HIV Prevention in People who Inject Drugs (PWID)

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HPTN Annual Meeting 2023
Disclosures

- Grants, products and honoraria from Gilead Sciences
- Grants, products and honoraria from Abbott Laboratories
Why People who Inject Drugs?
Overdose Deaths Reached Record High as the Pandemic Spread

More than 100,000 Americans died from drug overdoses in the yearlong period ending in April, government researchers said.
And not just in the US...

HIV incidence in a community-based cohort in New Delhi (2017-2020)

<table>
<thead>
<tr>
<th>Number HIV negative with ≥1 follow-up</th>
<th>Person years of follow-up</th>
<th>Number of incident infections</th>
<th>Incidence rate (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>782</td>
<td>747</td>
<td>159</td>
<td>21.3 (18.2 – 24.9)</td>
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### Prevalence Estimates:
- South Africa (21% - 35%)
- Kenya (15 - 21%)
- Tanzania (34%)
Prevention of HIV-1 Infection with Early Antiretroviral Therapy


HPTN 052 Study Exclusion Criteria

- Reports a history of injection drug use within the last five years
- Previous and/or current participant in an HIV vaccine study
- Any condition that is in the opinion of the site investigator, would make participation in the study unsafe, complicate interpretation of study outcome data, or otherwise interfere with achieving the study objectives.
- Incarceration in a correctional facility, prison, or jail; and involuntary incarceration in a medical facility for psychiatric or physical (e.g., infectious disease) illness

Index Case (HIV-infected)
- Current or previous AIDS-defining illness
- Current or previous use of any ART drugs (some exceptions apply)
- Documented or suspected acute hepatitis within 30 days prior to enrollment, irrespective of AST (SGOT) and ALT (SGPT) values
- Acute therapy for serious medical illnesses, in the opinion of the site investigator, within 14 days prior to enrollment. Candidates with chronic, acute, or recurrent infections that are serious, in the opinion of the site investigator, who must continue with chronic (maintenance) therapy (e.g., HIV), must have completed at least 14 days of therapy prior to study entry and be clinically stable.

Cabotegravir for HIV Prevention in Cisgender Men and Transgender Women


Cisgender MSM and transgender women who have sex with men who were recruited for the trial were at high risk for HIV infection, as defined in the protocol. Key exclusion criteria were the use of illicit intravenous drugs within 90 days before enrollment; previous participation in the active treatment group of an HIV vaccine trial, coagulopathy, buttock implants or fillers, a
How do we prevent HIV in PWID?
Viral suppression among PWID

**HPTN 074**  
Peer navigation + Counseling + ART

**ICC+ (Lucas/Mehta)**  
Outreach workers + contingency management

Miller, Lancet 2018; Solomon, CROI 2022
Role of LA ARVs

Oh, no, no, no, no, no. The only one that sticks me with needles is me and my tattoo artist. [LAUGH] Oh no, I’ll stick with the pill. Providence, cisgender man

So, see them then, get injected or get the shot, and go on and not worry about it for a couple months. That’s awesome. That’s better than taking something every day. Providence, cisgender woman

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**Figure**: KM curve of probability of reaching virologic suppression (VL <30) on LA ART (n=57); dotted lines 95% CI

- Proportion Reaching Suppression
- Proportion Reaching Suppression

0.975 (0.891-0.998)
Resistance: Baseline vs. follow-up

- On-treatment resistance:
  - Cyclical patterns of injection, cessation, relapse
  - Long tail of injectable ARVs
- Transmitted drug resistance?

- Trials with long-term follow-up
How do we prevent HIV in PWID?

ART

PrEP
PrEP uptake in PWID

- Ideal population for PrEP
  - Low viral suppression
  - High incidence
  - Challenge with daily oral adherence
    - LA PrEP

“…Receipt of PrEP increased from 0.00 to 0.295 per 100 person-years between 2010 and 2019 among PWID….”
Evidence for LA PrEP in PWID

Results: CAB long acting was highly protective with 21 of the 24 CAB long-acting-treated macaques remaining aviremic, resulting in 88% protection. The plasma CAB concentration at the time of virus challenge appeared to be more important for protection than sustaining therapeutic plasma concentrations with the second CAB long acting injection.

Conclusion: These results support the clinical investigation of CAB long acting as PrEP in people who inject drugs.
LA PrEP in PWID: Way forward...

- Drug-drug interaction data
  - Commons substances of misuse
  - Medications for opioid use disorder

- Efficacy data in humans
  - Phase III trials (?unbalanced allocation)
    - Incidence still high among PWID in many settings globally

- Delivery of LA PrEP
  - MOUD/OTP centers
  - Field/van based
    - Could we target high transmission venues?
113 (71%) of incident infections reported injecting at venue #40

For every increased step in path to venue #40, risk of HIV acquisition reduced by 23% (IRR: 0.77)
How do we prevent HIV in PWID?

- ART
- PrEP
- Substance Use
Management of substance use

- Syringe service programs
- Fentanyl test strips
- Access to naloxone (Narcan)
- Medically supervised injection centers/sites
- Cognitive behavioral therapy
- Pharmacotherapy:
  - Buprenorphine
  - Methadone
  - No FDA approved agents for stimulants
Long-acting buprenorphine

Haight, Lancet 2019
Treating stimulants with stimulants?

Mooney, DAD 2009; Levin, JAMA Psych 2015; Brandt, Addiction 2020; De Crescenzo, PLoS Med 2018
How do we prevent HIV in PWID?
More to health than HIV...

- HAV/HBV
- COVID-19
- Vaccines

- Other infections
- Mental Health

- Increased risk
- Poor adherence

- Incarceration
  - Increased risk of HIV
  - Increased risk of HCV
  - Increased risk of TB

- Housing
  - Increased risk of HIV
  - Increased risk of HCV

- Cash transfers

- Employment

- Food

- Cash transfers

Altice, Lancet 2016; Stone, Lancet Public Health 2022; Richetrman, Nature 2023;
How do we prevent HIV in PWID?

ART

PrEP

Health!!!

Substance Use
“Status-Neutral Whole Person”

ART

PrEP

Health!!!

Substance Use
Acknowledgements

- People who graciously participate in research studies globally
- Johns Hopkins University
  - Shruti Mehta, Gregory Lucas, Steven Clipman, Carl Latkin, Allison McFall, David Celentano

- Funding sources:
  - NIDA (DP2DA040244, R01DA041736, R01DA032059), NIMH (R01MH089266), NIAID (R01AI145555)
  - Abbott Laboratories
  - Gilead Sciences
  - Elton John AIDS Foundation
  - USAID/PEPFAR
THANK YOU