Injection Drug Use, HIV and Hepatitis C Virus (HCV) in India

Shruti Mehta
Johns Hopkins Bloomberg School of Public Health
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The Madras Injection Drug Users and AIDS Cohort (MIDACS) Study

- April 2005- present
- Funded by 2 administrative supplements from NIDA to US-based RO1s
- Indian partner: YRG Centre for AIDS Research & Education

- 1158 IDUS recruited through community outreach over 1 year
- HIV negatives followed at 6-month intervals (<5% loss/year)
- HIV positives referred to on-site clinical care (followed as part of a 'clinical' cohort

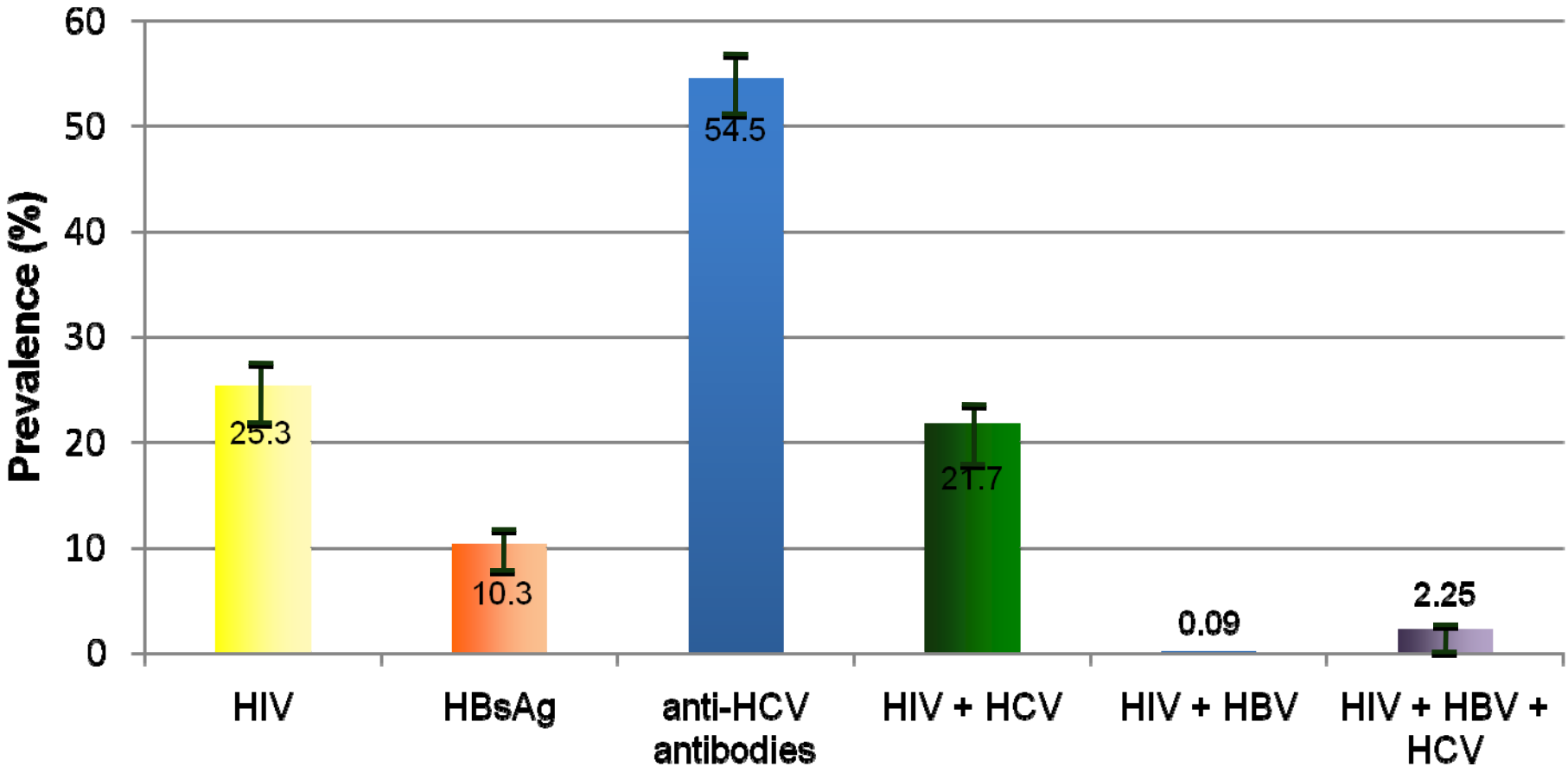
- **Main objectives:** Characterize trends in HIV and other blood-borne infection incidence as well as risk behaviors

Characteristics of 1158 IDUs in Chennai

- All male
- Median age= 35 years
- 64% married
- Predominantly heroin injectors (80%) but also high levels of buprenorphine (30%) and other pharmaceutical drug injection (37%)
- Risky behaviors prevalent at baseline (comparable in HIV positives & negatives)
- Pharmacies were primary site of needle acquisition
- Little to no access to NEP, drug treatment

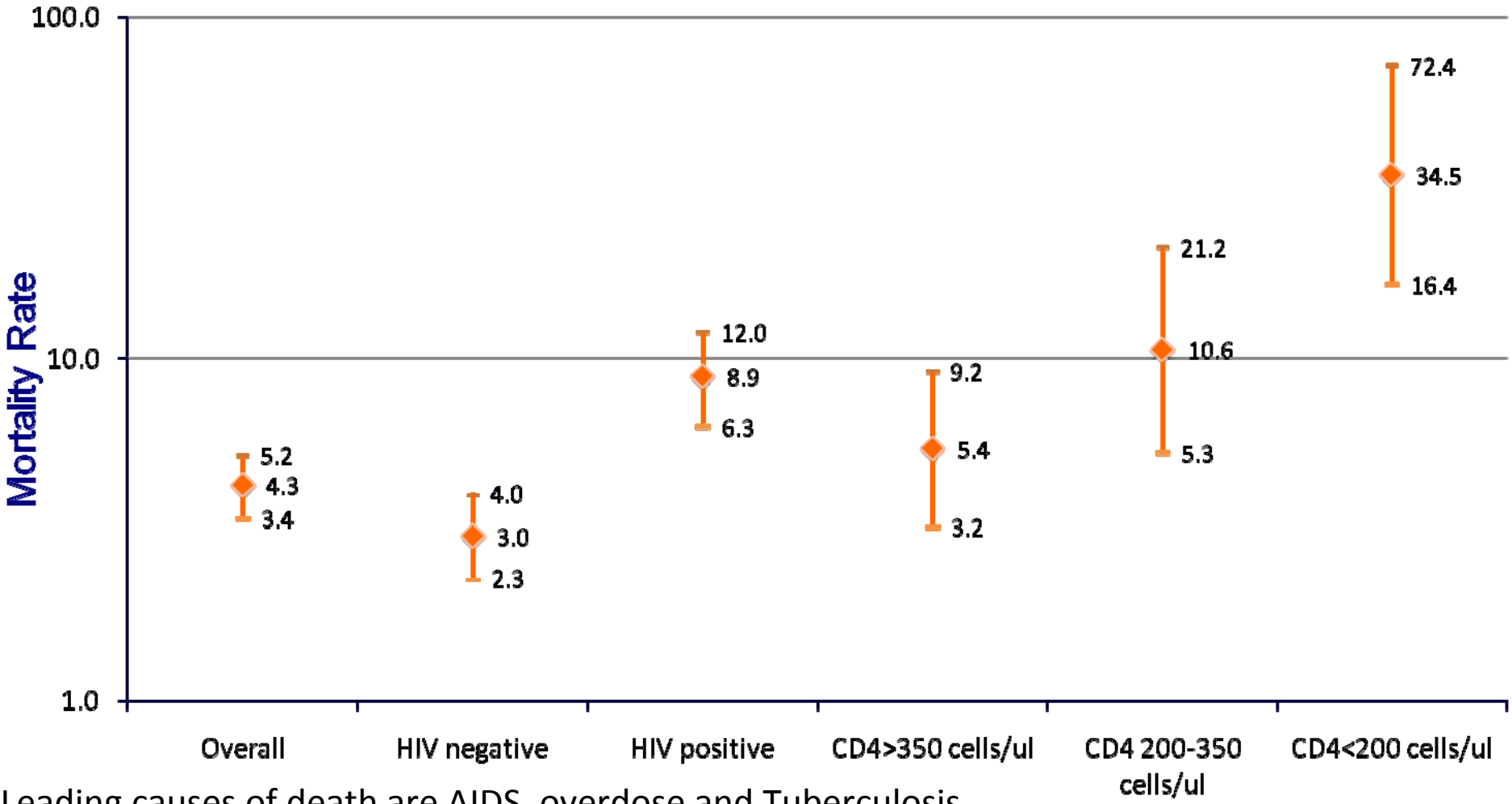
Solomon SS et al, Subst Use and Misuse (in press)

Prevalence of blood-borne infections at baseline



Solomon SS et al, JAIDS 2008

Mortality rates among IDUs over 3 years of follow-up



Leading causes of death are AIDS, overdose and Tuberculosis

Standardized mortality ratio when compared to IDUs in a US-based cohort in pre-HAART era ~ 3

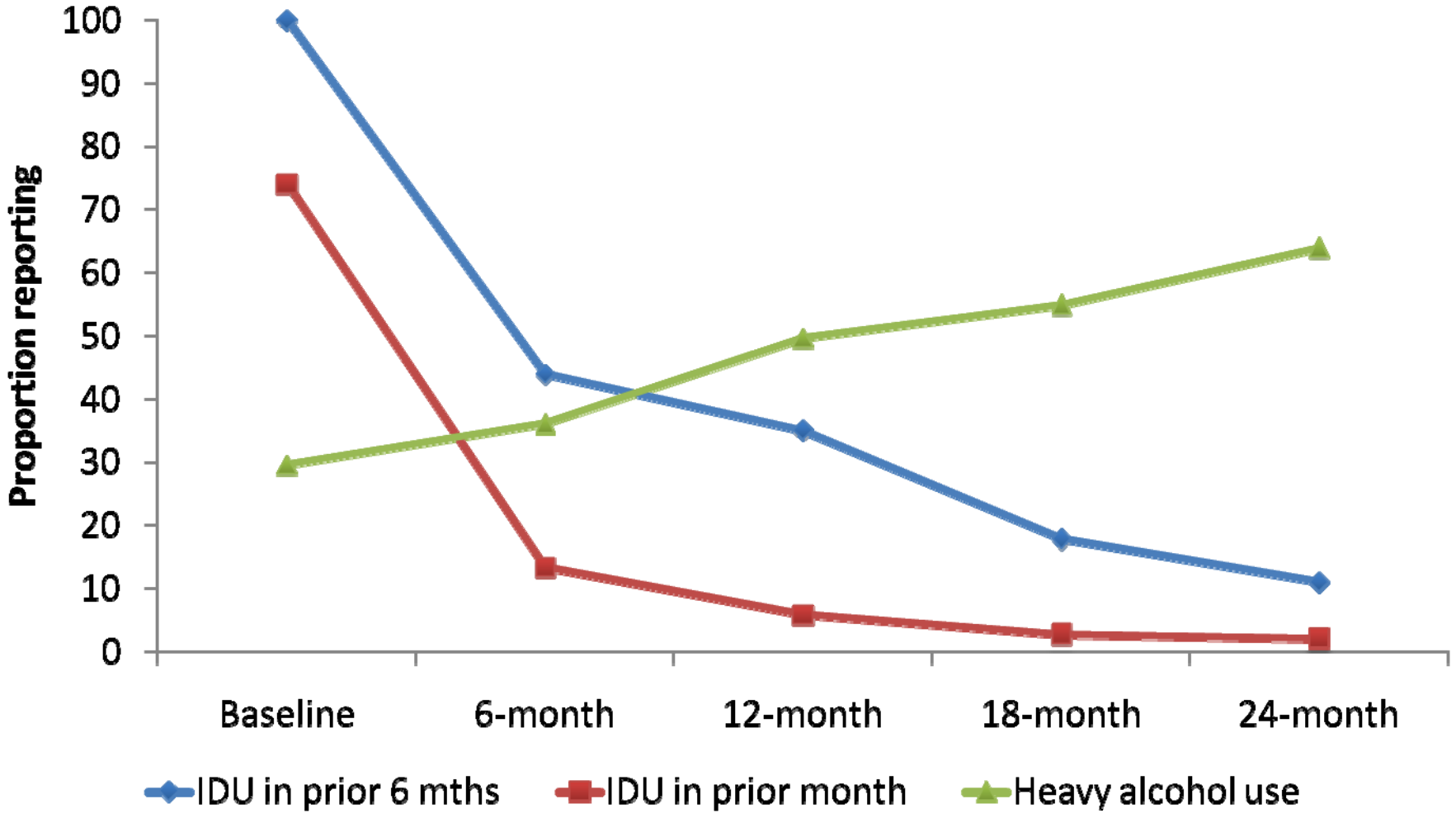
Solomon SS et al, AIDS 2009

HIV incidence

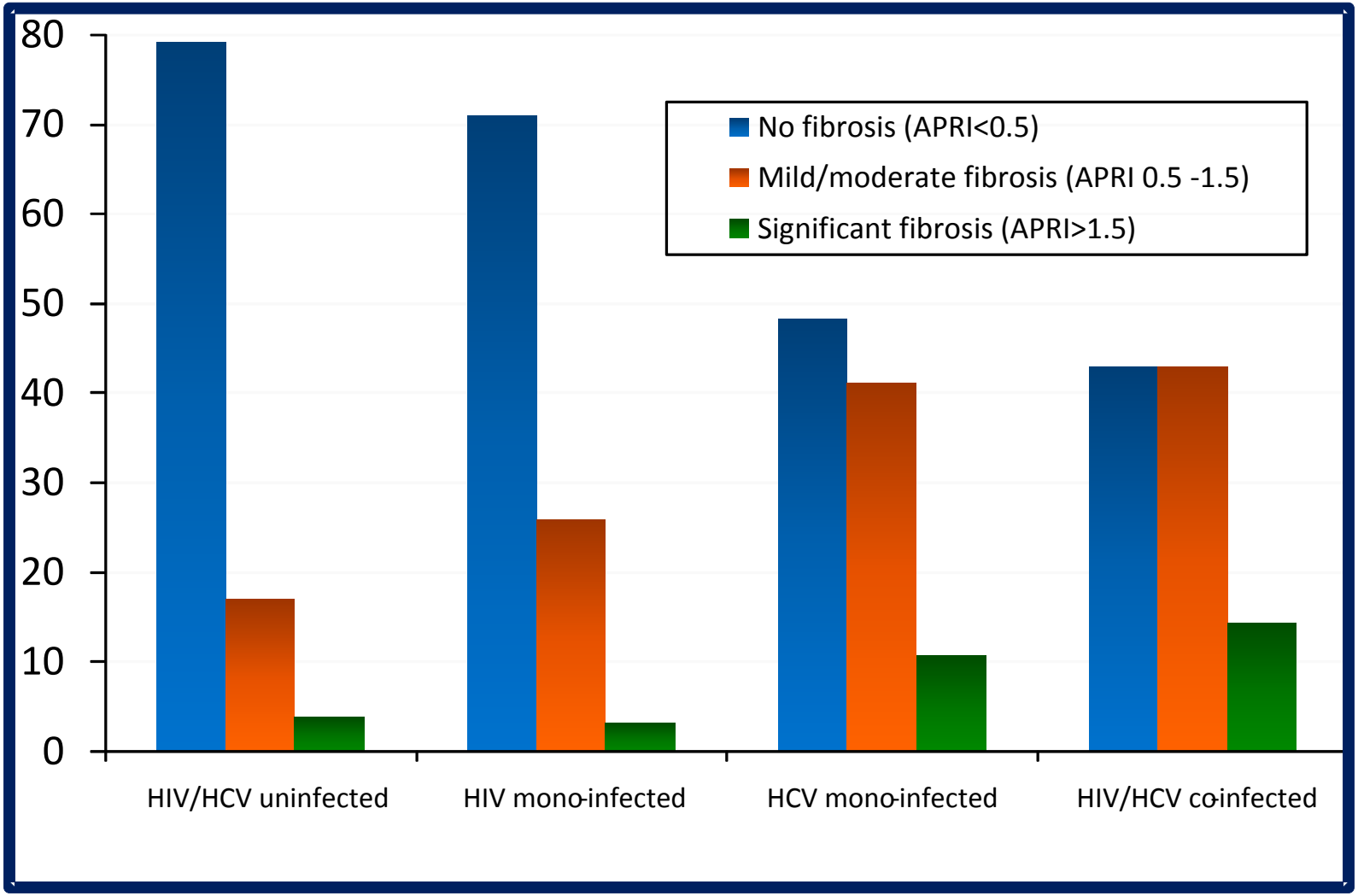
- Estimated HIV Incidence at baseline(BED-CEIA)
  - 2.95 per 100 p-y (95% CI: 1.21, 4.69)

- HIV Incidence (cohort follow-up)
  - 6 seroconversions in 1207 p-y of follow-up
  - 0.5 per 100 p-y (95% CI: 0.02, 1.08)
  - all reported injecting in the prior 6 months
  - 4 of 6 reported sharing needles in the last month

Changing risk behaviors after enrollment



Prevalence of liver disease



Correlates of significant liver disease

	Unadjusted PR (95% CI)	Adjusted PR (95% CI)
Age (per 5 years)	1.07 (0.90-1.27)	0.95 (0.74-1.22)
Years of injection drug use	1.05 (1.01-1.09)	1.04 (0.98-1.09)
HIV/HCV		
HIV/HCV uninfected	1	1
HIV mono-infected	0.84 (0.11-6.44)	1.41 (0.19-10.7)
HCV mono-infected	2.80 (1.04-7.54)	3.01 (1.04-8.74)
HIV/HCV co-infected	3.73 (1.40-9.94)	3.86 (1.23-12.1)
HBsAg positive	1.25 (0.51-3.11)	1.40 (0.58-3.38)
% visits heavy alcohol use reported	2.91 (1.0-8.42)	5.32 (2.12-13.3)
% visits daily marijuana use reported	0.49 (0.20-1.17)	0.40 (0.16-0.99)
% visits heroin injection	2.70 (0.63-11.5)	
% visits buprenorphine injection	0.52 (0.02-11.1)	
% visits pharmaceutical drug use	7.07 (1.90-26.2)	2.53 (0.66-9.68)

Major findings / Future directions

- **Access to HAART is a major problem**
  - 25 patients have been started on HAART since the HIV clinic has opened on-site
    - Most who were referred to the government program were started on nevirapine
    - Adherence is a problem
  - Study funded to compare directly observed antiretroviral therapy (DAART) vs. standard HAART in combination with suboxone
    - But, the majority of participants have stopped injecting (negative by urine test)
    - Protocol is being revised

Major findings / Future directions

- **Liver disease is a relatively minor cause of morbidity and mortality in this cohort but is likely to increase as access to HAART improves and IDUs are living longer**
  - Other co-factors beyond HIV and HCV include alcohol use, TB and anti-TB therapy, ART regimens, other infections

- **Potential interventions**
  - Alcohol reduction
  - HCV treatment (cost, side-effects vs. efficacy)

Other initiatives in India

- **Nearly two-thirds of IDUs are married**
  - Studies with wives of IDUs about prevalence of HIV, HBV and HCV, disclosure, utilizing families for cessation of substance use as well as treatment interventions

- **Interviews with IDUs suggest existence of multiple IDU epidemics in India**
  - Characterize diversity of HIV and HCV among IDUs in 9 different sites throughout India to understand the connectedness of the Indian IDU epidemics

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