

Welcome

An Emerging Epidemic: The Public Health Response to Hepatitis C Infection among Young People who Use Drugs

In collaboration with the offices of
**Congresswoman Barbara Lee & Senator Elizabeth Warren,
Congressmen Hank Johnson & Mike Honda,
& the Congressional Hepatitis Caucus**

April 24, 2014

11:30 AM—1:00 PM

**Congressional Meeting Room South
Capitol Visitor Center**



Speakers

Panelists:

Michael Botticelli, Acting Director

White House Office of National Drug Control Policy (ONDCP)

Wilson Compton, MD, MPE, Deputy Director

National Institute on Drug Abuse (NIDA), National Institutes of Health (NIH)

Jennifer Havens, PhD, MPH, Center on Drug & Alcohol Research

University of Kentucky College of Medicine

Sheila Guilfoyle, Viral Hepatitis Prevention Coordinator

Wisconsin Division of Public Health

Moderator:

Rachel McLean



harm reduction
COALITION



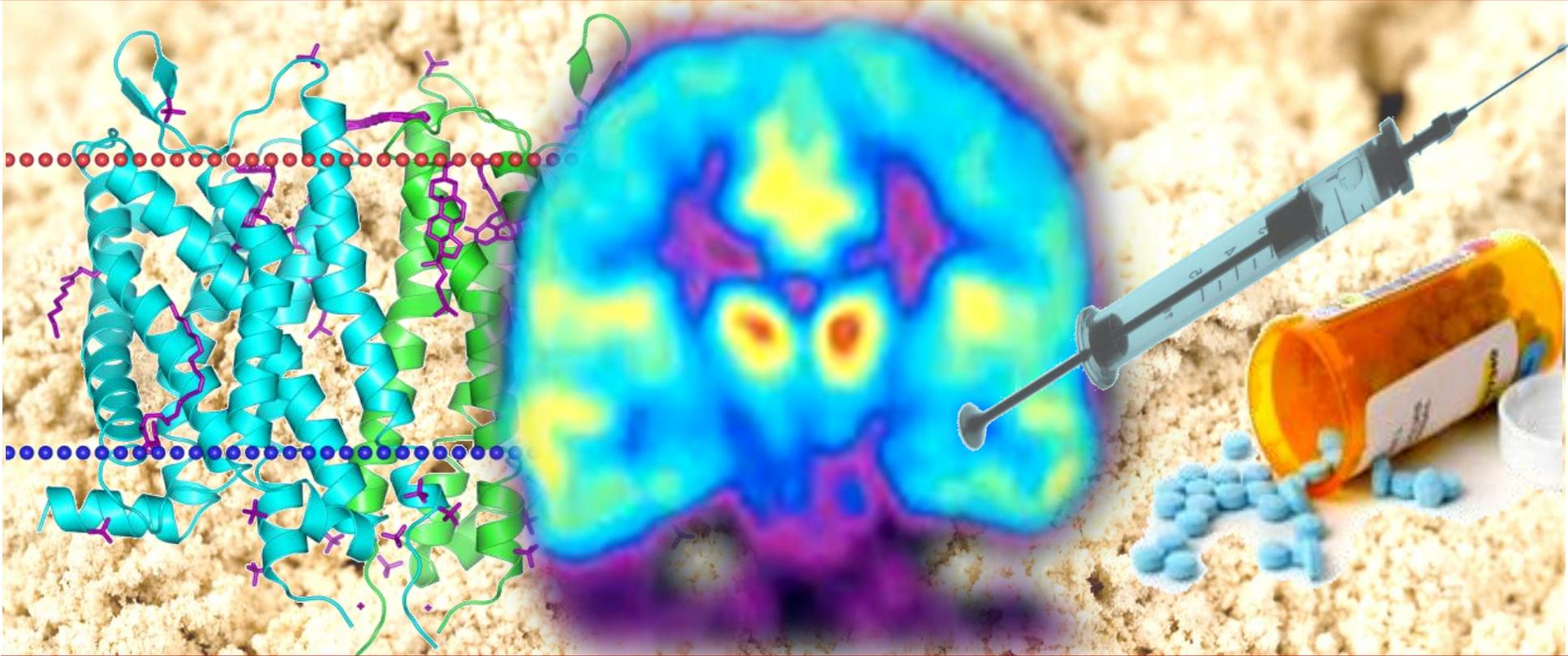
Michael Botticelli

White House Office of National Drug Control Policy
(ONDCP)



Injection Drug Use and Hepatitis C

What Can We Do About It?



Wilson M. Compton, M.D., M.P.E.

Deputy Director

National Institute on Drug Abuse

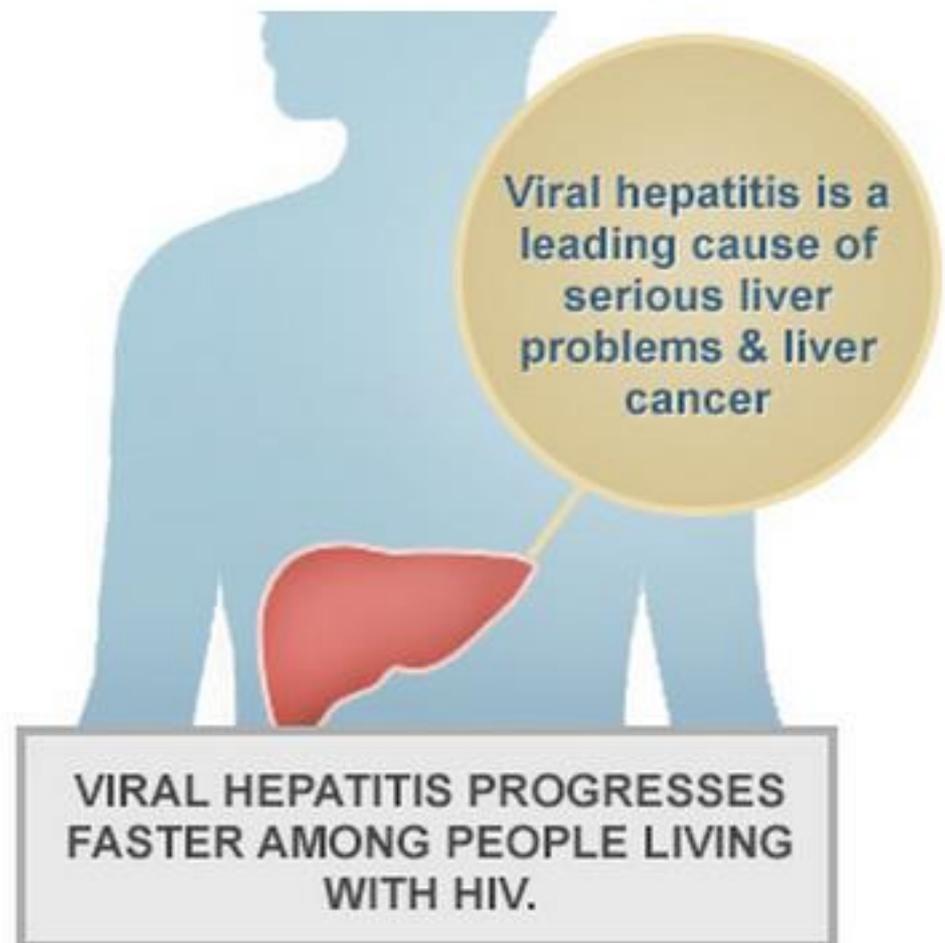


National Institute
on Drug Abuse



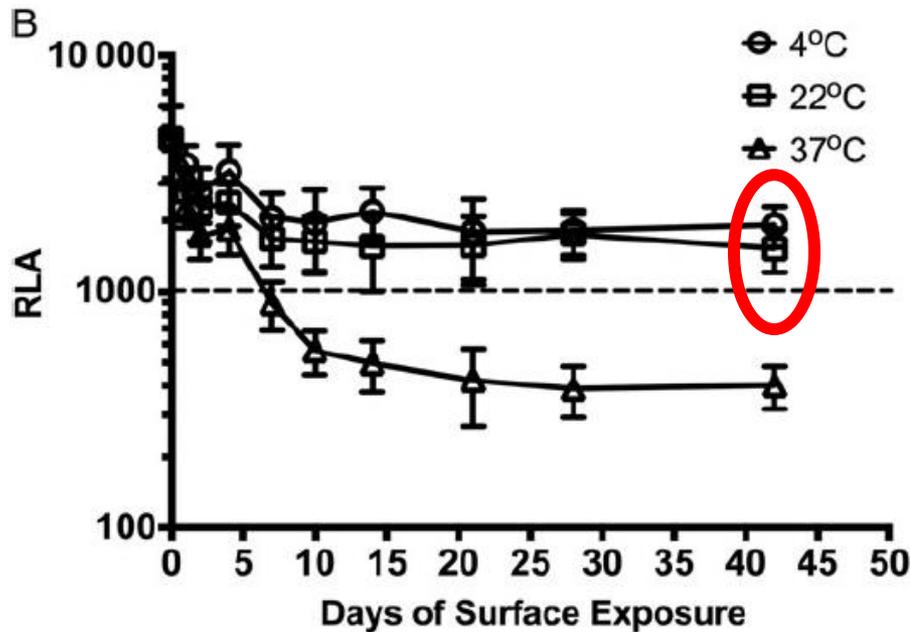
What is Hepatitis C?

- Hepatitis C Virus (HCV) is a blood-born virus that attacks the liver.
 - Transfusion risk IN THE PAST
 - Injection drug use risk
- Identified as a separate virus in 1989, improved testing has been available since the 1990s to readily identify infected persons.
- Chronic hepatitis C affects an estimated 2.7 to 3.9 million people in the U.S.



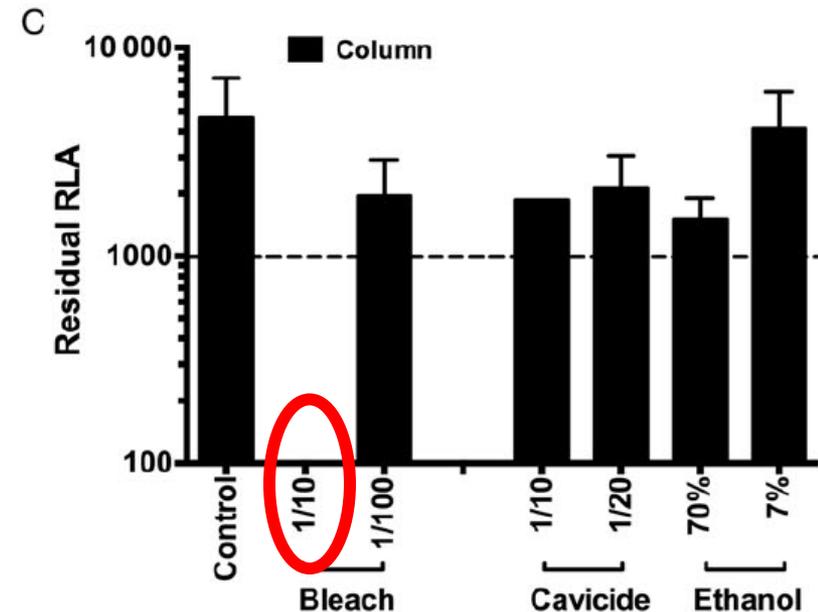
Key Information:

HCV remains infective up to 6 weeks in syringes/surfaces

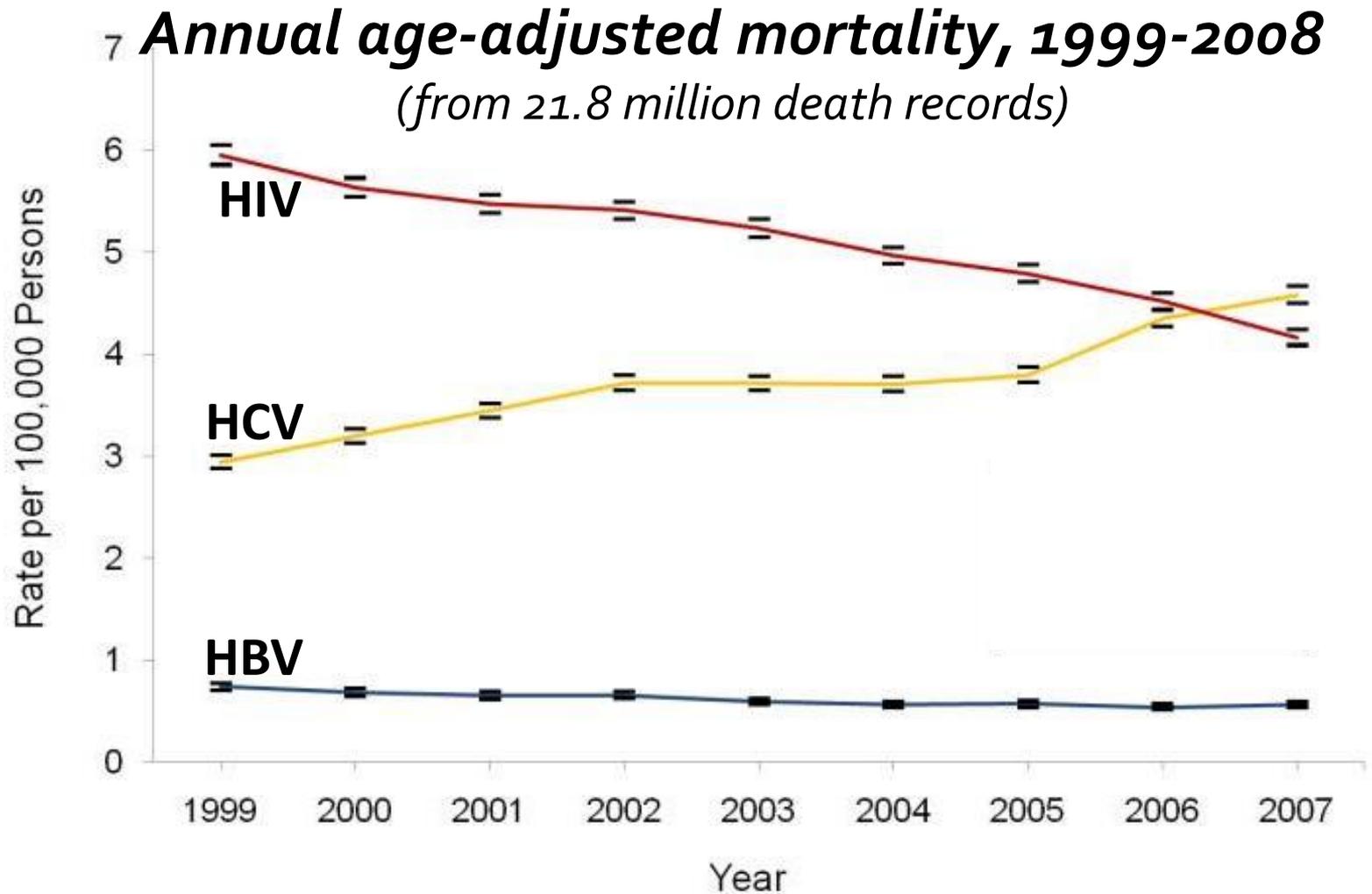


HCV remains infective up to 6 weeks

HCV contamination remains infective on improperly cleaned surfaces

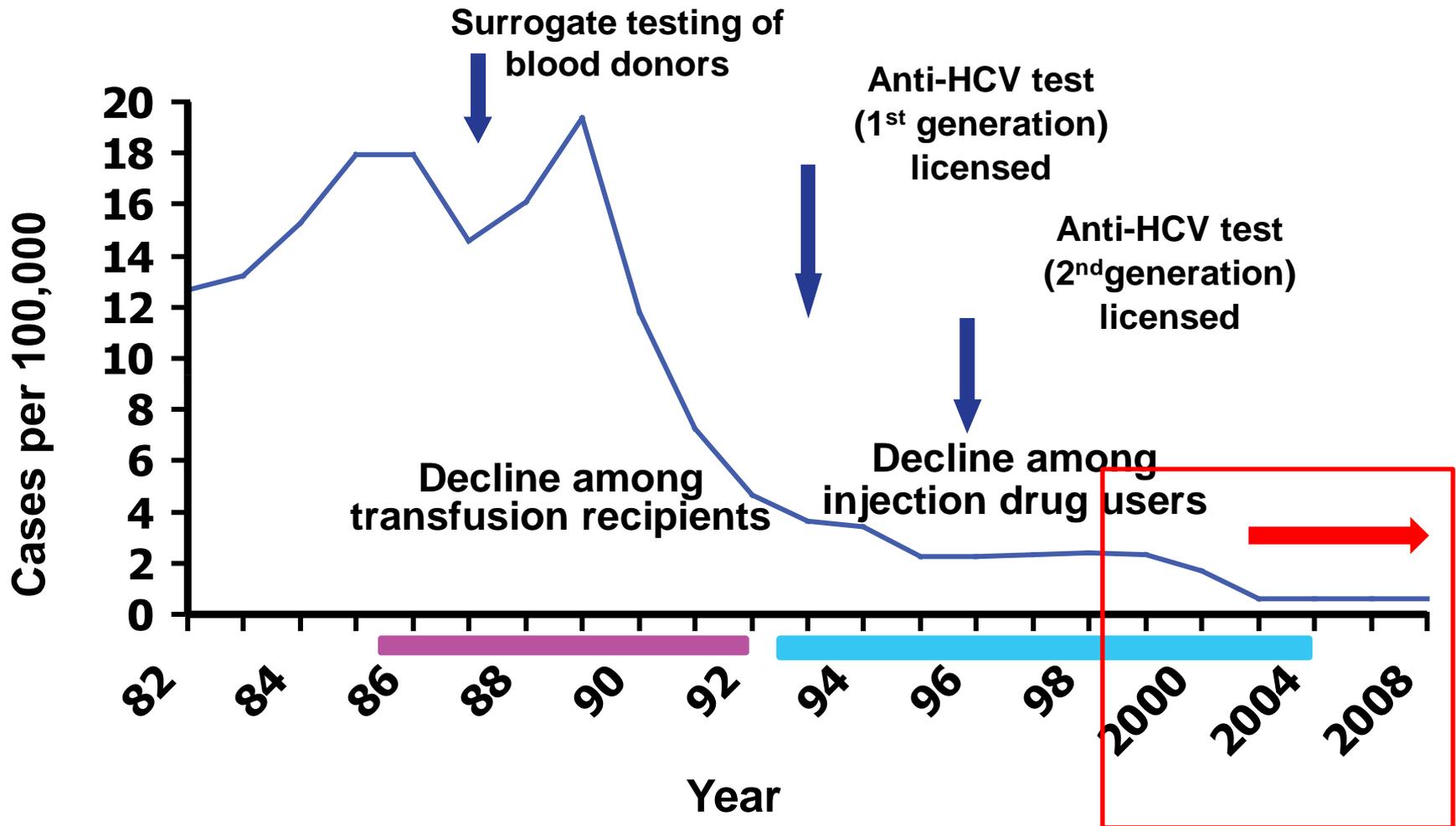


Deaths Resulting from Hepatitis C Infection Have Now Outpaced those from HIV



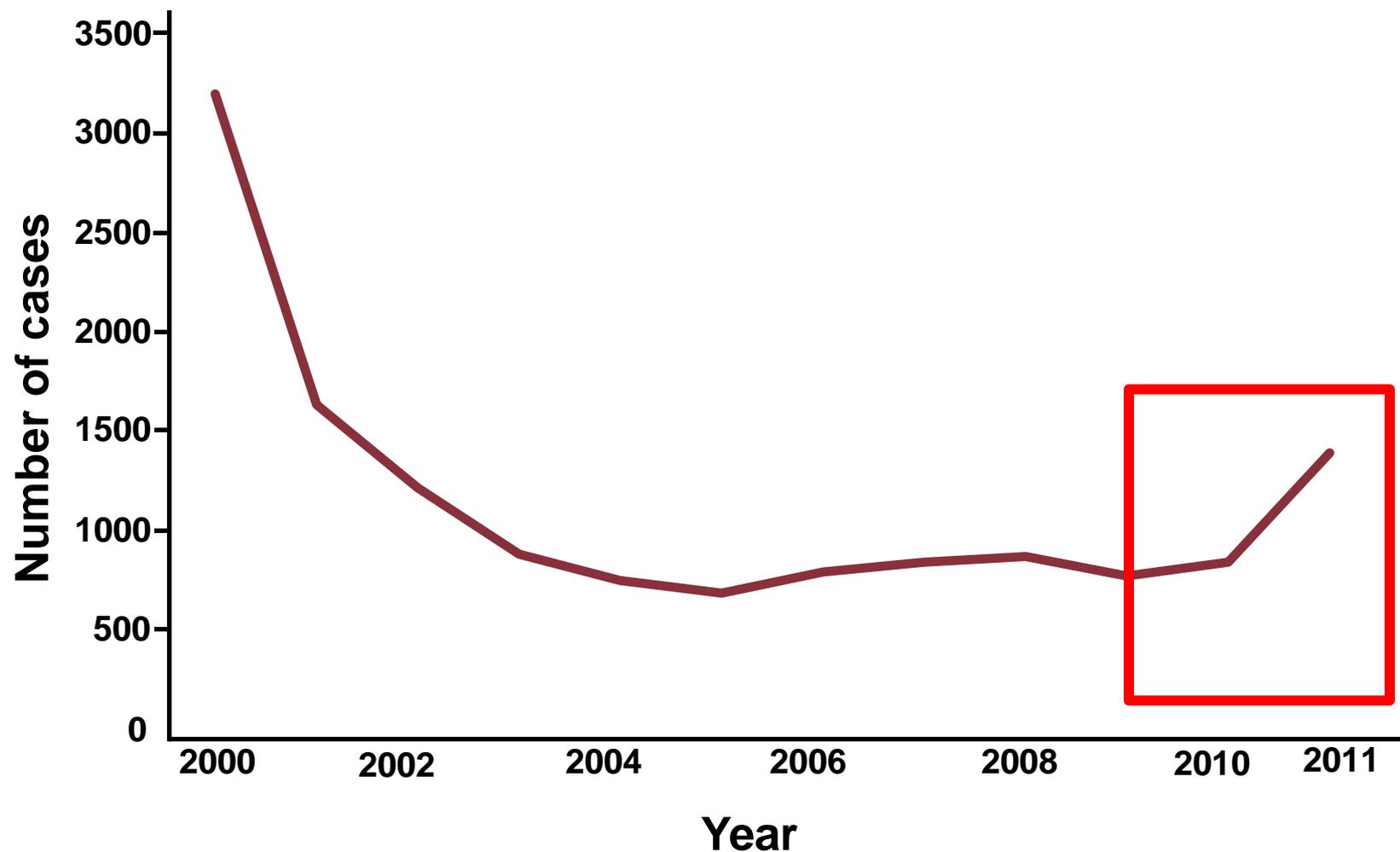
From: K Ly et al, *Ann Intern Med* 2012; 156:271-8

Long-Term Reductions in Reported Acute HCV Infections in USA, 1982-2008



Source: Viral Hepatitis and State Disease Surveillance, CDC

Recent Increases in Reported Number of Acute HCV Infections in USA, 2000–2011



Source: National Notifiable Diseases Surveillance System (NNDSS)

Injection Drug Use Is Driving new HCV Infections

IDUs are most vulnerable for acquiring HCV

- 70% of IDUs test positive for HCV
- 90% of HIV-infected IDUs become co-infected with HCV

Increased IDU due to switch from Rx opioids to heroin

- There is a surge in HCV infection within young IDUs (18-25 year old) who transition from Rx opioids to heroin

Most HCV-infected IDUs unaware of infection status

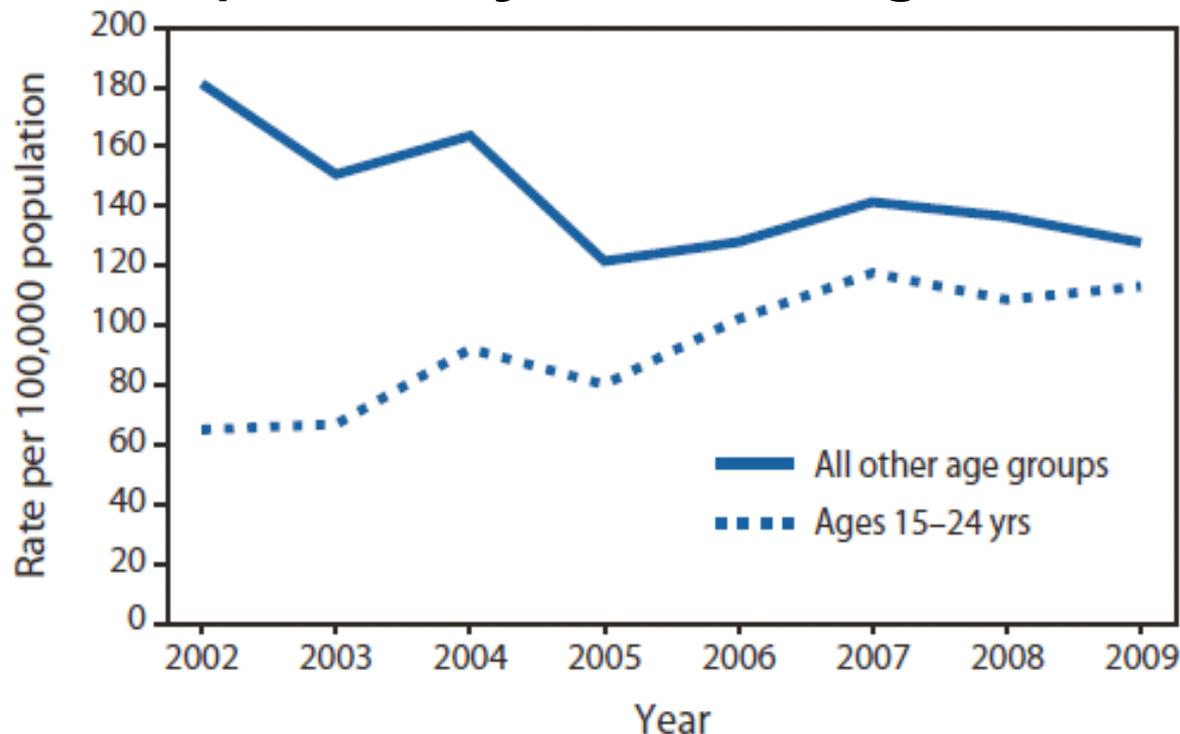
- Infected people may be asymptomatic for many years after the initial infection until signs of cirrhosis or liver cancer develop, increasing their risk of transmitting HCV to others.

Recent Data from Several States: *Hepatitis C Virus Increased Among Adolescents and Young Adults*

Of cases with available risk data, *injection drug use (IDU)* was the most common risk factor for HCV transmission

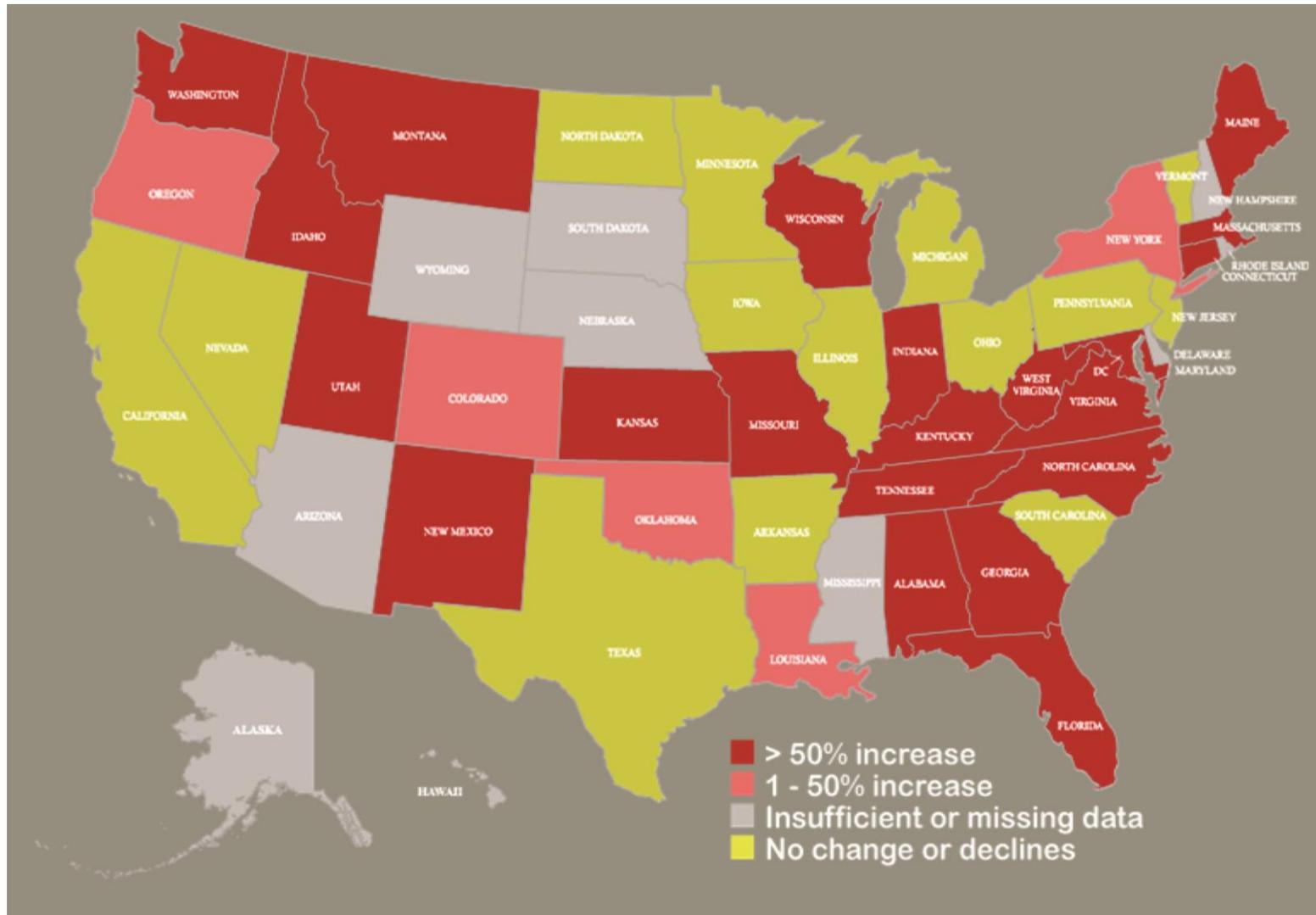


Although only a small number of these cases responded to further investigation.....

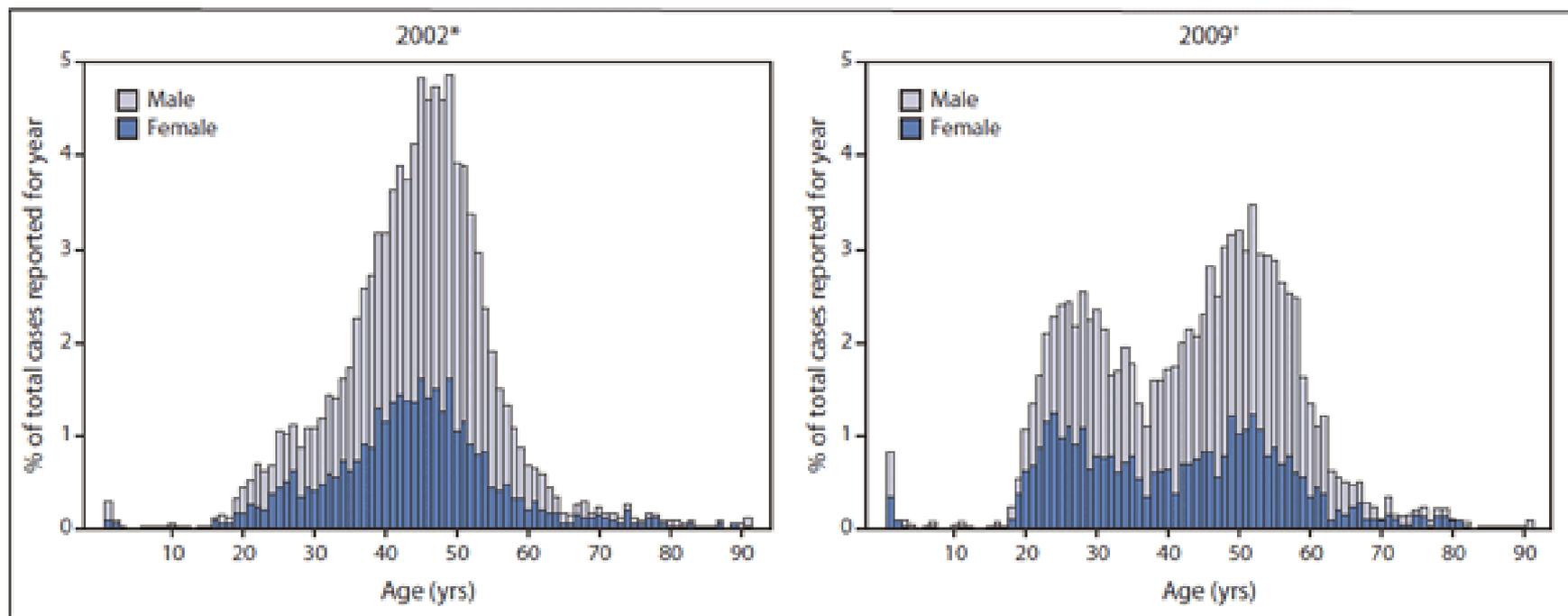


- 92% reported opioid analgesic abuse
- 89% reported heroin use
- 95% used opioid analgesics before switching to heroin
- During the preceding 6 months, the most frequently injected drugs were heroin (50%) and opioid analgesics (30%)

Hepatitis C Surveillance, U.S. 2011



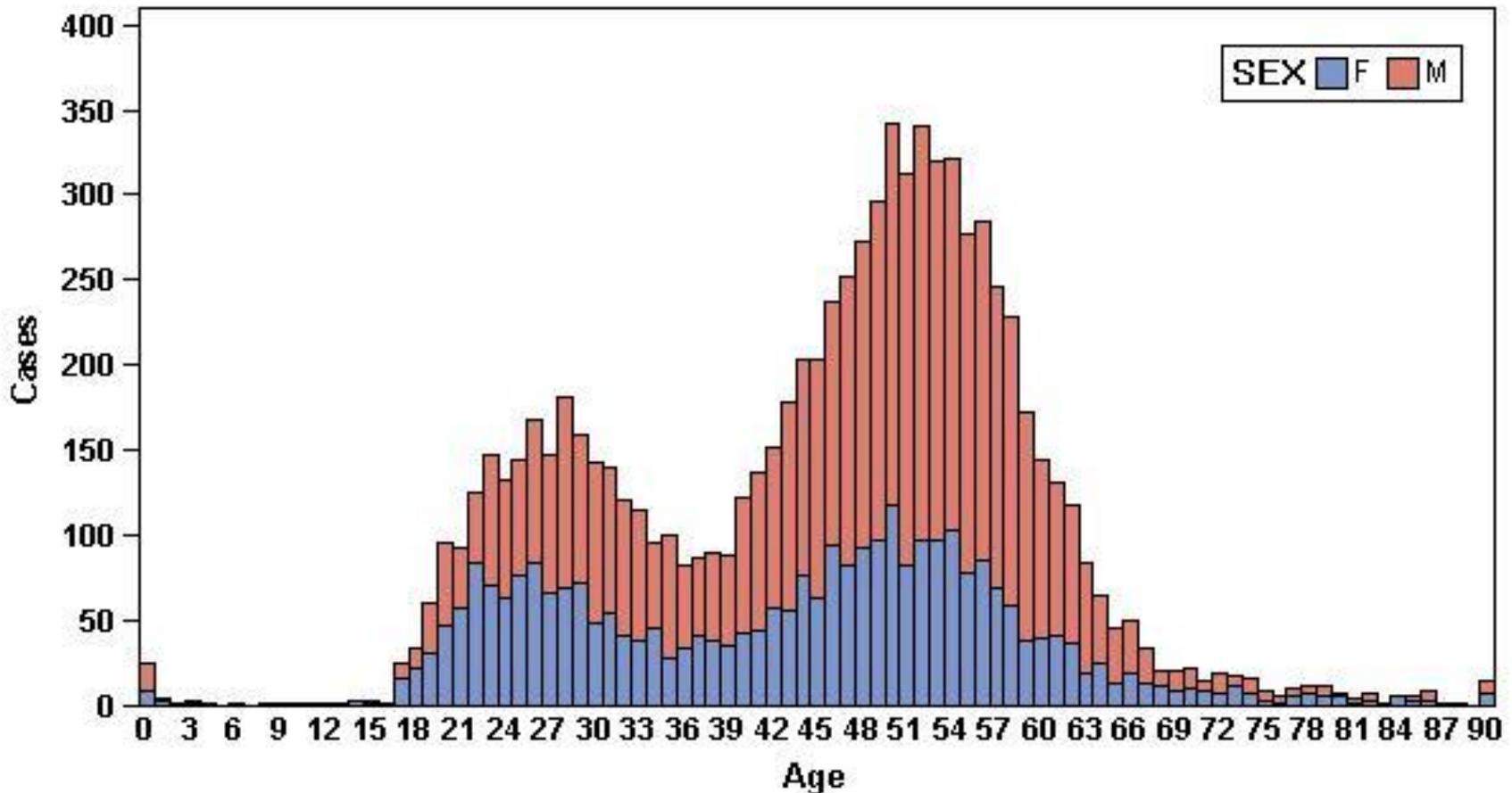
Age Distribution of Confirmed Hepatitis C Cases: Massachusetts 2002-2009*



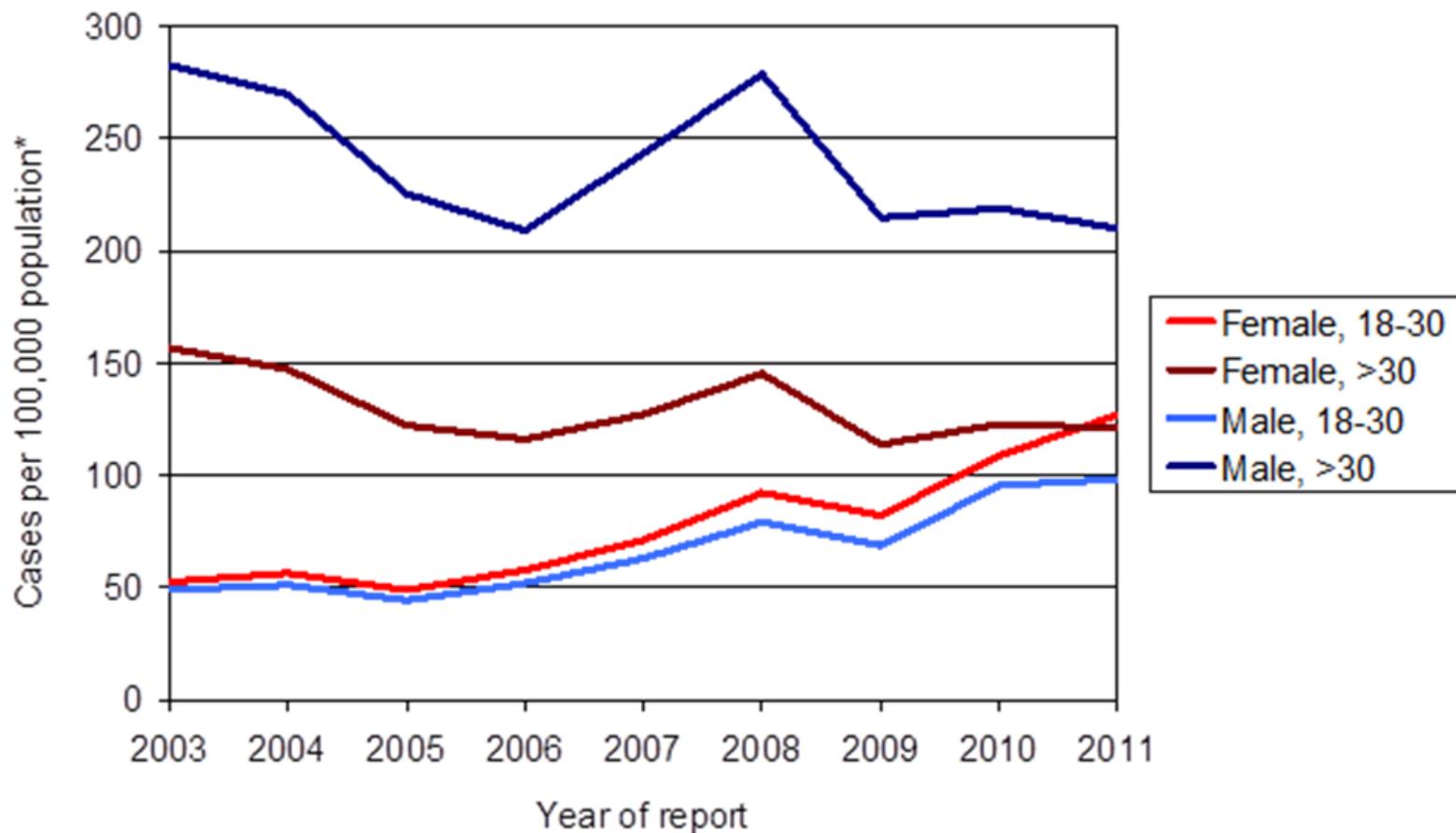
- 1,925 reports of HCV among persons 15-24 yrs.
- Cases from all areas of state; equally male:female, mostly white
- 72% past or current IDU, 84% injectors in past 12 mos.
- Other states are reporting similar increases

*MMWR 2011;60(17);537-541

Hepatitis C Case Counts by Age Pennsylvania, 2010



Rate of Newly Identified Chronic Hepatitis C by Sex and Age Group, Florida, 2003-2011



*Reported cases of confirmed, probable and suspect chronic hepatitis

Thanks to Beth Eichler, Fla. Dept. of Health and CDC, Division of Viral Hepatitis

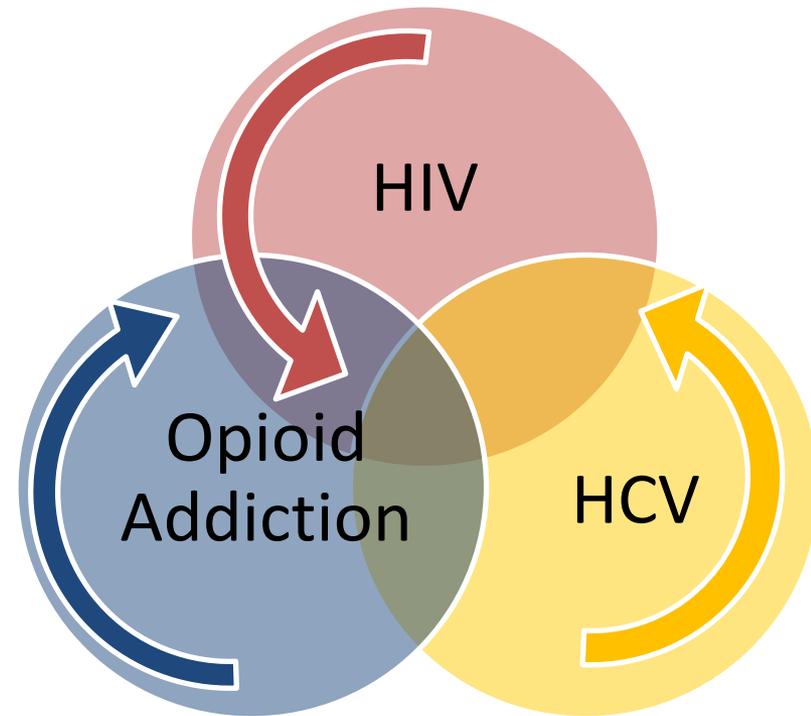
Characteristics of “traditional” vs. “new/recent” IDUs

Characteristic	“Traditional” HCV Infected IDU	“New/Recent” HCV Infected IDU
Age	Mixed, 18-50	Young, <25
Location	Urban	Suburban, Rural
Gender	Mostly Male	Male=Female
Race/Ethnicity	Minority	Non-minority
First Opioids	Heroin	Rx Opioids

HCV, HIV and Opioid Addiction are Part of Syndemic of Intersecting Epidemics

HCV, HIV, and opioid dependence are co-occurring epidemics.

- Treatment of opioid addiction with buprenorphine increases uptake of HAART
- Stabilization of patients using buprenorphine + HAART allows for treatment for HCV co-infection
- Withholding HCV treatment in opioid dependent HIV/HCV coinfecting individuals leads to end-stage liver disease, HCC, and liver-related mortality.



*Syndemic
Conditions*

What can we do?

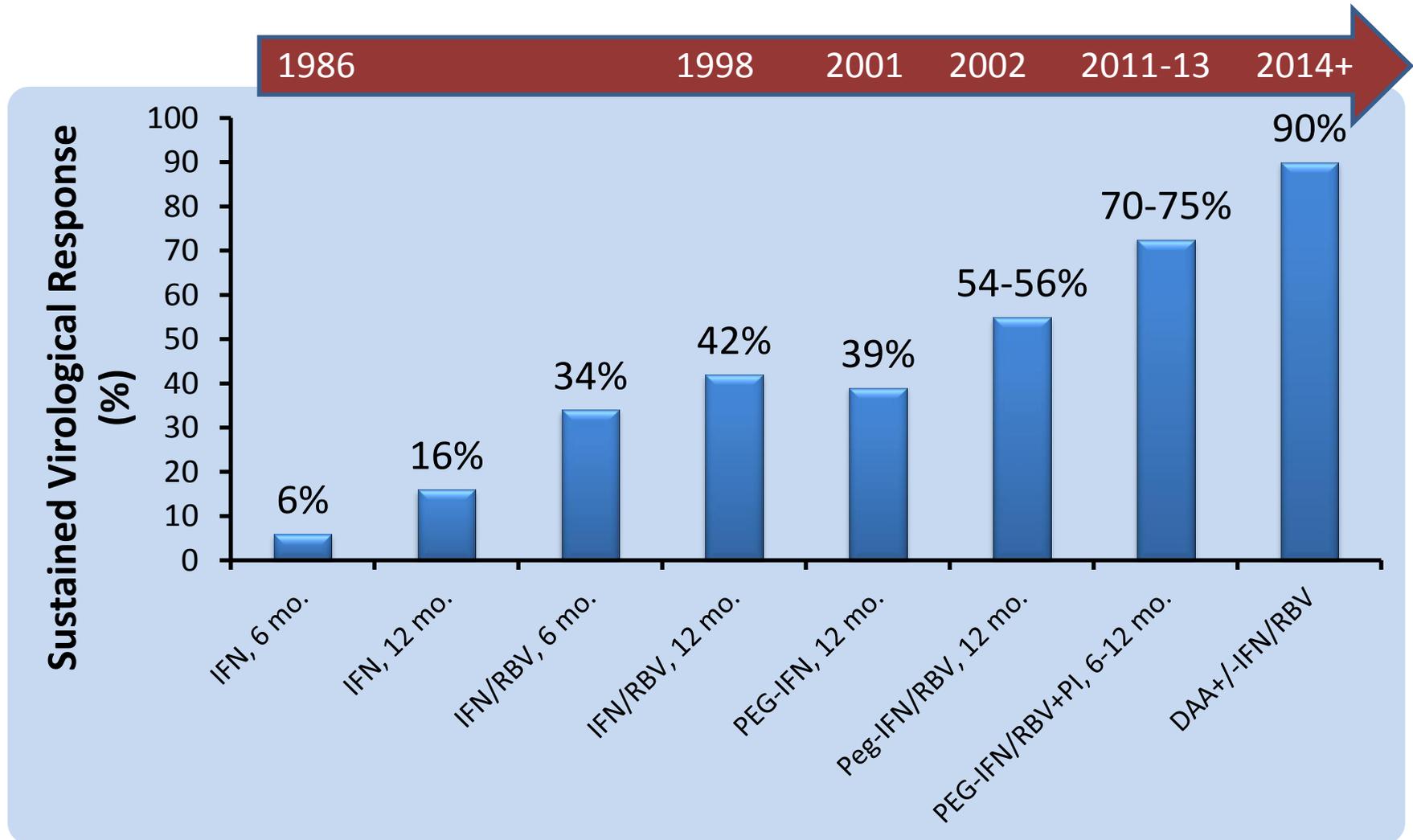
- **Prevention**

- Testing (*now endorsed by US Preventive Services Task Force*)
- Primary prevention
- Drug Treatment as prevention, especially medications for the underlying opioid addiction
 - *Buprenorphine, Methadone and Naltrexone*

- **Treatment**

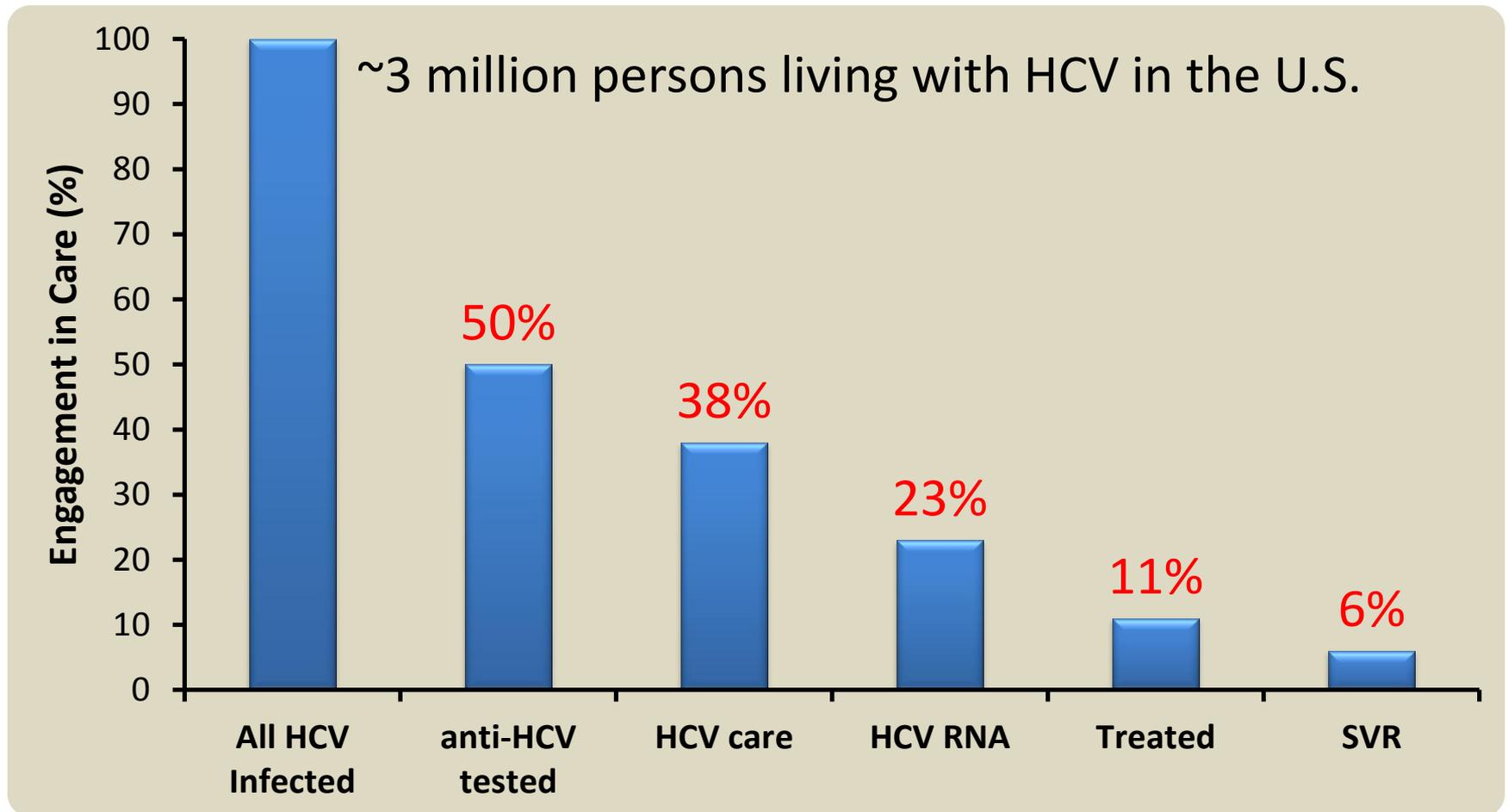
- Vary treatment depending on individual genetics
- Guidance for who to treat is pending
- New drugs expected in late 2014
- Cost is an issue

Evolution of HCV Therapy: Interferon to Direct-Acting Antivirals



Adapted from Strader DB, et al. Hepatology 2004;39:1147-71 and CDC, Division of Viral Hepatitis

HCV Test, Care, and Cure Continuum



Holmberg S, et al., NEJM, (2013)

Some Barriers to Improving Our National Response to HCV in Young Non-Urban IDUs

- Acute HCV infection may be asymptomatic (only 10%-20%); young IDUs tend not to seek treatment
- Young and nonurban IDUs hardest to reach (only ~12% success rate in doing interviews in Mass.)
- There may be no drug treatment availability
- There may be no antiviral treatment availability
- There may be no interest by IDU in drug/antiviral treatment

Action Plan for the Prevention, Care, & Treatment of Viral Hepatitis, 2014-2016



Combating the Silent
Epidemic of Viral Hepatitis
Action Plan for the Prevention,
Care & Treatment of Viral Hepatitis

Action Plan Priority Areas:

- Educate health care providers and communities to reduce health disparities
- Improve testing, care, and treatment to prevent liver disease and cancer
- Strengthen surveillance to detect viral hepatitis transmission and disease
- Eliminate transmission of vaccine-preventable viral hepatitis
- Reduce viral hepatitis caused by drug-use behaviors
- Protect patients and workers from health-care associated viral hepatitis

Goals:

- Increase proportion who are aware of their hepatitis B virus infection, from 33% to 66%
- Increase in proportion who are aware of their hepatitis C virus infection, from 45% to 66%
- Reduce the number of new cases of HCV infection by 25%
- Eliminate mother-to-child transmission of HBV

NIDA-Supported HCV Research

- Rapid HCV testing in care settings
- Utilization of case managers within a coordinated care framework

OraQuick® Rapid Antibody Test
HCV



- Adaptation of HIV model of “treatment as prevention”
- Role of molecular biology and genetics in treatment development

NIDA: Ongoing Efforts in HCV Research

- Multidisciplinary approach
- 2013 Technical Consultation Meeting
- NIDA Symposium: “Managing HIV/HCV Infections in Substance Abusing Populations”(ASAM, 2014)

The image shows the logo for the 45th Annual Meeting of the American Society of Addiction Medicine (ASAM) in Orlando, FL. The logo features the ASAM seal and the text "45th Annual Meeting ORLANDO, FL American Society of Addiction Medicine". Below the logo, it says "Innovation & Integration Strategies in Addiction Medicine" and "45th Annual Medical - Scientific Conference April 10-13, 2014". A blue banner at the bottom of the image contains the text "NIDA Symposium: 'Managing HIV/HCV Infections in Substance Abusing Populations'".

What's Hot at Med-Sci 2014

- The ASAM Fundamentals of Addiction Medicine—a new Pre-Conference Course
- Pain & Addiction Course: Common Threads XV—*The Agony and the Partial Agonist*—a Pre-Conference Course
- The New ASAM Criteria & Software Course—a new Pre-Conference Course
- Clinical Drug Testing and Toxicology for Physicians—a new two-part, four-hour course
- Making Marijuana Legal—a lively Policy Plenary Session
- Incorporating Harm Reduction into Addiction Medicine Practice—Collaborative Workshop by SGIM
- Addressing the Opioid Addiction and Overdose Epidemic: Targeting the Prescriber—Collaborative Workshop by AMERSA
- Topics on special populations—adolescents, elderly, minorities and pregnant women with SUD; NIDA Symposium: “Managing HIV/HCV Infections in Substance Abusing Populations”
- Special screening of “The Anonymous People” with writer/producer Greg Williams, MA

FREE WIFI at Med-Sci

NIH Efforts: NIDDK and NIAID



- Hepatitis B Research Network
- Supporting follow-up and ancillary studies to completed HCV clinical trials
- NIDDK Intramural Program includes research on hepatitis B, C, and D therapy protocols



- Supporting development of next generation of HCV antiviral medications
- Hepatitis C Cooperative Research Centers
- Launched Phase I/II trial for HCV vaccine
- NIAID Intramural Program supports multi-faceted research on viral hepatitis

www.drugabuse.gov

Now NIDA resources are with you wherever you go!

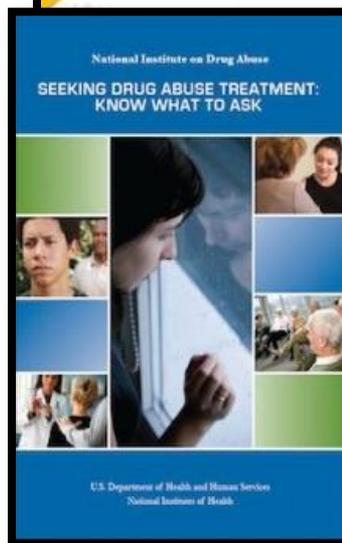
We're connecting communities with a new mobile Web site that gives you drug-related information by topic, audience, and format—when you need it, where you need it.

The new mobile site (m.drugabuse.gov) provides:

- ✓ Easy access to NIDA's resources through iPhone, Android, iPad, and other smartphones and tablets.
- ✓ A convenient way to find, view, request, and share publications—right in the palm of your hand.
- ✓ E-books of all publications to allow offline reading on all major e-readers, including Kindle and NOOK.
- ✓ New Spanish-language content on drugs of abuse and related topics.



NIDA NATIONAL INSTITUTE ON DRUG ABUSE
National Institutes of Health
U.S. Department of Health and Human Services



NIDAMED

The Emergence of Hepatitis C among Young PWIDs in Rural Appalachia

Jennifer R. Havens, PhD, MPH

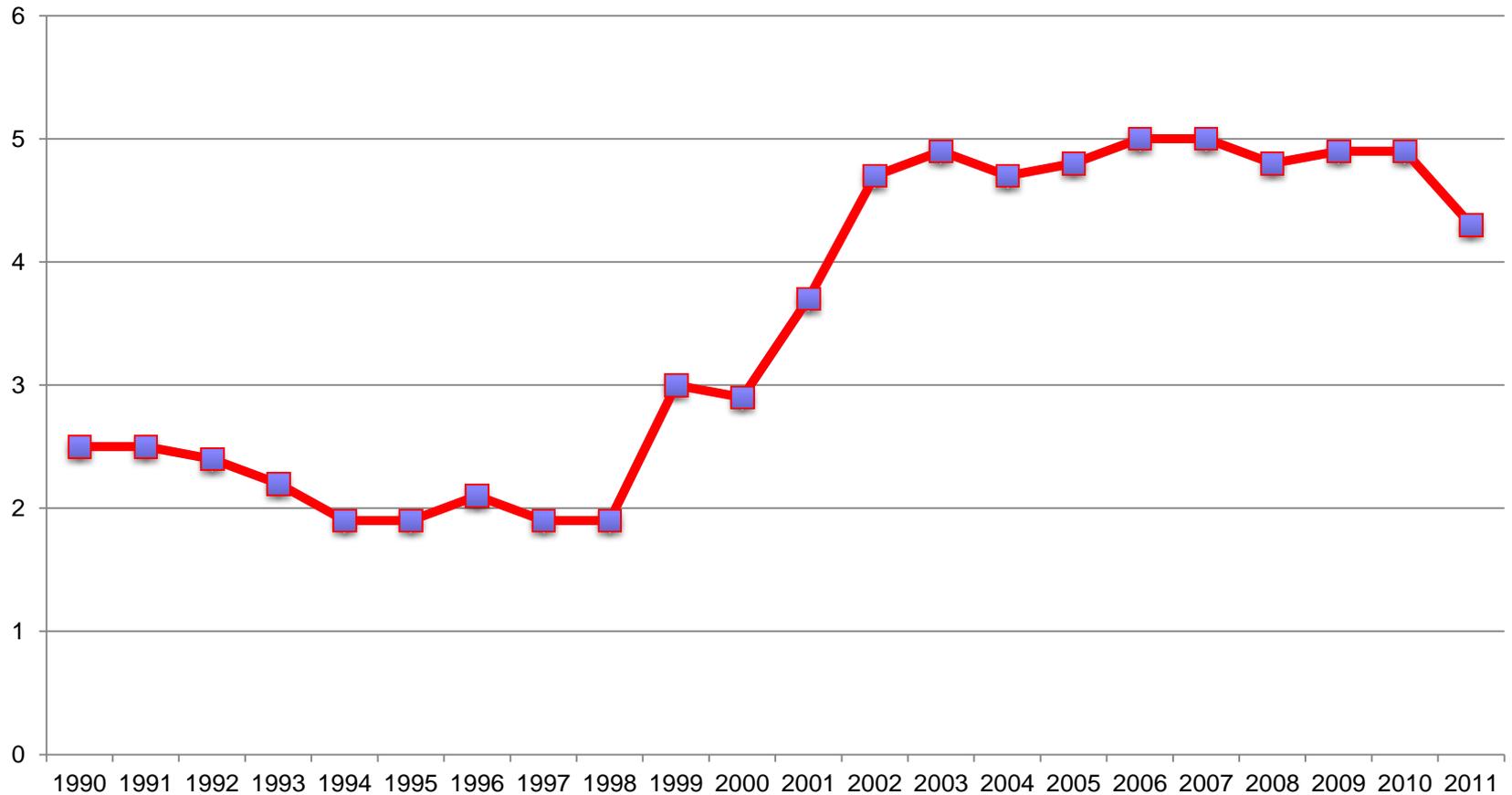
Associate Professor

Department of Behavioral Science

Center on Drug and Alcohol Research

University of Kentucky College of Medicine

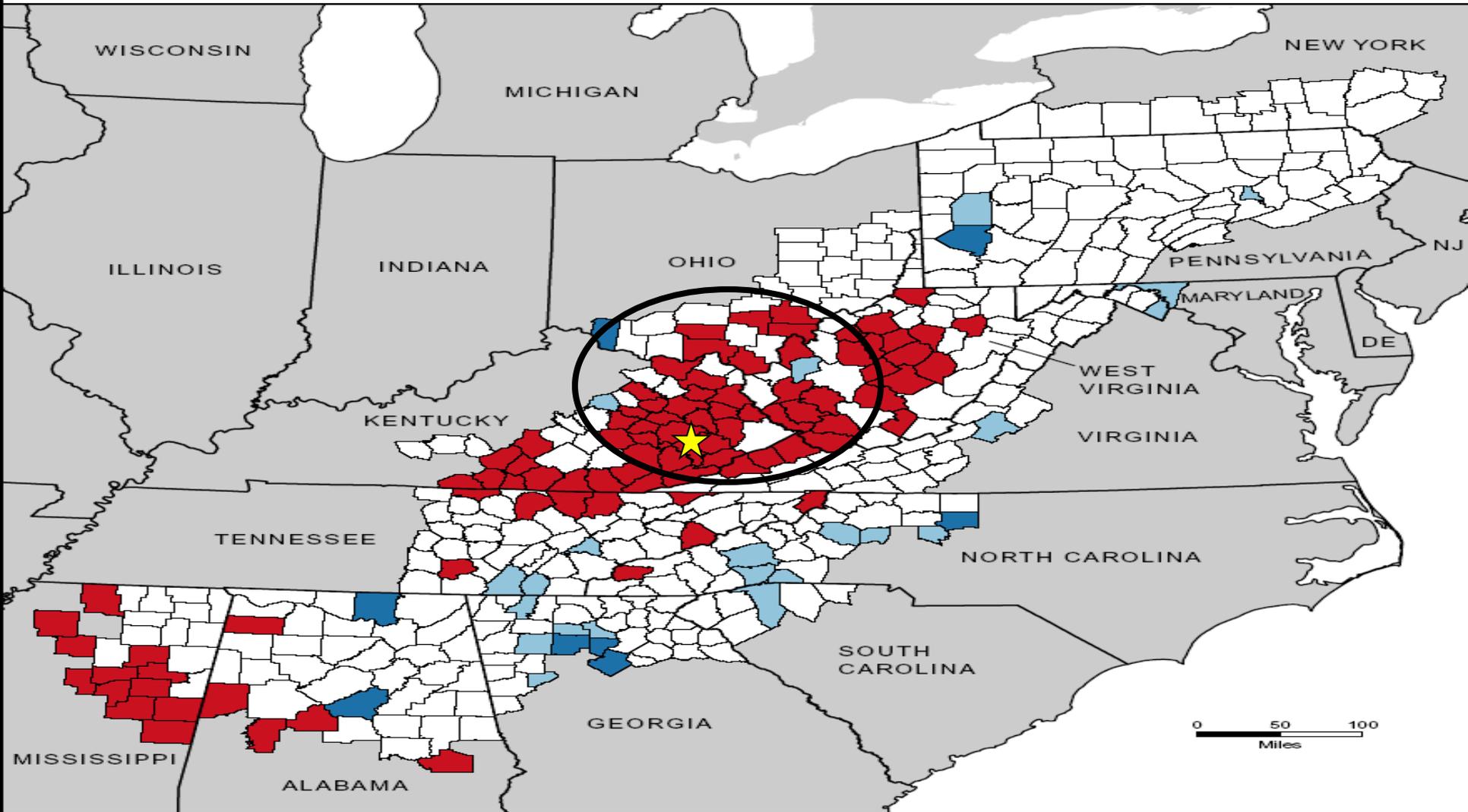
Percent of Respondents Using Pain Relievers Nonmedically: 1990 – 2011



Source: National Survey on Drug Use and Health 2001 – 2011

County Economic Status in Appalachia, Fiscal Year 2004

(Effective October 1, 2003 through September 30, 2004)



Each fiscal year the Appalachian Regional Commission classifies each county into one of four economic levels based on the comparison of three county economic indicators (three-year average unemployment, per-capita market income, and poverty) to their respective national averages. See the reverse side for a description of each economic level.

County Economic Levels

- Distressed (91)
- Transitional (289)
- Competitive (22)
- Attainment (8)

Map Created: October 2003.
 Data Sources: U.S. Bureau of Labor Statistics, LAUS, 1999-2001;
 U.S. Bureau of Economic Analysis, REIS, 2000;
 U.S. Census Bureau, 2000 Census, SF3.



Rural Substance Abuse

- Little known about trends in drug use in rural Appalachia in particular
- Even fewer empirical reports around injection drug use and other medical consequences of drug use
- Specifically, HIV, HCV and other STI's

Injection Drug Use among Rural Drug Users

- Previous research: injection drug use relatively rare among rural drug users in Appalachian Kentucky (Leukefeld et al., *Substance Use and Misuse*, 2002)
- More recent research suggested a much higher prevalence of injection among Appalachian drug users (>40%) (Havens et al., *Drug and Alcohol Dependence*, 2007).

IDU among Appalachian Drug Users

- Majority of rural IDUs reported injecting OxyContin® and other prescription drugs NOT designed for injection
- Fewer than 10% had ever injected heroin and/or cocaine
- Self-reported hepatitis C infection significantly higher among the IDUs versus non-IDUs ($p < 0.001$)

(Havens et al., *Drug and Alcohol Dependence*, 2007)

Limitations of Rural Substance Abuse Research

- Rural drug abuse research lacking:
 - People who inject drugs (PWIDs)
 - Infectious disease prevalence and incidence
 - Social network and geospatial factors in disease transmission

- Social Networks among Appalachian People (SNAP) study
- Purpose: determine prevalence and incidence of HCV, HIV and HSV-2 and other risk behaviors in relation to social network characteristics among rural prescription drug users
- Follow-up at 6-, 12-, 18- and 24-months

Participants

- 500 rural out-of-treatment injection and non-injection drug users recruited and followed at 6-, 12-, 18- and 24-months post-baseline
- Storefront location in rural town
- Participants recruited via Respondent Driven Sampling (RDS)

Eligibility Criteria

- Age 18+
- English-speaking
- PWID (initial seeds)
- Use of at least 1 of the following drugs in prior 6 mo:
 - Rx Opiates (illicit use)
 - Cocaine
 - Heroin
 - Methamphetamine

Data Collection Procedures

- Interviewer-administered questionnaire
 - Computer-assisted personal interview (CAPI) via tablet PC
- Serologic testing (with pre- and post-test counseling)
 - HIV (with confirmatory testing)
 - HCV
 - HSV-2

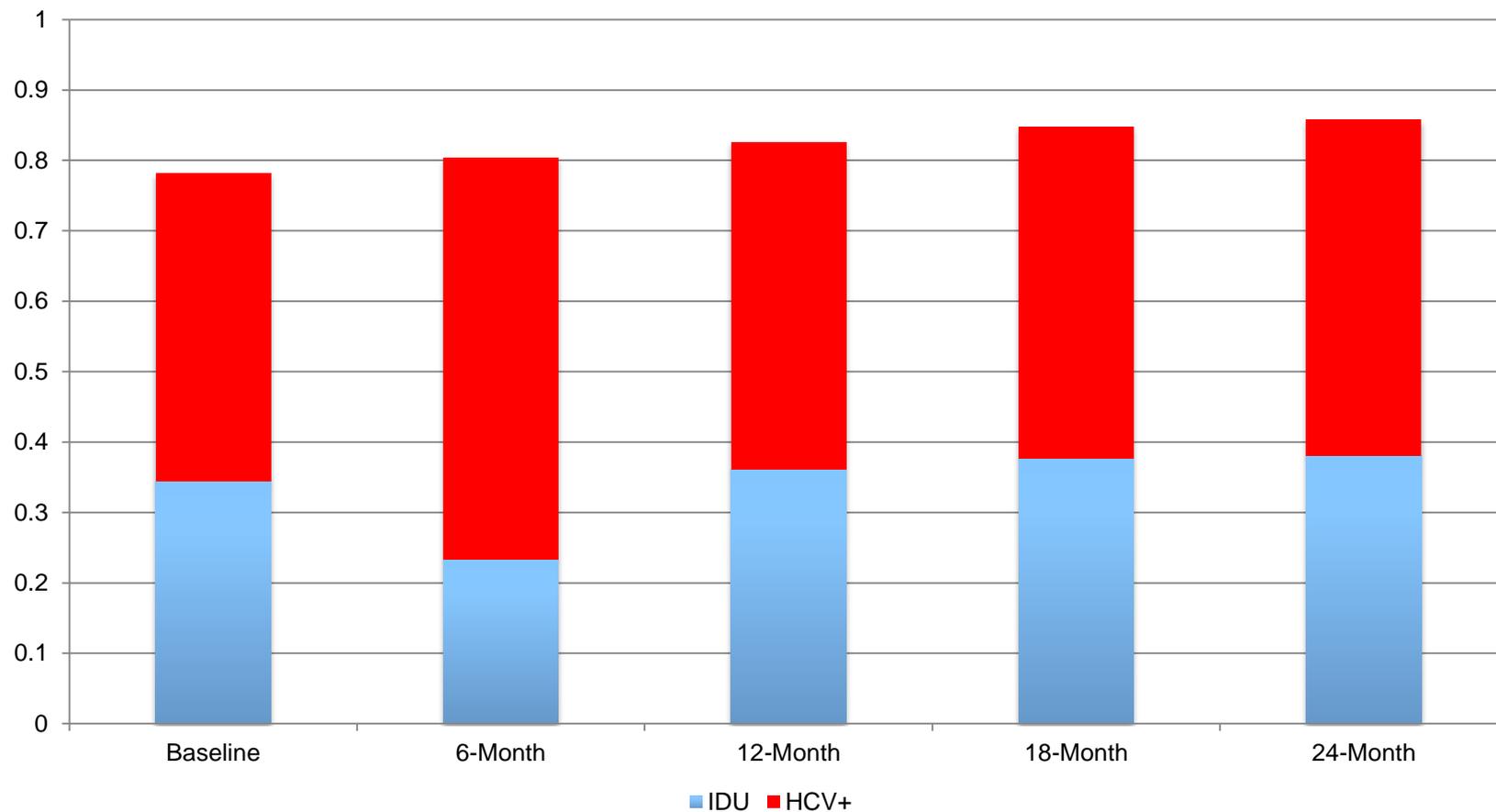
Participant Characteristics N=503

	n	%
Male	286	56.7
Age, median (IQR)	31 (26 ,38)	
Caucasian	474	94.2
Employed Full-Time	173	34.4
Lifetime Injection Drug Use	394	78.3

Illicit Substance Use

	Lifetime		Past 30 Days	
Alcohol	499	99.2	276	54.9
Methadone (illicit)	476	94.6	306	60.8
Heroin	176	35.0	22	4.4
OxyContin	477	94.8	351	69.8
Oxycodone	482	95.8	364	72.4
Hydrocodone	488	97.0	408	81.3
Benzodiazepines	480	95.5	429	85.3
Methamphetamine	219	43.5	17	3.4
Cocaine	472	93.8	113	22.5
Marijuana	491	97.6	308	61.2

Proportion of Participants Injecting Drugs

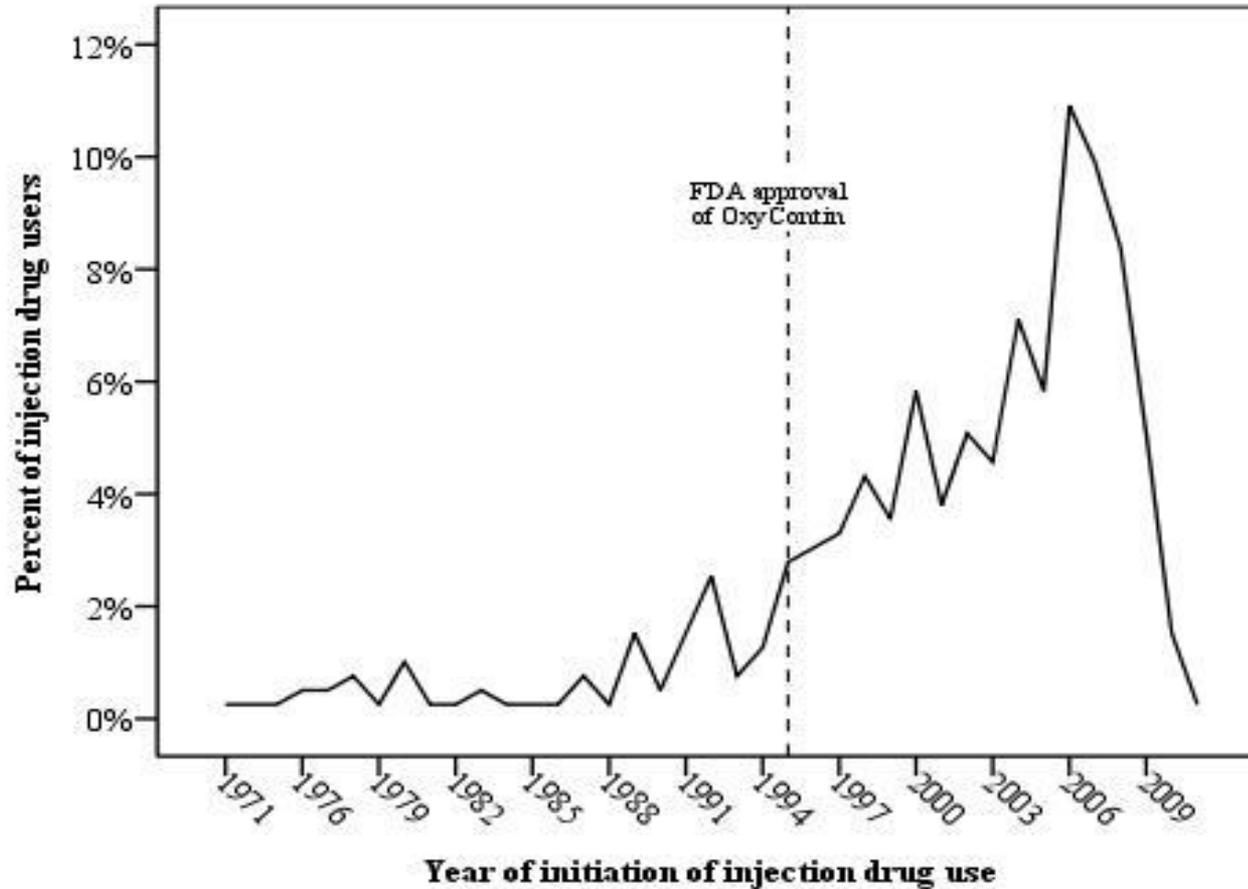


Drugs Initiated Injection With (n=394 Lifetime PWIDs)

	<=25 n	<=25 %	>25 n	>25 %
OxyContin	58	66.3	133	43.2
Other Rx opiates	13	15.1	41	13.3
TOTAL ALL Rx opiates	71	82.5	174	56.5*
Methamphetamine	0	0	4	1.3
Cocaine	13	15.2	104	33.7*
Heroin	2	2.33	18	5.8

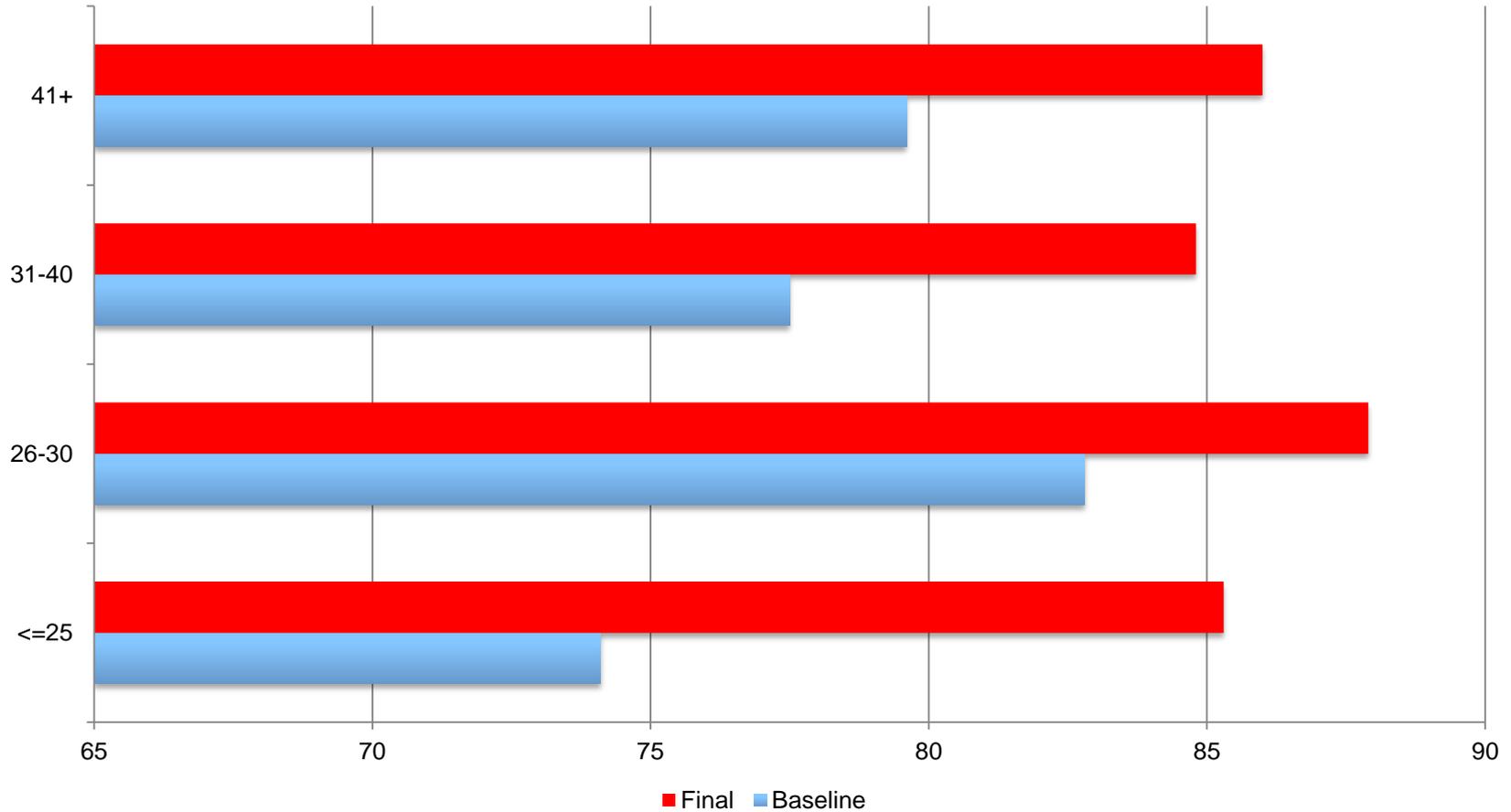
* $P < 0.001$

Initiation to Injection

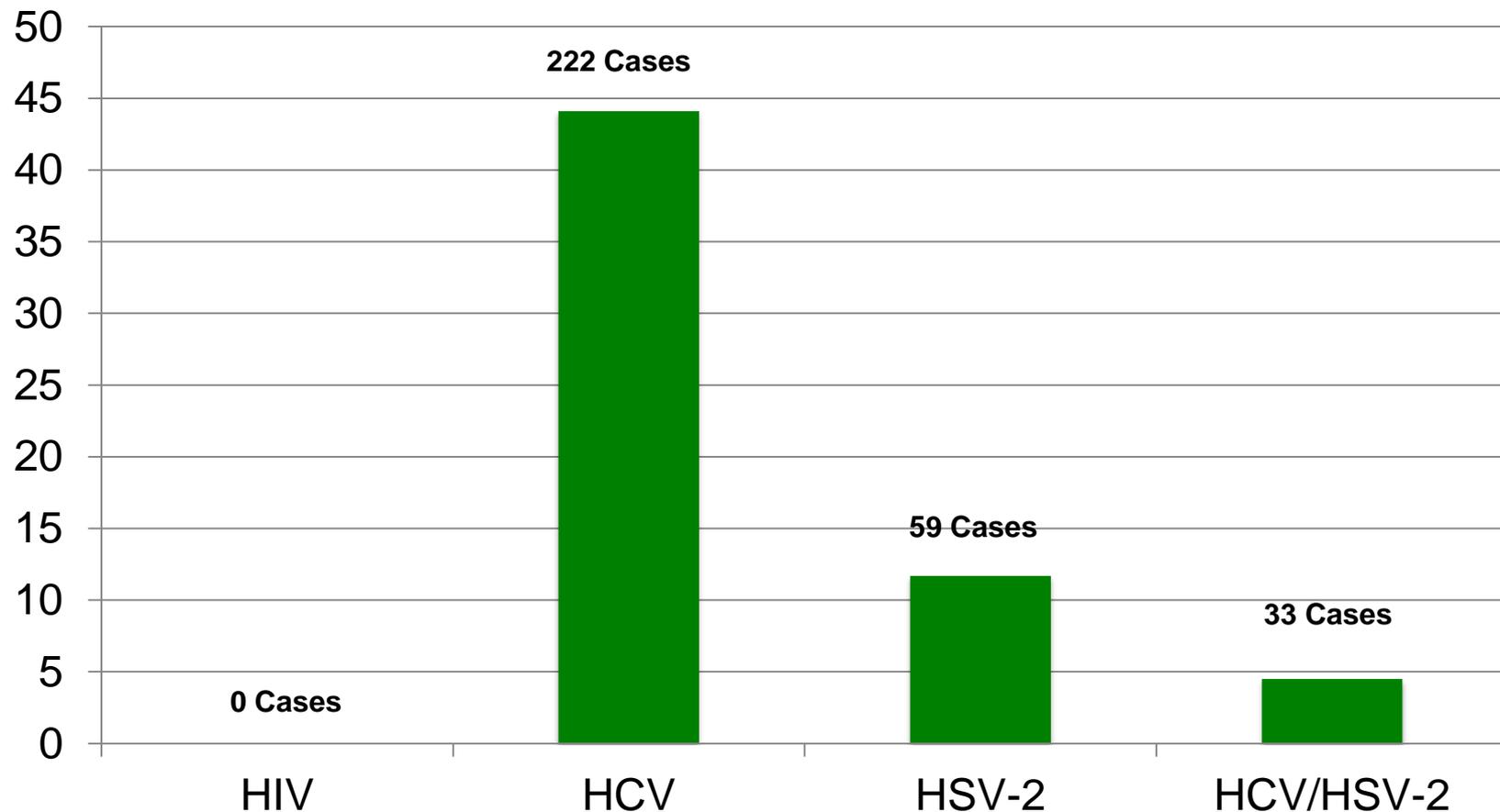


Young and Havens, *Addiction*, 2012

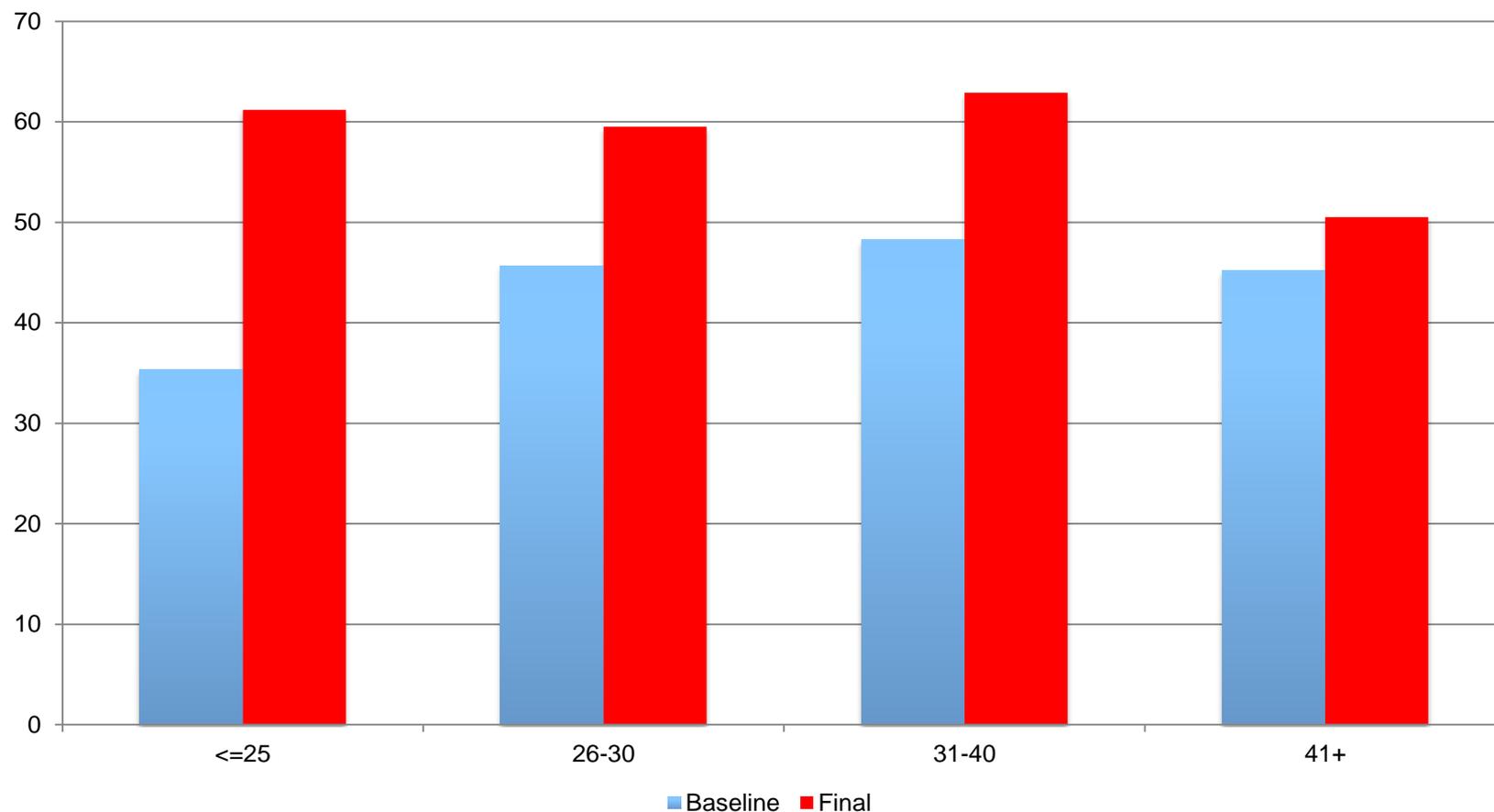
Initiation to Injection by Age



Baseline Prevalence – HIV, HCV, HSV-2



HCV Prevalence by Age



* $P < 0.001$ - <=25 vs other age groups

HCV Prevalence at 24-Months

Lifetime injectors:

67.1%

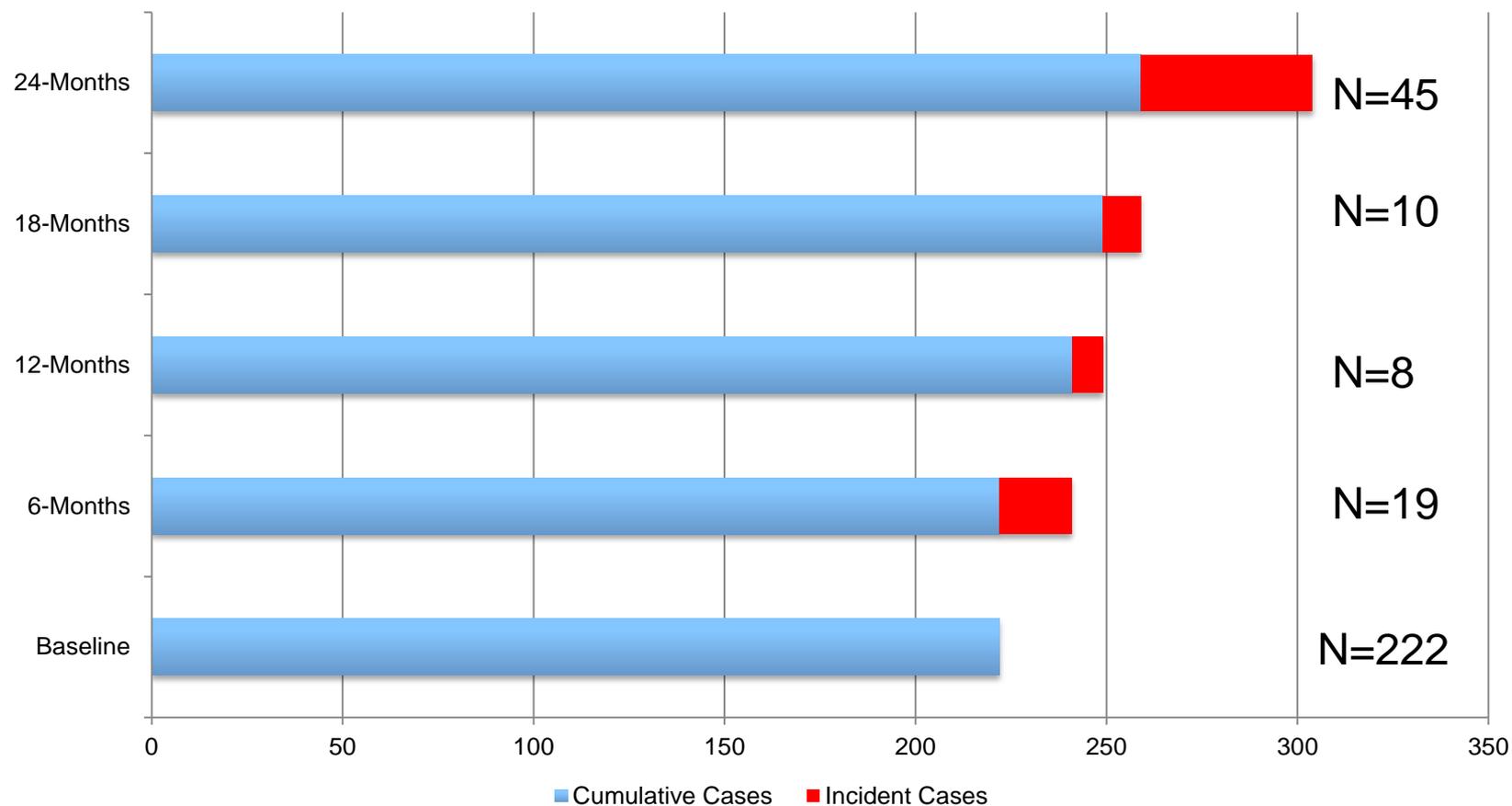
Recent injectors (past 6-months):

73.7%

Hepatitis C Correlates

- Independent associations with HCV:
 - Syringe sharing (aOR: 2.04, 95% CI: 1.20, 3.45)
 - Years IDU (aOR: 1.04, 95% CI: 1.01, 1.07)
 - Injecting Rx opiates (aOR: 2.37, 95% CI: 1.21, 4.63)
 - Injecting Cocaine (aOR: 2.24, 95% CI: 1.41, 3.54)

Hepatitis C Incidence



HCV Incidence – PWIDs

Lifetime injectors:

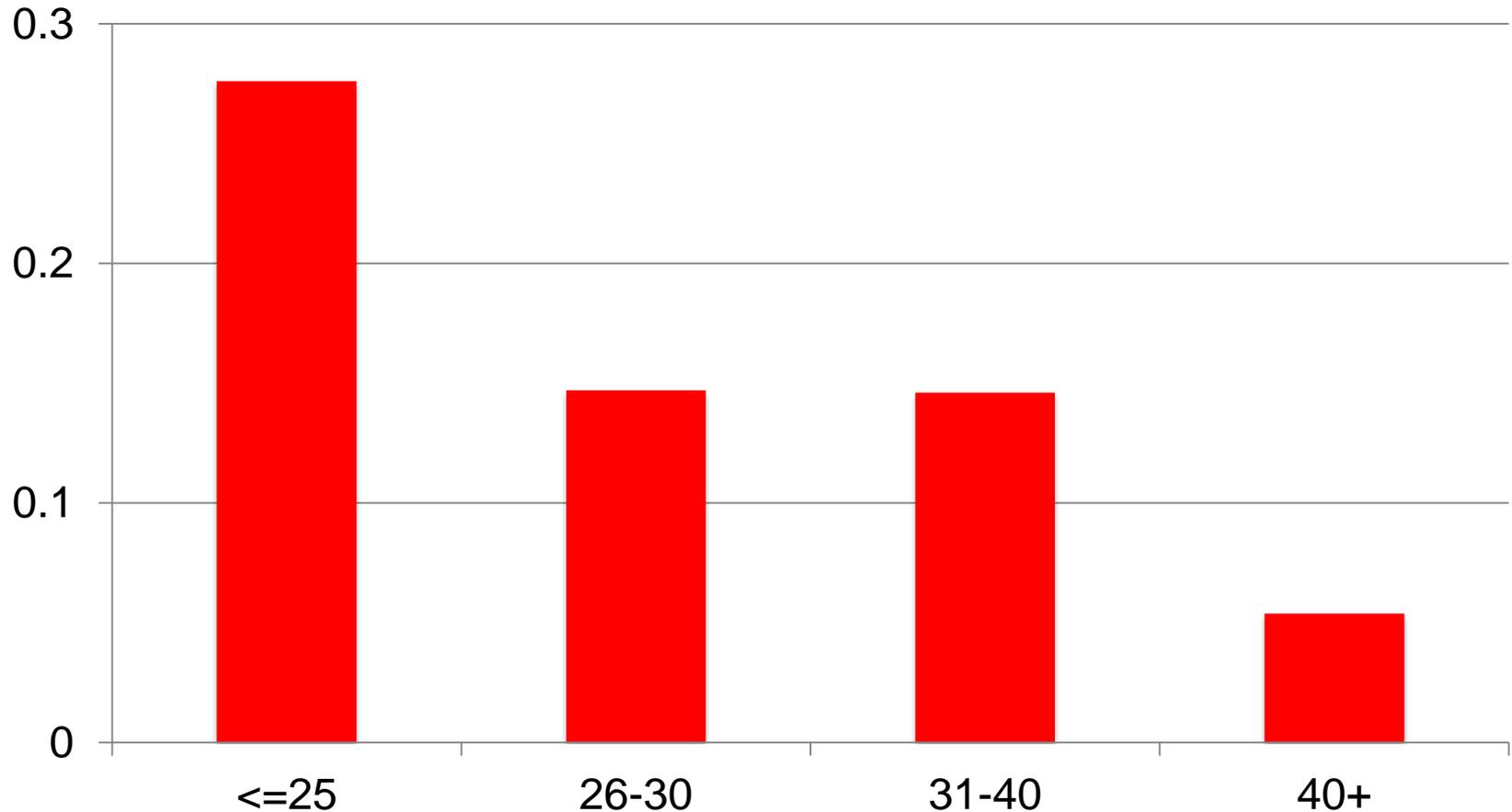
14.2 cases/100 person years

vs. 3.0 cases/100 PY for never injectors

Recent injectors (past 6-months):

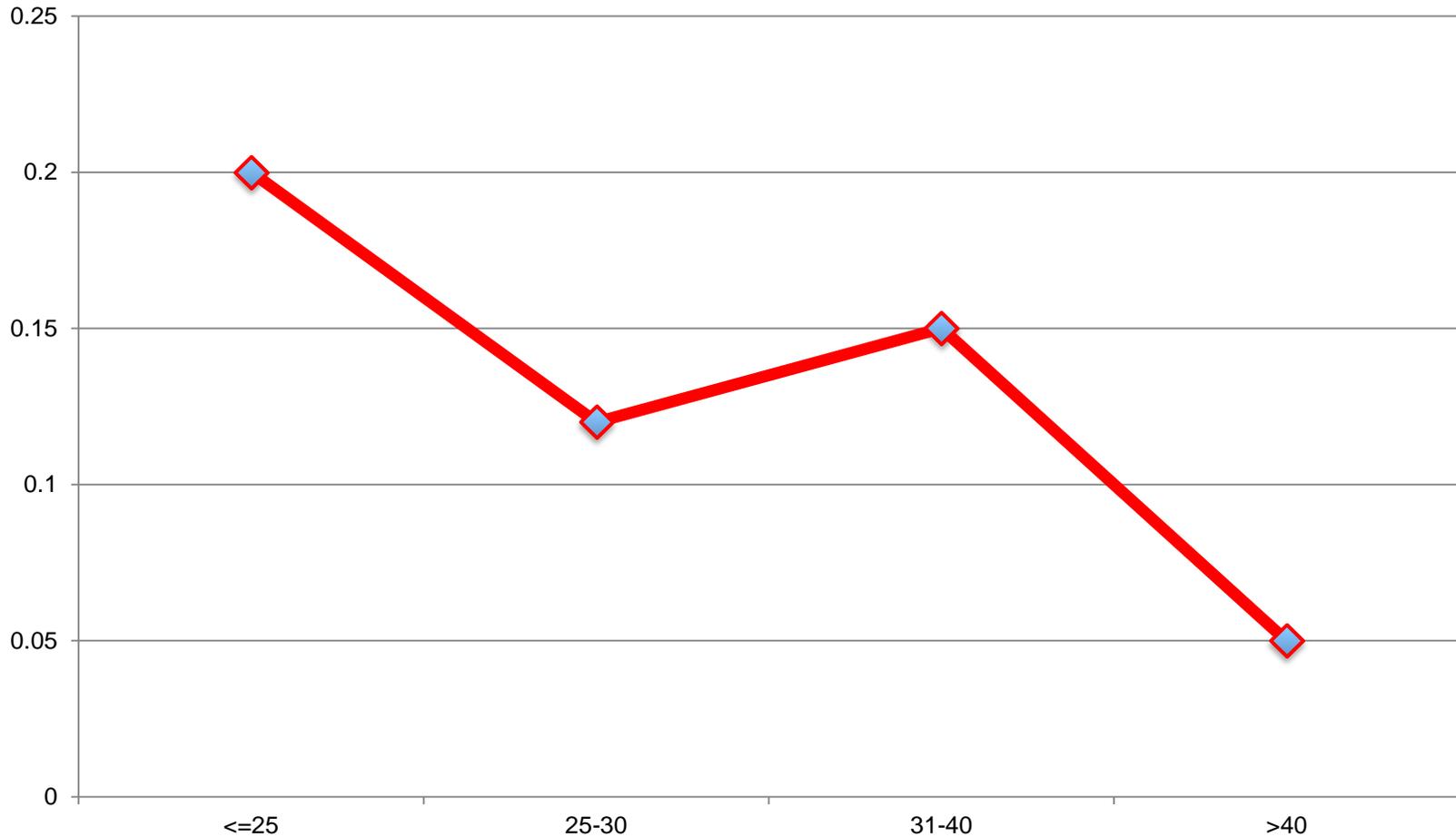
18.6 cases/100 person years

Proportion of Incident Cases by Age Group



* $P < 0.001$

HCV Incidence (per 100 PY) by Age Group

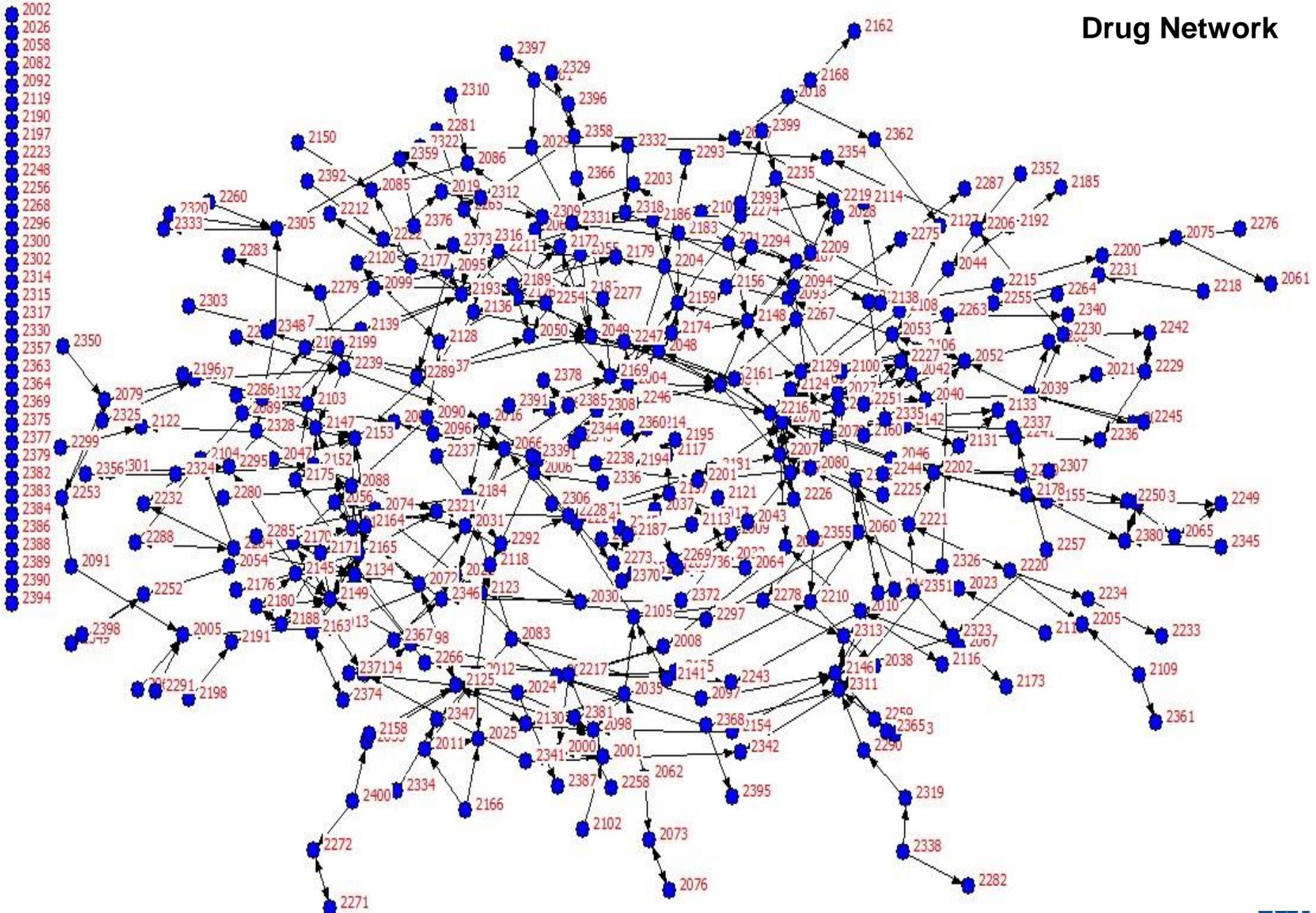


HCV Incidence by Age Category

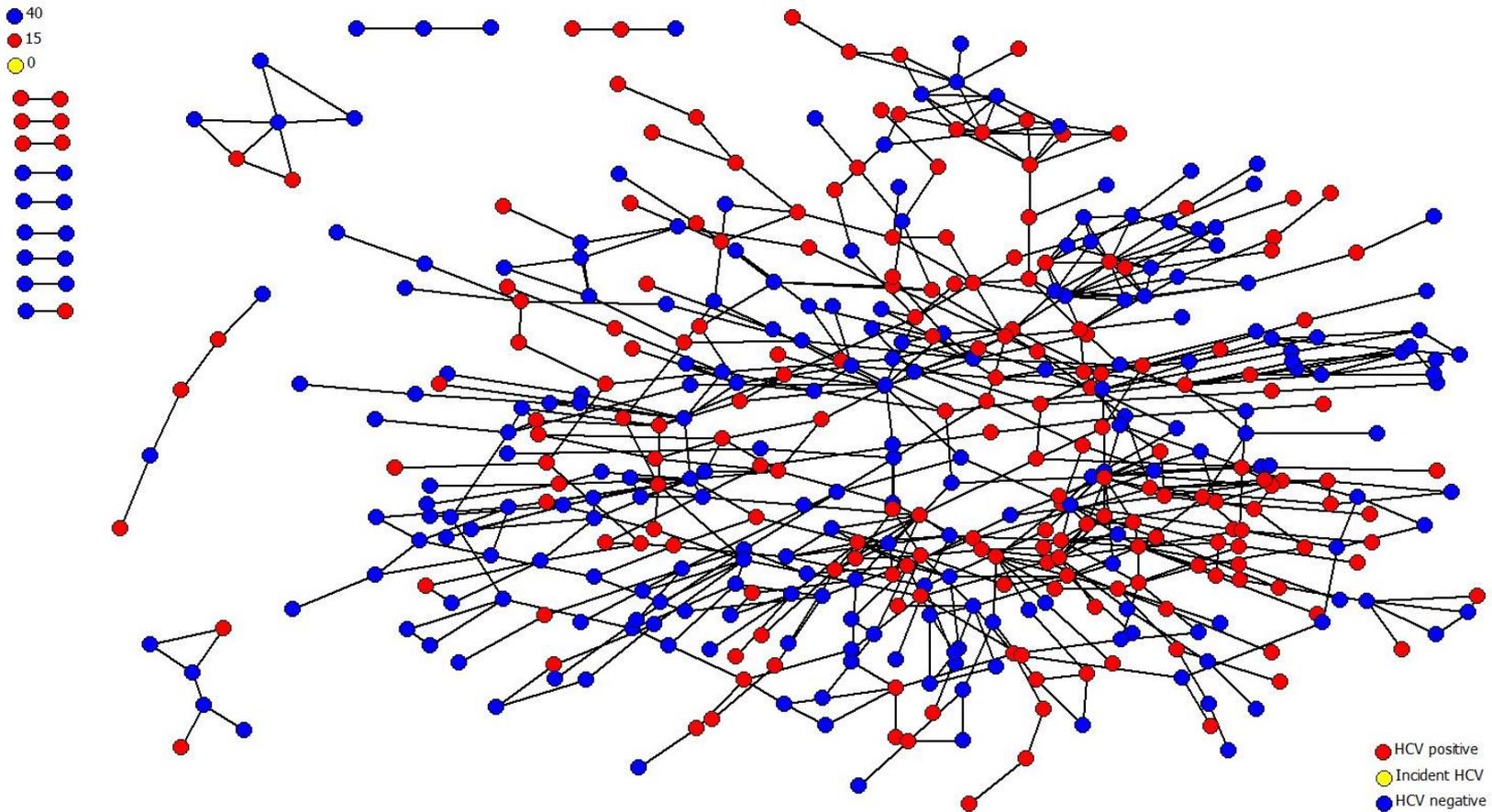
	IRR	95% Confidence Interval
Age*		
<=25 years	3.69	1.42, 9.63
26-30 years	2.24	0.81, 6.17
31-40 years	3.00	1.15, 7.85

*Referent Category: 40+ years

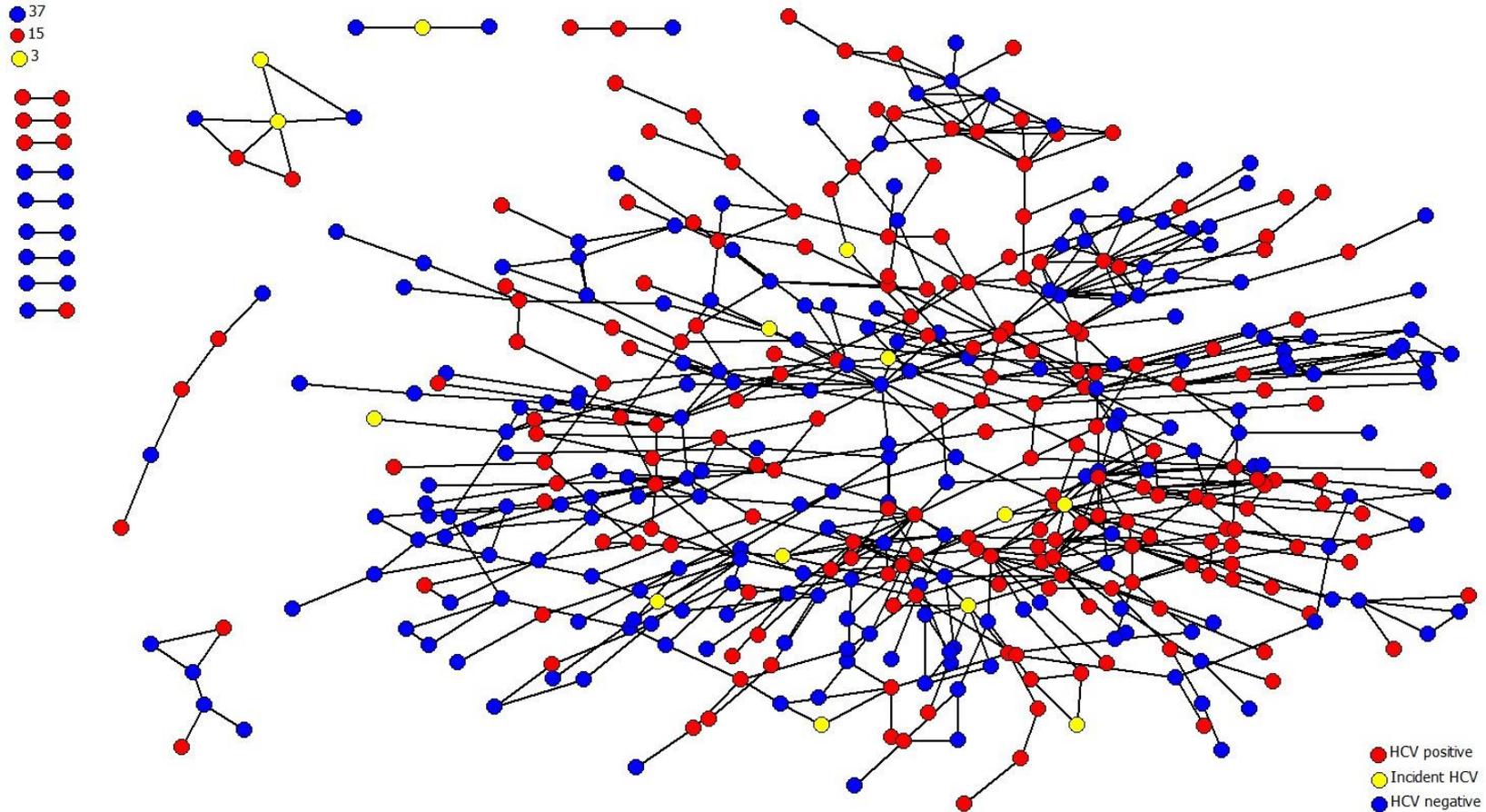
Drug Network



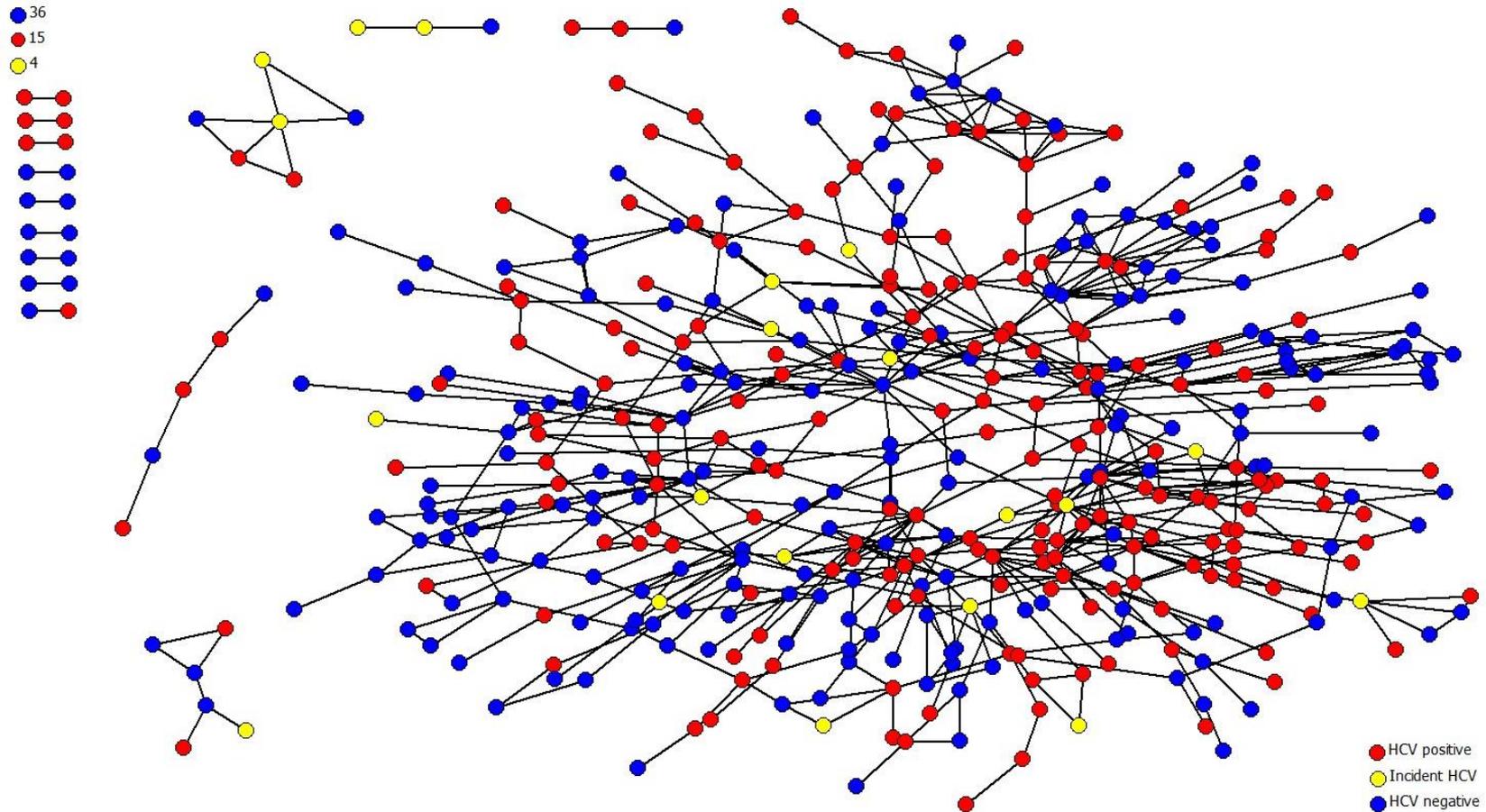
Baseline HCV Prevalence in Drug Network



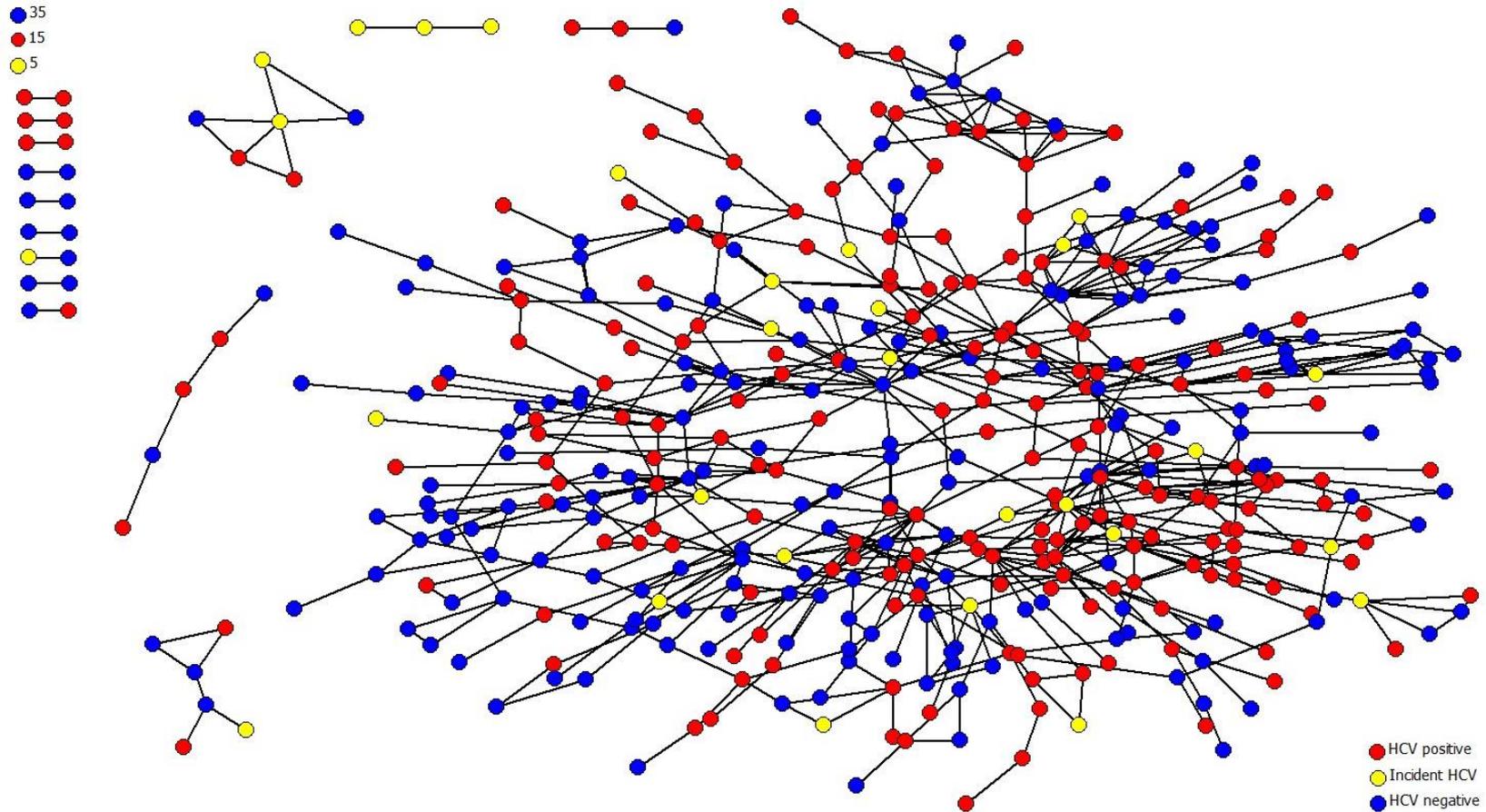
6-Month HCV Seroconversions in Drug Network



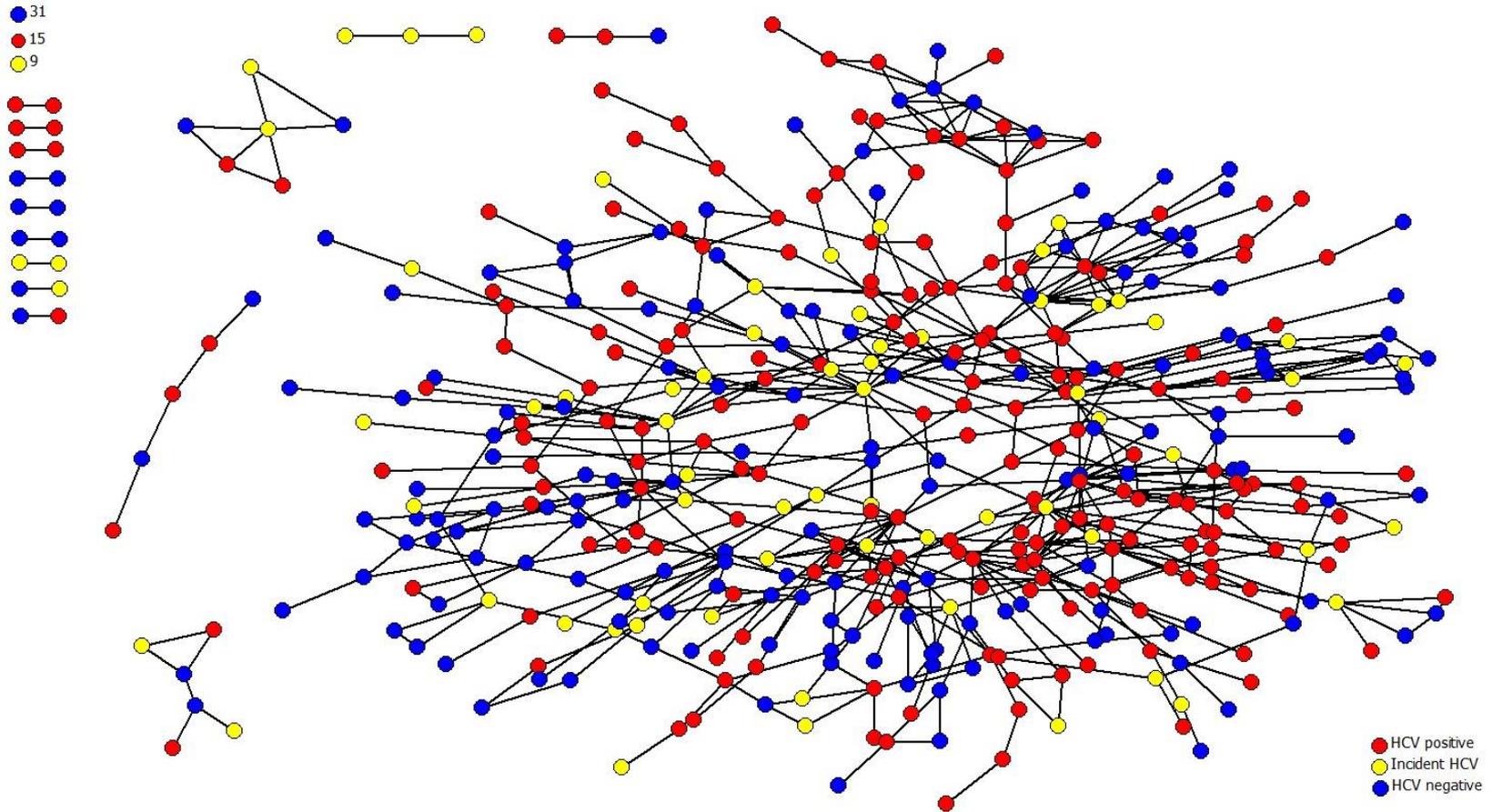
12-Month HCV Seroconversions in Drug Network



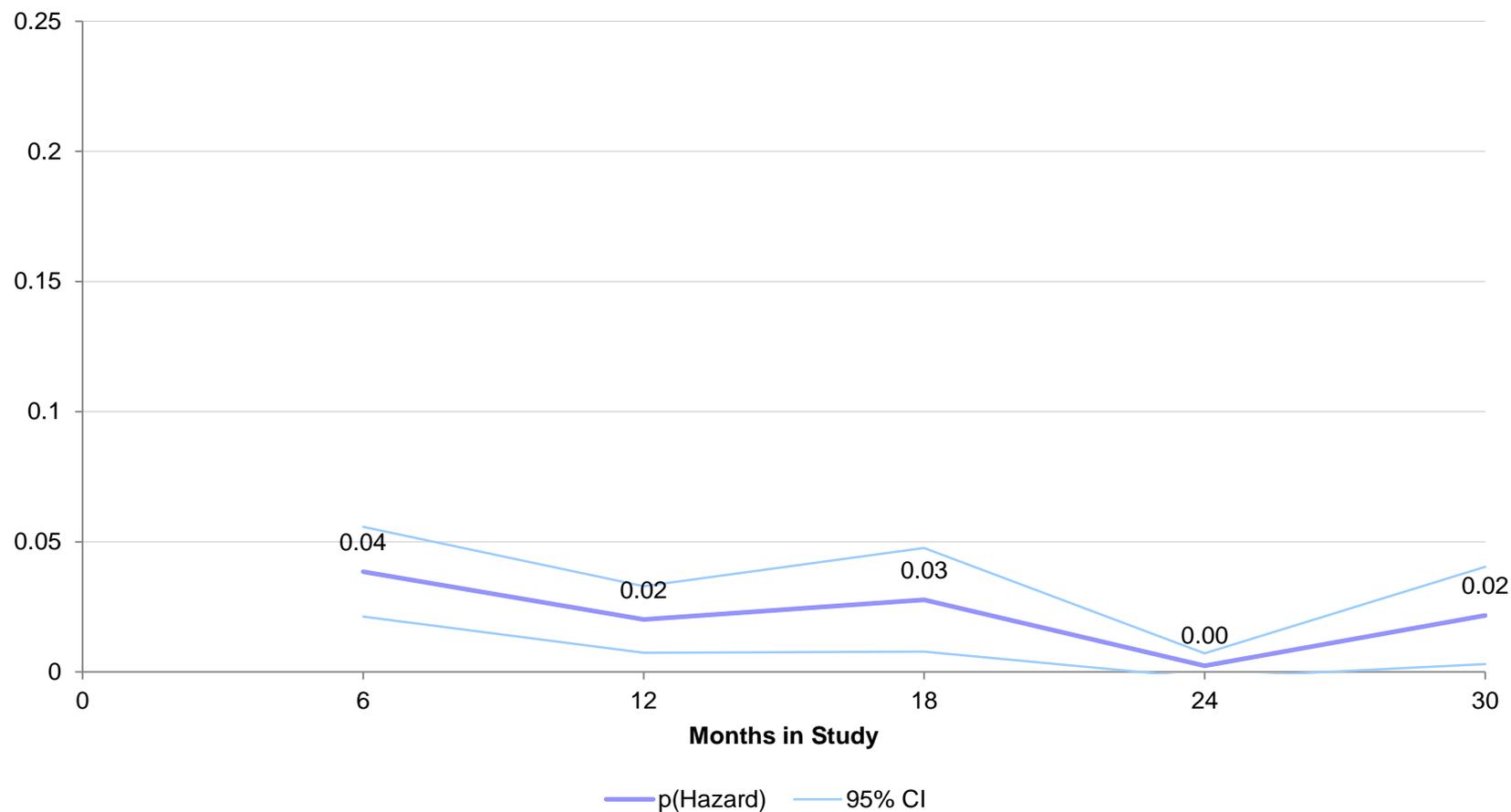
18-Month HCV Seroconversions in Drug Network



24-Month HCV Seroconversions in Drug Network



Probability of Heroin Initiation



Heroin Initiation

- Predictors of heroin initiation at f/u:
 - Eigenvector centrality (aOR: 1.83, 95% CI: 1.21, 2.79)
 - Number days using in the past 30:
 - OxyContin (aOR: 1.03, 95% CI: 1.00, 1.06)
 - Cocaine (aOR: 1.12, 95% CI: 1.03, 1.22)
 - Methamphetamine (aOR: 1.19, 95% CI: 1.10, 1.29)
 - Marijuana (aOR: 1.03, 95% CI: 1.00, 1.06)

Conclusions

- HCV highly prevalent among PWIDs in Appalachia
- Additional incident cases at each visit
- Young IDUs particularly at risk for seroconversion
- Heroin use not prevalent...yet

Acknowledgements

- NIH/NIDA (R01-DA024598 and R01-DA033862)
- Drs. Carl Leukefeld, Carrie Oser, Rick Crosby, Michelle Lofwall, Sharon Walsh (Co-Investigators)
- Study Staff – Hazard and Lexington
- Study Participants

An Emerging Epidemic: The Public Health Response to Hepatitis C Infection Among Young People Who Use Injection Drugs

Sheila Guilfoyle

Viral Hepatitis Prevention Coordinator

Division of Public Health

Wisconsin Department of Health Services

National Alliance of State and Territorial AIDS Directors

Harm Reduction Coalition Briefing

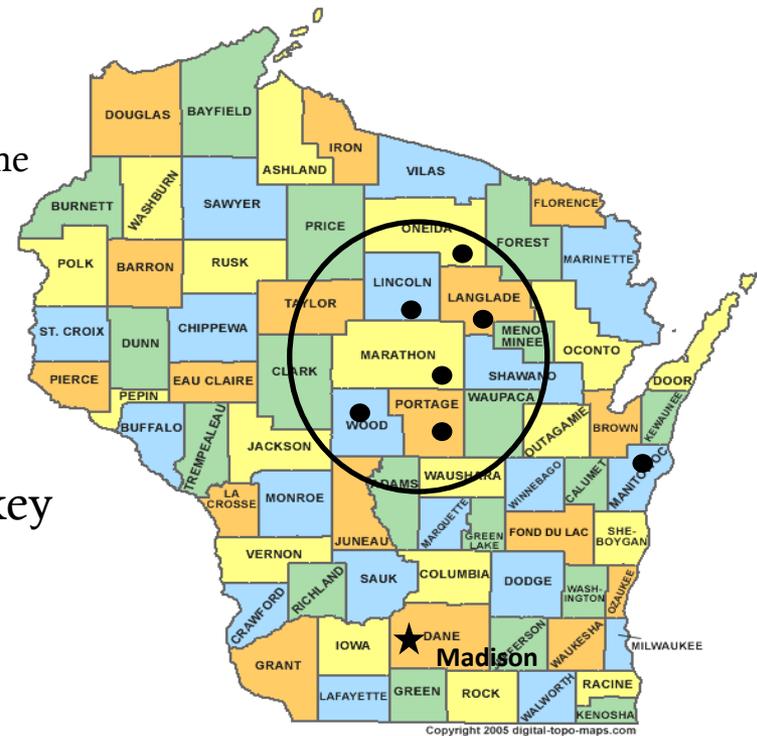
Washington, DC

April 24, 2014



Cluster Investigations in Rural Wisconsin

- North Central six rural counties (2010)
 - Five acute HCV cases reported in a short period of time
 - All young adults who reported injection drug use
 - Resulted in a *CDC Notes from the Field*
- Manitowoc both HIV and HCV cases (2011)
 - Local public health did extensive interviews
 - Documented networks of injectors
- Electronic Laboratory Reporting (ELR) was key



Public Health Response

Partners

- Wisconsin DPH
 - Identified clusters
 - Coordinated investigation
 - Worked with State Laboratory of Hygiene on confirmatory testing
 - Provided training and technical assistance to local public health
- AIDS Resource Center of Wisconsin (ARCW)
 - Provided harm reduction services
 - Outreach testing
 - Interviewed cases that could not be located by public health
- CDC Division of Viral Hepatitis
 - Provided onsite assistance with intervention
 - Conducted quasi species analysis on blood specimens
 - Assisted with preparation of *Notes From the Field*
- Local Public Health Agencies
 - Interviewed cases for risk
 - Provided case follow-up
 - Vaccination and linkage to care

Public Health Response

- Increased outreach testing to young people who inject drugs (PWIDs).
- Piloted the HCV rapid test in harm reduction and outreach settings statewide.
- Integrated HCV testing with the HIV Testing Program.
- Provided training to local health department staff on disease intervention and case follow-up.

Viral Hepatitis Program Collaborations

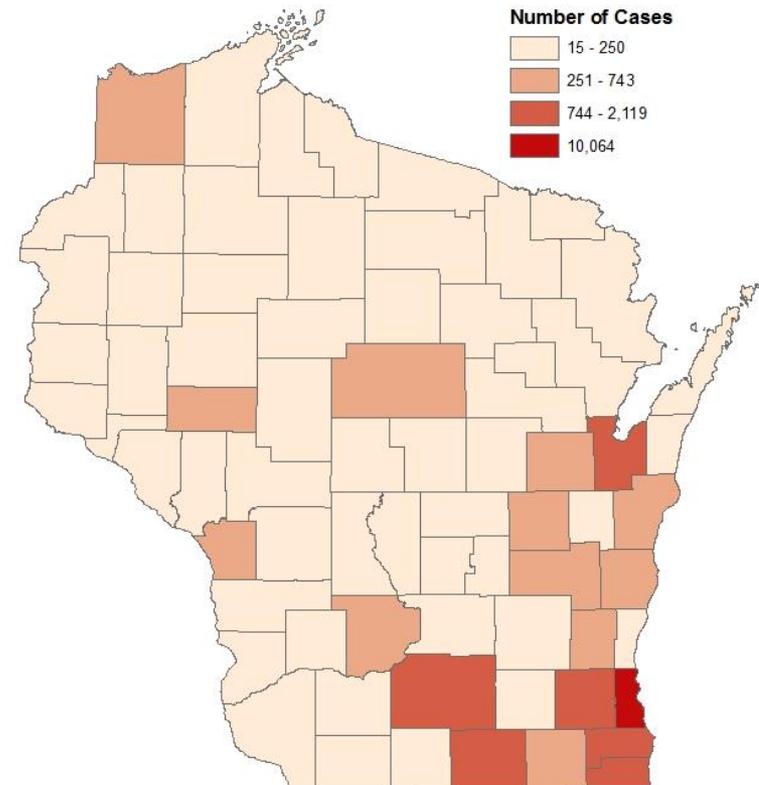
- Community-based organizations
 - Testing and harm reduction services
- State Council on Alcohol and Other Drug Abuse
 - Heroin Subcommittee.
- Policy Development
 - Good Samaritan legislation
- Research
 - UW School of Medicine and Public Health: social networks HCV testing project

Scope of Disease in Wisconsin: Where

- There are 35,000 *known* HCV infections in people living in Wisconsin.
 - An estimated 1.3% of population is living with HCV or approximately 74,000 in Wisconsin.
- The majority of people with HCV live in the southeastern (52%) and southern (16%) regions of the state.
- Number reported has increased slowly since 2006.
- On average, 2,500 infections have been detected each year.

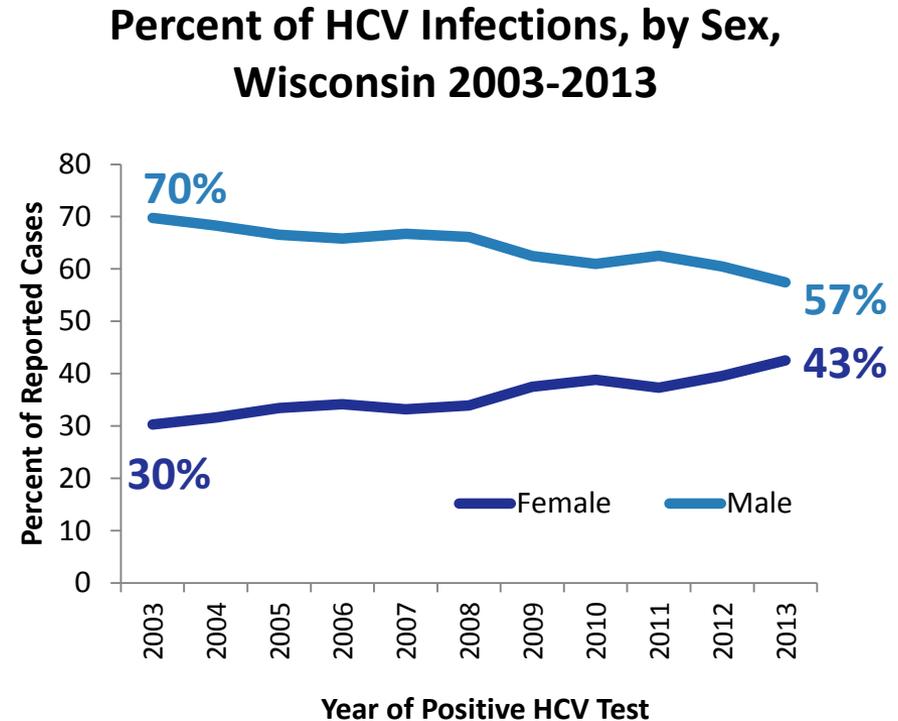
Prevalent HCV Cases in Wisconsin*

*2013 Data. Cases reported from the Department of Corrections and the Federal Correctional Institution are not shown.



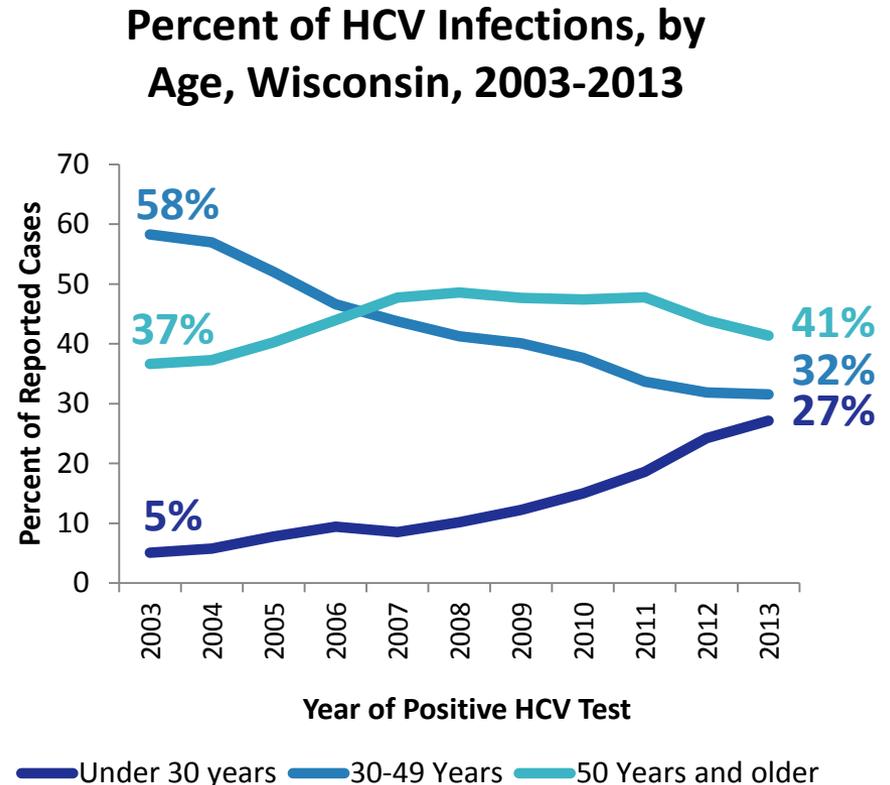
Scope of Disease in Wisconsin: Who

- Most (57%) of newly reported in 2013 and total known living with HCV (65%) are male.
- New reports in females have increased since 2003.



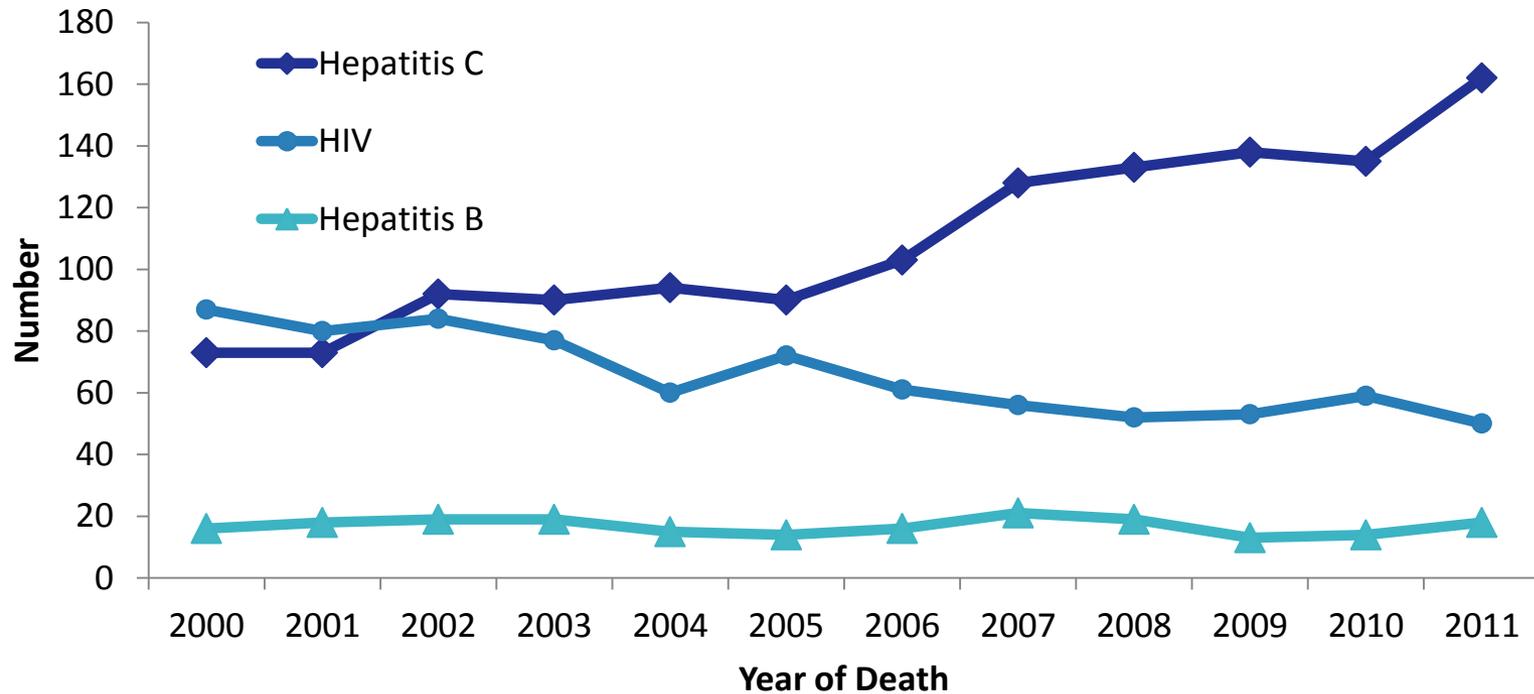
Scope of Disease in Wisconsin: Who

- The largest group (41%) of newly reported in 2013 are aged 50 and older.
- *New reports in young adults have increased five-fold since 2003.*
- Median age of reported cases has decreased.
 - 2003: Median age 47 years
 - 2013: Median age 44 years



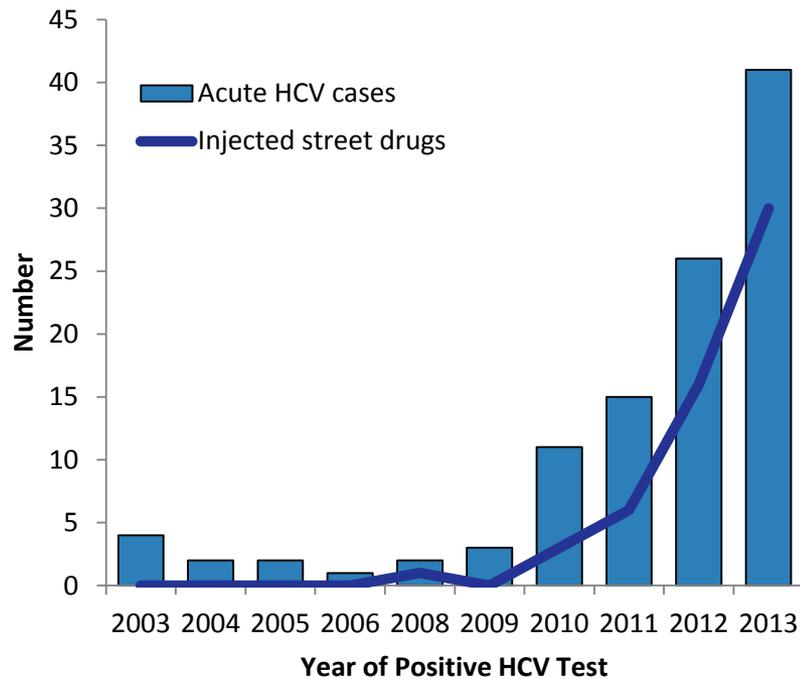
Mortality Trends

Deaths Associated with Hepatitis C, Hepatitis B and HIV:
Wisconsin, 2000-2011

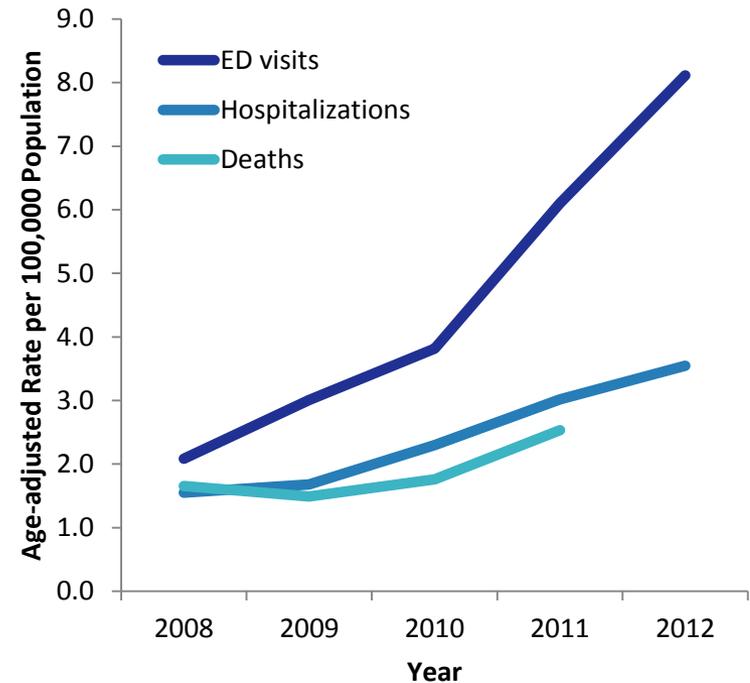


Scope of Disease in Wisconsin: Persons with Injection Drug Use (PWID)

**Reported Acute HCV Cases,
Wisconsin, 2003-2013**



**Rates of Heroin Overdoses and
Deaths, Wisconsin, 2008-2012***

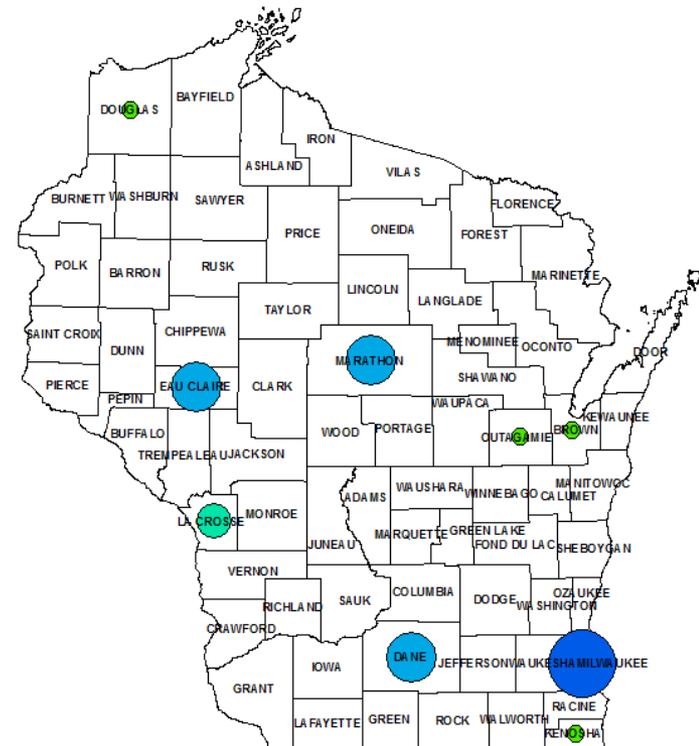


*Source: Wisconsin hospital inpatient database, Wisconsin emergency department visit database, and Wisconsin resident death certificates, Office of Health Informatics, Division of Public Health, Wisconsin Department of Health Services. Rates were age-adjusted using the United States Standard 2000 population.

Rapid HCV Testing Program

- Project began in 2012.
- Four agencies serving clients statewide.
 - AIDS Network
 - AIDS Resource Center of Wisconsin
 - Public Health-Madison Dane County
 - 16th Street Community Health Center
- Provided testing and harm reduction services.
- Completed enhanced risk survey.

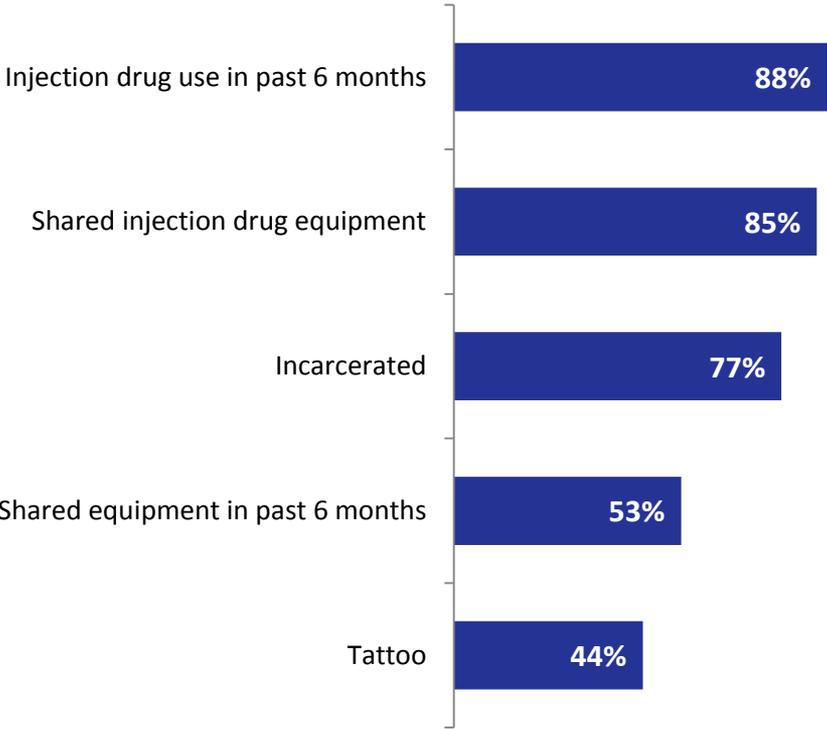
Location of Rapid HCV Test Sites



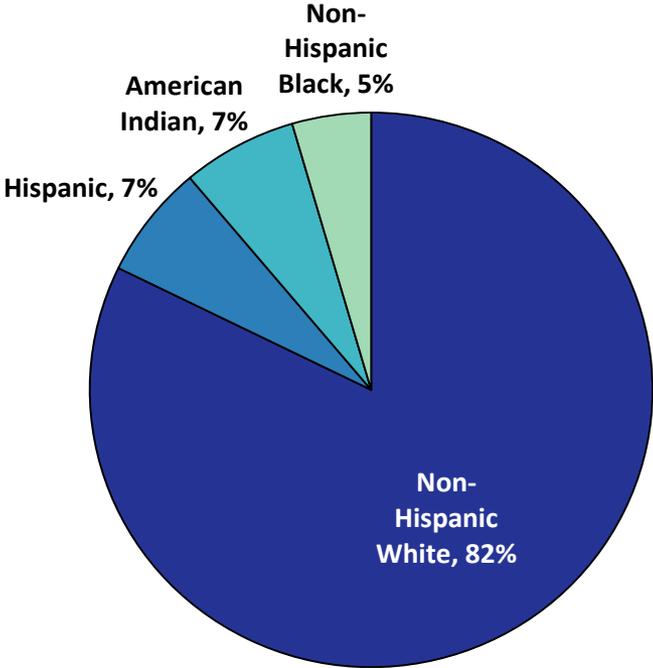
Scope of Disease in Wisconsin: HCV Positive Persons with Injection Drug Use

Data from HCV rapid test participation, conducted at outreach sites in WI during 2011-2013. Data are limited to PWID.

Reported Risk Behavior

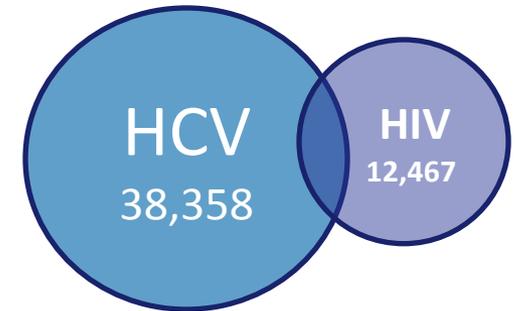


Race/Ethnicity



Surveillance System Match: HCV/HIV Co-infections

- Approximately 900 HCV/HIV co-infections identified since 2000.
- 2.3% of HCV cases have HIV infection.
- 7.1% of HIV cases have HCV infection.
- Demographics of co-infected:
 - 77% Male
 - 45% Non-Hispanic Black
 - 56% Milwaukee Co. residence
- Risk: 60% reported IDU at the time of HIV report.



Summary

- Injection drug users can be reached.
 - Collaboration between public health and harm reduction programs enhances case finding.
 - Good correctional/jail health relationships are essential.
- Education regarding HCV is needed for providers, local health department staff, and injection drug users.
- The use of rapid HCV tests can be a powerful tool for HCV screening, prevention and initiating treatment in a population with high prevalence of HCV infection.

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Thank You:

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Congressman Mike Honda
Congressman Hank Johnson
&
The Congressional Hepatitis Caucus



For More Information:

www.NASTAD.org

www.harmreduction.org

