

# The Opioid Crisis

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# General Information

1. 1999-2014 Prescription of opioid drugs increased four fold
2. Narcotics account for 23% of prescriptions
  - 650,000 opioid prescriptions per day
  - Levels of pain remained constant
3. 1996 Oxycontin released
  - Contained large amount of oxycodone easily dissolved
  - Responsible for over 25% of prescribed narcotic drugs
  - US consumes over 80% of world's oxycodone supply

# General Information

4. Over 2.4 million Americans meet definition of Severe Opioid Use Disorder (OUD)
5. In 2016, 9/10 people needing treatment for substance abuse disorder were not getting it
6. CDC put restrictions on prescription opioids
7. Shift toward IV heroin, fentanyl, and other synthetic opioids
  - Opioid death rate up
  - Increasing rate of HCV, HIV, HBV

# Response to the Problem

## 1. Reduce over prescribing of opioid drugs

- In 2016 CDC released guidelines on opioid prescribing for chronic pain
- Every state has adopted prescription drug monitoring program (PDMP)
- States have offered CME Medical Education on best prescribing practices
- Training program on opioids for healthcare providers

# Response to the Problem

2. Increased access to treatment
3. Need Medication Assisted Treatment (MAT) program
  - Have been shown to reduce risk of overdose deaths by 50%
  - Health costs decreased 50% with those on MAT
  - Only 10% of 27 million Americans addicted received treatment
  - 61% of counties in the US have no program
  - Insurances do not cover them
  - Physicians reluctant to get educated and prescribe the drugs

# Response to the Problem

## 4. Medication Assisted Treatment (MAT)

### ➤ Medication approved

#### ➤ Methadone

- Agonist (fully activates opioid receptors)
- High-strength and efficacy to reduce euphoria

#### ➤ Buprenorphine (Suboxone)

- Partial agonist (partial agonist and activates opioid receptors to relieve cravings)
- Eligible to be prescribed by certified healthcare providers

#### ➤ Naltrexone (Vivitrol)

- Antagonist (blocks opioid receptors)

# Response to the Problem

## Recommendations

1. Increase funding for addiction treatment programs
  - Grants from government, states
2. Maintain insurance coverage for people with drug use disorders
  - Medicaid to maintain full health coverage , inpatient, hospitalization, out patient detoxification program
  - Ensure insurance to enforce mental health parity in ACA
3. Increase access to buprenorphine treatment
  - Increase all healthcare provider access (NP, PA, MD, DO)
  - Have FQHC centers receive waivers to prescribe
4. Reduce administrative barriers to treatment
5. Support research for new treatment options

# Current Epidemiological Trends in HIV and HCV Among PWID in the US

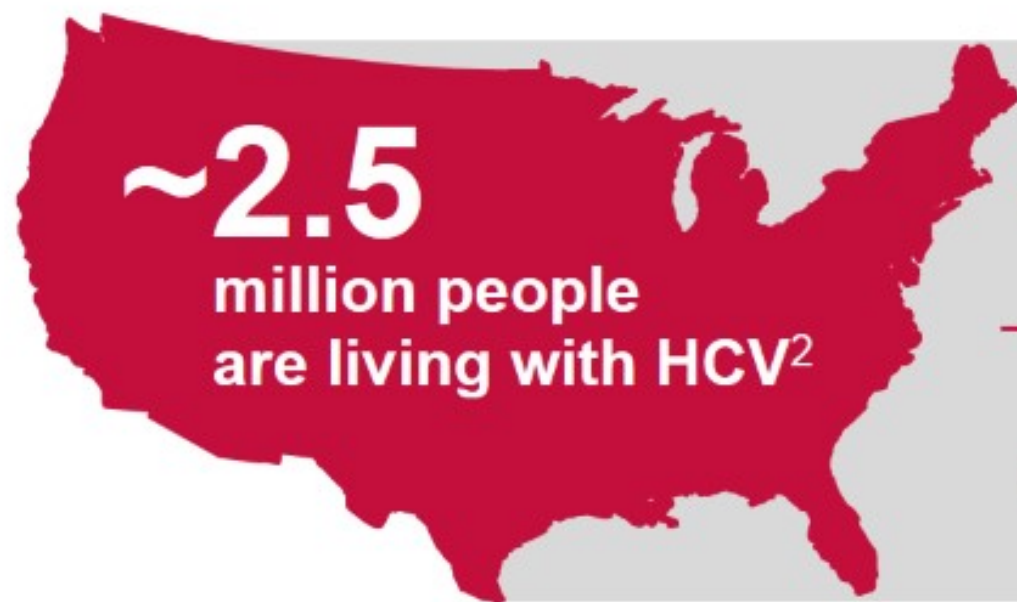
- A. In 2008-2014 HIV diagnosis in the US among PWID fell 48%
  - 50% decline in urban Black, Hispanic injections
  - HIV screening among PWID remains infrequent overall especially in rural areas
- B. Syringe needle exchange remains high in White PWID but declining in Black and Hispanic
  - PWID also remain sexually active with high-risk sexual practices
- C. Awareness of serostatus among PWID networks remains poor
  - 45% unaware of last injecting partners' serostatus especially in rural areas



# Current Epidemiological Trends in HIV and HCV Among PWID in the US

- D. HCV incidence has increased with a threefold increase in acute HCV (2010-2015) especially in rural areas
  - Appalachian states highest rates
- E. Young white active injection users are the new risk for acute HCV
- F. HCV transmitted in blood easier than HIV (3-9% vs. 0.3%)
- G. HCV survives on an inanimate surface over 6 weeks versus HIV from 6 days to 4 weeks
  - High dead-space syringes harbor higher risk

# Current and former PWID comprise more than half of the chronic HCV population in the United States<sup>1</sup>



**~40%**

of PWID with recent injection drug use have HCV<sup>3</sup>

**~80%**

of new HCV infections in 2014 occurred among PWID<sup>4</sup>



The United States has the second largest population of people with recent injection drug use who have HCV in the world: 895,000.<sup>3,a</sup>

<sup>a</sup>95% CI: 353,000-1,601,500.

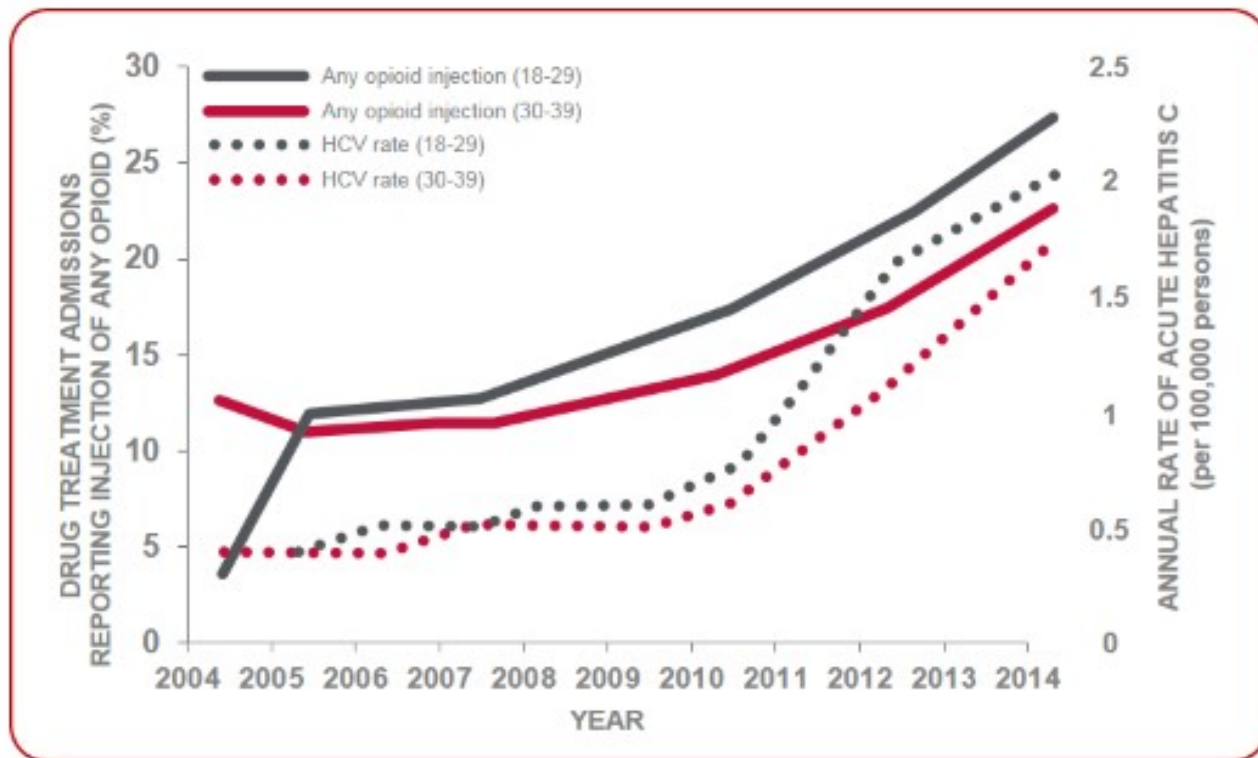
1. Grebely J, et al. *Clin Infect Dis*. 2013;57(7):1014-1420. 2. Chhatwal J, et al. Presented at: AASLD 2018, The Liver Meeting®, November 9-13, 2018; San Francisco, CA.

3. Grebely J, et al. *Addiction*. 2019;114(1):150-166. 4. Zibbell JE, et al. *Am J Public Health*. 2018;108(2):175-181.

AASLD=American Association for the Study of Liver Diseases;  
CI=confidence interval.



# From 2004-2014, HCV and opioid injection drug use increased significantly among people aged 18-39 years<sup>1,2</sup>



Among people aged 18-29 years<sup>1</sup>:



Rate of acute HCV



Admission for  
opioid injection

Among people aged 30-39 years<sup>1</sup>:



Rate of acute HCV



Admission for  
opioid injection



The national increase in acute HCV infection is associated with the nation's opioid epidemic.<sup>1</sup>

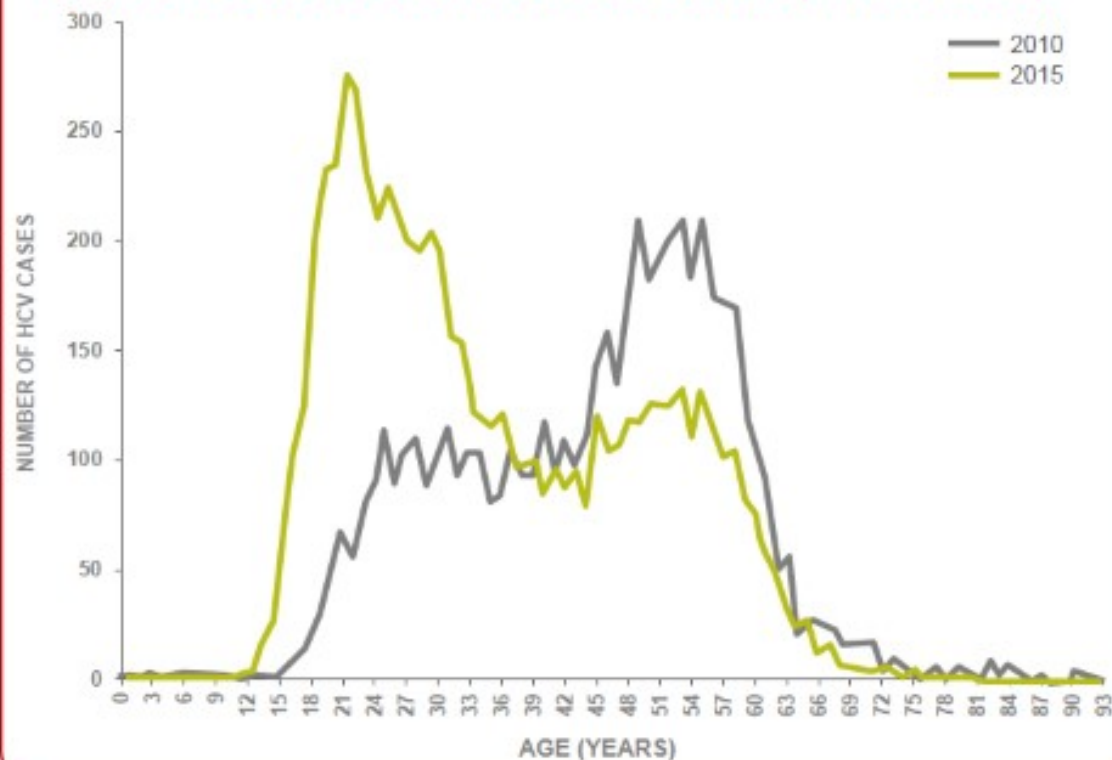
1. Zibbell JE, et al. *Am J Public Health*. 2018;108(2):175-181. 2. CDC. <https://www.cdc.gov/nchstp/newsroom/2017/hepatitis-c-and-opioid-injection-press-release.html>. December 21, 2017. Accessed October 23, 2018.

CDC=Centers for Disease Control and Prevention.

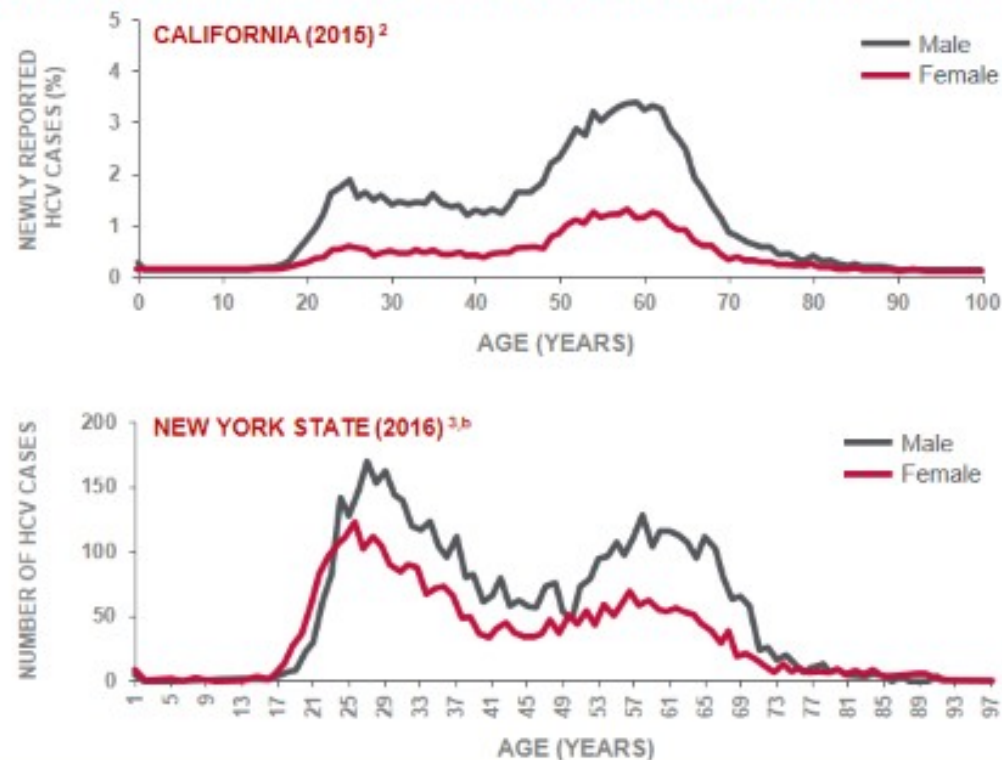


# Increased injection drug use in adolescents and young adults is shifting the demographics of HCV infection in the United States<sup>1-3</sup>

BETWEEN 2010 AND 2015, THERE WAS A SHIFT IN HCV INFECTIONS FROM AN OLDER TO A YOUNGER POPULATION (INDIANA DATA)<sup>1,a</sup>



RECENT HCV INCIDENCE DATA DEMONSTRATE A COMPARABLE BIMODAL AGE DISTRIBUTION AMONG NEW HCV INFECTIONS IN MEN AND WOMEN



<sup>a</sup>Adapted from the Indiana State Department of Health's Hepatitis C Epidemiological Report 2015. <sup>b</sup>Excludes cases from New York City.

CDC=Centers for Disease Control and Prevention.

1. Indiana State Department of Health. <https://www.in.gov/isdh/files/2015%20Hepatitis%20Epidemiologic%20Profile%20FINAL.pdf>. Accessed October 19, 2018. 2. California Department of Public Health, STD Control Branch. [https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Converted\\_ChronicHCV\\_SurvRpt\\_Graphs.pdf](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Converted_ChronicHCV_SurvRpt_Graphs.pdf). June 2017. Accessed October 19, 2018. 3. New York State Department of Health. [https://www.health.ny.gov/community/youth/development/docs/nys\\_youth\\_sexual\\_health\\_plan.pdf](https://www.health.ny.gov/community/youth/development/docs/nys_youth_sexual_health_plan.pdf). Updated 2018. Accessed October 19, 2018.





# Brian

**22-year-old male, recent injection drug use with an opioid use disorder**

## **PATIENT PROFILE**

- Caucasian
- Dropped out of college and is unemployed
- Covered by parents' commercial insurance

## **MEDICAL HISTORY**

- **Comorbidity:** Depression

## **TREATMENT CONSIDERATIONS**

- Recently entered 7-day treatment facility
- Receiving buprenorphine

***How does the disease burden of HCV in PWID impact your decision to screen a patient like Brian for HCV infection?***



# Barriers to HCV care in PWID

## Provider-level Barriers

- Perception that patients who inject drugs are poor candidates for treatment<sup>1</sup>
- Concerns regarding patient adherence<sup>1,2</sup>
- Perception that substance use may affect treatment outcomes<sup>2</sup>
- Concerns about the risk of HCV reinfection<sup>1,2</sup>

## System-level Barriers

- Complexity of referrals<sup>1</sup>
- Limited infrastructure for HCV assessment and treatment in primary care and substance use treatment facilities that treat marginalized populations<sup>2</sup>
- Treatment access restrictions<sup>3</sup>
- Treatment cost<sup>1,2</sup>

## Patient-level Barriers

- Low perceived need for treatment<sup>2</sup>
- Lack of knowledge of HCV serostatus<sup>1</sup>
- Fear of side effects<sup>1</sup>
- Lack of insurance<sup>1</sup>
- Low socioeconomic status<sup>1</sup>
- Stigma from HCPs and system<sup>2</sup>
- Distrust of healthcare system<sup>1</sup>



**Education and training should address misconceptions and stigmatization of PWID with evidence-based guidelines.<sup>4,5</sup>**

1. Zeremski M, et al. *World J Gastroenterol*. 2013;19(44):7846-7851. 2. Grebely J, et al. *J Infect Dis*. 2013;209(Suppl 1):S19-S25. 3. Center for Health Law and Policy Innovation at Harvard Law School. [https://www.chlpi.org/wp-content/uploads/2013/12/State-of-HepC\\_2017\\_FINAL.pdf](https://www.chlpi.org/wp-content/uploads/2013/12/State-of-HepC_2017_FINAL.pdf). October 23, 2017. Accessed October 21, 2018. 4. Aspinall EJ, et al. *Clin Infect Dis*. 2013;57(Suppl 2):S80-S89. 5. Muething L, et al. IDSA/AIDS Week 2015. Poster 1029.

# Barriers to Prevent Rural PWID from Accessing HIV/HCV Testing and Treatment

## A. Lack of Specialty Health Care

- PCP with no experience with HIV/HCV care
- PCP with no experience with care of PWID with MAT methods

## B. Cost, Insurance, and Rationing of Care

- HIV care
  - Ryan White helps bridge those without insurance
- HCV care
  - No program for underinsured
  - In rural areas only 32% are insured
  - Use of DAA in substance abuse remains controversial with concerns of nonadherence and reinfection

# What is the Efficacy of HIV/HCV Treatment Among PWID

- A. PWID have historically been less likely to persist in HIV care, receive ART, and achieve viral suppression
  - More urban areas with MAT programs are achieving success as non-users
  - Rural areas have less care and PLWH enter care more advanced with higher mortality
- B. PWID with HCV show high cure rates with DAA of 96-97% if on Medication Assisted Therapy (MAT)
  - Rural areas don't have established MAT programs



# Long Road from Screening to Cure

## Linkage to Outpatient Care

- Current sites
  - Infectious Disease, GI, Hepatology
- Future sites
  - Integrated sites
    - Primary Care, substance abuse, mental health, opioid (MAT) sites all linked
  - Education opportunities
    - To get certified to treat HCV and approved by insurances and states
    - More health care providers involved (MD, DO, PA, NP, Pharmacists)

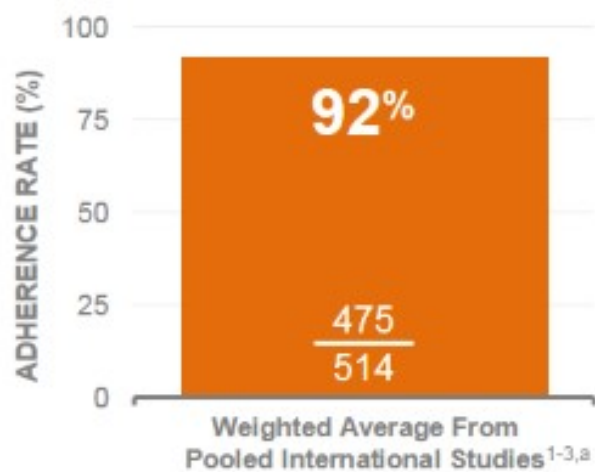
# How to Optimize HIV/HCV Treatment Outcomes Among PWID

## A. Substance Abuse Treatment

- Drug abuse support key to improving care for PLWH with addiction
  - Use of MAT program improves HIV outcomes
  - Make HIV providers aware of guidelines for HIV patients with chronic pain
- HCV patients in MAT programs do very well with DAA therapies and are more adherent and less likely to get reinfected

# Adherence rates with DAA therapy among PWID/PWUD are high<sup>1-3</sup>

## ADHERENCE RATES WITH DAA THERAPY AMONG PWID/PWUD<sup>1-3</sup>



The PWID/PWUD population included individuals who were actively using or injecting drugs, receiving MAT, HCV/HIV coinfecting, and/or housing unstable.<sup>1-3</sup>

▶ **Regardless of active drug or injection drug use, studies have shown PWID/PWUD to be adherent to HCV therapy.<sup>1-3</sup>**

<sup>a</sup>Three clinical trials or post-hoc analyses, including a study of 301 treatment-naïve subjects with HCV GT 1, GT 4, or GT 6, who were ≥80% adherent to opioid agonist therapy (C-EDGE CO-STAR); a study of 149 GT 1 subjects (58 with a history of injection drug use) receiving OST from a post-hoc analysis of 12 Phase 2 and 3 clinical trials of a DAA; and a study of 100 subjects with chronic HCV and recent opioid injection use (≤3 months) treated for 12 weeks with a DAA (ANCHOR). In the C-EDGE CO-STAR study, adherence was monitored by electronic diary. Subjects were considered adherent if they reported taking ≥95% of their pills. In the post-hoc analysis, adherence was calculated by dividing the number of total pills received by the total expected number of pills. Subjects were considered adherent if they had taken ≥90% of their expected pills. In the ANCHOR study, adherence was calculated based on the number of pill bottles used. Adherent subjects were those who completed 3 bottles.<sup>1-3</sup>

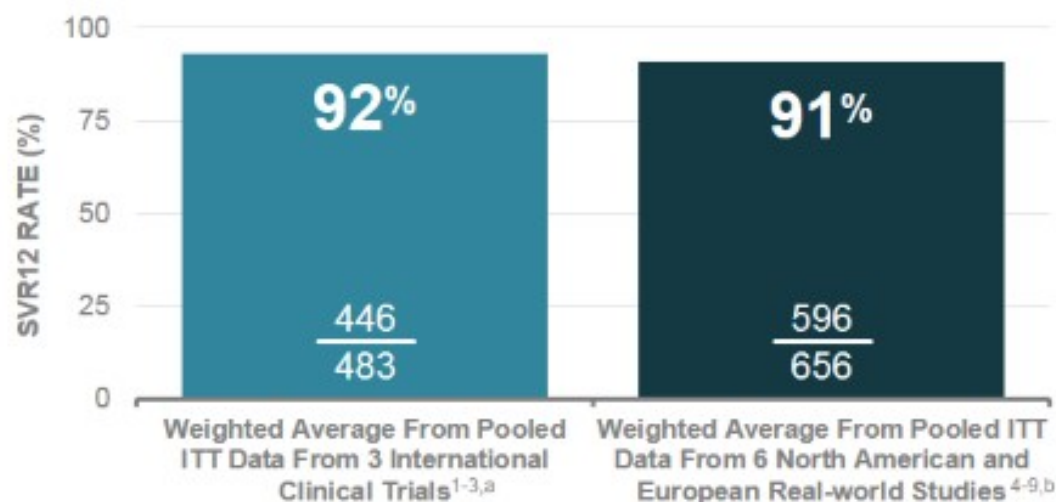
1. Dore GJ, et al. *Ann Intern Med.* 2016;165(9):625-634. 2. Grebely J, et al. *Open Forum Infect Dis.* 2018;5(2):ofy001.  
3. Rosenthal E, et al. Presented at: AASLD 2018, The Liver Meeting<sup>®</sup>, November 9-13, 2018, San Francisco, CA.

DAA=direct-acting antiviral; GT=genotype;  
MAT=medication-assisted therapy.



# Studies have shown that PWID/PWUD achieve high SVR12 rates with DAA therapy<sup>1-9</sup>

SVR12 RATES WITH DAA THERAPY AMONG PWID/PWUD<sup>1-9</sup>



SVR12 rates for HCV DAA therapy were similar for pooled data from clinical trials and real-world studies.<sup>1-9</sup>

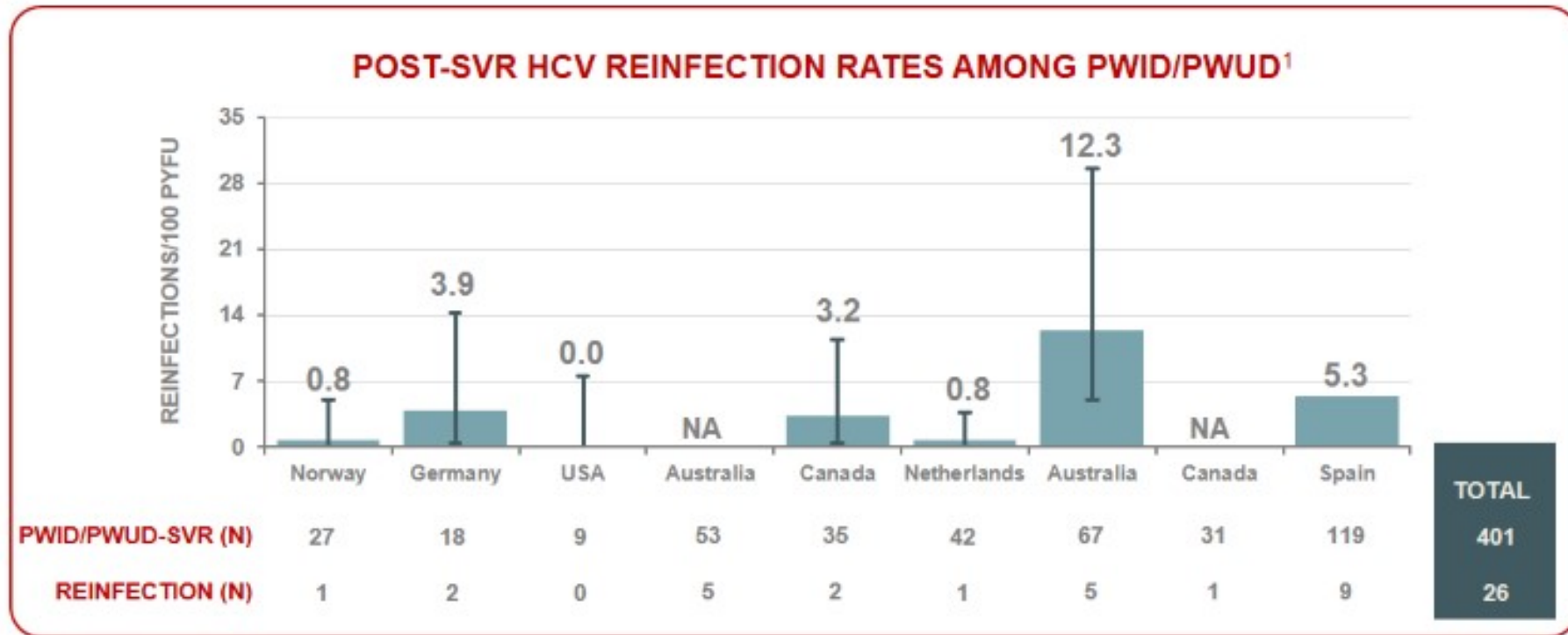
## PWID/PWUD were cured regardless of active injection drug or MAT use.<sup>1-9</sup>

\*Three clinical trials or post-hoc analyses, including one of 301 subjects treated with 1 DAA regimen between September 2, 2014 and December 9, 2014 in 12 countries, Puerto Rico, and the United States; one of 149 subjects (58 with a history of injection drug use) treated with 1 of 2 DAA regimens between September 10, 2012 and April 28, 2016 at multiple international sites; and one of 38 subjects treated with 1 DAA regimen beginning in April 2013 at 8 sites in the United States.<sup>1-3</sup>  
<sup>b</sup>Six real-world studies, including one of 291 patients (256 with a history of injection drug use, and 134 with drug use within ≤6 months of enrollment) treated with 1 of 5 DAA regimens between March 2014 and December 2017 at a Canadian clinic; one of 138 patients (103 with a history of injection drug use) treated with 1 of 5 DAA regimens between October 2015 and October 2017 at a Canadian clinic; one of 53 patients (45 with active injection drug use within ≤30 days) treated with 1 of 7 DAA regimens between June 2014 and December 2016 at a clinic in New York City; one of 50 Swiss patients (6 with illegal intravenous drug use) treated with DAAs between October 2014 and January 2017; one of 173 Scottish patients (129 with history of intravenous drug use) treated with 1 of 3 DAA regimens prior to September 30, 2016; and one of 50 French patients (6 with opioid injection use) treated with 1 of 5 DAA regimens from 2014 on.<sup>4-9</sup>

1. Dore GJ, et al. *Ann Intern Med*. 2016;165(9):625-634. 2. Grebely J, et al. *Lancet Gastroenterol Hepatol*. 2018;3(3):153-161. 3. Lalezari J, et al. *J Hepatol*. 2015;63(2):364-369. 4. Alimohammadi A, et al. *Open Forum Infect Dis*. 2018;5(6):ofy120. 5. Nouch S, et al. *Int J Drug Policy*. 2018;59:76-84. 6. Eckhardt BJ, et al. *Open Forum Infect Dis*. 2018;5(4):ofy048. 7. Scherz N, et al. Presented at: EASL, The International Liver Congress™ 2017, April 19-23, 2017; Amsterdam, The Netherlands. Poster SAT-245. 8. Boyle A, et al. Presented at: EASL, The International Liver Congress™ 2017, April 19-23, 2017; Amsterdam, The Netherlands. Poster THU-214. 9. Trabut JB, et al. *J Addict Med*. 2018;12(5):346-352.

ITT=intention-to-treat, SVR12=sustained virologic response at 12 weeks after the end of treatment.

## Reinfection rates among PWID/PWUD are generally low



▶ The rate of reinfection in the PWID population (2.4/100 PY) is lower than the rate of incident HCV infection in the general population of PWID (6.1 to 27.2/100 PY).<sup>2</sup>

1. Cunningham EB, et al. *Nat Rev Gastroenterol Hepatol*. 2015;12(4):218-230. 2. AASLD/IDSA HCV Guidance. <http://www.hcvguidelines.org>. Updated May 24, 2018. Accessed August 24, 2018.

NA=not available; PYFU=person-years of follow-up.



## HCV care continuum<sup>1-3</sup>



**A successful HCV care continuum for PWID requires strategies to improve HCV diagnosis, link infected persons with HCV care, increase treatment initiation, and increase viral cure.<sup>1</sup>**

1. Grebely J, et al. *Int J Drug Policy*. 2015;26(10):893-898. 2. Meyer JP, et al. *Int J Drug Policy*. 2015;26(10):922-935. 3. AASLD/IDSA HCV Guidance. <http://www.hcvguidelines.org>. Updated May 24, 2018. Accessed August 24, 2018.

# Chronic HCV patients should be linked to care and treatment

LINKAGE TO CARE

*“Ideally, treatment of HCV-infected PWID should be delivered in a multidisciplinary care setting with services to reduce reinfection risk and manage the common social and psychiatric comorbidities in this population.”*  
—AASLD/IDSA Recommendations for Testing, Managing, and Treating Hepatitis C<sup>1</sup>

## Current Care Pathway



### Referral

- Referral to an experienced HCV clinician<sup>1</sup>
- Multidisciplinary approach to treatment has the potential to mitigate barriers to HCV care<sup>1</sup>

## Alternative Care Pathways



### ECHO/Telehealth

- Delivers service to underserved populations<sup>2</sup>
- Links specialists to communities, including rural populations<sup>2</sup>
- Similar safety and efficacy to non-telehealth settings for patients with HCV<sup>3,4,a</sup>



### Co-located or Integrated Care

- Reduce loss to follow-up<sup>1</sup>
- Increase access to treatment<sup>1</sup>

<sup>a</sup>HCV treatments were Peg-IFN + RBV-based therapies (pre-DAA). Treatment duration was 48 weeks for GT 1 and GT 4; 24 weeks for other GTs. Studies used SVR24 as their primary endpoint.

1. AASLD/IDSA HCV Guidance. <http://www.hcvguidelines.org>. Updated May 24, 2018. Accessed August 24, 2018. 2. University of New Mexico. <http://echo.unm.edu/about-echo/model/>. Accessed April 23, 2017. 3. Arora S, et al. *N Engl J Med*. 2011;364(23):2199-2207. 4. Rossaro L, et al. *Dig Dis Sci*. 2013;58(12):3620-3625.

Peg-IFN=pegylated interferon alfa.



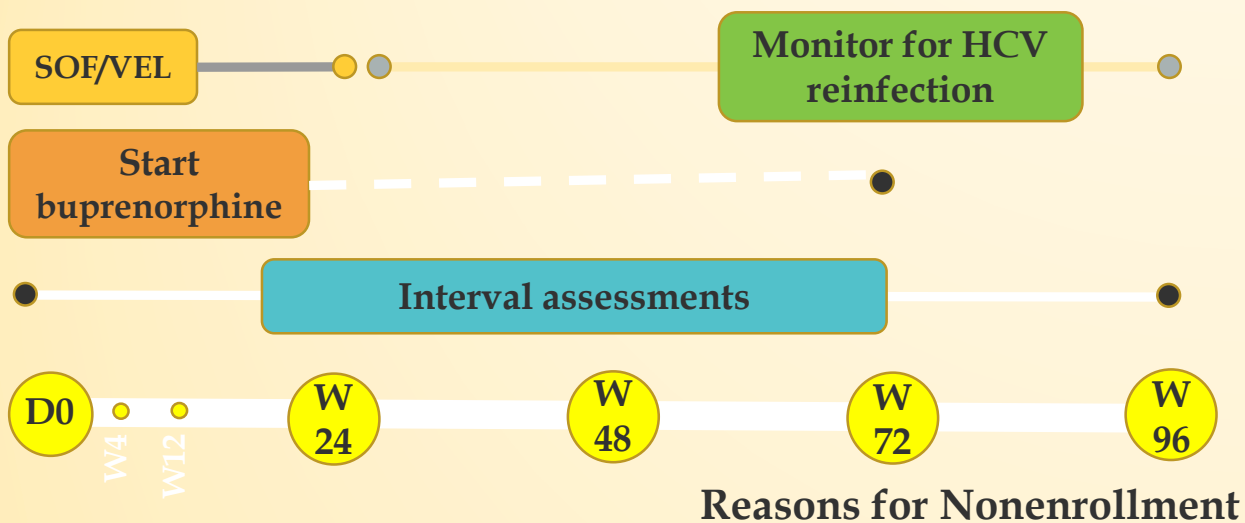
# How to Optimize HIV/HCV Treatment Outcomes Among PWID

## B. Co-Location of Services

- Co-location of mental health, substance use, social work, and pharmacy services in single venue
- HIV opioid users more likely to use buprenorphine if administered at parent HIV clinic
- HIV/HCV receiving psychiatric care at parent clinic makes adherence, compliance with visits and medication better
- Patient navigators help to guide patients with IDU, homelessness, alcohol use, mental health to better treatments with HIV/HCV

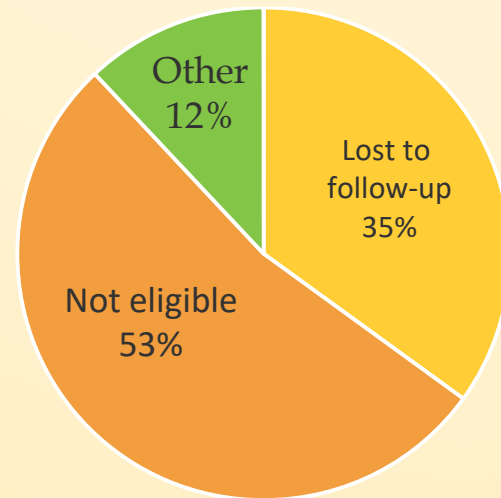


# Co-located Treatment of HCV + Opiate Use Disorder



- 160 patients screened
- 100 patients enrolled

- 19 HCV RNA not detected
- 5 medical disease 4 no active IDU
- 1 no venous access
- 2 other



	Total Cohort n=100
Median age, years (IQR)	57 (53–62)
Male, n (%)	76 (76)
Black race, n (%)	93 (93)
Cirrhosis, n (%)	33 (33)
Unstably housed, n (%)	51 (51)
Prior incarceration, n (%)	92 (92)
No income source of government benefits only, n (%)	92 (92)
Injects opioids daily or more, n (%)	58 (58)
Medication assisted treatment	33 (33)
Receptive sharing of opioid injection equipment within 3 months, n (%)	29 (29)
Hazardous drinking (AUDIT-C), n (%)	40 (40)