highlight the safety and efficacy of HCV DAA treatment in persons who have undergone solid organ transplantation.

Figure 1. Key points in HCV guidance summary. Abbreviations: DAA, direct-acting antiviral; HCV, hepatitis C virus; HIV, human immunodeficiency virus.

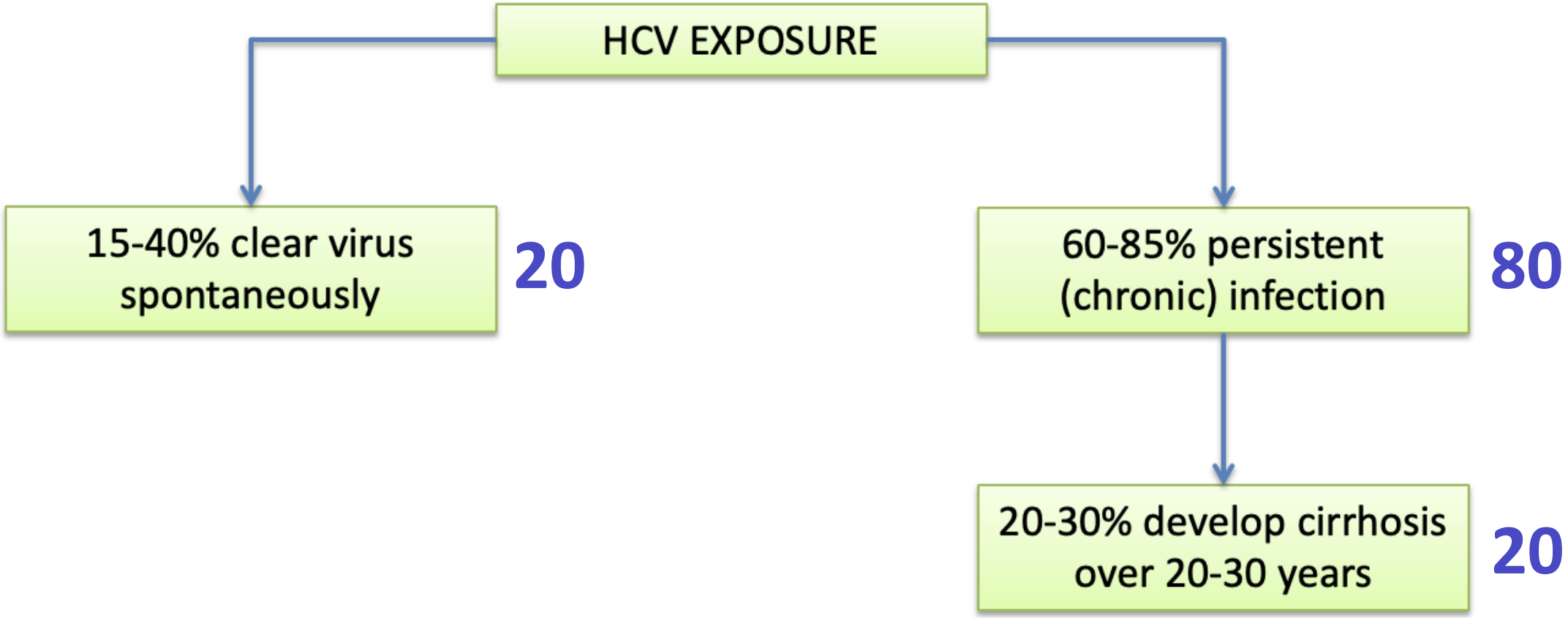
https://www.idsociety.org/globalassets/idsa/practice-guidelines/hcv/ciad319.pdf

Whom do we screen for HCV *(for everyone, not just HIV)*?

Recommendations for One-Time Hepatitis C Testing	
RECOMMENDED	RATING
One-time, routine, opt out HCV testing is recommended for all individuals aged 18 years or older.	I, B
One-time HCV testing should be performed for all persons less than 18 years old with activities, exposures, or conditions or circumstances associated with an increased risk of HCV infection (see below).	I, B
Prenatal HCV testing as part of routine prenatal care is recommended with each pregnancy.	I, B
Periodic repeat HCV testing should be offered to all persons with activities, exposures, or conditions or circumstances associated with an increased risk of HCV exposure (see below).	IIa, C
Annual HCV testing is recommended for all persons at risk for reinfection	IIa, C

AASLD-IDSA. HCV testing and linkage to care. Recommendations for testing, managing, and treating hepatitis C: http://www.hcvguidelines.org/full-report/hcv-testing-and-linkage-care

Natural History of HCV Infection: Complicates Screening and Diagnosis



Puoti et al. Hepatology 1992, MMWR 47 1998, Poynard et al. Lancet 1997

HCV Screening and Diagnosis: How do we test?

Antibody Testing (EIA, enzyme immunoassay)

- Detected in new, chronic and resolved infections (*TELLS IF EVER INFECTED, NEED CONFIRMATORY TEST FOR VIRAL LOAD/RNA*)
- Caveat: May be negative in early HCV infection

Confirmatory method necessary for all Ab+ tests – HCV PCR should be done as part of “reflex” testing

Rapid HCV Antibody Testing

- Fingerstick or venipuncture whole blood

Rapid Hepatitis C Testing

One FDA-approved Brand in the US

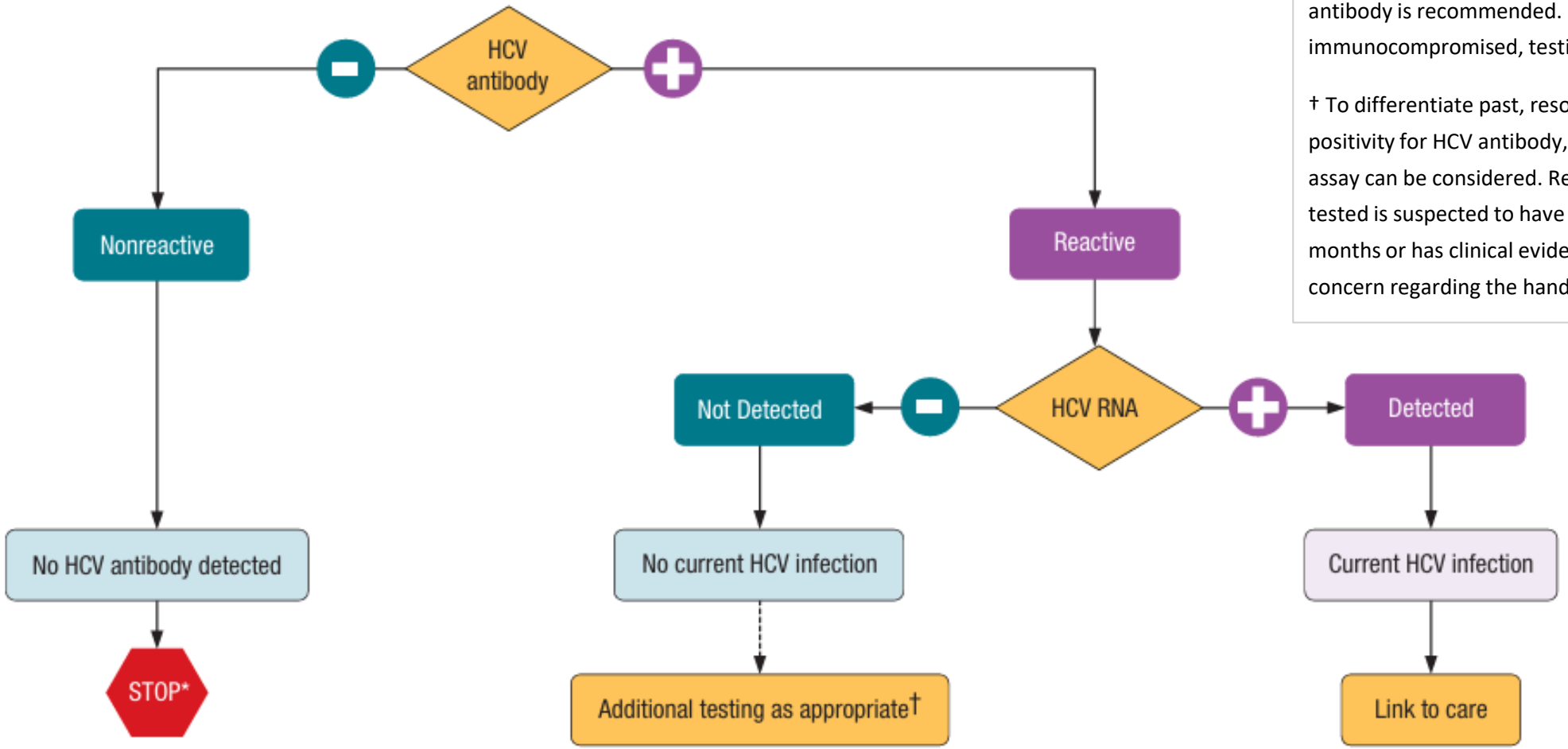
- Fingerstick or venipuncture whole blood
- Antibody test

  - **Screening** Test
  - >98% sensitivity for Ab, but does not diagnose active infection (need VL confirmation)
  - Results in 20 minutes

For Use in Individuals 15 or Older

- Persons with signs or symptoms of hepatitis
- Persons at risk for hepatitis C infection
- **NOT** for use with women known to be pregnant

Recommended Testing Sequence for Identifying Current HCV Infection (CDC)



* 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.

https://www.cdc.gov/hepatitis-c/media/pdfs/hcv_flow.pdf

Geographical HIV and HCV Workforce Differences

- **Limited general and specialty care is an immense challenge in rural areas**
- ~20% of Americans live in rural areas, yet fewer than 10% of physicians work there
- 39.8 physicians/100K population for rural areas; 53.5 for urban areas
- Health Professional Shortage Areas (HPSA) in Dec 2019: 63% are in entirely rural and 6% in partially rural areas; similar for primary care, mental health, and dental

https://www.commonwealthfund.org/publications/newsletter-article/2017/mar/focus-reimagining-rural-health-care | Designated Health Professional Shortage Areas Statistics - https://data.hrsa.gov/

A Workforce in Crisis

- The HIV workforce in the US is in decline and crisis
- Between 2010 and 2015, 5% decline in HIV providers nationally, despite a 14% increase in need
- 2016 modeling study showed:
  - » 100,000 new patients would need care by 2019, with capacity for just 65,000 more
  - » 4% of HIV providers in private practice and 11% of HIV providers at Ryan White HIV/AIDS Program (RWHAP) clinics planned to leave HIV practice within 5 years

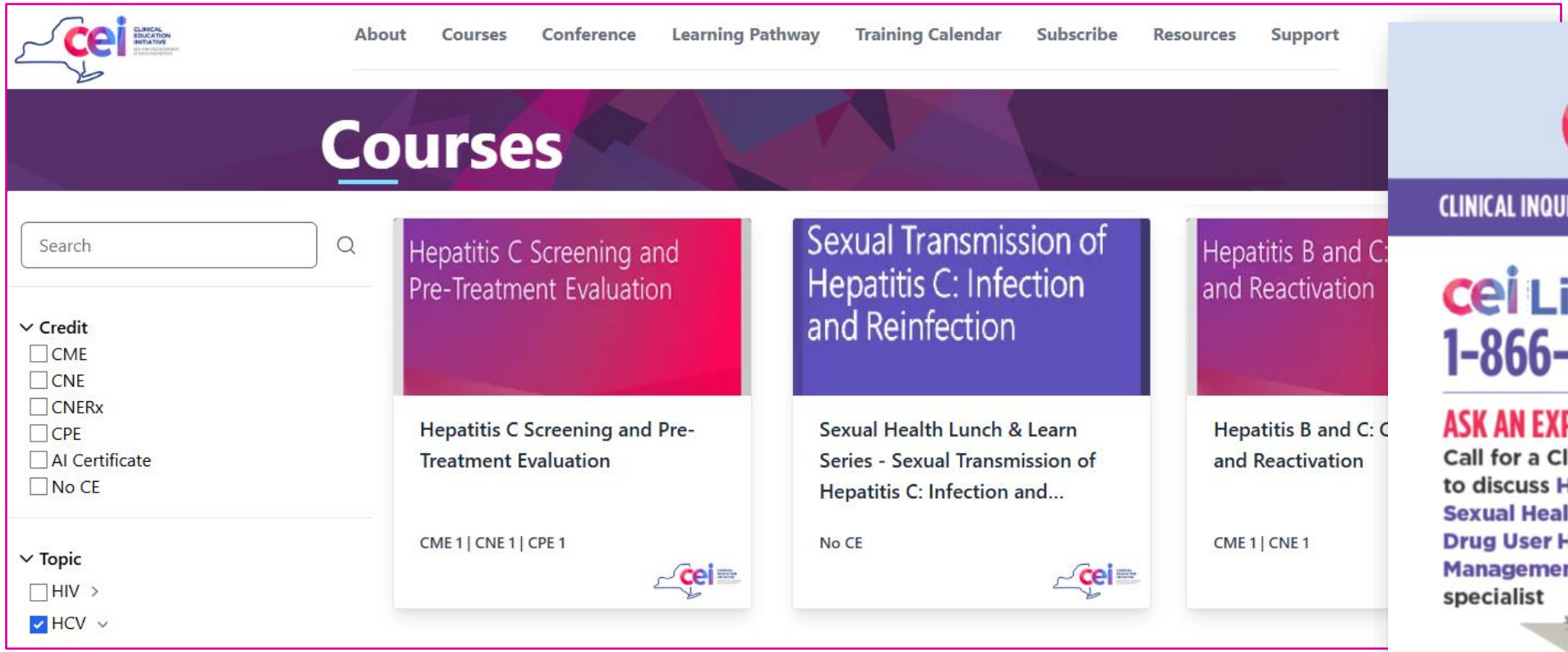
Gliman B, Bochery E., Barrett, K. et al. The HIV Clinician Workforce in the United States. HIV Specialist (Special Issue) 2016;August 2016:3-9 | Healio - Pediatrics, HIV/AIDS. February 2020. Push to end HIV epidemic in US complicated by 'brain drain': https://www.healio.com/news/pediatrics/20200217/push-to-end-hiv-epidemic-in-us-complicated-by-brain-drain | Weiser J, Beer L, West BT, Duke CC, Gremel GW, Skarbinski J. Qualifications, Demographics, Satisfaction, and Future Capacity of the HIV Care Provider Workforce in the United States, 2013-2014. Clin Infect Dis. 2016;63(7):966-75.

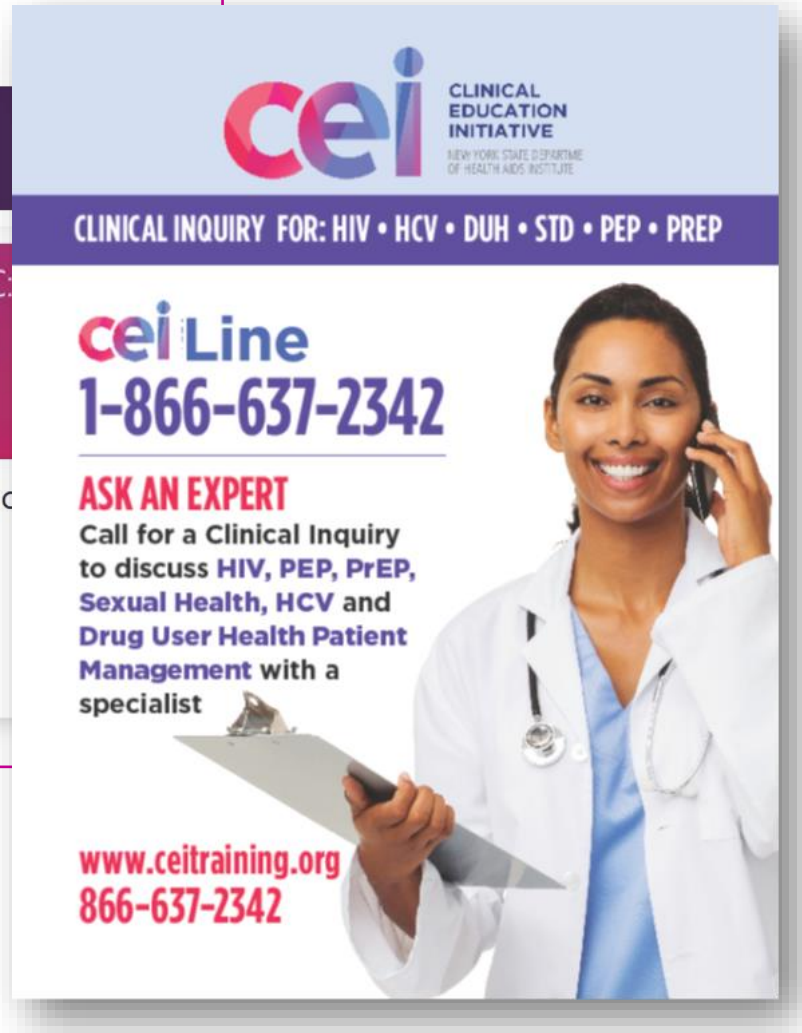
Who can treat HIV/HCV? **Non-specialist providers can!**

- Evidence to support workforce development of non-specialist clinical providers to treat HCV infection:
- The ASCEND trial - 13 urban, federally qualified health centers (FQHCs) in the District of Columbia.
- Pts randomized to receive HCV treatment from nurse practitioner, primary care physician or specialist
- Showed that HCV treatment administered independently by primary-care physicians and nurse practitioners who have undergone training was safe and equally as effective as care by specialists, including in sub-populations (e.g. 20% had cirrhosis)

Kattakuzhy S. et al. *Ann Intern Med.* 2017;167(5):311-318.

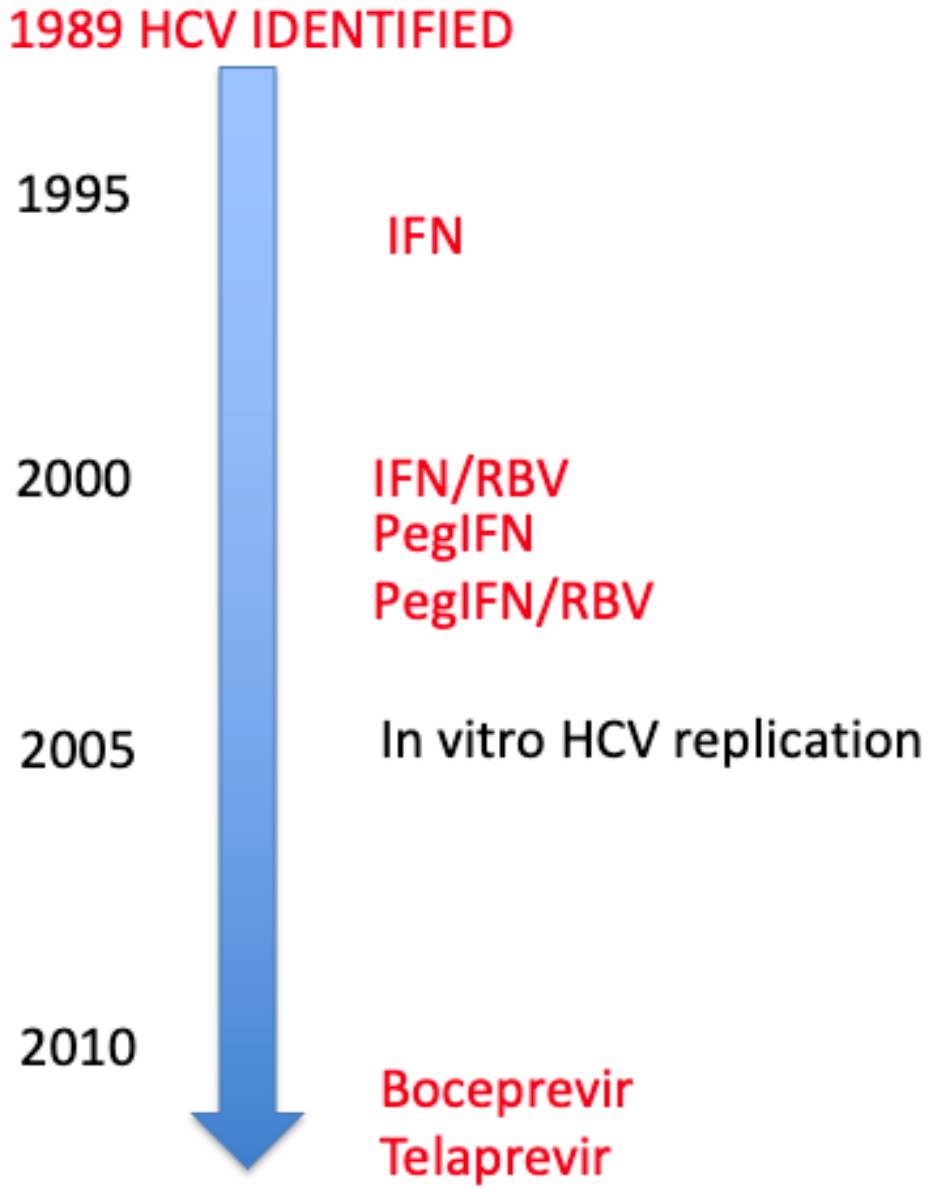
Tools for Non-specialist Providers to Treat HIV/HCV





https://ceitraining.org/

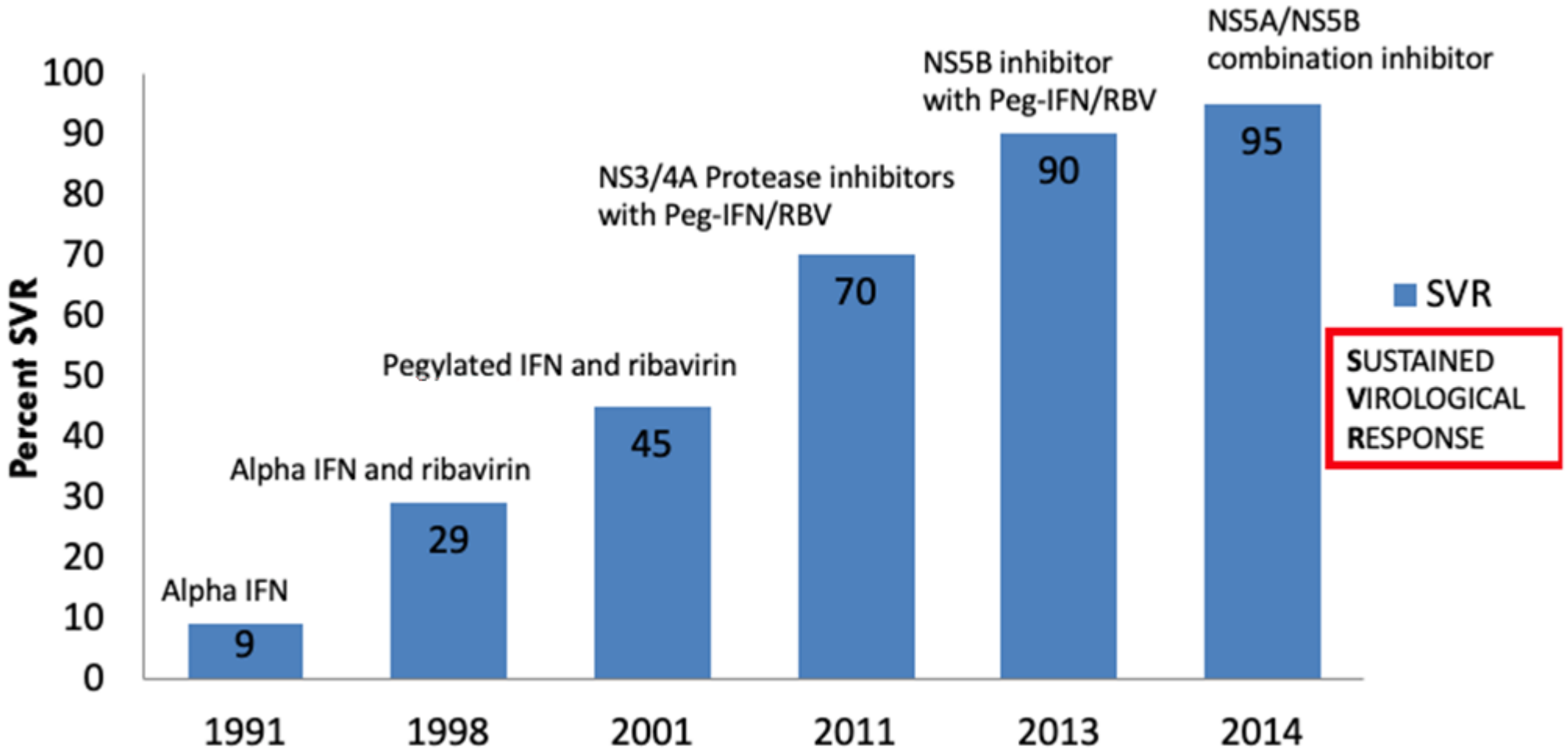
Hepatitis C Therapeutic Timeline



IFN = Interferon
PegIFN = Pegylated interferon
RBV = Ribavirin

2013: Sofosbuvir, Simeprevir
OCTOBER 2014 – IFN-FREE ORAL FDC REGIMEN: Sofosbuvir/Ledipasvir

HCV Treatments and Cure Rates Over Time *(Genotype 1)*

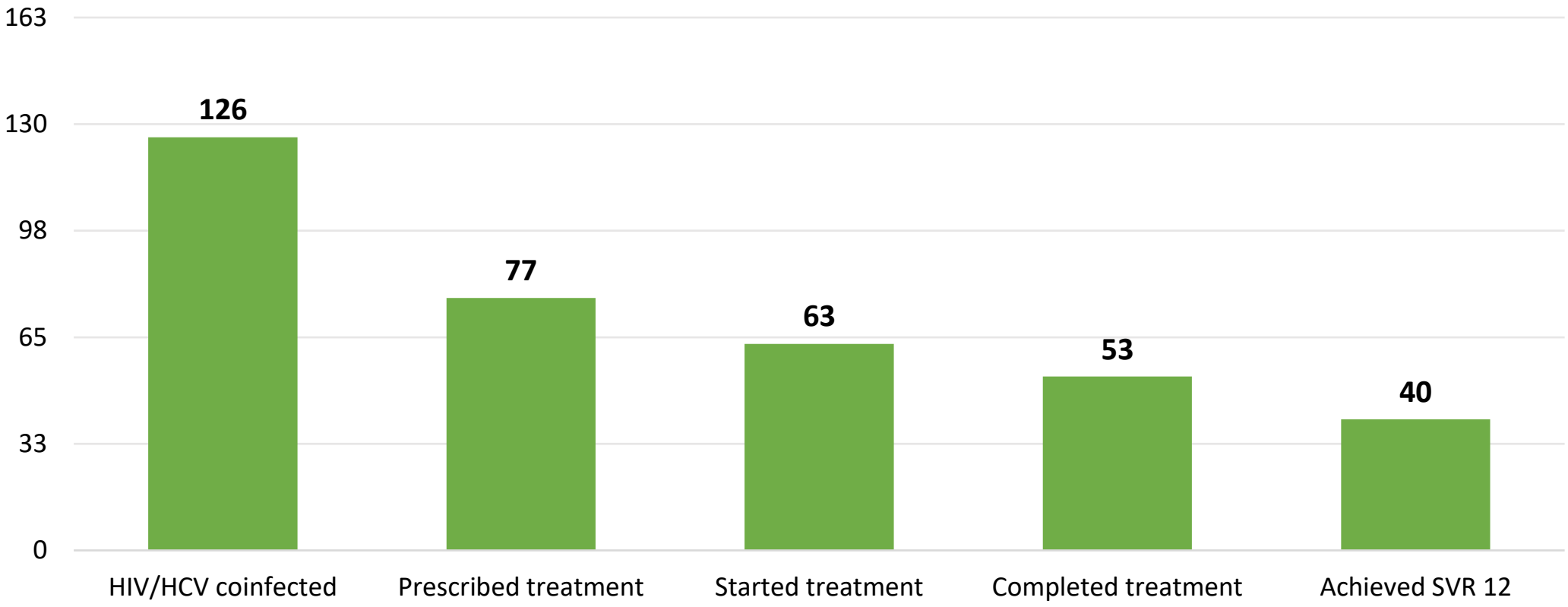


So, whom do we treat?

- Everyone (pretty much), ASAP
  - » Exception only in “those with limited life expectancy (<1 year) that cannot be remediated by transplantation or other directed therapy”
- Cure reduces mortality in people with HIV on ART
  - » Caution about some drug interactions with ART

AASDL/IDSA guidelines: www.hcvguidelines.org
Breskin et al. CID 2018; published online October 12, 2018

Except We *Haven't* Treated Everyone: HIV/HCV Care Cascade



n=66 lost to follow-up: moved, incarcerated, pregnancy, death

Data courtesy Allison et. Al, June 2023

Pre-treatment Assessments Needed

- People with HIV should already have had these assessments, but make sure everyone with HCV does in any case:
  - » Determine immunity to vaccine-preventable hepatidities
  - » Hepatitis A: Obtain total Ab or IgG (NOT IgM); if naïve, vaccinate
  - » Hepatitis B: Obtain surface antigen (sAg), surface antibody (anti-HBs) and core antibody (anti-HBc); if naïve, vaccinate; if infected or indeterminate see next slide
- Screen for cirrhosis

Hepatitis B Testing and Interpretation in People with HIV

- All people with HIV should have been tested already, and anyone with active HBV should already all be on ART containing TDF or TAF
- Indeterminate testing ("isolated" cAb+): A significant proportion of people with HIV and HCV have only cAb+, but with negative sAg and negative sAb
- Most of these are likely to have had HBV in the past, with resolution ("spontaneously cleared"). Further testing with HBV DNA is not necessary
- BUT, false positive cAb is more common both in those with HIV and in those with HCV, so they may be naïve to HBV
  - » Therefore, all who have "isolated" cAb should be vaccinated (use adjuvanted vaccine, if possible, 2-3 doses), and have f/u sAb testing to confirm seroconversion
  - » If no seroconversaion, I recommend further vaccine dosing until seroconversion occurs

https://www.hcvguidelines.org/

People without HIV: Risk of Hepatitis B Reactivation

- HBV rebound after cure of HCV using DAA can occur (usually in those with sAg+)
- All people with HIV and HBV should already be treated for HBV so cannot have rebound
- For those without HIV, there are two options for those with positive sAg:

Option 1

» If low or undetectable HBV DNA levels, start prophylactic HBV treatment – pending further data, continue until 12 weeks after completion of DAA therapy

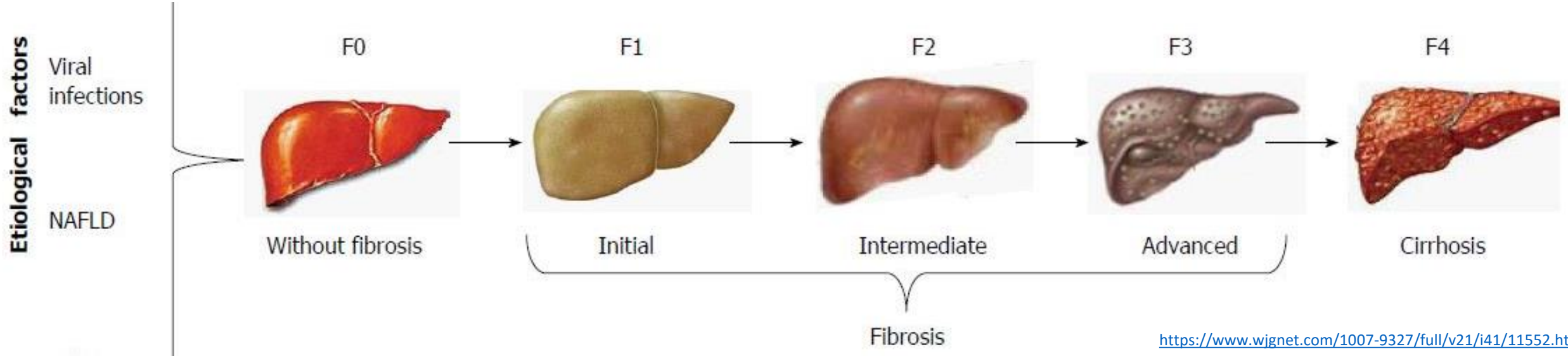
Option 2

» Monitor HBV DNA levels monthly during and immediately after DAA therapy. Antiviral treatment for HBV should start if HBV DNA increases >10-fold above baseline or to >1,000 IU/mL in those with a previously undetectable HBV DNA

https://www.hcvguidelines.org/

Pre-treatment Assessment: Cirrhosis

- HCV infection causes accumulation of scaring (fibrosis) in the liver
- Accumulation of fibrosis to cirrhosis, the most advanced stage of fibrosis (stage 4 fibrosis using the common Metavir scale), usually takes decades
  - » In people with uncontrolled HIV, fibrosis progressed more quickly, but this has not been the case in those with controlled HIV viremia



https://www.wjgnet.com/1007-9327/full/v21/i41/11552.htm

Pre-treatment Assessment: Cirrhosis

- HCV cure halts progression of fibrosis, so it prevents:
  - » Progression to cirrhosis if the patient did not already have cirrhosis
  - » Progression to decompensated cirrhosis in those with compensated cirrhosis
- BUT, we need to know if cirrhosis is present before treatment

Pre-treatment Assessment: Cirrhosis

- All patients with HCV need to be screened for cirrhosis *prior* to HCV treatment, in feasible. This is because:
  - » Cirrhosis is a pre-cancerous condition, and there is no evidence currently that this abates with HCV cure; and
  - » Screening tests for cirrhosis are only valid *before* treatment
- Lifelong screening for hepatocellular carcinoma continues to be indicated after cure in those with cirrhosis, even if asymptomatic, “compensated” cirrhosis

Screening for Cirrhosis is Easy

- FIB4 and APRI need only platelets, AST, ALT (calculators online, apps):

FIB-4 (Fibrosis) Score

$$\frac{\text{Age (years)} \times \text{AST Level (U/L)}}{\text{Platelet Count } (10^9/L) \times \sqrt{\text{ALT (U/L)}}}$$

APRI: AST to Platelet ratio index

$$\frac{\dfrac{\text{AST Level (IU/L)}}{\text{AST (Upper Limit of Normal) (IU/L)}}}{\text{Platelet Count } (10^9/L)} \times 100$$

https://www.hepatitisc.uw.edu/page/clinical-calculators/fib-4

- Liver biopsy no longer performed/indicated in DAA era

- Transient elastography (FibroScan): Requires expensive machine, referral (avoid)

Sterling RK, Lissen E, Clumeck N, et. al. Development of a simple noninvasive index to predict significant fibrosis patients with HIV/HCV co-infection. Hepatology 2006;43:1317-1325.
Lin ZH, Xin YN, Dong QJ, et al. Performance of the aspartate aminotransferase-to-platelet ratio index for the staging of hepatitis C-related fibrosis: an updated meta-analysis. Hepatology. 2011;53:726-36.
Chou R, Wasson N. Blood tests to diagnose fibrosis or cirrhosis in patients with chronic hepatitis C virus infection: a systematic review. Ann Intern Med. 2013;158:807-20.

Clinical Infectious Diseases

MAJOR ARTICLE

Clinical- and Cost-Effectiveness of Liver Disease Staging in Hepatitis C Virus Infection: A Microsimulation Study

Rachel L. Epstein,[1,2,3] Sarah Munroe,[3] Lynn E. Taylor,[4,5] Patrick R. Duryea,[4,a] Benjamin Buzzee,[3,b] Tannishtha Pramanick,[3] Jordan J. Feld,[6] Dimitri Baptiste,[3] Matthew Carroll,[3] Laurent Castera,[7] Richard K. Sterling,[8] Aurielle Thomas,[4,c] Philip A. Chan,[9,10] and Benjamin P. Linas[1,3]

Results

- FIB4 alone generated the best clinical outcomes: 87.7% cured, 8.7% developed cirrhosis and 4.6% had liver-related deaths
- In a point-of-care HCV test-and-treat scenario, treatment without any staging was most clinically and cost-effective

Conclusions: FIB4 staging alone resulted in optimal clinical outcomes and was cost effective

Which DAAs do we use to treat HCV in patients coinfected with HIV/HCV?

DAA Classes by Viral Target:

- NS3/4A protease inhibitors
- NS5A polymerase inhibitors
- NS5B polymerase inhibitors

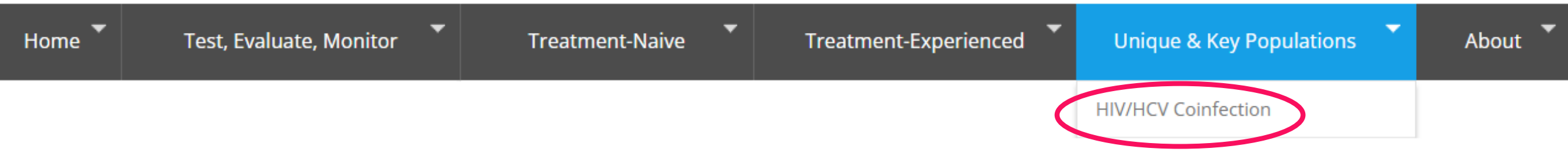
Generic Name	Abbreviation	NS3/4A Protease Inhibitor	NS5B Nucleotide Polymerase Inhibitor	NS5A Polymerase Inhibitor
ledipasvir/sofosbuvi **not pangenotypic**	LDV/SOF		✓	✓
elbasvir/grazoprevir **not pangenotypic**	EBR/GZR	✓		✓
sofosbuvir/velpatasvir	SOF/VEL		✓	✓
sofosbuvir/velpatas **salvage only**	SOF/VEL/VOX	✓	✓	✓
glecaprevir/pibrentasvir	GLE/PIB	✓		✓

Which DAAs do we use to treat HCV in patients coinfected with HIV/HCV?

AASLD
AMERICAN ASSOCIATION FOR THE STUDY OF LIVER DISEASES

HCV Guidance: Recommendations for Testing, Managing, and Treating Hepatitis C

IDSA
Infectious Diseases Society of America



Same pangenotypic regimes as those used for people without HIV:

» Glencaprevir/Pibrentasvir (“Mavyret”)

» Sofosbuvir/Velpatasvir (“Epclusa”)

https://www.hcvguidelines.org/

https://www.hcvguidelines.org/

A Few Cautions about Drug Interactions

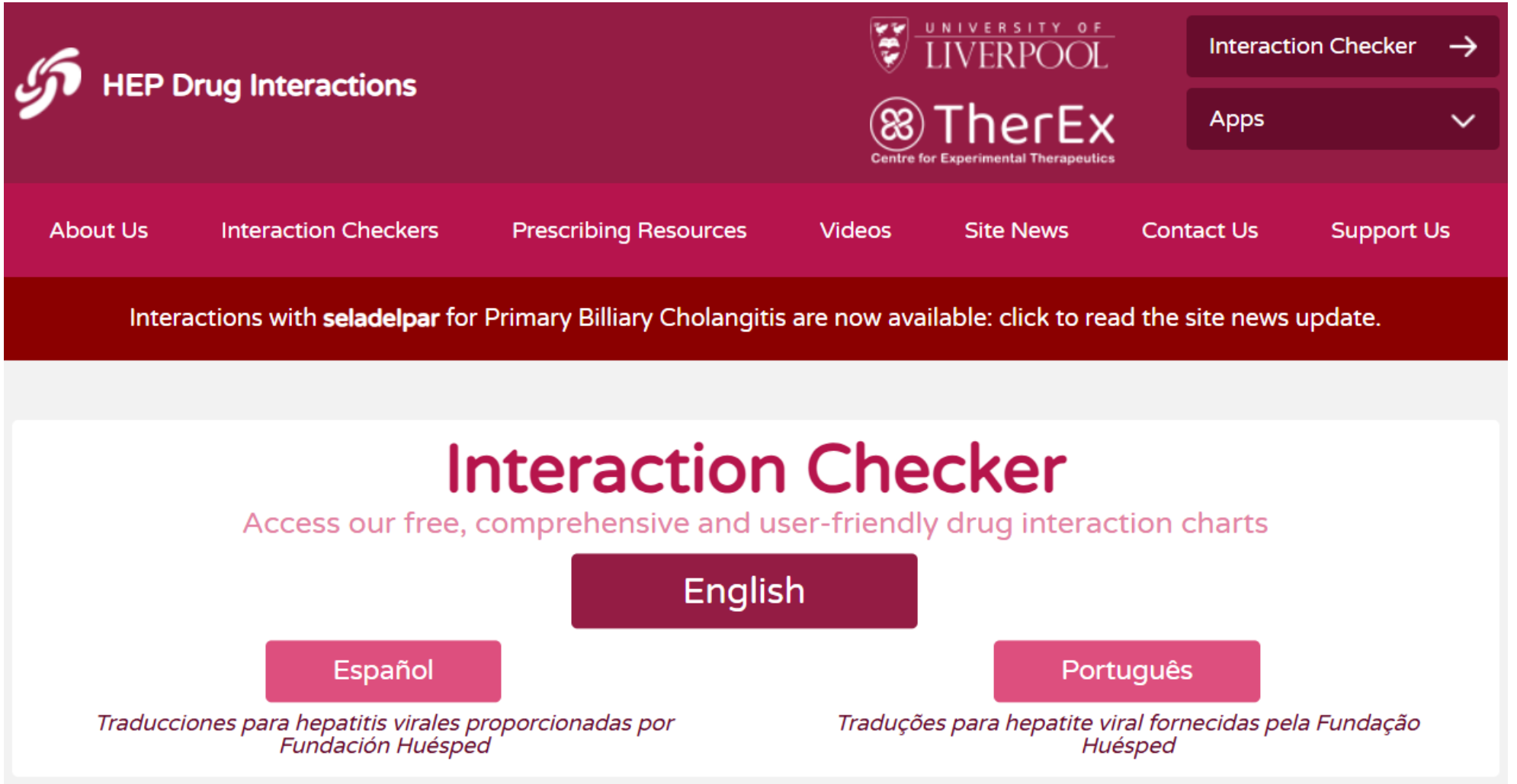
(it's easier than it looks)

Regimens Not Recommended for Patients with HIV/HCV Coinfection	
NOT RECOMMENDED	RATING
Antiretroviral treatment interruption to allow HCV therapy is **not** recommended.	III, A
~~Elbasvir/grazoprevir~~ should **not** be used with cobicistat, efavirenz, etravirine, nevirapine, or any HIV protease inhibitor.	III, B
Glecaprevir/pibrentasvir should **not** be used with atazanavir, efavirenz*, etravirine, nevirapine, or ritonavir-containing antiretroviral regimens.	III, B
Sofosbuvir/velpatasvir should **not** be used with efavirenz*, etravirine, or nevirapine.	III, B
~~Sofosbuvir/velpatasvir/voxilaprevir~~ should **not** be used with efavirenz, etravirine, nevirapine, ritonavir-boosted atazanavir, or ritonavir-boosted lopinavir.	III, B
Sofosbuvir-based regimens should **not** be used with ~~tipranavir~~	III, B
~~Ribavirin~~ should **not** be used with didanosine, stavudine, or zidovudine.	III, B

*for patients on efavirenz, etravirine, or nevirapine who have genotype 1 HCV, the best choice is sofosbuvir/ledipasvir

Checking Drug-Drug Interactions

https://www.hep-druginteractions.org/checker



THE LANCET
Gastroenterology & Hepatology

A minimal monitoring approach for the treatment of hepatitis C virus infection (ACTG A5360 [MINMON]): a phase 4, open-label, single-arm trial

Sunil S Solomon, Sandra Wagner-Cardoso, Laura Smeaton, Leonard A Sowah, Chanelle Wimbish, Gregory Robbins, Irena Brates, Christine Scello, Annie Son, Anchalee Avihingsanon, Benjamin Linas, Donald Anthony, Estevão Portela Nunes, Dimas A Kliemann, Khuanchai Supparatpinyo, Cissy Kityo, Pablo Tebas, Jaclyn Ann Bennet, Jorge Santana-Bagur, Constance A Benson, Marije Van Schalkwyk, Nelson Cheinquer, Susanna Naggie, David Wyles, Mark Sulkowski

- No pretreatment genotyping
- Entire treatment course dispensed at entry
- No scheduled visits or lab monitoring
- 2 points of remote contact at week 4 for adherence and week 22 to schedule outcome assessment at week 24
- If week 24 outcome assessment missed, could return for visit at any point since week 72
- [HIV excluded]

https://pubmed.ncbi.nlm.nih.gov/35026142/

Simplified HCV Treatment Approach

HIV is not a contraindication to the simplified HCV treatment approach

» In those living with HIV, simplified treatment should not be used in those on TDF-containing regimens with CrCl <60 mL/minute because of the need for additional monitoring

Within 6 months of initiating treatment:

» CBC + platelets; hepatic function panel; estimate of GFR/CrCl

Any time prior to starting antiviral therapy:

» Quantitative HCV RNA (HCV viral load), hepatitis B surface antigen (sAg)

Before initiating antiviral therapy:

» Serum pregnancy testing; pregnant women can (and should) be treated (clinical trials available

https://www.hcvguidelines.org/

Treatment Interruptions are Mostly Okay

Interruptions Before Receiving 28 Days of DAA Therapy

Missed ≤7 Days

- **Restart** DAA therapy immediately. Complete therapy for originally planned duration (8 or 12 weeks).

Missed ≥8 Days

- **Restart** DAA therapy immediately. Restarting DAA takes precedence over obtaining HCV RNA level.
- Obtain HCV RNA test as soon as possible, preferably the same day as restarting the DAA therapy.
  - If HCV RNA is negative (undetectable), complete originally, planned DAA treatment course (8 or 12 weeks; total planned dosage[a]). Recommend extending DAA treatment for an additional 4 weeks for patients with genotype 3 infection and/or compensated cirrhosis.
  - If HCV RNA is positive (>25 IU/L) or not obtained, extend DAA treatment for an additional 4 weeks.

Interruptions After Receiving ≥28 Days of DAA Therapy

Missed ≤7 Days

- **Restart** DAA therapy immediately. Complete DAA therapy for originally planned duration (8 or 12 weeks).

Missed 8–20 Consecutive Days

- **Restart** DAA therapy immediately. Restarting DAA takes precedence over obtaining HCV RNA level.
- Obtain HCV RNA test as soon as possible, preferably the same day as restarting the DAA therapy.
  - If HCV RNA is negative (undetectable), complete originally planned course (8 or 12 weeks; total planned dosage[a]). Recommend extending DAA treatment for an additional 4 weeks if patient has genotype 3 infection and/or compensated cirrhosis.
  - If HCV RNA is positive (>25 IU/L) or not obtained, **stop** treatment and retreat according to recommendations in the Retreatment Section.

Missed ≥21 Consecutive Days

- **Stop** DAA treatment and assess for SVR12. If SVR12 not achieved, retreat according to recommendations in the Retreatment Section.

https://www.idsociety.org/globalassets/idsa/practice-guidelines/hcv/ciad319.pdf

Assessment of Cure and Post-cure Follow-up

- Obtain quantitative HCV RNA and hepatic function panel ≥12 weeks following completion of therapy to confirm HCV RNA is undetectable (**virologic cure!**) and transaminase normalization
- If ALT/AST remain elevated after achieving SVR, must assess for other causes of liver disease
- **No liver-related follow-up is recommended for non-cirrhotic patients who achieve SVR with normalized ALT/AST**
- Patients should be counseled about reducing risk of HCV reinfection, if ongoing risk
- Those at risk for reinfection should be screened with HCV RNA at least yearly (I perform ever 6 months), and also if new elevation of ALT/AST
- Advise that no alcohol amount is considered safe (but any reduction is better than none)

Persons with Advanced Fibrosis (F3/F4) Post-SVR

- Perform abdominal imaging and alpha fetoprotein (AFP) testing every 6 months
- Obtain liver function test/MELD score ever 6-12 months
- Perform upper endoscopy if cirrhosis present
- Conduct clinical evaluation for progression to cirrhosis or decompensation

Terrault NA. *Gastroenterol Hepatol (N Y)*. 2018;14(11):629-634.

Summary and Conclusion

- A syndemic framework is helpful – HIV/HCV/Substance use disorder (SUD)
  - » SUD directly results in HCV infection through parenteral exposures
  - » Sexual transmission of HCV infection (not due to parenteral drug use exposures) can also occur
- Nearly a third of people with HIV also have HCV infection, mostly due to parenteral exposures
- Differences in HIV/HCV infection exist
- HCV – in contrast to HIV – is curable, and cure is the goal
  - » Cure is necessary to prevent further progression of liver disease
- Non-specialist providers with adequate training and support can (and should!) treat HIV/HCV coinfection
- Those with cirrhosis must have ongoing surveillance for liver cancer after HCV cure

Questions?

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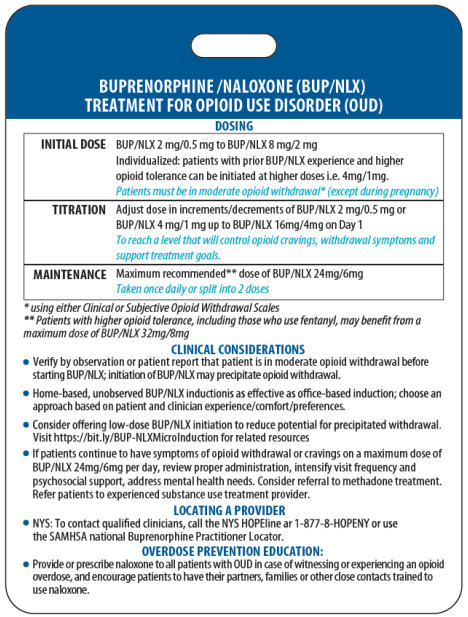
CEI Resources

Scan to order!

Buprenorphine/Naloxone & **Harm Reduction**

Clinical Cards free of charge for NYS clinicians!



BUPRENORPHINE /NALOXONE (BUP/NLX) TREATMENT FOR OPIOID USE DISORDER (OUD)

DOSING

INITIAL DOSE	BUP/NLX 2 mg/0.5 mg to BUP/NLX 8 mg/2 mg Individualized: patients with prior BUP/NLX experience and higher opioid tolerance can be initiated at higher doses i.e. 4mg/1mg. *Patients must be in moderate opioid withdrawal* (except during pregnancy)*
TITRATION	Adjust dose in increments/decrements of BUP/NLX 2 mg/0.5 mg or BUP/NLX 4 mg/1 mg up to BUP/NLX 16mg/4mg on Day 1 *To reach a level that will control opioid cravings, withdrawal symptoms and support treatment goals.*
MAINTENANCE	Maximum recommended** dose of BUP/NLX 24mg/6mg *Taken once daily or split into 2 doses*

** using either Clinical or Subjective Opioid Withdrawal Scales*
*** Patients with higher opioid tolerance, including those who use fentanyl, may benefit from a maximum dose of BUP/NLX 32mg/8mg*

CLINICAL CONSIDERATIONS

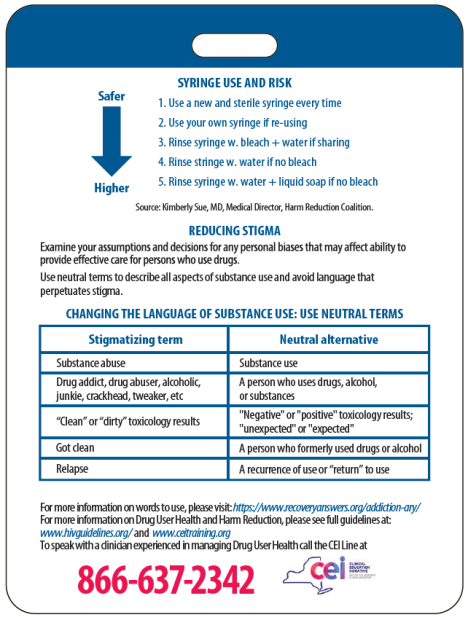
- Verify by observation or patient report that patient is in moderate opioid withdrawal before starting BUP/NLX; initiation of BUP/NLX may precipitate opioid withdrawal.
- Home-based, unobserved BUP/NLX inductionis as effective as office-based induction; choose an approach based on patient and clinician experience/comfort/preferences.
- Consider offering low-dose BUP/NLX initiation to reduce potential for precipitated withdrawal. Visit https://bit.ly/BUP-NLXMicroInduction for related resources
- If patients continue to have symptoms of opioid withdrawal or cravings on a maximum dose of BUP/NLX 24mg/6mg per day, review proper administration, intensify visit frequency and psychosocial support, address mental health needs. Consider referral to methadone treatment. Refer patients to experienced substance use treatment provider.

LOCATING A PROVIDER

- NYS: To contact qualified clinicians, call the NYS HOPEline ar 1-877-8-HOPENY or use the SAMHSA national Buprenorphine Practitioner Locator.

OVERDOSE PREVENTION EDUCATION:

- Provide or prescribe naloxone to all patients with OUD in case of witnessing or experiencing an opioid overdose, and encourage patients to have their partners, families or other close contacts trained to use naloxone.



SYRINGE USE AND RISK

Safer ↓ Higher

1. Use a new and sterile syringe every time
2. Use your own syringe if re-using
3. Rinse syringe w. bleach + water if sharing
4. Rinse stringe w. water if no bleach
5. Rinse syringe w. water + liquid soap if no bleach

Source: Kimberly Sue, MD, Medical Director, Harm Reduction Coalition.

REDUCING STIGMA

Examine your assumptions and decisions for any personal biases that may affect ability to provide effective care for persons who use drugs.

Use neutral terms to describe all aspects of substance use and avoid language that perpetuates stigma.

CHANGING THE LANGUAGE OF SUBSTANCE USE: USE NEUTRAL TERMS

Stigmatizing term	Neutral alternative
Substance abuse	Substance use
Drug addict, drug abuser, alcoholic, junkie, crackhead, tweaker, etc	A person who uses drugs, alcohol, or substances
"Clean" or "dirty" toxicology results	"Negative" or "positive" toxicology results; "unexpected" or "expected"
Got clean	A person who formerly used drugs or alcohol
Relapse	A recurrence of use or "return" to use

For more information on words to use, please visit: *https://www.recoveryanswers.org/addiction-ary/*
For more information on Drug User Health and Harm Reduction, please see full guidelines at: *www.hivguidelines.org/* and *www.ceitraining.org*
To speak with a clinician experienced in managing Drug User Health call the CEI Line at

866-637-2342