

Infectious Complications of Injection Drug Use

Colleen Kershaw, MD
 Assistant Professor of Medicine
 Dartmouth-Hitchcock Section of Infectious Disease and International Health

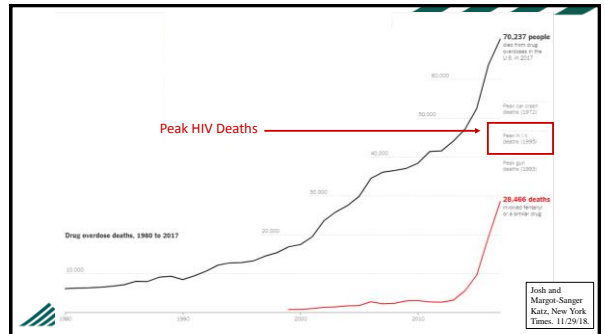


No conflicts of interest to disclose.



Learning Objectives

- Describe common acute and chronic infections associated with injection drug use and recent trends in their epidemiology
- Understand barriers to prevention and treatment of infections in people who inject drugs
- Describe the cascade of care for hepatitis C and challenges to the goal of viral elimination



National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, CDC.

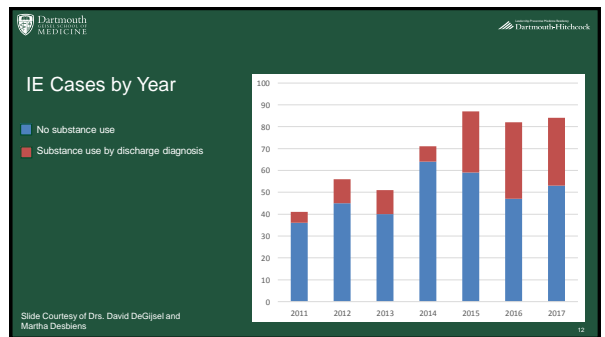
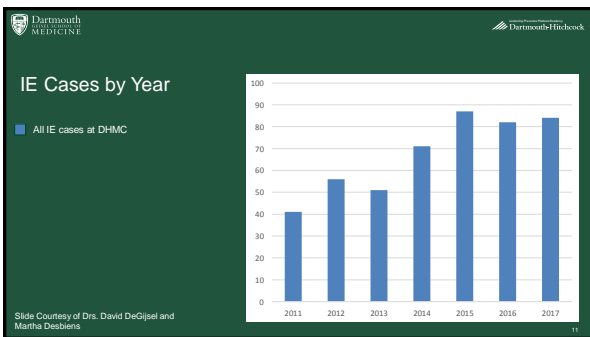
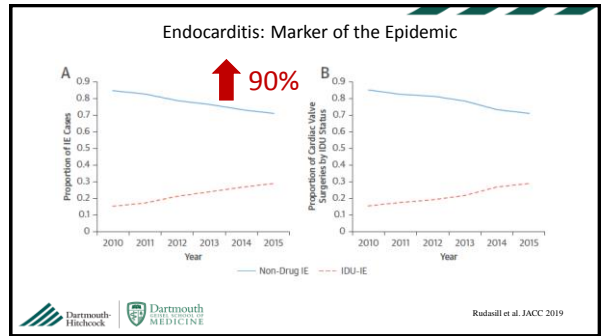
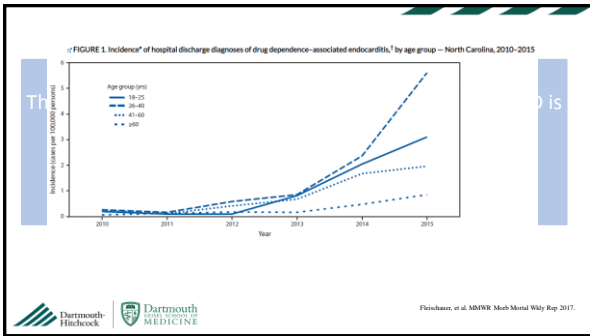
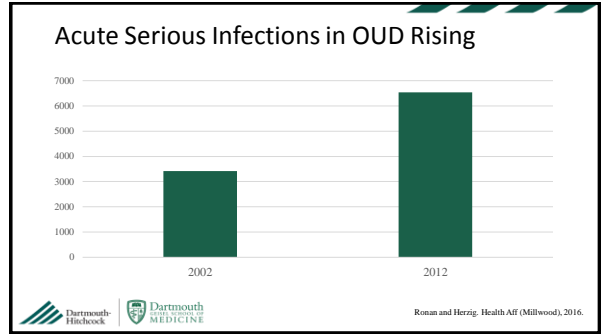
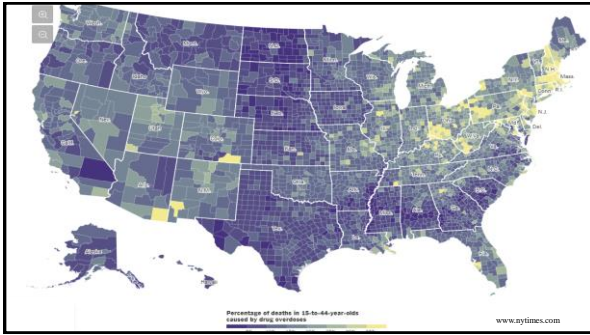
What strategies have you found particularly helpful to providing comprehensive medical management to PWID?

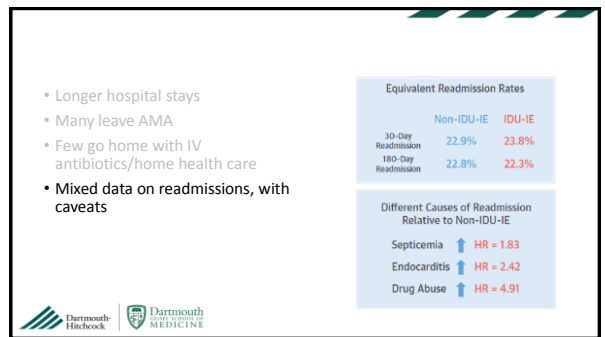
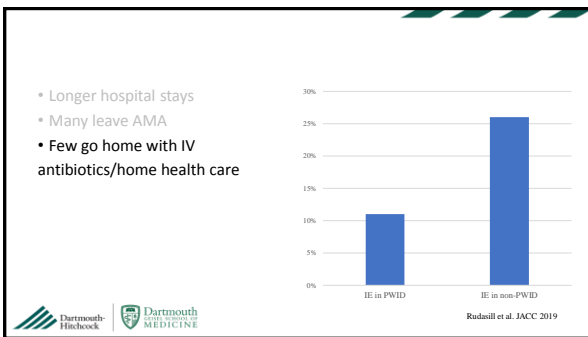
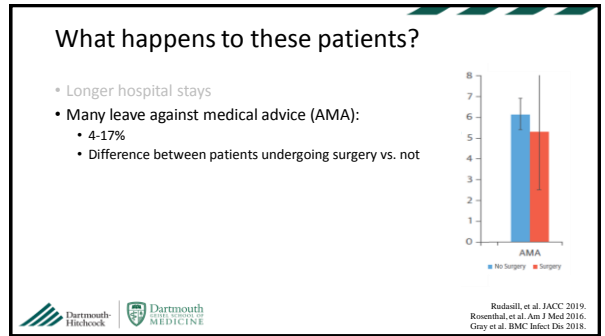
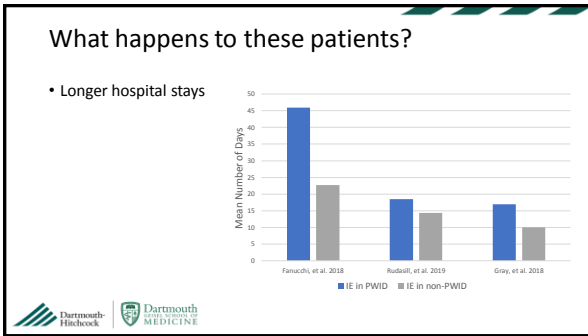
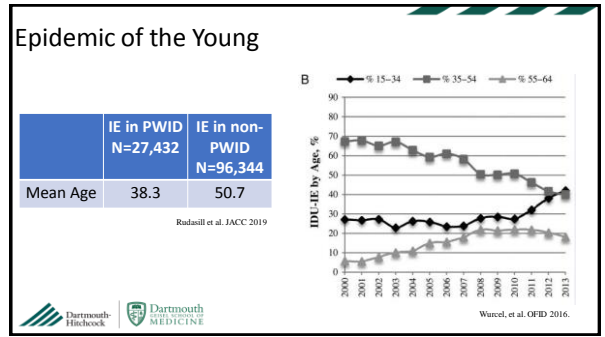
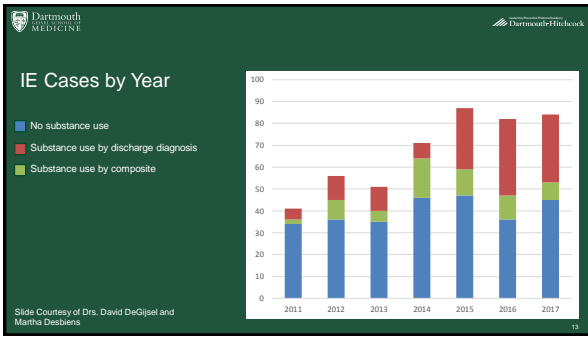


“It sucks, nothing works, I have treated entire addicted families. Thinking of quitting. 50% of my infected inpatients today were heroin related.”



Infectious Diseases Society of America Emerging Infections Network Report for Quality Injection Drug Use (IDU) and Infectious Disease Practice. Courtesy of Christopher Rowley.





What happens to these patients?

- Longer hospital stays
- Many leave AMA
- Few go home with IV antibiotics/home health care
- Mixed data on readmissions, with caveats
- Overall mortality?

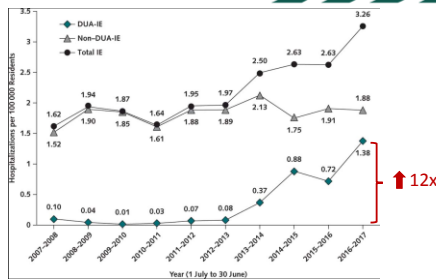


	N	Mortality	Comparison to non-PWID
BIDMC ¹ 2004-2014	102	25.5% (during study period 10yrs)	
UVA ² 2006-2016	76	21.8% (90d)	No difference w/ non-PWID-IE cohort
DHMC 2018-2019	38	21% (during study period 1yr)	
National Readmissions Database ³ 2010-2015	27,432	6.8% (not clearly defined)	9.6%



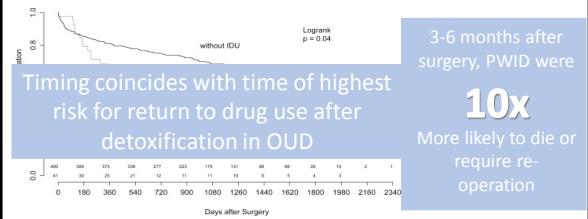
1. Rosenbhal, et al. Am J Med 2016
2. Gray et al. BMC Infect Dis 2018
3. Radzicki, et al. JACC 2019

What about surgery?

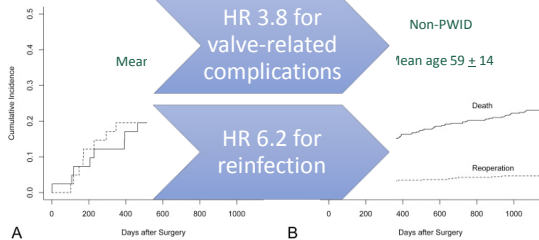


Shivani, et al. Ann Intern Med 2019.

Outcomes in PWID requiring surgery for IE



Shrestha, et al. Ann Thorac Surg. 2015



Shrestha, et al. Ann Thorac Surg. 2015
Kim, et al. J Thorac Cardiovasc Surg 2016.

What are we missing?



Addressing addiction: essential and missed opportunities

- No naloxone prescriptions provided
- 49% readmitted
- Of which: 28/50 (56%) had ongoing documented active injection drug use
- 7.3% of IDU-IE patients in national database readmitted within 180 days explicitly for “drug abuse”

Addressing addiction: essential and missed opportunities

TABLE 3. Appointments and Plans for Follow-Up Treatment Documented in Discharge Summary (n = 108)

	Established Appointments, n (%)	Referral for Treatment, n (%)	No Mentions, n (%)
Inpatient SUD treatment	4 (3.7)	2 (1.9)	102 (94.4)
Outpatient SUD treatment	1 (0.9)	3 (2.8)	104 (96.3)
Pharmacotherapy for OUD	2 (1.9)	3 (2.8)	95 (88.0)

OUD, opioid use disorder; SUD, substance use disorder.

How do we move forward?

Models for Integrating Addiction Care

Journal of Hospital Medicine

Journal of Substance Abuse Treatment

Planning and designing the Improving Addiction Care Team (IMPACT) for hospitalized adults with substance use disorder

Addiction consultation services – Linking hospitalized patients to outpatient addiction treatment

Paul Frowdridge^{1,2,3*}, Zoe M. Vercammen¹, Todd Kerevinsky⁴, Payel Roy⁴, Danny Regan⁴, Jeffrey H. Samet^{1,2,3*}, Alexander V. Walley⁴

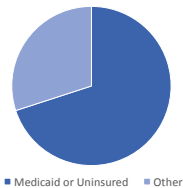
J. Hosp. Med. 2017; *Mac* 12(10):339-342

By: Honora Englander, MD, CG, Melissa Weimer, DO, MCF, Rachel Sokoloff, MD, MCF, Christina Nicolazzo, MD, MPH, Benjamin Chen, MD, Christine Velez, MDW, Alison Neuka, MA, CASAC-RI, Tim Hartnett, MD, MPH, Ed Blackburn, MA, Paul Barnes, MD, PhD, Dr. Todd Korzhua, MD, MPH

Cost Considerations

- Mixed data on increased cost of DUA-related endocarditis hospitalizations vs. non-DUA related

Insurance Status of PWID Undergoing Valve Surgery for IE



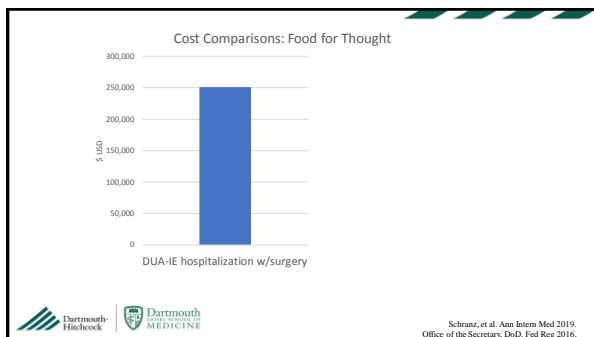
Schranz, et al. Ann Intern Med 2019.

Far-Reaching Implications

- 7.3% of IDU-IE patients in national database readmitted within 180 days explicitly for “drug abuse”

“Our failure to deliver comprehensive care to the IDU-IE population has potentially harmed thousands of patients while costing the health care system as much as \$57 million (from 2010-2015).”

Rodasill et al. JAACC 2019



Higher acuity at time of hospitalization

Stigma and judgment around drug use can lead to being treated differently by doctors and medical staff. Even though this shouldn't happen, it can.

But, there are lots of good, kind people providing services who will care about you, your needs and your health.

Your health is very important!
You deserve good, quality healthcare – it is your right!

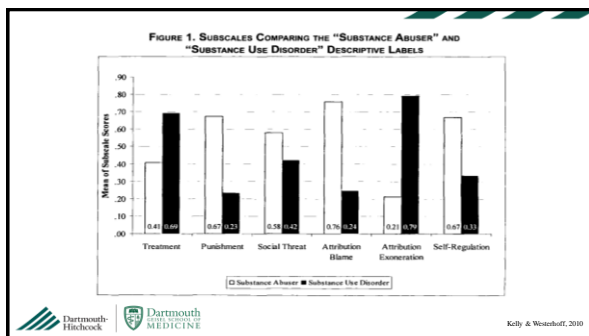
This booklet provides a few tips that we hope will make getting good healthcare a little bit easier.

- Stigma?
- Fear of legal repercussions?
- Fear of withdrawal?

Harm Reduction Coalition

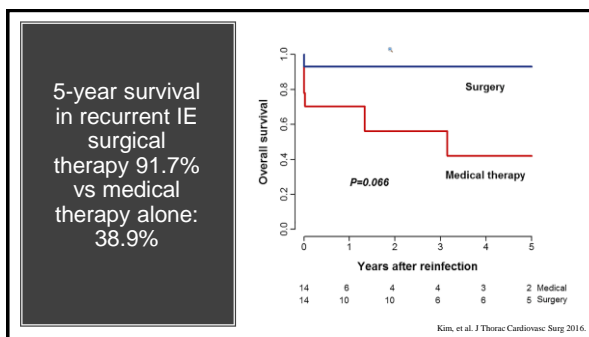
Stigma:

Dartmouth-Hitchcock | Dartmouth MEDICINE



How might this really matter?

Dartmouth-Hitchcock | Dartmouth MEDICINE



"Where does one draw the line?"

"We are not obligated to endlessly supply new operations, valves, or organs if the person is a poor steward of the resources charged to his care."

Michael DiMaio, MD
Dartmouth-Hitchcock
Dartmouth MEDICINE

"Deciding what is deserved or undeserved is a moral judgment that we, as physicians, are not in a position to make."

"A vast number of medical conditions, including heart diseases and infectious disease, may result from exposure to well-known environmental factors. Does the willingness of a patient to be exposed to those factors disqualify him from receiving indicated medical or surgical treatment?"

Thomas A. Salerno, MD
DiMaio, et al. Ann Thorac Surg 2009.

Chronic Infections

Dartmouth-Hitchcock
Dartmouth MEDICINE

Increased drug use linked to doubling of syphilis rate

- Between 2013-2017 syphilis incidence increased by:
 - 156% among women
 - 65.7% among men
- Reported use of all drugs doubled during study period
- Injection drug use: 4 → 10.5%
- Use of drugs increased in men who have sex with women
- Injection drug use: 2.8% → 6.3%

Methamphetamines, heroin, injection drugs, sex with person who injects drugs

Kissil SE et al. MMWR 2019.

Viral transmission of blood-borne pathogens

- Rule of "3s"
 - HBV: ~30%
 - HCV: ~3%
 - HIV: ~0.3%

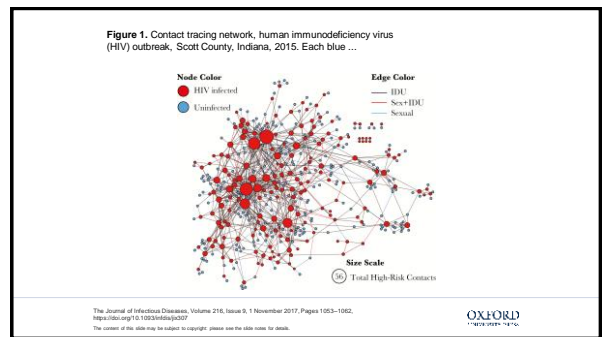
Dartmouth-Hitchcock
Dartmouth MEDICINE

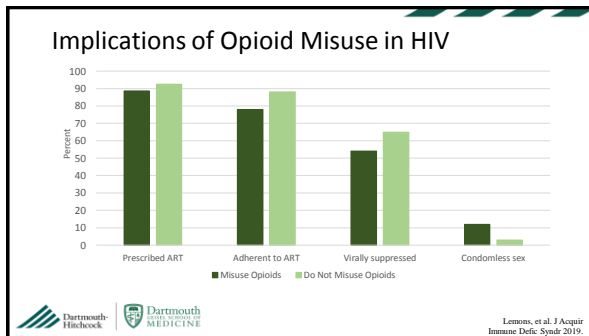
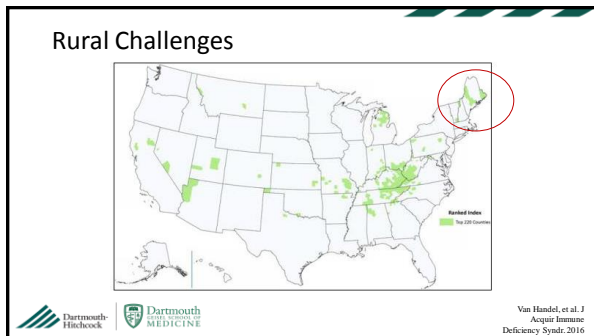
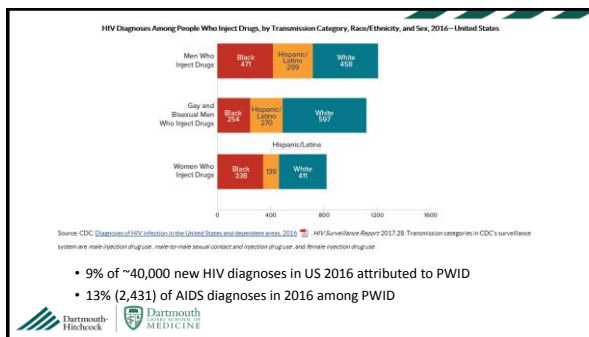
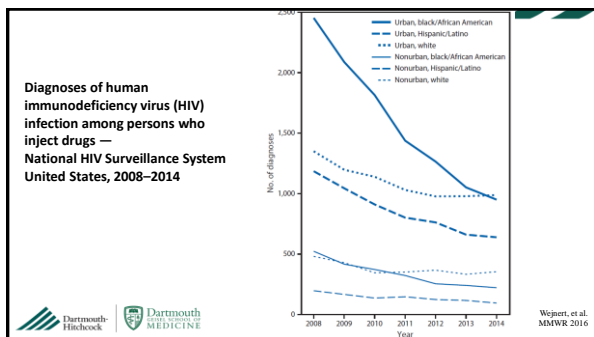
ORIGINAL ARTICLE

HIV Infection Linked to Injection Use of Oxycodone in Indiana, 2014–2015

Philip J. Peters, M.D., Pamela Florines, M.A., Karen W. Hoover, M.D., M.P.H., Monica R. Patel, Ph.D., M.P.H., Romeo R. Calang, M.D., M.P.H., Jessica Shields, B.S., Sara J. Blazes, Ph.D., Michael W. Spitzer, Ph.D., Brittany Combs, R.N., William M. Swanson, M.P.H., Caitlin Conrad, B.S., Jessica Gentry, M.A., et al., for the Indiana HIV Outbreak Investigation Team*

Dartmouth-Hitchcock
Dartmouth MEDICINE

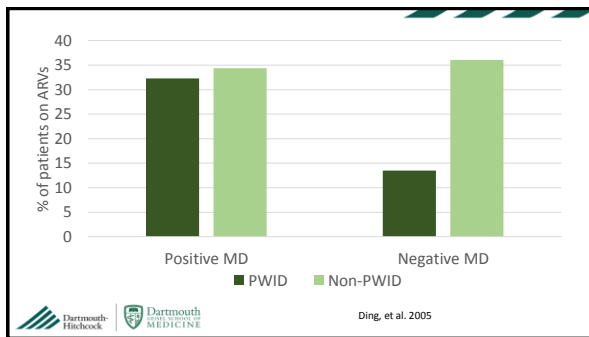




Among HIV Patients and Providers

- Of 373 physicians, 17% agreed with at least one of:
 - “Treating IV drug users seems futile.”
 - “When given a choice, I would not treat intravenous drug users with HIV infection.”

Ding, et al. 2005

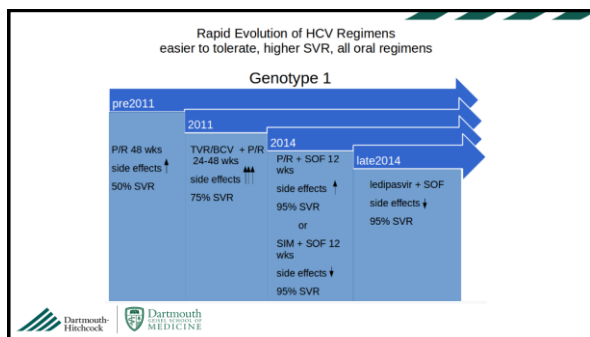
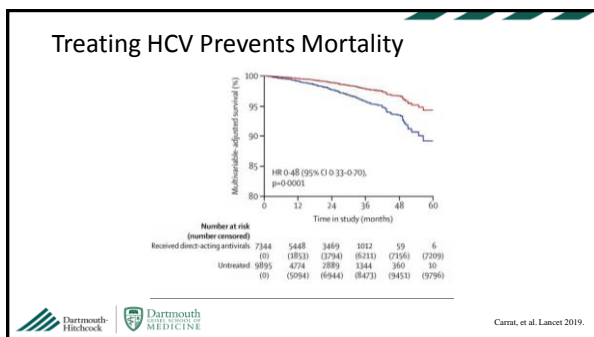
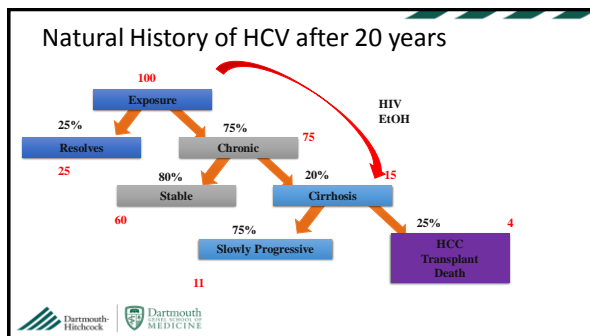
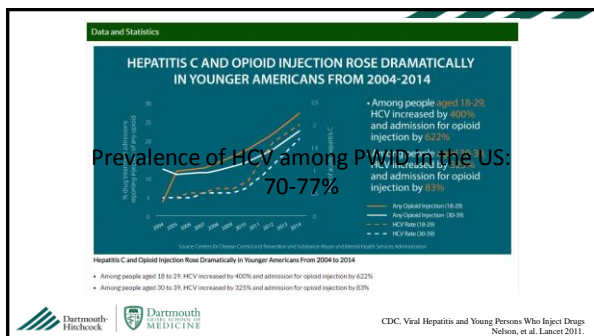
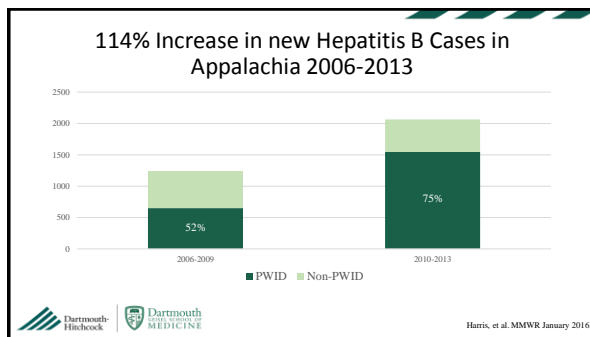


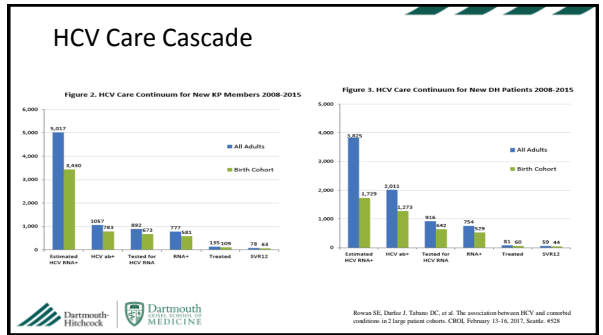
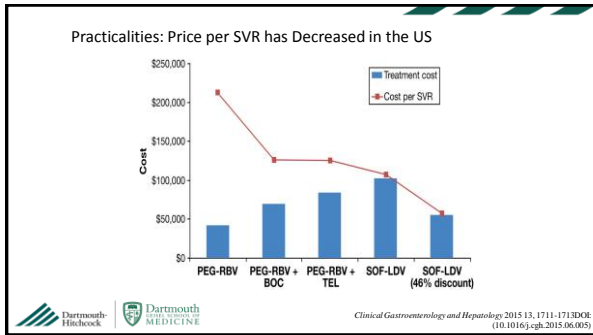
Implicit Bias

Explicit Bias
Attitudes or stereotypes that affect our understanding, actions, and decisions in a conscious manner

Implicit Bias
Attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner

Dartmouth-Hitchcock
Dartmouth MEDICINE





Prevalence of HCV among PWID in the US: 70-77%¹

Only 60-70% of patients in opioid treatment programs offered screening^{2,3}

Fewer patients with OUD initiate treatment than those without


Less than 10% of PWID evaluated for HCV infection initiate therapy^{4,5}

1. Nelson, et al. Lancet 2011.
2. Levin, et al. J Subst Abuse Treat 2009.
3. Backhuysen & Cunningham. JAMA 2013.
4. Mehta et al. J Community Health 2008.
5. Hekford et al. Clin Infect Dis 2009.

Hepatitis C: State of Medicaid Access Report Card

Maine

Estimated Number of Individuals Living with Hepatitis C: 11,200¹




Grade	Summary
A-	<p>Liver Damage (Fibrosis) Restrictions: Maine requests a patient's liver damage but does not stipulate any minimum level required.</p> <p>Sobriety Restrictions: Maine does not impose sobriety restrictions.</p> <p>Prescriber Restrictions: Maine requires a prescription be written by or in consultation with a prescriber.</p> <p>Recommendations to Improve Patient Access:</p> <ul style="list-style-type: none"> Remove prescriber restrictions. Maintain transparency regarding hepatitis C coverage criteria. <p><i>Grade Rationale: Maine has made great progress in expanding access to hepatitis C coverage. Maine has no liver damage restrictions and no longer requires a minimum period of sobriety prior to treatment. However, Maine continues to require a prescription be written by or in consultation with a specialist, creating a physician bottleneck to treatment. As such, a "minus" has been added to the state's "A" grade.</i></p>

Hepatitis C: State of Medicaid Access Report Card

New Hampshire

Estimated Number of Individuals Living with Hepatitis C: 11,000¹




Grade	Summary
B+	<p>Liver Damage (Fibrosis) Restrictions: New Hampshire does not have liver damage restrictions.</p> <p>Sobriety Restrictions: New Hampshire requires the prescriber to screen and counsel beneficiaries and administer ongoing testing throughout treatment to ensure abstinence.</p> <p>Prescriber Restrictions: New Hampshire requires a prescription by or in consultation with a specialist or by a prescriber who has completed continuing medical education on the treatment of hepatitis C.</p> <p>Recommendations to Improve Patient Access:</p> <ul style="list-style-type: none"> Remove sobriety and prescriber restrictions. Maintain parity across Fee-For-Service (FFS) and Managed Care Organizations (MCOs) and transparency regarding hepatitis C coverage criteria. <p><i>Grade Rationale: While New Hampshire has no liver damage restrictions, it requires screening and counseling for substance use and a prescription written by or in consultation with a specialist. With minimal changes, the state could have open access. In recognition of parity across FFS and MCOs and allowing a prescriber who has completed continuing medical education on hepatitis C treatment, a "plus" has been added to the state's "B" grade.</i></p>

Hepatitis C: State of Medicaid Access Report Card

Vermont

Estimated Number of Individuals Living with Hepatitis C: 7,200¹



Grade	Summary
A-	<p>Liver Damage (Fibrosis) Restrictions: Vermont does not impose any liver damage restrictions.</p> <p>Sobriety Restrictions: Vermont does not have any sobriety restrictions.</p> <p>Prescriber Restrictions: Vermont requires a prescription by or in consultation with a specialist.</p> <p>Recommendations to Improve Patient Access:</p> <ul style="list-style-type: none"> Remove prescriber restrictions. Maintain transparency regarding hepatitis C coverage criteria. <p><i>Grade Rationale: In December 2017, Vermont increased access to hepatitis C medications by removing liver damage criteria. Vermont does not impose sobriety requirements, but a prescription must be written by or in consultation with a specialist. The A- grade reflects the improvement in coverage, while recognizing that some prescribing restrictions still thwart access.</i></p>

Treating HCV in PWID

- AASLD and IDSA guidelines do NOT consider current illicit drug use a contra-indication
- Outcomes of therapy in PWID no different than people who do not use drugs¹
- Meta-analysis of reinfection after interferon-based therapy in PWID¹
 - Overall 2.4 per 100 person-years
 - People reporting IDU after SVR: 6.4 per 100 person-years
- Less clear with DAAs
 - C-EDGE COSTAR preliminary data: 4 per 100 person-years



1. Aspinall et al. CID 2013.

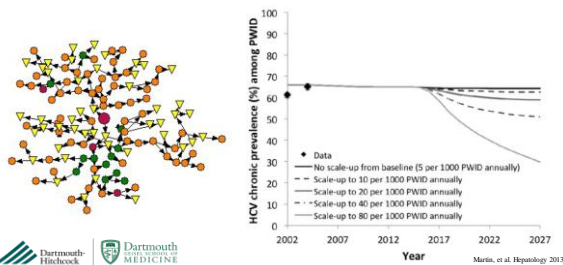
Practicalities: Caring for PWID with HCV

- Multidisciplinary teams shown to have improved success
- Many advantages to co-locating opioid treatment with HCV care
 - Primary care w/treatment by primary physician and/or availability of specialist on-site or via telehealth
 - Opioid treatment programs
- DOT data limited w/DAAs but may be helpful



Norton et al. Infect Dis Clin N Am 2018

"Cure-As-Prevention"



WHO Global Health Sector Strategy on Viral Hepatitis, 2016-2021

Goals for 2030:

- Reducing new hepatitis C infections by 80%
- Reduce deaths due to hepatitis C by 65%

Is this feasible?



How? Combined Interventions Necessary

- Blood safety and infection control measures
- Enhanced harm reduction strategies for PWID
- Antivirals for people chronically infected
- Screening

Implementing all interventions would avert 1.5 million HCV-related deaths and 15 million new infections by 2030. (Reaches mortality target by 2032)



Heffernan, et al. Lancet 2019.

How does injection drug use play in?

- Globally, estimated 2/3 of PWID infected with HCV
 - 23% of global new cases
 - 8% of total global disease burden
 - 32% of global HCV deaths



How? Combined Interventions Necessary


- Blood safety and infection control measures
- Enhanced harm reduction strategies for PWID**
- Antivirals for people chronically infected
- Screening

Modeling required **40%** of PWID worldwide to have access to harm reduction services (syringe exchange, opioid substitution therapy).

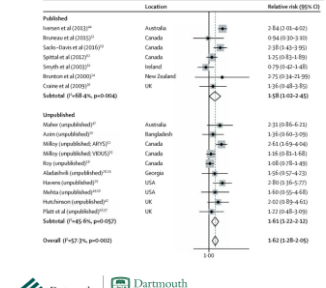
Currently, only **1%** of PWID live in nations where both of these are available

Harm reduction strategies in prisons?

Treatment for HCV in prisons?




Heffernan, et al. Lancet 2019.



Recent incarceration associated with:


- 62% increase in HCV acquisition risk
- 81% increase in HIV acquisition risk



Stone, et al. Lancet 2018

In Summary

- Injection drug use is associated with a wide range of acute and chronic infections
- Acute infections with serious consequences among PWID have risen significantly, and treatment is associated with many challenges
- HIV incidence had been decreasing until ~2012, and now at least leveling off, with concerns that opioid epidemic may lead to increases
- HCV incidence rising significantly in association with the opioid epidemic
- We will need to expand access to addiction treatment and harm reduction to reverse the trends



“Compassion”

Questions?

“Empathy”



STIGMATIZING LANGUAGE	NONSTIGMATIZING LANGUAGE
• Opioid abuser	• Person with substance use disorder
• IV Drug User or Abuser (IVDU/IVDA)	• Person who injects drugs (PWID)
• Dirty (referring to test results)	• Urine tested positive for ____
• Clean (referring to recovery)	• In recovery

