

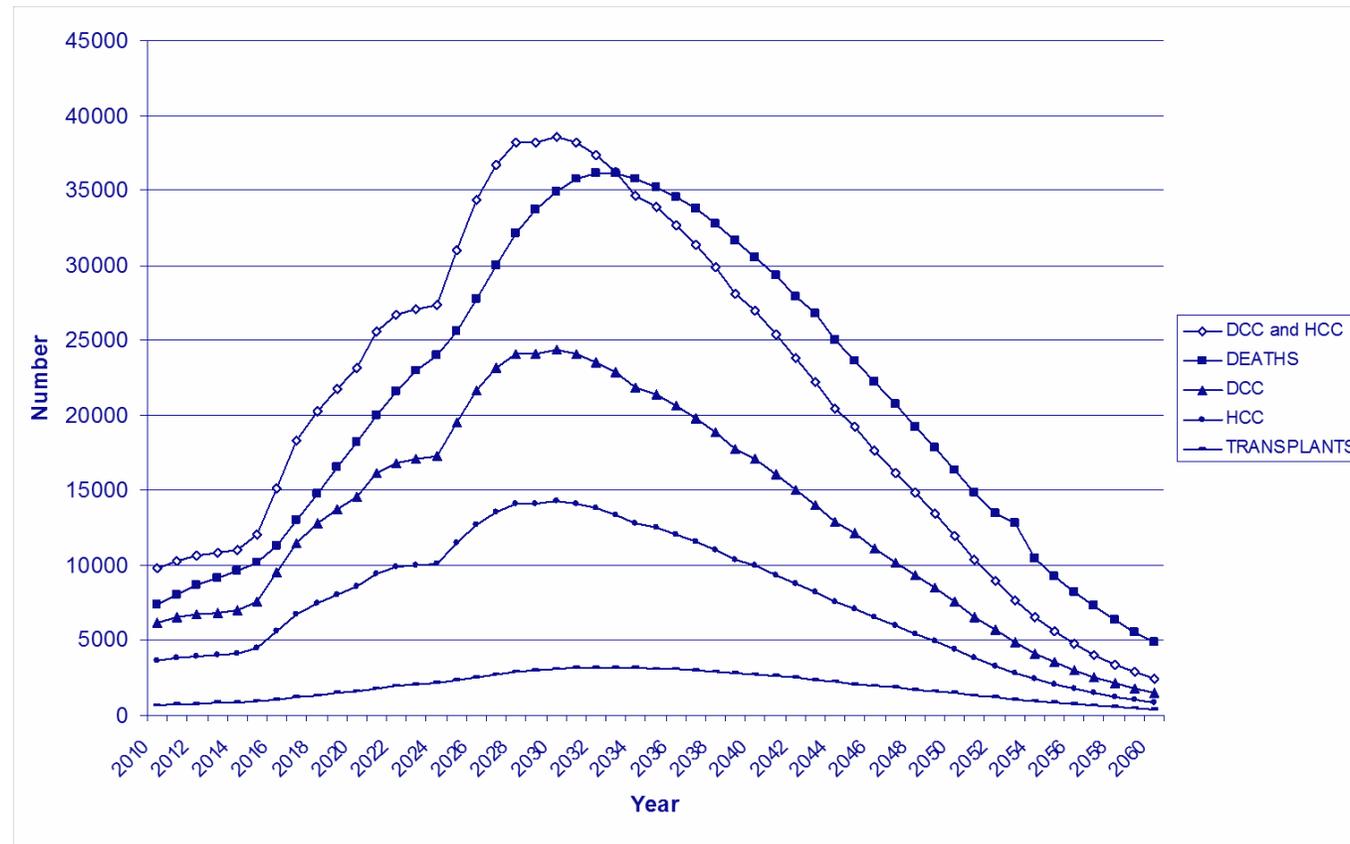
# Curing Hepatitis C in the Indian Health Service

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# Case Presentation

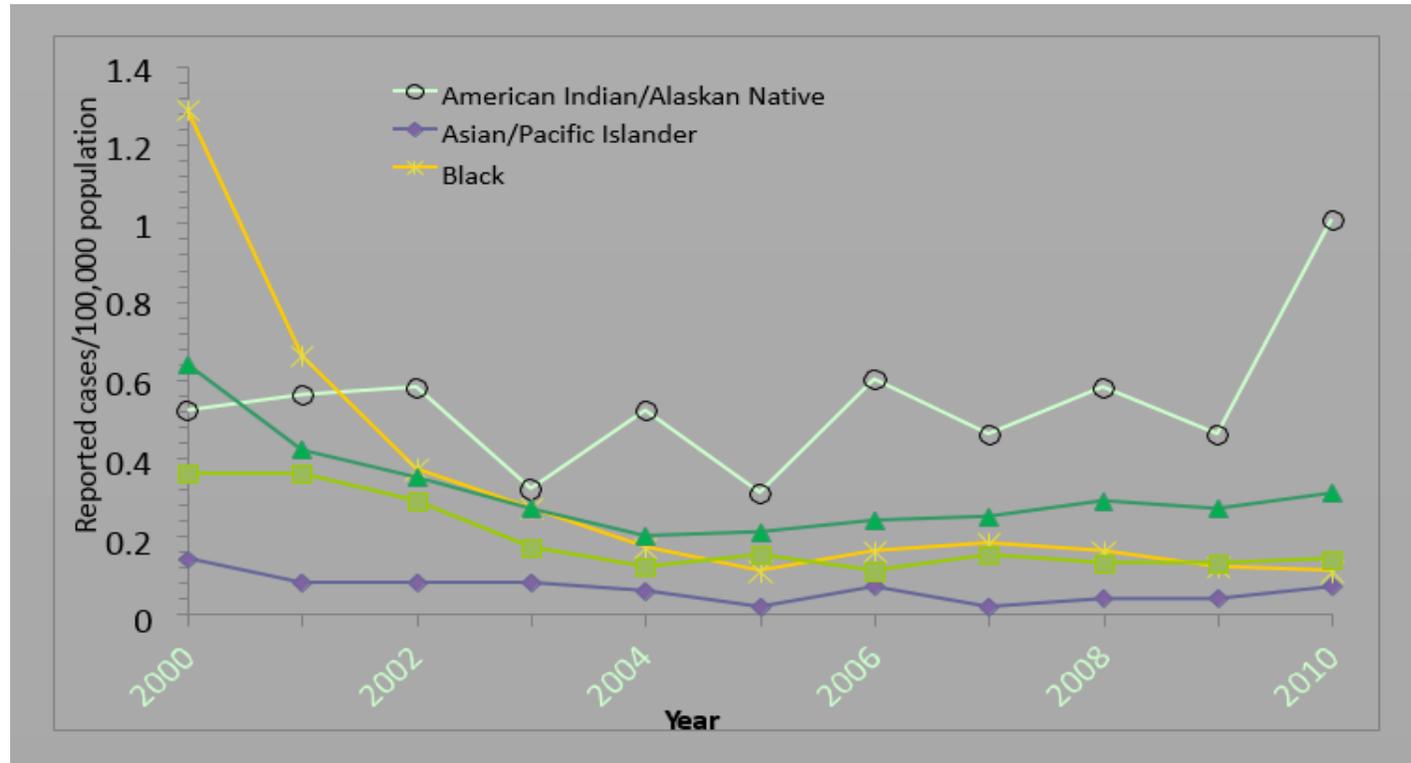
- ❖ An American Indian 52 year-old male restaurant owner comes in to establish primary care with his new IHS physician. He does not drink alcohol but injected drugs once when he was in high school in 1978. He is found to have systolic hypertension, an LDL of 192 and an ALT of 48 after evaluation. Review of the EHR reminders shows that he is due for an influenza vaccine, and HIV serology and a Hepatitis C baby boomer screening test with reflex viral load. He is found to be HIV negative but HCV Antibody positive with a viral load of 150,000 iu/ml.

## Forecasted Annual Incident Cases of Decompensated Cirrhosis (DCC), Hepatocellular Carcinoma (HCC), Liver Transplants, and Deaths Associated with Persons with Chronic hepatitis C Infection and No Liver Cirrhosis in the United States in 2005



Rein, DB, Wittenborn, JS, Weinbaum, CM Sabin, M, Smith, BD, Lesesne, SB. Forecasting the Mortality and Morbidity Associated with Prevalent Cases of Pre-Cirrhotic Chronic Hepatitis C Infections in the United States. Journal of Digestive Liver Diseases 2010.

# Incidence of acute hepatitis C by Race/Ethnicity, U.S., 2000-2010



Source: National Notifiable Diseases Surveillance System (NNDSS)

# HCV Boomer Screening IHS

- ❖ 29% of boomers screened GPRA 2014 (increase of 278% over prior year)
- ❖ Things that work
  - ❖ Screening Reminders
  - ❖ Standing protocols
  - ❖ Nurses run the program, not physicians

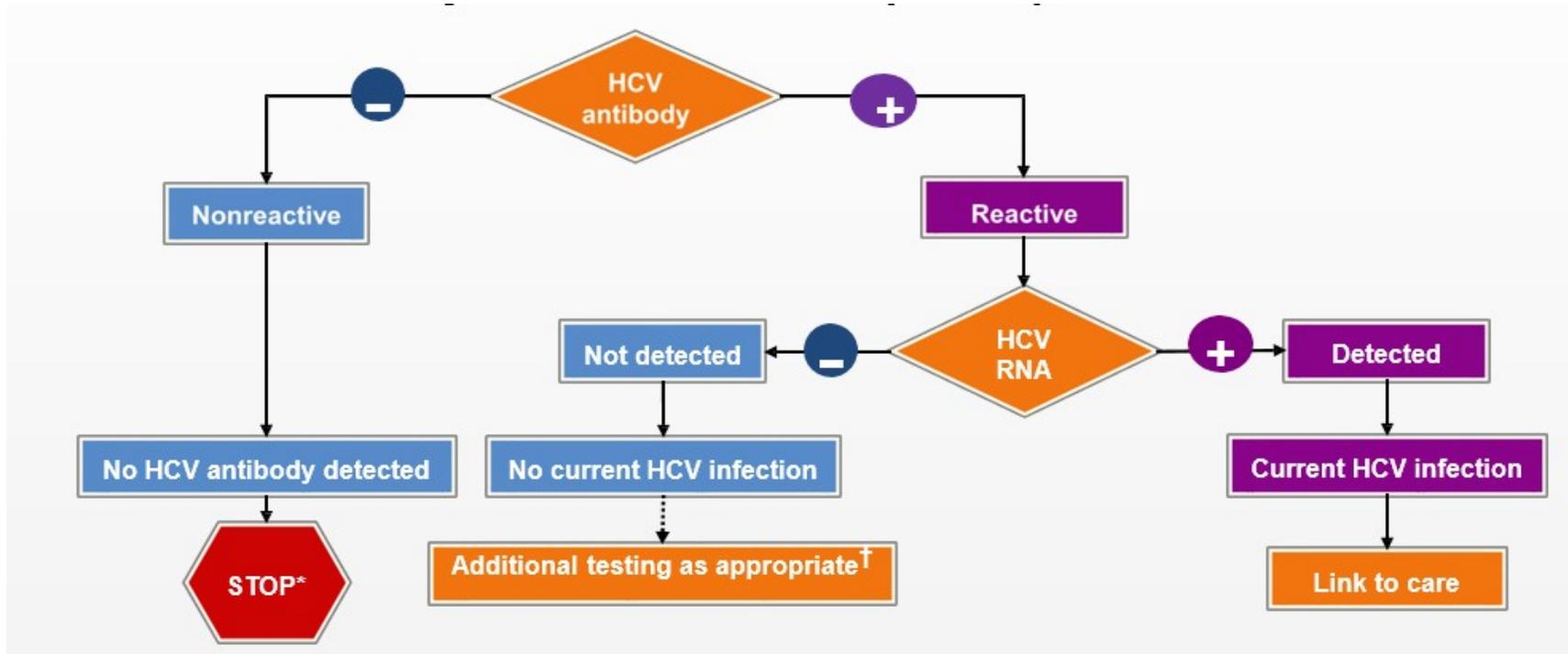
# Catch up on HCV+ backlog

- ❖ Audit of IHS site charts of HCV+ patients
  - ❖ About 50% of HCV+ never genotyped
  - ❖ About 30% never RNA confirmed
  - ❖ Need to identify and contact patients for follow up (confirmation, genotyping, staging for treatment, lifestyle counseling)

# Hepatitis C testing

- ❖ Test of Choice in 2014:
  - ❖ Screening EIA with reflex Reverse Transcriptase PCR
    - ❖ Qualitative PCR- yes no answer
    - ❖ Quantitative PCR- how much virus is present preferred

# Recommended Testing Sequence for Identifying Current Hepatitis C Virus (HCV) Infection



\* 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.

# Hepatitis C screening recommendations

## Risk based screening

- ❖ h/o Injection or Intranasal Drug Use
- ❖ Hemodialysis
- ❖ Tattoo, nonprofessional
- ❖ Children of HCV mother
- ❖ Transfusion/organ recipients
- ❖ Incarcerated
- ❖ HIV infected
- ❖ Alcoholics
- ❖ Unexplained hepatitis

# Hepatitis C screening recommendations

## New CDC recommendations:

- ❖ Screen all Baby Boomers born between 1945 and 1965 (inclusive)

# Hepatitis C –Who to treat

- ❖ Most likely to benefit
  - ❖ Advanced fibrosis F3
  - ❖ Compensated cirrhosis F4
  - ❖ Liver transplant recipients
  - ❖ Severe extra hepatic manifestations:
    - ❖ Cryoglobulinemia (cutaneous vasculitis)
    - ❖ Membranoproliferative GN, proteinuria, nephrotic syndrome

# Leukocytoclastic vasculitis



# Hepatitis C –Who to treat?

- ❖ High risk of complications
  - ❖ Fibrosis F2
  - ❖ HIV coinfection
  - ❖ HBV coinfection
  - ❖ Other liver diseases (NASH)
  - ❖ Debilitating fatigue
  - ❖ DM
  - ❖ Porphyria

# Porphyria Cutanea Tarda (PCT)



# Hepatitis C –Who to treat?

## ❖ Transmission risk:

❖ MSM

❖ IDU

❖ Incarcerated

❖ Dialysis

# Hepatitis C Evaluation

- ❖ Obtain the following
  - ❖ Hepatitis C viral load
  - ❖ Hepatitis C genotype
  - ❖ HIV serology
  - ❖ Hepatitis B, Hepatitis A antibodies
  - ❖ AST/Platelet Ratio (APRI Score)
  - ❖ (Consider biopsy/liver elastometry) → Optional in Project ECHO

# The Old Drugs...

: -(

## ❖ Pegelated Interferon (PEG)

- ❖ Given subcutaneously for 6-12 months

- ❖ Side Effects:

  - ❖ Flu like illness, depression, anxiety, alopecia, cytopenias

## ❖ Ribavirin

- ❖ Given orally BID

- ❖ Side effects:

  - ❖ Teratogenic, severe anemia

# The New Drugs !!!

## ❖ Sofosbuvir

- ❖ Once daily oral dosing
- ❖ Inhibits NS 5b Polymerase
- ❖ Side effects: Fatigue, Headache

## ❖ Simepravir

- ❖ Once daily oral dosing
- ❖ Inhibits NS 3/4a Protease
- ❖ Side Effects: Photosensitivity, rash, pruritus, myalgia, dyspnea, nausea, hyperbilirubinemia

# Hepatitis C Treatment

## ❖ Genotype 1:

- ❖ Peg-Interferon injection, Ribavirin, Sofosbuvir for 12 weeks
- ❖ Simepravir/Sofosbuvir +/- Ribavirin for 12 weeks

## ❖ Genotype 2

- ❖ Ribavirin plus Sofosbuvir for 12 weeks

## ❖ Genotype 3

- ❖ Ribavirin plus Sofosbuvir for 24 weeks

# Cure Rates (Sustained Virologic Response)

Genotype 1: Sof/Peg-IFN/RBV, 89%

Genotype 1: Sof/SIM +/- RBV, 86-96%

Genotype 2: 94%

Genotype 3: 68% with cirrhosis, 91% without

# Ledipasvir/Sofosbuvir: A Single Tablet Regimen (STR)



- **Ledipasvir**
  - Potency activity against GT 1a and 1b<sup>1</sup>
  - Once-daily, oral, 90 mg
- **Sofosbuvir**
  - Potent activity against GT 1–6
  - High barrier to resistance
  - Once-daily, oral, 400-mg tablet
- **Ledipasvir/Sofosbuvir STR**
  - Once-daily, oral fixed-dose combination tablet
  - No food effect
  - >2000 patients treated

LDV  
NS5A  
phosphoprotein  
inhibitor

SOF - NS5B  
nucleotide  
polymerase  
inhibitor

LDV  
NS5A  
phosphoprotein  
inhibitor

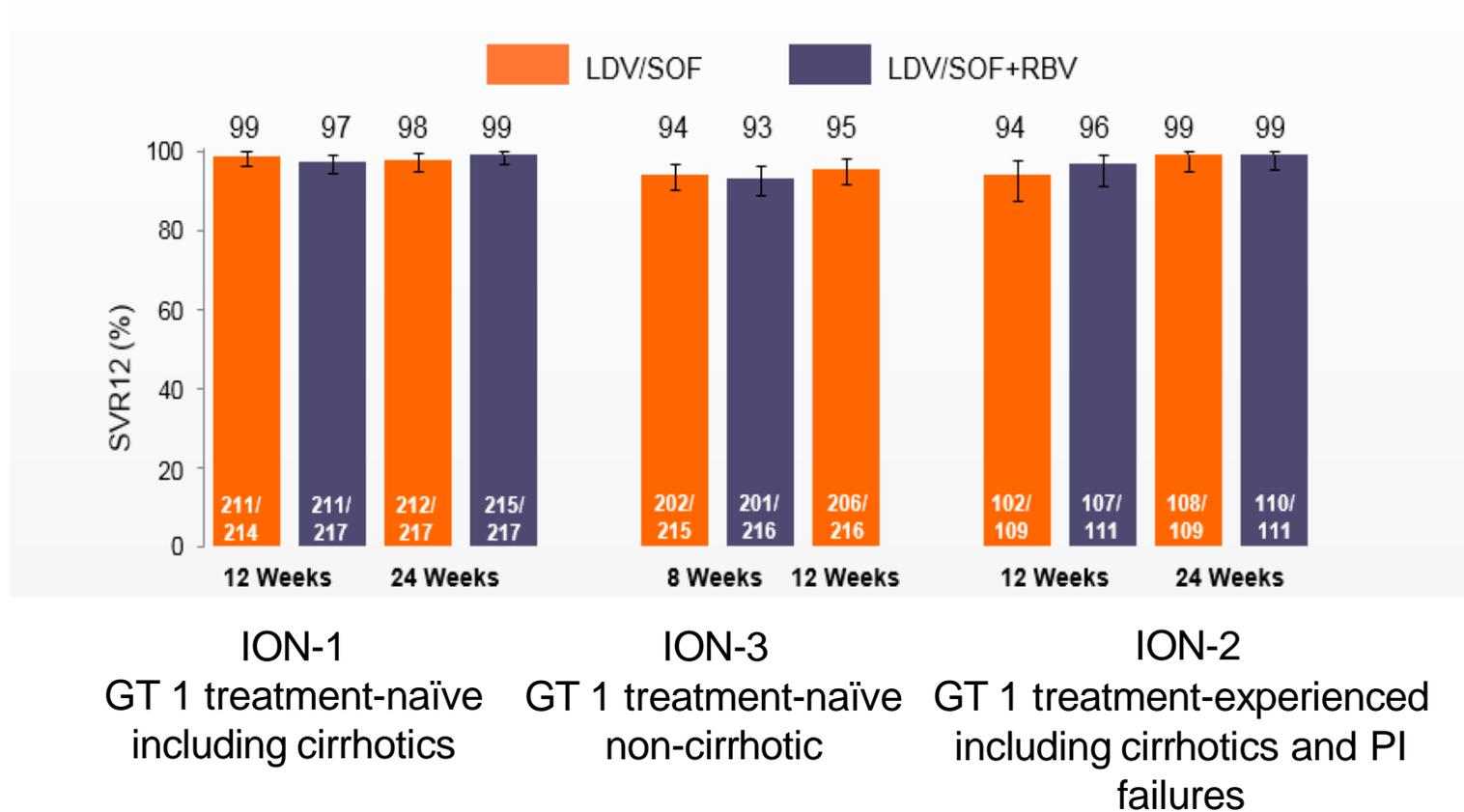
SOF - NS5B  
nucleotide  
polymerase  
inhibitor

**Priority Review and Breakthrough Status Granted**

**PDUFA: Oct 10, 2014**

# ION Phase 3 Program (ION-1, ION-2, ION-3)

## Efficacy Summary



- 97% (1886/1952) overall SVR rate

Error bars represent 95% confidence intervals.

Afdhal N, et al. *N Engl J Med* 2014; 2014 Apr 12 [Epub ahead of print]

Kowdley K, et al. *N Engl J Med* 2014; 2014 Apr 11 [Epub ahead of print]

Afdhal N, et al. *N Engl J Med* 2014; 2014 Apr 12 [Epub ahead of print]

# What do we get with HCV Treatment?

SVR (cure) of HCV is associated with:

**70%** Reduction of Liver Cancer

**50%** Reduction in All-cause Mortality

**90%** Reduction in Liver Failure





# Hepatitis C treatment in the IHS

- ❖ Treatment offered at many IHS sites for over 10 years
- ❖ Treatment often covered by insurance or offered free to low income patients through Patient Support Programs
- ❖ Critical to link to a centers of excellence
  - ❖ Anchorage Alaska Native Medical Center
  - ❖ UNM Project ECHO- IHS HCV ECHO first Wednesday, Noon MT



Hepatitis C Rx:

You can do this!!

# Contact us

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