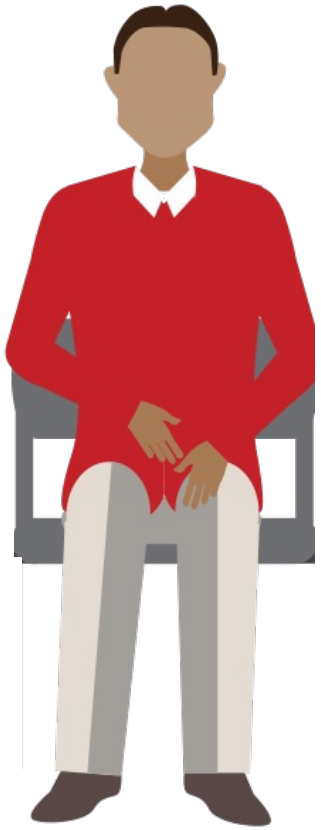
Evaluation of Infectious Diseases in People with SUD:

Jorge Mera, MD
Director, Infectious Diseases
Cherokee Nation Health Center

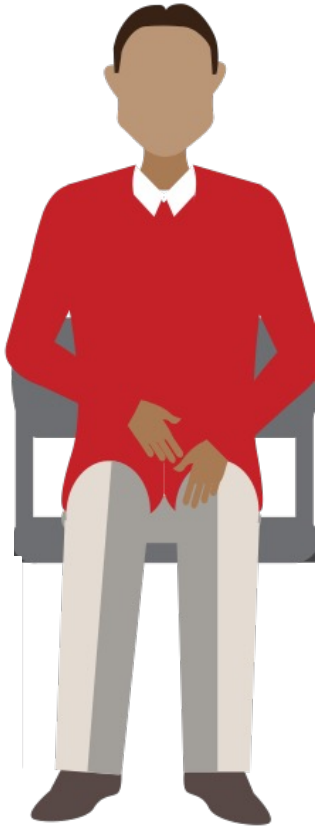
Providers have the Power

Clinical Case: Mr. S



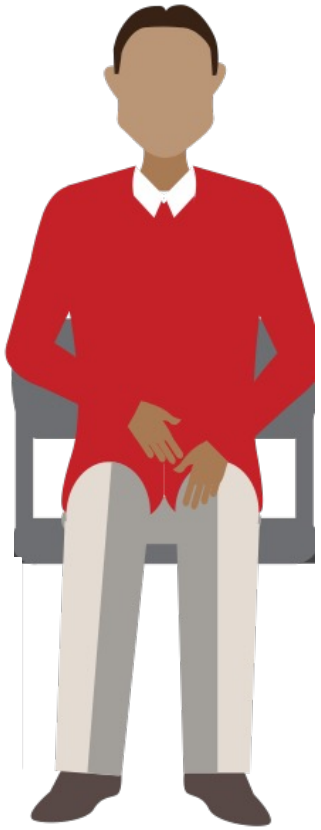
Mr. S is a 24-year-old AI/AN male who suffered a right femur fracture (MVA) 6 years ago. Unfortunately, **pain management training or policies were not available** in the institution, and he was discharge from the hospital with oxycodone hydrochloride for pain control.

Clinical Case: Mr. S



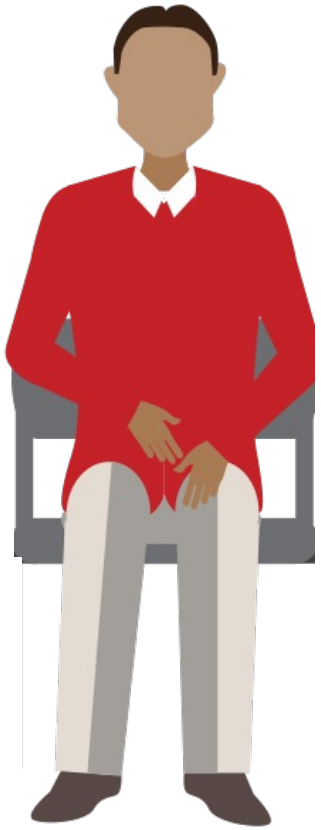
Two years ago, his new medical provider refused to refill the oxycodone. Unfortunately, **the provider was not trained in screening for SUDs. Nor did he have an MAT waiver.** The patient then turned to his friends who gave him oxycodone, but later he had to purchase it in the streets.

Clinical Case: Mr. S



One year ago, he started injecting heroin since it was cheaper. Unfortunately, **SSPs are not available** where he lives, and he has been sharing needles and syringes.

Clinical Case: Mr. S



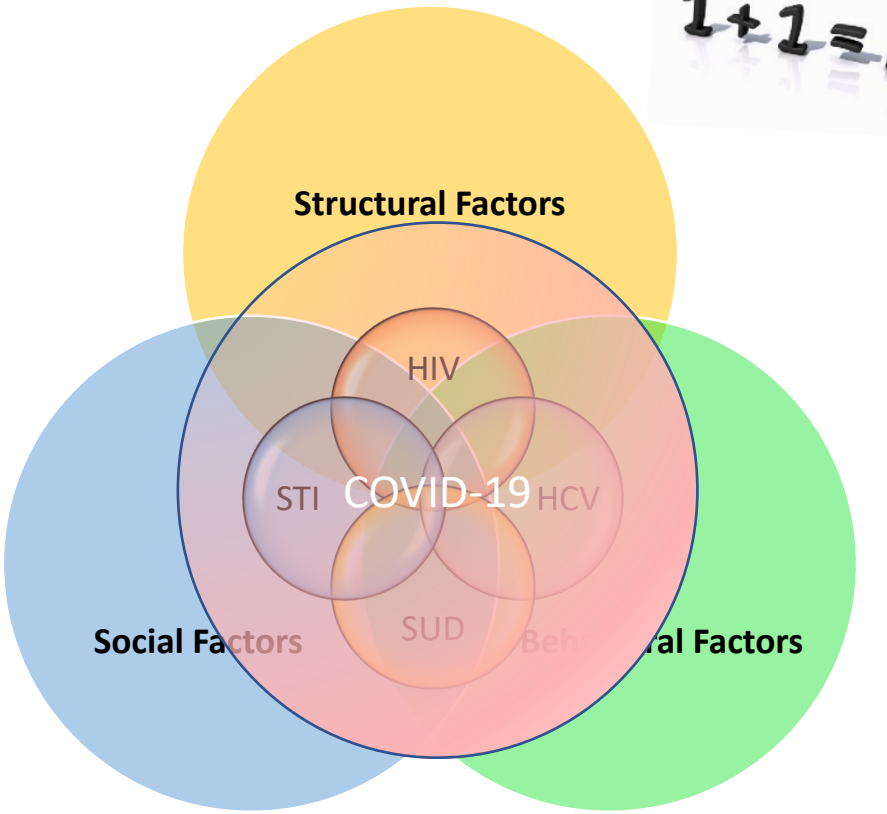
Three days ago, he **presented to the ED with opioid withdrawal symptoms** (nausea, vomiting, diarrhea, restlessness, abdominal pain)

What Should an You Do For Mr. S ?

Syndemic Theory

Core principles:

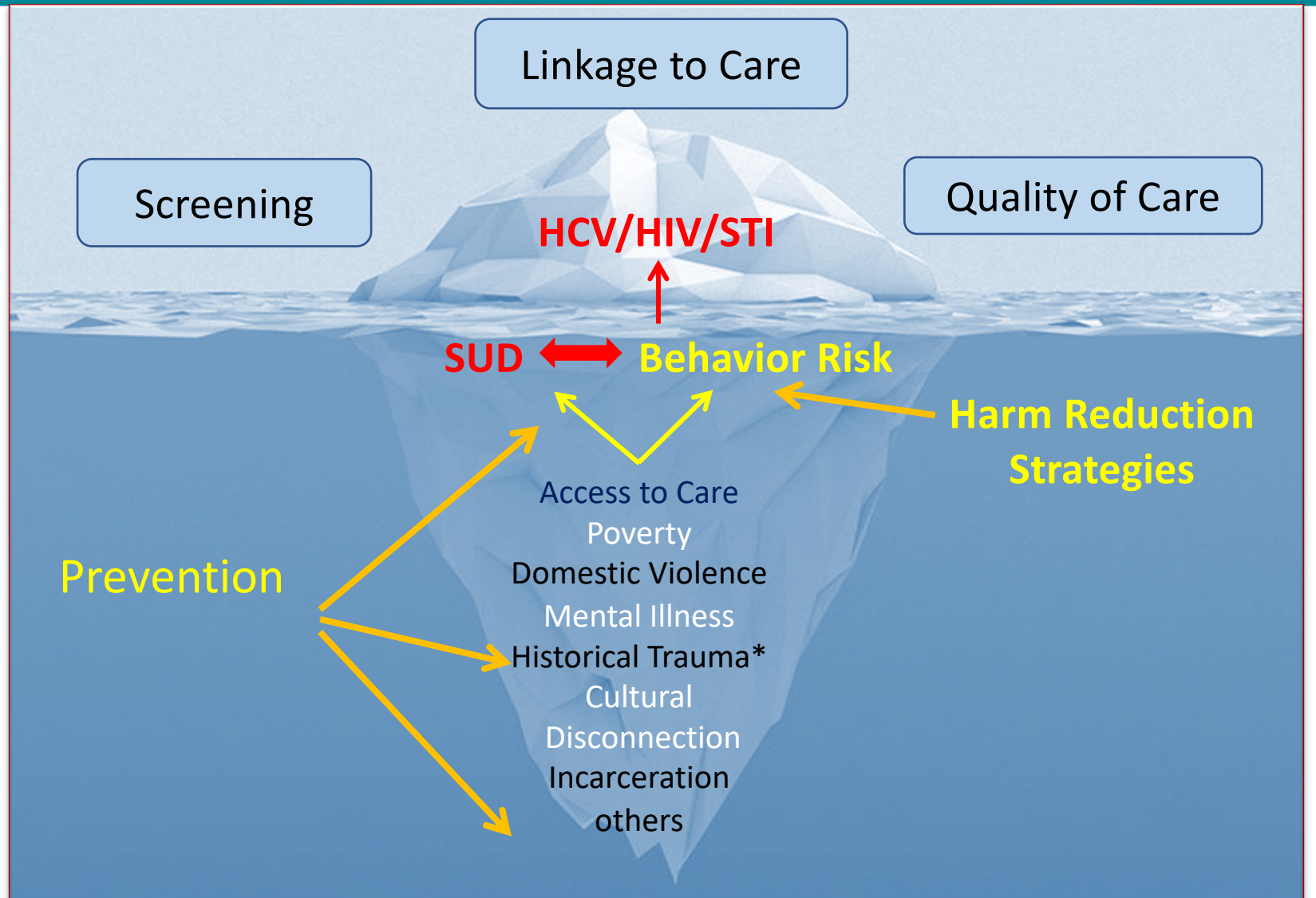
- Clustering of two or more conditions in a population
- Synergism produces an excess burden of disease
- Precipitation and propagation by large scale behavioral, structural, and social forces



Singer, M. and Clair, S. (2003), Syndemics and Public Health: Reconceptualizing Disease in Bio-Social Context. Medical Anthropology Quarterly, 17: 423-441. https://doi.org/10.1525/maq.2003.17.4.423

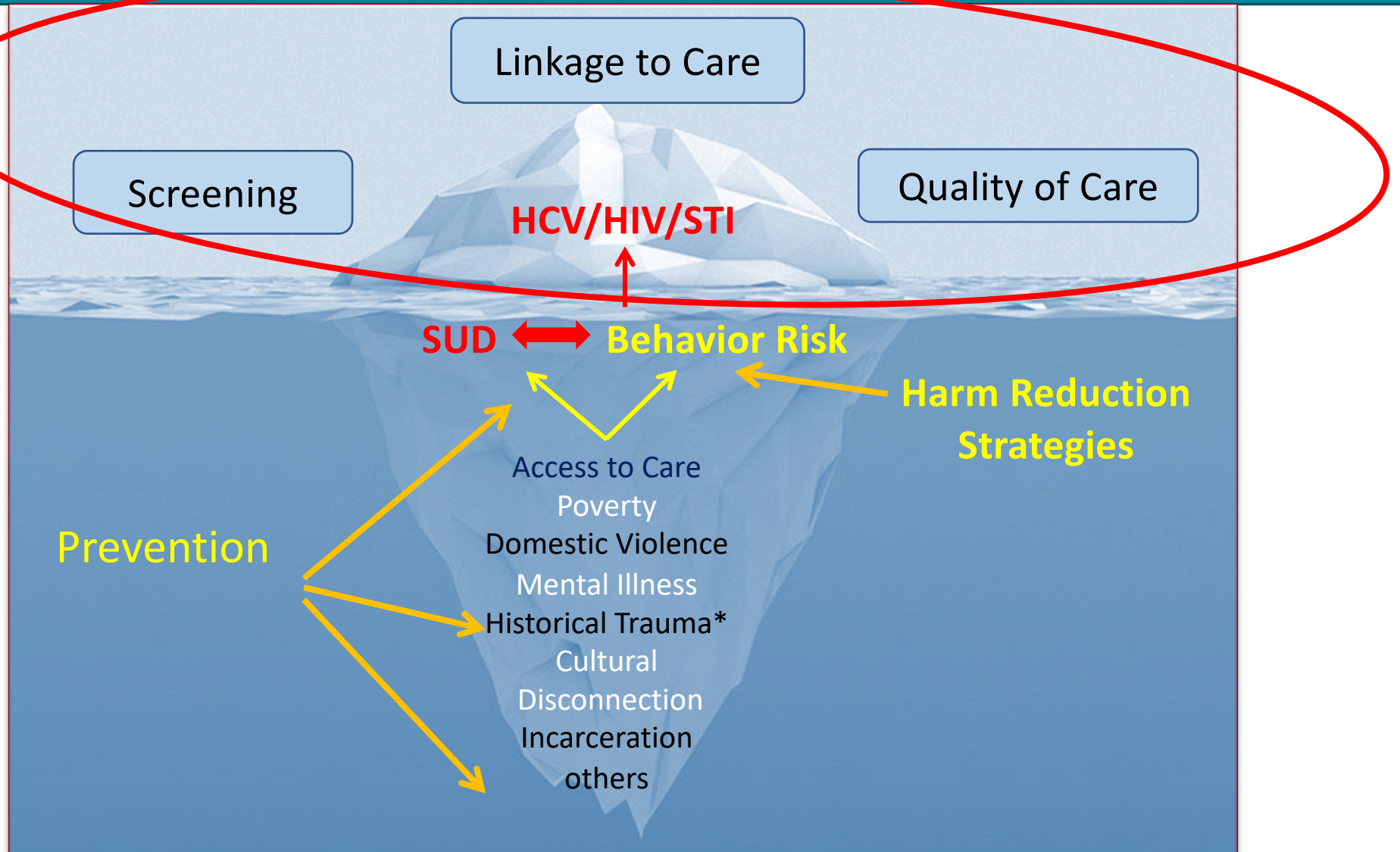
HIV: Human Immunodeficiency Virus
HCV: Hepatitis C virus
SUD: Substance Use Disorder

Syndemic



Maria Yellow Horse Brave Heart Journal of Psychoactive Drugs Vol. 35, Iss. 1, 2003

Syndemic



Maria Yellow Horse Brave Heart Journal of Psychoactive Drugs Vol. 35, Iss. 1, 2003

Indiana HIV/HCV Outbreak

From 2004-2013

- < 5 HIV infections reported annually in Austin, Indiana

In late 2014

- 3 new HIV diagnoses in Austin IN, 2 of them had shared needles

By mid-January 2015

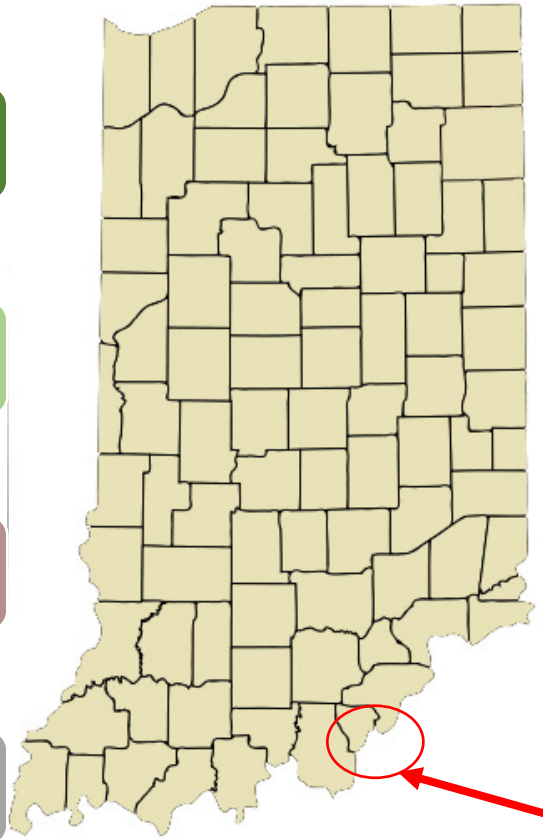
- Through contact tracing ISHD identified 8 more new infections
- The source of infection: Injection of the opioid oxymorphone

As of June 14, 2015:

- 170 new HIV infections and 115 co-infected with HCV in a Community of 4200 people

All epidemiologically linked to Austin, IN

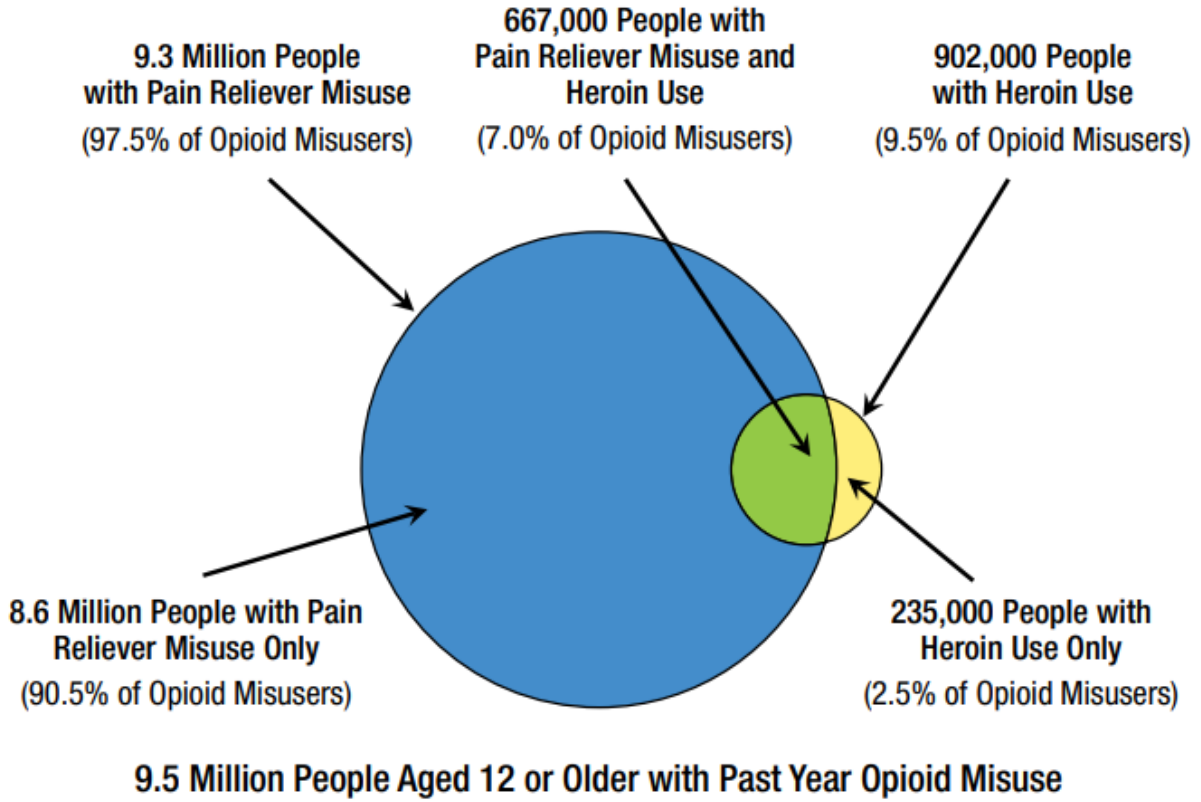
- Infections were recent and from a single HIV strain



Scott County: Among the state's 92 counties, ranked 92nd in a variety of health and social indicators, including life expectancy

Substance Use Disorders in the Past Year, 2020

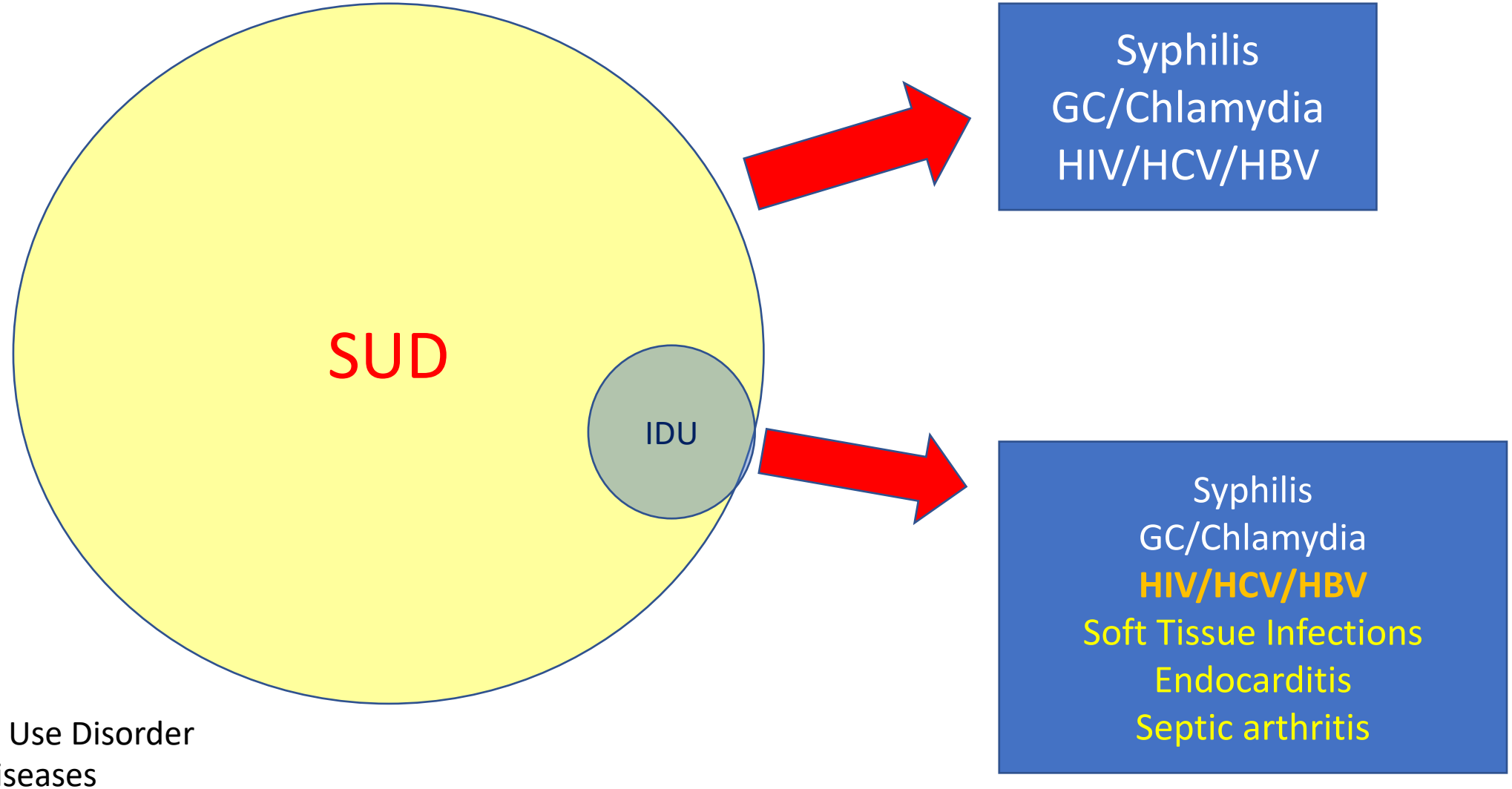
- In 2020, 40.3 (14.5%) million people aged 12 or older had an SUD
  - 28.3 million who had alcohol use disorder
  - 18.4 million who had an illicit drug use disorder
  - 6.5 million people who had both
- Young adults also were more likely than adolescents or adults aged 26 or older to have had at least one illicit drug use disorder in the past year



Past Year Opioid Misuse: Among People Aged 12 or Older; 2020

Key Substance Use and Mental Health Indicators in the United States: Results from the 2020 National Survey on Drug Use and Health. HHS Publication No. PEP21-07-01-003 2021

The Intersection of SUD and ID

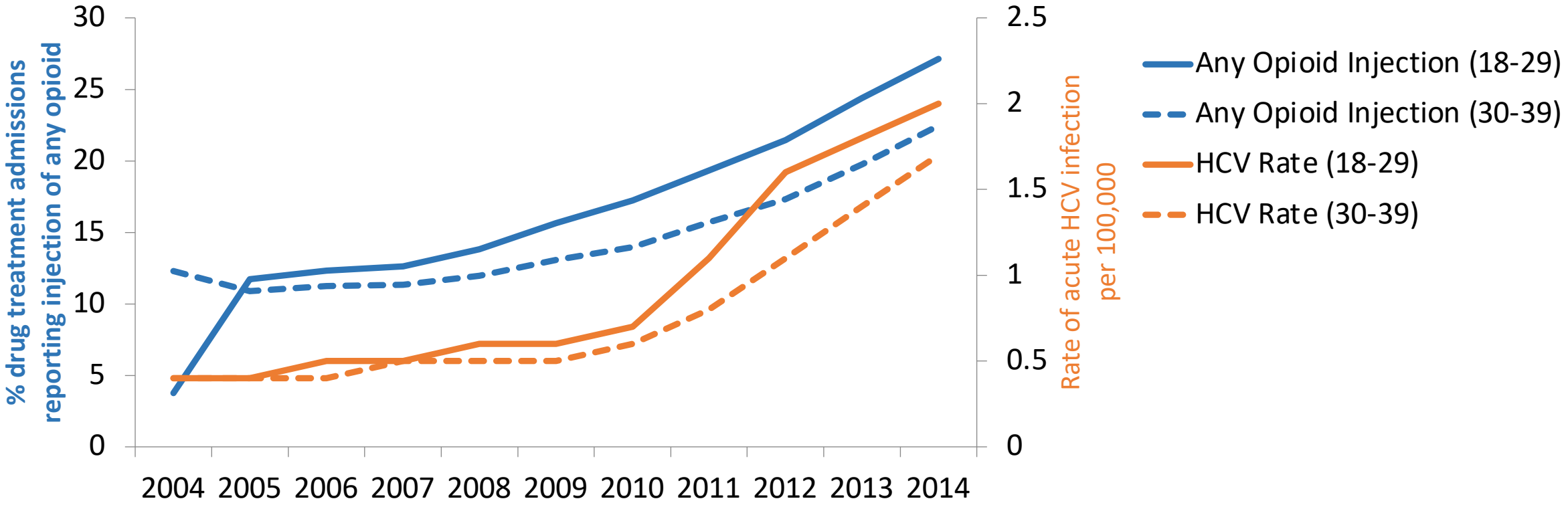


SUD: Substance Use Disorder
ID: Infectious Diseases

HIV, HCV, STIs, Drug Use Among AI/AN

- Among AI/AN women
  - 48% of HIV diagnosis are attributable to injection drug use
- Syphilis rates rapidly increasing
  - Exacerbates HIV transmission
- Drug use is increasing nationwide and in Indian Country
- AI/AN have greatest rates of new HCV diagnoses
  - Over 2x national rate of HCV-related mortality
  - Rates are decreasing with greater availability of treatment

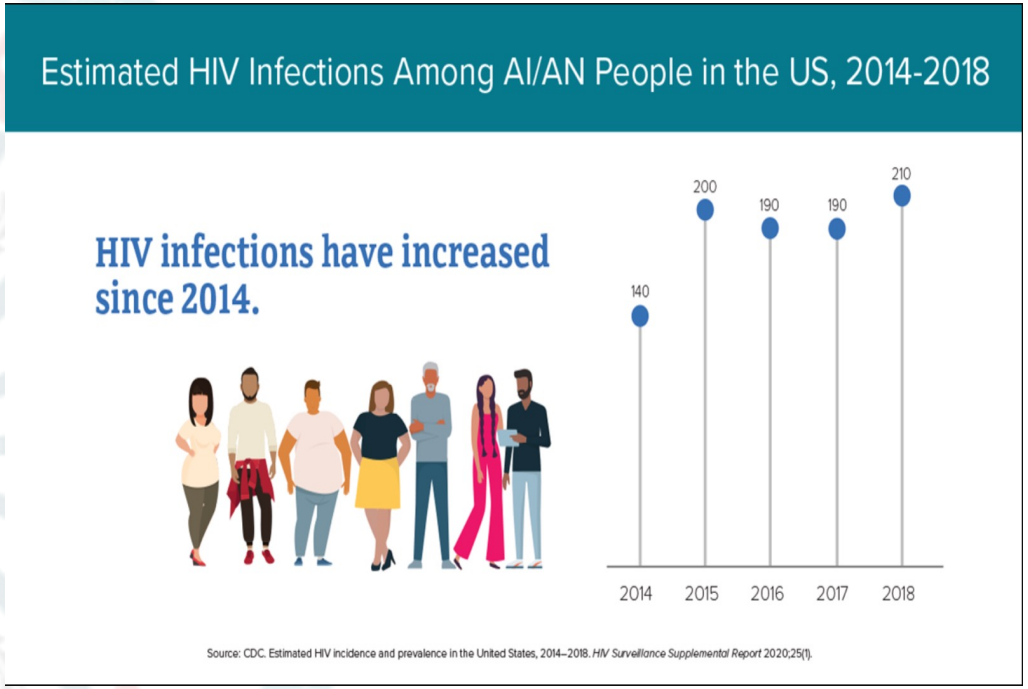
Rates of HCV Infections are Rising Among Younger PWIDs

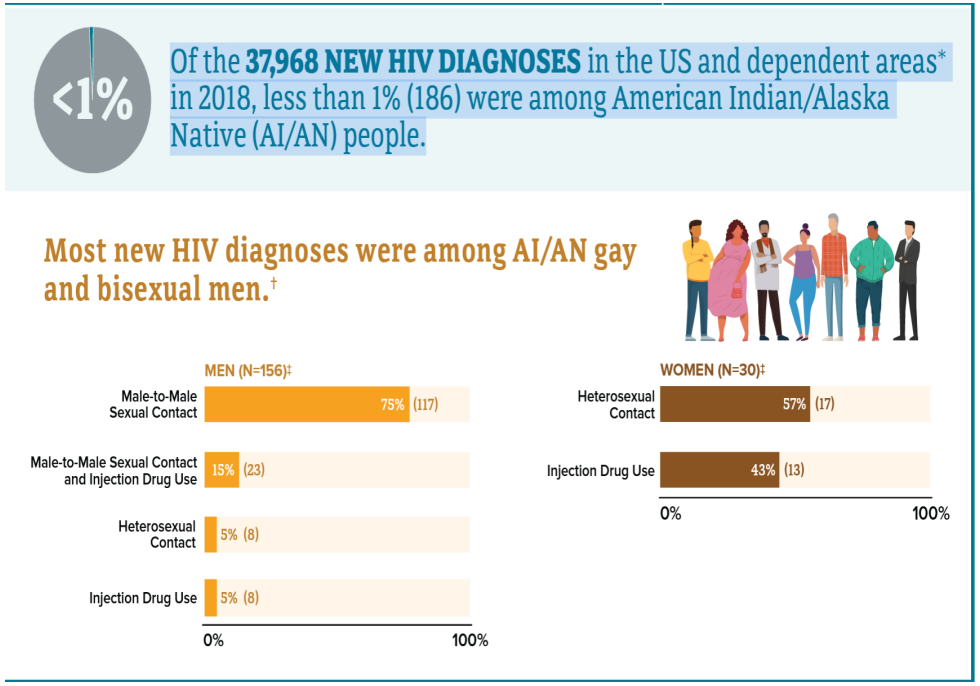


- Among people aged 18-29, HCV increased by 400% and admission for opioid injection by 622%[1]
- Among people aged 30-39, HCV increased by 325% and admission for opioid injection by 83%[1]
- HCV seroprevalence among PWIDs is ~55% in North America[2]

1. Zibbell JE, et al. *Am J Public Health.* 2018 Feb;108(2):175-181;
2. Degenhardt L, et al. *Lancet Glob Health* 2017;5:e1192-e1207.

HIV in American Indian/Alaska Native Populations





- In the U.S. in 2018, both male and female AI/AN had the highest percent of estimated diagnoses of HIV infection attributed to injection drug use, compared with all races/ethnicities.
- Among men, 15% (23) of new HIV diagnoses were attributed to injection drug use, and 11% (21) were attributed to both male-to-male sex and injection drug use.
- Among women, 43% (13) of new HIV diagnoses were attributed to injection drug use.

Infectious Diseases Associated with Substance Use Disorders

- **Viral infections (bloodborne)**
  - Hepatitis C Virus (HCV)
  - Hepatitis B Virus (HBV)
  - Hepatitis A Virus (HAV)
  - HIV
- **STI's**
  - GC/Chlamydia
  - Syphilis
  - HIV/HCV/HBV
- **Bacterial Infections (soft tissue/skin)** [4]
  - Bacteremia
  - Cellulitis
  - Abscesses (staph, strep)
  - Endocarditis
  - Necrotizing fasciitis
  - Wound botulism

- Before 2020, Hepatitis C was the leading cause of death among all infectious diseases in the USA [1]
- The CDC estimates 57,500 acute HCV cases in the US in 2019 [1]
- IDU is currently the most common risk factor for HCV in developed countries (60-80% worldwide) [3]

1. Centers for Disease Control and Prevention, 2019. https://www.cdc.gov/hepatitis/hcv/index.htm
2. Centers for Disease Control and Prevention, 2018. https://www.cdc.gov/nchhstp/newsroom/2018/hepatitis-c-prevalence-estimates.html
3. Nelson, et al. 2011. https://www.ncbi.nlm.nih.gov/pubmed/21802134/
4. Collier, M., et al. 2018. https://link.springer.com/article/10.1007%2Fs10900-017-0458-9

National HIV & Hepatitis Overview

- Injection Drug Use accounts for
  - ~9% of new HIV cases [1]
  - Over 65% of HCV cases [2]
- Among people who inject drugs
  - 60%-90% have HCV after 5 years
  - Each year ~ 20-30% of PWID acquire HCV [3]
- Comorbidity
  - Among PWID and have HIV, 75% also have HCV
  - Among PLWHIV w/o IDU, 25% have HCV [4]

Life time cost of <u>each</u> HIV infection is over $380,000 [5]

<u>Accumulated</u> costs of HCV care over the next 20 years on this trajectory over $78 billion [6]

1.Centers for Disease Control and Prevention, 2017. HIV Surveillance Report, https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2017-vol-29.pdf
2. Centers for Disease Control and Prevention, 2016, Surveillance for Viral Hepatitis – United States, 2016. https://www.cdc.gov/hepatitis/statistics/2016surveillance/index.htm
3. Grebely, J. et al. 2011. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3072734/
4. Centers for Disease Control and Prevention, 2017. HIV and Viral Hepatitis. https://www.cdc.gov/hiv/pdf/library/factsheets/hiv-viral-hepatitis.pdf
5. Centers for Disease Control and Prevention, 2017. https://www.cdc.gov/hiv/programresources/guidance/costeffectiveness/index.html
6. National Academies of Sciences, Engineering, and Medicine, 2017. https://www.nap.edu/read/24731/chapter/8

Infections in People with SUD: Interventions

Prevention

- Vaccination
- HIV PEP
- HIV PrEP
- SSP
  - 200 syringes per IDU/year
- MAT

Diagnosis

- Baseline and Periodic infectious disease screening

SUD: Substance Use Disorder, SSP: Syringe Service Programs, IDU: Injection Drug User, MAT: Medication Assisted Treatment

1st Encounter with People with SUD: Focus on the Reason for the Visit but Obtain Labs

Evaluate for HIV PrEP	Physical Exam	Laboratory evaluation	Review Vaccines
• Sexual History • Injection Drug Use? • Sharing equipment? • Sex when using drugs? • Condom use?	• Soft tissue exam • Cardiac Murmurs	• Hepatitis A • Hepatitis B • HCV • HIV • Syphilis • GC/Chlamydia	• HPV • Hepatitis A and B • Pneumococcal • TdAP • Shingles • COVID-19 • Influenza • Monkey Pox • COVID-19

2nd Encounter with People with SUD: Review Labs and Act!!!

Test	Result	Interpretation	Action
Hepatitis B	HBsAb (-), HBsAg (-), HBcAb (-)	Never exposed	Vaccinate
	HBsAb (+), HBsAg (-), HBcAb (-)	Immune	None needed
	HBsAb (-), HBsAg (+), HBcAb (+)	Active Infection	Consult ID*
	HBsAb (-), HBsAg (-), HBcAb (+)	Isolated HB core Ab	Consult ID
Hepatitis C	Positive HCV Ab	Possible current infection	Order HCV RNA
	Positive RNA	Current Infection confirmed	Treat or refer
Hepatitis A	Total Ab (+)	Immune	Non needed
	Total Ab (-)	Not immune	Vaccinate
Chlamydia	Reactive	Active Infection	Treat*
Gonorrhea	Reactive	Active Infection	Treat*
Syphilis	Reactive	Active Infection	Stage and Treat *

ID: Infectious Diseases
* Evaluate for HIV PrEP

How often should labs be ordered in PWID?

Test	Result
Hepatitis C	Most guidelines recommend once a year but may be more frequent
Hepatitis A	Once, if negative vaccination should be offered
Hepatitis B	Once, if negative vaccination should be offered If chronic HBV present refer to specialist
GC/Chlamydia/Syphilis	Every 6 months if they are on PrEP and anytime unprotected sexual exposure is reported

PWID: People Who Inject Drugs

Infectious Endocarditis in PWID

The incidence of IE among PWID increased >12-fold over a 5-year period

- IDU-associated IE have worse outcomes compared to non-IDU-associated IE
- Anecdotal evidence suggests that surgeons are hesitant to operate on PWID who develop endocarditis due to poor long-term outcomes, recurrent substance use and limited linkage to care

A major contributor to the increase in invasive bacterial infections

- Is the increasing prevalence of fentanyl and other short-acting synthetic opioids.

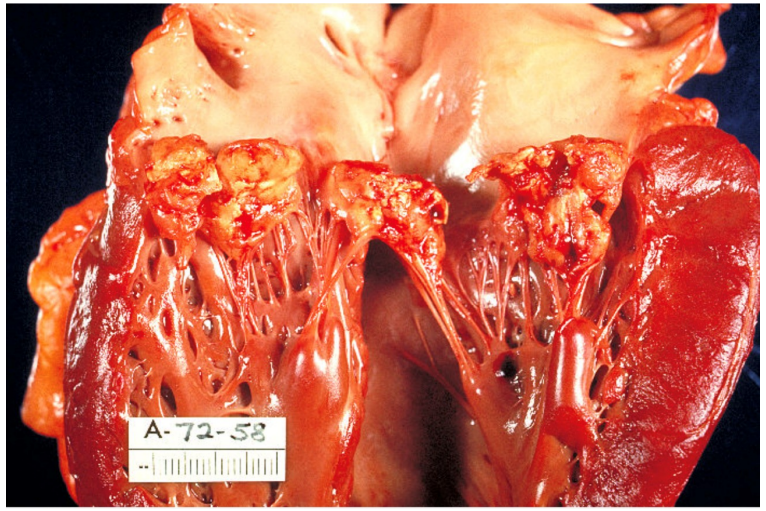
Fentanyl use is associated with higher injection frequency and with increased rates of receptive needle and syringe sharing

- 6-10 injections per day as compared with 3-4 with heroin

Higher frequency of injection represents

- An additional at-risk moment for transmission of infection
- Leads to higher rates of needle reuse
- Infectious risk is additionally increased if paraphernalia is shared between individuals.

Harvey L, Boudreau J, Sliwinski SK, et al. Open Forum Infect Dis. 2022 Jan 6;9(2):ofab631



https://phil.cdc.gov/Details.aspx?pid=851

Preventing Infectious Endocarditis

Harm reduction strategies are important tools for preventing infections in PWID.

- These include SSPs, safe injection facilities, immunizations, skin cleaning and safe injection strategies, and HIV PrEP

Safe injection techniques can reduce incidence of infectious endocarditis by over 90%,

- Significantly higher than is achievable with a reduction in injection frequency alone.

SSPs reduce disease transmission by

- Decreasing the rate of needle and syringe sharing
- Reducing needle reuse and the length of time that used injection materials are in circulation

SSP only work to decrease transmission if:

- The majority of IDU have access to them
- Enough needles and syringes are dispensed per user (200/IDU/year)

Harvey L, Boudreau J, Sliwinski SK, et al. Open Forum Infect Dis. 2022 Jan 6;9(2):ofab631

Six Moments of Infection Prevention in Injection Drug Use: An Educational Toolkit for Clinicians

Based on the The Five Moments for Hand Hygiene developed by the WHO's *Guidelines on Hand Hygiene in Health Care*

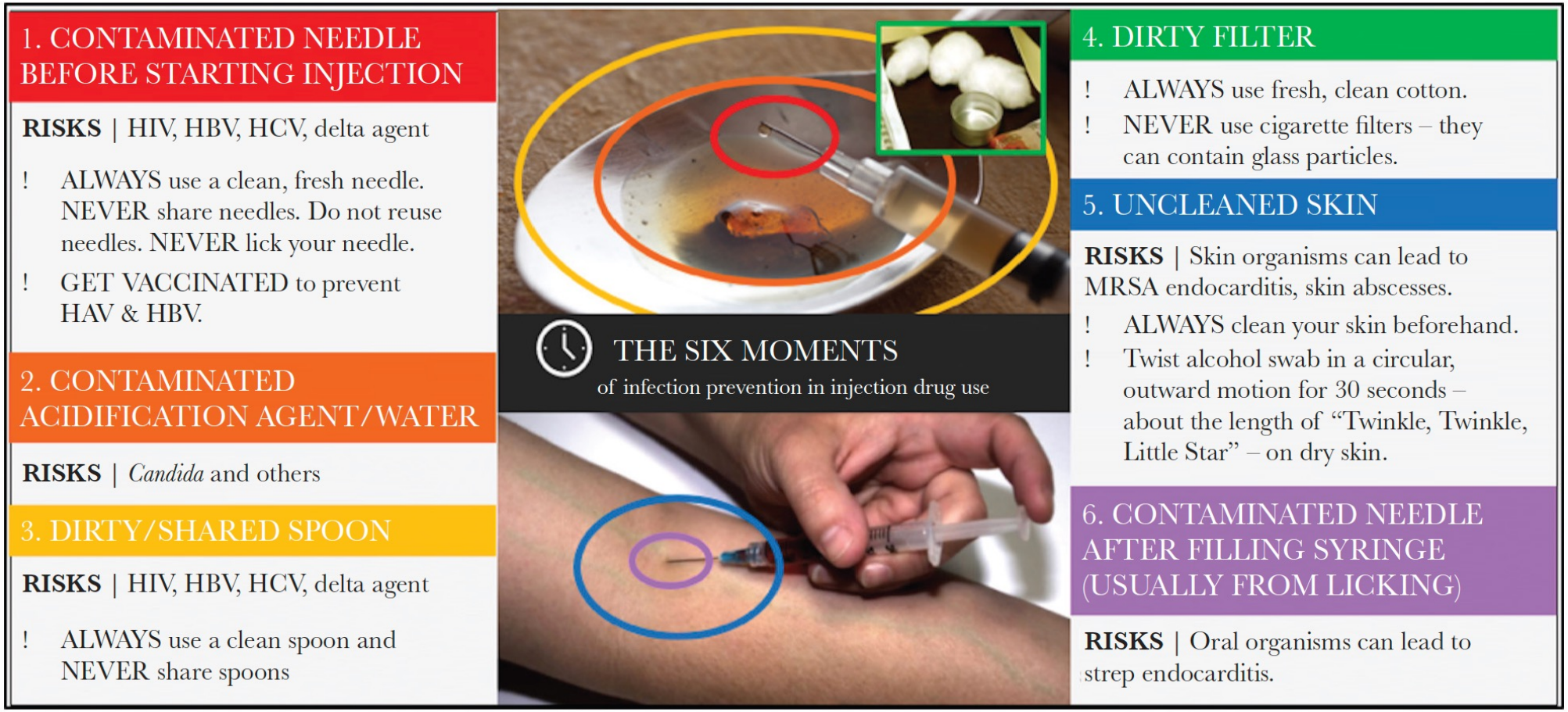
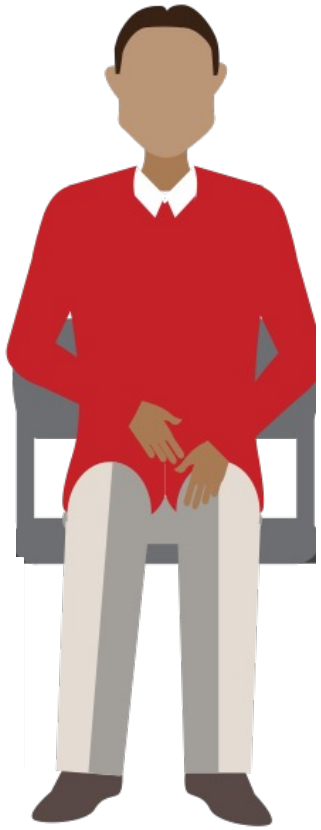


Figure 1. Six Moments of Infection Prevention in Injection Drug Use Model. Abbreviations: HAV, hepatitis A virus; HBV, hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus; MRSA, methicillin-resistant *Staphylococcus aureus*.

Harvey L, Boudreau J, Sliwinski SK, et al. Open Forum Infect Dis. 2022 Jan 6;9(2):ofab631

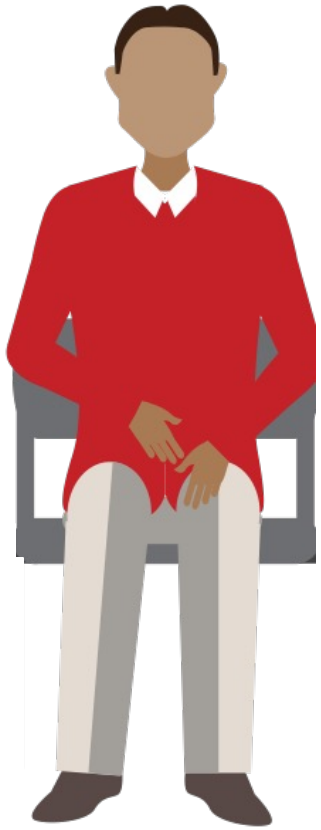
Clinical Case: Mr. S



Three days ago, he **presented to the ED with opioid withdrawal symptoms** (nausea, vomiting, diarrhea, restlessness, abdominal pain). Fortunately, **the ED medical provider was trained in SUD management** and induced him with Buprenorphine/Naloxone and gave him a 3-day prescription, enough until he could be evaluated and placed on MAT.

MAT Training for Primary Care Providers
NWPIHB, 2018

Clinical Case: Mr. S



In addition, **the provider was also trained in screening for STIs, HCV, HIV, and HIV PrEP.** During the ED visit he was screened and tested positive for HCV. HIV and other STIs screens were negative, and he was referred to the Primary Care clinic for HCV treatment, HIV PrEP and and continuation of MAT.

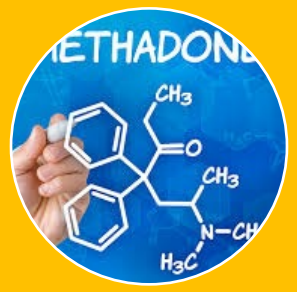
What Can the Healthcare Worker Do for Mr. S?

- Vaccinate him for hep A & B
- Have a MAT license and continue Buprenorphine/Naloxone
- Prescribe HCV treatment
- Educate on safe injection practices
- Refer to syringe service programs

What Can the Health System Do for Mr. S?

HCV/HIV Testing and Treatment

Mental Health Services

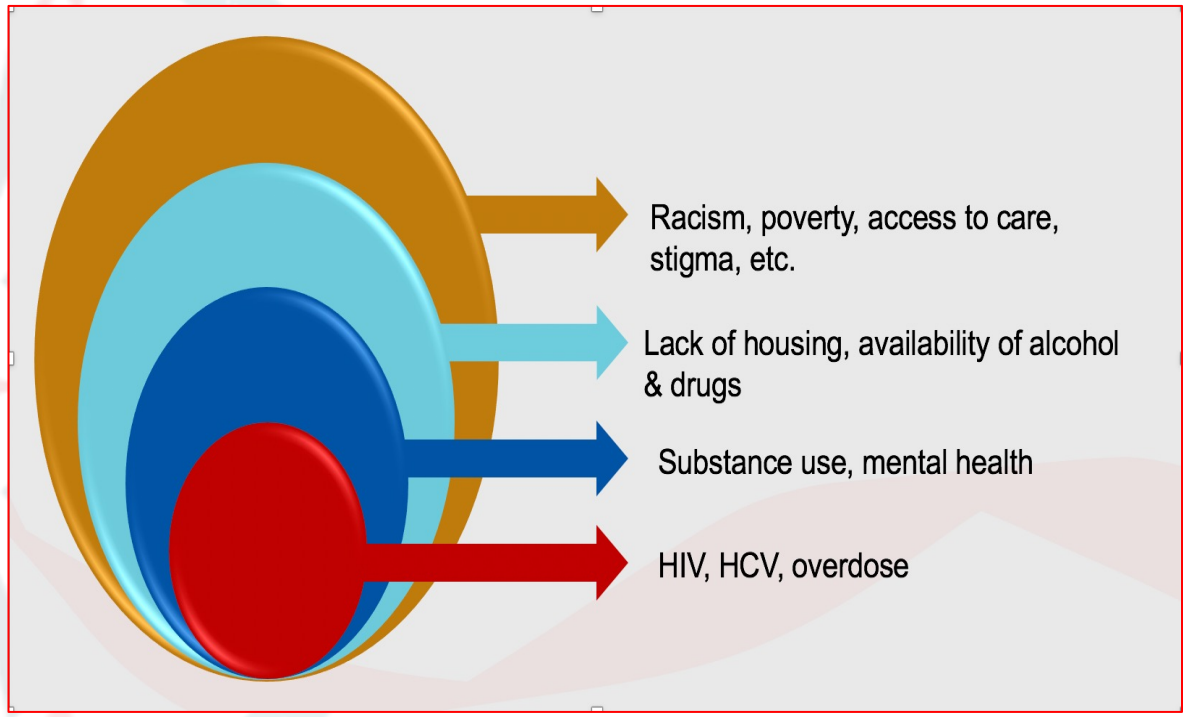


Medication Assisted Treatment

PREP for PWUDs

Naloxone, SSPs & Safer Injection Practices

What Can Society Do For Mr. S?



- Addressing the root of the problem is critical for the elimination of present SUD/HCV/HIV/STI syndemic and the prevention of future ones
- A coordinated approach between society, government, public health will be needed

Priority Populations
People Who Inject Drugs

Actions to Address the Syndemics Among People Who Inject Drugs

- Screening patients for SUDs and mental health disorders
- Testing patients and their sexual or drug-injection partners for HIV, HCV, and STIs
  - With appropriate pre and post-test counseling
- Offering immediate treatment according to established guidelines for patients who test positive

Threading the Needle — How to Stop the HIV Outbreak in Rural Indiana Steffanie A. Strathdee, Ph.D., and Chris Beyrer, M.D., M.P.H. NEJM 373;5 nejm.org July 30, **2015**

Actions to Address the Syndemics Among People Who Inject Drugs

- Providing HBV vaccinations
  - Even one dose can be effective!
- Providing naloxone to opioid users and their families/partners
- Becoming licensed to provide opioid agonist therapy
- Referrals to substance use treatment programs that provide opioid-agonist therapy
- Supporting injection-drug users by providing sterile syringes or referring them to syringe service programs

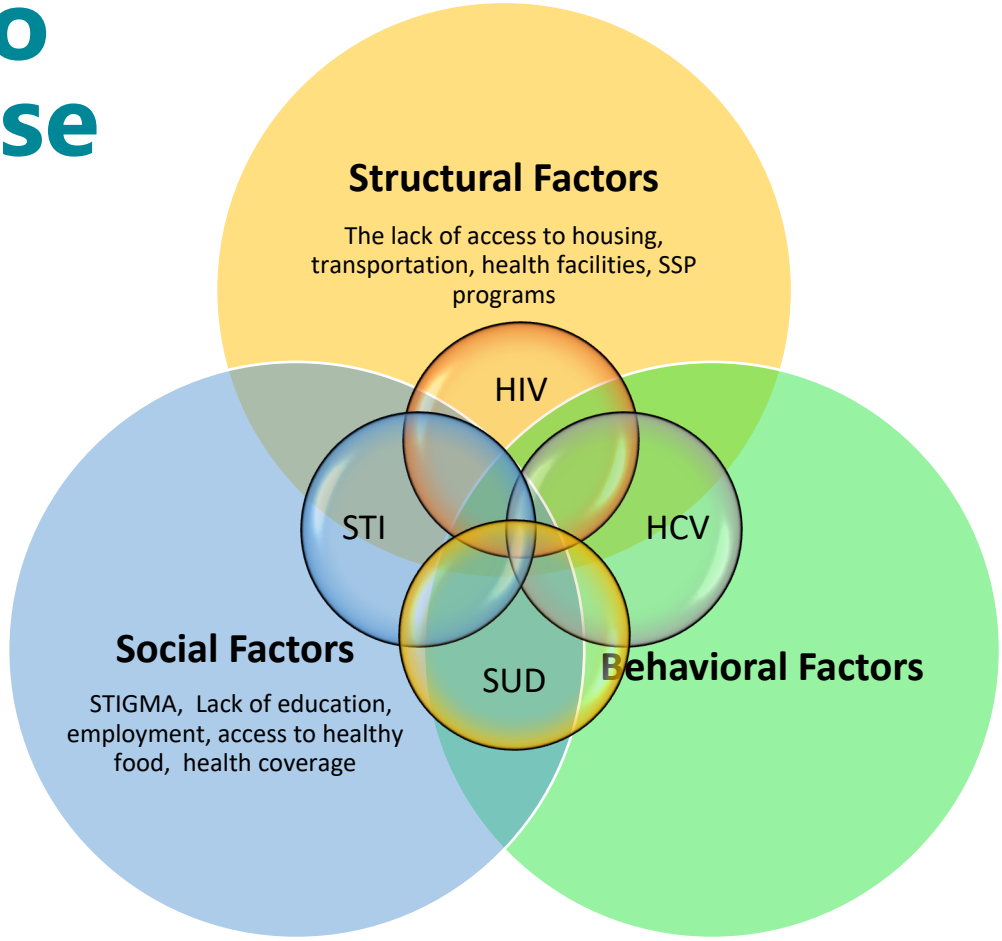
Actions to Address the Syndemics Among People Who Inject Drugs

- Supporting injection-drug users by providing sterile syringes or referring them to syringe service programs
- Supporting legislative reforms to expand Medicaid and allow federal funds to support SSPs
- Using PDMPs in clinical decision making involving opiate prescribing

Recognize and Understand

When people are unable to seek or receive care because of socioeconomic barriers

- Treatable diseases persist at higher rates
- With a higher baseline rate of transmissible infections, it is more likely for the community to be exposed



Conclusions

Ending the syndemic will require a multipronged approach

- SUD services should be integrated into primary care – **barriers for harm reduction should be removed**
- The efficacy of PrEP and HIV treatment has been established – **access for the most vulnerable is critical**
- Syphilis is taking a toll in AI/AN communities – **zero tolerance for congenital syphilis should be the standard**

Primary care providers should be at the forefront of harm reduction, STI, PrEP, HIV, and HCV treatment.

IF THEY ARE NOT, NOBODY WILL BE.

What Is Project ECHO?

https://www.youtube.com/watch?v=93_g4sFTQKg

Questions?

Thank You GV (Wado)

Lets work together to preserve the health of generations of Native people