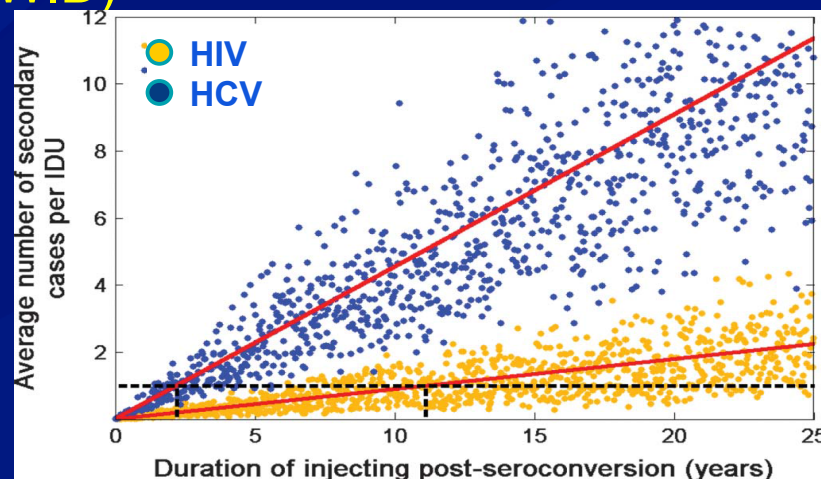


# **Hepatitis C Virus Infection Among People Who Inject Drugs**

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**Centers for Disease Control and Prevention**

## HCV Transmission Among People Who Inject Drugs (PWID)

- **Transmission risks**
  - Injection duration
  - Frequency of injecting
  - Equipment sharing, not just sharing needles

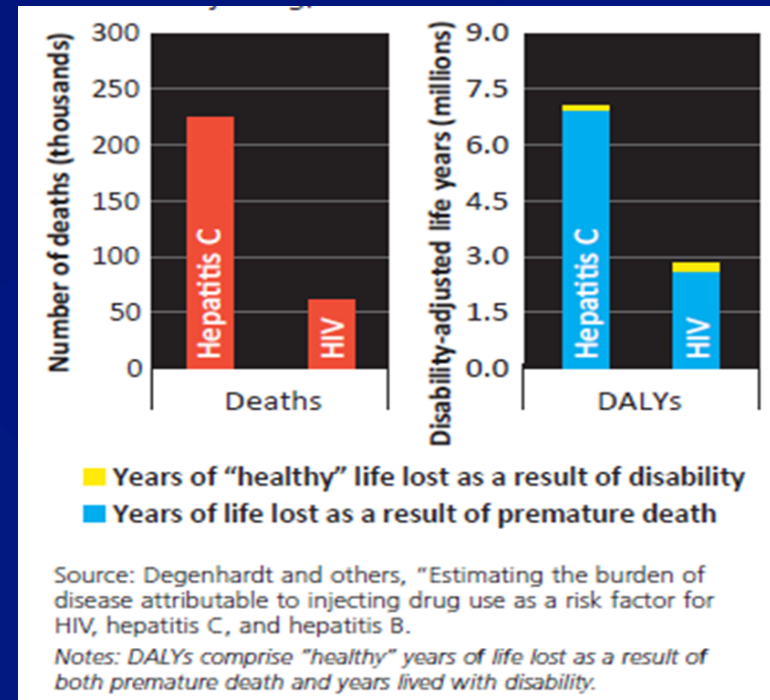


- **Highest incidence among active/new injectors**
  - United States – 23/100 pyrs
  - Europe -13/100 pyrs
  - Vietnam – 23/100 pyrs.
  - Estonia- 77/100 pyrs.
  -

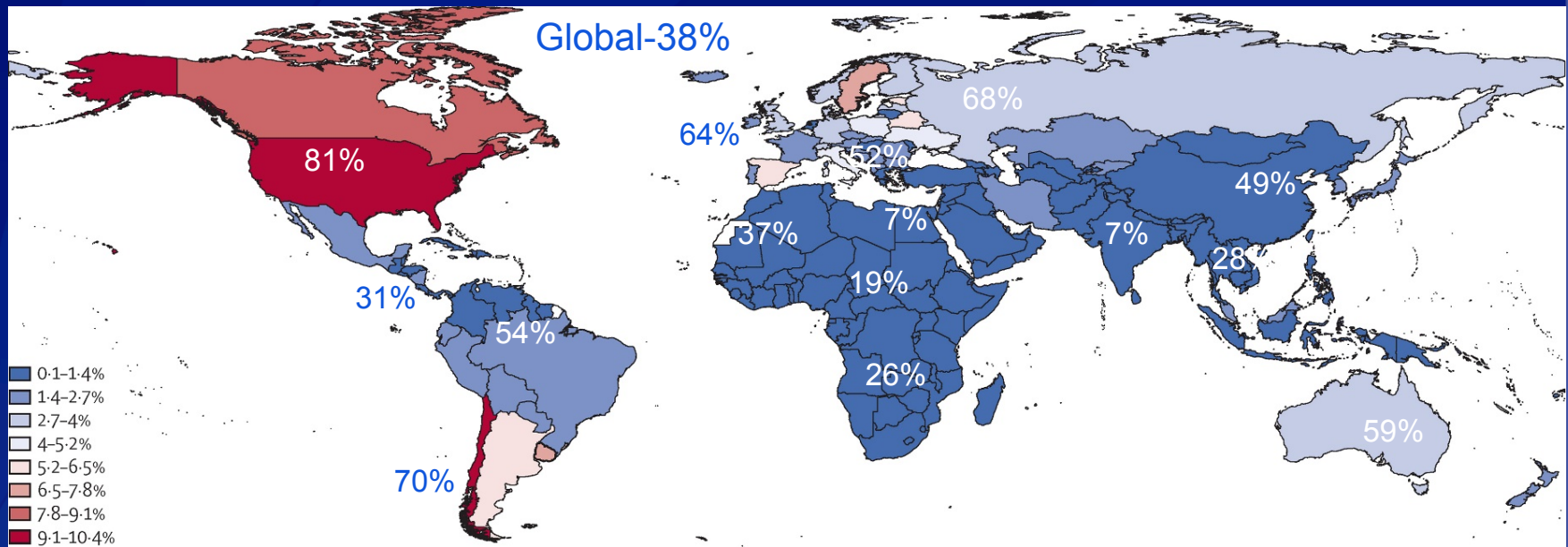
Burt, *J Urban Health* 2007; Garfein R, *J Urban Health* 2013; Keen L, *Addict Behav* 2014; Amon JJ, *Clin Infect Dis* 2008; Kwon, *JAIDS* 2009; Nelson PK, *Lancet* 2011; Hagan et al. 2010; Garfein et al. 1998; 2Armstrong et al. 2006; Amon et al. 2008; 3 Kleven et al. 2013; Daniels et al. 2007; Amon et al. 2008; Weissing L, *PlosOne* 2014; Grebely *PLOS ONE* 2014; Clatts MC, *J Urban health* 2010; Page *Clin infect dis*, 2013

## Global Epidemiology of HCV among Persons Who Inject Drugs

- ❑ **Persons with HCV - 71.1 million**
  - PWID 6M (8% of global burden); 1.36M HIV/HCV
- ❑ **HCV annual incidence – 1.7M**
  - PWID 390,000 (23%)
- ❑ **12 million PWID globally**
  - 66% HCV infected
- ❑ **3.5 fold more deaths from HCV than HIV**

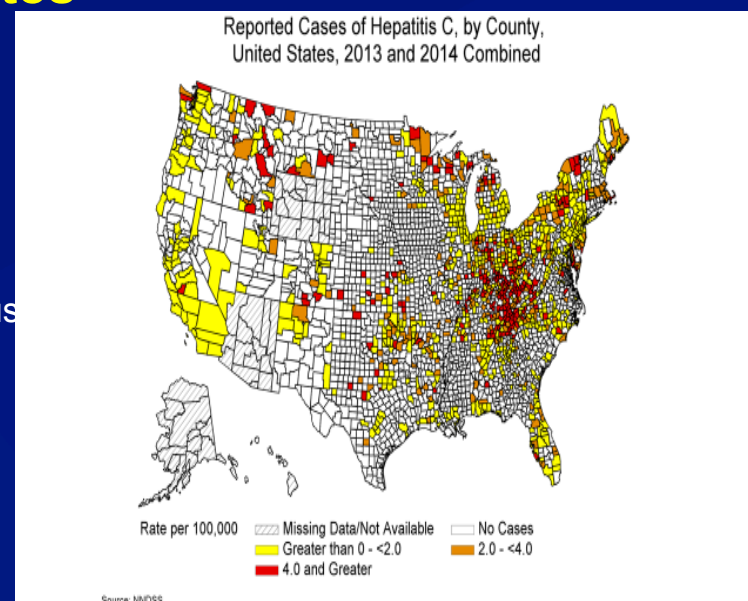


## Proportion of Total Burden of Hepatitis C Virus Infection Attributable to Injecting Drug Use by Region, 2013

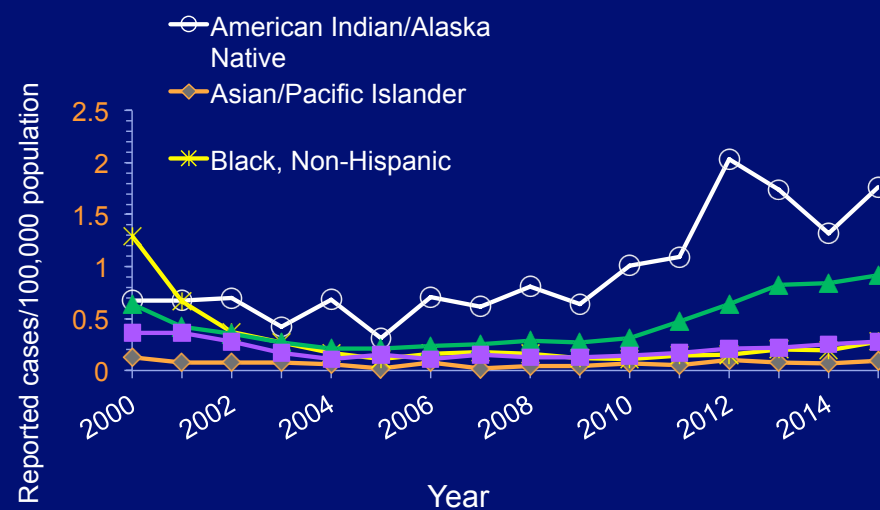
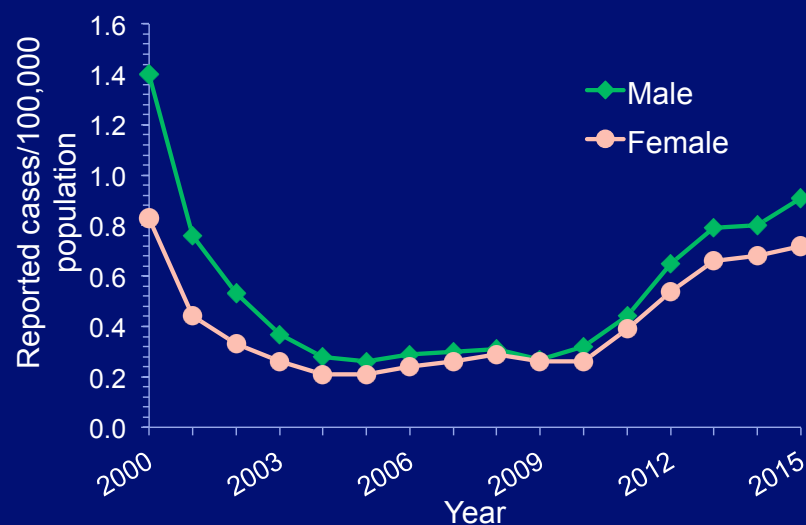


## Epidemiology of HCV among Persons Who Inject Drugs- United States

- ❑ **Persons with HCV- 3.5 M (2010)**
  - 1.3M (37%) with history of injection drug use
  - 1.75 (49%) – no reported risks for HCV infection
- ❑ **New HCV infections – 33,900 (2015)**
  - 39% provide risk information; 80% cite injection drug use
- ❑ **HCV incidence among active/recent PWID: 23/100PY**
- ❑ **Number of life time PWID – 6.6 million**
- ❑ **Number of persons injecting in past year- 775,000**
  - Recent PWID with HCV- 334,000 (43%)



## Increases in HCV Incidence- United States

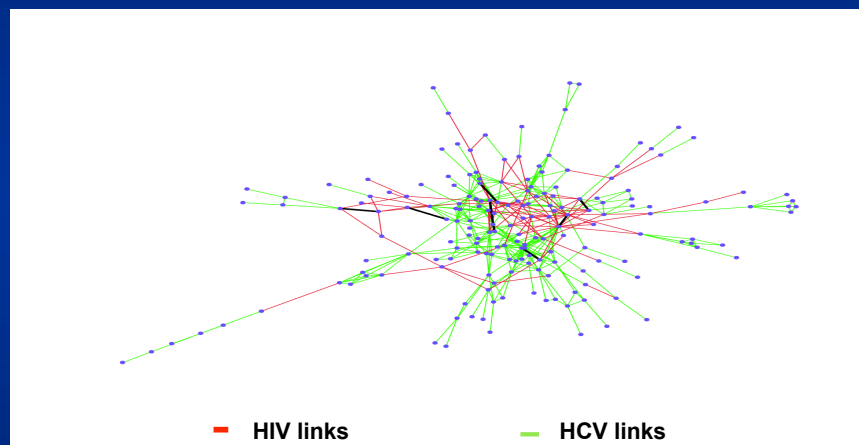
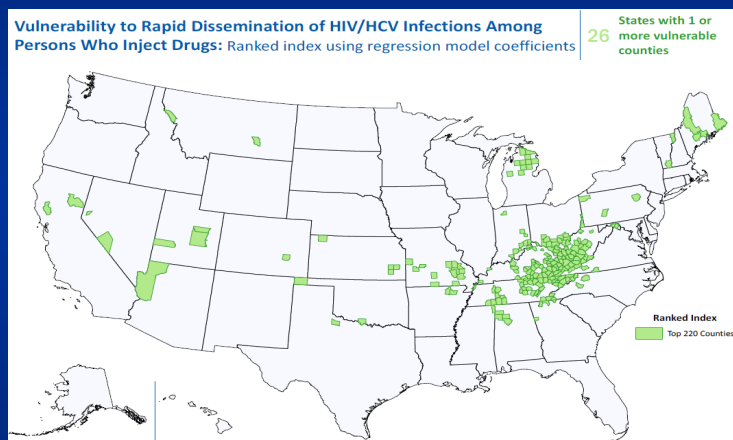


- ~33,000 new HCV infections in 2015
- 1:1 male: female ratio, predominantly white
- Highest incidence- 20-29 years, non-urban areas

# Apply Surveillance and Bioinformatics to Detect and Investigate HCV and HIV Transmission Among PWID

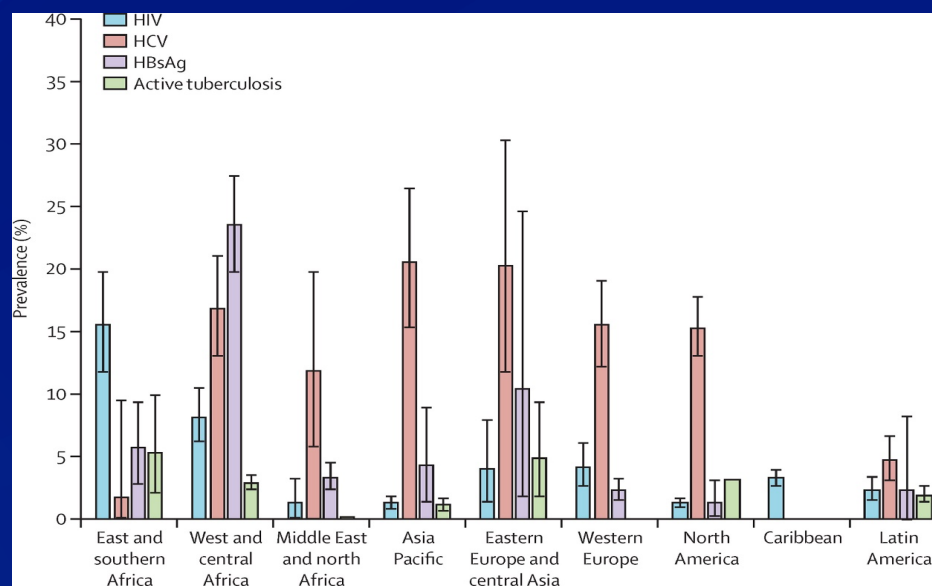


HIV transmission follows HCV transmission networks



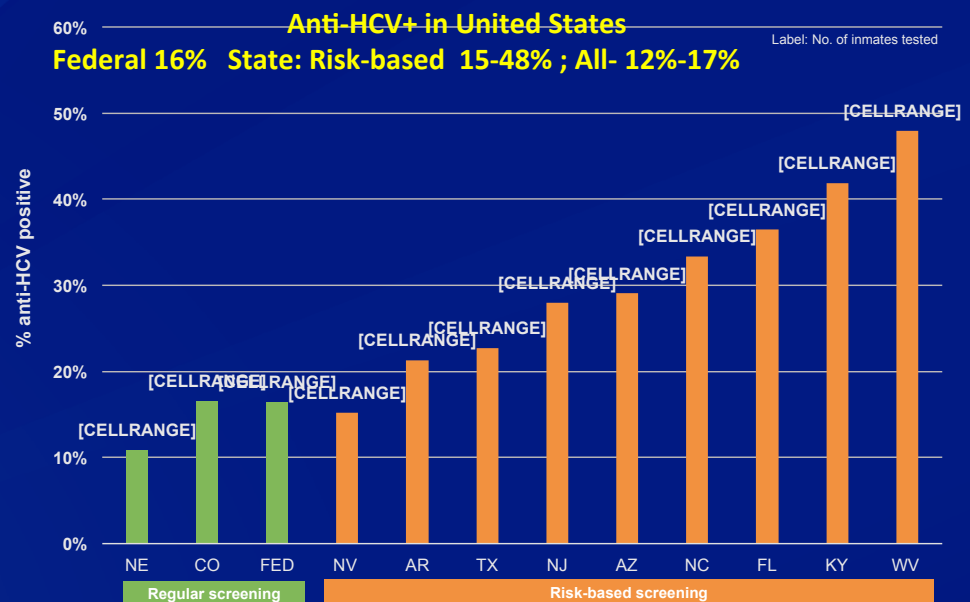
## HCV Among Incarcerated Populations

- Global: 15% have HCV (1,546,500)
- Regional– 5%-21%
- North America – 15% overall
- Among incarcerated PWID globally- 8%-95%

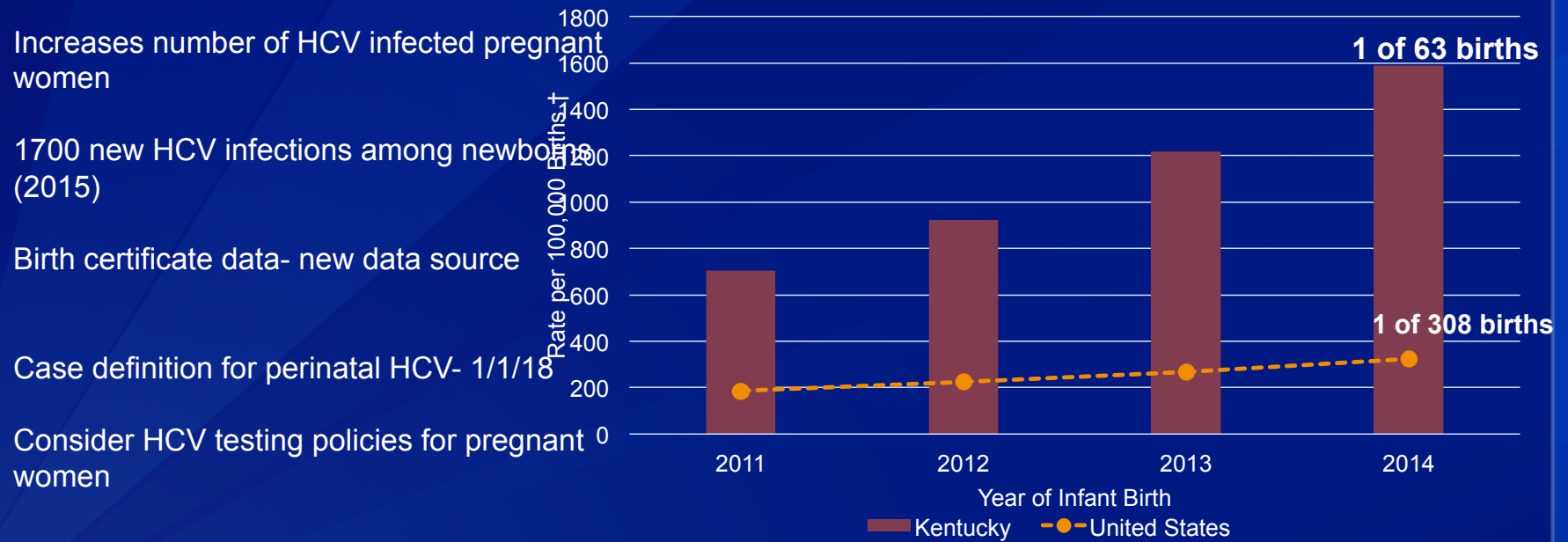


## HCV Among Incarcerated Populations- United States

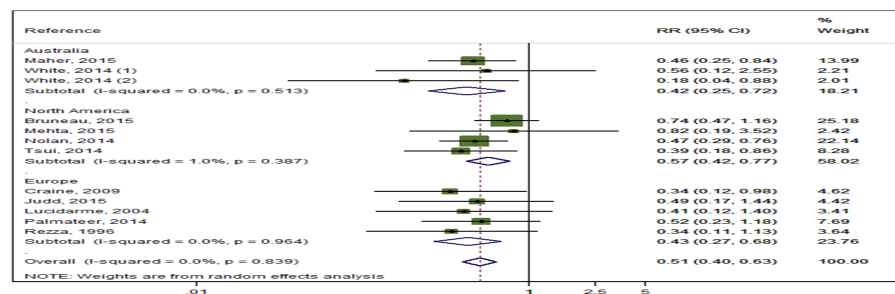
- ❑ High HCV prevalence
- ❑ Broad differences by location and testing strategy
- ❑ Cost and other considerations limit HCV testing and cure
- ❑ Law suits in 10 states for HCV treatment access; class action certification



## HCV Detection among Pregnant Women and Newborns



## Impact of Needle Syringe Programs and Opioid Substitution Therapy on HCV Transmission

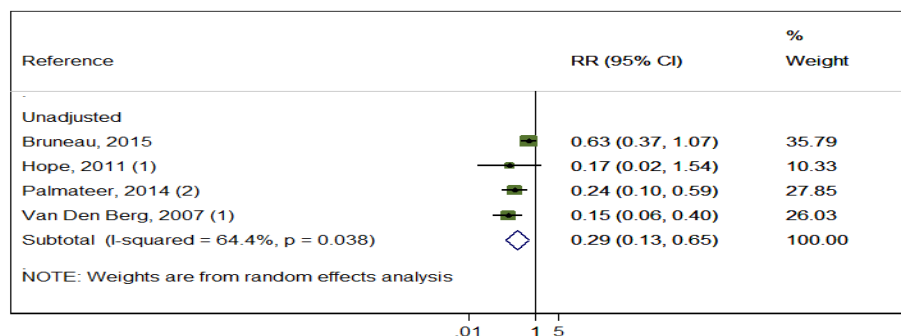


### Current OST

12 studies:  
6361 participants  
1030 HCV cases

**50% reduction in HCV**

Little heterogeneity



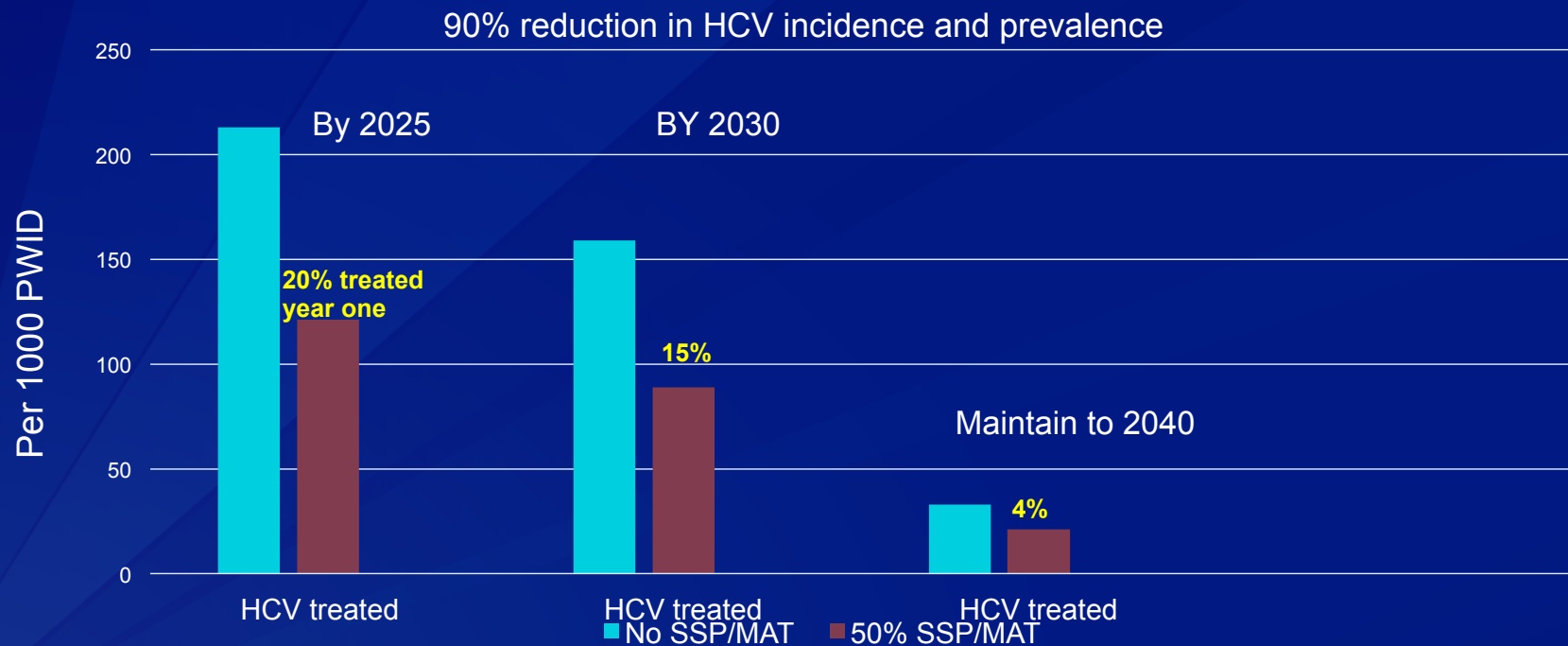
### High NSP with OST

4 studies  
3356 participants  
518 HCV cases

**71% reduction in HCV**

moderate heterogeneity

## SSP+ MAT+ HCV Testing and Cure is the Most Effective Strategy to Achieve Targets for HCV Elimination

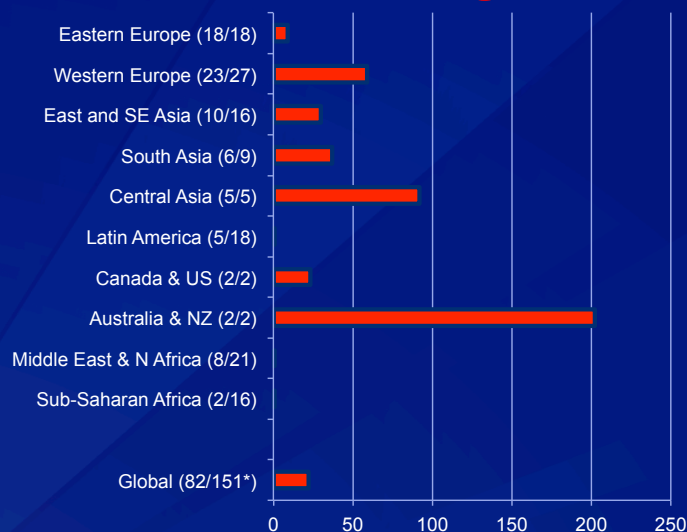


SSP= syringe service program ; MAT= medication assisted therapy

Frazier H, Addiction 2017

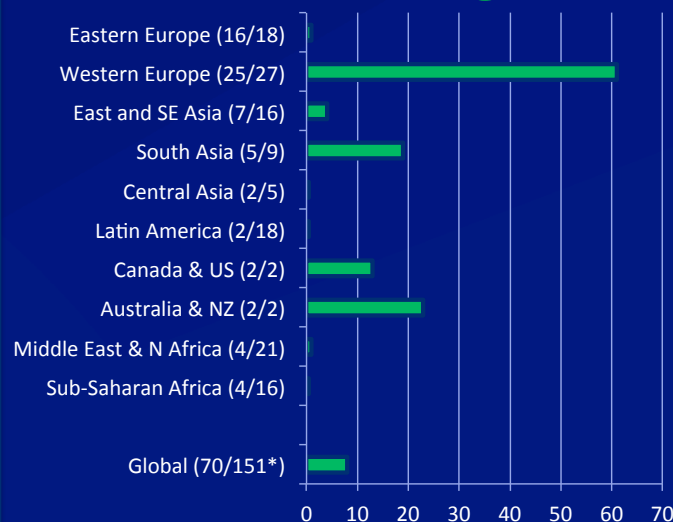
# Regional and Global Estimates of the Coverage of Risk Reduction Strategies

## NSP Coverage



Needles/syringes distributed  
per PWID per year

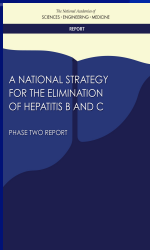
## OST Coverage



OST recipients per 100 PWID

\* (Number of countries reporting implementing OST, of those with injecting drug use identified)

Courtesy of S. Hutchinson

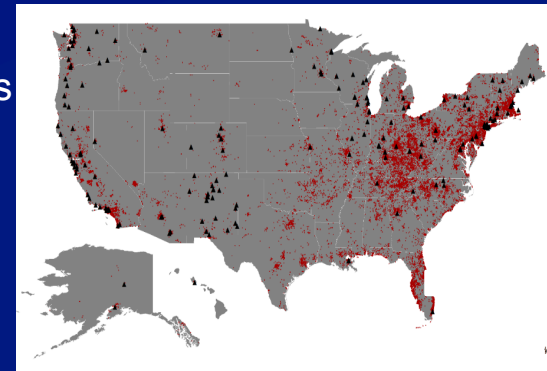


## Expand Access to Syringe Exchange and Opioid Agonist Therapy

*“Syringe exchange, opioid agonist treatment are cornerstones of viral hepatitis elimination”*

- 270 syringe service programs (SSP) in operation (early 2017)
- Approximately 2,200 additional programs needed for proximal access to syringe services
- 29 states/counties approved to redirect US funds to support SSPs
- Comprehensive services for clean injection equipment, HepB vaccination, HCV testing, referral for antiviral therapy, drug treatment and

Only 20% of persons 15-29 yrs. with HCV, live within 10 miles of a syringe service program.

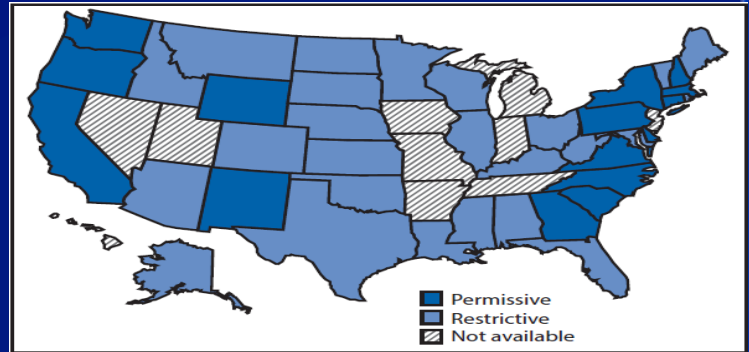
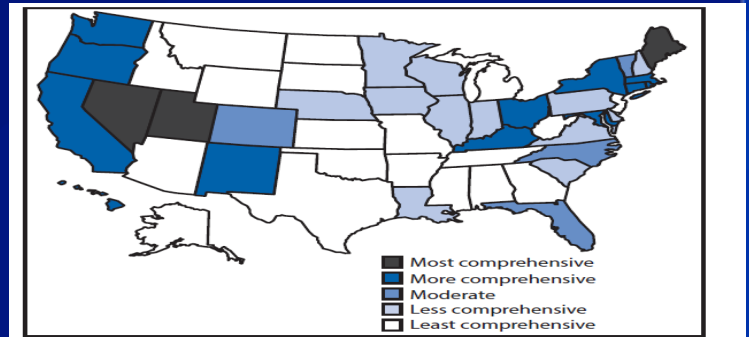


HCV Cases: LabCorp and Quest commercial laboratories

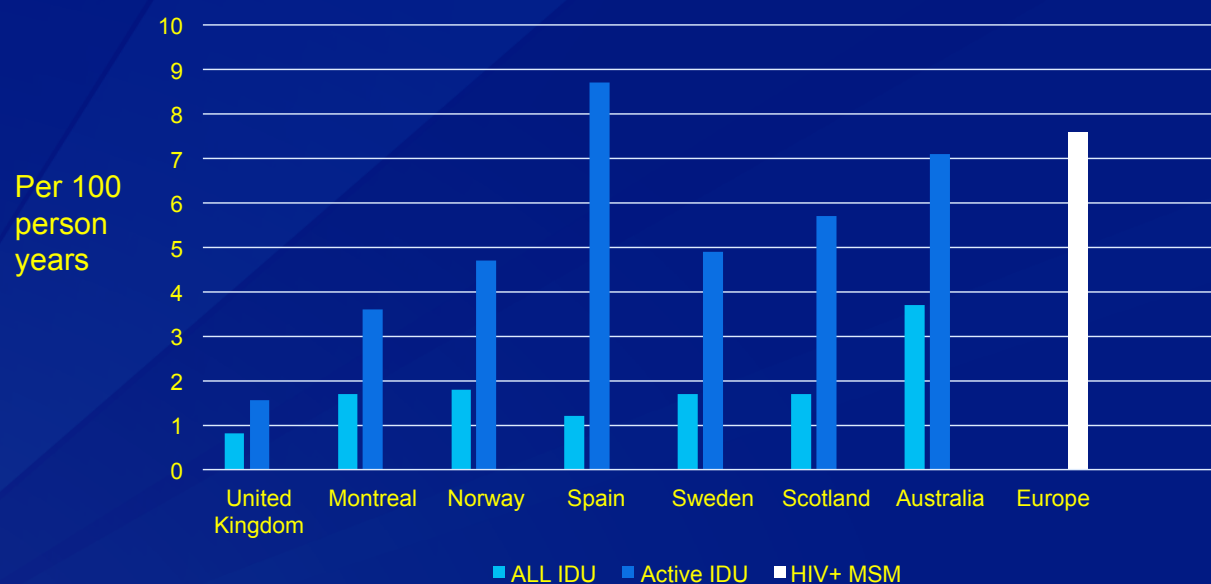
SSPs: SSPs: North American Syringe Exchange Network

## Update Laws and Policies to Improve Access to HCV Prevention, Testing and Linkage to Care

- Increase number of states permitting SSP, paraphernalia possession, and pharmacy sales
  - Only three states have most supportive laws
- Remove all restrictions for HCV treatment of PWID; 24 Medicaid programs have sobriety restrictions
- HCV treatment is cost-saving
  - Costs \$17K-40K; new drug \$26K
  - <\$40K cost saving from societal perspective
  - \$10-15K- cost savings within 10 years
- HCV Test and Cure is a required as part of drug treatment and available in safe injection programs



## Risk of HCV Reinfection After Treatment Induced Viral Clearance



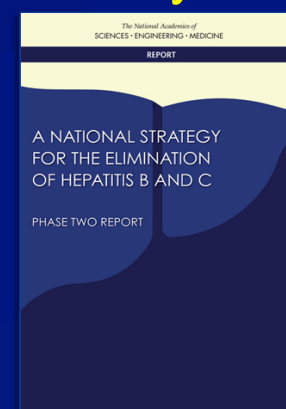
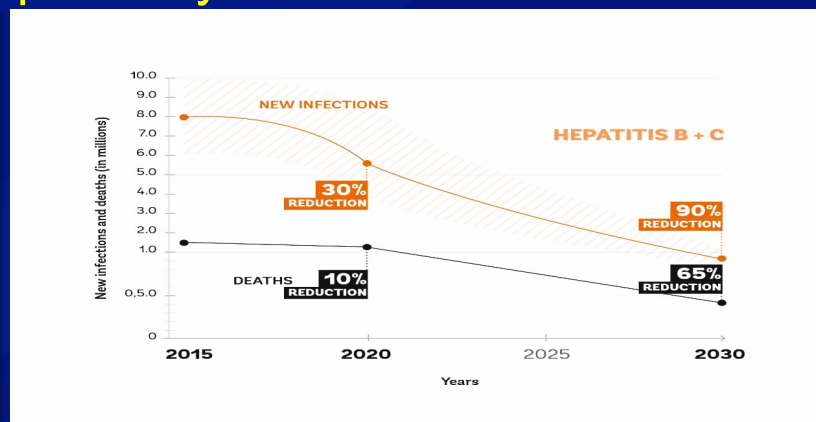
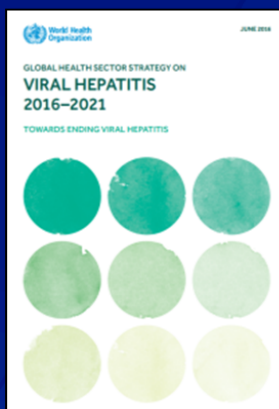
J Baxter, RS-1388; Machouf N, RS-3675;; Grebely J, Hepatology 2012; Pineda J, J Infection, 2015; Weir A, Drug and Alcohol Dependence, 2016; Midgard H, J Hepatology, 2016 Martin TC, EASL 2016

## **Prevention Research to Improve HCV Prevention Among Persons Who Inject Drugs**

- Develop a research agenda in collaboration with affected populations and service providers
- First line licensed tests for current HCV infection ( HCV core antigen, POC RNA)
- Simplified strategies for HCV treatment of PWID in clinical and outreach settings
- Study comprehensive, integrated approaches to prevent HCV and other blood borne infections
- Conduct HCV elimination demonstration project(s) in communities with high incidence related to substance abuse

# Global and National HCV Elimination Goals

## A Rare Opportunity to Build Awareness and Advocacy



Elevates the national vision of what is possible with commitment and resources

Opportunities to engage new partners in disease elimination

Provides targets to evaluate progress toward elimination goals

Begin to cite goals as expectations; revise program goals and performance targets

Update national viral hepatitis strategic plans to align with elimination goals (CDC, in progress)

## Priorities for Elimination of HCV Transmission Among PWID

- **AWARENESS** of the Health Consequences of the HCV Epidemic among PWID
- **DATA** to Investigate, Respond, and Eliminate HCV Transmission and Disease
- **HCV PREVENTION and Treatment for PWID** as a Routine, Funded Public Health Service
- **INNOVATION** to improve Prevention Strategies and Implementation
- **HEALTH EQUITY** for ALL POPULATIONS at risk for HCV Transmission and Disease