Management and Prevention of HBV and HCV in Persons with HIV

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UW Medicine

Disclosures

- None

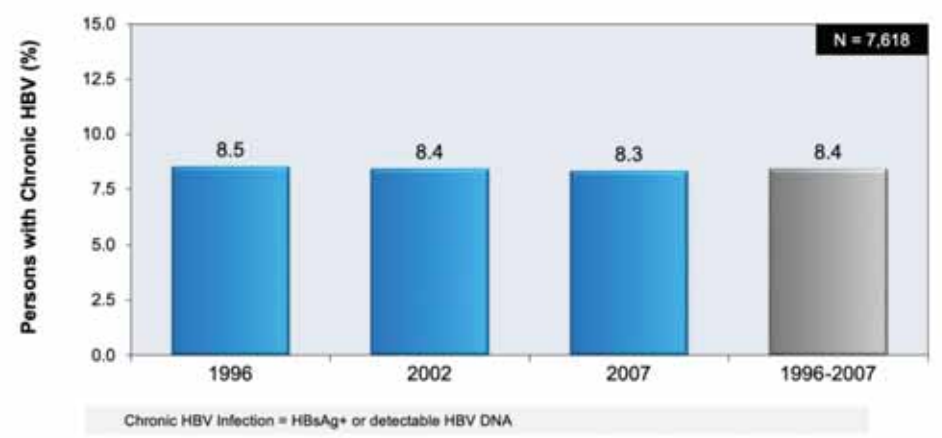
Objectives

- Outline key HBV prevention strategies in people living with and at risk for HIV.
- Review HBV treatment recommendations for people living with HIV.
- Discuss HCV prevention messages and strategies for people living with and at risk for HIV.
- Review HCV treatment recommendations for people living with HIV.

Epidemiology of HIV and HBV Coinfection

- Globally, an estimated 8% - 10% of people with HIV have chronic HBV infection, most of whom acquire HBV through perinatal transmission.

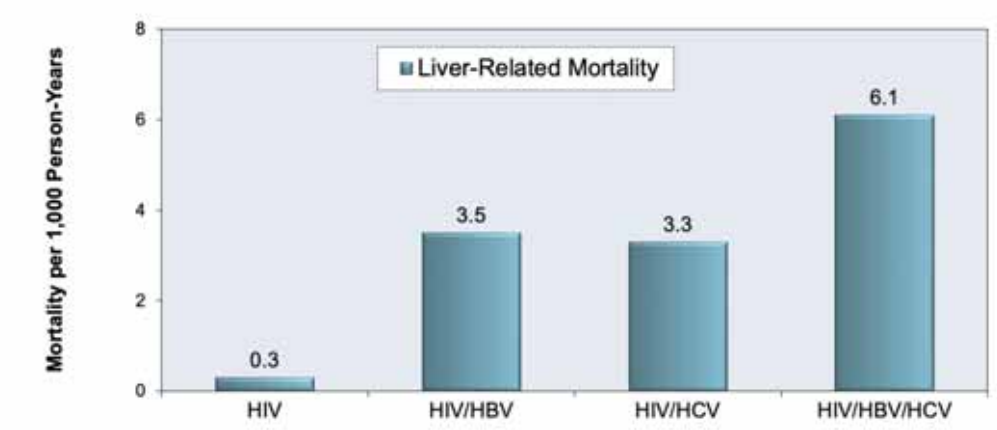
- In the United States:
  - Prevalence of chronic HBV is estimated to be 0.3% to 0.7% in the general population.
  - 5-10% of people with HIV in estimated to have chronic HBV.
  - Most commons risk factors include sex and injection drug use



Clin Infect Dis. 2020;71(11):2799-2806; J Viral Hepat. 2010;17(12):879-886.

Natural History of HIV and HBV Coinfection

- PWH are more likely than those without HIV to develop chronic HBV infection.
- HIV/HBV coinfection can lead to accelerated progression of liver disease, including increased risk for HCC, liver-related mortality, and all-cause mortality.
- HBV remains a major contributor to ESLD and liver related death, even in the modern ART era.



Clin Infect Dis 2009 Jun 15;48(12):1763-71; AIDS. 2017;31:2525-32.

Prevention of HBV in PWH: Vaccination

- Vaccination is the key pillar of prevention; however, vaccine uptake remains suboptimal and rates of seroprotection (17.5% - 72%) are lower in PWH when compared to HIV negative healthy adults (~90% seroprotection).
- HBV vaccination now universally recommended for infants, children, and adults, ages 0 to 59 years, as well as adults 60 years of age and older with risk factors for HBV
- OI Guidelines recommend vaccination in:
  1. Individuals without chronic HBV (HBsAg negative), immunity to HBV (anti-HBs < 10 mIU/mL) or evidence of past exposure (anti-HBc negative).
  2. Individuals with isolated anti-HBc (e.g., anti-HBc positive, but anti-HBs and HBsAg negative).

Vaccine . 2020 May 19;38(24):3995-4000.; OI Guidelines

HBV Vaccination Strategies: Double dose

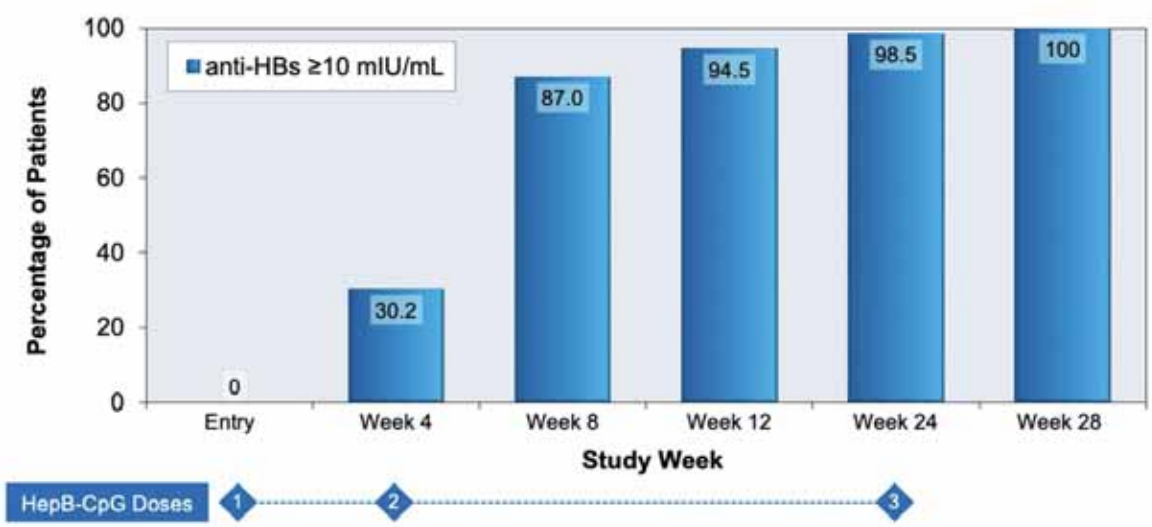
- Systematic review of standard dose vs double dose recombinant vaccines among PWH found higher serologic response rate (anti-HBs >10 IU/L) among double-dose recipients
  - OR 1.76 (1.36 – 2.29) 4 to 6 weeks following vaccine completion
  - OR 2.28 (1.73 – 3.01) >12 months following vaccine completion

- However serologic response rates to double-dose were variable across studies, ranging from 47% to 88%.

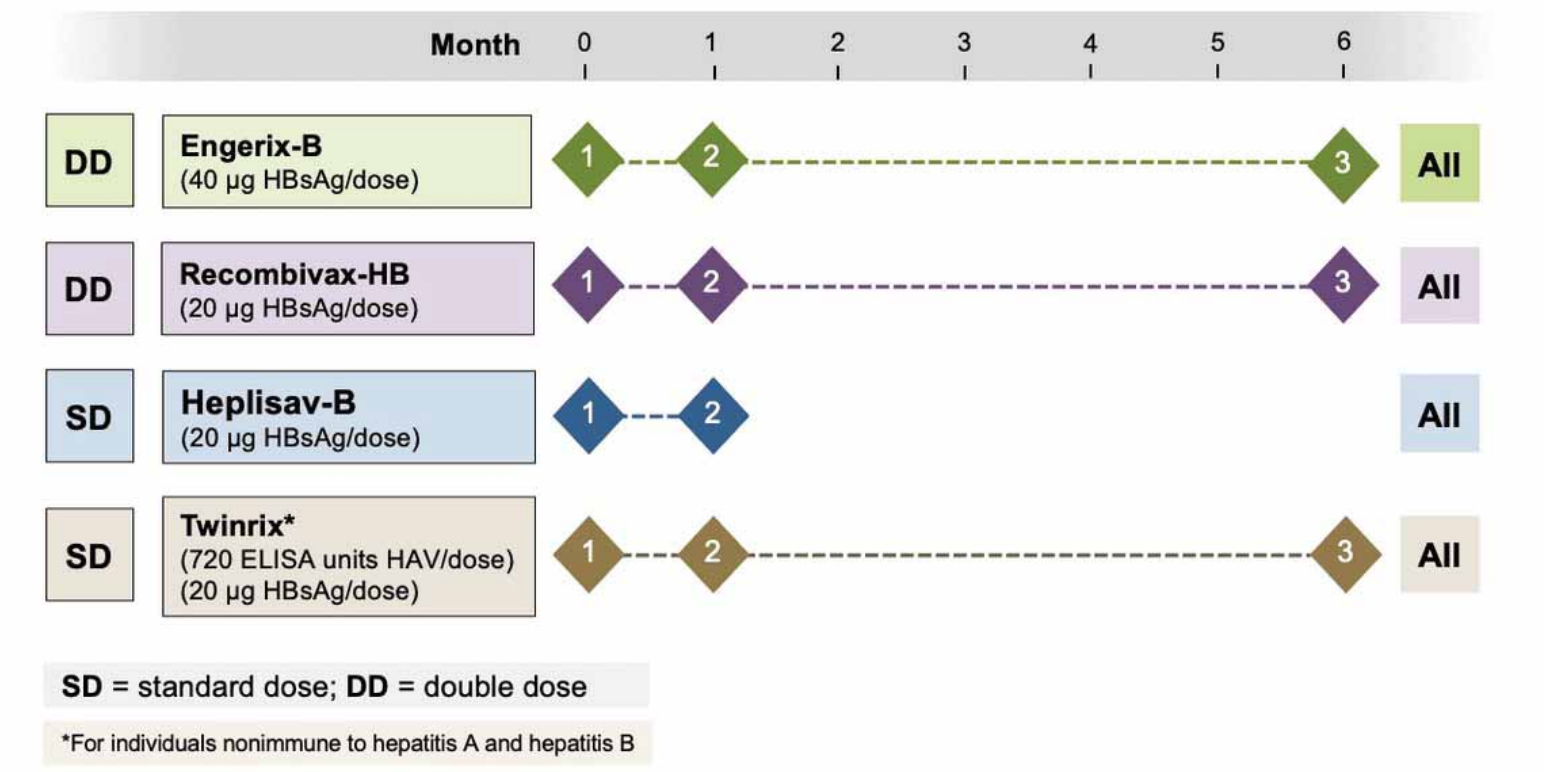
Vaccine . 2020 May 19;38(24):3995-4000.

HBV Vaccination Strategies: Heplisav-B

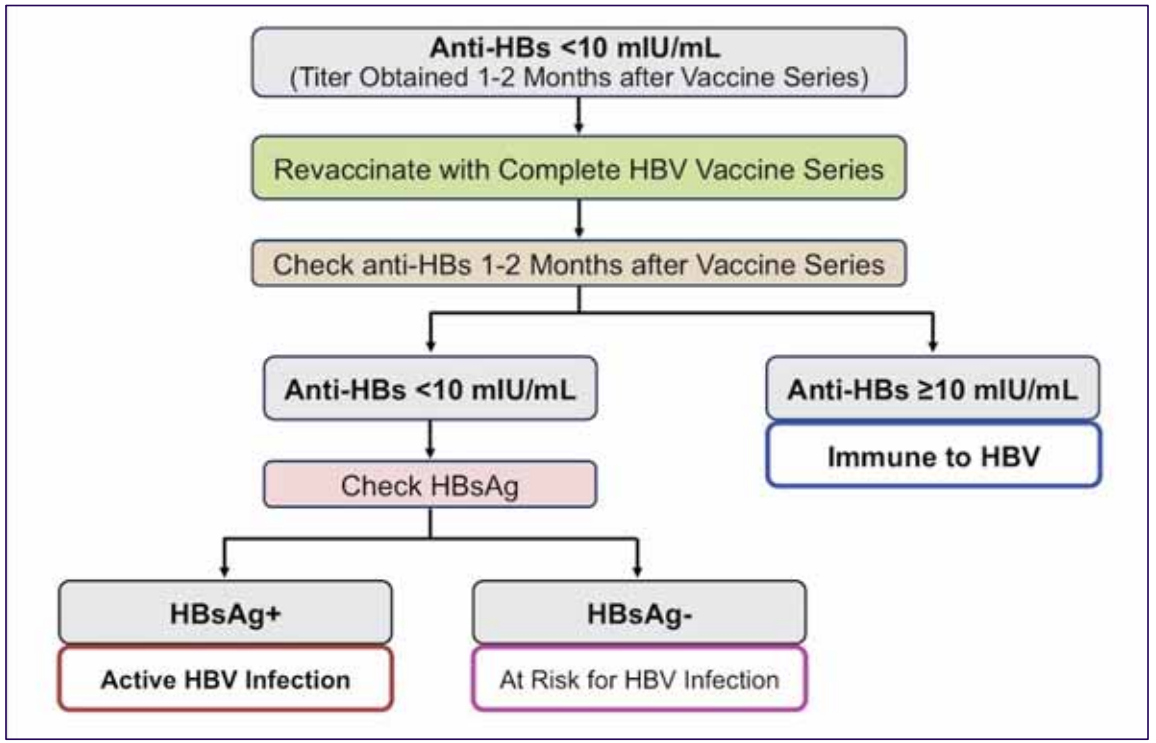
- **Heplisav-B** = cytidine-phosphate-guanosine (CpG) adjuvanted recombinant HBV vaccine.
- **BEe-HIVe (ACTG 5379):** Multicenter, open-label trial; 3 doses of Heplisav-B given at 0, 4, 24 months in HBV vaccine-naïve PWH
- **74 PWH enrolled** (46% male sex); median age 47yrs; median CD4 625; 96% virally suppressed



HBV Vaccination Schedule in PWH



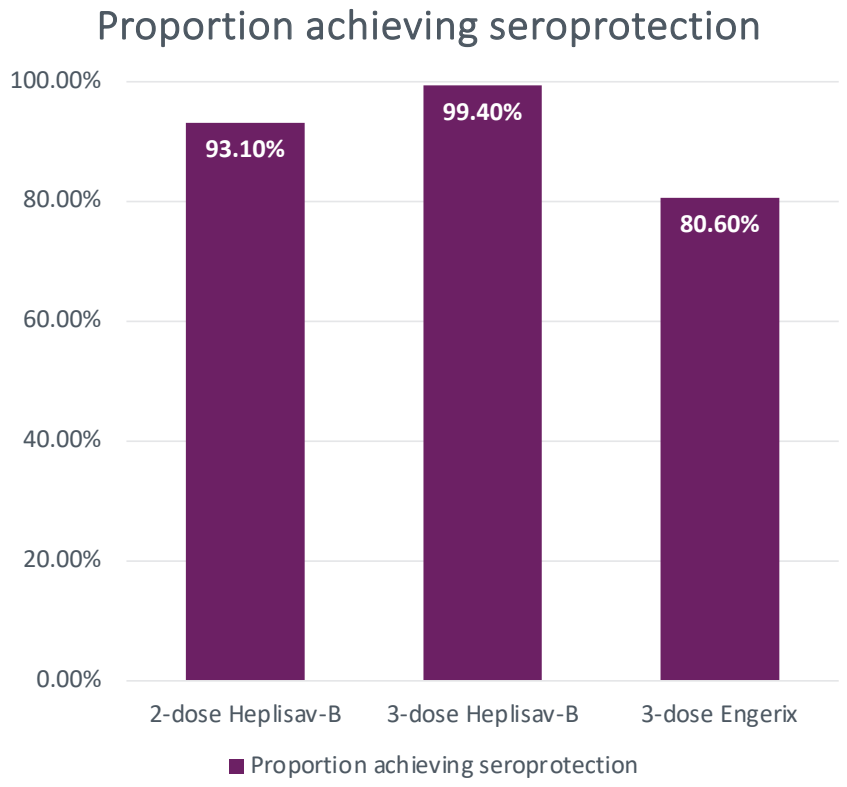
Approach to HBV Vaccine Nonresponders



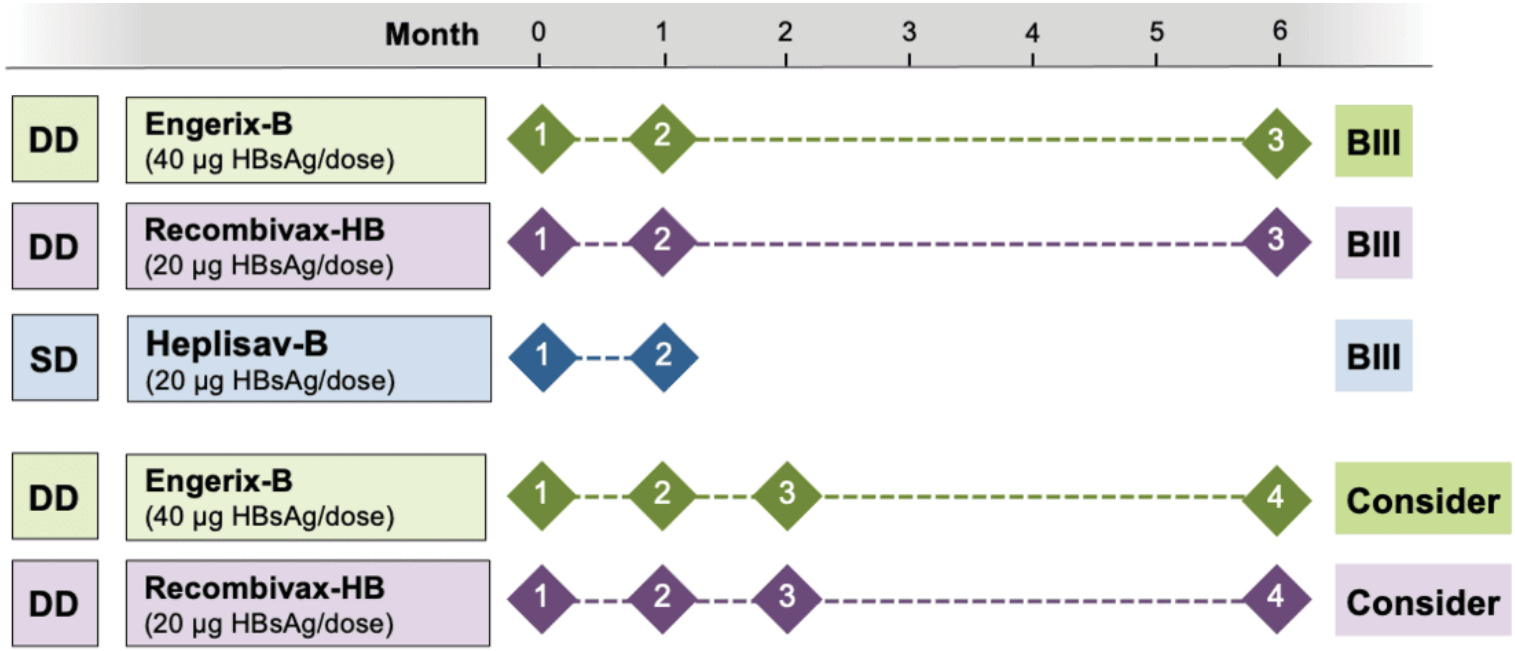
MMWR Recomm Rep. 2018;67:1-31.

BEe-HIVe (ACTG 5379): Heplisav-B for HBV Vaccine Nonresponders

- 561 PWH with prior nonresponse to HBV vaccination randomized 1:1:1 to receive
  - 2 doses of Heplisav-B at 0 and 4 weeks
  - 3 doses of Heplisav-B at 0, 4, and 24 weeks
  - 3 doses of Engerix at 0, 4, and 24 weeks
- Median age 46, 36% female, 40-45% black, median CD4 count 600s, 94% w/ HIV RNA <40
- Seroprotection (anti-HBs >10) achieved faster in the Heplisav-B arms.
- 96% of 3-dose Heplisav-B vs. 70% of 2-dose Heplisav-B vs. 63% of Engerix participants achieved anti-HBs titers of 100+



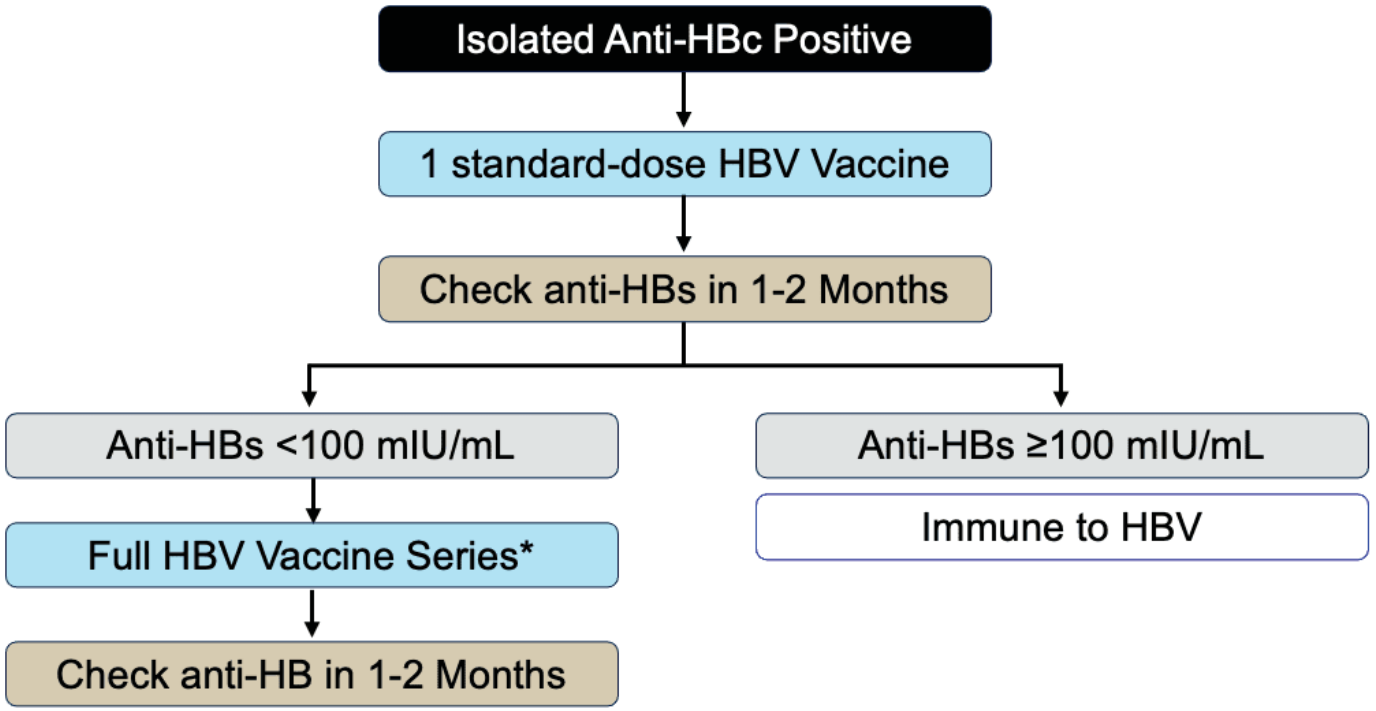
HBV Vaccination Schedule for Vaccine Nonresponders



SD = standard dose; **DD** = double dose

*If CD4 count <200 cells/mm^3 at first vaccine series, some experts would delay revaccination until CD4 count ≥200 cells/mm^3

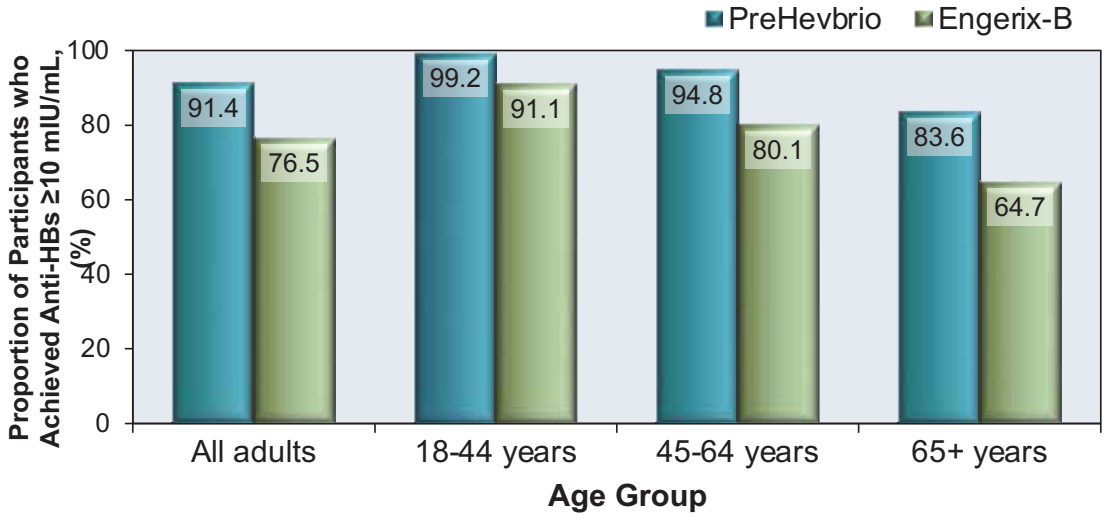
Management of Isolate HBcAb



HBV Vaccination Strategies: PreHevbrio

- PreHevbrio = triple-antigen HBV vaccine approved for use in adults
- RCT comparing PreHevbrio vs. Engerix in HBV-vaccine naïve adults

  *Excluded PWH
- 91.4% in the PreHevbrio arm vs 76.5% in the Engerix arm achieved anti-HBs >10 IU/mL



Lancet Infect Dis. 2021;21:1271-81

HBV Vaccination Strategies: PreHevbrio

- Currently there are no RCTs of PreHevbrio in PWH and no recommendations for its use in this population.
- Small prospective cohort study in Israel evaluated the immunogenicity of PreHevbrio in 31 PWH (90% male; median CD4 503).
- 84% achieved anti-HBs >10 IU/mL
- No reported serious adverse events

Isr Med Assoc J. 2017 Mar;19(3):143-146.

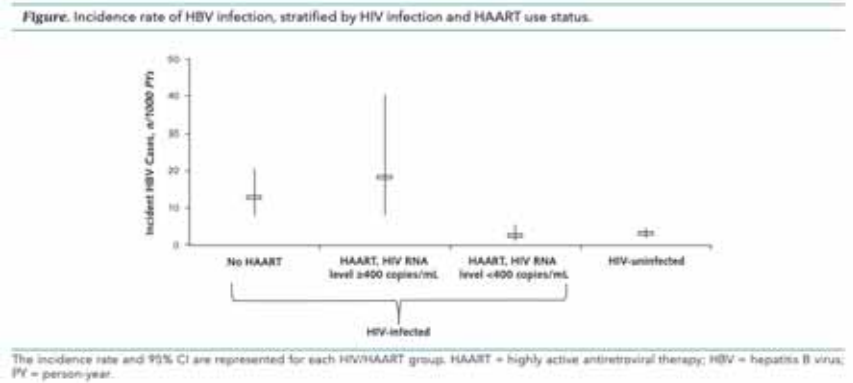
HBV Chemoprophylaxis in PWH

- No RCTs of tenofovir for HBV PrEP.
- Observational data among MSM on tenofovir for HIV treatment or HIV PrEP suggest a protective effect.
- Antiviral therapy in pregnant persons with a high VL (>200,000 IU/mL) leads to lower rates of perinatal HBV transmission (5% vs 18%)

N Engl J Med. 2016;374(24):2324–34.

HBV-active Antiviral Therapy as Chemoprophylaxis

- Observational study evaluated HBV incidence in 2,375 MSM w/ and w/o HIV (HBsAg and HBcAb neg) from the Multicenter AIDS Cohort Study.
  - 31% reported at least 1 dose of the HBV vaccine at baseline
- Over 25,322 PY of follow-up, HBV incidence was 14.9/1000 PY in MSM w/ HIV and 7.8/1000 PY in MSM w/o HIV
  - IRR of 1.9 [1.5 – 2.4]
- IR on HAART w/ VL <400 = 2.6/1000 PY (IRR = 0.1 [0.05 – 0.3] when compared to no ART)
- IR on HAART w/ VL >400 = 18.2/1000 PY



Ann Intern Med. 2015 Nov 3;163(9):673-80.

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HBV-active Antiviral Therapy as Chemoprophylaxis

- Among 1,716 patients in the Swiss HIV Cohort Study, who were HBV negative at baseline, there were 177 incident HBV infections over 10,682 PY of f/u.
- Incident HBV infections were lower for persons on HBV active ART, including tenofovir, 3TC, FTC

Covariate	Univariable HR (95% CI)	Multivariable HR (95% CI)
TDF	0.56 (0.12 – 2.56)	0.23 (0.04 – 1.14)
3TC	0.42 (0.28 – 0.68)	0.41 (0.22 – 0.75)
TDF + 3TC	0.04 (0.00 – 0.34)	0.03 (0.00 – 0.43)
TDF + FTC	0.42 (0.14 – 1.22)	0.16 (0.05 – 0.55)
Other ART	1.02 (0.57 – 1.80)	1.17 (0.57 – 2.40)

J Infect Dis. 2016 Aug 15;214(4):599-606.

HBV Treatment in PWH

- Major guideline committees recommend initiating HBV-active antiviral therapy in all HIV/HBV coinfected persons, regardless of CD4 count or HBV viral factors.
- Goal to 1) reduce necroinflammation and HBV DNA replication; 2) avert or delay development of cirrhosis, ESLD and HCC

Table 1. Summary of Guideline-Based Treatment Recommendations for HIV and HBV Coinfection

Guidelines	When to initiate	What to initiate
AASLD HBV update, 2018[35]	All patients with HIV/HBV, regardless of CD4+ cell count	2 HBV-active agents: tenofovir (TAF or TDF) with lamivudine or emtricitabine
DHHS antiretroviral guidelines, 2022[36]	All patients with HIV/HBV, regardless of CD4+ cell count	Tenofovir (TAF or TDF) with emtricitabine; chronic administration of lamivudine or emtricitabine as the only HBV-active agent as part of ART should be avoided.
EASL HBV guidelines, 2017[37]	All patients with HIV/HBV, regardless of CD4+ cell count	Tenofovir (TAF or TDF)–containing ART regimen
APASL HBV update, 2015[38]	All patients with HIV/HBV, "irrespective of immunologic, virologic, or histologic considerations"	2 HBV-active agents: tenofovir with lamivudine or emtricitabine

Top Antivir Med. 2023 Mar 31;31(1):14-22.

HBV Treatment in PWH

Table 2. US Food and Drug Administration–Approved Oral Antiviral Therapy for HBV Infection

Medication	Potency against HBV	Barrier to HBV resistance	HIV activity	Selection of HIV resistance
Lamivudine	Moderate	Low	Yes	Yes
Adefovir	Low	Moderate	No[a]	No
Entecavir	High	High[b]	Partial	Yes
Emtricitabine	Moderate	Low	Yes	Yes
Telbivudine	High	Low	Partial[c]	No
Tenofovir[d]	High	High	Yes	Yes

- 6 oral antiviral agents and 2 formulations of INF-alpha approved for HBV
- TDF, TAF, entecavir 1st line
- 3TC monotherapy no longer recommended d/t 5-year cumulative resistance rate of 70%
- Entecavir has partial activity against HIV and can produce an M184V if not given w/ fully suppressive ART

Top Antivir Med. 2023 Mar 31;31(1):14-22.

TAF vs TDF in Patient with HIV/HBV Coinfection

- Phase 3, double-blind RCT comparing TAF/FTC/BIC to TDF/FTC + DTG in persons with HIV/HBV coinfection at 46 outpatient centers across 10 countries.
  - Eligibility: Treatment naïve; ≥18yrs; HIV RNA 500+; HBV DNA 2,000+
  - 1:1 randomization, stratified by CD4, HBeAg status, and HBV DNA (<8 vs ≥8 $\log_{10}$ IU/mL)
- 243 persons initiated treatment (>90% men; >80% Asian; median age 32)
- Week 48:
  - HBV DNA <29 IU/mL in 63% of TAF/FTC/BIC vs. 43% of TDF/FTC + DTG
  - HBsAg seroconversion in 8% of TAF/FTC/BIC vs. 3% of TDF/FTC + DTG
- Week 96:
  - HBV DNA <29 IU/mL in 75% of TAF/FTC/BIC vs. 70% of TDF/FTC + DTG
  - HBsAg seroconversion in 9% of TAF/FTC/BIC vs. 7% of TDF/FTC + DTG

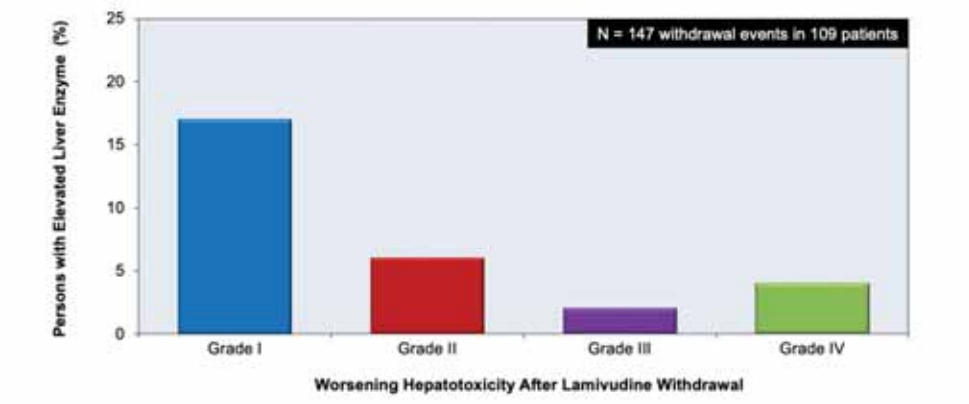
Lancet HIV. 2023 Oct;10(10):e640-e652.

What About Drug Resistance?

- Resistance to 3TC (and FTC) is common – approximately 20% per year in HIV/HBV coinfected individuals on 3TC monotherapy
- 3TC resistance resistance can lead to partial entecavir resistance, so entecavir should be avoided or dosed as 1mg qday in 3TC experienced individuals
- Tenofovir resistance is rare; although testing is available.
- Declines in HBV DNA can be much slower than HIV, and HBV DNA levels may be detectable for several years after starting appropriate ART.
- Improved virologic response has bee seen with addition of entecavir to TDF, but not clear this is necessary in most cases.

Stopping HBV Active ART

- Should be avoided!
- In retrospective analysis of Swiss HIV Cohort Study (n=109), LFT elevation occurred in 29% of HIV/HBV coinfected individuals taken off 3TC; 3 patients presented with fulminant hepatitis; 1 death.
- If anti-HBV therapy must be discontinued, OI Guidelines recommend monitoring transaminases q6wks x3mo, then q3-6mo thereafter



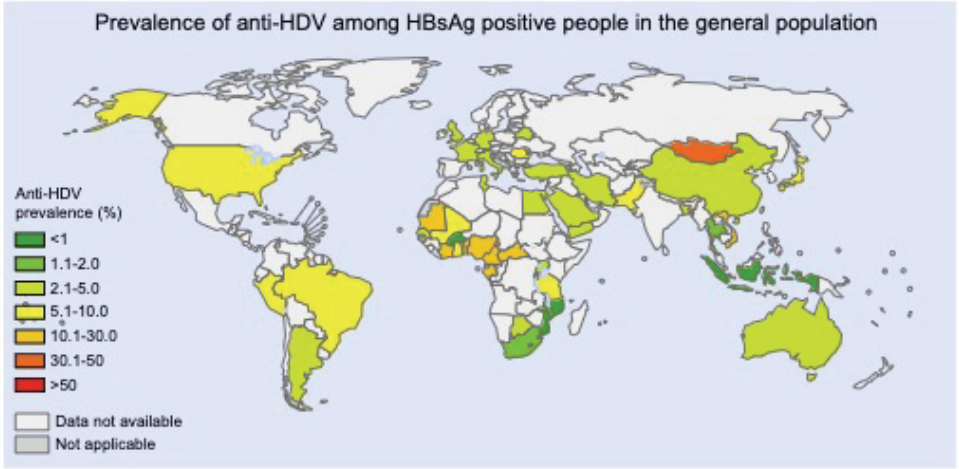
HIV OI Guidelines; HIV Med. 2009 Jan;10(1):12-8.

HBV IRIS

- Risk is highest among those initiated on non-HBV active ART; typically occurring in the first 12 weeks of therapy.
- Can be challenging to distinguish between drug-induced liver injury, other causes of hepatitis and IRIS
- Consider checking LFTs q6-12wks after introduction of ART, then q3-6mo thereafter.
- Typically continue HBV-active ART; insufficient data for or against use of steroids.

Screening for HDV

- HDV requires HBsAg for replication → leads to faster progression of fibrosis; increased risk for HCC
- Estimated prevalence among HBsAg-positive persons is 4.5%
  - Risk is higher among PWID and persons with HCV or HIV co-infection
- EASL, APASL, and many expert recommend screening all HBsAg positive patients.
- AASLD recommends screening those with risk factors:
  - High endemic areas, PWID, MSM, multiple sexual partners, HIV, HCV, elevated LFTs in setting of low HBV DNA



J Hepatol. 2020 Sep;73(3):523-532.

HCC Screening

- HBV can lead to HCC even in the absence of cirrhosis.
- Persons with HIV/HBV coinfection are at risk of developing HCC at an earlier age.
- Many experts recommend screening all persons with HIV/HBV coinfection starting at age 40yrs.
- Screen with US + AFP q6mo

TABLE 1 At-risk population for surveillance

Population group	Incidence of HCC
Sufficient risk to warrant surveillance	
Child-Pugh A–B cirrhosis, any etiology Hepatitis B Hepatitis C (viremic or post-SVR) Alcohol associated cirrhosis Nonalcoholic steatohepatitis Other etiologies	≥1.0% per year
Child-Pugh C cirrhosis, transplant candidate	
Non-cirrhotic chronic hepatitis B Man from endemic country[a] age >40 y Woman from endemic country[a] age > 50 y Person from Africa at earlier age[b] Family history of HCC PAGE-B score ≥ 10[c]	≥0.2% per year
Insufficient risk and in need of risk stratification models/biomarkers	
Hepatitis C and stage 3 fibrosis	< 0.2% per year
Noncirrhotic NAFLD	

Hepatology 78(6):p 1922-1965, December 2023.

Hepatitis C and HIV Coinfection

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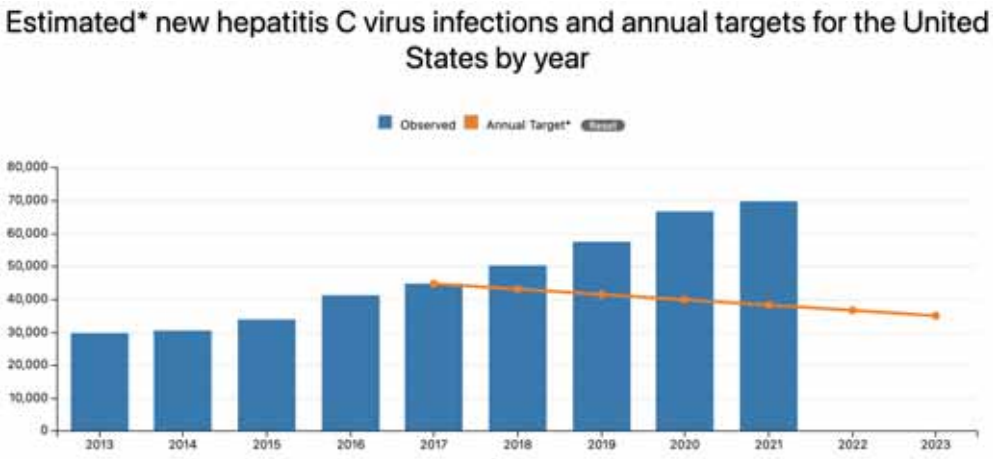
Epidemiology of HIV and HCV Coinfection

- Coinfection with hepatitis C virus (HCV) and HIV is common, owing to shared risk factors.
  - All persons with HIV should be screened for HCV.
- Among persons living with HIV in the U.S., an estimated 15 to 30% have HCV coinfection.
- In the U.S., approximately 5% of persons with chronic HCV have HIV coinfection.



Epidemiol Infect 2018;146:920-30; Lancet Infect Dis. 2016;16:797-808; J Acquir Immune Defic Syndr. 2015;68:425-31; J Infect Dis. 2013;207 Suppl 1(Suppl 1):S1-6; CDC; 2023 National Viral Hepatitis Progress Report

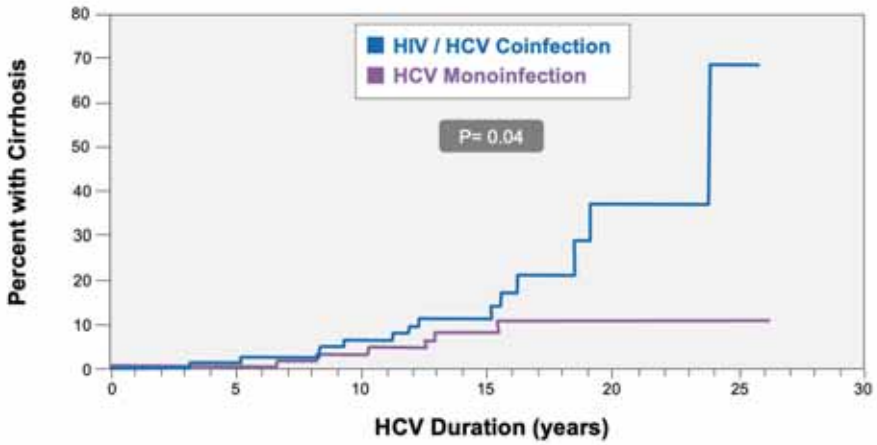
Prevalence and Incidence of HCV Infection in MSM: Systematic Review and Meta-Analysis

- Systematic review and meta-analysis evaluating HCV prevalence and incidence in MSM.
- Pooled HCV prevalence in MSM was 3.4%
  - 1.5% in HIV-negative MSM
  - 6.3% in HIV-positive MSM
- In HIV-negative MSM, pooled HCV incidence was:
  - 0.12/1000 PY in individuals not on PrEP
  - 14.80/1000 PY in individuals on PrEP

Lancet Gastroenterol Hepatol 2021;6(1):39-56.

Natural History of HIV and HCV Coinfection

- Coinfection with HIV accelerates the progression of hepatic fibrosis in patients with HCV, and patient w/ HIV are less likely to spontaneously clear HCV.
- Cirrhosis has been observed to occur 12 to 16 years earlier in persons with HCV/HIV vs. HCV alone.
- Up to 80-90% of liver-related deaths in persons living with HIV are attributable to HCV infection.



Hepatology. 2001;34:1193-9; Ann Inter Med. 2013:158:658-66; Clin Infect Dis. 2001 Aug 15;33(4):562-9.

HCV Screening

- Screen all adults ages ≥18 years at least once (USPSTF, grade B)
- One-time HCV testing regardless of age for persons with recognized risk factors or exposures.
- Routine prenatal HCV testing during each pregnancy.
- Routine periodic testing for persons with ongoing risk factors:
  1. Persons who currently inject drugs and share injection equipment
  2. Persons with selected medical conditions, including maintenance HD
  3. Use of glass crack pipes or intranasal drug use
  4. MSM engaging in condomless sex with multiple partners, particularly MSM living with HIV and those on PrEP
  5. Persons engaging in chemsex

USPSTF Hepatitis C Virus Infection in Adolescents and Adults: Screening; MMWR 2020;69:1-17; AASLD/IDSA HCV Guidance

Prevention Messages

Photo courtesy of the Hepatitis Education Project

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HCV Treatment Outcomes in Patients with HIV

SVR Rates with GT 1 HCV-HIV Coinfection and HCV Monoinfection				
Regimen (12 weeks)	Genotype 1			
	HCV-HIV Coinfection		HCV Monoinfection	
	Study	SVR	Study	SVR
Elbasvir-Grazoprevir	C-EDGE Coinfection	95%	C-EDGE TN	95%
Glecaprevir-Pibrentasvir	EXPEDITION-2	98%	ENDURANCE-1	99%
Ledipasvir-Sofosbuvir	ION-4	96%	ION-1	99%
Sofosbuvir-Velpatasvir	ASTRAL-5	95%	ASTRAL-1	98%

Simplified Treatment Algorithm

WHO IS ELIGIBLE FOR SIMPLIFIED TREATMENT:
Adults with chronic HCV infection, regardless of genotype, who DO NOT HAVE DECOMPENSATED CIRRHOSIS and who are HCV TREATMENT-NAÏVE.

WHO IS NOT ELIGIBLE FOR SIMPLIFIED TREATMENT:
Patients with any of the following conditions or characteristics are not eligible for the simplified treatment algorithm.

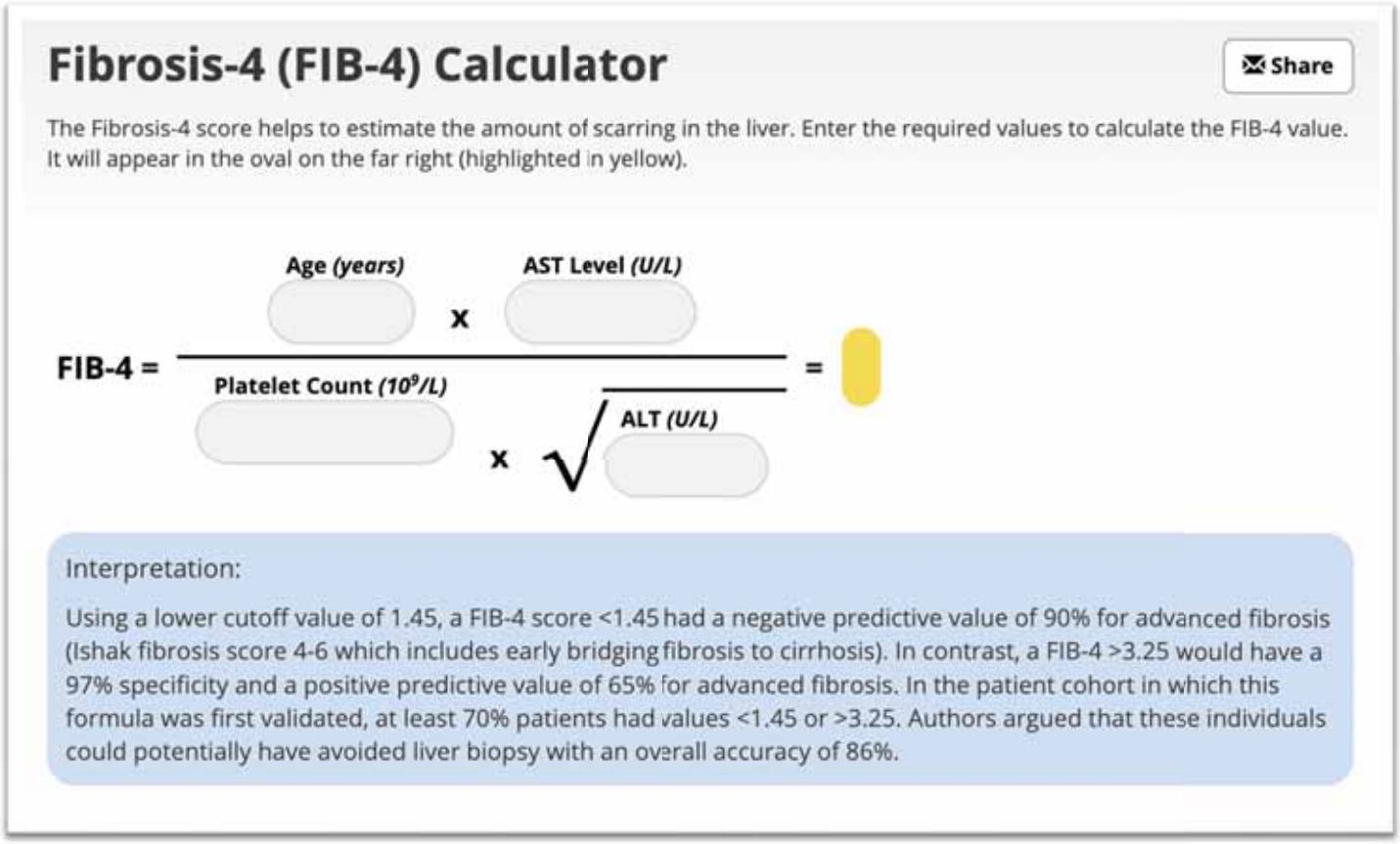
- Prior HCV treatment
- Decompensated cirrhosis
- Coinfection with hepatitis B virus (HBV)
- Currently pregnant
- Known or suspected hepatocellular carcinoma (HCC)
- History of liver transplantation
- Patients with compensated cirrhosis and end-stage renal disease (ESRD)

Simplified Treatment Algorithm: Pretreatment Assessment

1. Calculate a FIB-4
2. Assess for cirrhosis
3. Medication reconciliation, including over the counter medications
4. Assess for potential drug-drug interactions
5. Educate the patient on medication administration, adherence and risk for reinfection
6. Pre-treatment laboratory assessment

AASLD/IDSA HCV Treatment Guidance www.hcvguidelines.org

Non-invasive Methods for Fibrosis Assessment



Fibrosis-4 (FIB-4) Calculator

Share

The Fibrosis-4 score helps to estimate the amount of scarring in the liver. Enter the required values to calculate the FIB-4 value. It will appear in the oval on the far right (highlighted in yellow).

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

Interpretation:

Using a lower cutoff value of 1.45, a FIB-4 score <1.45 had a negative predictive value of 90% for advanced fibrosis (Ishak fibrosis score 4-6 which includes early bridging fibrosis to cirrhosis). In contrast, a FIB-4 >3.25 would have a 97% specificity and a positive predictive value of 65% for advanced fibrosis. In the patient cohort in which this formula was first validated, at least 70% patients had values <1.45 or >3.25. Authors argued that these individuals could potentially have avoided liver biopsy with an overall accuracy of 86%.

FibroScan (elastography)

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Assess for Cirrhosis

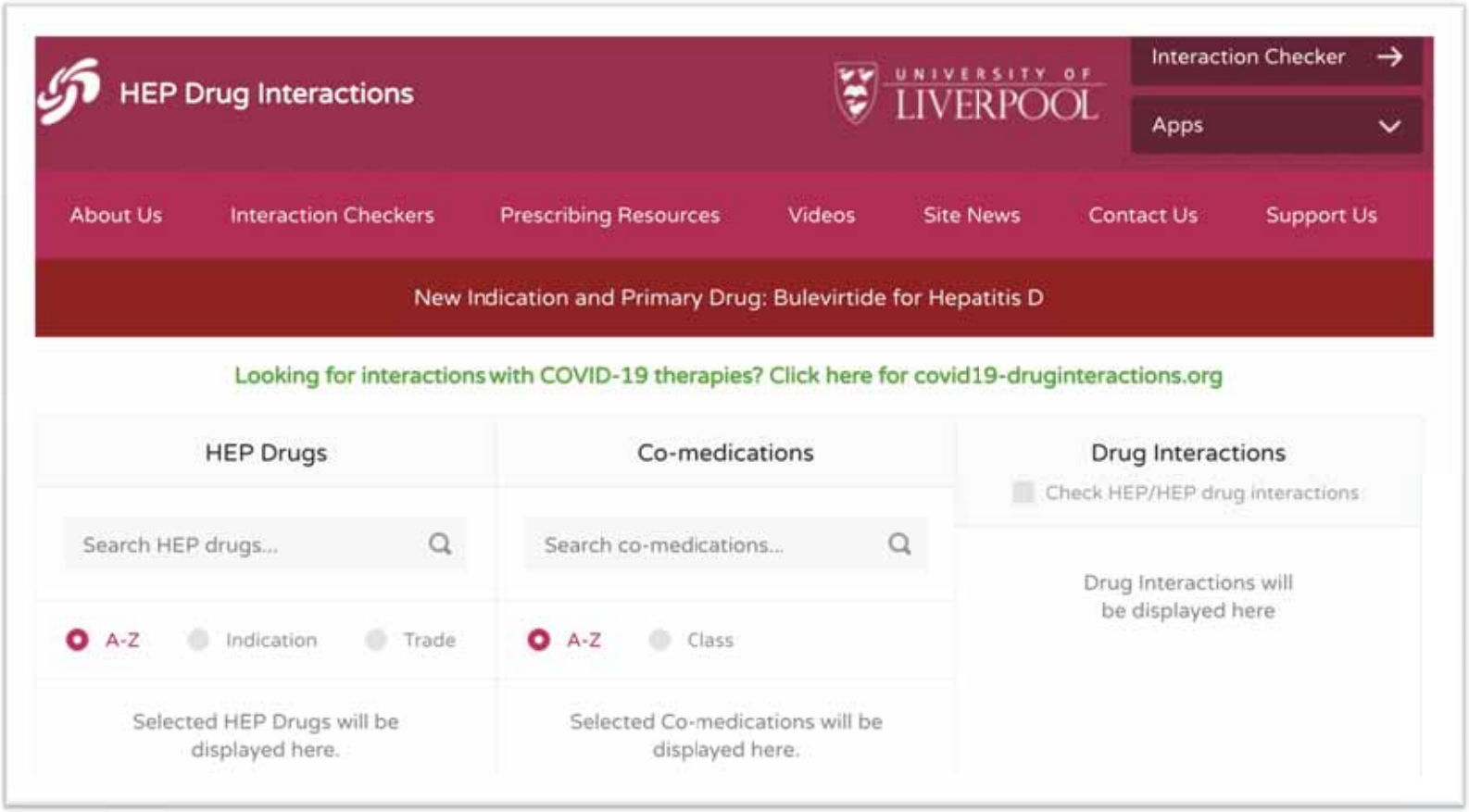
1. **Fibrosis staging:** FIB-4, APRI, FibroSure, FibroScan, Liver biopsy

2. **Exam clues:** Spider angiomata, enlarged spleen, ascites / edema, jaundice / scleral icterus

3. **Lab clues:** thrombocytopenia, elevated Tbili, elevated alk phos, AST>ALT

4. **Imaging clues:** splenomegaly, recanalized umbilical vein

Assess for Drug-drug Interactions



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

Pretreatment Laboratory Assessment

A. **Within 6 months of treatment initiation for patients without cirrhosis and within 3 month of treatment initiation for those with compensated cirrhosis:**
   i. Complete blood count
   ii. Hepatic function panel
   iii. Calculate glomerular filtration rate

B. **Any time prior to initiating treatment:**
   i. Quantitative HCV RNA
   ii. HIV antigen/antibody test
   iii. Hepatitis B surface antigen

C. **Before starting treatment:**
   i. Serum pregnancy testing and counseling on the risk related to HCV medications should be provided to persons capable of becoming pregnant.

AASLD/IDSA HCV Treatment Guidance www.hcvguidelines.org

Summary of Glecaprevir-Pibrentasvir vs. Sofosbuvir-Velpatasvir

Medication	Glecaprevir-Pibrentasvir	Sofosbuvir-Velpatasvir
Trade Name	Mavyret	Epclusa
Adult dose (oral)	Glecaprevir 300 mg and pibrentasvir 120 mg as 3 tablets once daily	Sofosbuvir 400 mg and velpatasvir 100 mg as one single tablet once daily
Duration	8 weeks	12 weeks
Food requirement	Yes	No
Hepatic impairment	Contraindicated in patients with decompensated cirrhosis (Child B or C)	No dose adjustment necessary for any degree of cirrhosis (Child A, B or C)
Renal impairment	No dosage adjustment in patients with any degree of renal impairment, including dialysis	No dosage adjustment in patients with any degree of renal impairment, including dialysis
Notable drug interaction(s)	- Statins - Ethinylestradiol - HIV protease inhibitors and select NNRTIs	- Proton pump inhibitors (PPIs)

		Ledipasvir/ Sofosbuvir (LDV/SOF)	Sofosbuvir/ Velpatasvir (SOF/VEL)	Elbasvir/ Grazoprevir (ELB/GRZ)	Glecaprevir/ Pibrentasvir (GLE/PIB)	Sofosbuvir/ Velpatasvir/ Voxilaprevir (SOF/VEL/VOX)
Protease Inhibitors	Boosted Atazanavir	A	A			
	Boosted Darunavir	A	A			
	Boosted Lopinavir	ND, A	A			ND
NNRTIs	Doravirine		ND		ND	ND
	Efavirenz				ND	ND
	Rilpivirine					
	Etravirine	ND	ND	ND	ND	ND
Integrase Inhibitors	Bictegravir			ND	ND	
	Cabotegravir	ND	ND	ND	ND	ND
	Cobicistat-boosted elvitegravir	C	C			C
	Dolutegravir					ND
	Raltegravir					ND
Entry Inhibitors	Fostemsavir	ND	ND	ND	ND	ND
	Ibalizumab-uiyk	ND	ND	ND	ND	ND
	Maraviroc	ND	ND	ND	ND	ND
NRTIs	Abacavir		ND	ND		ND
	Emtricitabine					
	Lamivudine		ND	ND		ND
	Tenofovir disoproxil fumarate	B, C	B, C			C
	Tenofovir alafenamide	D	D	ND		D

Recommendations for HCV Treatment in PWH

- **Treatment-naïve without cirrhosis**
  - Glecaprevir/pibrentasvir for 8 weeks
  - Sofosbuvir/velpatasvir for 12 weeks
- **Treatment-naïve with compensated cirrhosis (GT 1,2,4-6)**
  - Glecaprevir/pibrentasvir for 8-12 weeks^
  - Sofosbuvir/velpatasvir for 12 weeks
- **Treatment-naïve with compensated cirrhosis (GT 3)***
  - Glecaprevir/pibrentasvir for 8 weeks (12 week course is an alternative)

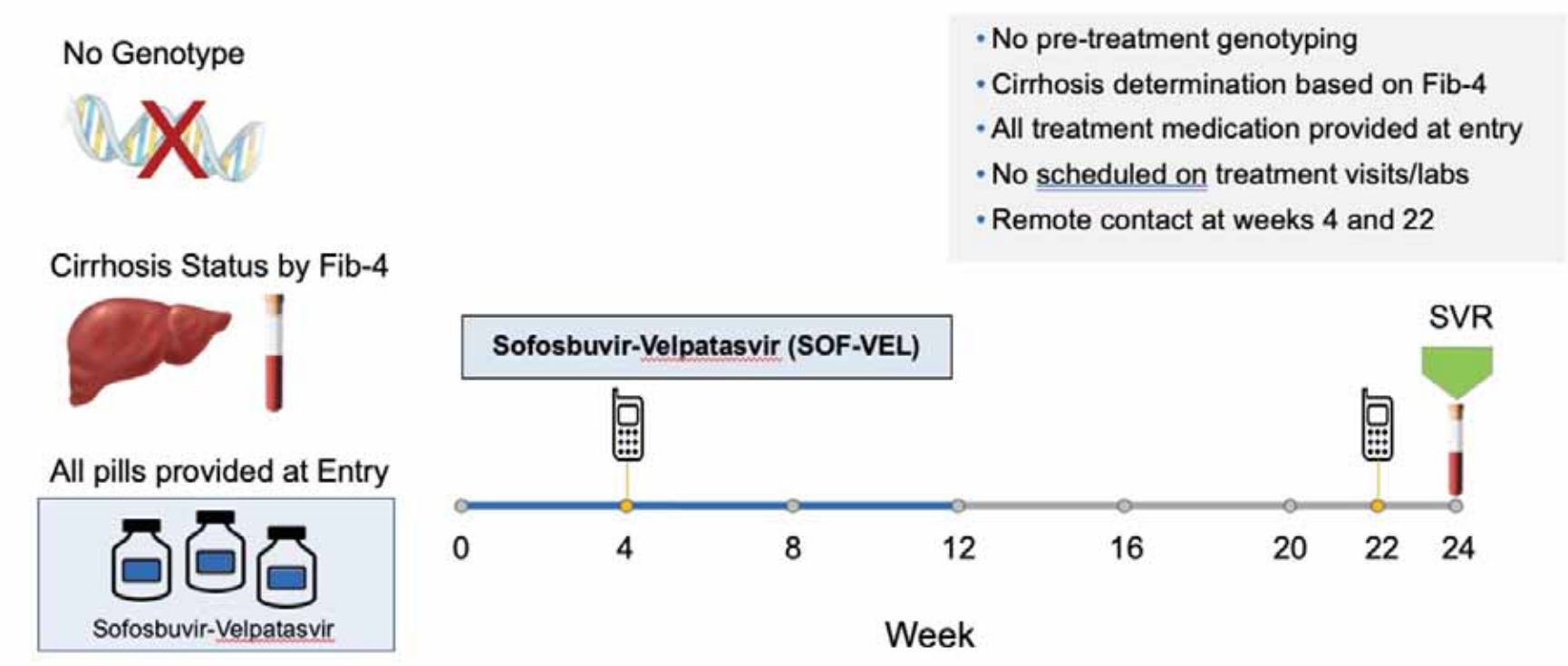
^Although 12-week duration is better studied, real world data suggest 8wk duration is ok. 12wk duration listed as “alternative” in OI guidelines
*Sofosbuvir/velpatasvir requires pre-treatment NS5A RAS testing in patients w/ GT3 + cirrhosis
- if no resistance 12wks of sofosbuvir/velpatasvir is ok; if resistance, must add ribavirin

Laboratory Monitoring

- Most patients will not require any on-treatment laboratory monitoring.
- Patients taking diabetes medications should monitor for hypoglycemia.
- Patients on warfarin should have INR monitoring to evaluate for subtherapeutic anticoagulation.
- In patients with compensated cirrhosis, providers may order liver function testing to monitor for liver injury during treatment.
- Some experts monitor LFTs on treatment in patient with and isolated HBcAb.
- All patients should undergo repeat HCV RNA and liver function testing 12 weeks post-treatment to assess for HCV cure and transaminase normalization.

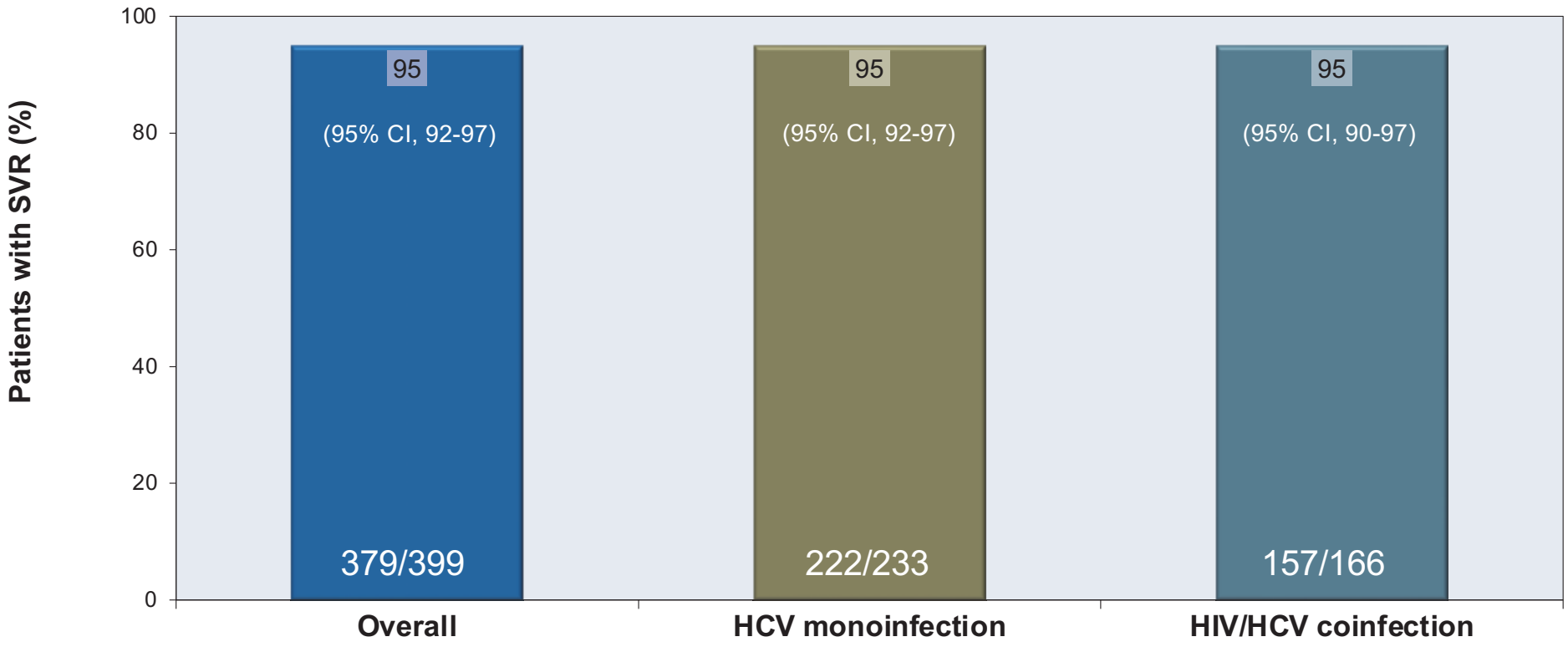
AASLD/IDSA HCV Treatment Guidance www.hcvguidelines.org

Sofosbuvir-Velpatasvir with Minimal Monitoring +/- HIV Coinfection ACTG A5360 (MINMON):



Lancet Gastroenterol Hepatol. 2022;7:307-17.

Sofosbuvir-Velpatasvir with Minimal Monitoring +/- HIV Coinfection ACTG A5360 (MINMON): Results, Overall and by HIV Status



Lancet Gastroenterol Hepatol. 2022;7:307-17.

Impact of Treatment Interruptions on SVR12

- SIMPLIFY: International open-label, single-arm study of 12wks of SOF-VEL for persons with recent IVDU.
  - 97% completed treatment
  - 88% missed at least one dose
  - 32% considered non-adherent (<90% adherence)
  - Longest episode of non-adherence:
    - 1 – 2 days (61%)
    - 3 – 6 days (17%)
    - ≥7 days (11%)
  - SVR12 achieved in 94% of both “adherent” and “non-adherent”

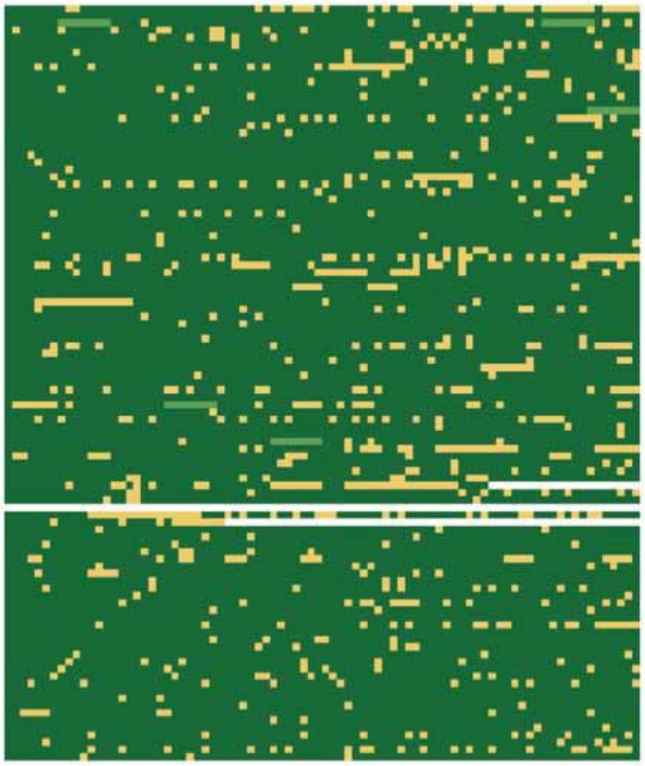
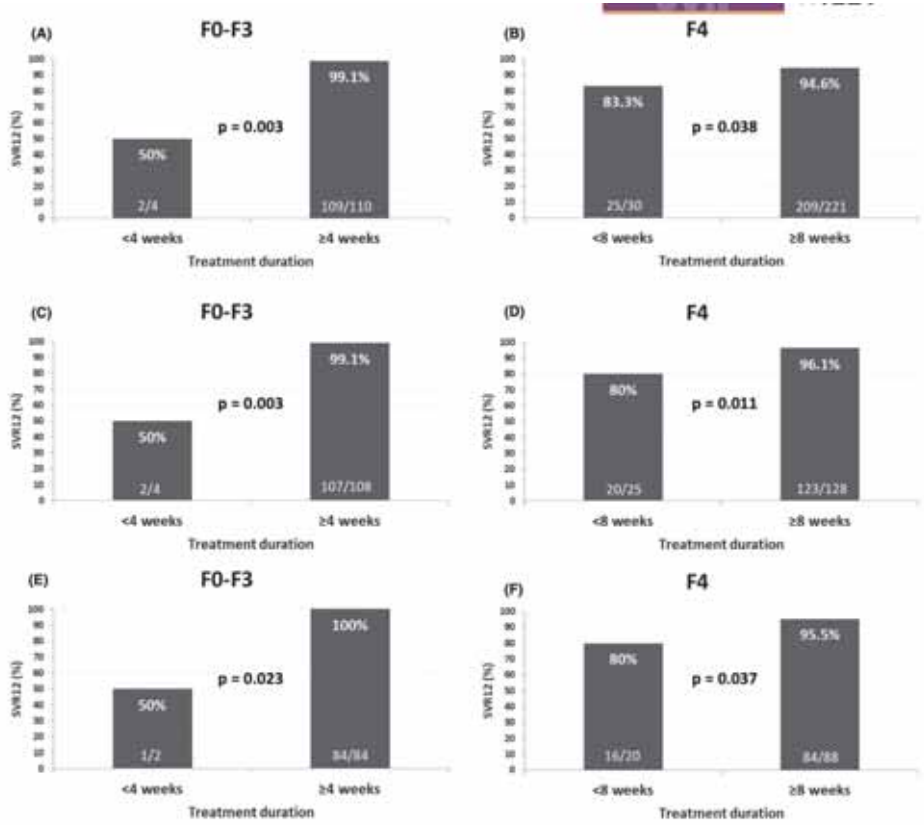


Fig. 1. Daily adherence to sofosbuvir/velpatasvir therapy as measured by weekly-administered electronic blister-packs. Rows represent individual participants and columns represent days of therapy. Green boxes represent a dose received, with light green boxes indicating a damaged blister-pack where clinical pill count data was used. Yellow boxes represent no dose received on that treatment day and white boxes represent early treatment discontinuation

Int J Drug Policy. 2018 Dec;62:14-23.

Impact of Treatment Interruptions on SVR12

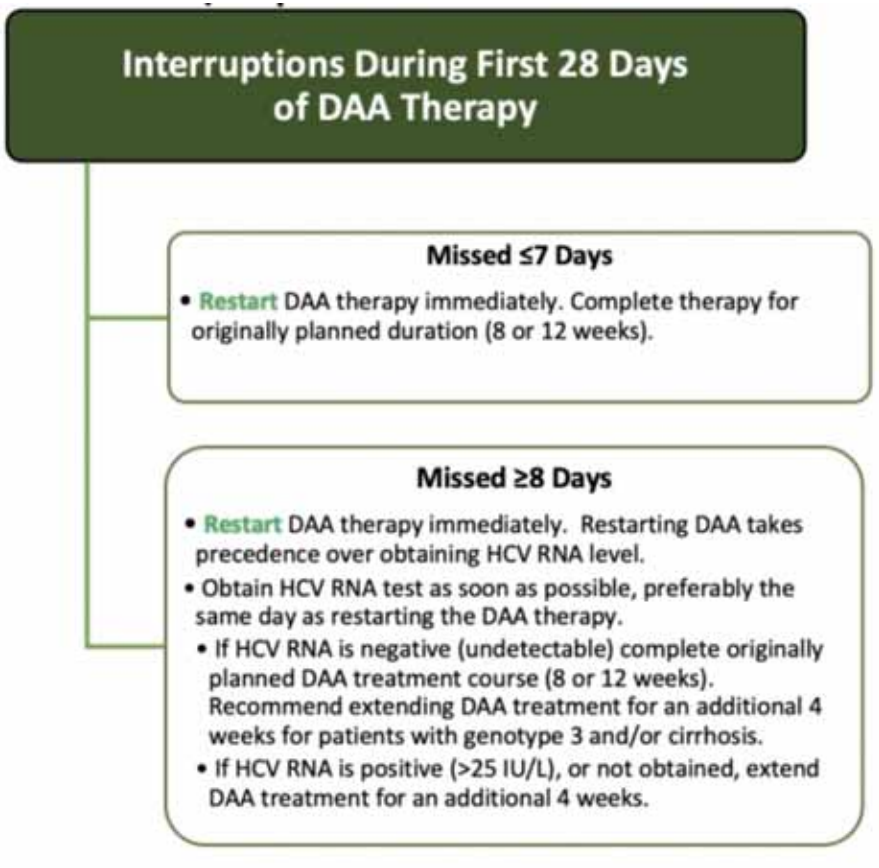
- Retrospective review of patients registered in a web-based regional Italian HCV treatment database.
- SOF-LDV (24%), SOF + DCV (19%) and SOF/VEL (14%) were the most common regimens.
- 67% had cirrhosis
- Planned treatment duration was 12 wks for 65%; 8 wks for 7% and >12 weeks for the rest.

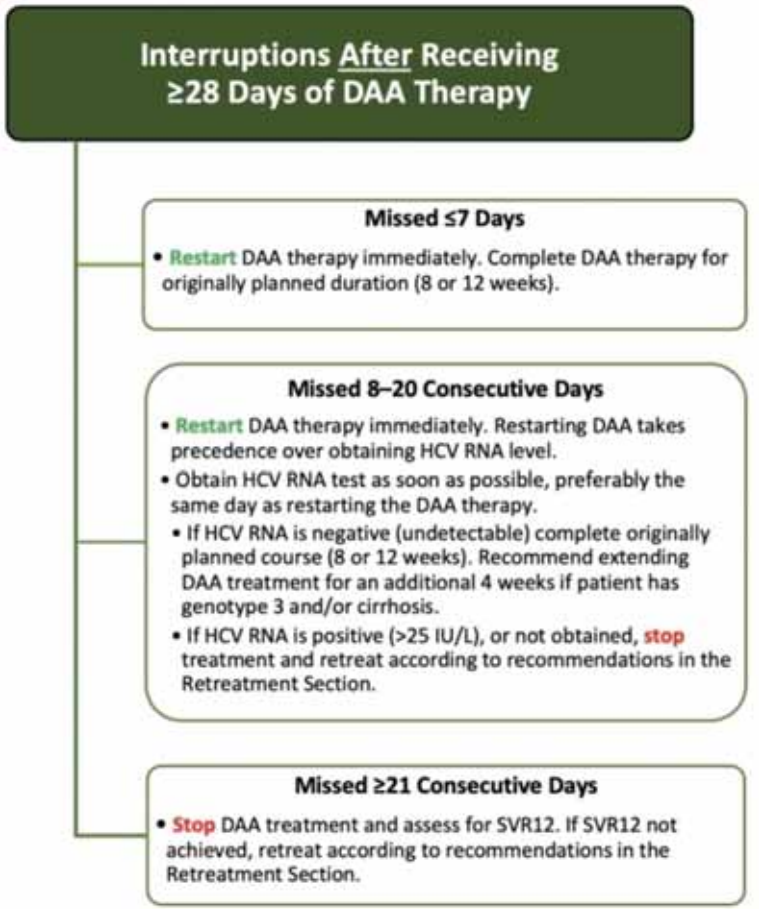


UW Medicine

J Viral Hepat. 2021 Mar;28(3):558-568.

Treatment Interruptions





AASLD/IDSA HCV Treatment Guidance www.hcvguidelines.org

FAQs About HCV Treatment

1. What about treatment in pregnant persons or persons trying to become pregnant?
2. Should I get a genotype?
3. What is the role of resistance testing?
4. How can I sort out prior treatment failure vs reinfection?
5. Is there a role for post-treatment fibrosis staging?
6. What about HCC screening?

FAQs About HCV Treatment

What about treatment in pregnant persons or persons trying to become pregnant?

- Limited data on DAAs in pregnancy. Guidelines recommend treating persons before getting pregnant to limit vertical transmission. However, DAAs likely safe during pregnancy and could be considered on a case-by-case basis after shared decision making.

FAQs About HCV Treatment

Should I get a genotype?

- Genotypes are no longer routinely performed given the availability of highly effective pan-genotypic regimens. I get a genotype when considering the use of SOF-VEL in a patient with cirrhosis, when trying to sort out reinfection, or if I believe my patient is at high risk for reinfection and a genotype may come in handy later on.

FAQs About HCV Treatment

What is the role of resistance testing?

- Limited role for resistance testing with modern DAA regimens. NS5A RAS testing recommended for GT3 treatment-naïve patients with cirrhosis prior to SOF-VEL. If Y93H mutation present, then add weigh-based ribavirin or use other regimen.

FAQs About HCV Treatment

How can I sort out prior treatment failure vs reinfection?

- This can be challenging and depends on available labs and patient history. Switch in genotype helps confirm reinfection, as does prior documentation of SVR12.

FAQs About HCV Treatment

Is there a role for post-treatment fibrosis staging?

- Methods for evaluating fibrosis (e.g., FibroScan) are not validated post-treatment, and there is no clear role for ongoing fibrosis assessment post cure to guide need for HCC screening. Screening recommendations are based on fibrosis assessment pre-treatment.

FAQs About HCV Treatment

What about HCC screening?

- HCC screening with q6mo ultrasound and AFP recommended in all patients with cirrhosis. EASL guidelines recommend HCC screening in patients with F3 fibrosis, but AASLD does not make this recommendation citing much lower risk and lack of cost-effectiveness.

Teaching Peer Evaluation for Dr. Maria Corcorran