Treatment of Substance Use Disorders as HIV Prevention

Psychoactive Drugs and HIV

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What You Need to Know

- Most users of substances don't inject
- Proposed mechanisms linking substance use and HIV transmission for people who do not inject
  - Indirect links between drug abuse treatment as HIV prevention
- Two evidence-based case examples
- Discussion

Substances

- Sedative/barbs – **ALCOHOL**, benzodiazepines, GHB
- Stimulants – cocaine, speed, **NICOTINE**, Ecstasy (MDMA)
- Opiates – heroin, percodan, dilaudid, vicodin
- Hallucinogens – LSD, mescaline, peyote
- Tranquilizers/anesthetics – ketamine, PCP
- Cannabinoids – **POT**, hash
- Inhalants – poppers, solvents

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Substance Use Prevalence, 2011

Substance	Δ from 2010	%
Current Cigarette Smokers	--	22.1%
Alcohol Use (any in past month)	--	51.8%
Heavy Alcohol Drink (5+ drinks, 5+ days past month)	↓	6.2%
Marijuana Use (past month)	↑ 5.8% in 07	7.0%
Prescription Drug Misuse (past month)	↓	2.4%
Heroin Use (past month)	--	0.3%
Cocaine Use (past month)	--	0.5%
Methamphetamine Use (past month)	↓	0.2%

www.samhsa.gov National Survey on Drug Use and Health, 2012

Drug Use is Normative in U.S.

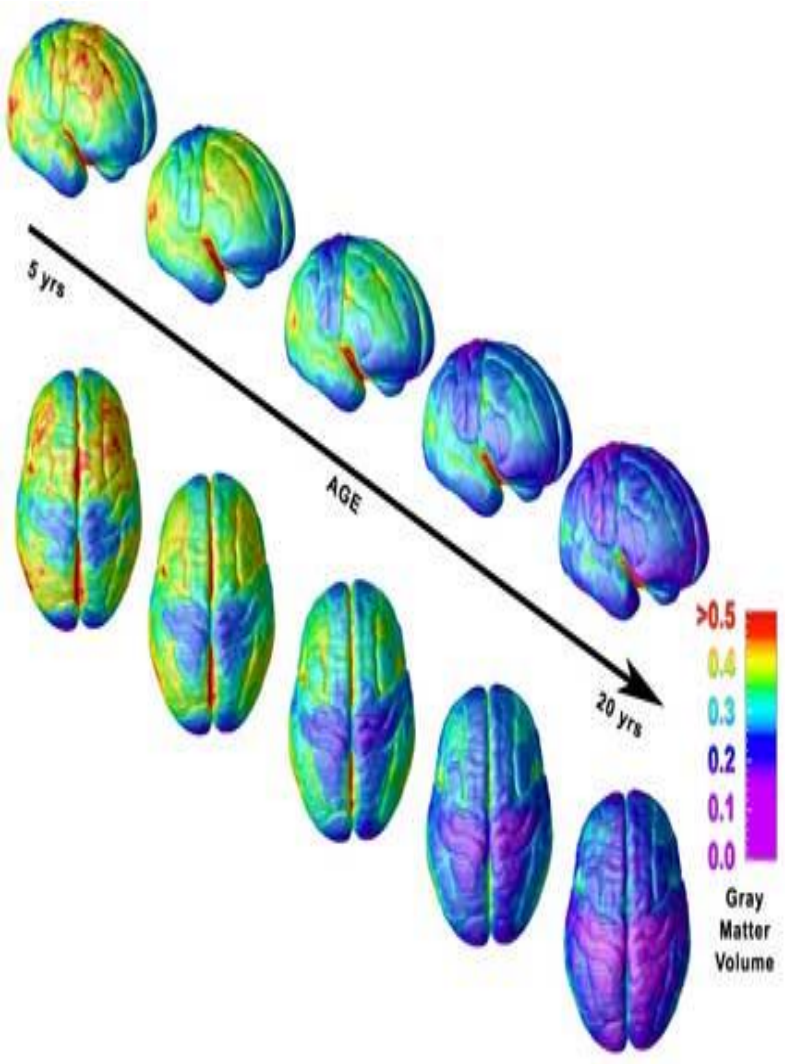
In 2011, 20.6 million (8.0% of adults aged 12 and over) met criteria for substance abuse or dependence not including tobacco dependence (National Survey on Drug Use and Health, 2012).

Alcohol abuse and dependence represents the majority (14.1 million or 68.4% of those with abuse or dependence)

- remainder splits between drug disorders only and comorbid illicit drug use and alcohol use disorders.

www.samhsa.gov, National Survey on Drug Use and Health

A Word About Marijuana



Frances Jensen and David Urion

Not Just the Needle: A Complicated Equation for HIV Transmission

NIDU Substance Use + **HIV Prevalence** = **Risk Transmission Potential**

Type of Substance

- Stimulant
- Alcohol
- NOT cannabis

Route of Use

- Oral
- Eating
- Smoked
- Inhaled
- Inserted anally

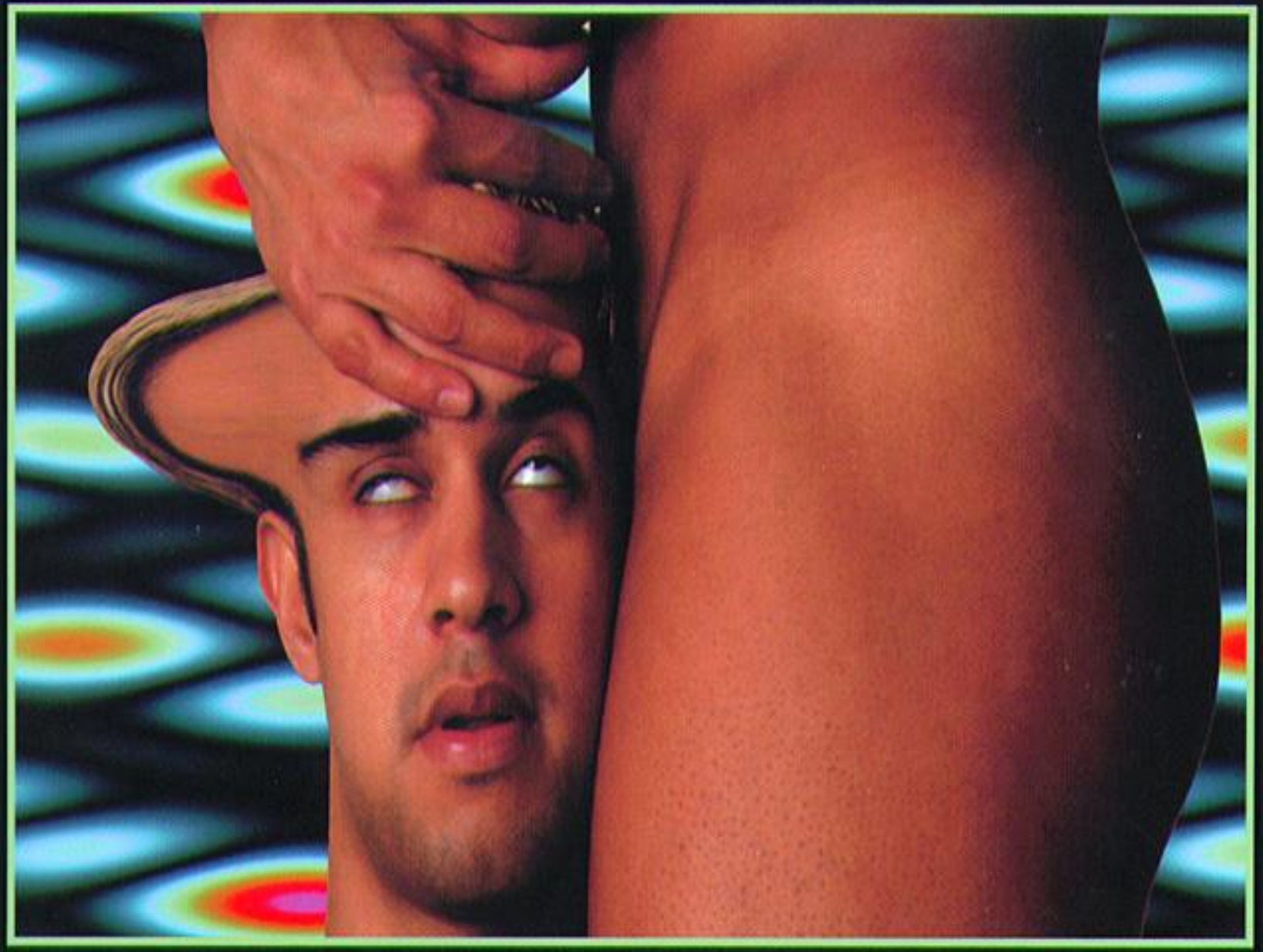
Local Factors on HIV Prevalence

- Dual Diagnosed
- Poverty
- Incarceration
- MSM
- Street youth
- Women
- Race/ethnicity

HIV Transmission Risks

- Blood (?)
- Drug-facilitated sexual transmission

I WAS SO TWEAKED...

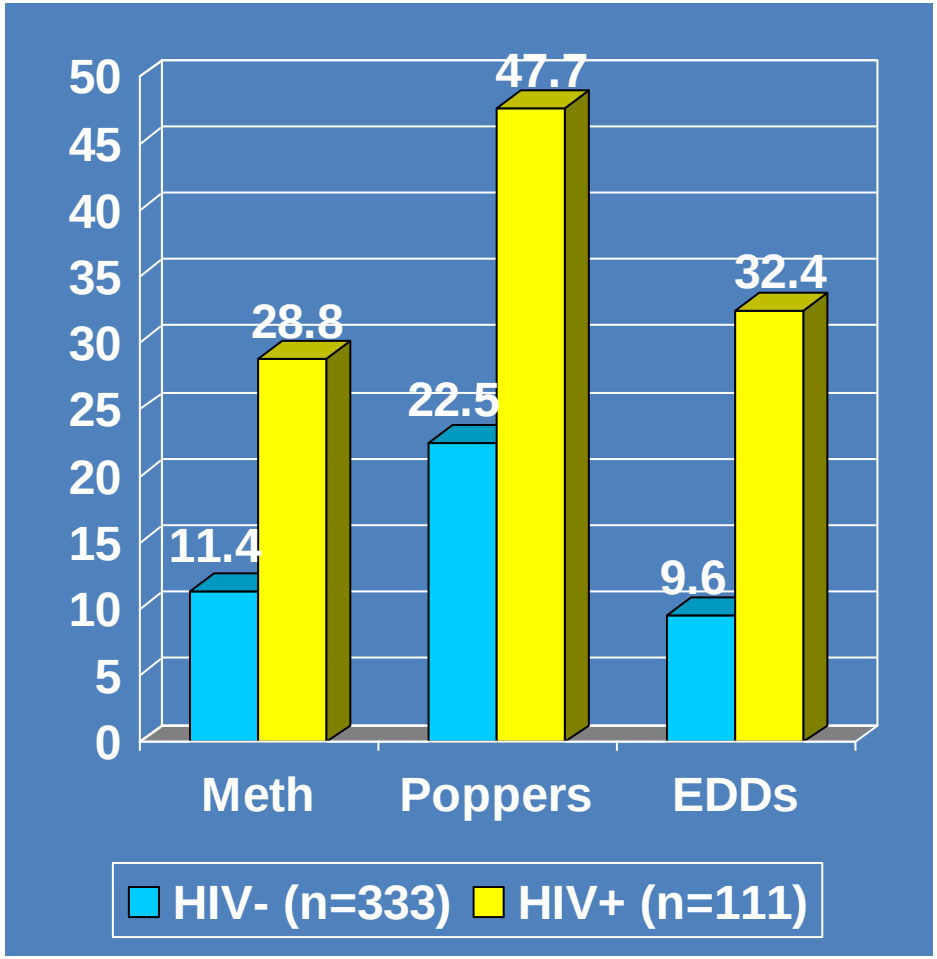


... I DIDN'T CARE HOW HE SCREWED ME.

Meth Use and HIV Transmission in MSM

Meth use correlates with 2-4 fold increases in risk for HIV transmission in:

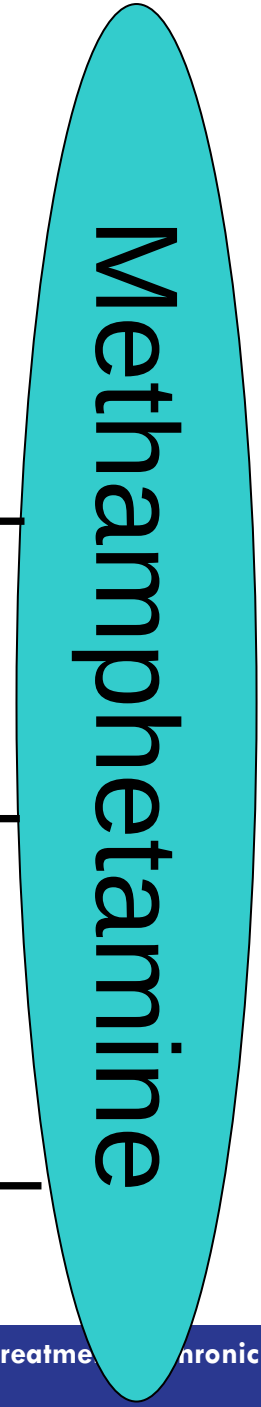
- Cohort Studies (Plankey et al., 2007)
- New Infections (Drumright et al., 2007; 2009)
- STI settings (Buchacz et al., 2005; Buchbinder et al., 2005)



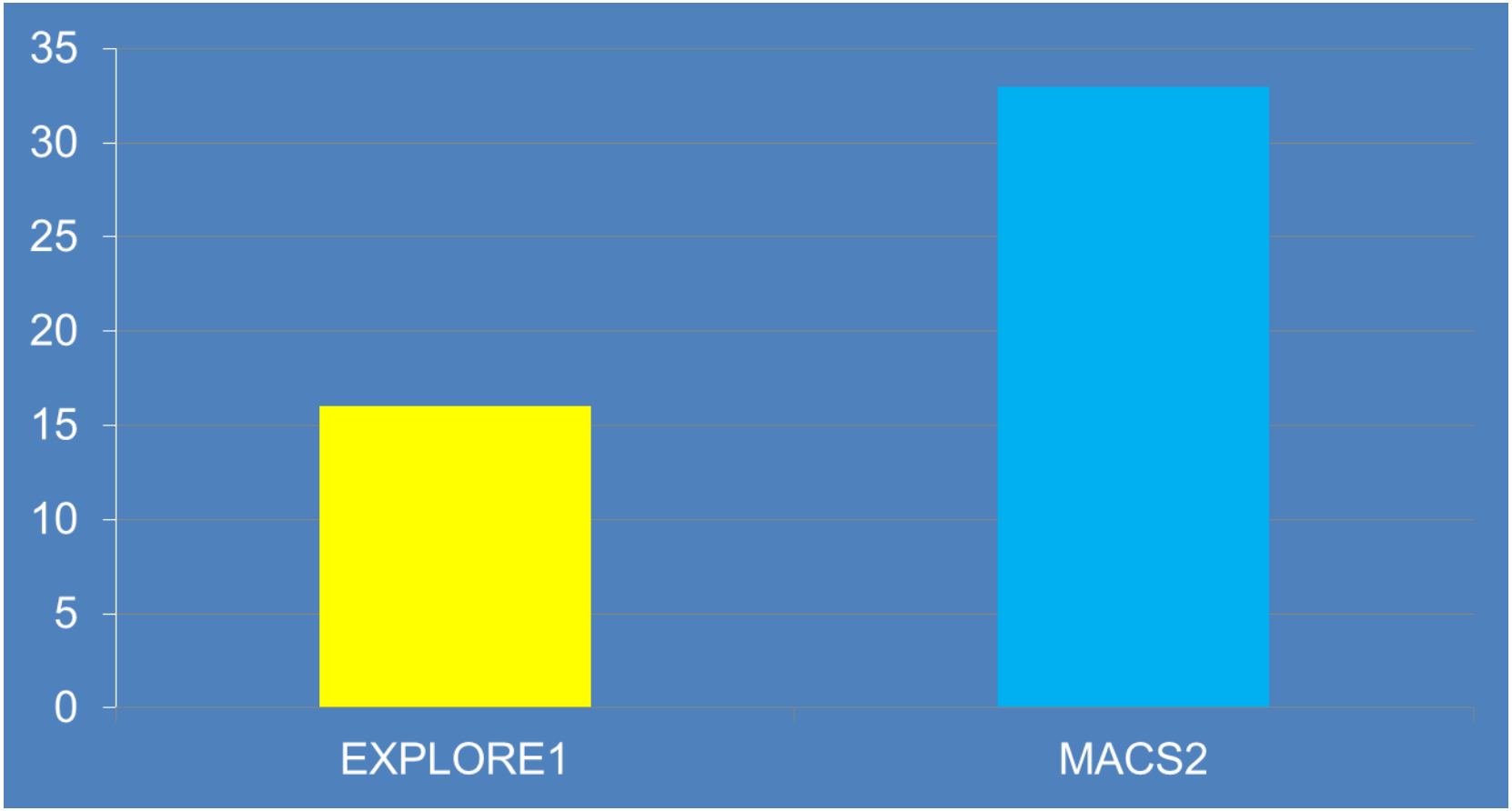
HIV Transmission

A Probabilistic Event Determined by:

- Characteristics of the behavior
  - Unprotected anal (↑ receptive; ↓ insertive)
  - Unprotected vaginal (↑ receptive; ↓ insertive)
  - Oral behaviors
- Characteristics of the individual
  - Other STIs
  - Bruised/bleeding mucosa
  - Viral load
  - Concurrency
- Characteristics of the event
  - Single; multiple sources of virus



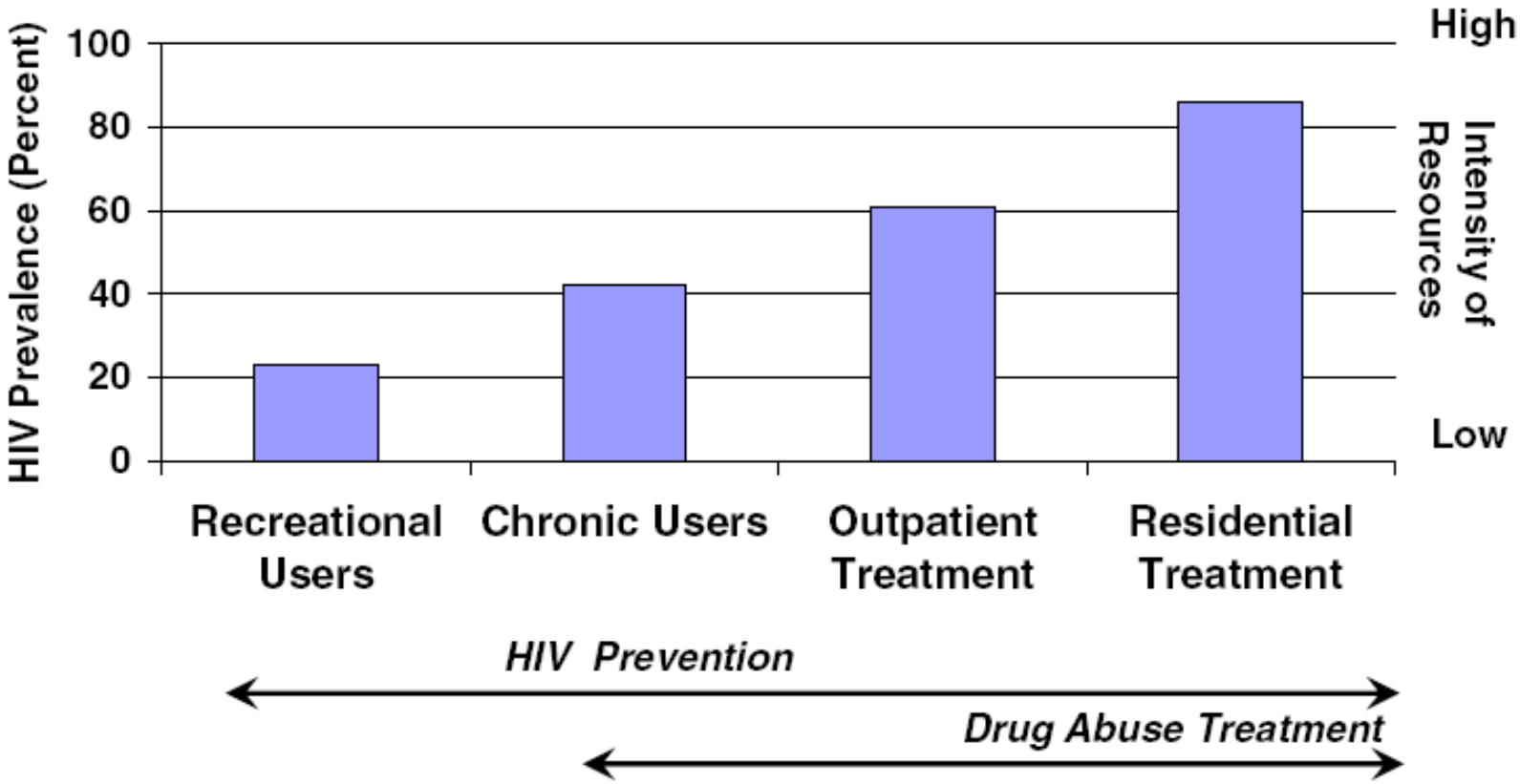
Attributable Risk for HIV Transmission from Stimulant Use in MSM



[1] Koblin et al., 2006, AIDS, 20, 731-739

[2] Ostrow et al., 2009, Journal of Acquired Immune Deficiency Syndrome, 51(3), 349-355

Policy Model for Methamphetamine Use, HIV Prevalence and Interventions



Shoptaw & Reback, *J Urban Health*, 2006

Treatment of Substance Use Disorders as HIV Prevention

Behavioral Drug Abuse Treatment as HIV Risk Reduction

Behavioral Therapies

- Friends Getting Off (Reback & Shoptaw, 2011)
- Contingency Management (Shoptaw et al., 2005)
  - Limits to treatment settings (Menza et al., 2010)
  - Heterosexual meth users show parallel reductions in injection and sex risk behaivors (Corsi et al., 2012)

Medication Therapies

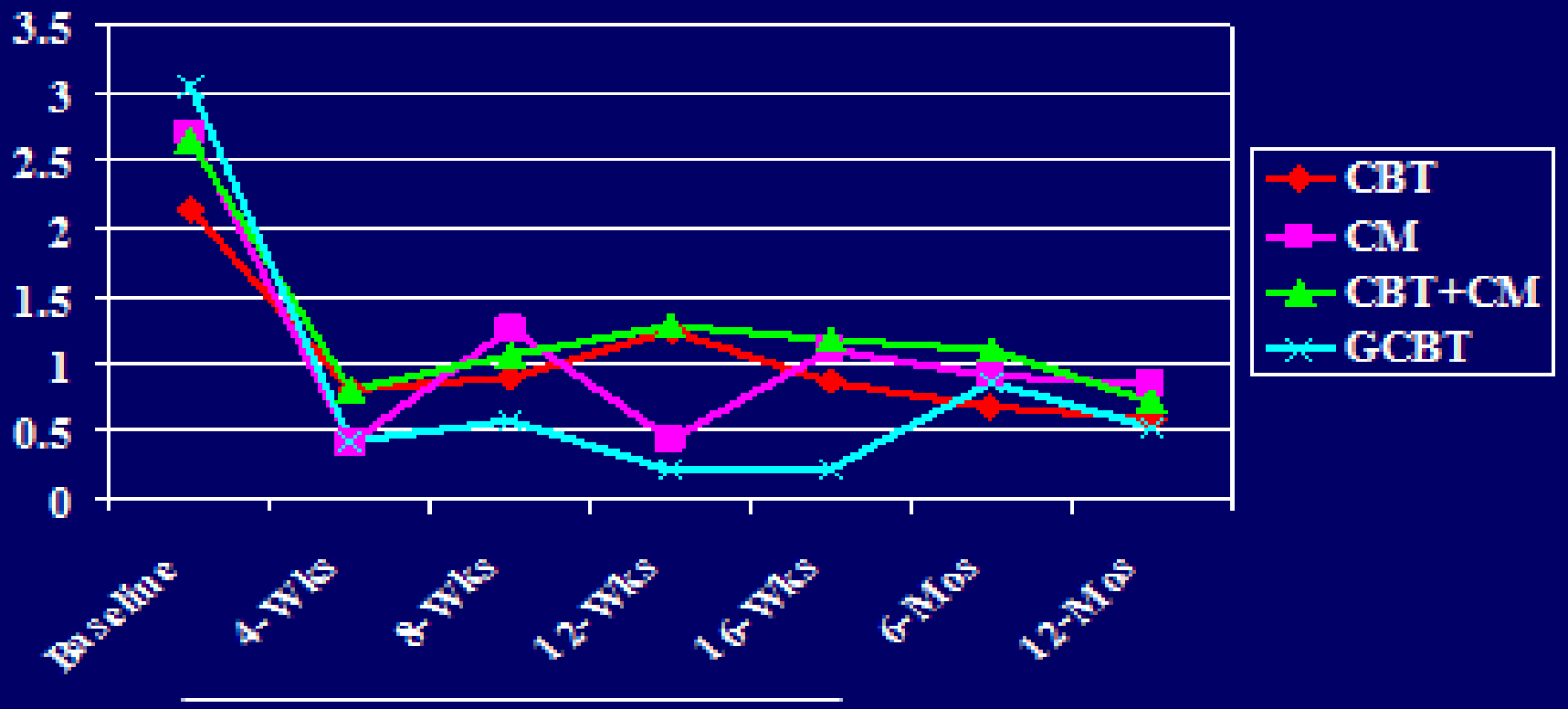
- Mirtazapine (30 mg/d) for meth-dependent MSM (Colfax et al., 2011) showed reductions in meth use and concomitant HIV sexual transmission behaviors

Contingency Management

- ✓ Significantly longer retention
- ✓ Significantly more "clean urine"
- ✓ Significantly longer stretches of consecutive clean urine samples

Shoptaw et al., 2005 Drug Alc Dep. 78:125-134

Drug Abuse Treatment and Reductions UAI



$\chi^2_{(3)}=6.75, p<.01$

Shoptaw et al., 2005

HIV Prevention Strategies for Non-Treatment Seeking Substance Users

Behavioral Prevention for HIV+ Substance Users

After 30+ years, behavioral prevention reliably reduces risk behaviors, but no demonstration of infections averted

- Need for inclusion of HIV biomarkers in designs

CDC Compendium and SAMHSA NREPP programs catalog interventions with efficacy in reducing risk behaviors

- Project EDGE (Mausbach et al., 2007) safer sex program for MSM HIV+ meth users.

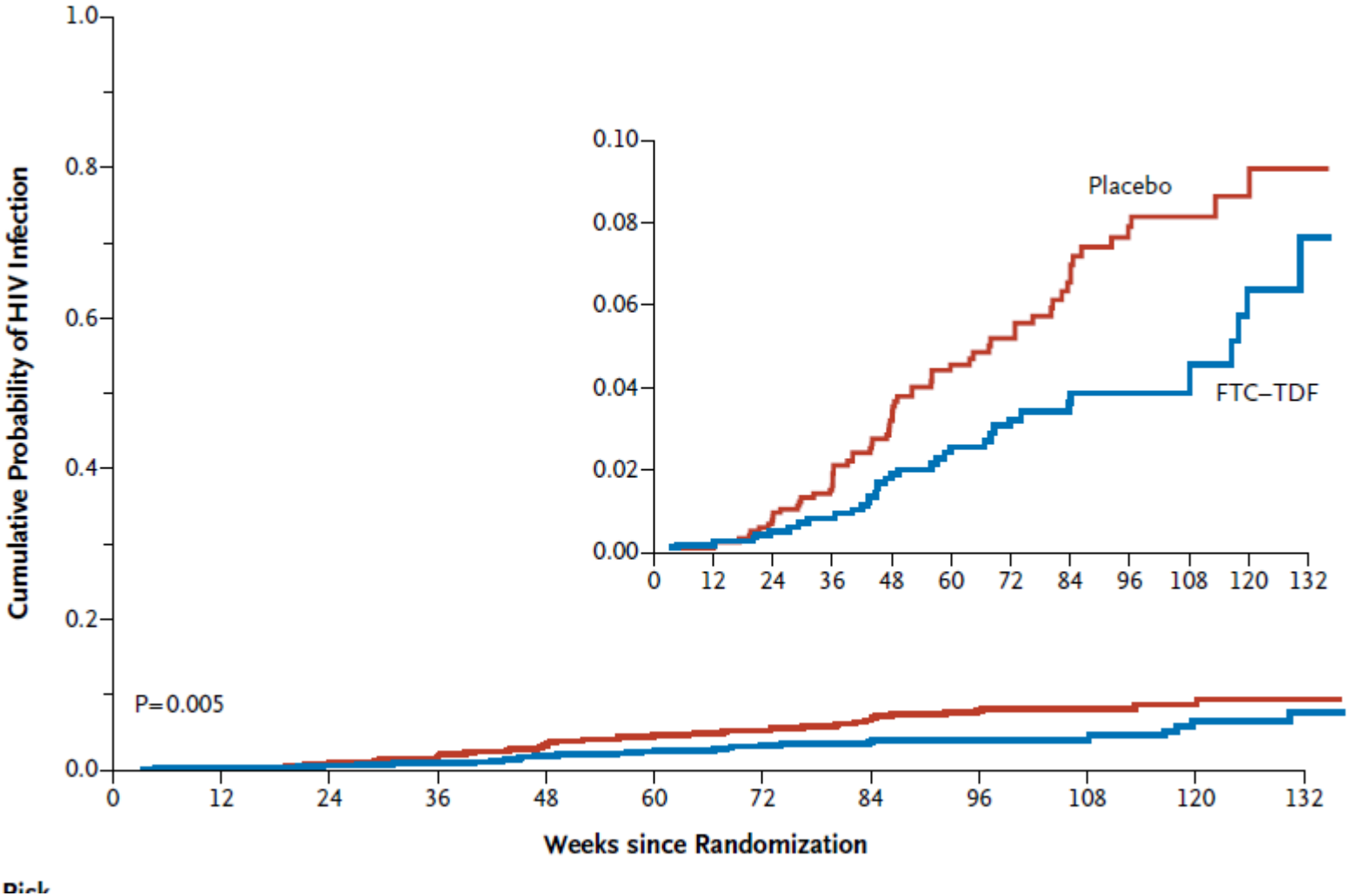
Strategy for HIV Combination Prevention in HIV- Substance Users

Lower susceptibility: Reduce infection in HIV-negative groups

- Biobehavioral approaches – PrEP, PEP for substance using MSM; other groups at high risk
- Behavioral programs – condom distribution, EBIs can address structural determinants of risk related to substance use; no evidence of infections averted
- Surveillance of emerging epidemics linked to drug use

Kurth et al., 2011, *Current HIV/AIDS Reports,*1-11

iPrEX Results



Grant RM et al N Engl J Med. 2010 363:2587-99.

iPrEX Findings

Of 100 seroconversions, 36 in Truvada group, a reduction of 44% over placebo (p=0.005)

Efficacy was higher in men who reported UAI (58%) than those who did not

Adherent men (90%+) showed 73% efficacy

Efficacy of all subjects was 47% (p=0.001)

Questions remain about adverse effects, feasibility/acceptability/ethics

No indication about substance users as they were excluded from trials

PEP in MSM

In Project EXPLORE, MSM who reported any non-injection drug use increased odds for PEP by 50% (aOR: 1.5, 95% CI:1.1, 1.9)

- Smoked cocaine, poppers, crack cocaine, amphetamines and hallucinogens increased odds
- IDUs significantly higher odds of PEP use (aOR: 2.44, 95%CI: 1.69, 3.51).
- Marijuana or cocaine that was snorted or sniffed or alcohol drinking did not associate with increased odds for PEP
- No evidence of risk compensation

Donnell et al., 2010, *AIDS Behav 14*:1182–1189

PEP in Methamphetamine Using MSM

When integrated with CM, PEP use among meth-using MSM appears to be safe and feasible

Time to PEP initiation (37 h) and reported adherence rates (96%) are comparable to non-meth-using PEP findings

CM increased PEP adherence 2% for each MA-negative urine sample; CM increased PEP completion by 17%

Meth-using MSM had high rates of risk behavior: high prevalent STI rates

Small sample size (n=53), 1 incident seroconversion – non-adherent to meds and multiple exposures

Landovitz et al. 2012 *AIDS Pt Care STDS, 26:*320-328

Where Will All the Drug Come From?

- At the end of 2010, 6.6 million on ART (UNAIDS)
  - 42% of those in need (CD4 ≤ 350 cells/mm)
- 9 million eligible and in need of treatment now; 28 million HIV-infected globally
  - Attrition cascade at all points from testing to ART initiation to chronic care
- New infections: 2.6 million in 2010[1]
- Advancements in TasP, PEP and PrEP create even more demand for ART

[1]http://wwwunaidsorg/unaids_resources/aidsat30/aids-at-30pdf

Behavioral Prevention for HIV-Negative Substance Users

Woman focused HIV risk reduction program for African American crack smokers (Wechsberg et al., 2004)

Fast Lane, HIV-risk reduction program for HIV-negative heterosexual meth users (Mausbach et al., 2007)

Final Thoughts