Drug Abuse Treatment in HIV Prevention and Care: Past Successes and Future Challenges

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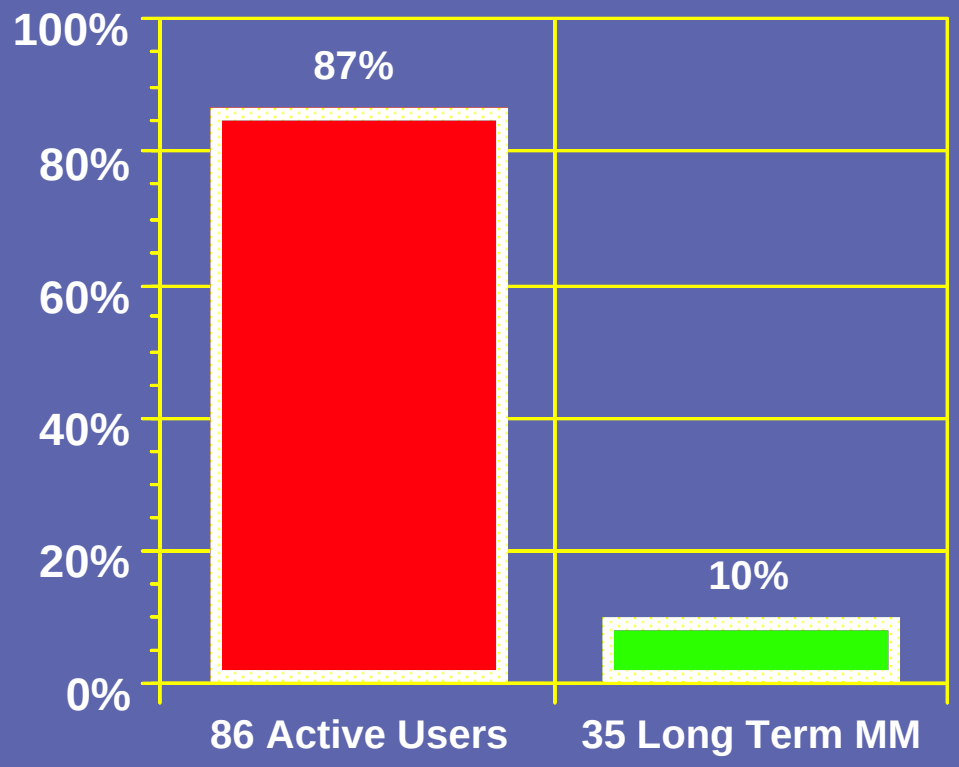
Overview

- HIV infection and drug use
- Does drug treatment prevent HIV infections?
- Does drug treatment facilitate HIV treatment?
- Challenges in maximizing the public health impact of drug treatment

HIV prevalence rates among New York IDUs by methadone treatment

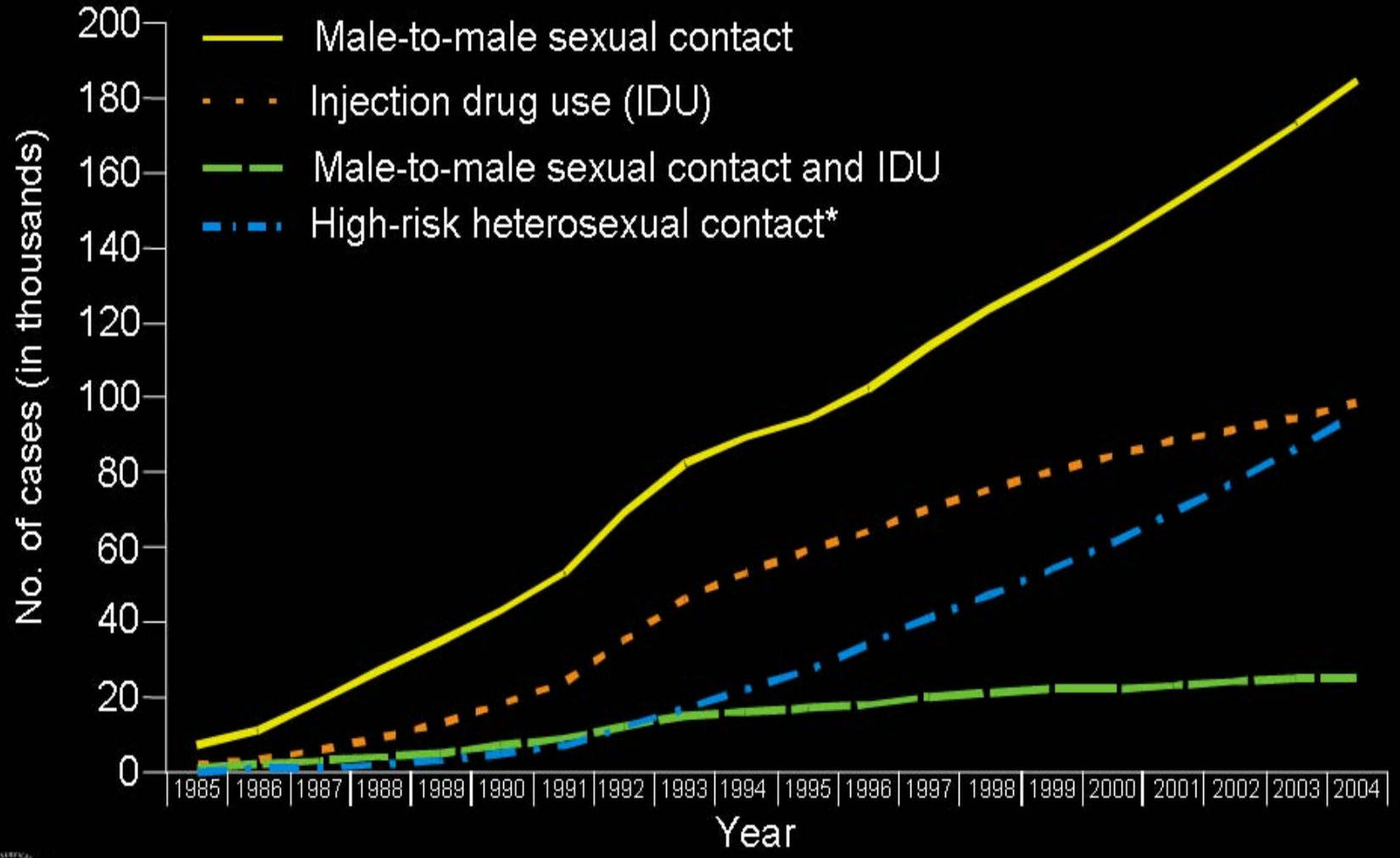


(MMRW, 1984)

Current AIDS epidemiology

- Approximately 1,300,000 living with HIV/AIDS
- 956,666 AIDS diagnoses (as of 2005)
- 425,910 PWLA (increase of 28% since 2001)
- 25% have a history of injection drug use

Adults and Adolescents Living with AIDS by Transmission Category, 1985-2004, United States



Note. Data have been adjusted for reporting delays and cases without risk factor information were proportionally redistributed.
* Heterosexual contact with a person known to have or at high risk for HIV infection.

HPTN 015: Project Explore

- Two-armed trial
- 4250 MSM
- 10 counseling sessions + boosters
- VCT every six months
- Overall seroincidence = 2.1 (1.9, 2.4) per 100 py

  Intervention arm: 115 events / 6,037 py
  Standard arm: 144 events / 6,203 py

Multivariate analysis of seroconversion: Drug and alcohol use

Drug	N at baseline	No. of infections	Hazard ratio*	95% CI
Heavy alcohol**	419	41	1.87	1.24, 2.81
Amphetamines	527	67	1.93	1.41, 2.64
Alcohol or drugs before sex	2952	205	1.57	1.08, 2.27

* REF = no, light or moderate use of alcohol; no speed use; no use before sex

** Heavy alcohol = 4+ drinks every day or 6+ drinks on a typical day

Substance-related HIV risk

- Direct and indirect sharing of injection equipment and materials
- Unprotected sexual activity

  Consequences of substance use in all risk groups: MSMs, IDUs, Heterosexuals

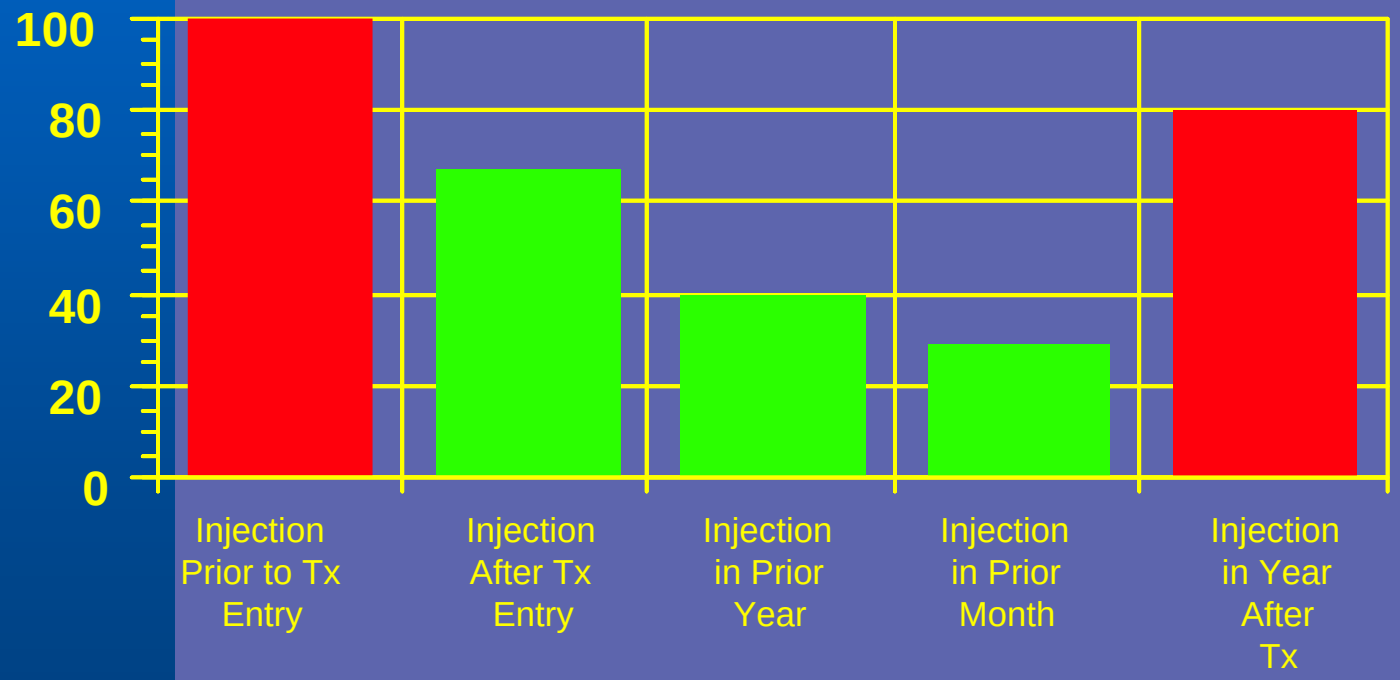
HIV prevention strategies for drug using populations

- Education about HIV transmission
- HIV counseling and testing
- Increased access to sterile injection resources and condoms
- Drug treatment
- HIV treatment

How does drug treatment prevent HIV infection and transmission?

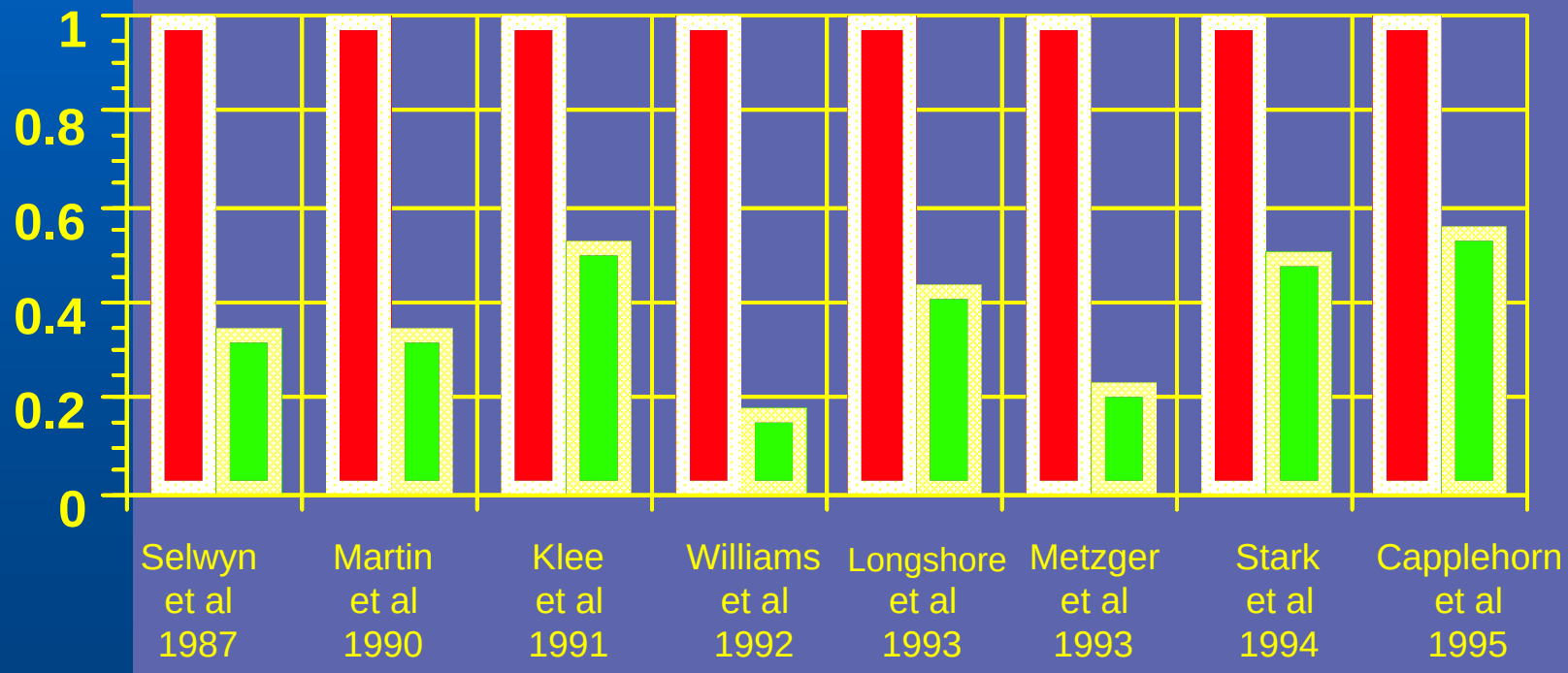
- Effective treatments reduce the frequency of drug use
- Fewer drug-related risk behaviors
- Fewer new infections
- Increased access to HIV treatment
- Increased adherence to HIV medications

Percent of subjects reporting injection prior to, during, and following methadone treatment

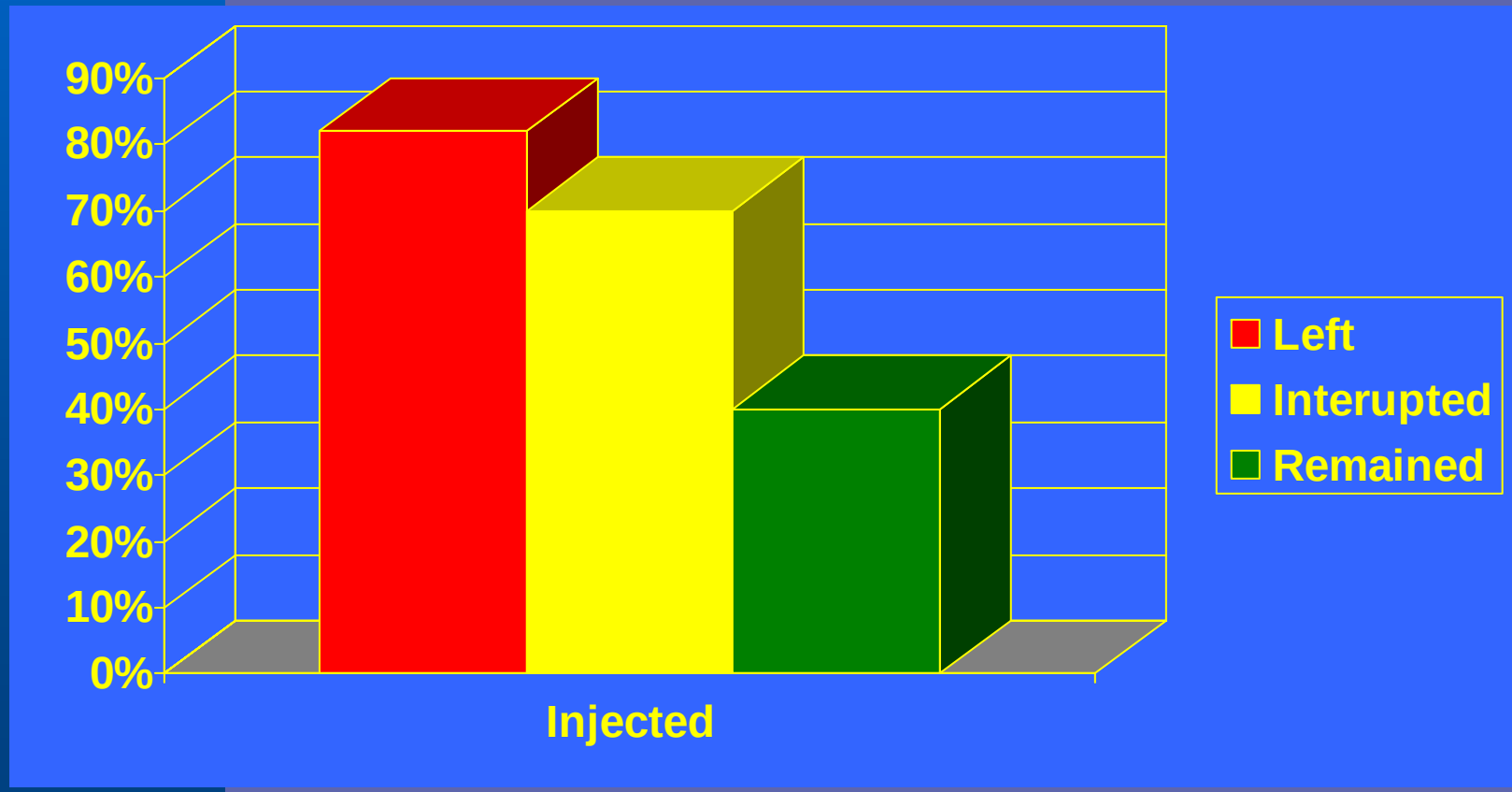


(Ball and Ross, 1991)

Rate of needle sharing reported by In-Treatment IDUs compared to Out-of-Treatment IDUs

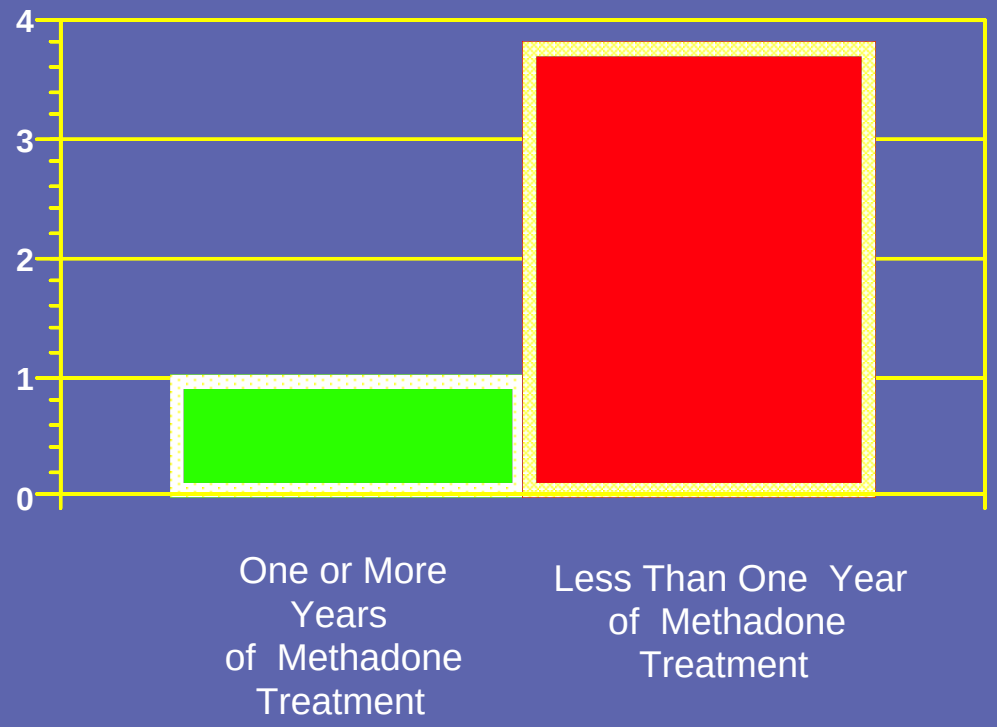


Injection rates 12 months following treatment entry by retention status



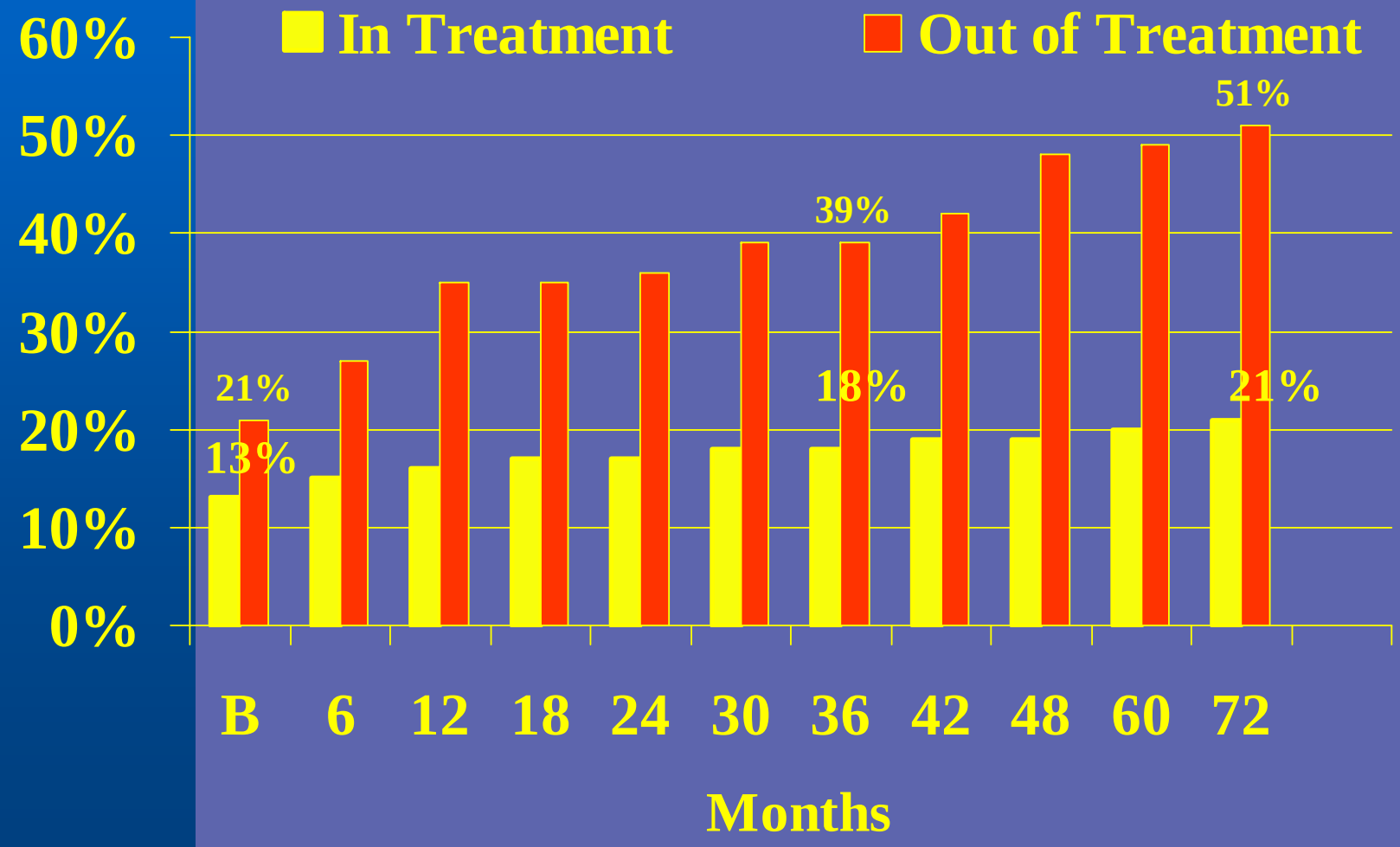
(Thiede,Hagan,and Murrill, 2000)

Seroconversion by treatment participation: retention is critical

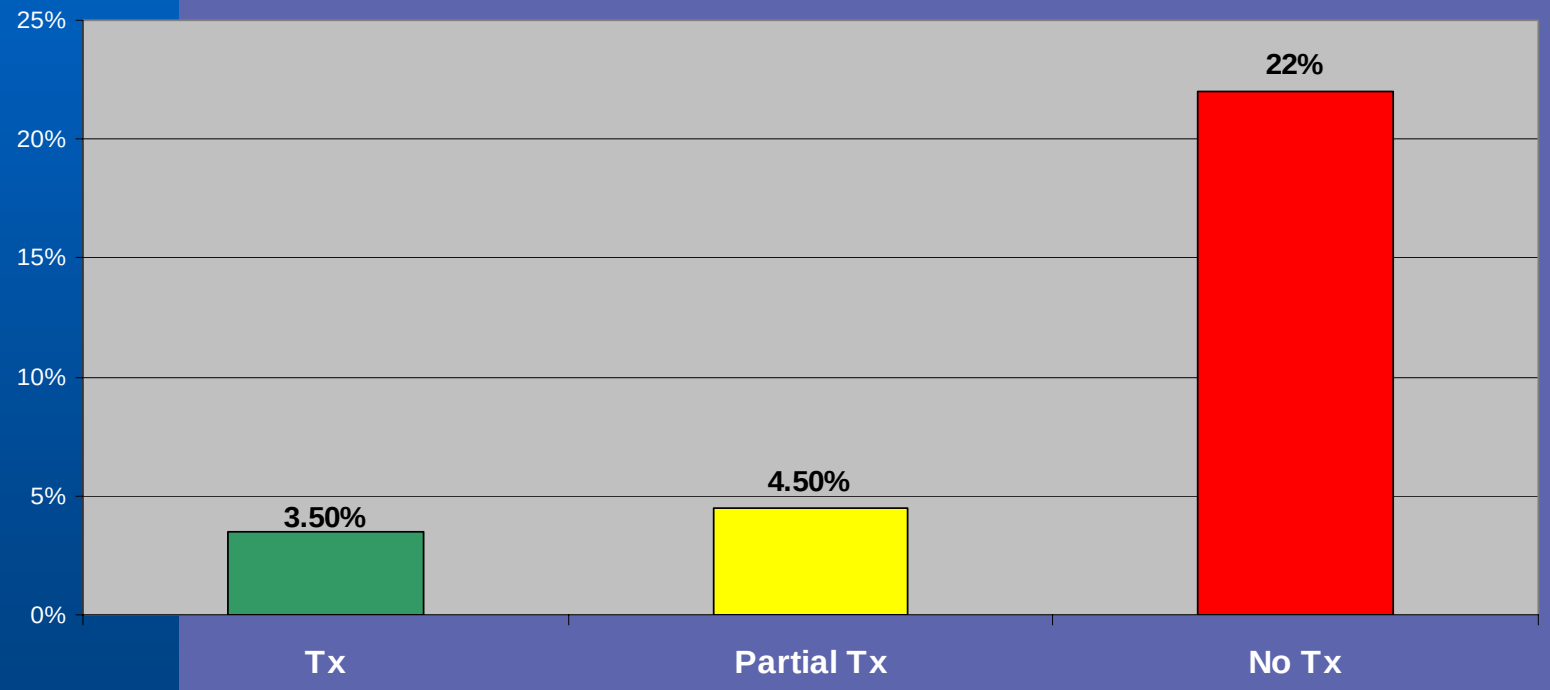


(Moss et al. 1994)

Six year HIV infection rates by treatment status at time of enrollment

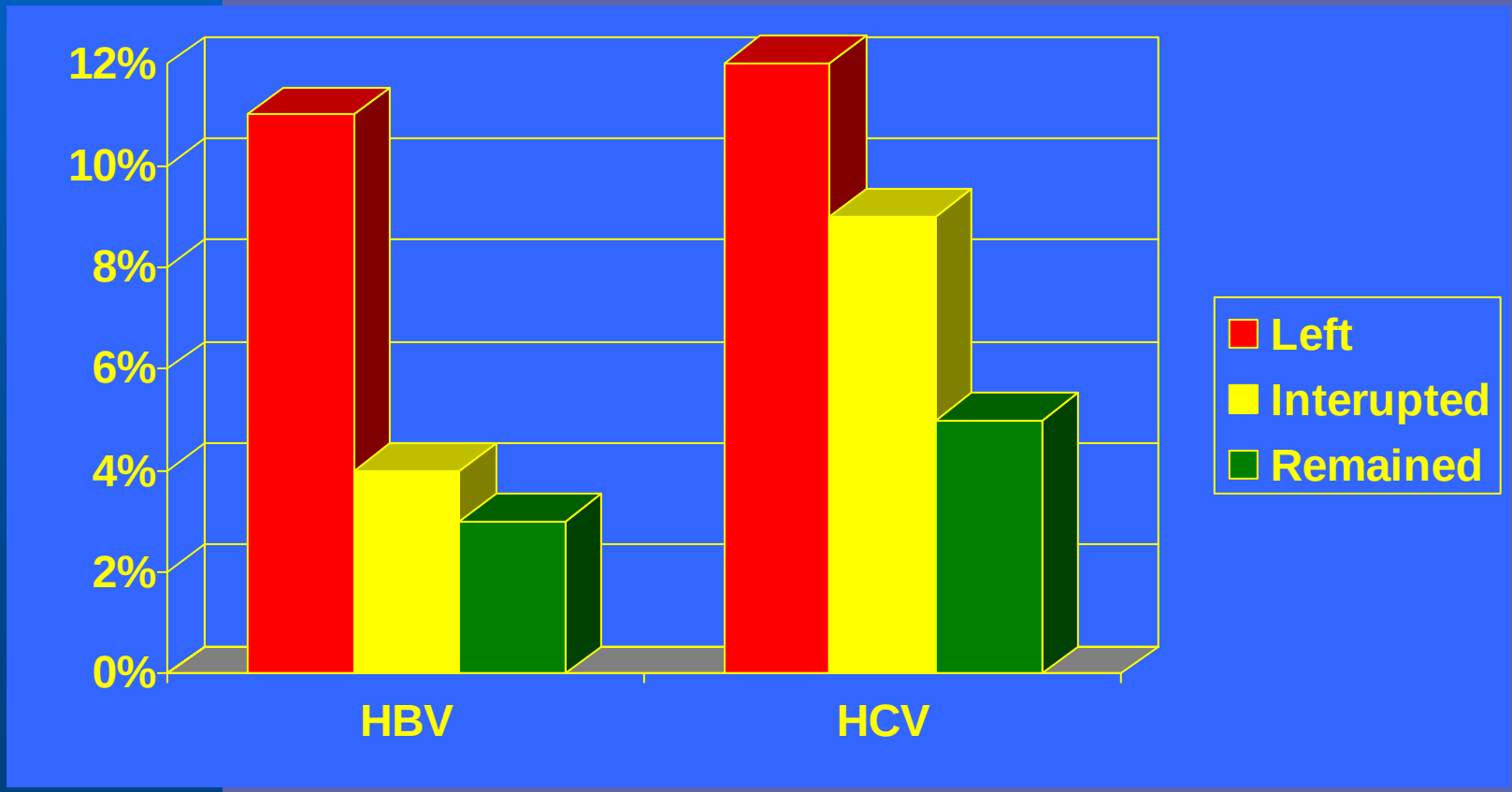


Percent infected after 18 months by treatment status



(Metzger et al. 1993)

Incidence of HBV and HCV 12 Months Following Treatment Entry

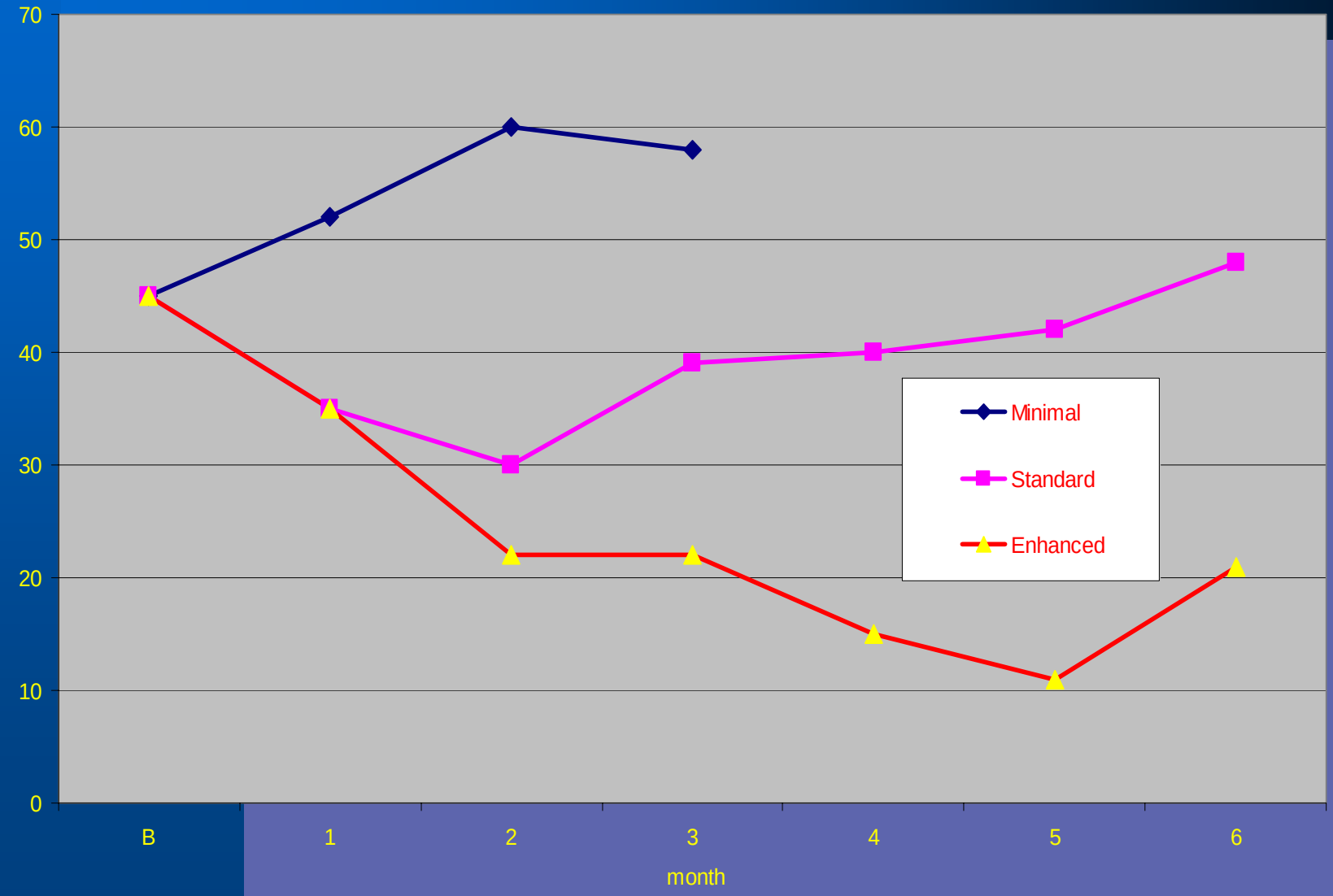


(Thiede,Hagan,and Murrill, 2000)

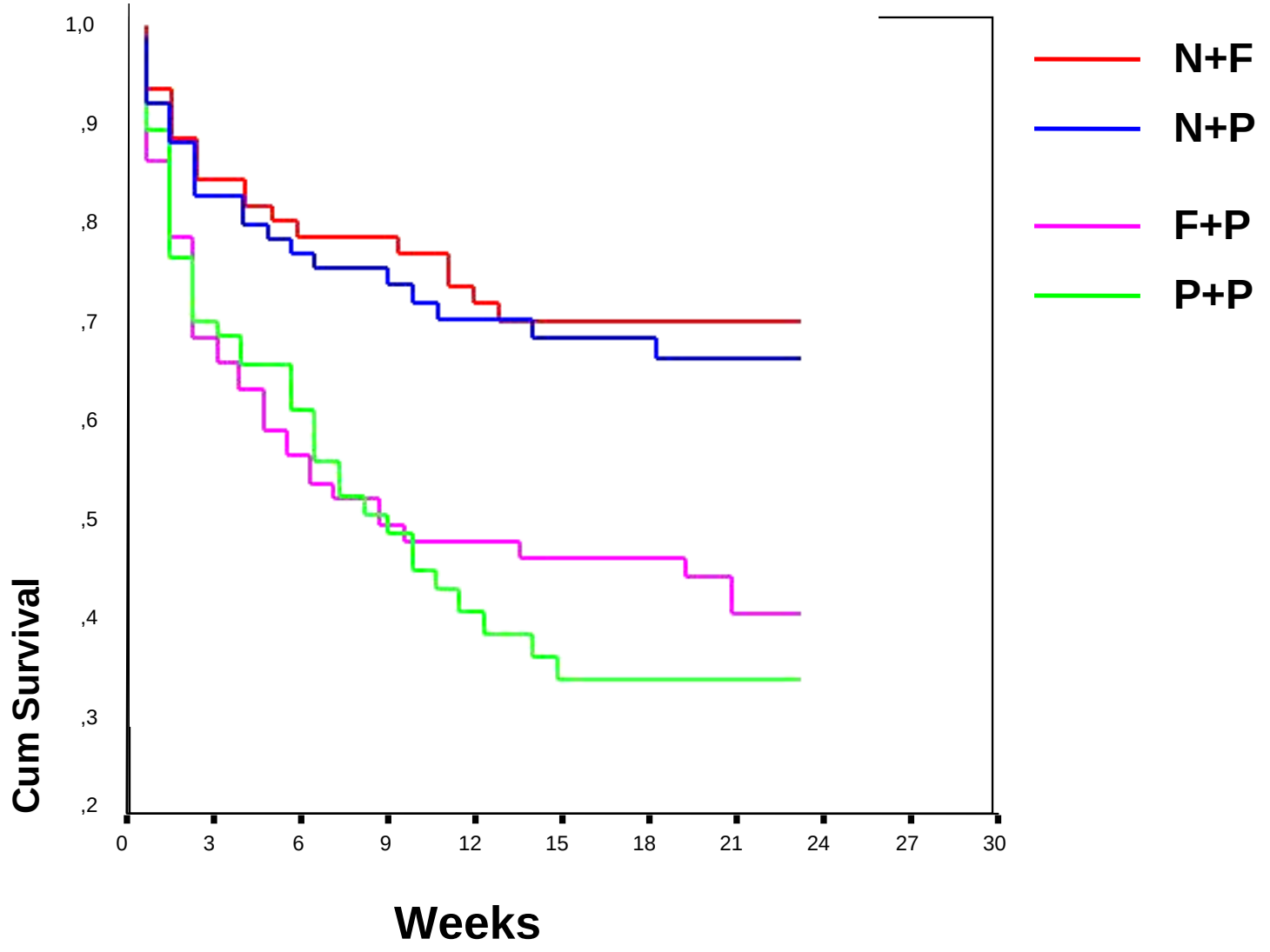
Methadone treatment is more than substitution

- Safe, stable dosing
- Drug use monitored
- Drug counseling
- Access to other services

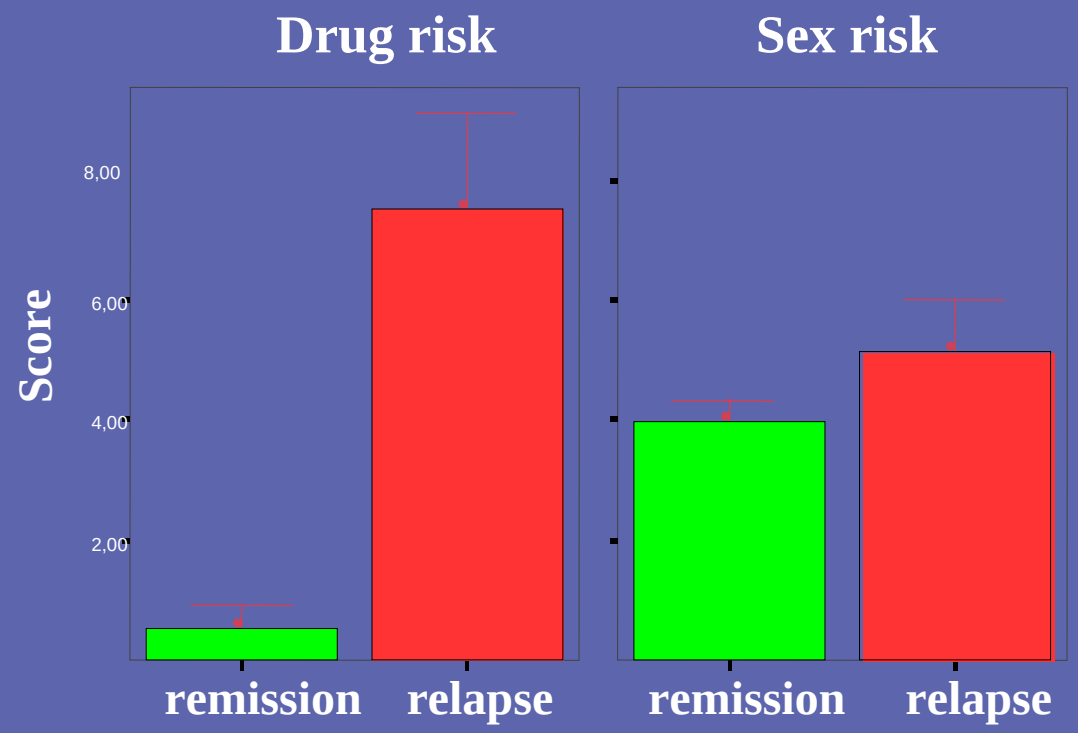
Rate of opiate positive in three approaches to methadone treatment



Naltrexone and drug counseling treatment in St. Petersburg



Naltrexone treatment in St. Petersburg



Zvartaw et al, 2006

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Effectiveness of drug dependence treatment in HIV prevention

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Drug treatment as HIV prevention

- In treatment subjects reduce risk over time
- Treated subjects have lower risk than untreated
- Treated subjects have lower prevalence and incidence of HIV

(Sorensen J. and Copeland A, 2000)

Limitations of treatment studies

- Measurement variability
- Short follow-up
- Focus on opiate dependent injectors
- No randomized controlled trials with HIV endpoints

HPTN 058

Opiate dependent drug users recruited from the community

Detoxification at 0 and 6 months

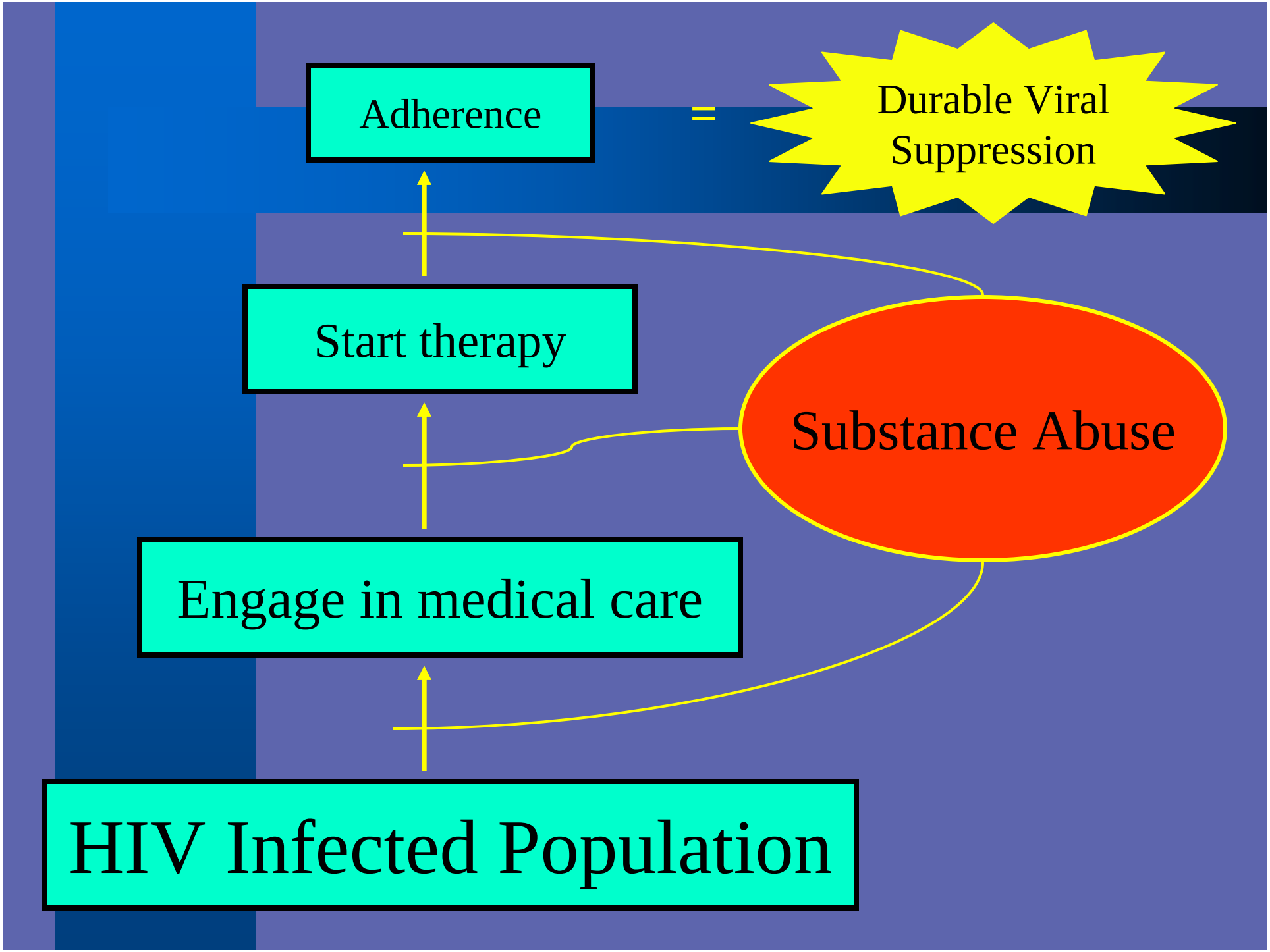
3 Months of Weekly and 9 months of Monthly Drug and Risk Reduction Counseling

12 Months Buprenorphine/Naloxone +3 Months of Weekly and 9 months of Monthly Drug and Risk Reduction Counseling

18 and 24+ month follow-up

Drug use and HIV disease progression and viral activity

- In vivo: No clear evidence of impact of drug use on survival from past cohort studies
- In vitro: opiates, cocaine, alcohol enhance viral activation and replication; suppression of immune response

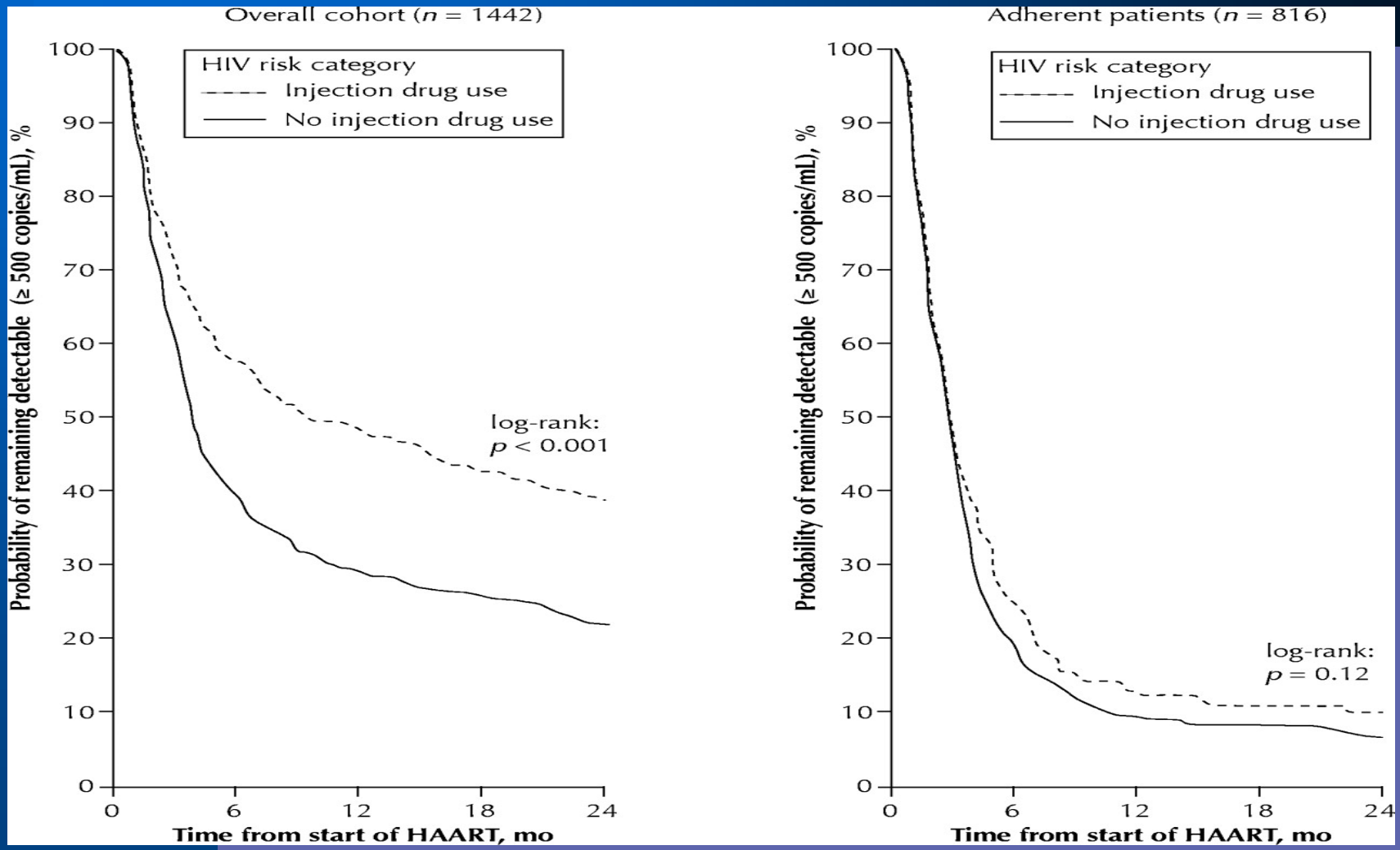

Adherence
=
Durable Viral Suppression
Start therapy
Substance Abuse
Engage in medical care
HIV Infected Population

Adherence with antiretroviral therapy is adversely affected by drug use

	Not using cocaine (n=57)	Using cocaine (n=20)	P value
Adherence (MEMS Caps)	68%	27%	0.005
Viral suppression	46%	13%	0.005

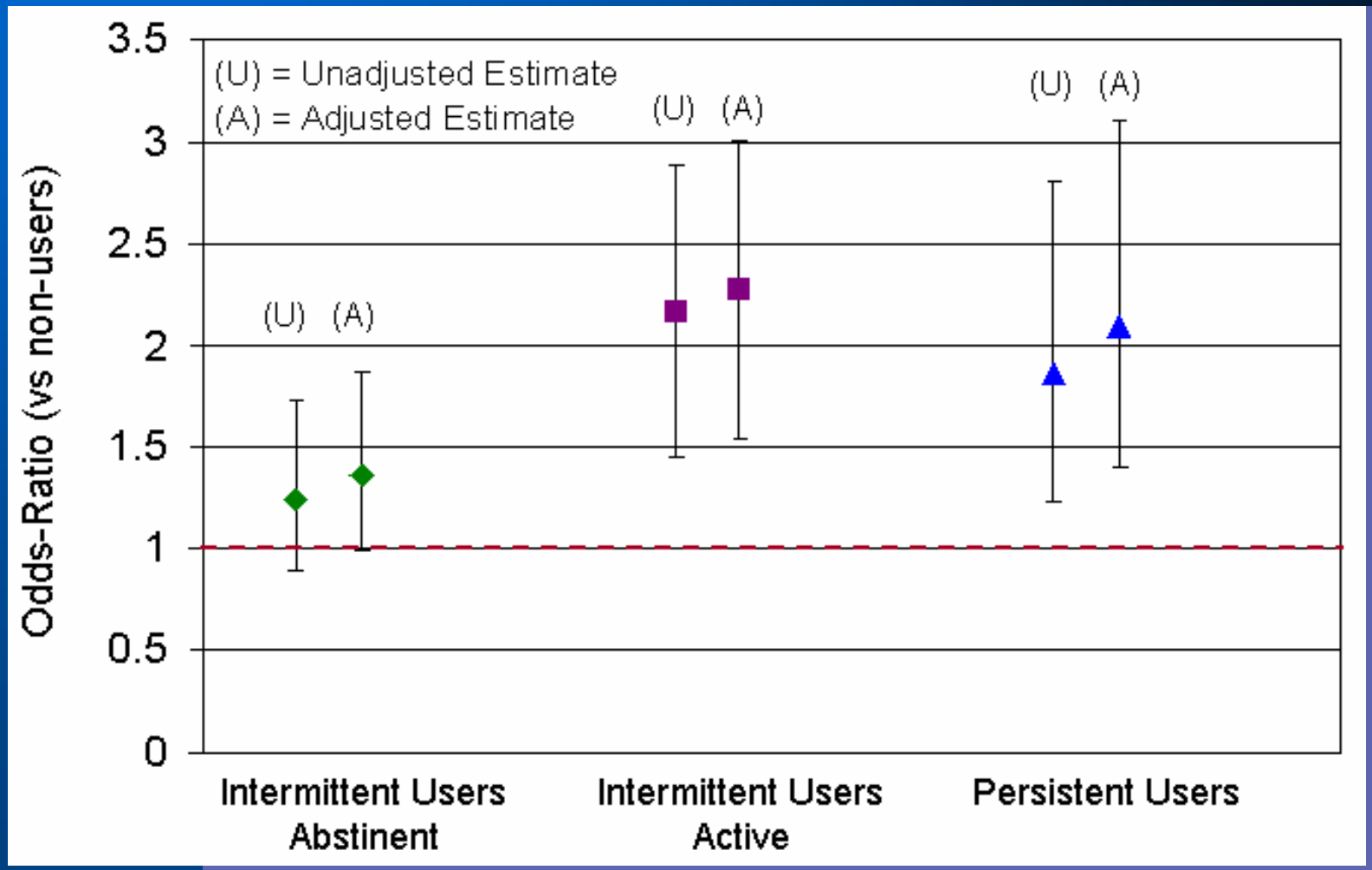
Arnsten JH. J Gen Intern med 2002;17:377

Drug use, adherence, and viral suppression in a large British Columbia Cohort of HIV-infected patients starting HAART



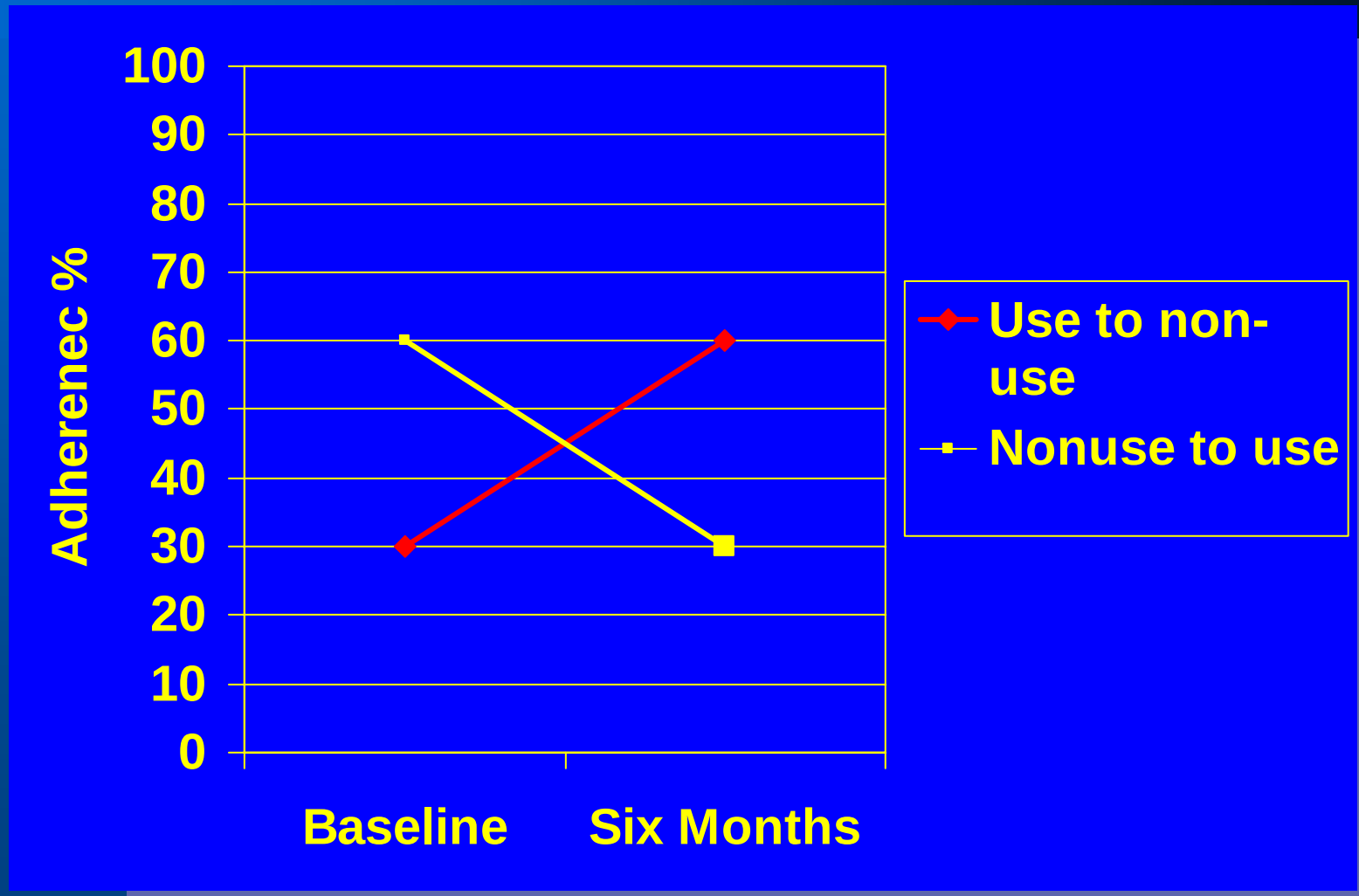
Wood, E. et al. CMAJ 2003;169:656-661

Risk of developing new opportunistic infection according to drug use status



Lucas et al. Am J Epidemiol 2006

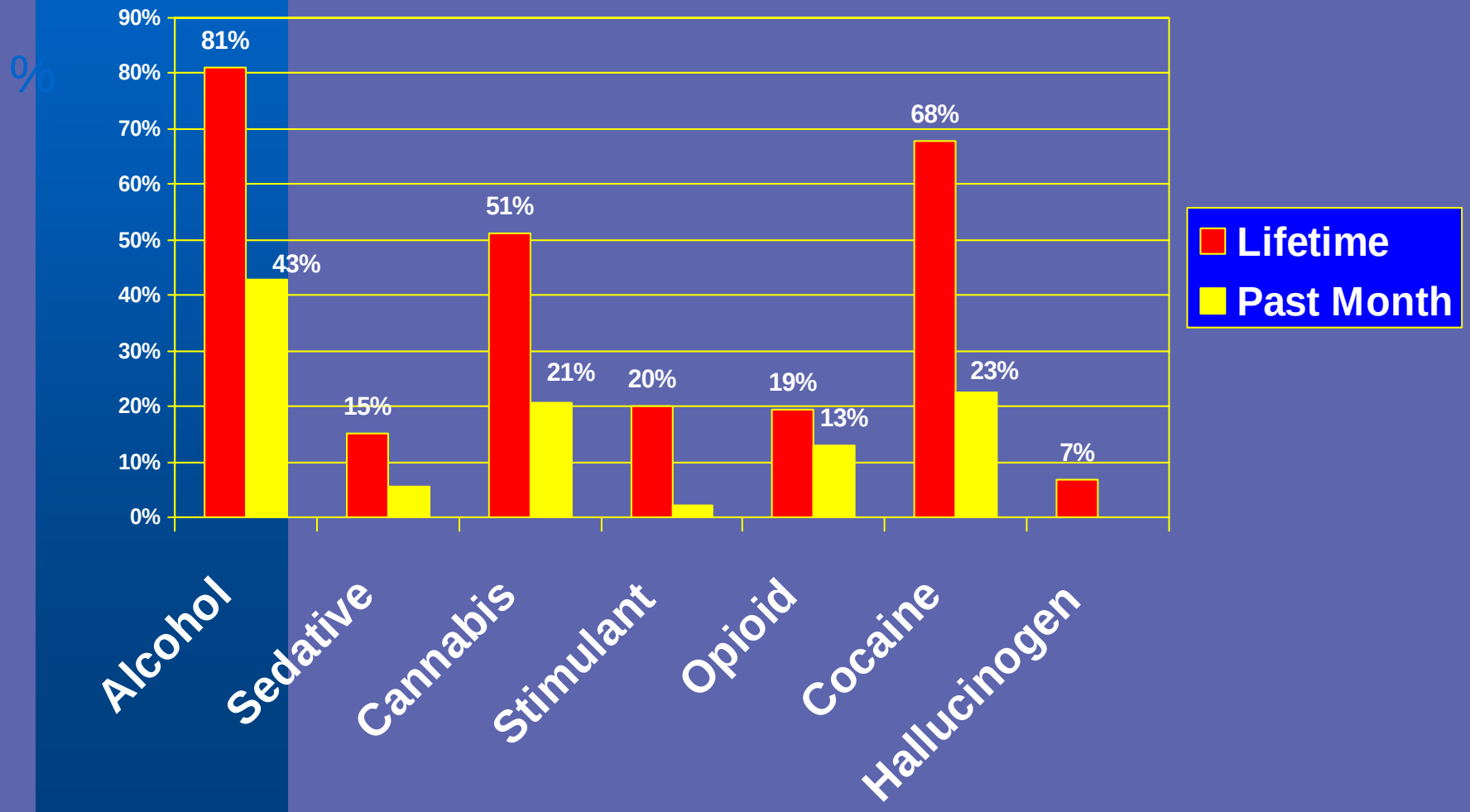
Adherence to HIV medications by drug use



Lucas et al, 2002

DSM IV criteria for abuse or dependence

(Participants n=237)



Adherence by past and current drug and alcohol diagnoses

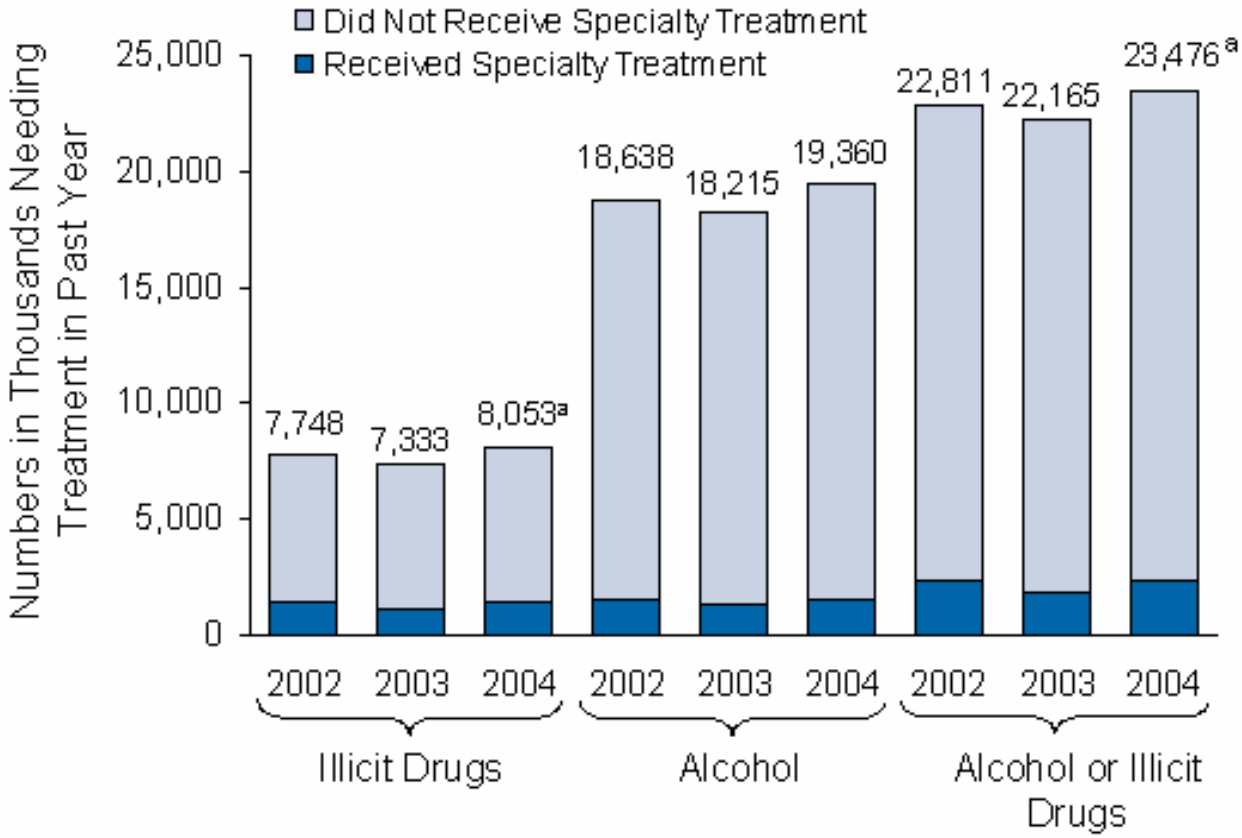
	Alcohol	Drug
Current diagnoses	p<.01	p<.01
Lifetime diagnoses	NS	NS

Suboxone offers new opportunities for treatment in HIV care settings

Maximizing the impact of drug abuse treatment HIV prevention

- Accessible
- Acceptable
- Affordable

Publicly funded treatment need vs. participation

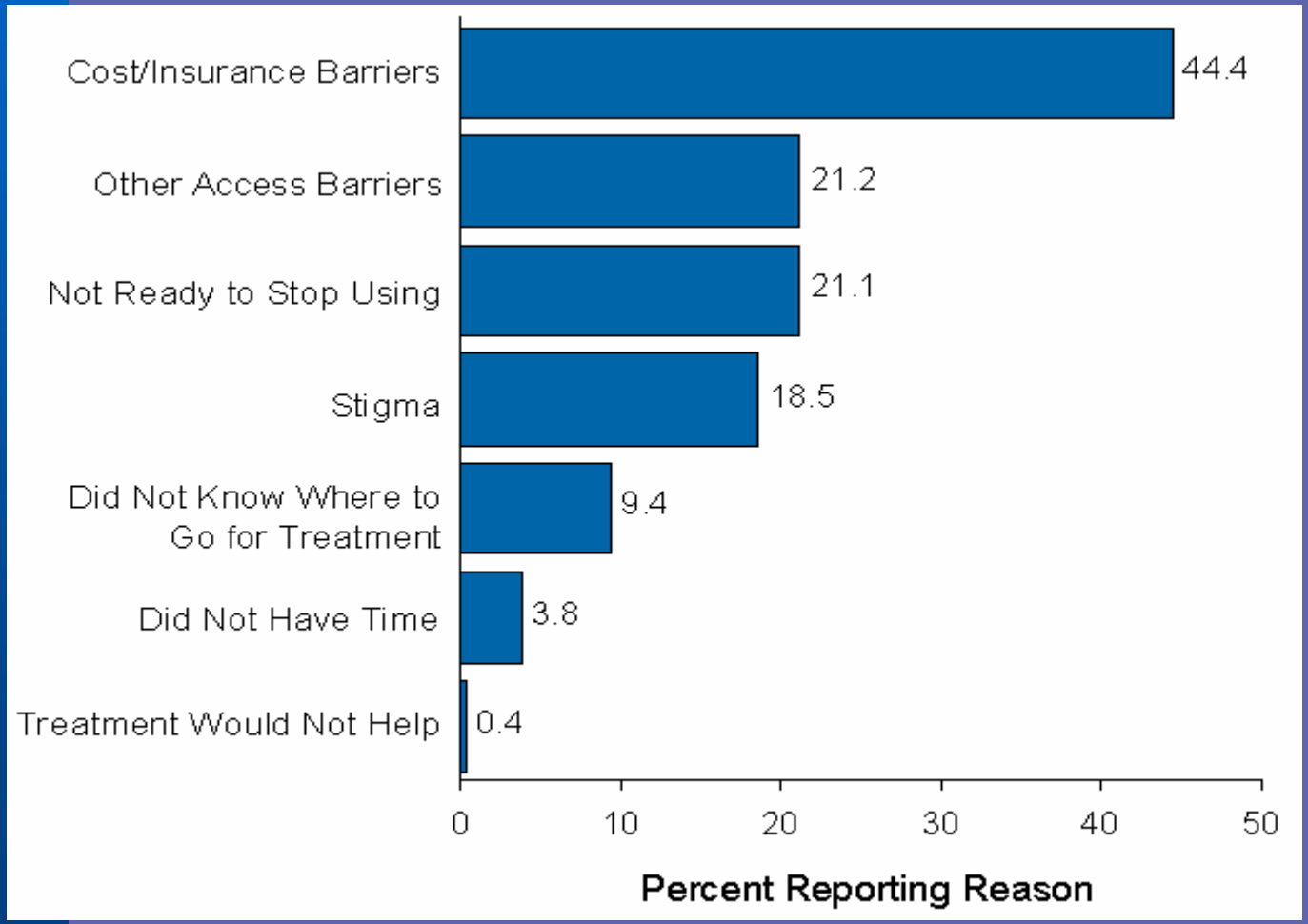


[a] Difference between the 2003 estimate and the 2004 estimate is statistically significant at the .05 level.

[b] Difference between the 2002 estimate and the 2004 estimate is statistically significant at the .05 level.

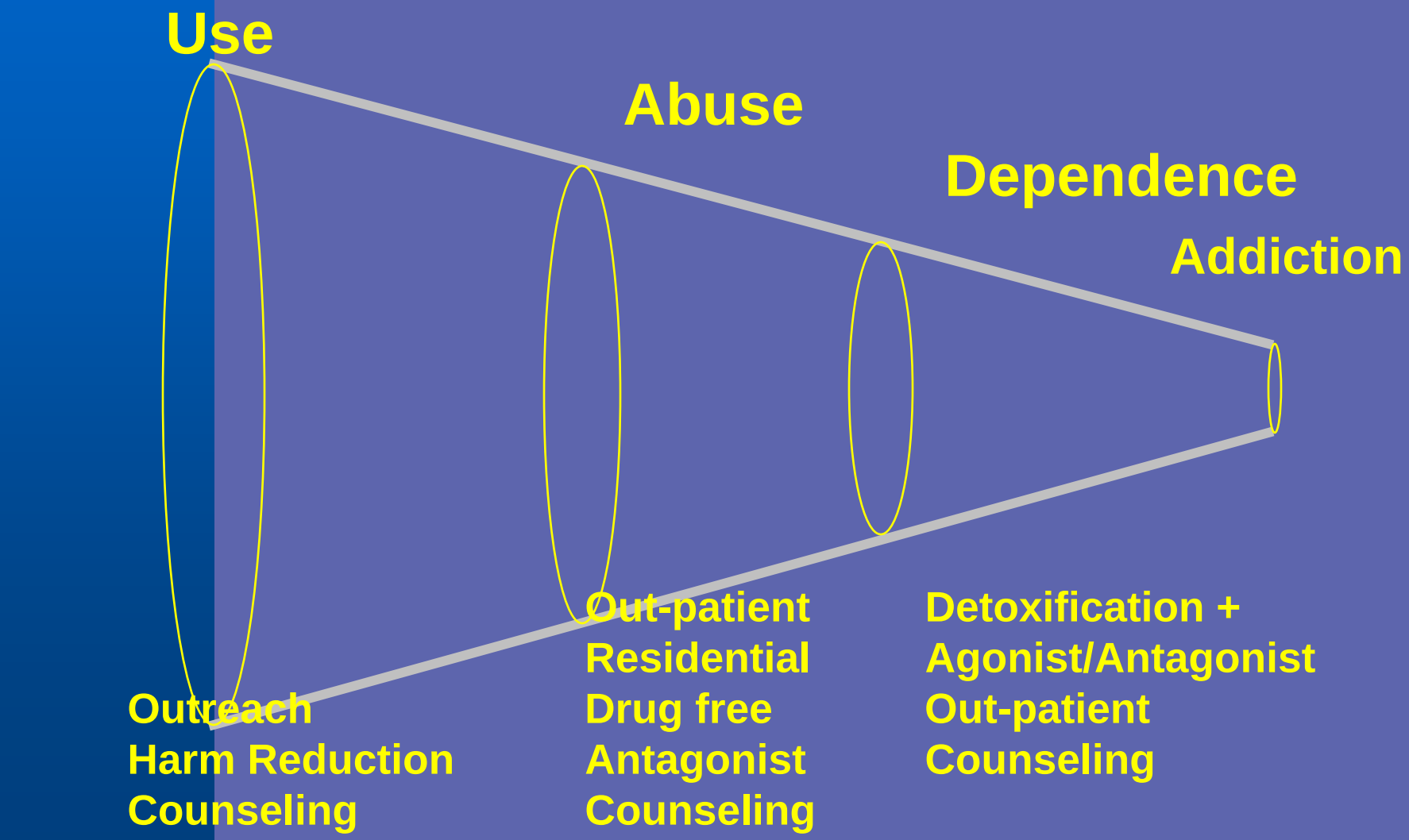
NNSATS, 2006

Barriers to treatment

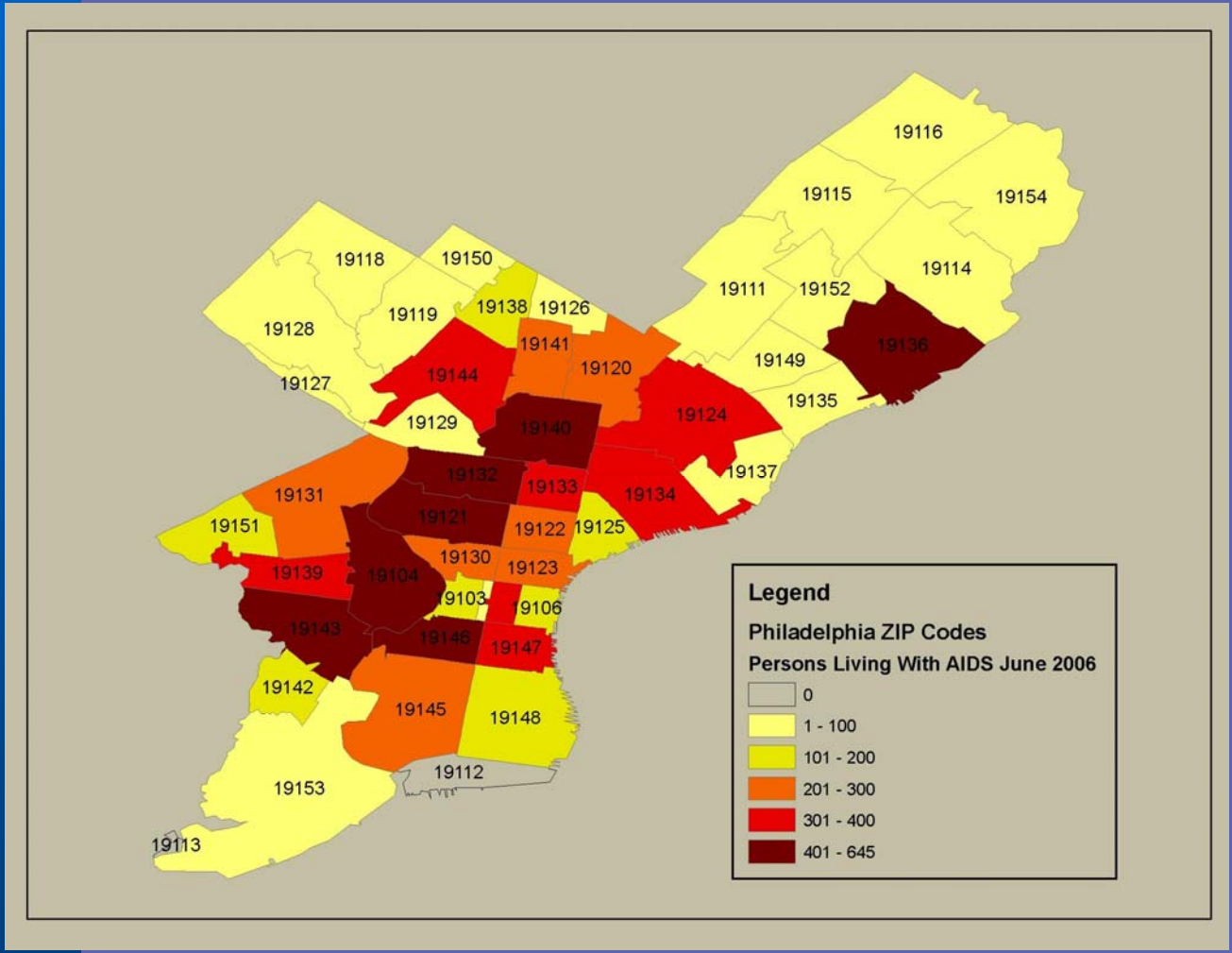


NNSATS, 2006

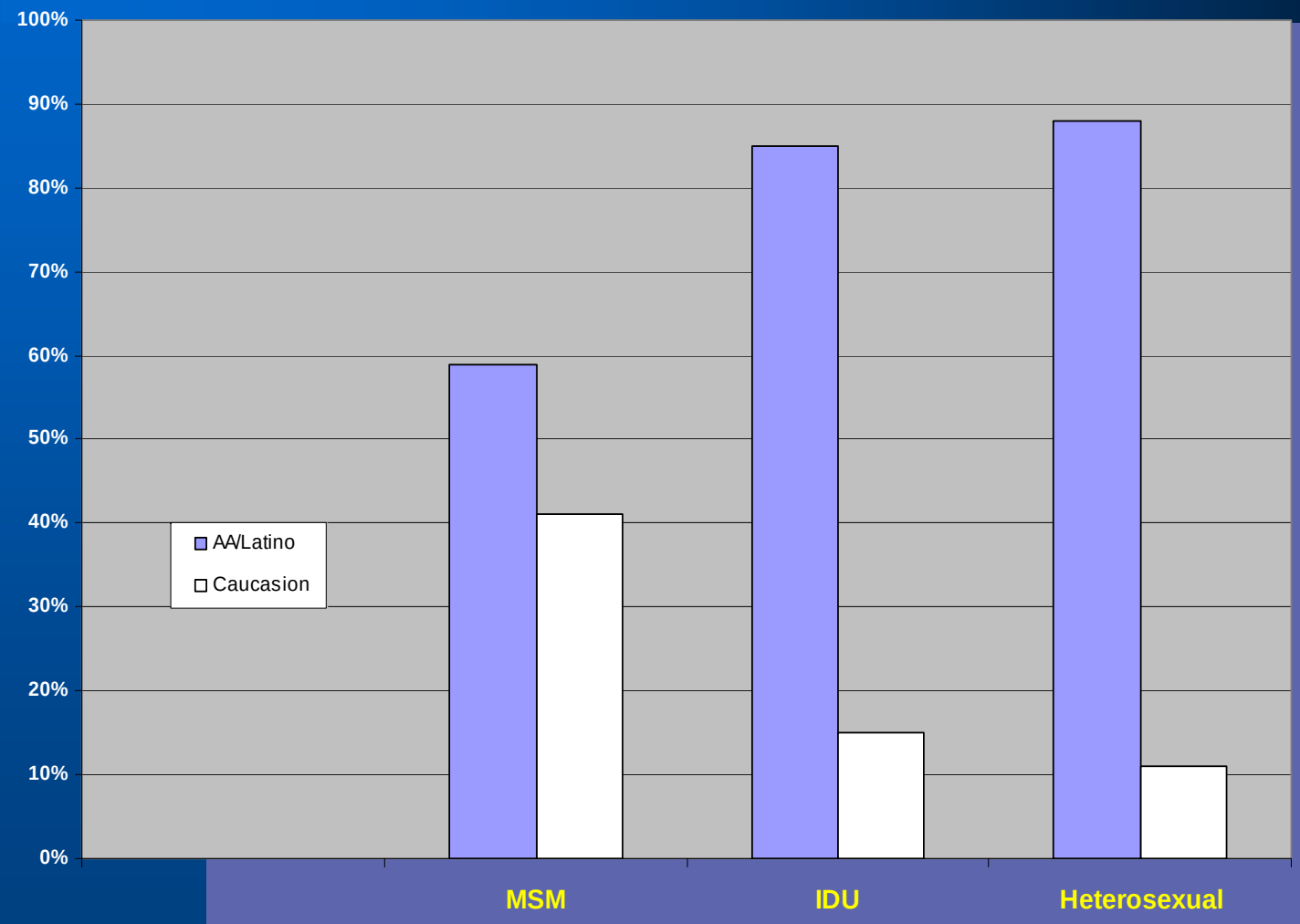
Continuum of Drug Use and Treatment



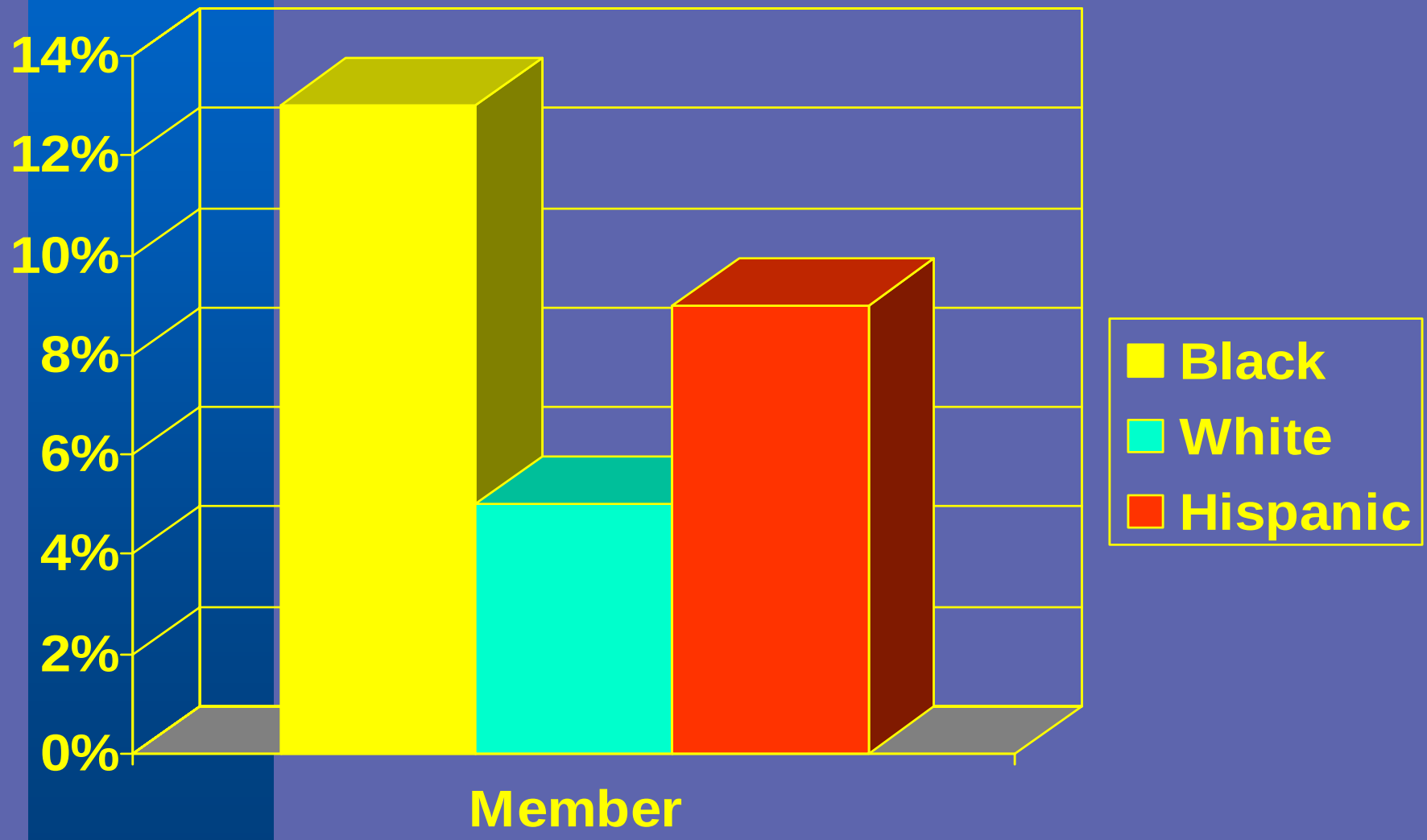
Geography is important



Diagnosed AIDS cases by Race in Philadelphia: 1980 - 2006

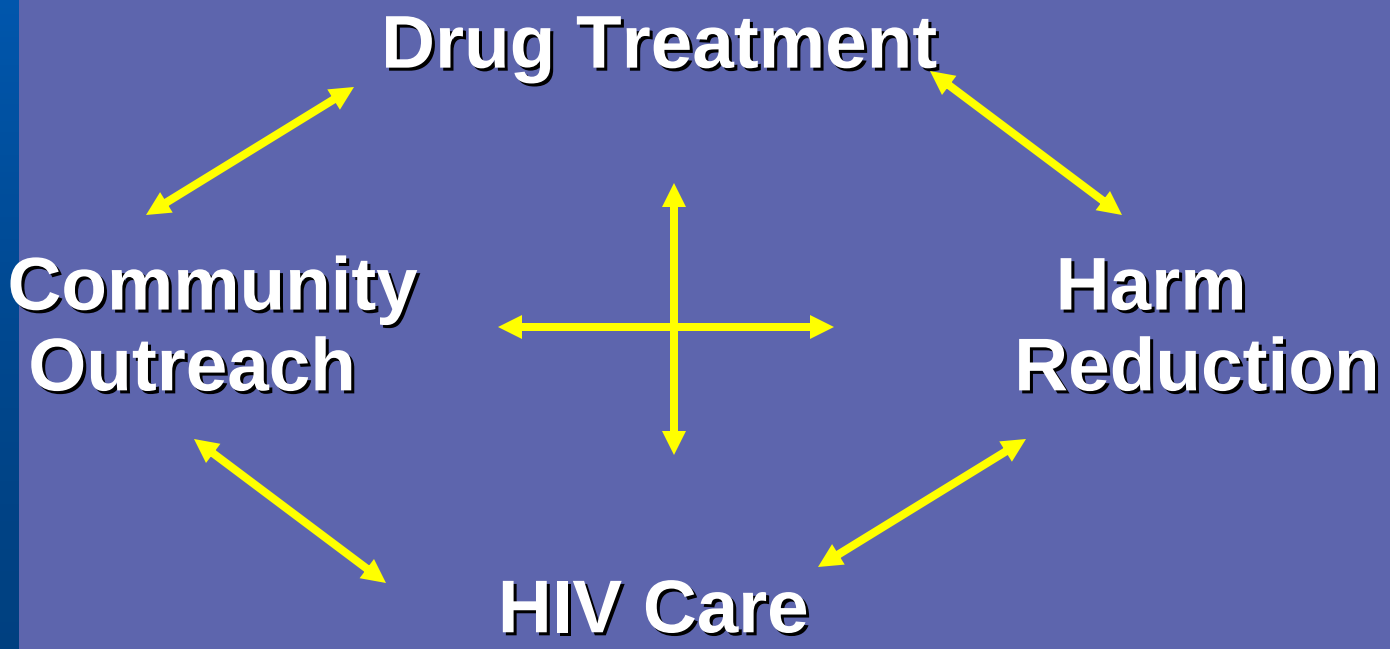


HPTN 037: HIV Prevalence among risk network members (N=697)



HIV prevention and care implications

Each strategy alone may be necessary but not sufficient for public health impact:



Conclusions

- **Behavioral and serologic data support the hypotheses that drug users in treatment:**

  significantly reduce the frequency of use

  practice fewer risk behaviors

  have greater access to HIV treatment

  are more adherent to HIV care

Conclusions

- **Data suggests effective treatments for drug users:**

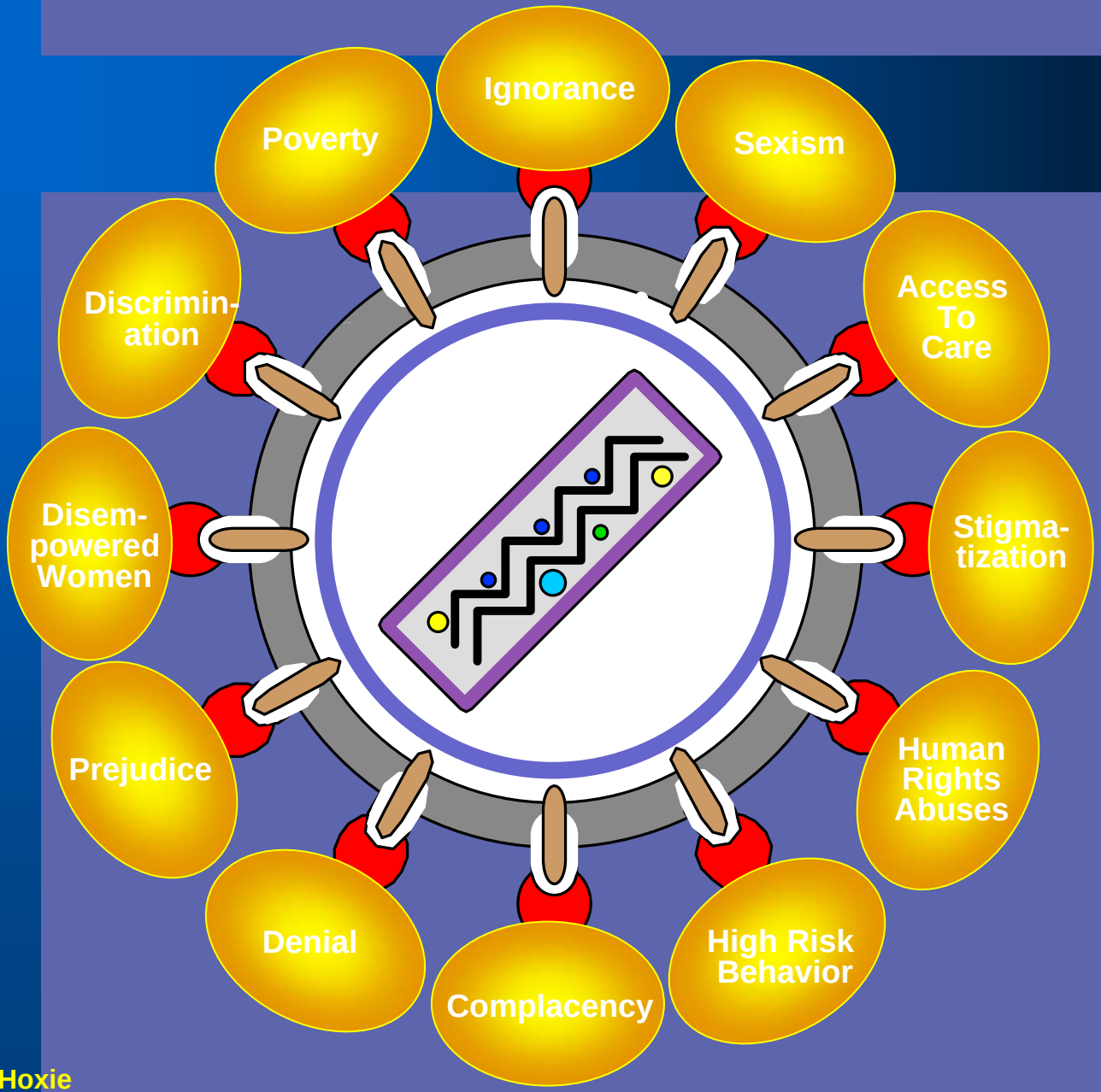
  recognize addiction as a chronic disease (at least one year)

  use pharmacologic and counseling interventions

  are accessible and acceptable

Implications for public health

- New models for the delivery of treatments
- Target drug users earlier in the continuum of use
- Include HIV endpoints in Phase II trials
- Urgent need for pharmacologic treatments for stimulant abuse



Courtesy of Jim Hoxie

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- Wenzhe Ho
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- Tom Coates