

National HCV Epidemiologic Trends

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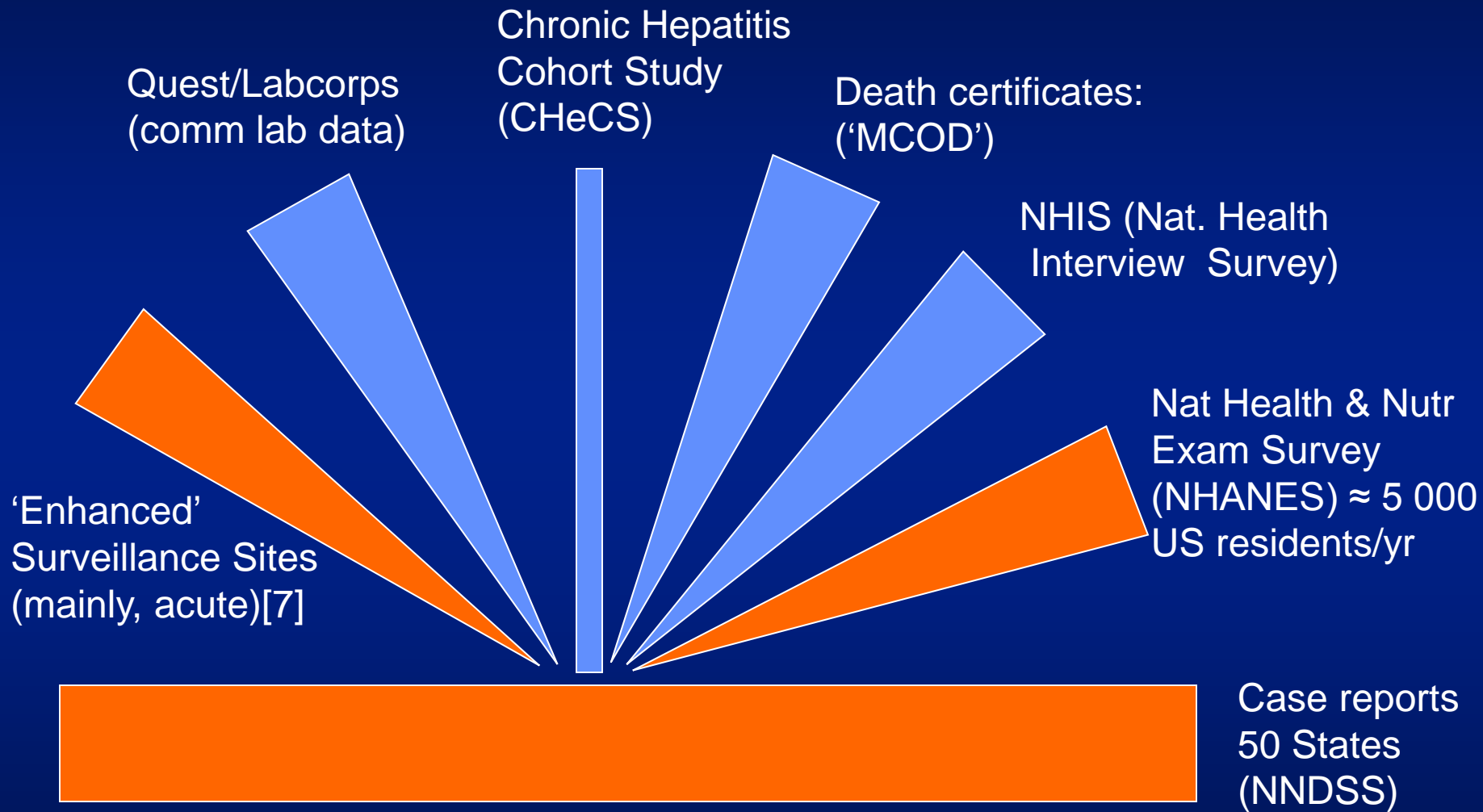
Why surveillance is a critical and manifold function of CDC

- To detect outbreaks (acute cases)
- To measure the burden of disease (chronic cases) and inform national and local policy
- To target groups needing public health and medical intervention
- To evaluate the impact of prevention and intervention

US National surveillance for acute HCV: problems and issues

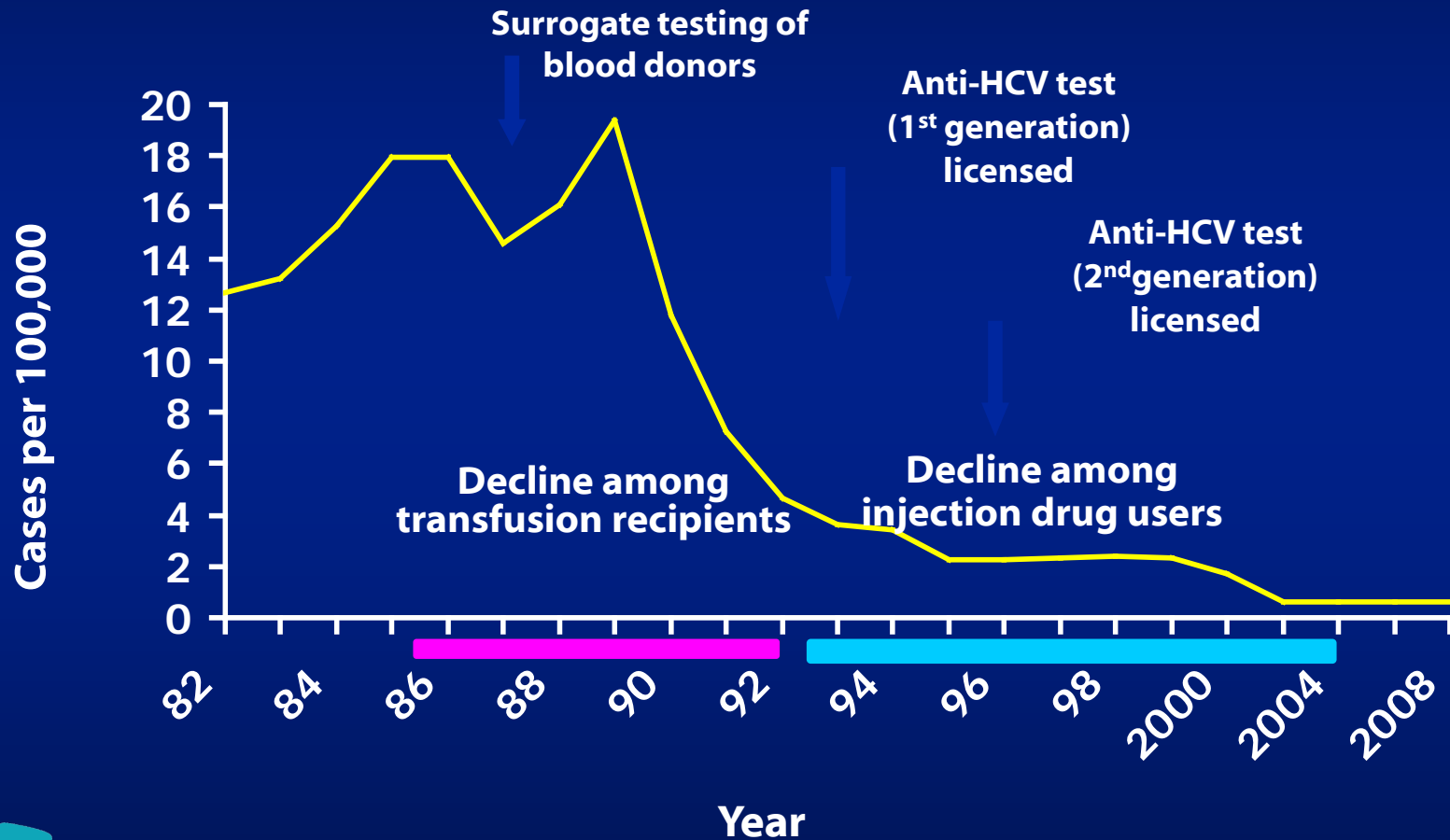
- All states required to report *acute* HCV infections, but:
 - But only 20% of acute HCV is symptomatic
 - The “case definition” is very *specific* (so that only definite cases are counted and serve as basis for estimating actual cases)
 - Detecting and reporting such cases varies widely by public health jurisdiction- req avg 4 records’ review
 - DVH only has funding to support active surveillance in a few localities-- currently, 7 sites
- Only 42 states report *chronic* HCV

So, we rely on many different datasets



= Main sources of data/estimates

Incidence of Reported Acute Hepatitis C, United States, 1982 - 2008



Source: Viral Hepatitis Surveillance Statistics, CDC

Figure 4.1. Reported number of acute hepatitis C cases — United States, 2000–2013



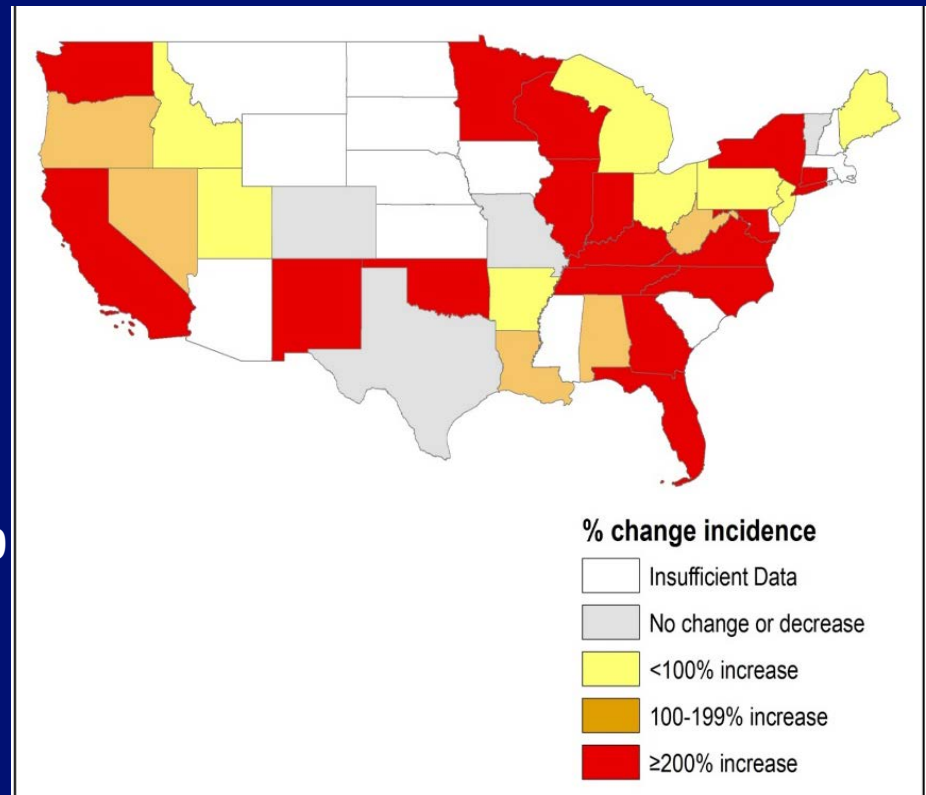
Source: National Notifiable Diseases Surveillance System (NNDSS)



Change in Incidence by State and by County: 2006 Versus 2012

Of the 34 states that reported to CDC in both 2006 and 2012:

- 30 states reported increases
- 15 states reported >200% increase
- 50% of cases were younger than 30 years



From: Suryaprasad et al, Clin Infect Dis: 2014; 59 (15 Nov):1411-19

Recent CDC, State, and Local Public Health Investigations of Young PWID

Location	Year	Predominant Race/Ethnicity	Predominant Setting	Virus
Northern Plains	2008	American Indian	Rural	HCV
Erie County, NY	2007	White	Suburban	HCV
Massachusetts	2011	White	Suburban	HCV
Wisconsin	2011	White	Rural	HCV
Indiana	2011	White	Rural	HCV
Virginia	2012	White	Rural	HBV +/- HCV
Courtland County, NY	2014	White	Rural	HCV

Common Denominator: Prescription opioid misuse followed by early initiation to injection drug use

Trends observed in Massachusetts, Wisconsin, Michigan, and Ohio ('ELC Studies')

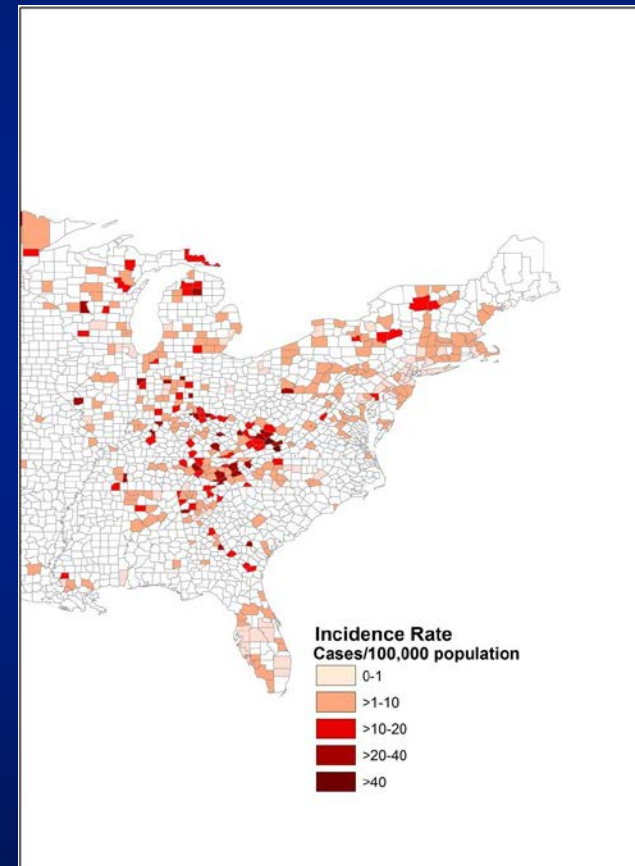
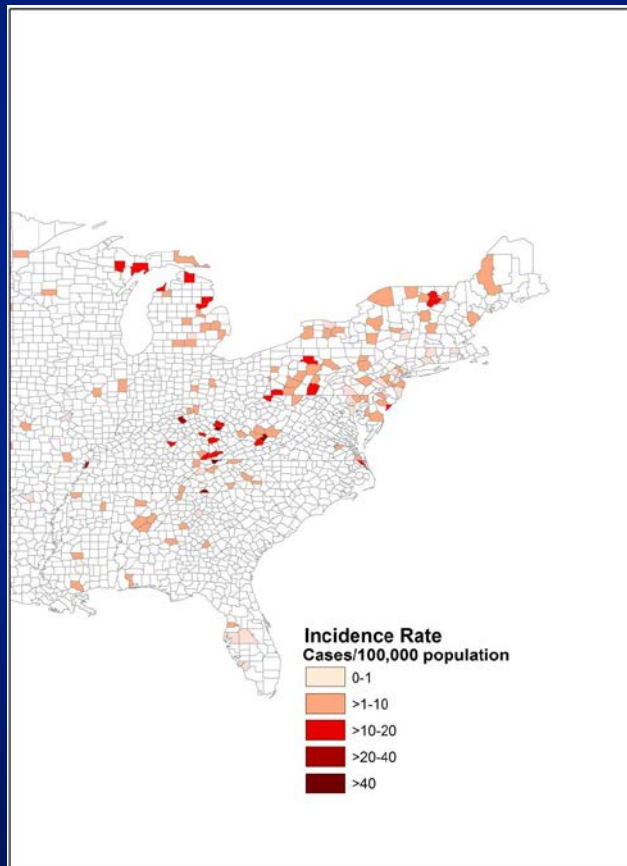
- These PWIDs were mainly:
 - young (aged 20-29 yrs);
 - white; roughly equal gender distribution
 - non-urban (suburban, rural); and
 - previous oral prescription opioid users ('Oxycontin'/ oxycodone users, who, in those States, transitioned to injecting heroin

So, these cases reported to CDC represent the “tip of the iceberg”

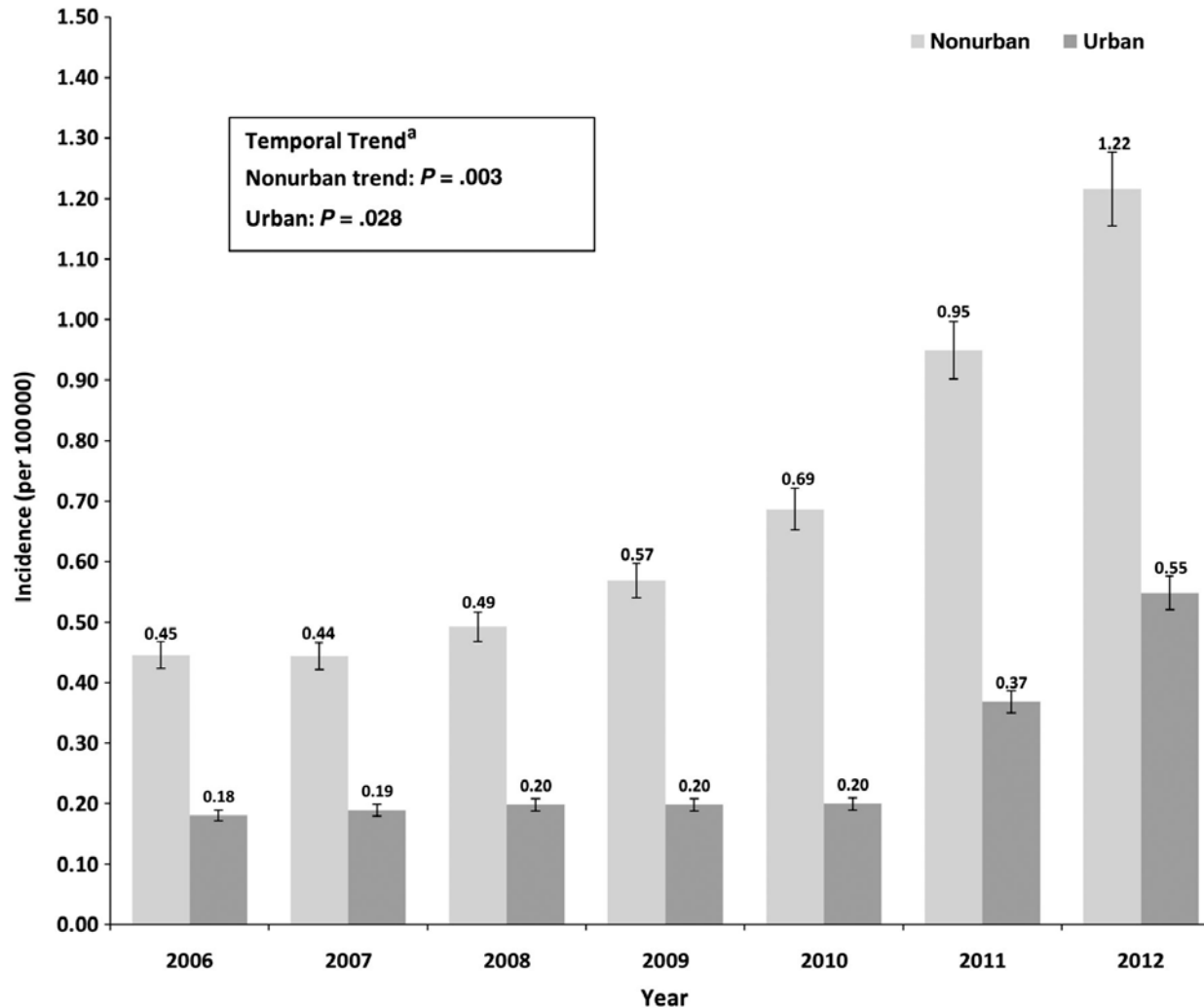
- Our recent best calculation is that each acute case reported to CDC represents 13.2 actual cases*
- Indicates about 30,000 new infections each year currently (mostly in those < 30 yo)

* RM Klevens et al *Am J Public Health* 2014 Mar; 104(3):48

Greatest increase seen in non-urban, specifically rural and Appalachian counties, east of the Mississippi



Trends in incidence of acute hepatitis C among young persons reported to CDC, by Urbanicity, 2006–2012.



Temporal trends in incidence from 2006 to 2012 were assessed separately among cases of urban and nonurban county of residence using R-squared test and linear trend analysis.

The Non-urban Outbreak is Occurring in Tandem with Ongoing Urban Outbreaks

Acute HCV Cases Reported to CDC in 2013*

State	No. Cases (rate†)
Kentucky	226 (5.1)
Indiana	175 (2.7)
Massachusetts	174 (0.9)
Florida	134 (0.7)
New York	131 (0.7)
Ohio	116 (1.0)
New Jersey	106 (1.2)
Tennessee	98 (1.5)
Pennsylvania	81 (0.6)
North Carolina	79 (0.8)
Michigan	74 (0.7)

* From: DVH Surveillance Summary 2013

† per 100,000 population

Drugs used and age of initiation, interviews in 6 jurisdictions, 2011-2012*

	N	%	Mean age started
Marijuana	413	91%	14.1 years old
Alcohol	379	83%	15.2 years old
Powder Cocaine	324	71%	17.4 years old
Any prescription opioid drugs	345	76%	17.7 years old
'Oxycontin' or oxycodone	337	74%	17.9 years old
Methamphetamines	134	29%	18.7 years old
Crack cocaine	245	54%	18.8 years old
Methadone	161	35%	19.3 years old
Heroin	280	61%	19.7 years old

From: Suryaprasad et al, *Clin Infect Dis*: 2014; 59 (15 Nov):1411-19

The Epidemiologic “W’s” as we understand them:

- **Who:** young, usually under 30 yo, often under 24 yo; mainly white, non-minority, roughly equal gender distribution
- **What:** Injection of heroin or dissolved oral prescription opioids
- **Where:** Biggest increase in rural and suburban areas, esp east of the Mississippi. However, also some increase seen in urban areas

Next “W”: What next?

Future surveillance work:

- Find/diagnose/capture cases, especially in the younger age groups;
- Simpler acute HCV case definition recently approved by CSTE
 - Gets rid of onerous proof of no HAV or HBV infection
 - Adds persons who seroconvert from negative to positive HCV antibody status w/in 12 mos
- Develop a perinatal HCV case definition:
 - That identifies young mothers with HCV

Next “W”: What next?

Future work needs to move forward with focus on how to:

- Get all identified PWIDs to drug treatment or NSEPs;
- Get all HCV-infected PWIDs linked to care for their HCV and other infections

Thank you

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