Maryland
DEPARTMENT OF HEALTH

OFFICE OF
PHARMACY SERVICES

Treatment of HEPATITIS C and Comorbid Conditions

Continuing Education Seminar
December 7, 2019

Continuing Medical Education (CME) &
Pharmacy Continuing Education (CE) Seminar

Treating Hepatitis C in Context: HCV therapy in key populations, including those with HIV, HBV, and substance use disorders
on
December 7, 2019
at
Delta Hotels by Marriott North White Oak A/B

8:00 am – Breakfast and Registration	
8:55 am – Introductions	Maryland Department of Health Office of Pharmacy Services
9:00 am – Treating Hepatitis C	Eleanor Wilson, MD, MHS Assistant Professor Institute of Human Virology
11:00 am – Closing Remarks	Maryland Department of Health Office of Pharmacy Services

The views and opinions expressed by the speakers are not necessarily the views and opinions of The State of Maryland Department of Health.

****This event will be recorded for future use.***
By attending, you agree to participate in audio and/or visual recording*

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MedChi designates this live activity for a maximum of (2) *AMA PRA Category 1 Credit(s)*^{TM}. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Presenter Disclosure:
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Activity Type: Knowledge-Based

INSTITUTE OF HUMAN VIROLOGY

UNIVERSITY of MARYLAND SCHOOL OF MEDICINE

Treating Hepatitis C In Context

HCV therapy in key populations, including those with HIV, HBV, and substance use disorders

Eleanor Wilson MD, MHS

December 7th, 2019

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Disclosures

I have nothing to disclose

BUT

I will be discussing off-label uses of some approved HCV therapies.

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Objectives

After this presentation, you will be able to

- ❑ **Select appropriate HCV therapy**
- ❑ **Monitor patients on HCV treatment for safety and efficacy**
- ❑ **Understand emerging challenges in HCV**

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HCV can be cured (unlike HIV and HBV)

VIRUS	HIV	Hepatitis C	Hepatitis B
Population	1 million	5 million	2 million
Genome	RNA	RNA	DNA
Mutation Rates	Very high	Very high	High
Virions produced daily	10^{10}	10^{12}	10^{13}
Drug Targets	Multiple	Multiple	One
Genetic archive	Yes	NO	Yes
Ability to Cure	No (Integrated viral DNA)	YES (No DNA integration)	No (cccDNA)
Current therapeutic goal	Lifelong suppression	Cure: Clearance from plasma and liver	Lifelong suppression

Adapted from Soriano V, JAC 2008; 62

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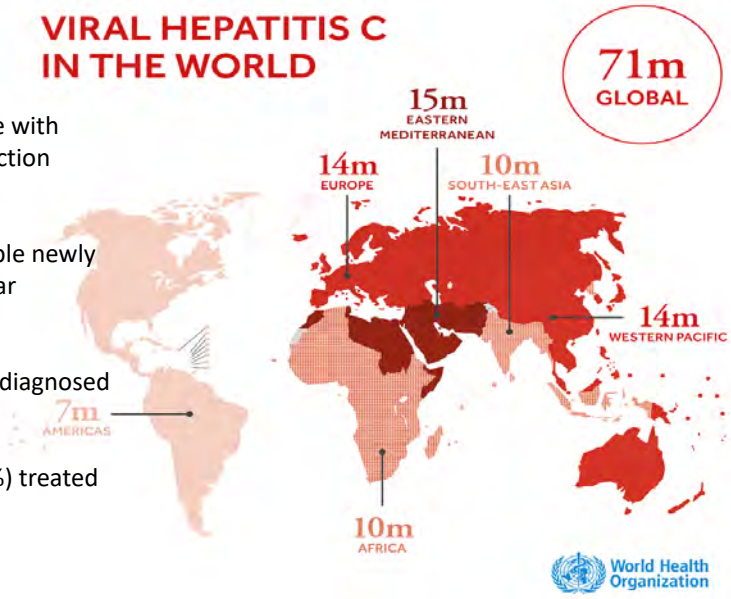
Hepatitis C : Epidemiology

- **Prevalence**:
71 million people with chronic HCV infection
- **Incidence**:
1.75 million people newly infected each year
- **Aware:**
14 million (20%) diagnosed
- **Treated:**
2.76 million (<4%) treated



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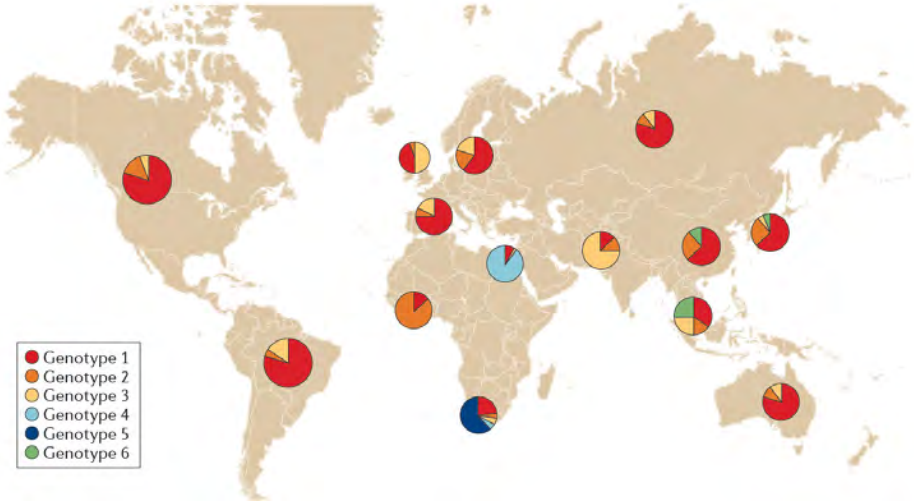
Distribution of HCV Genotypes



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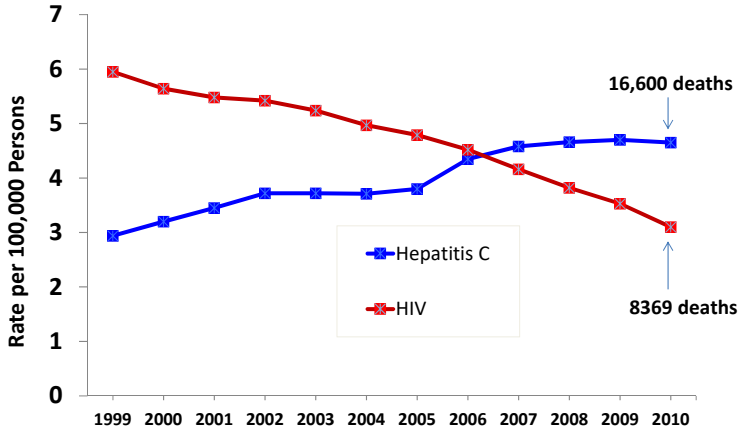
Deaths From Hepatitis C Have Surpassed Deaths From HIV Infection

Age-adjusted Mortality Rates of HIV and Hepatitis C: United States, 1999-2010



Ly K.N et al., Annals of Int. Med, 2012: 157 (9)

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Hepatitis C In Maryland

- Acute HCV infections – Stable over 2011-2015
  - 35 in 2011, 38 in 2015
  - 0.7/100,000 in 2012
- Chronic HCV infections are rising
  - 7,425 reports of past/present HCV infection 2015
  - IVDU is the primary risk factor
- MD PHPA estimates 47,000-73,000 Marylanders with HCV
  - Highest rates (55%) in Baltimore City and Baltimore County: 26,000-40,000 estimated

https://www.cdc.gov/nchhstp/stateprofiles/pdf/maryland_profile.pdf
https://phpa.health.maryland.gov/Documents/Hepatitis-Report-2014.pdf

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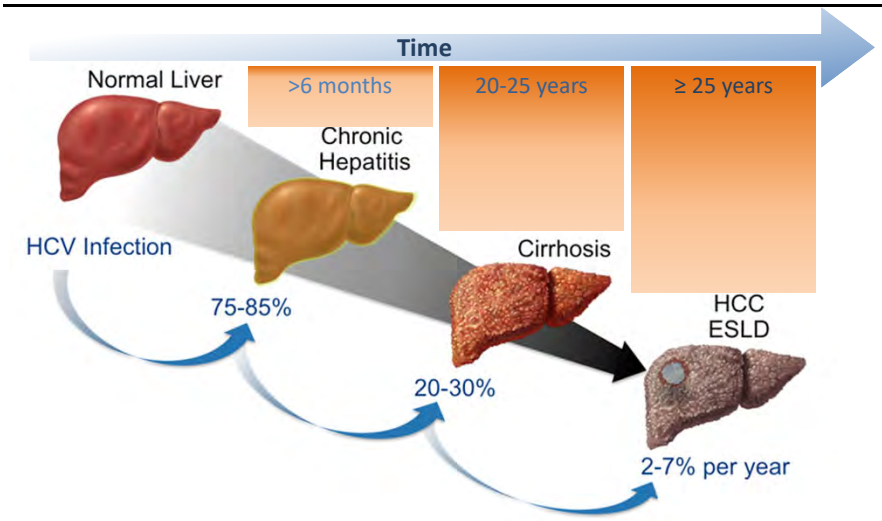
Natural History of HCV



Adapted from hepatitisc.uw.edu

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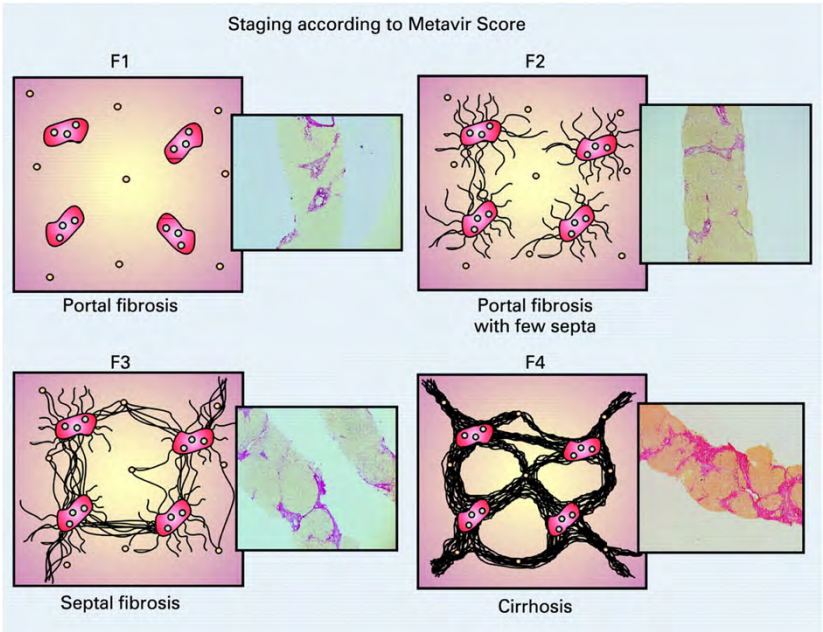
Histologic Progression of HCV



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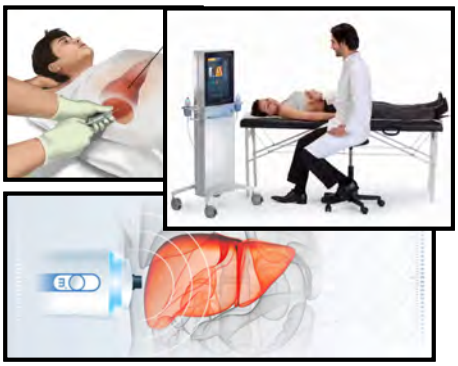
Fibrosis Staging in HCV

- Liver biopsy
- FibroScan®
- Serologic tests/scoring
  - APRI
  - FibroSure®
  - Fib-4
  - Child-Turcotte-Pugh

https://www.mdcalc.com/
https://www.hepatitisc.uw.edu



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

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

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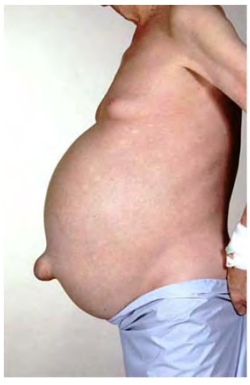
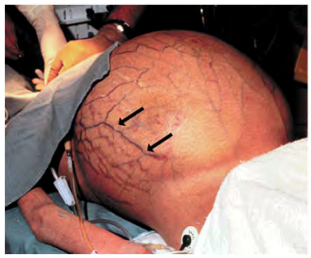
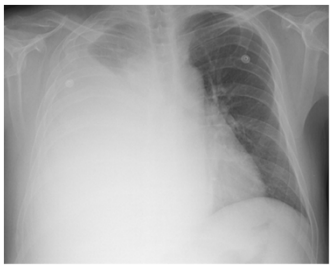
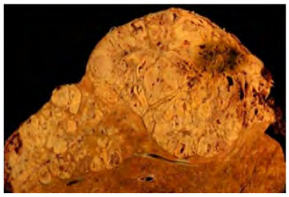
Manifestations of Cirrhosis







~5% mortality/year



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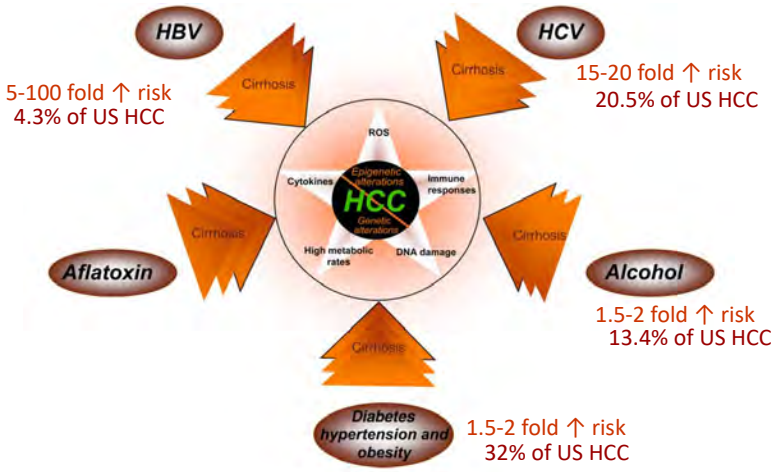
Risk factors for HCC



Adapted from Herceg Z and Paliwal A *Mutation Research* 2011; White *Clin Gastroenterol Hepatol* 2012; Makarova-Rusher *Cancer* 2016; Ramadori *Cancers* 2017

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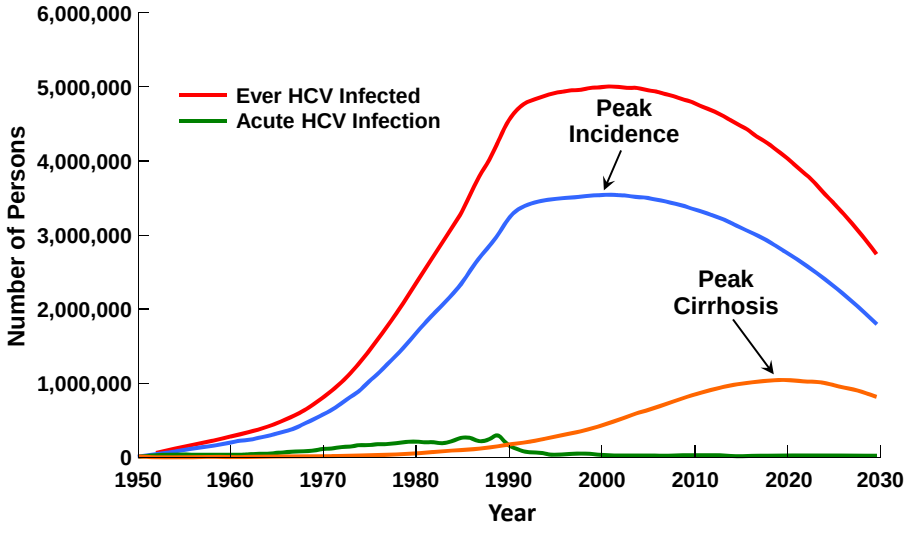
The Changing Face of HCV in US



Adapted from Davis GL et al Gastroenterol 2010;138:513-521

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Goal of Treatment

- **To reduce all cause and liver related morbidity including end stage liver disease, liver cancer by achieving sustained virologic response (SVR)**
- **SVR_{12} is the absence of HCV RNA detected in plasma 12 weeks after stopping HCV therapy**

Class I Level A

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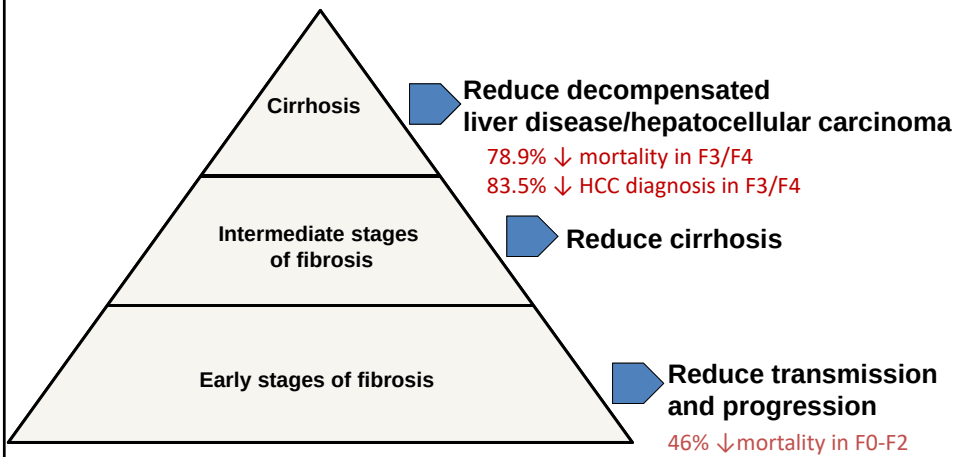
Successful Treatment of HCV Is Associated With Improved Outcome



Backus et al *Hepatology* 2017
Backus et al *Hepatology* 2018

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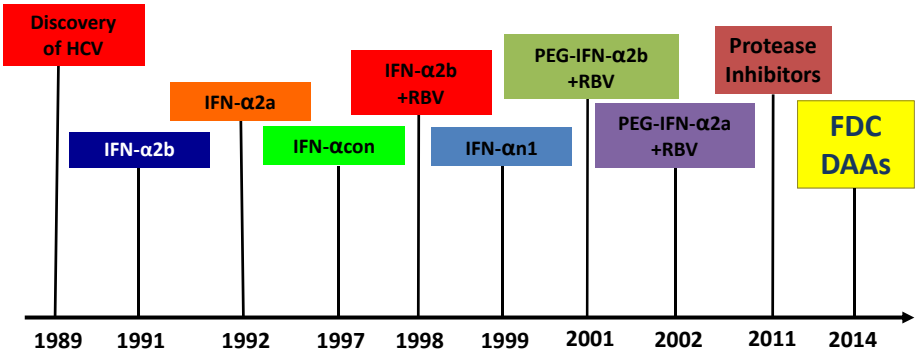
Evolution of Chronic Hepatitis C Treatment



IFN=interferon, RBV=ribavirin, PEG=pegylated, DAA=Directly Acting Antivirals, FDC=Fixed dose combination

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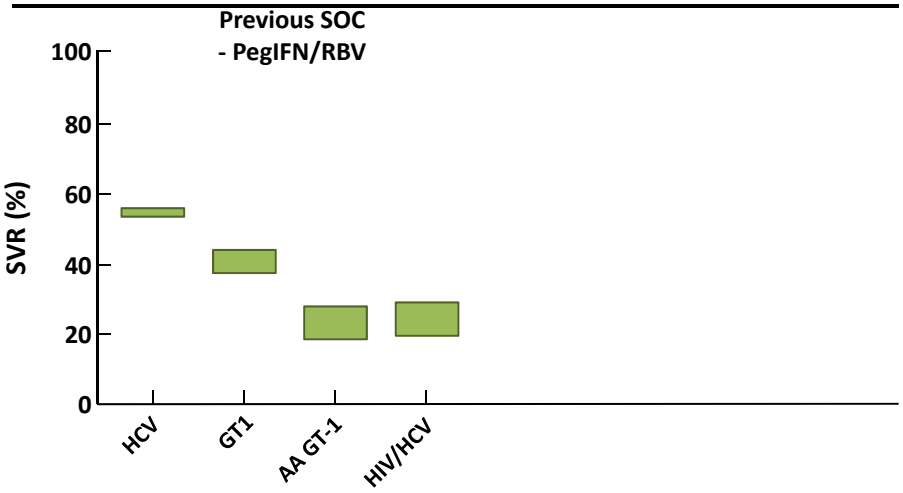
Effectiveness of HCV Treatments



Torriani FJ, et al. *N Engl J Med.* 2004;351, Jeffers LJ, et al. *Hepatology.* 2004;39; Carrat F, et al. *JAMA.* 2004;292; Muir AJ, et al. *N Engl J Med.* 2004;350; Fried MW, et al. *N Engl J Med.* 2002;347; Manns MP, et al. *Lancet.* 2001;358. Jacobson IM, et al. *Hepatology* 2010:52; Sherman KE, et al. *Hepatology* 2010: 52, Poordad F et al. *Hepatology* 2010: 52

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Factors Associated with IFN Tx Response

Viral Factors

- HCV genotype 1
- HCV VL >800,000 IU
- Chronicity of infection

Host Factors

- Age
- Race
- IL28B T/T haplotype
- Alcohol consumption
- Advanced liver fibrosis
- HIV Co-infection
- Poor IFN gene response
- Low CD4 T cell counts
- BMI
- Lack of Ribavirin use
- Previous IFN use

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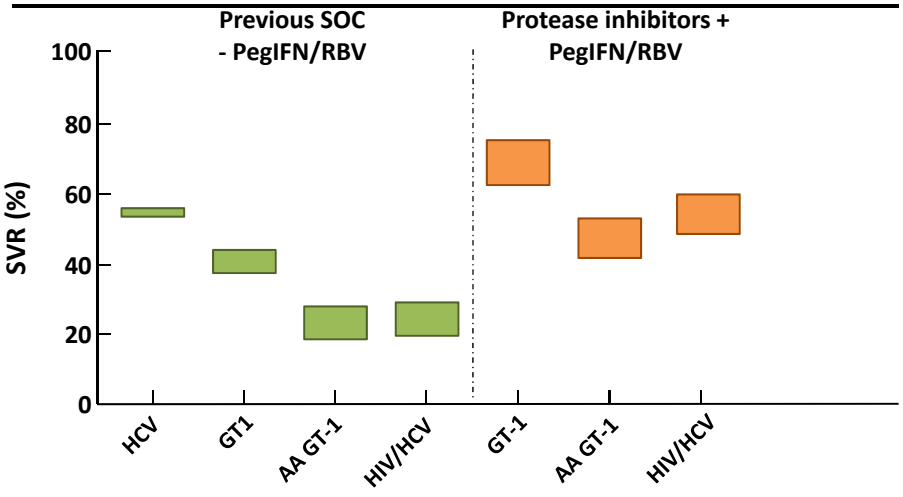
Effectiveness of HCV Treatments



Torriani FJ, et al. *N Engl J Med.* 2004;351, Jeffers LJ, et al. *Hepatology.* 2004;39; Carrat F, et al. *JAMA.* 2004;292; Muir AJ, et al. *N Engl J Med.* 2004;350; Fried MW, et al. *N Engl J Med.* 2002;347; Manns MP, et al. *Lancet.* 2001;358. Jacobson IM, et al. *Hepatology* 2010:52; Sherman KE, et al. *Hepatology* 2010: 52, Poordad F et al. *Hepatology* 2010: 52

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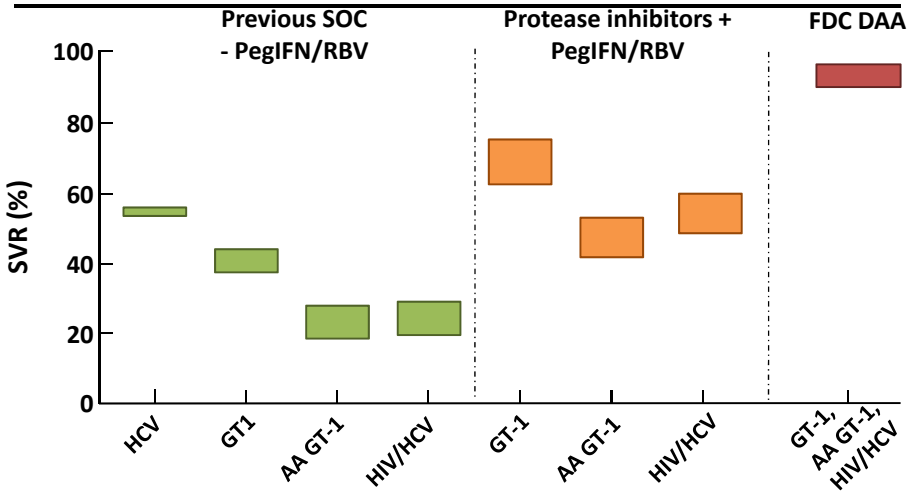
Effectiveness of HCV Treatments



Torriani FJ, et al. *N Engl J Med.* 2004;351, Jeffers LJ, et al. *Hepatology.* 2004;39; Carrat F, et al. *JAMA.* 2004;292; Muir AJ, et al. *N Engl J Med.* 2004;350; Fried MW, et al. *N Engl J Med.* 2002;347; Manns MP, et al. *Lancet.* 2001;358. Jacobson IM, et al. *Hepatology* 2010:52; Sherman KE, et al. *Hepatology* 2010: 52, Poordad F et al. *Hepatology* 2010: 52

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Factors Associated with DAA Tx Response

Viral Factors

- **HCV subgenotype**
- **Chronicity of infection**
- **NS5A resistance associated substitutions**
- **? - HCV VL >6,000,000 IU**

Host Factors

- **Advanced liver fibrosis**
- **Previous Treatment Experience**

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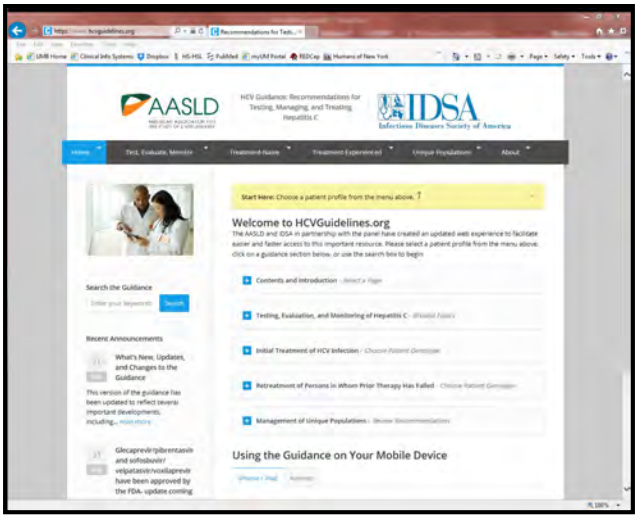
Guidelines

http://www.hcvguidelines.org



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Major HCV Drug Classes

NS3/4A Protease Inhibitors	NS5B Polymerase Inhibitors		NS5A Inhibitors
	Nucleos(t)ide Analogue	Non-nucleos(t)ide	
▪ Prevent polyprotein processing ▪ High efficacy ▪ Low genetic barrier to resistance ▪ Hepatically metabolized ▪ FDA Approved: Paritaprevir Simeprevir Grazeprevir Glecaprevir Voxilaprevir	▪ Mimic natural substrates of the polymerase, incorporated into RNA chain causing chain termination ▪ Broad genotypic coverage ▪ High genetic barrier to resistance ▪ FDA Approved: Sofosbuvir	▪ Bind to several different allosteric enzyme sites; results in conformational change of RdRP ▪ Resistance more frequent than nucs ▪ FDA Approved: Dasabuvir	▪ NS5A has role in assembly & stabilization of replication complex ▪ Resistance common and persistent ▪ FDA Approved: Daclatasvir Ledipasvir Ombitasvir Velpatasvir Elbasvir Pibrentasvir

Courtesy of Clinical care options

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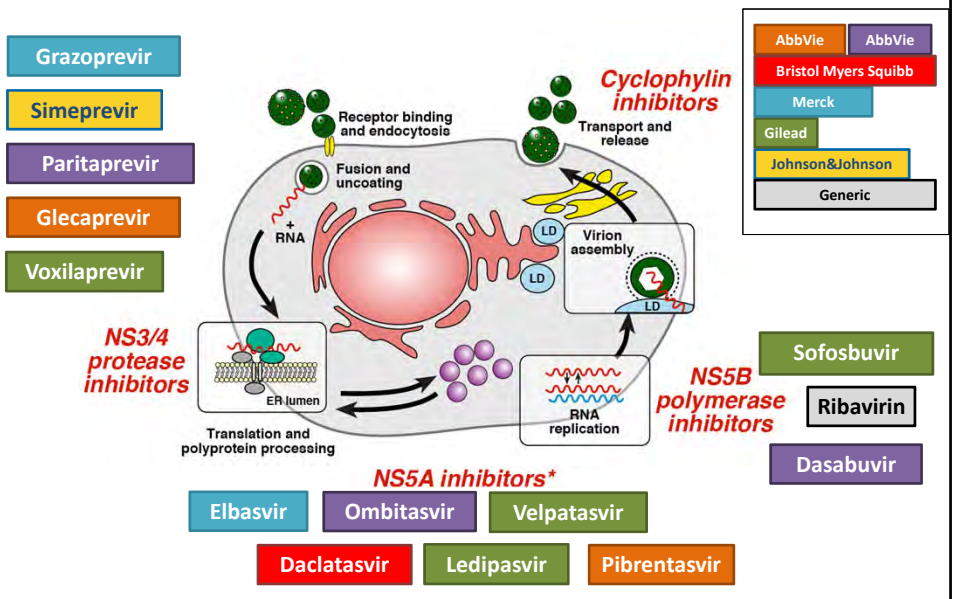
Approved DAA and Targets



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Approved Initial HCV Treatment Regimens

	Harvoni	Viekira Pak	Zepatier	Epclusa	Mavyret
Contains	LDV/SOF	PrOD	EBR/GBR	SOF/VEL	GLE/PIB
Approved	October 2014	January 2015	January 2016	June 2016	August 2017
Spectrum	Gt 1, 4, 6	Gt 1b, 4, 6 1a + RBV	Gt 1, 4, 6	GT 1-6	GT 1-6
Duration	8-24 weeks	12-24 weeks	12-16 weeks	12-24 weeks	8-16 weeks
Efficacy	**~93-98%**	**~93-98%**	**~93-98%**	**~93-98%**	**~93-98%**
Notes/ Cautions	GFR <30 Antacids	**Decompensation** Ritonavir	**Decompensation** Gt1a RAV Testing	GFR <30 Antacids	**Decompensation**
Cost (12wk)	$94,500	$83,319 ± RBV $5,000	$54,000 ± RBV $6,700	$74,760	$39,600

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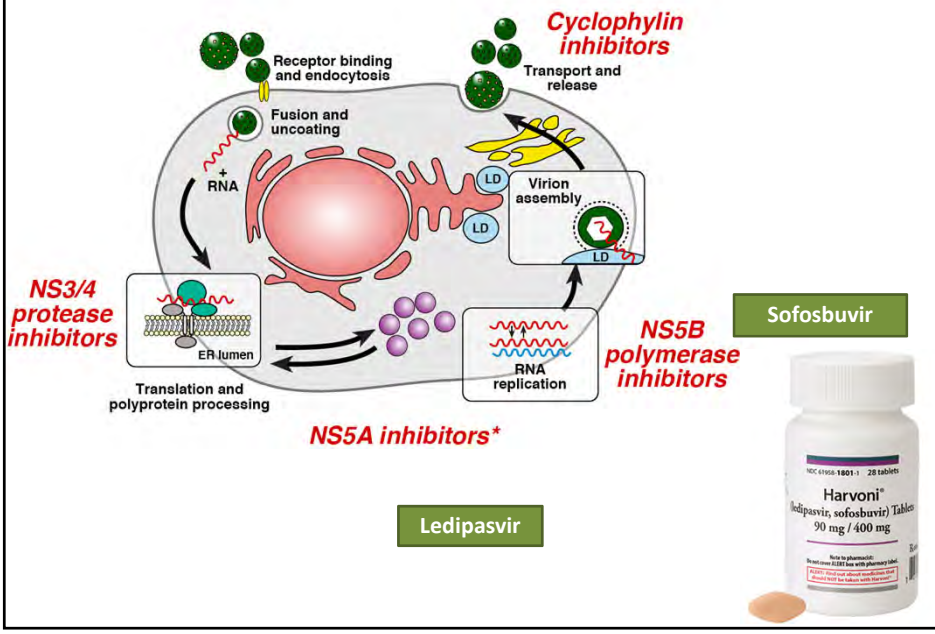
LDV/SOF Targets



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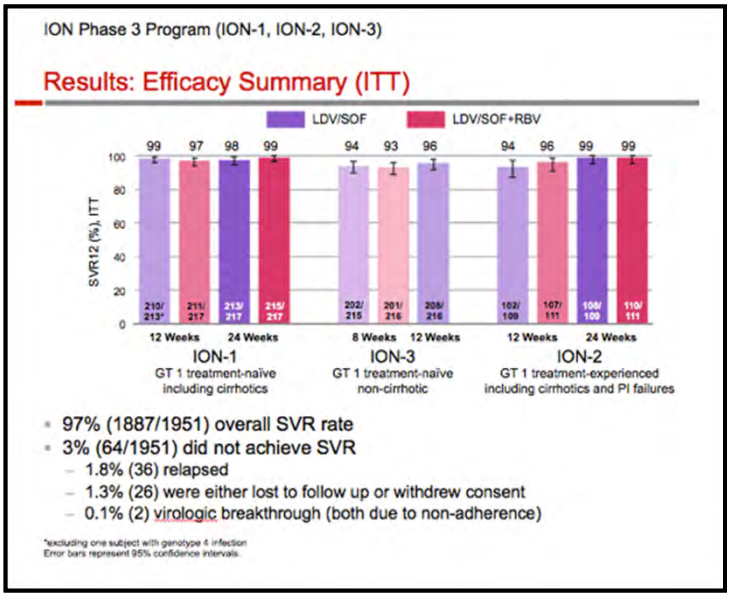
Sofosbuvir and Ledipasvir: Genotype 1



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What you need to know: LDV/SOF

Patient Population	Recommended Treatment Duration
GT1, treatment naïve, without cirrhosis, VL<6,000,000	Consider 8 weeks
GT1, treatment naïve, with or without cirrhosis	12 weeks
GT1, treatment-experienced without cirrhosis	12 weeks
GT1, treatment-experienced with cirrhosis	24 weeks

No adjustment for renal function, but not recommended for GFR<30
Medication interactions
PPIs, INH, Rifamycins, Rosuvastatin, some anticonvulsants, **amiodarone**
HCV/HIV co-infected patients: **[TDF] AUC ↑40%**, particularly in PI/r

- Check LFTs at week 4; d/c if ALT or ALT >10ULN

$94,500 for 12 weeks
$189,000 for 24 weeks

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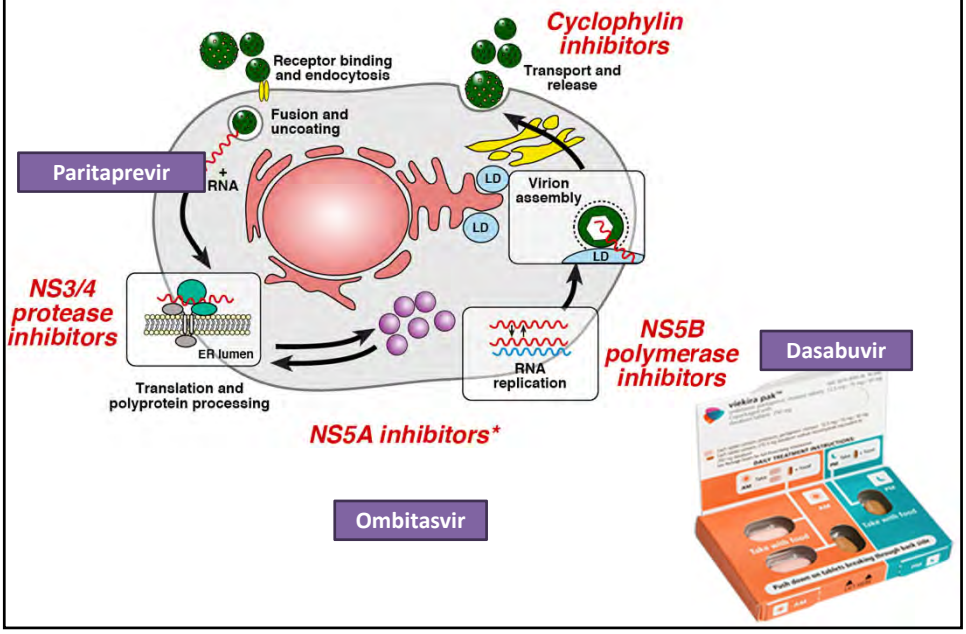
PrOD Targets



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What you need to know: PrOD

Patient Population	Treatment Regimen	Treatment Duration
GT1a, without cirrhosis	VIEKIRA PAK + RBV	12 weeks
GT1a, with cirrhosis	VIEKIRA PAK + RBV	24 weeks
GT1b, with/without cirrhosis	VIEKIRA PAK	12 weeks

Not for decompensated cirrhotics
No adjustment for renal function, limited data in dialysis patients
Medication interactions
RTV is coformulated with ombitasvir/paritaprevir, dasabuvir is separate
Prohibited : EFV, DRV/r, RPV, statins, OCP, some anticonvulsants

$83,319 for 12 weeks ± RBV (~$5,000 for 12 weeks)
$167,638 for 24 weeks ± RBV (~$10,000 for 12 weeks)

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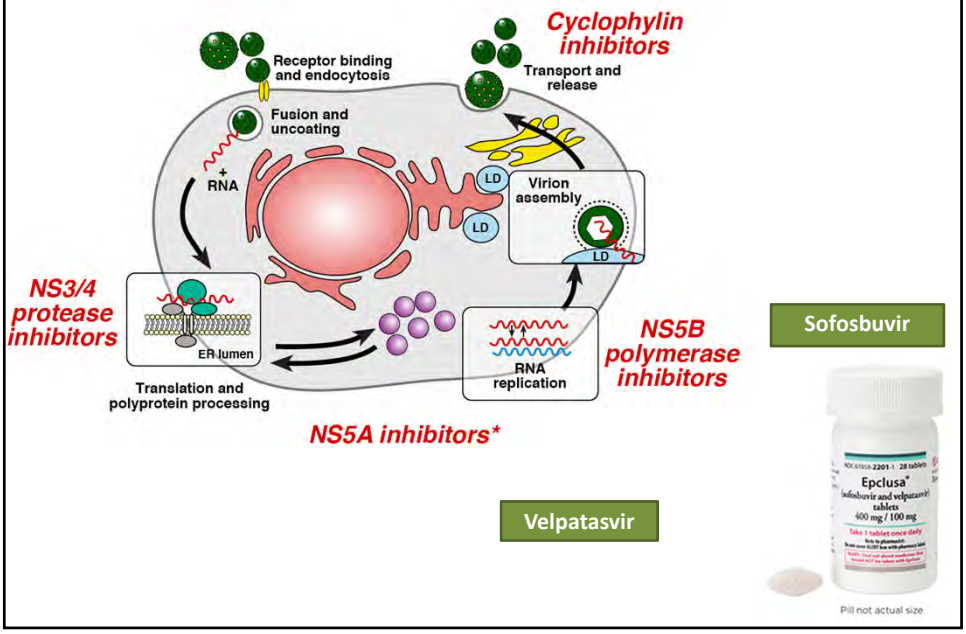
SOF/VEL Targets



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What you need to know: SOF/VEL

Patient Population	Recommended Treatment Duration
All genotypes, treatment naïve, with or without cirrhosis	12 weeks
All genotypes*, treatment-experienced without cirrhosis	12 weeks
All genotypes, treatment-experienced with cirrhosis	24 weeks

* Gt 3, may want to test for RAVs if noncirrhotic and extend treatment if present

No adjustment for renal function, but not recommended for GFR<30

Medication interactions

PPIs, INH, Rifamycins, Rosuvastatin, some anticonvulsants, **amiodarone**

ARVs: EFV, TDF AUC ↑30-80%

More susceptible to antacids than LDV/SOF

- Check LFTs at week 4; d/c if ALT or ALT >10ULN

$74,760 for 12 weeks

$149,500 for 24 weeks

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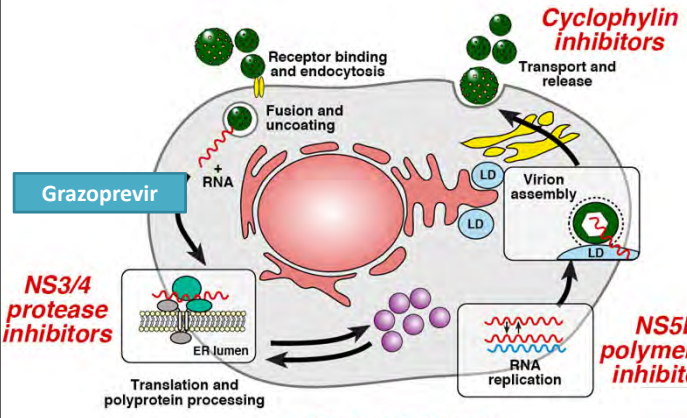
GZR/EBR Targets



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What you need to know: ELB/GRZ

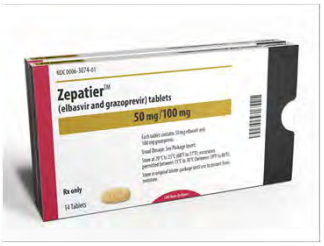
Patient Population	Treatment Regimen	Treatment Duration
GT1a, without NS5A polymorphisms*	ELB/GRZ	12 weeks
GT1b	ELB/GRZ	12 weeks
GT1a, with NS5A polymorphisms	ELB/GRZ + RBV	16 weeks

***For Genotype 1a, must check NS5A RAVs first**

Not for decompensated cirrhotics
No renal adjustment, safe in dialysis patients
Minimal medication interactions
ETV, ELV/c/TDF(TAF)/FTC, statins

- **Check LFTs at week 8 (week 12/16)**

$54,000 for 12 weeks
$72,000 for 16 weeks + RBV (~$6,700 for 16 weeks)



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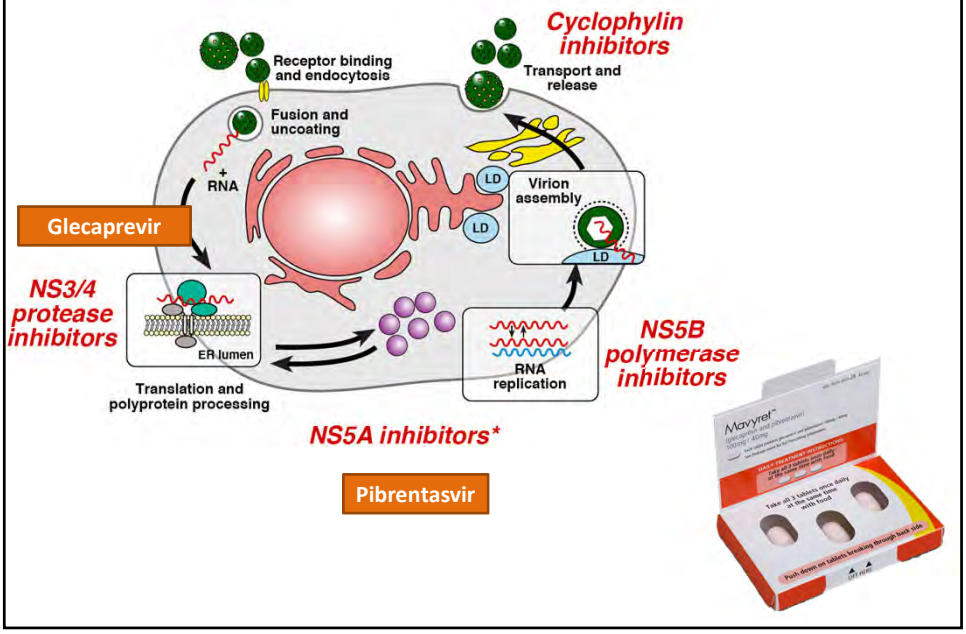
GLE/PIB Targets



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What you need to know: GLE/PIB

Patient Population	Recommended Treatment Duration
GT1-6, treatment naïve*, noncirrhotic	8 weeks
GT1-6, cirrhotic	12 weeks
GT1 (PI) treatment experienced	12 weeks
GT1 (NS5A) or GT3 (peg/RBV), treatment experienced	16 weeks

- Peg/RBV doesn't count as treatment experience for GT1,2,4,5,6

No renal adjustment, safe in dialysis patients
Contraindicated in patients on ATZ, DAR/r or LPV/r, or EFV
↑ statin AUC (avoid atorva- , lowest dose rosuva-, fluva-, pitava-)

- **Check LFTs at week 8 (12, 16) in cirrhotic patients**

$26,400 for 8 weeks
$39,600 for 12 weeks
$52,800 for 16 weeks

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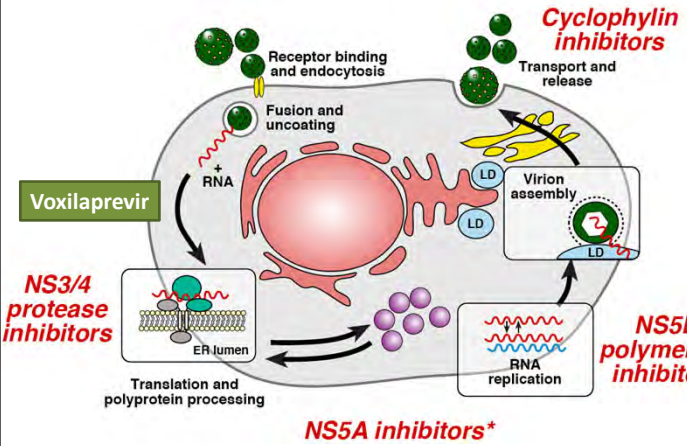
SOF/VEL/VOX Targets



Sofosbuvir

Velpatasvir

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What you need to know: SOF/VEL/VOX

Patient Population	Recommended Treatment Duration
All genotypes, treatment experienced, with or without compensated cirrhosis	12 weeks

No adjustment for renal function, but not recommended for GFR<30

Medication interactions:

INH, Rifamycins, Rosuvastatin, anticonvulsants, **amiodarone**

ART – ATZ/r, EFV, DRV BID prohibited, TDF AUC ↑40%

About the same as LDV/SOF for antacids

- Check LFTs at week 4 and week 8; d/c if ALT or ALT >10ULN

$74,760 for 12 weeks

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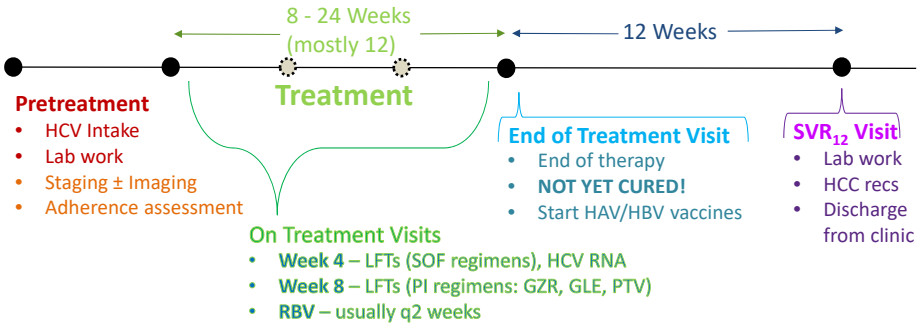
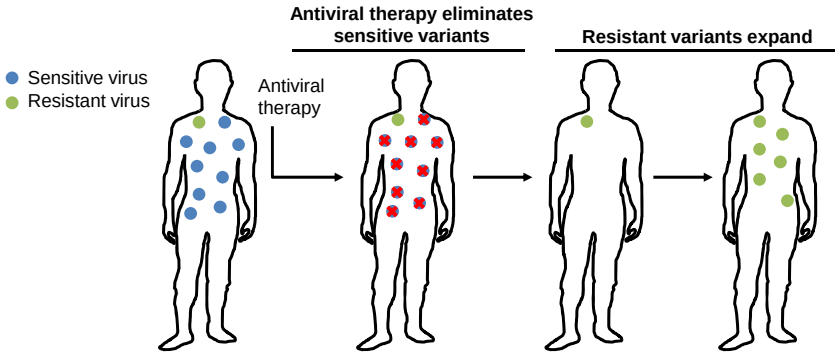
HCV Treatment Timeline



40

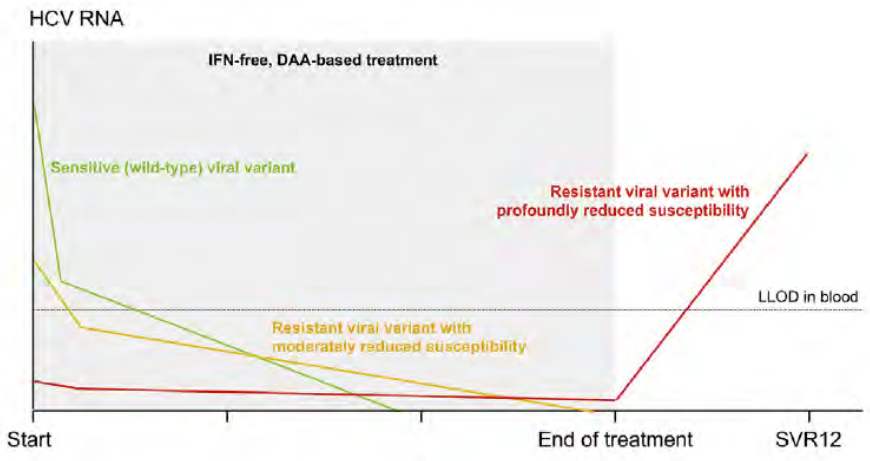
Resistant Variants Are Present Before and Can Be Selected During Treatment



1. Pawlotsky JM. Clin Liver Dis. 2003;7:45-66. 2. Kuntzen T, et al. Hepatology. 2008;48:1769-1778.
3. Bartels DJ, et al. J Infect Dis. 2008;198:800-807

41

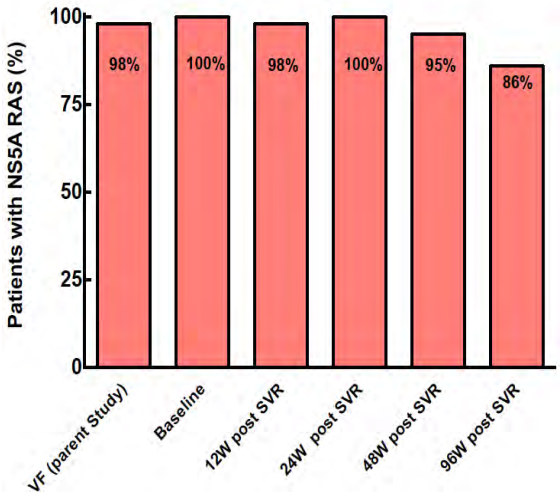
RAVS & Susceptibility of DAAs



Pawlotsky JM *Gastroenterology* 2016; 1-17

42

Persistence of NS5A Mutants



Wyles D et al. EASL 2015

43

What about RAVs?

NS5A Inhibitor	Amino Acid Position and Substitutions													
	Genotype 1a											Genotype 1b		
	M28		Q30			L31		H58	Y93			L31		Y93
	T	V	E	H	R	M	V	D	C	H	N	M	V	H
Daclatasvir (DCV) (77, 78)	205	–	7,500	435	365	105	1,000	–	555	1,600	14,100	3	15	12
Elbasvir (EBR) (79)	15	1	56	–	16	10	61	6	–	220	929	–	–	–
Ledipasvir (LDV) (77, 78)	61	–	952-5,458	183	632	554	–	1,127	1,602	1,677-3,309	14,706	–	–	1,319
Ombitasvir (OMV) (77, 80)	8,965	58	–	3	800	2	–	243	1,675	41,383	66,740	1	8	77
Velpatasvir (VEL) (87)	8	–	18	2	2	16	68	7	4	609	2,758	2	3	3

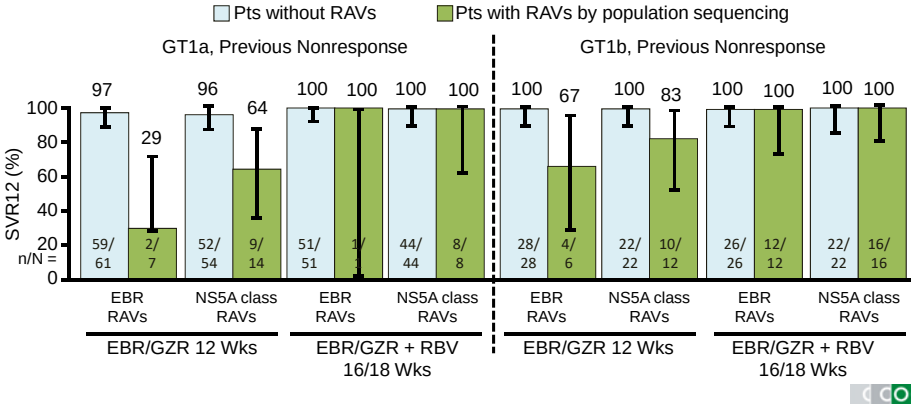
No data <5 fold 5–100 fold >100 fold

44

Grazoprevir/Elbasvir and RAVs

SVR12 With Elbasvir/Grazoprevir in GT1 HCV With vs Without Baseline NS5A RAVs

- Tx-naïve or previous relapse, EBR/GZR for 12 wks
  - GT1b: high SVR12 rates (98% to 100%) regardless of EBR or NS5A class RAVs
  - GT1a: SVR12 rates lower with EBR (58%) or NS5A class (86%) RAVs vs no RAVs (98%)



Jacobson IM, et al. AASLD 2015. Abstract LB-22.

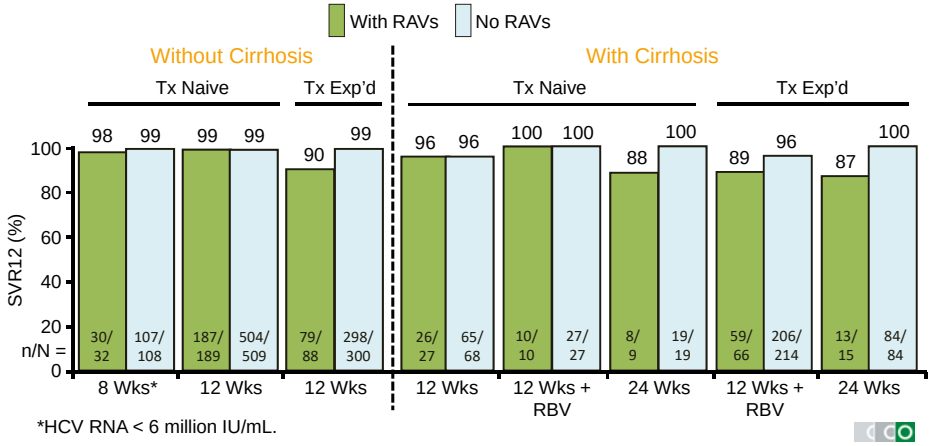
Slide credit: clinicaloptions.com

45

Ledipasvir/Sofosbuvir and RAVs

Effect of BL NS5A RAVs on Ledipasvir/ Sofosbuvir Efficacy in GT1 HCV

- Deep sequencing of baseline samples obtained from 1566 pts treated with guideline-based LDV/SOF regimens in clinical trials



*HCV RNA < 6 million IU/mL.

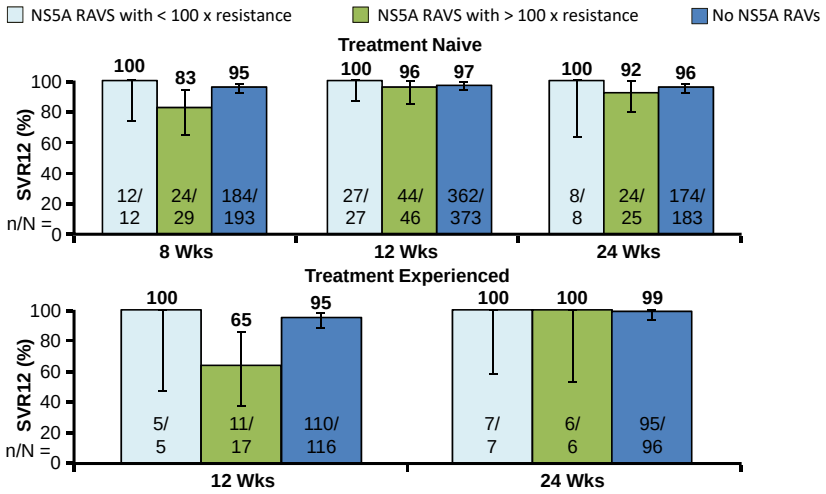
Zeuzem S, et al. AASLD 2015. Abstract 91.

Slide credit: clinicaloptions.com

46

Ledipasvir/Sofosbuvir and RAVs

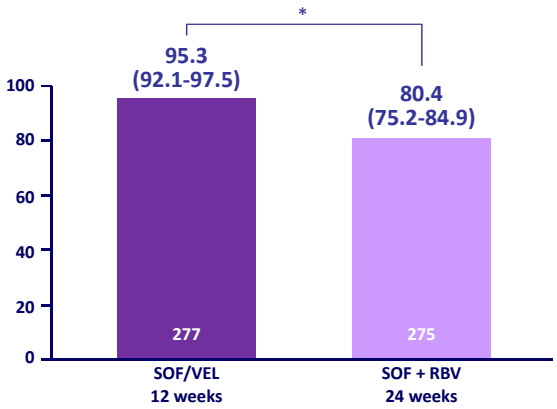
Impact of Duration of LDV/SOF on SVR12 in Pts With Baseline NS5A Resistance



Sarrazin C. AASLD 2014. Abstract 1926.

47

Sofosbuvir/Velpatasvir: Genotype 3



*adjusted absolute difference : 14.8 (95% CI : 9.6 to 20.0) ; p < 0.001 = superiority

- **SVR_{12} according to baseline NS5A RAVs in SOF/VEL group**
  - Absent, N = 231 : SVR_{12} = 97.4%
  - Present, N = 43, SVR_{12} = 88.4% (84% if Y93H)

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Barriers to HCV Treatment

- **Awareness**
- **Treatment access**
  - **Cost**
  - **Limited number of providers**
  - **Fibrosis or Sobriety restrictions**
  - **Case management/adherence support**
- **Patient Co-morbidities**
  - **Other chronic viral infections (HIV, HBV)**

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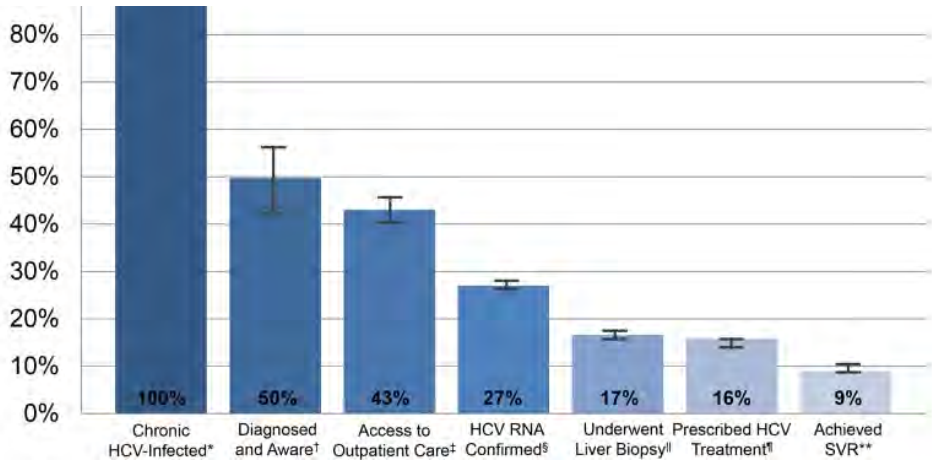
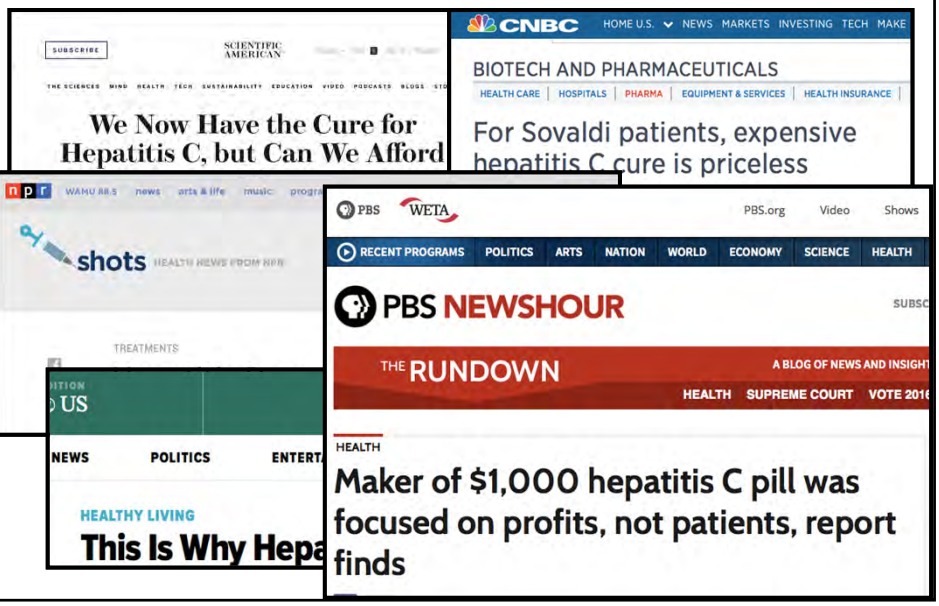
The HCV Care Cascade in the US



Yehia, et al. PLoS One. 2014 Jul 2;9(7):e101554

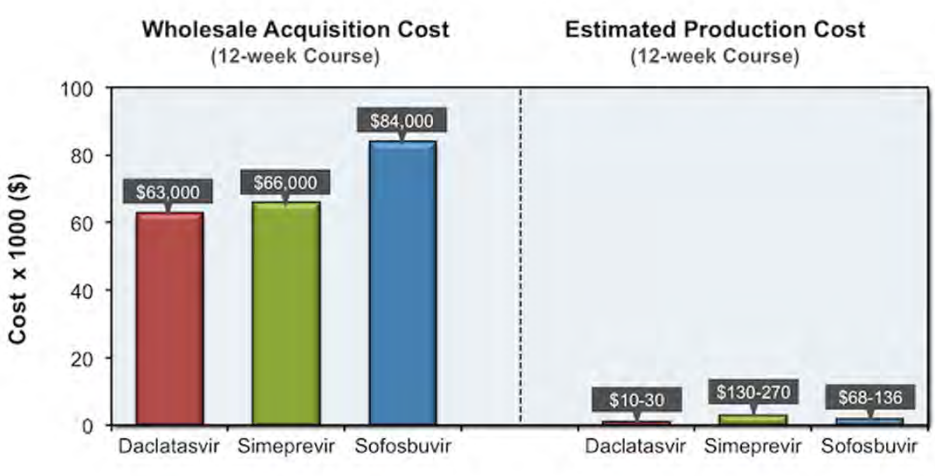
50

Medication Access is Restricted By Cost



51

Medication Access is Restricted By Cost



Hill A et al. Clin Infect Dis. 2014;58:928-3

52

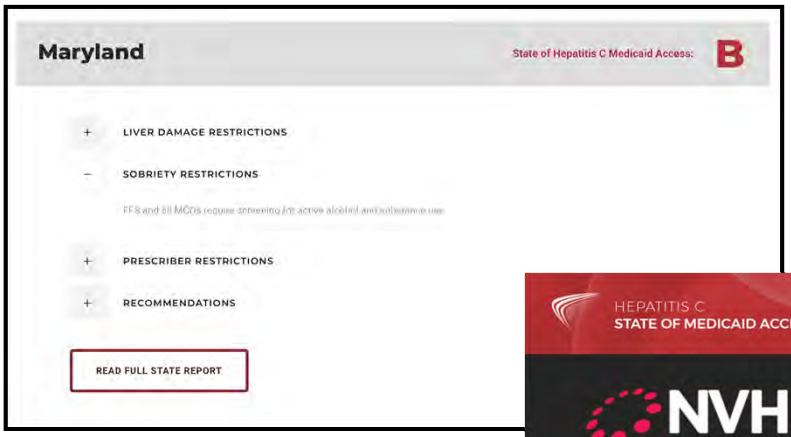
Price per Cure of Various HCV Regimens

Regimen	SVR rates	WAC Price	Cost per SVR
Pegasys + Ribavirin x 48 weeks[1]	41%	$41,758	$101,849
Telaprevir + PegIFN + Ribavirin x 24 weeks[2]	75%	$86,843	$115,791
Sofosbuvir + PegIFN + Ribavirin x 12 weeks	90%	$94,421	$104,912
Sofosbuvir+Ledipasvir x 8 weeks	94%	$63,000	$67,021 ($36,191?)*
Sofosbuvir + Ledipasvir x 12 weeks	99%	$94,500	$95,454 ($51,545?)*

Graham 2015; Package inserts for products;
*http://blogs.wsj.com/pharmalot/2015/02/04/what-the-shocking-gilead-discounts-on-its-hepatitis-c-drugs-will-mean/

53

Maryland HCV Tx Restrictions



StateOfHepC.org

HEPATITIS C
STATE OF MEDICAID ACCESS
NVHR
National Viral Hepatitis Roundtable
CHLPI CENTER for HEALTH LAW and POLICY INNOVATION
HARVARD LAW SCHOOL

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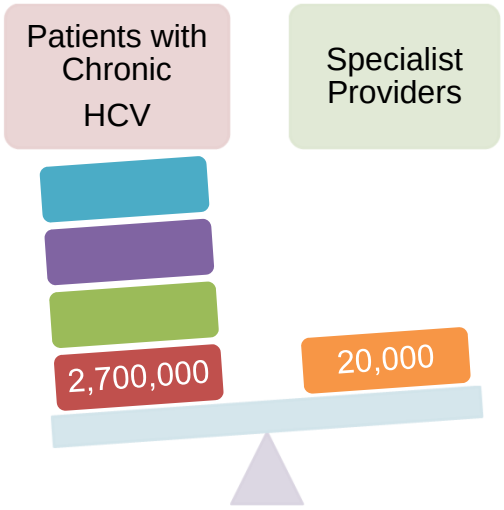
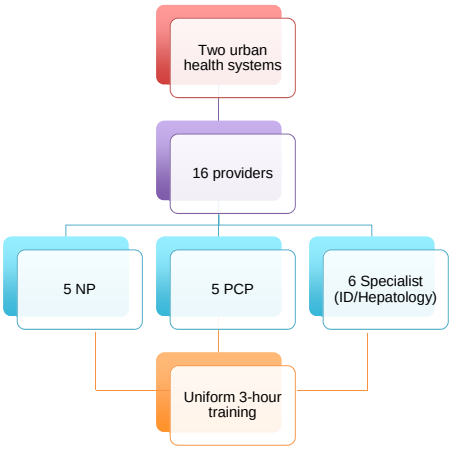
Lack of Specialists Limits Treatment

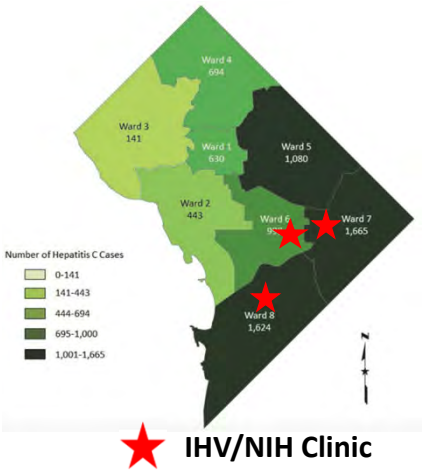


Kattakuzhy, S et al *Ann Int Med*, 2017;167(5):311-318

55

ASCEND Study : Task shifting works





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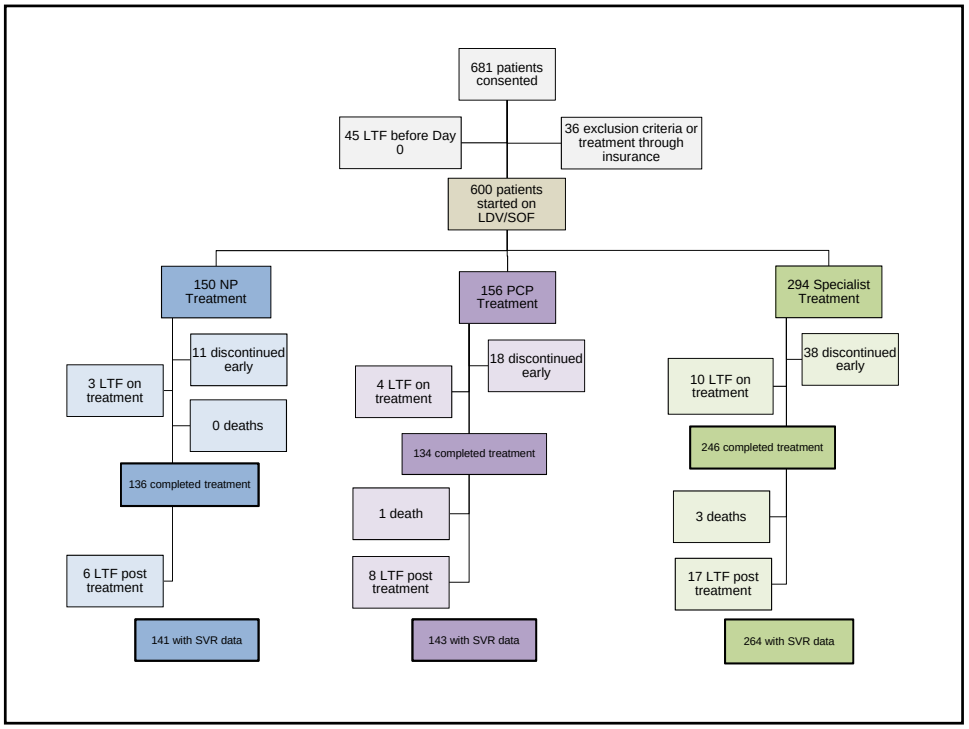
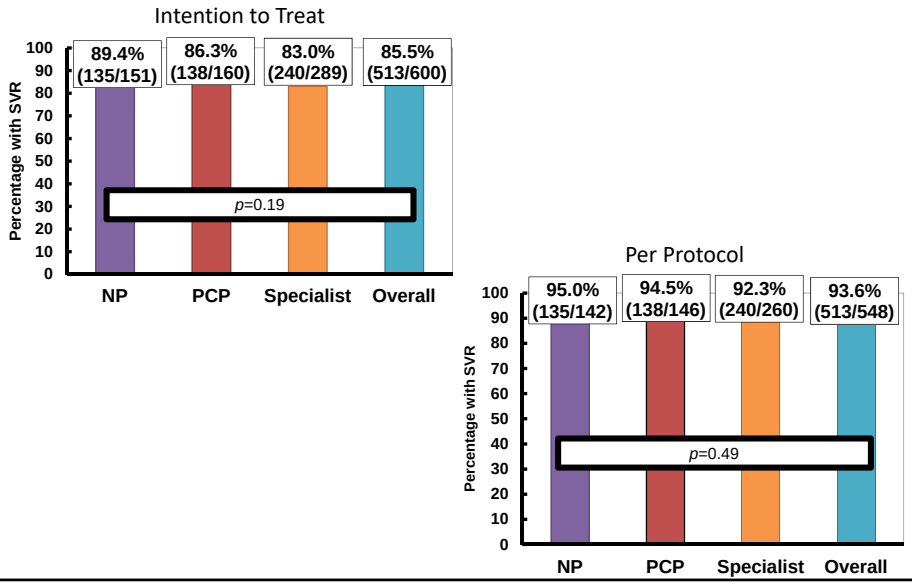


57

ASCEND Study : Task shifting works



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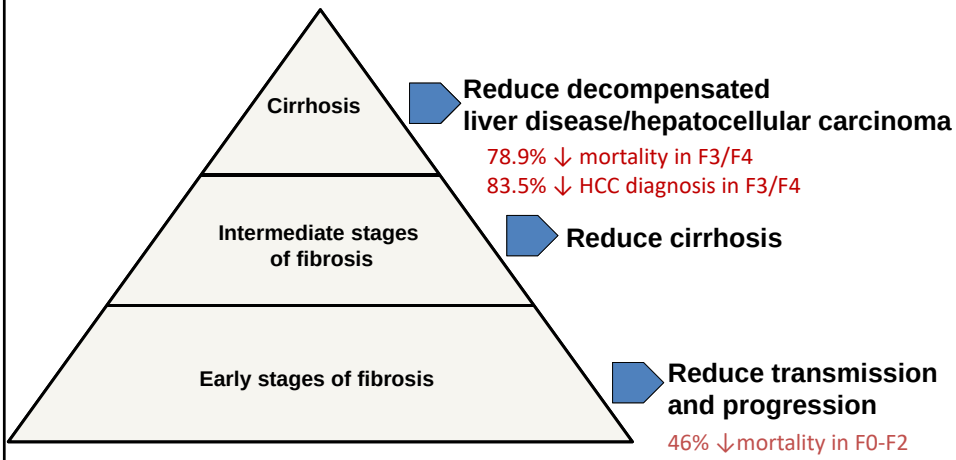
HCV Cure Improves Outcome Regardless of Fibrosis Stage

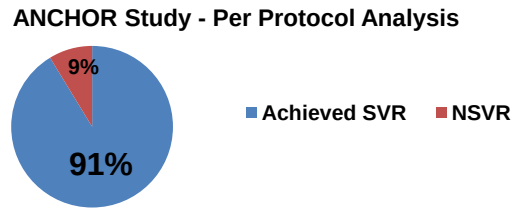


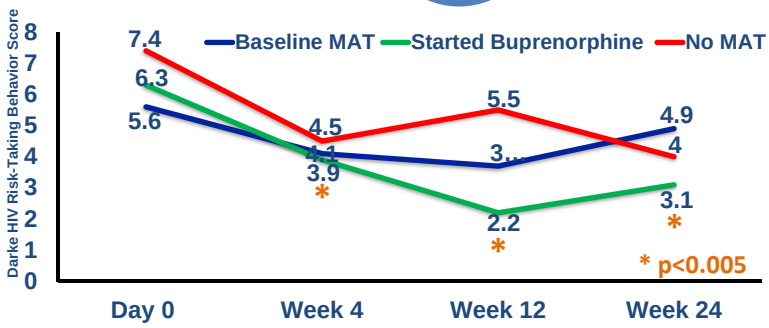
Backus et al *Hepatology* 2017
Backus et al *Hepatology* 2018

59

HCV Tx in Active Substance Use

Hepatitis C cure rates are similar to those treated in clinical trials

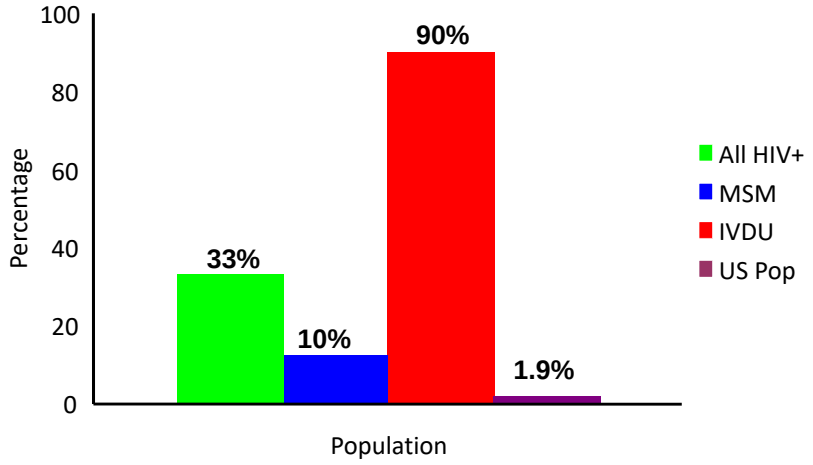




Rosenthal E et al. The International Liver Congress 2018. Abstract PS-092.

60

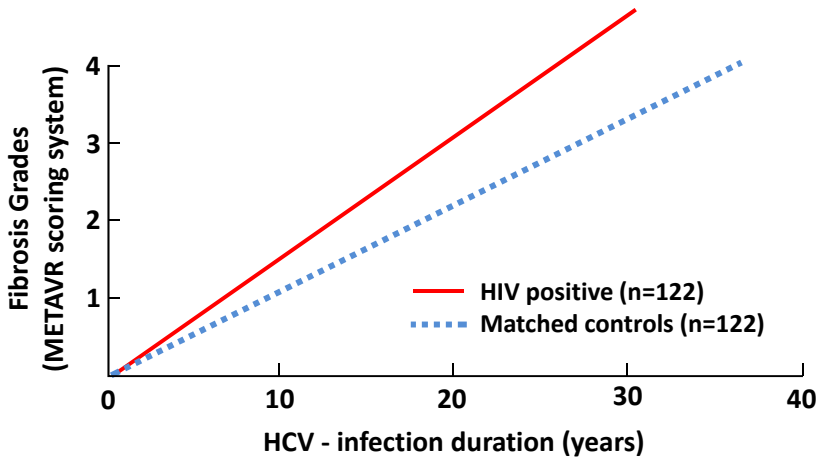
HCV Co-infection is Common in HIV Infected Subjects



Sulkowski MS, Mast EE, Seeff, LB et al. Clin Infect Dis. 2000;30

61

HIV Co-infection Accelerates Liver Fibrosis Progression Rate



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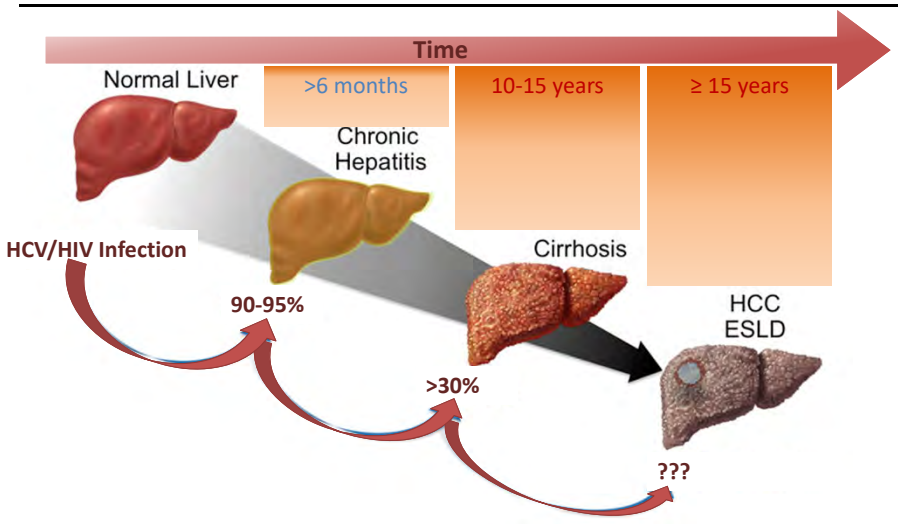
Natural History of HCV/HIV



Adapted from hepatitisc.uw.edu

63

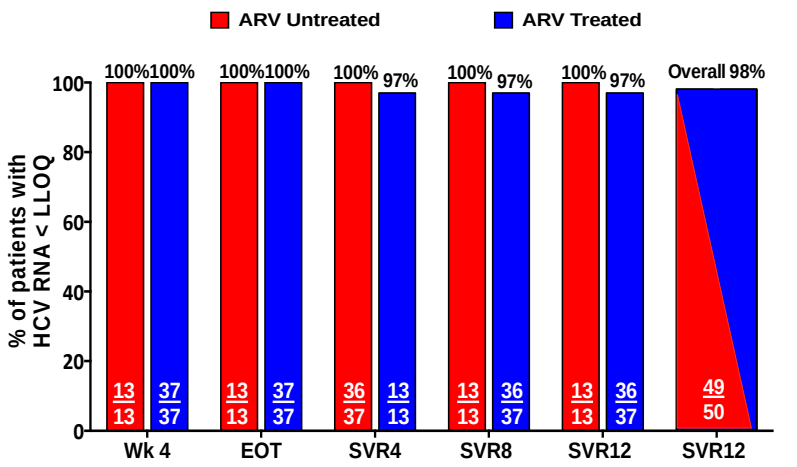
Factors Associated with Fibrotic Progression in HIV-infected Patients

- Alcohol >50 gms/day
- CD4+ <200 cell/mm^3
- Not on ART

Benhamou et. al, HEPATOLOGY, 2001

64

ERADICATE: LDV/SOF in HIV/HCV Co-Infection



Osinusi JAMA 2015

65

Treating HCV in HIV+ Patients

- **Treatment with combination DAA-based therapy is as effective in HIV/HCV co-infected patients as HCV mono-infected patients**
- **Drug interactions are important to consider**

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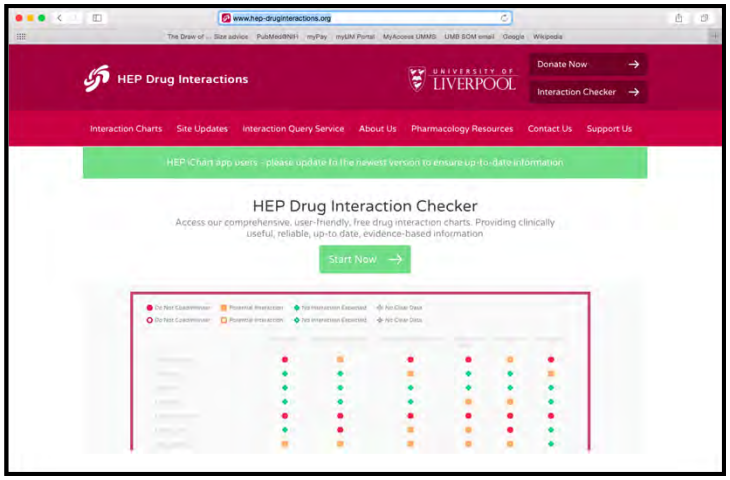
HCV Drug Interactions

http://www.hep-druginteractions.org



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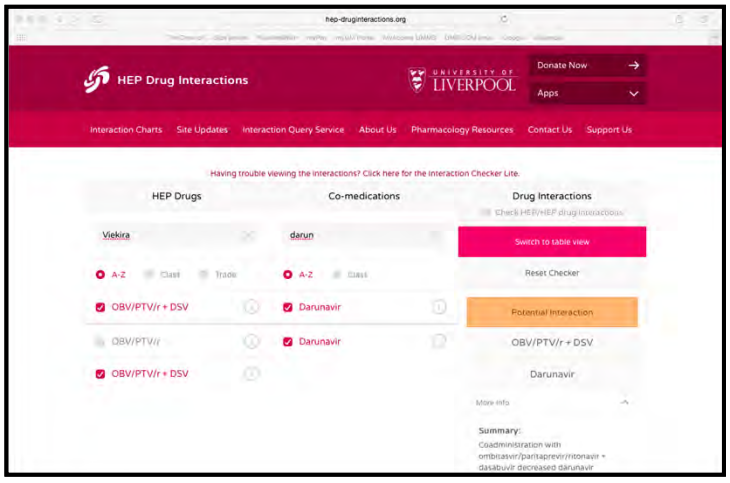
HCV Drug Interactions

http://www.hep-druginteractions.org



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What you need to know: Hepatitis B

On October 12, 2016, the FDA issued a Black Box warning for all DAAs

- Cases of HBV reactivation, occasionally fulminant, during or after DAA therapy have been reported in HBV/HCV coinfected patients who were not receiving HBV suppressive therapy
- All patients initiating HCV DAA therapy should be assessed for HBV coinfection with HBsAg testing, and for prior infection with anti-HBs and anti-HBc testing. A test for HBV DNA should be obtained prior to DAA therapy in patients who are HBsAg positive.
- HBV vaccination is recommended for all susceptible individuals.
- HBsAg positivity does not represent a contraindication to HCV DAA therapy. **Patients meeting criteria for treatment of active HBV infection should be started on therapy at the same time (or before) HCV DAA therapy is initiated.**

hcvguidelines.org

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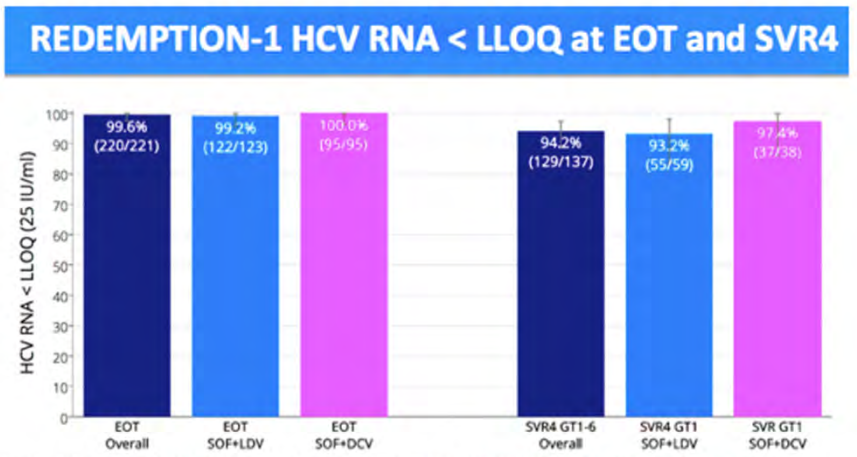
What's new about treating hepatitis C?

- **Generic HCV Drugs**
- **Short duration therapy**
- **Retreatment of DAA failure**
- **Treatment of Acute HCV**

70

REDEMPTION Study: Generic DAAs



Freeman et al, EASL 2016

71

Short Duration Therapy: SYNERGY

N	Tx Naïve/Exp	Fibrosis Stage	Treatment and Duration (weeks) 0 4 6 12	SVR
20	N	0-2	LDV/SOF	100%
20	N	0-2	LDV/SOF + GS 9669	95%
20	N	0-2	LDV/SOF + GS-9451	100%
25	N	3/4	LDV/SOF + GS-9451	72%
25	E	3/4	LDV/SOF + GS-9451	80%
25	N	0-2	LDV/SOF + GS-9451	40%
25	N	0-2	LDV/SOF + GS-9451 + 9669	20%
34	E	0-3	Retreatment with LDV/SOF	91%

Kohli A et al. 2015 *Lancet*; Kattakuzhy S et al. 2016 *CID*; Wilson E et al. 2016 *CID*

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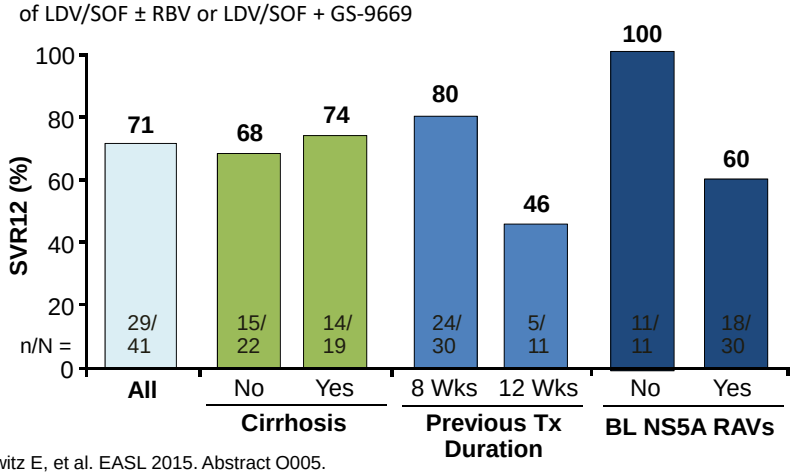
Ledipasvir/Sofosbuvir Re-Tx and RAVs

24 Wks of LDV/SOF Retreatment After Failure of 8-12 Wks of LDV/SOF-Based Tx

- GT1 HCV–infected pts with and without cirrhosis previously treated with 8 or 12 wks of LDV/SOF ± RBV or LDV/SOF + GS-9669

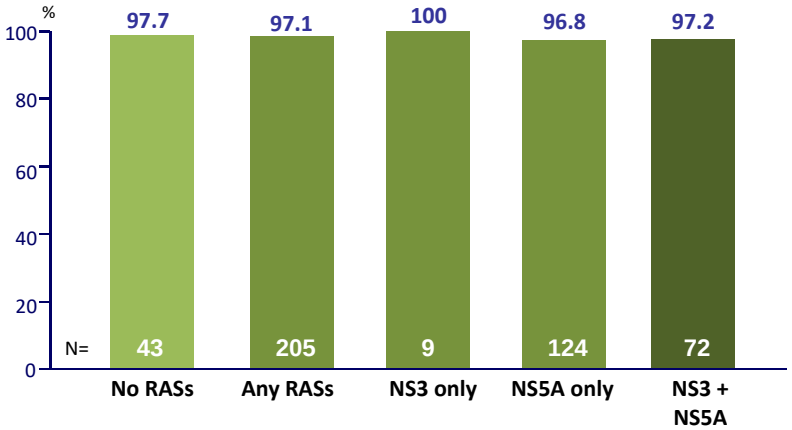


Lawitz E, et al. EASL 2015. Abstract O005.

73

POLARIS-1 Study: SOF/VEL/VOX in NS5A experienced patients, GT1-6

SVR_{12} by baseline RASs (15% cutoff), %



- Two patients had S282T at baseline, both achieved SVR_{12}
- None of the patients who relapsed had treatment-emergent RASs

Bourlière M. NEJM 2017; 376:2134-46

74

RESOLVE Study: SOF/VEL/VOX in DAA-experienced patients

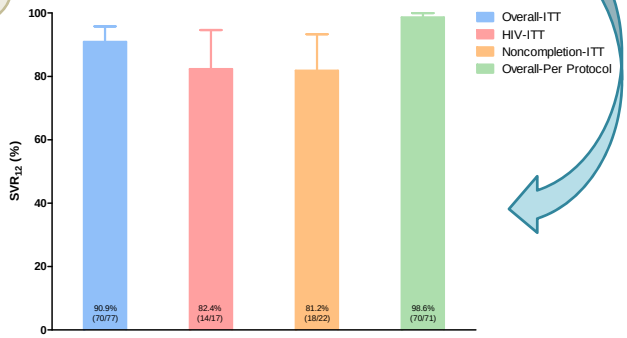
Patients with relapsed HCV following combination DAA therapy:
- Adults with recurrent HCV gt 1
- Compensated cirrhosis allowed
- HIV, HBV co-infection allowed
- Previous poor adherence or non-completion allowed

N=77

12 weeks
SOF/VEL/VOX (400/100/100)

12 weeks

SVR_{12}



*SOF/VEL/VOX is not approved for use in the retreatment of patients with HIV/HCV or HIV/HBV/HCV co-infection, but it appears to have comparable efficacy in this population.

Wilson E. J Hep; 71(3):498-504

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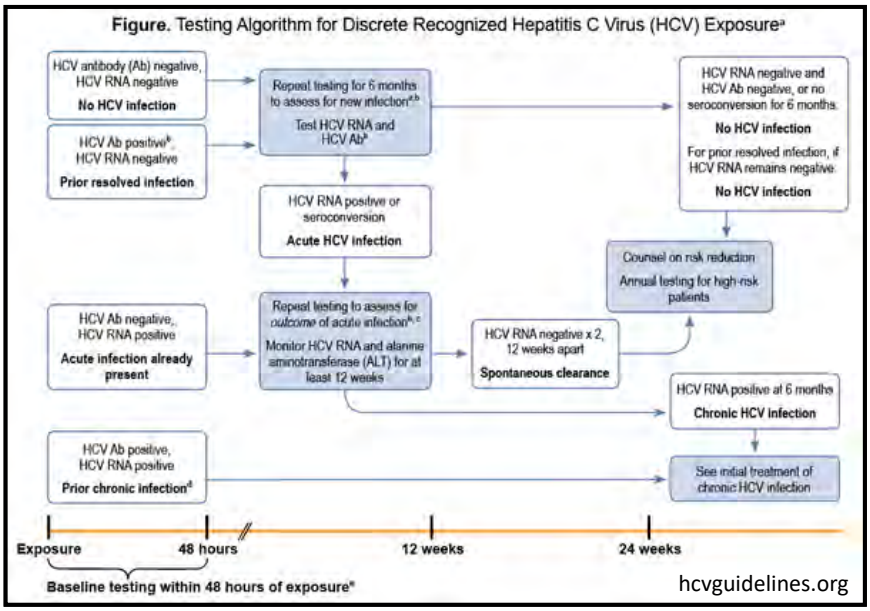
Acute HCV : To treat or not to treat?



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Acute HCV : To treat or not to treat?

Recommended Treatment for Patients With Acute HCV Infection	
RECOMMENDED	RATING
If the clinician and patient decide that a delay in treatment initiation is acceptable, monitoring for spontaneous clearance is recommended for a minimum of 6 months. When the decision is made to initiate treatment after 6 months, treating as described for chronic hepatitis C is recommended (see Initial Treatment of HCV Infection).	IIa, C
If a decision is made to initiate treatment during the acute infection period, monitoring HCV RNA for at least 12 to 16 weeks before starting treatment is recommended to allow time for possible spontaneous clearance.	IIa, C

Recommended Regimens for Patients With Acute HCV Infection	
RECOMMENDED	RATING
Owing to high efficacy and safety, the same regimens that are recommended for chronic HCV infection are recommended for acute infection.	IIa, C

hcvguidelines.org

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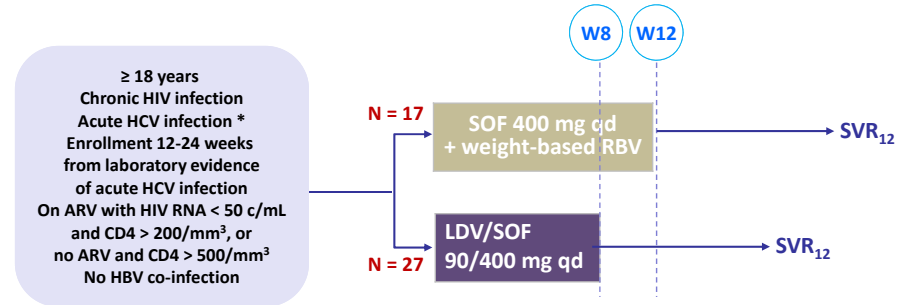
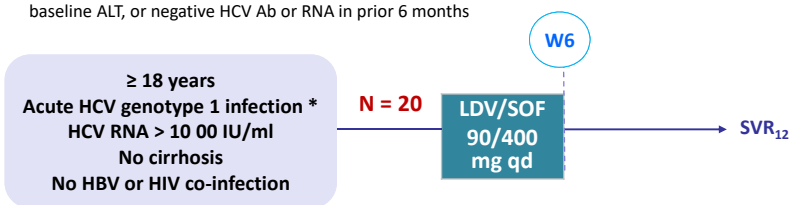
Acute HCV : How to treat?



* New detectable HCV RNA + ALT ≥ 5 x ULN if normal in prior 12 months, or ALT ≥ 10 x ULN with no baseline ALT, or negative HCV Ab or RNA in prior 6 months

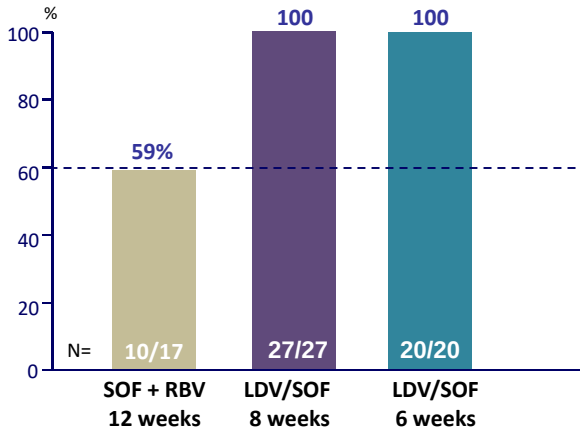


* Documented seroconversion within the 4 months, or known or suspected exposure to HCV within 4 months with ALT > 10 x ULN at screening

Naggie S. Clin Infect Dis 2017; 64:1035-42 ; Naggie S. AASLD 2017, Abs. 196
Deterding K, Lancet Infect Dis 2017; 17:215-22

78

Acute HCV : How to treat?



*LDV/SOF is not approved for the treatment of acute HCV.

Naggie S. Clin Infect Dis 2017; 64:1035-42 ; Naggie S. AASLD 2017, Abs. 196
Deterding K, Lancet Infect Dis 2017; 17:215-22

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Questions?

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Notes

Notes

Maryland

DEPARTMENT OF HEALTH

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