Working Towards Hepatitis C Elimination

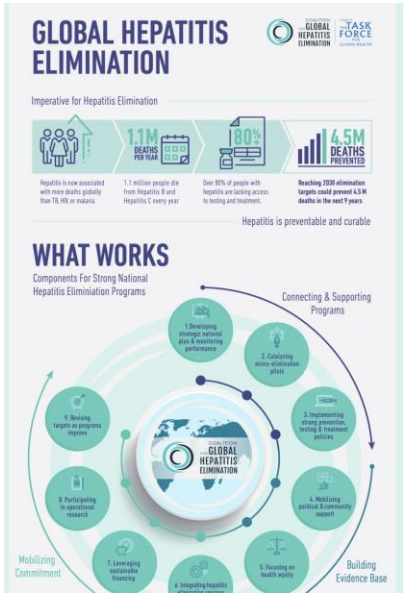
Andrew Aronsohn MD
Associate Professor of Medicine
University of Chicago

AT THE FOREFRONT
UChicago Medicine

Disclosures

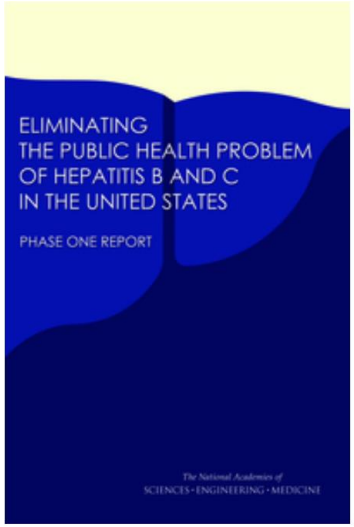
I have no financial interest to disclose. This continuing education activity is managed by The St. Louis STI/HIV Prevention Training Center and accredited by Missouri State Medical Association (MSMA) in cooperation with the Chicago Department of Public Health

Road to HCV Elimination : 2030



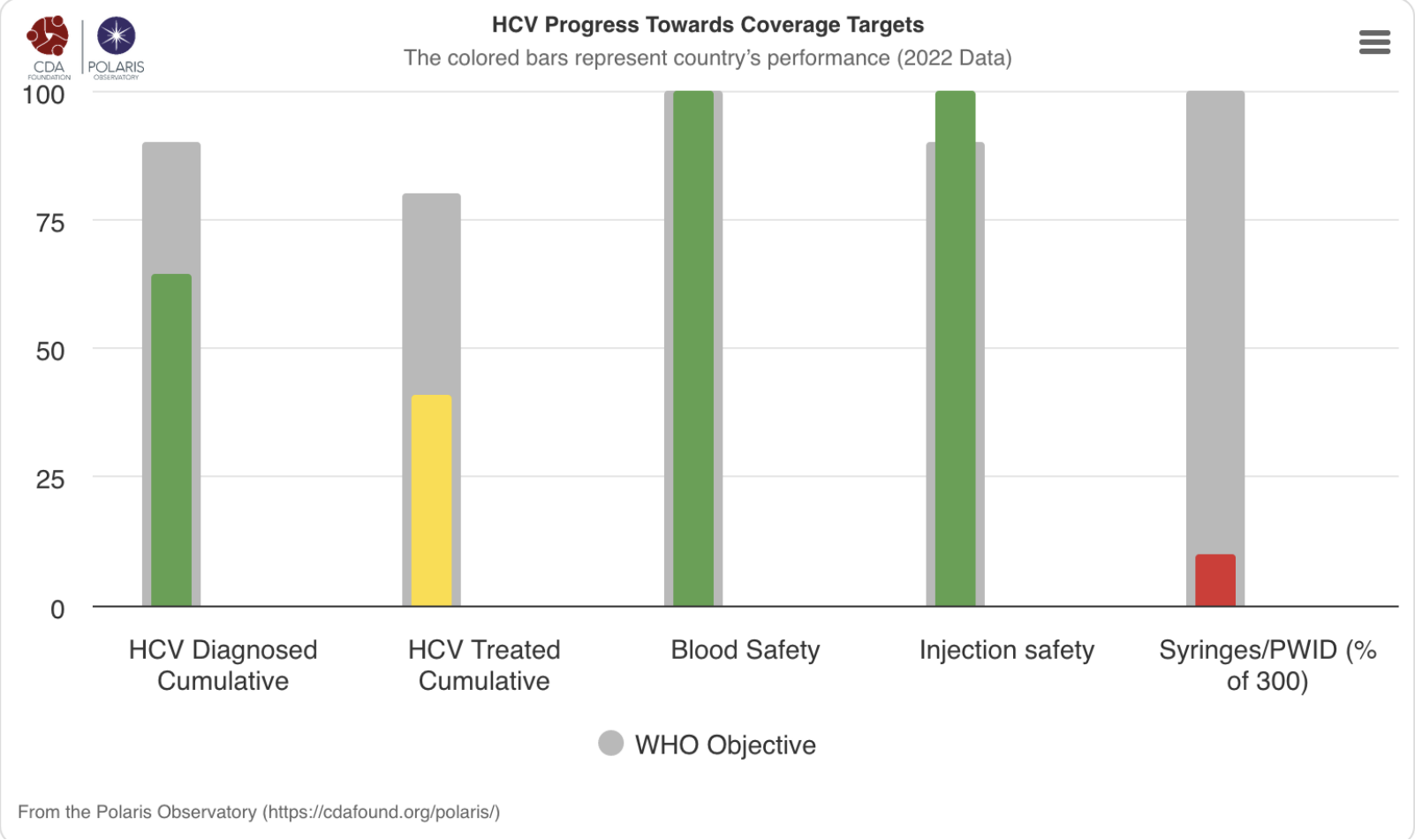
65% reduction in mortality by 2030

90% reduction of incidence
Avert 28,000 deaths by 2030



AT THE FOREFRONT
UChicago Medicine

Progress Towards Elimination



AT THE FOREFRONT
UChicago Medicine

POLICY

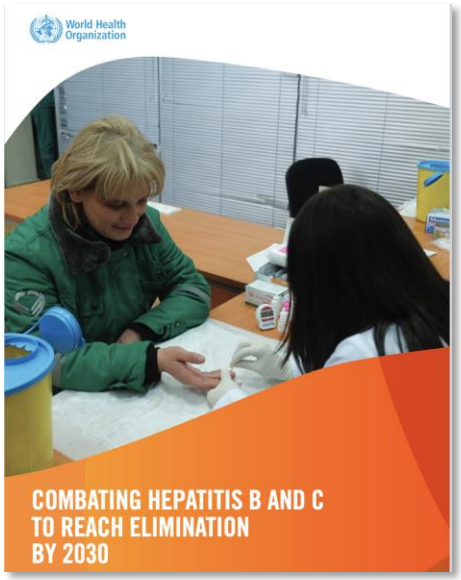
Administration eyes national hepatitis C treatment plan

The plan would streamline testing and treatment and secure an agreement with drugmakers to bring down the cost of treatment of the disease, which has spiked during the pandemic

VIRAL HEPATITIS NATIONAL STRATEGIC PLAN

OVERARCHING GOAL:

Elimination by 2030

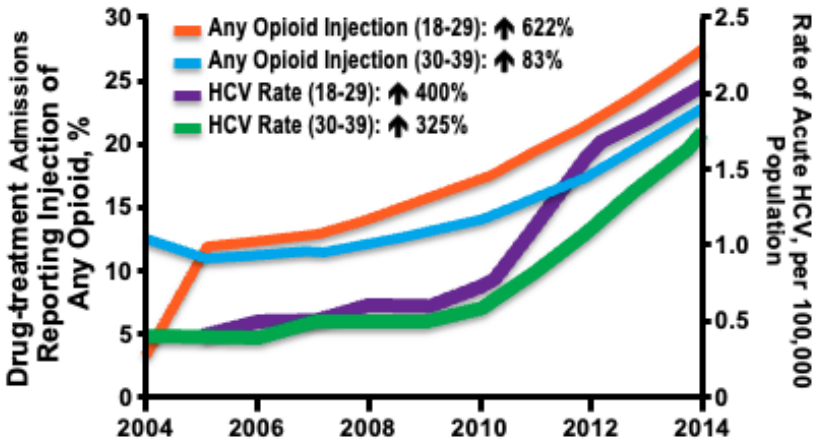


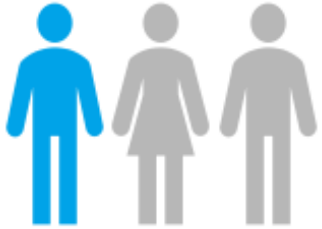
AT THE FOREFRONT
UChicago Medicine

HCV Prevalence among PWID

HCV Prevalence among PWID is estimated to be 70%-77%[1]

Opioid Injection and HCV in Younger Americans, 2004–2014[2]





1 of 3 people who inject drugs acquires HCV infection in the first year of injecting[3]

45% to 85% of individuals chronically infected with HCV are unaware of their status[1]

AT THE FOREFRONT
UChicago Medicine

Centers for Disease Control and Prevention (CDC). Surveillance for Viral Hepatitis—United States, 2015. https://www.cdc.gov/hepatitis/statistics/2015surveillance/pdfs/2015HepSurveillanceRpt.pdf. Accessed September 2, 2018. 2. CDC and Substance Abuse and Mental Health Services Administration. Last updated December 2017. https://www.cdc.gov/nchhstp/newsroom/2017/hepatitis-c-and-opioid-injection.html. Accessed September 2, 2018; 3. Hagan H, et al. *Am J*

The Shifting HCV Case Distribution

Figure 5B. NHANES Estimates HCV Prevalence, 2017-2020, by Age Group

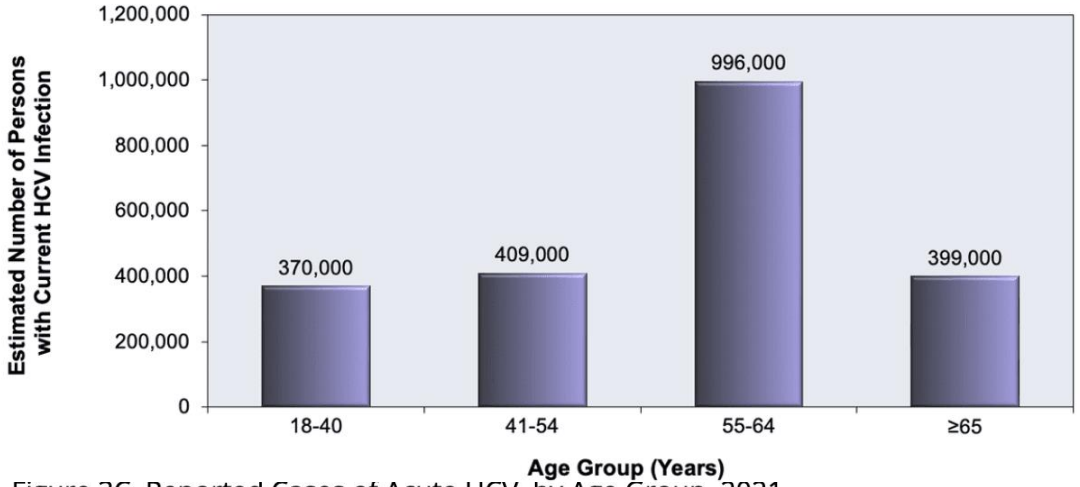
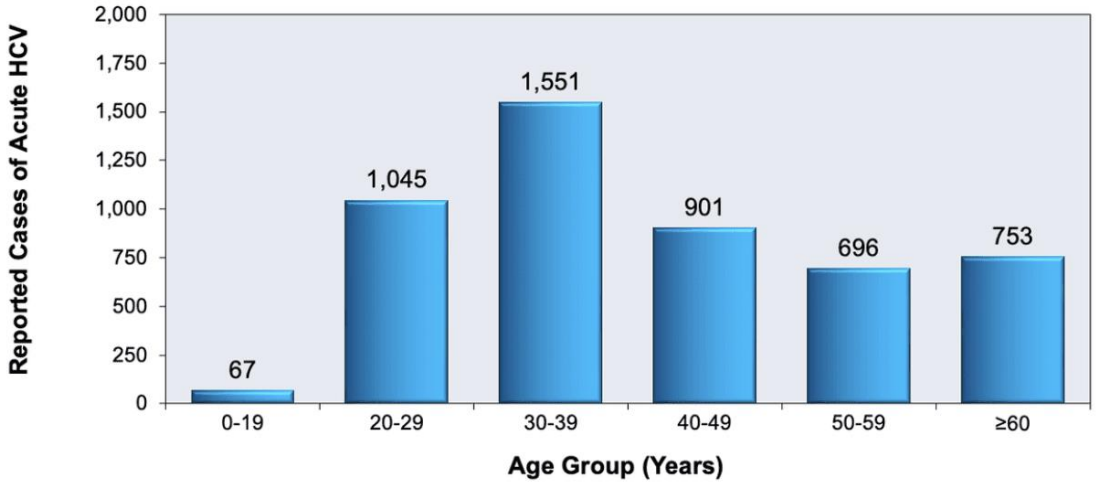


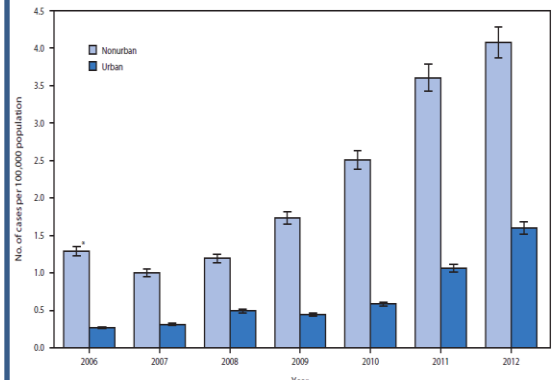
Figure 3C. Reported Cases of Acute HCV, by Age Group, 2021



https://www.hepatitisc.uw.edu/go/screening-diagnosis/epidemiology-us/core-concept/all#hcv-incidence-united-states Centers for Disease Control and Prevention (CDC). 2021 Viral Hepatitis Surveillance Report—Hepatitis C.

Essential Interventions: HCV Transmission

- Syringe exchange and opioid agonist therapy are effective in preventing HCV transmission
- Significant gaps exist, especially in rural areas



Incidence of acute HCV among persons aged ≤30 years

The CDC should work with states to identify settings appropriate for enhanced viral hepatitis testing based on expected prevalence.

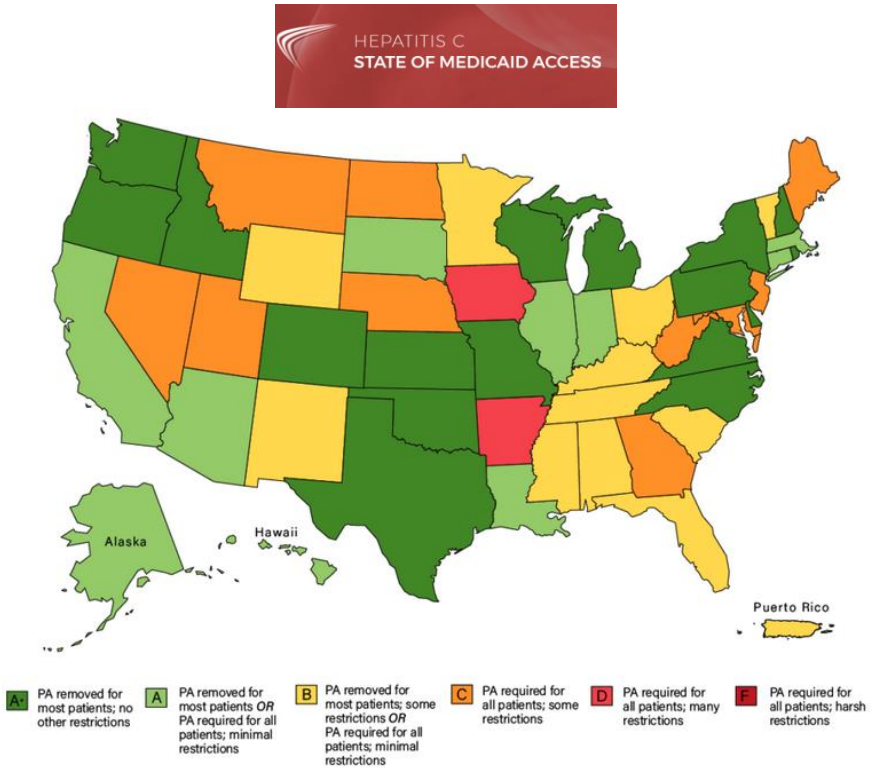
States and federal agencies should expand access to syringe exchange and opioid agonist therapy in accessible venues.

AT THE FOREFRONT
UChicago Medicine

Zibbell et al MMWR 2015

Essential Interventions: HCV Treatment Access

Public and private health plans should remove restrictions that are not medically indicated and offer direct-acting antivirals to all chronic hepatitis C patients.`



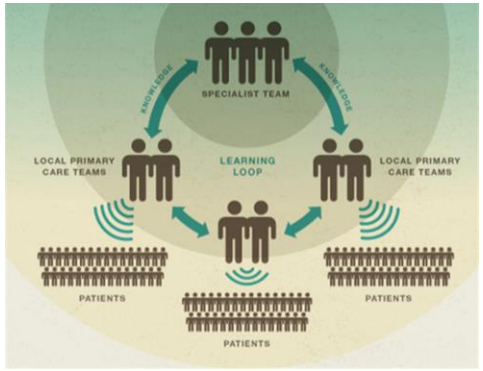
Lo Re et at CGH 2016
www.stateofhepc.org

AT THE FOREFRONT
UChicago Medicine

Service Delivery: Building Capacity

Requirement of specialty care to treat HCV represents a bottleneck to achieve elimination

Model estimates 260,000 treated/year



AASLD and IDSA should partner with primary care providers and their professional organizations to build capacity to treat hepatitis B and C in primary care. The program should set up referral systems for medically complex patients

AT THE FOREFRONT
UChicago Medicine

Service Delivery: Comprehensive Models

- People with the most serious need for health care may be hard to reach and need more support services
  - Cultural barriers, homeless, substance use, mental health problems, incarcerations
- Ryan White program incentivizes states to reach vulnerable populations
- New program or extend current program (maybe more feasible)

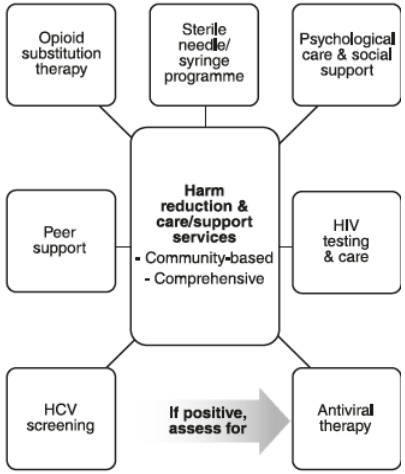


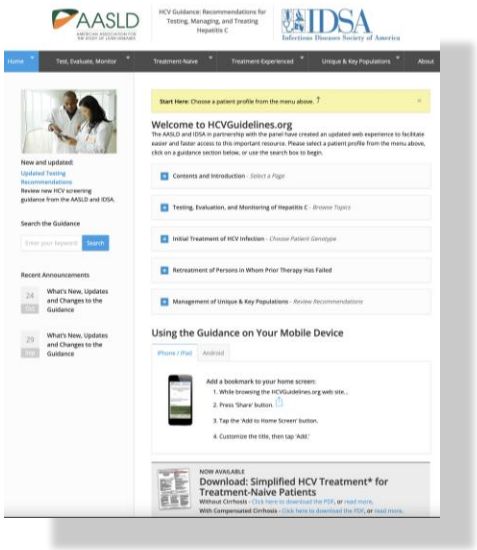
Fig. 1 Components of comprehensive hepatitis C virus (HCV) care services to which people who inject drugs should have access

The Department of Health and Human Services should work with states to build a comprehensive system of care and support for special populations with hepatitis B and C on the scale of the Ryan White system.

AT THE FOREFRONT
UChicago Medicine

Dillon Hep Med and Pol 2016

www.hcvguidelines.org



Over 200 countries

Over 2 million individual users

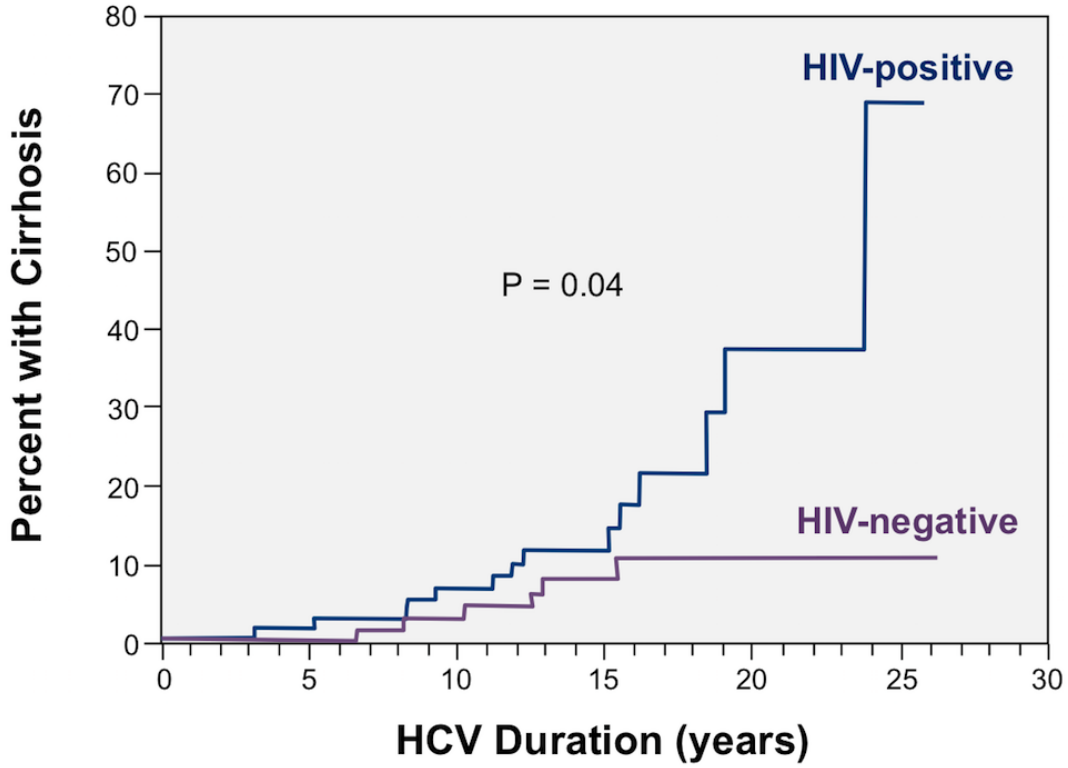
AT THE FOREFRONT
UChicago Medicine

HCV Guidance Treatment Recommendations

- Treatment naïve
- Treatment experienced
- Cirrhosis
- Decompensated cirrhosis
- HIV / HCV coinfection
- Treatment interruption
- Renal impairment
- Acute HCV
- Pregnancy
- Children
- Transplantation

AT THE FOREFRONT
UChicago Medicine

Progression to Fibrosis in HIV Coinfection



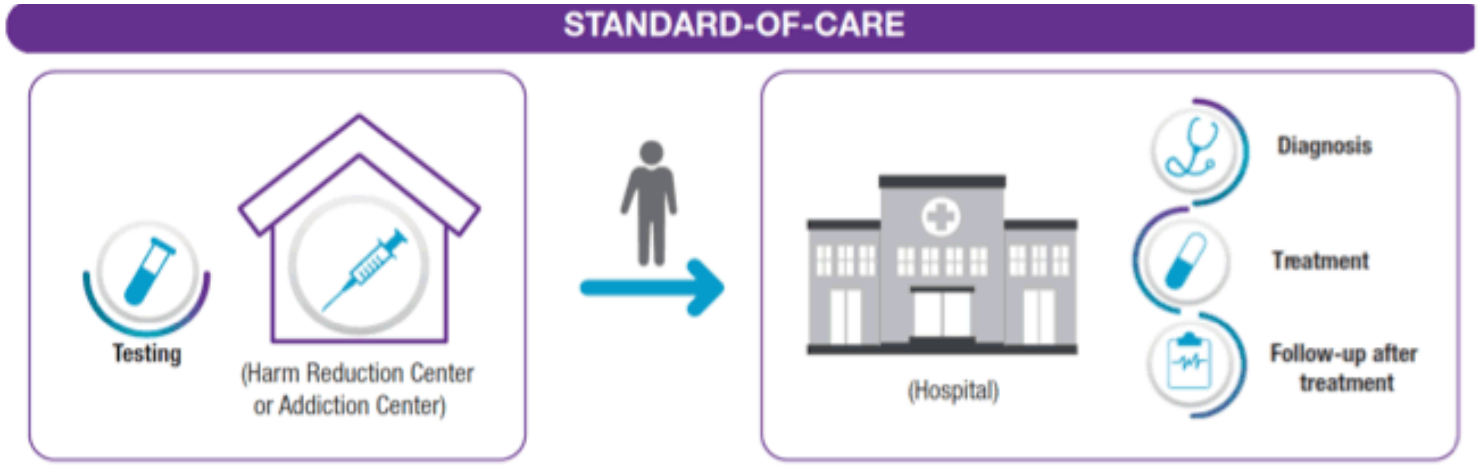
AT THE FOREFRONT
UChicago Medicine

Di Martino V, Rufat P, Boyer N, et al. The influence of human immunodeficiency virus coinfection on chronic hepatitis C in injection drug users: a long-term retrospective cohort study. Hepatology. 2001;34:1193-9.
www.hepatitis.uw.edu

Equivalent SVR Rates : Monoinfection vs HIV Coinfection

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%**

Test and Treat

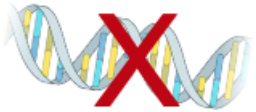


AT THE FOREFRONT
UChicago Medicine

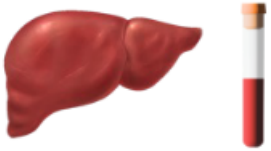
Forns at al AASLD 2020

K.I.S.S (or MINMON)

No Genotype

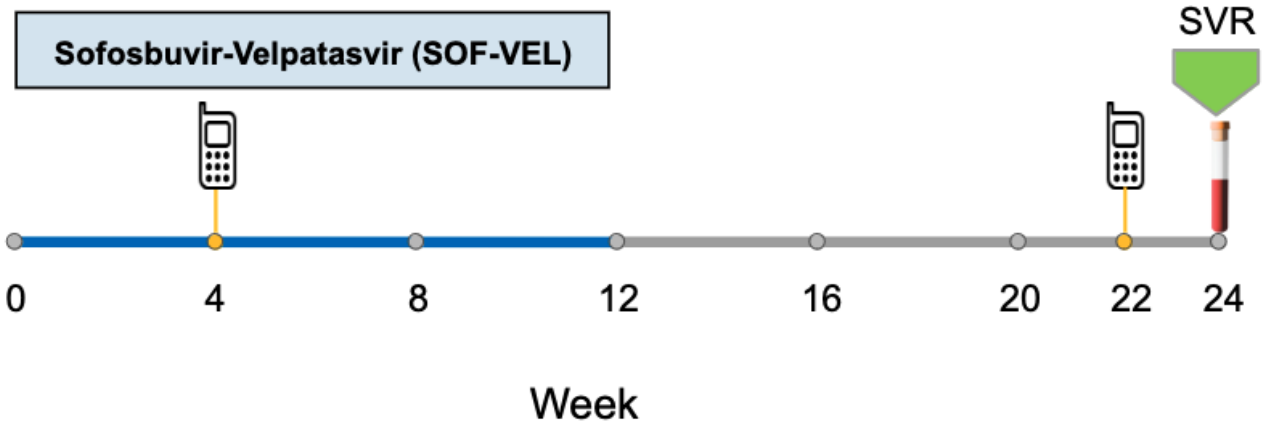


Cirrhosis Status by Fib-4



All pills provided at Entry

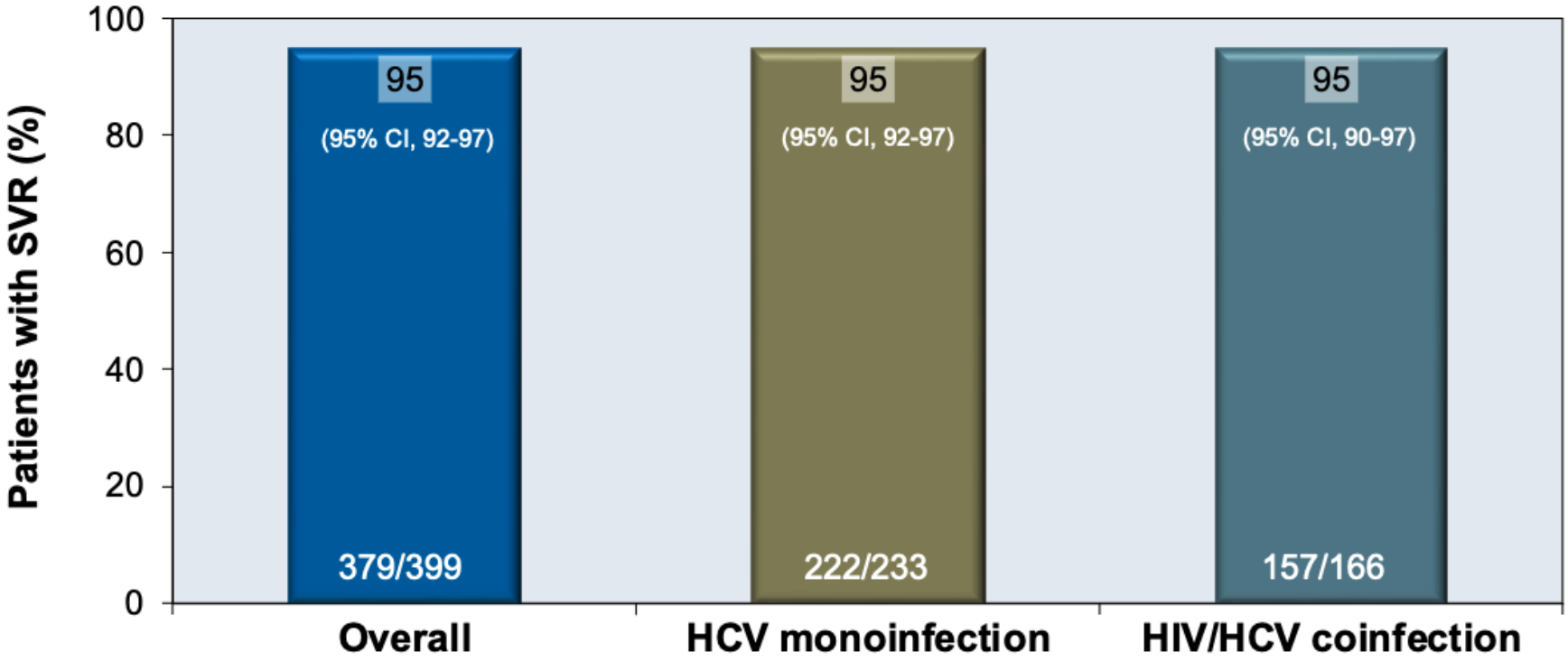
- No pre-treatment genotyping
- Cirrhosis determination based on Fib-4
- All treatment medication provided at entry
- No scheduled on treatment visits/labs
- Remote contact at weeks 4 and 22



AT THE FOREFRONT
UChicago Medicine

Solomon et al Lancet Gastro Hep 2022
https://slides.hepatitisc.uw.edu

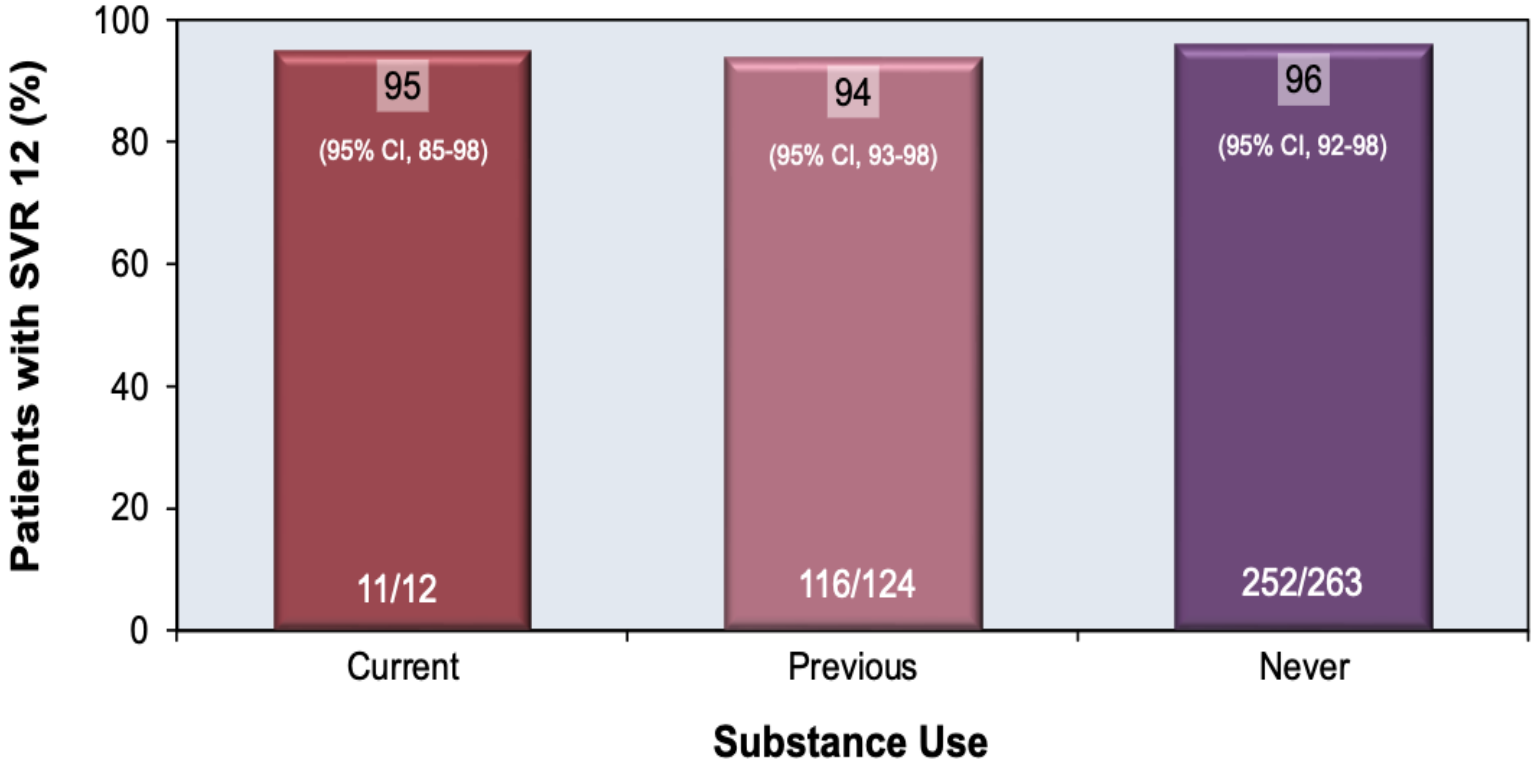
MINMON Results



AT THE FOREFRONT
UChicago Medicine

Solomon et al Lancet Gastro Hep 2022
https://slides.hepatitisc.uw.edu

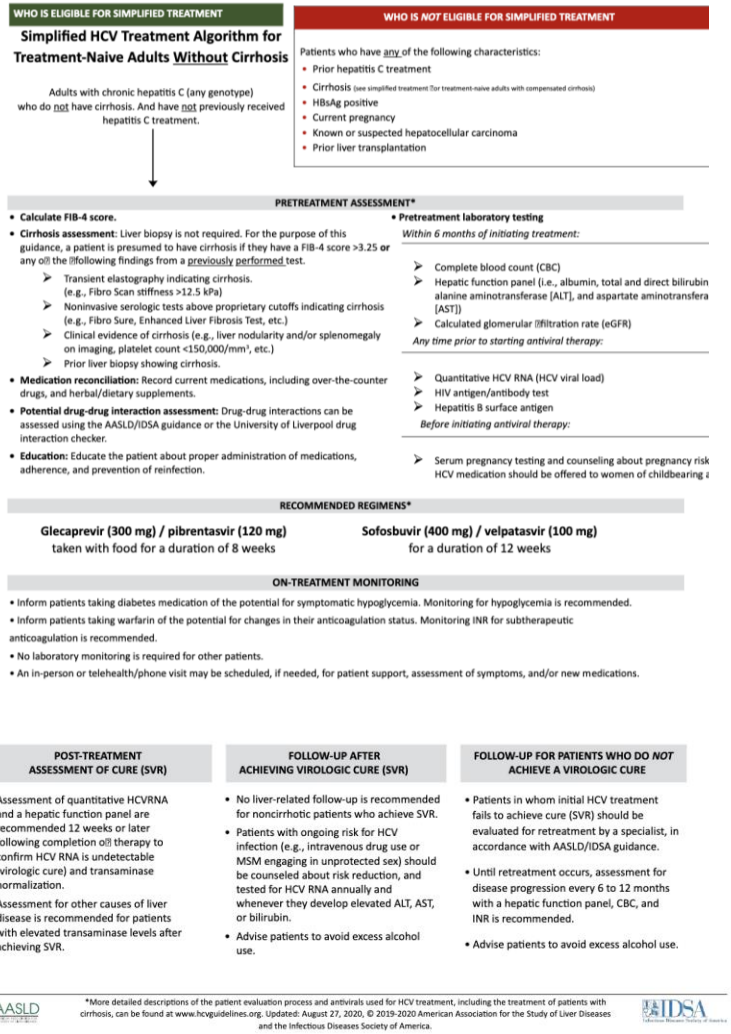
MINMON Results



AT THE FOREFR
UChicago Medicine

Solomon et al Lancet Gastro Hep 2022
https://slides.hepatitisc.uw.edu

Current Simplified Regimen- HCV Guidance



WHO IS ELIGIBLE FOR SIMPLIFIED TREATMENT

Simplified HCV Treatment Algorithm for Treatment-Naive Adults Without Cirrhosis

Adults with chronic hepatitis C (any genotype) who do not have cirrhosis. And have not previously received hepatitis C treatment.

WHO IS *NOT* ELIGIBLE FOR SIMPLIFIED TREATMENT

Patients who have any of the following characteristics:

- Prior hepatitis C treatment
- Cirrhosis (see simplified treatment for treatment-naive adults with compensated cirrhosis)
- HBsAg positive
- Current pregnancy
- Known or suspected hepatocellular carcinoma
- Prior liver transplantation

PRETREATMENT ASSESSMENT*

- **Calculate FIB-4 score.**
- **Cirrhosis assessment**: Liver biopsy is not required. For the purpose of this guidance, a patient is presumed to have cirrhosis if they have a FIB-4 score >3.25 **or** any of the following findings from a previously performed test.
  - Transient elastography indicating cirrhosis. (e.g., Fibro Scan stiffness >12.5 kPa)
  - Noninvasive serologic tests above proprietary cutoffs indicating cirrhosis (e.g., Fibro Sure, Enhanced Liver Fibrosis Test, etc.)
  - Clinical evidence of cirrhosis (e.g., liver nodularity and/or splenomegaly on imaging, platelet count <150,000/mm³, etc.)
  - Prior liver biopsy showing cirrhosis.
- **Medication reconciliation:** Record current medications, including over-the-counter drugs, and herbal/dietary supplements.
- **Potential drug-drug interaction assessment:** Drug-drug interactions can be assessed using the AASLD/IDSA guidance or the University of Liverpool drug interaction checker.
- **Education:** Educate the patient about proper administration of medications, adherence, and prevention of reinfection.
- **Pretreatment laboratory testing**

Within 6 months of initiating treatment:

- Complete blood count (CBC)
- Hepatic function panel (i.e., albumin, total and direct bilirubin alanine aminotransferase [ALT], and aspartate aminotransfera [AST])
- Calculated glomerular filtration rate (eGFR)

Any time prior to starting antiviral therapy:

- Quantitative HCV RNA (HCV viral load)
- HIV antigen/antibody test
- Hepatitis B surface antigen

Before initiating antiviral therapy:

- Serum pregnancy testing and counseling about pregnancy risk HCV medication should be offered to women of childbearing a

RECOMMENDED REGIMENS*

Glecaprevir (300 mg) / pibrentasvir (120 mg) taken with food for a duration of 8 weeks

Sofosbuvir (400 mg) / velpatasvir (100 mg) for a duration of 12 weeks

ON-TREATMENT MONITORING

- Inform patients taking diabetes medication of the potential for symptomatic hypoglycemia. Monitoring for hypoglycemia is recommended.
- Inform patients taking warfarin of the potential for changes in their anticoagulation status. Monitoring INR for subtherapeutic anticoagulation is recommended.
- No laboratory monitoring is required for other patients.
- An in-person or telehealth/phone visit may be scheduled, if needed, for patient support, assessment of symptoms, and/or new medications.

POST-TREATMENT ASSESSMENT OF CURE (SVR)

- Assessment of quantitative HCVRNA and a hepatic function panel are recommended 12 weeks or later following completion of therapy to confirm HCV RNA is undetectable (virologic cure) and transaminase normalization.
- Assessment for other causes of liver disease is recommended for patients with elevated transaminase levels after achieving SVR.

FOLLOW-UP AFTER ACHIEVING VIROLOGIC CURE (SVR)

- No liver-related follow-up is recommended for noncirrhotic patients who achieve SVR.
- Patients with ongoing risk for HCV infection (e.g., intravenous drug use or MSM engaging in unprotected sex) should be counseled about risk reduction, and tested for HCV RNA annually and whenever they develop elevated ALT, AST, or bilirubin.
- Advise patients to avoid excess alcohol use.

FOLLOW-UP FOR PATIENTS WHO DO *NOT* ACHIEVE A VIROLOGIC CURE

- Patients in whom initial HCV treatment fails to achieve cure (SVR) should be evaluated for retreatment by a specialist, in accordance with AASLD/IDSA guidance.
- Until retreatment occurs, assessment for disease progression every 6 to 12 months with a hepatic function panel, CBC, and INR is recommended.
- Advise patients to avoid excess alcohol use.

AASLD

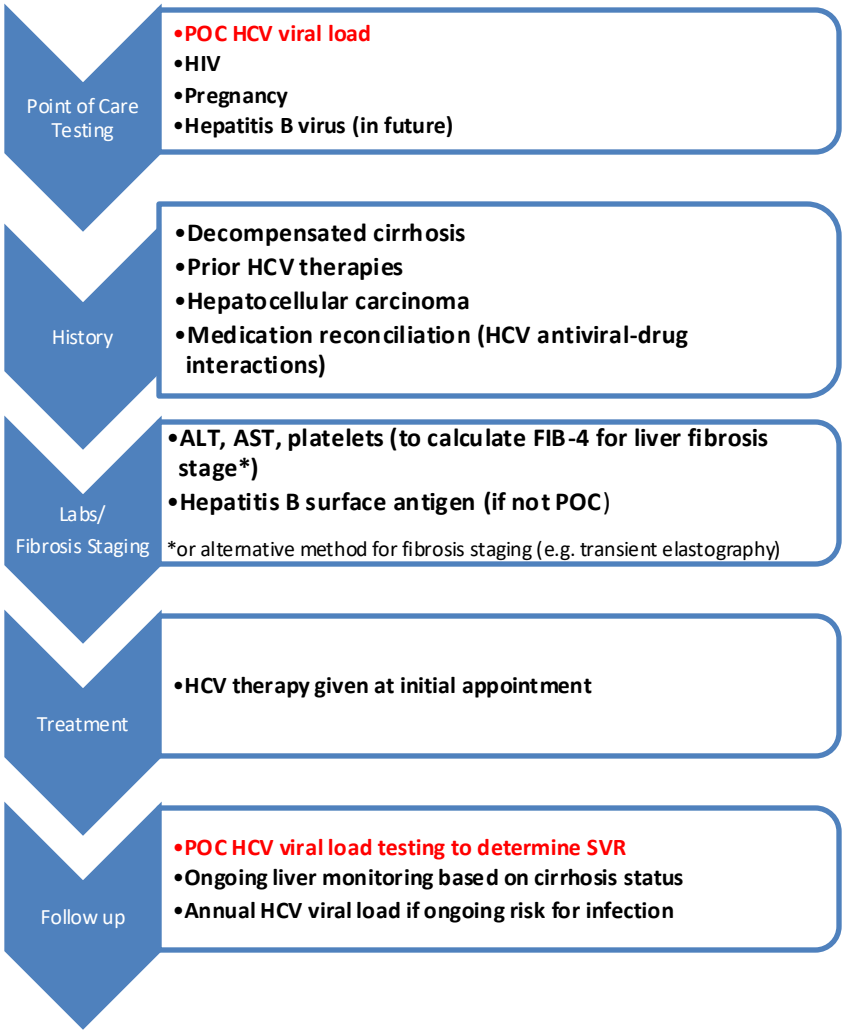
*More detailed descriptions of the patient evaluation process and antivirals used for HCV treatment, including the treatment of patients with cirrhosis, can be found at www.hcvguidelines.org. Updated: August 27, 2020, © 2019-2020 American Association for the Study of Liver Diseases and the Infectious Diseases Society of America.

IDSA

AT THE FOREFRONT

UChicago Medicine

Proposed Test and Treat Algorithm for HCV Guidance



AT THE FOREFRONT
UChicago Medicine

Take Home

- We have lots of work to do to eliminate HCV by 2030
- Key needs to achieve this goals
  - Access
  - Provider education
  - Simplified regiments
  - Reaching vulnerable populations
  - Point of Care Testing