

# **Substance Abuse Treatment as HIV Prevention**

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# Overview

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- **Overview of injection drug use and the HIV epidemic**
  - Small segment of the community are IDU**
  - Non injection drug use facilitates HIV transmission**
- **Proof of Concept : Drug treatment is HIV prevention**
- **Minimal treatment “coverage”**
- **Expanding treatment options**
- **Targeting treatment to those most likely to become infected**

# Current AIDS epidemiology

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- **Approximately 33,000,000 living with HIV/AIDS**
- **Over 3,000,000 IDUs living with HIV/AIDS**
- **Outside of sub-Saharan Africa, over 33% of all new infections are estimated to be attributable to injection drug use**
- **No estimates of the major role of alcohol and non-injection drug use**

# Predictors of seroconversion in Explore: drug and alcohol use

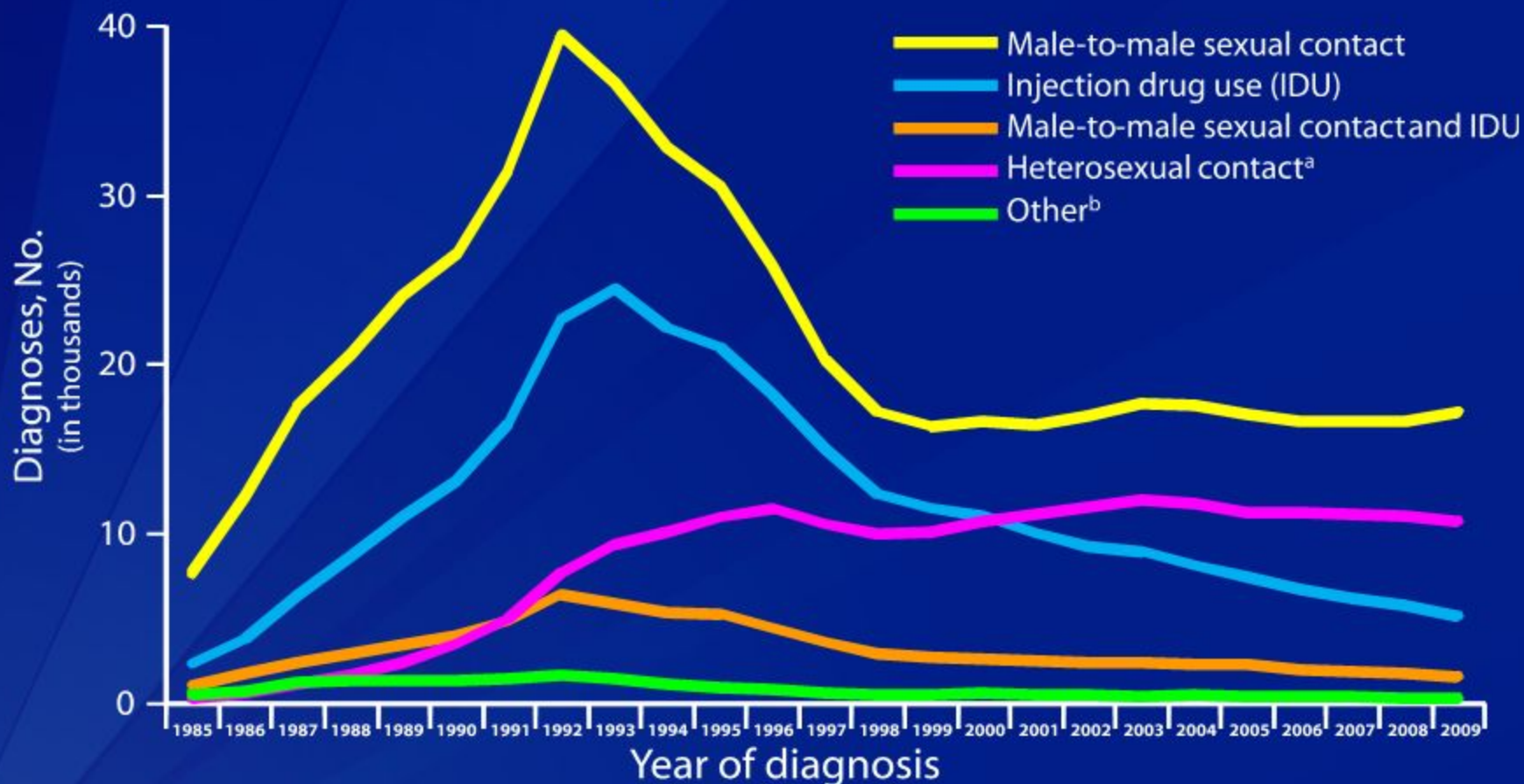
Drug	N at baseline	No. of infections	Hazard ratio*	95% CI
Heavy alcohol**	419	41	1.87	1.24, 2.81
Amphetamines	527	67	1.93	1.41, 2.64
Alcohol or drugs before sex	2952	205	1.57	1.08, 2.27

\* 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



# AIDS Diagnoses among Adults and Adolescents by Transmission Category, 1985–2009—United States and Dependent Areas



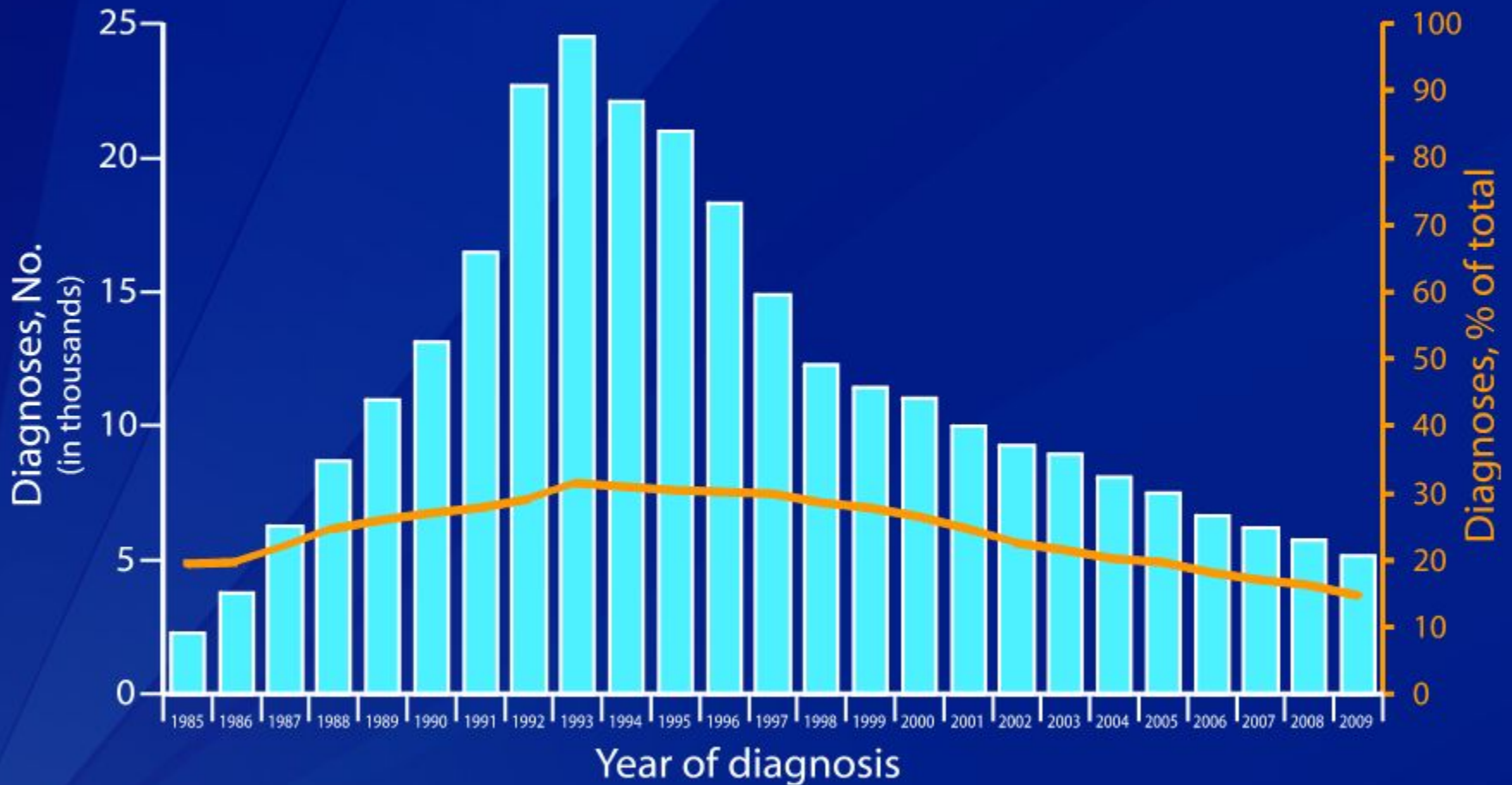
Note. All displayed data have been statistically adjusted to account for reporting delays and missing risk-factor information, but not for incomplete reporting.

<sup>a</sup> Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

<sup>b</sup> Includes hemophilia, blood transfusion, and risk factor not reported or not identified.



# AIDS Diagnoses among Injection Drug Users, 1985–2009— United States and Dependent Areas



Note. All displayed data have been statistically adjusted to account for reporting delays and missing risk-factor information, but not for incomplete reporting. Data exclude men who reported sexual contact with other men and injection drug use.





# Adults and children estimated to be living with HIV as of end 2004



**Total: 39.4 (35.9 – 44.3) million**

# Adults and children estimated to be living with HIV, 2008

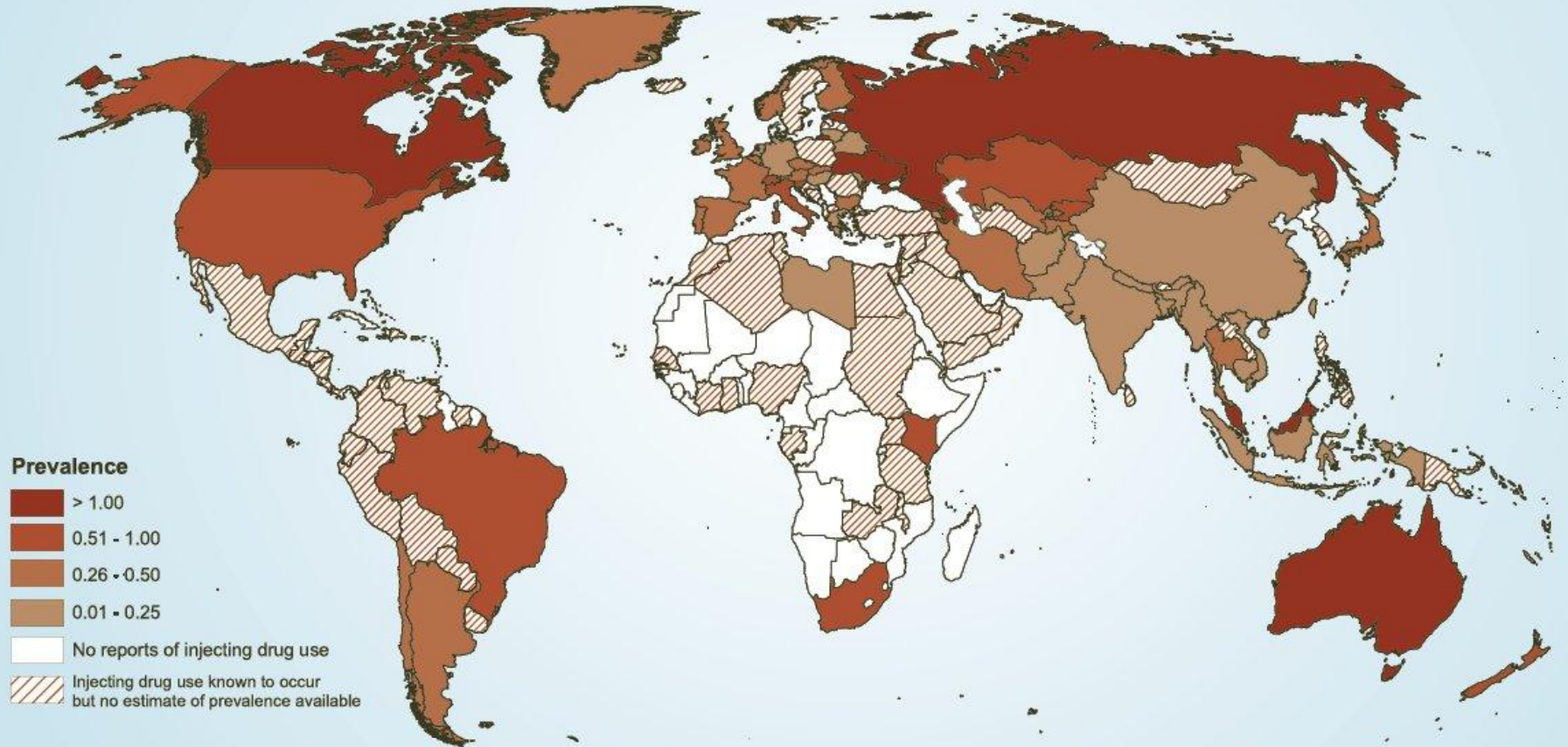


**Total: 33.4 million (31.1 – 35.8 million)**



# Mode of use varies

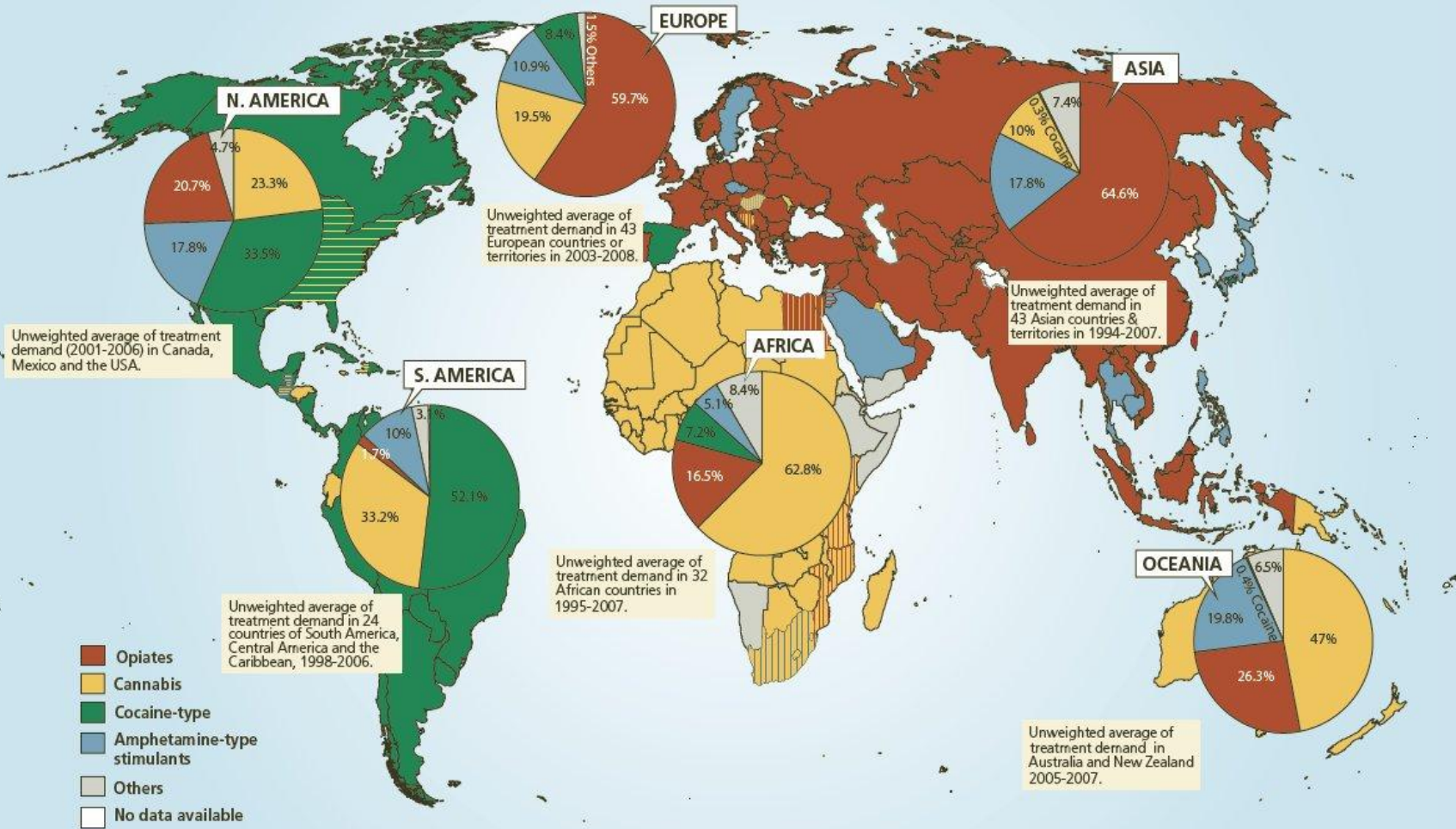
Prevalence (%) of injecting drug use among those aged 15-64 years



Note: The boundaries and names shown and designation used do not imply official endorsement by the United Nations.

# Globalization of drug use

Main problem drugs (as reflected in treatment provided), 2007 (or latest year available)



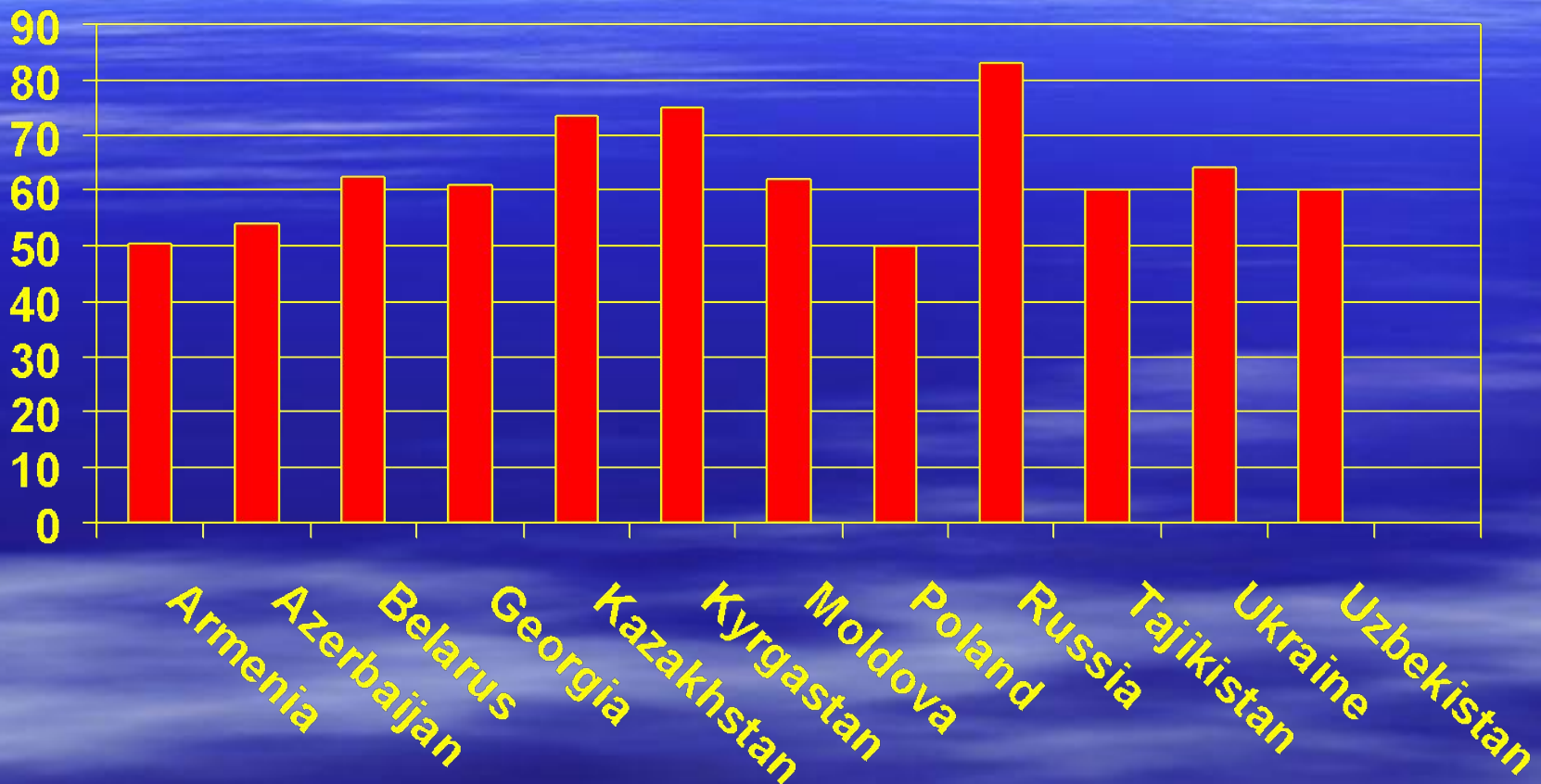
Note: Data generally account for primary drug use; therefore polydrug use may increase totals beyond 100%.

Sources: UNODC, Annual Reports Questionnaire Data/DELTA and National Government Reports.



# IDUs as Percent of Total Registered HIV Cases

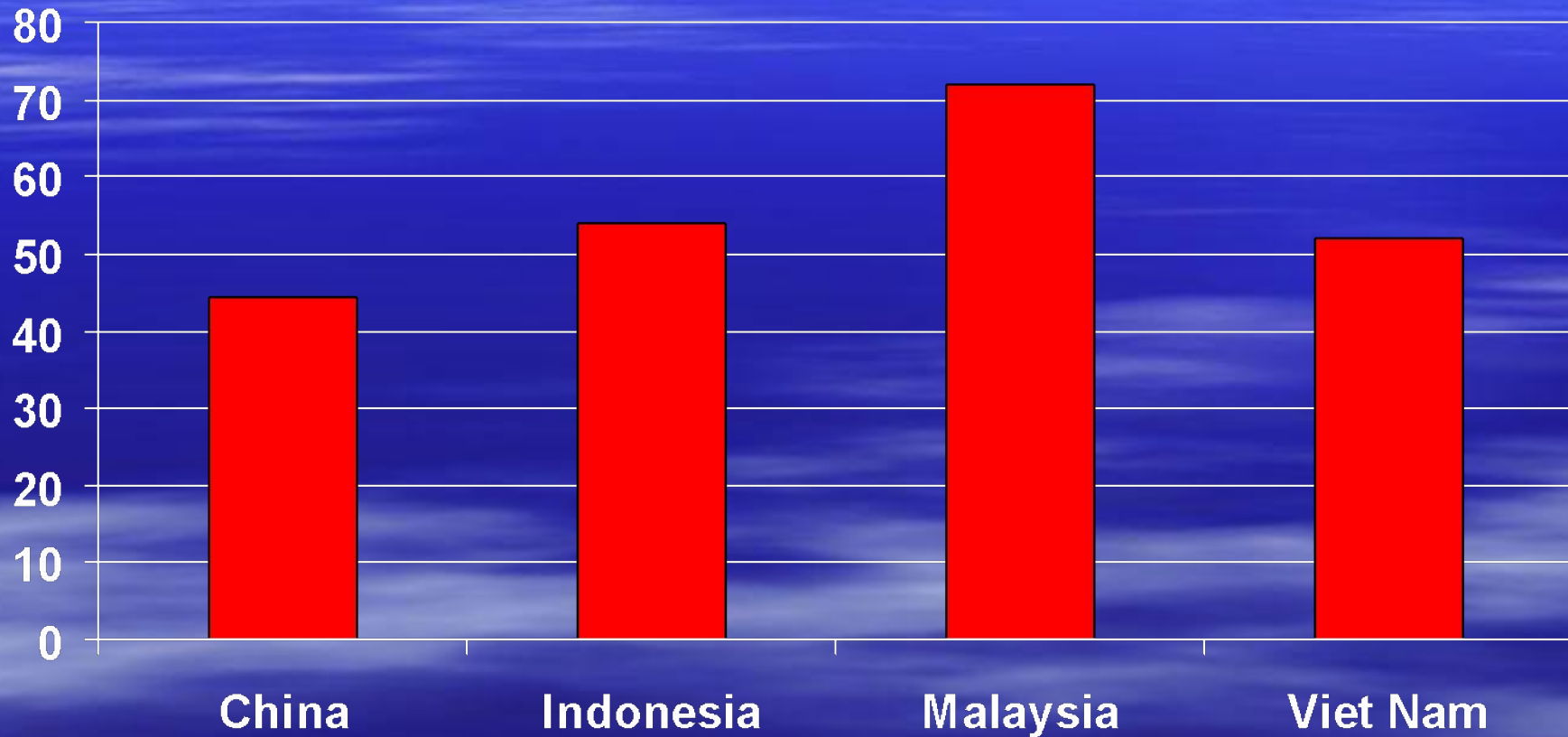
## *Eastern Europe and Central Asian Countries, 2007*





# IDUs as Percent of Total Registered HIV Cases

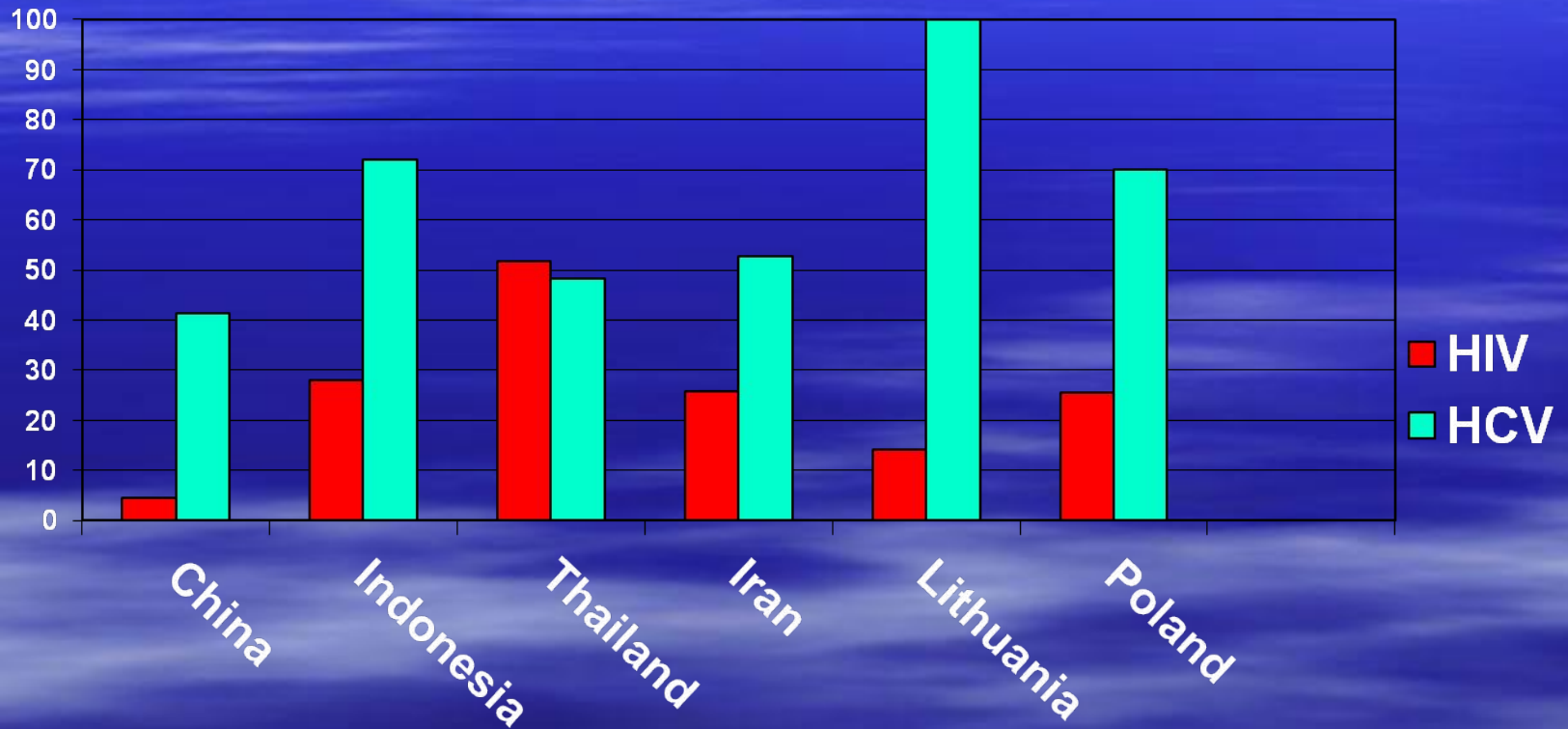
*East and South East Asian Countries, 2007*



Source: UNAIDS 2008 Report on the Global AIDS Epidemic

# Prevalence of HIV and HCV among WHO study participants by site

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# HIV prevention strategies for drug using populations

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



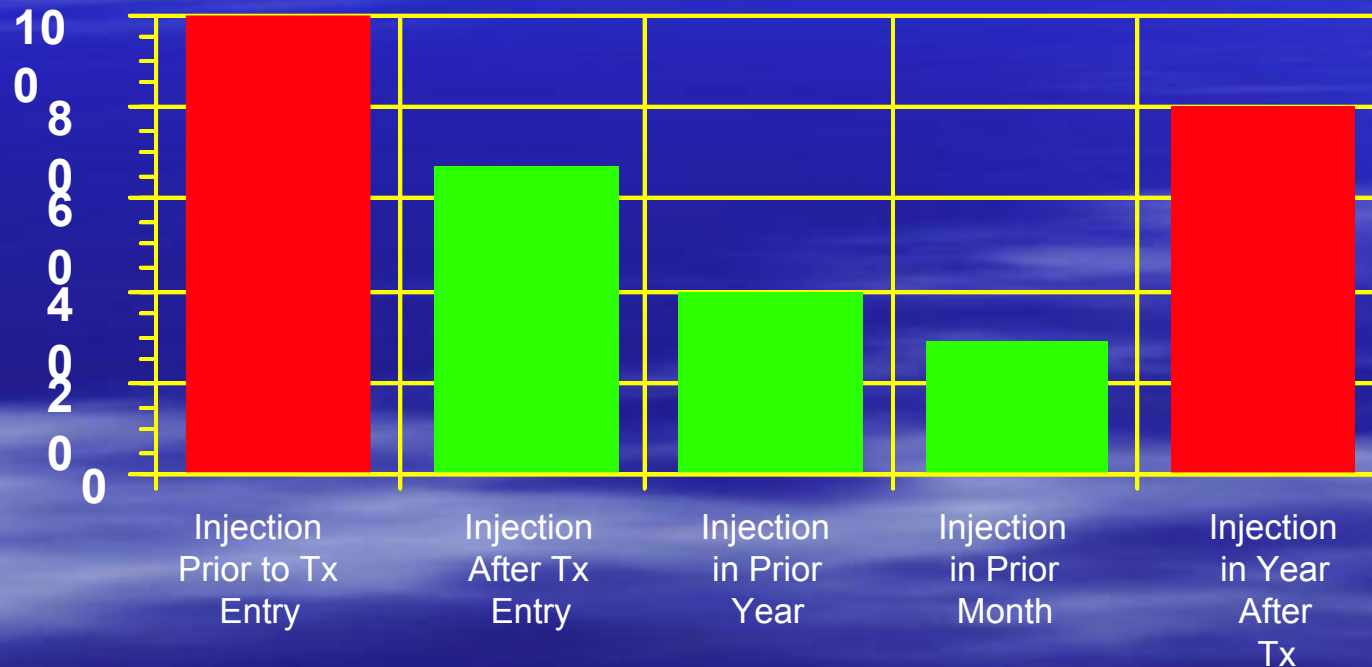
# Addiction is a chronic medical condition

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- **Biological components (dependence)**
- **Behavioral components (addiction)**
- **Effective management requires attention to both--medication *assisted* treatment**

# Percent of subjects rejecting prior to, during, and following methadone treatment

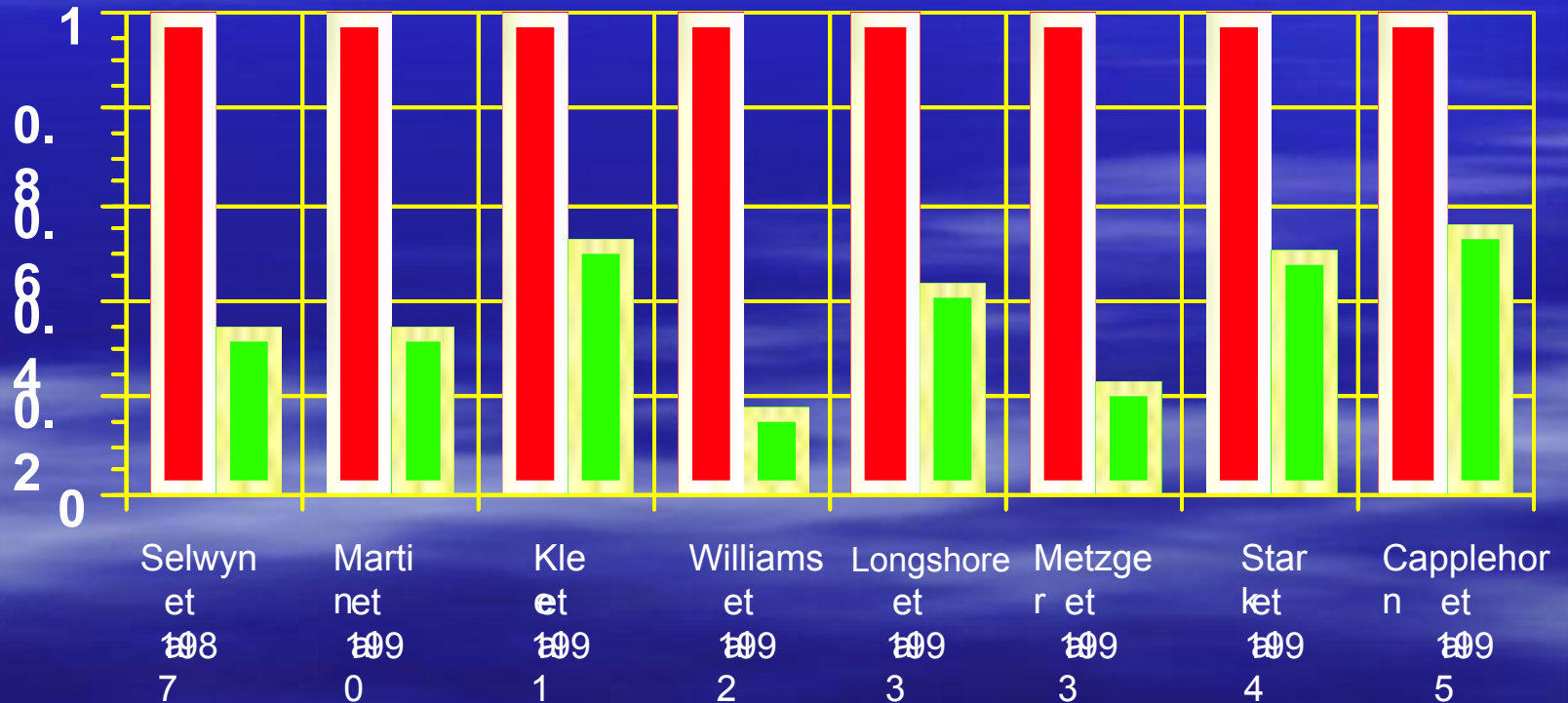
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(Ball and Ross, 1991)

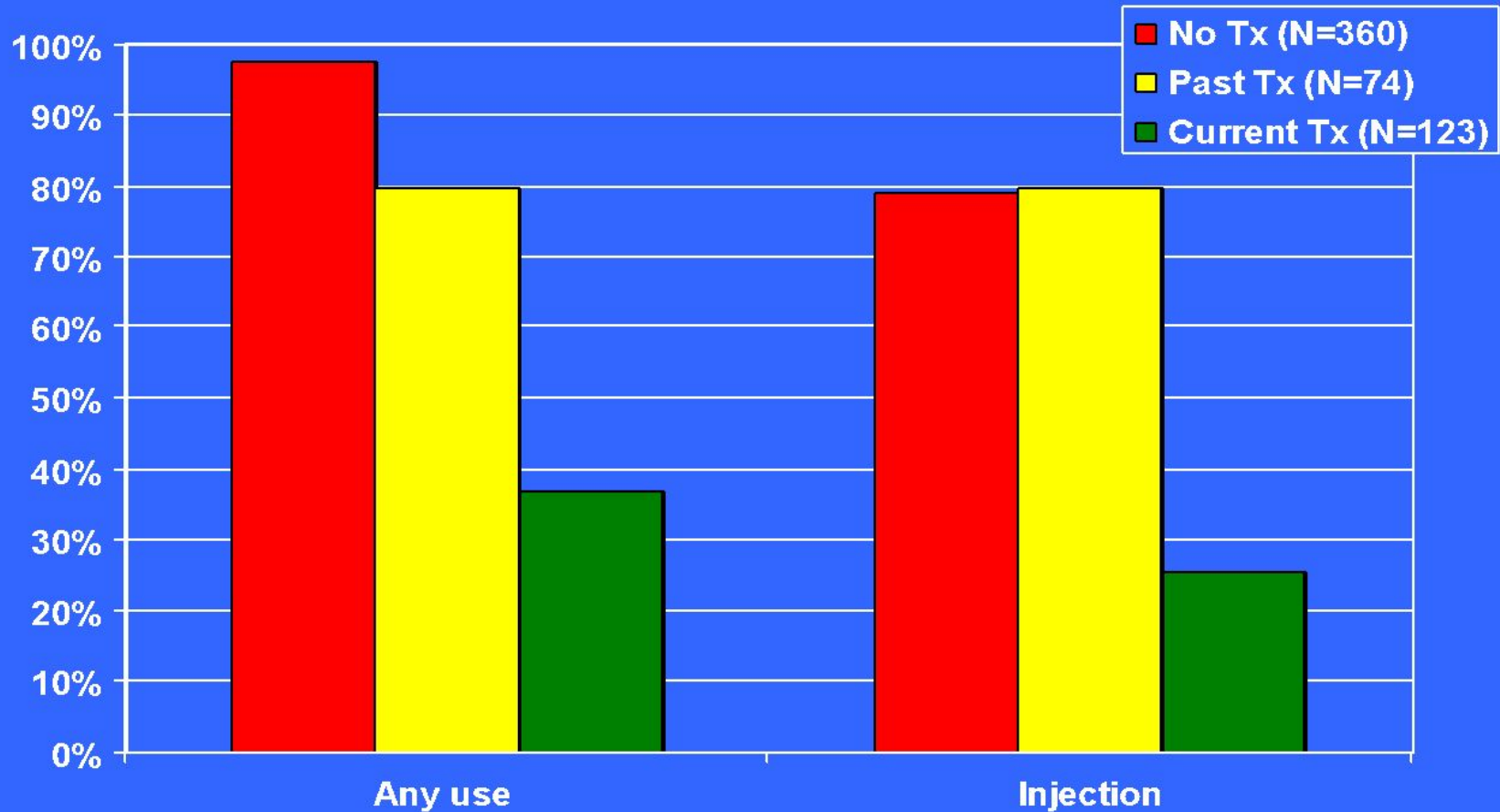
# Rate of needle sharing reported by In-Treatment IDUs compared to Out-of-Treatment IDUs

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# Drug use and injection among 557 heroin users by methadone treatment status, Sichuan Province, China

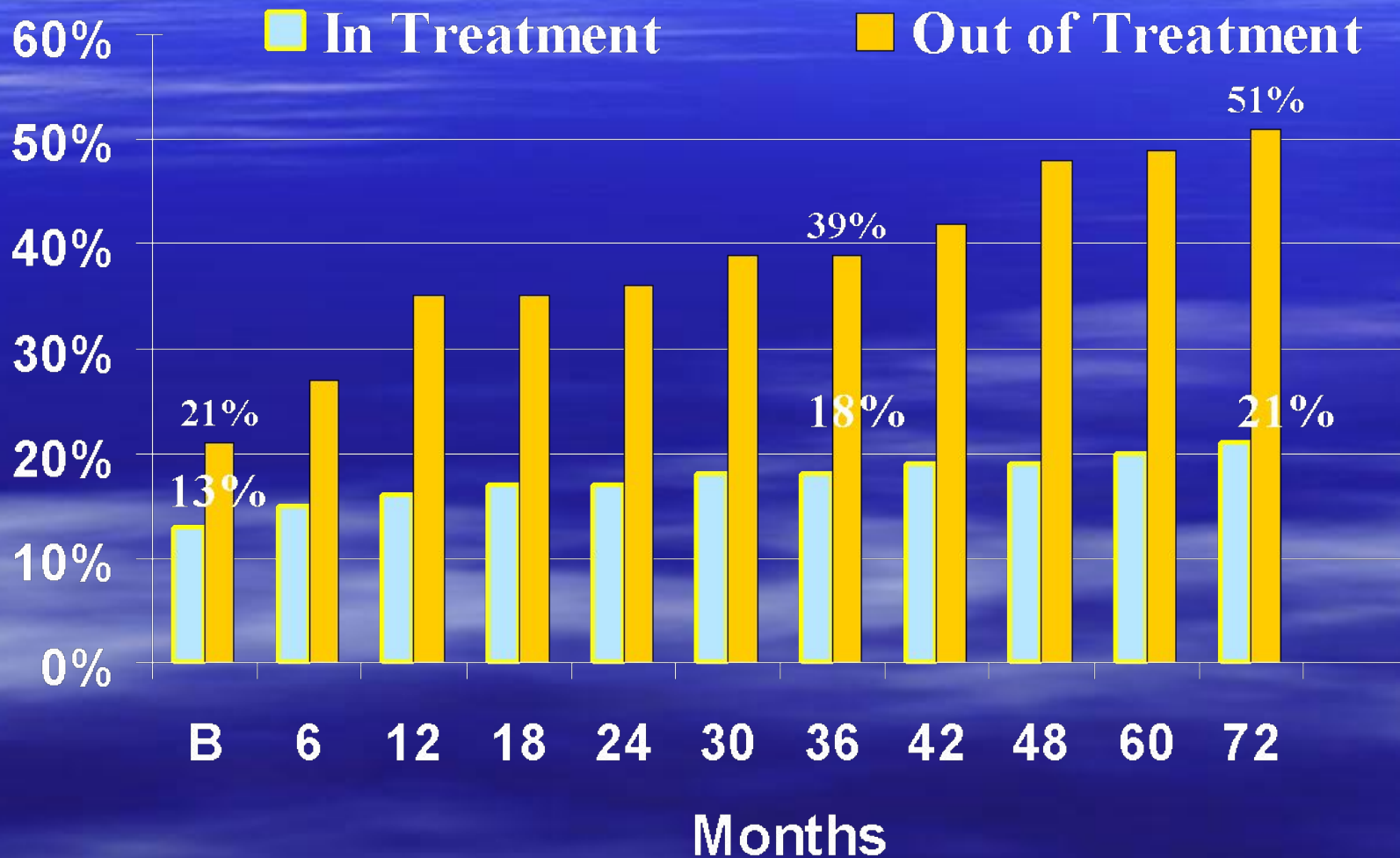


# Needle sharing among 557 heroin users by methadone treatment status, Sichuan Province, China



(Han-Zhu Qian et al,  
2008)

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

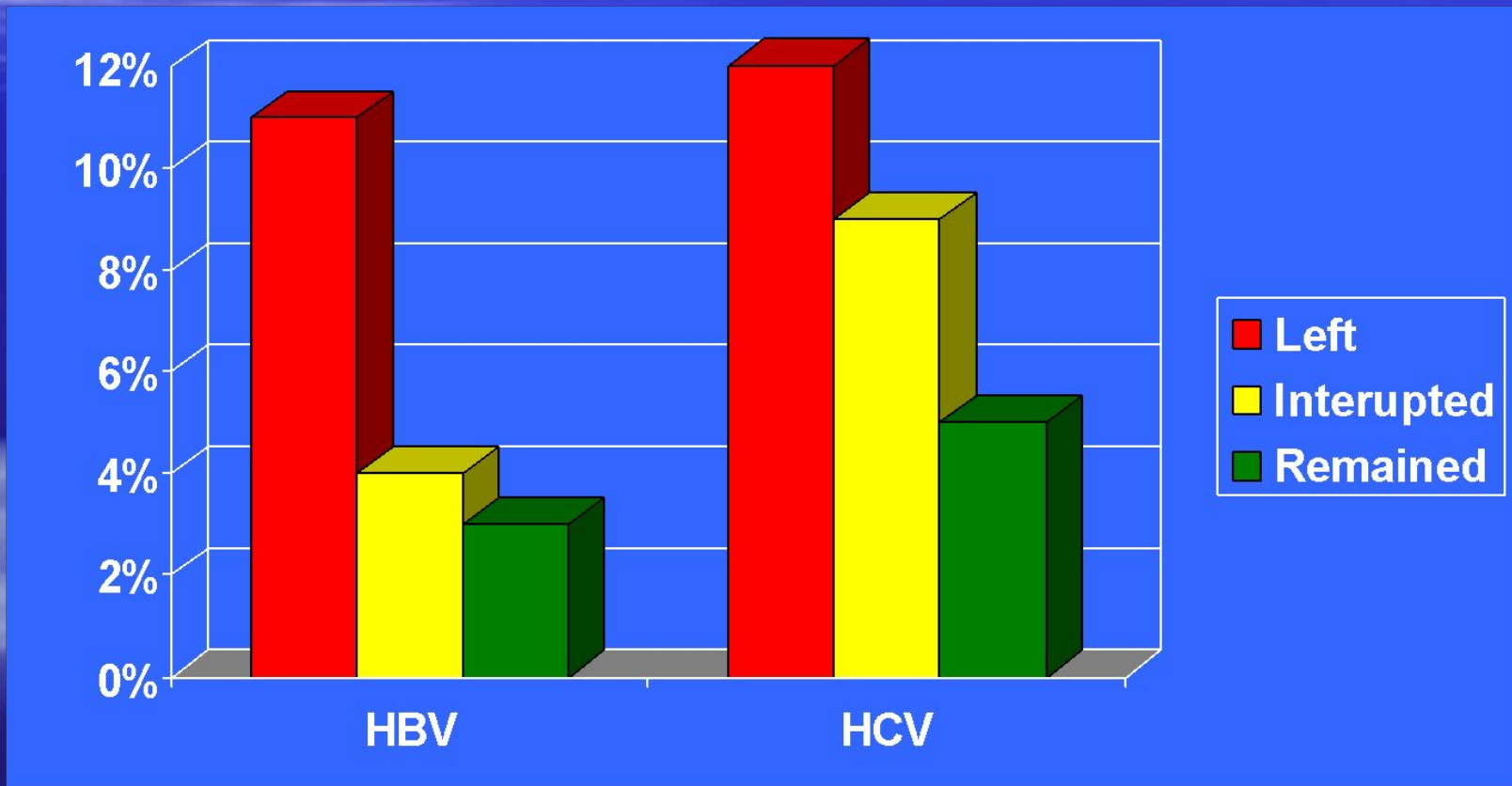


(Metzger et al. 1993)



# Incidence of HBV and HCV 12 Months Following Treatment Entry

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(Thiede, Hagan, and Murrill, 2000)

# Methadone maintenance therapy promotes initiation of antiretroviral therapy among injection drug users

Sasha Uhlmann<sup>1,2</sup>, M.-J. Milloy<sup>1</sup>, Thomas Kerr<sup>1,2</sup>, Ruth Zhang<sup>1</sup>, Silvia Guillemi<sup>1</sup>, David Marsh<sup>3</sup>, Robert S. Hogg<sup>1,4</sup>, Julio S. G. Montaner<sup>1,2</sup> & Evan Wood<sup>1,2</sup>

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Commentary

Social and structural determinants of HAART access and adherence among injection drug users

Andrea Krüsi<sup>a</sup>, Evan Wood<sup>a,b</sup>, Julio Montaner<sup>a,b</sup>, Thomas Kerr<sup>a,b,\*</sup>

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[www.elsevier.com/locate/drugaldep](http://www.elsevier.com/locate/drugaldep)

Antiretroviral adherence and HIV treatment outcomes among HIV/HCV co-infected injection drug users: The role of methadone maintenance therapy

Anita Palepu<sup>a,b,\*</sup>, Mark W. Tyndall<sup>b,c</sup>, Ruth Joy<sup>c</sup>, Thomas Kerr<sup>b,c</sup>, Evan Wood<sup>b,c</sup>, Natasha Press<sup>b,c</sup>, Robert S. Hogg<sup>c,d</sup>, Julio S.G. Montaner<sup>b,c</sup>

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Review

Adherence to HIV treatment among IDUs and the role of opioid substitution treatment (OST)

Bruno Spire<sup>a</sup>, Gregory M. Lucas<sup>b</sup>, M. Patrizia Carrieri<sup>a,\*</sup>

<sup>a</sup> INSERM-U379/ORSPACA, Marseilles, France

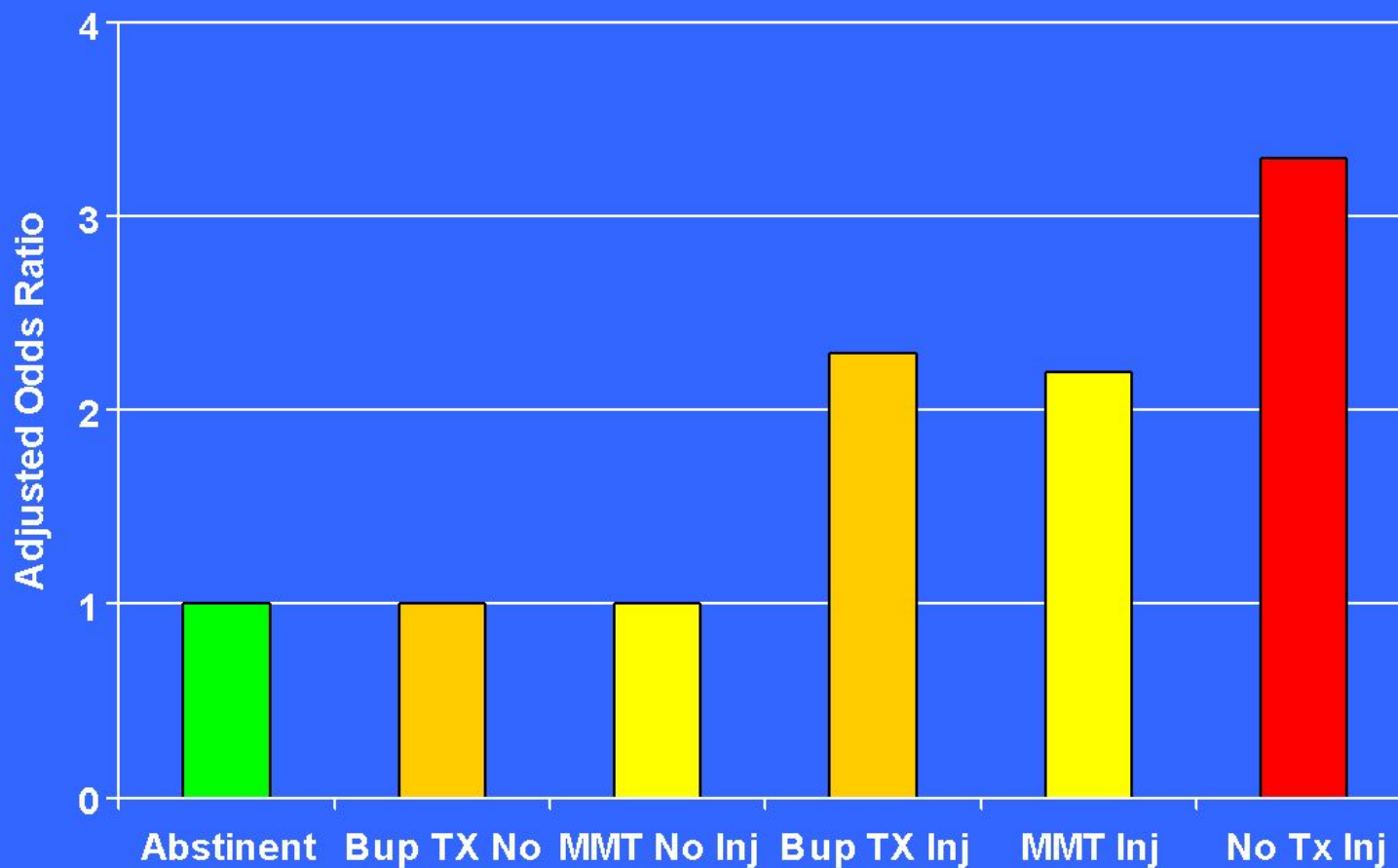
<sup>b</sup> Johns Hopkins University, Baltimore, USA

Received 26 May 2006; received in revised form 19 October 2006; accepted 6 December 2006

# MANIF 2000: Drug treatment and injection as predictors of poor adherence to HAART

(N=276; 1558 patient visits)

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(Roux P et al 2008)

Inj

# Adherence by past and current drug and alcohol diagnoses

## Alcohol Drug

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Current diagnoses  $p < .01$        $p < .01$

Lifetime diagnoses      NS      NS



# How does drug treatment prevent HIV infection and transmission?

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

# Despite these findings

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- **Selected expansion of methadone treatment**
- **Need for treatment expansion**
- **Need for improvements in efficacy of existing treatments**
- **Need for new delivery strategies**
- **Need for new medications and formulations**

# Clear need for more treatment options

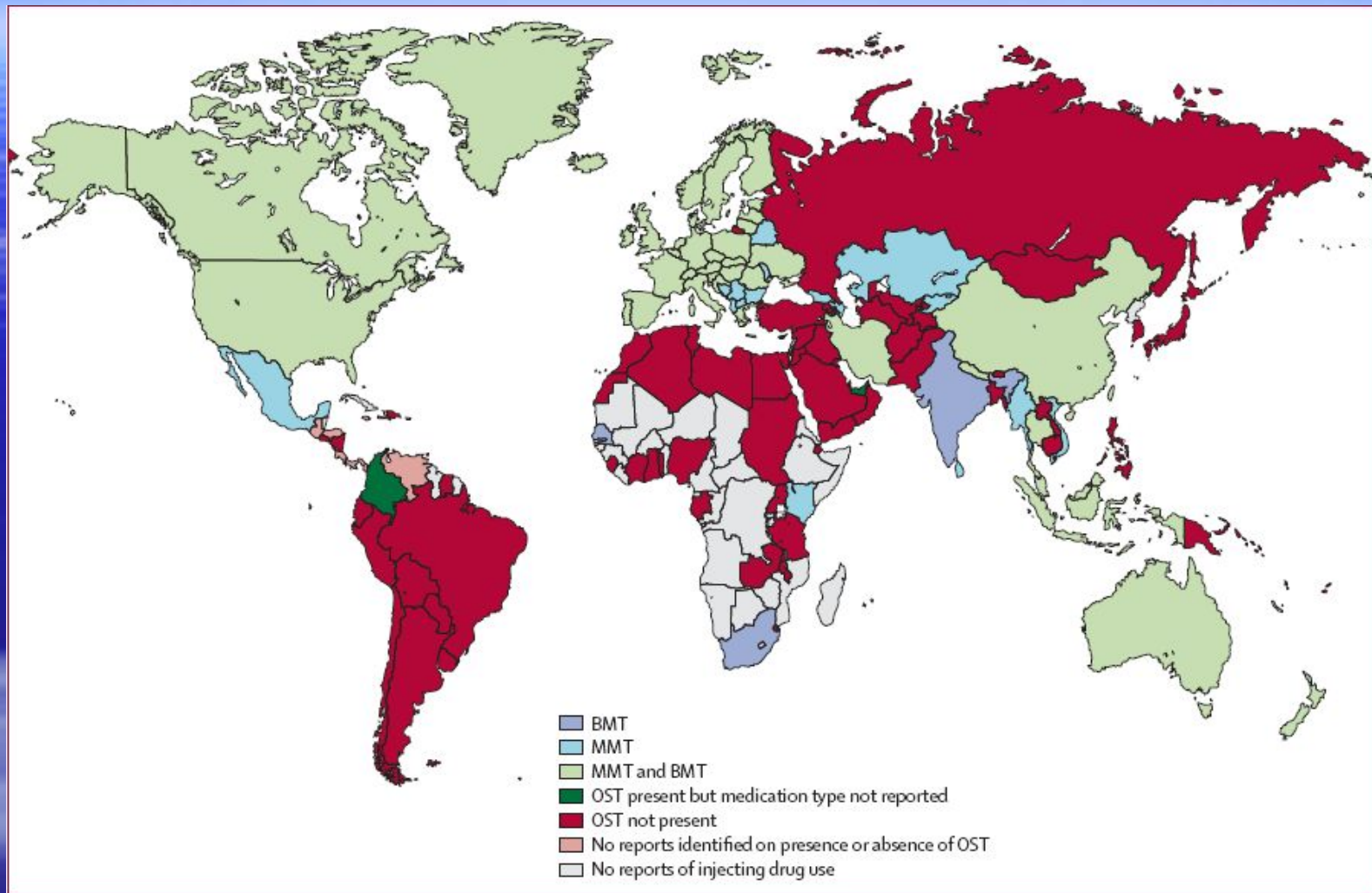


Figure 3: Availability of opioid substitution treatment

BMT=buprenorphine maintenance treatment. MMT=metadone maintenance treatment. OST=opioid substitution therapy.

# Methadone Maintenance Program in China

In Dec. 2003, 8 clinics in 5 provinces were approved to be China's 1st wave of community-based methadone maintenance program



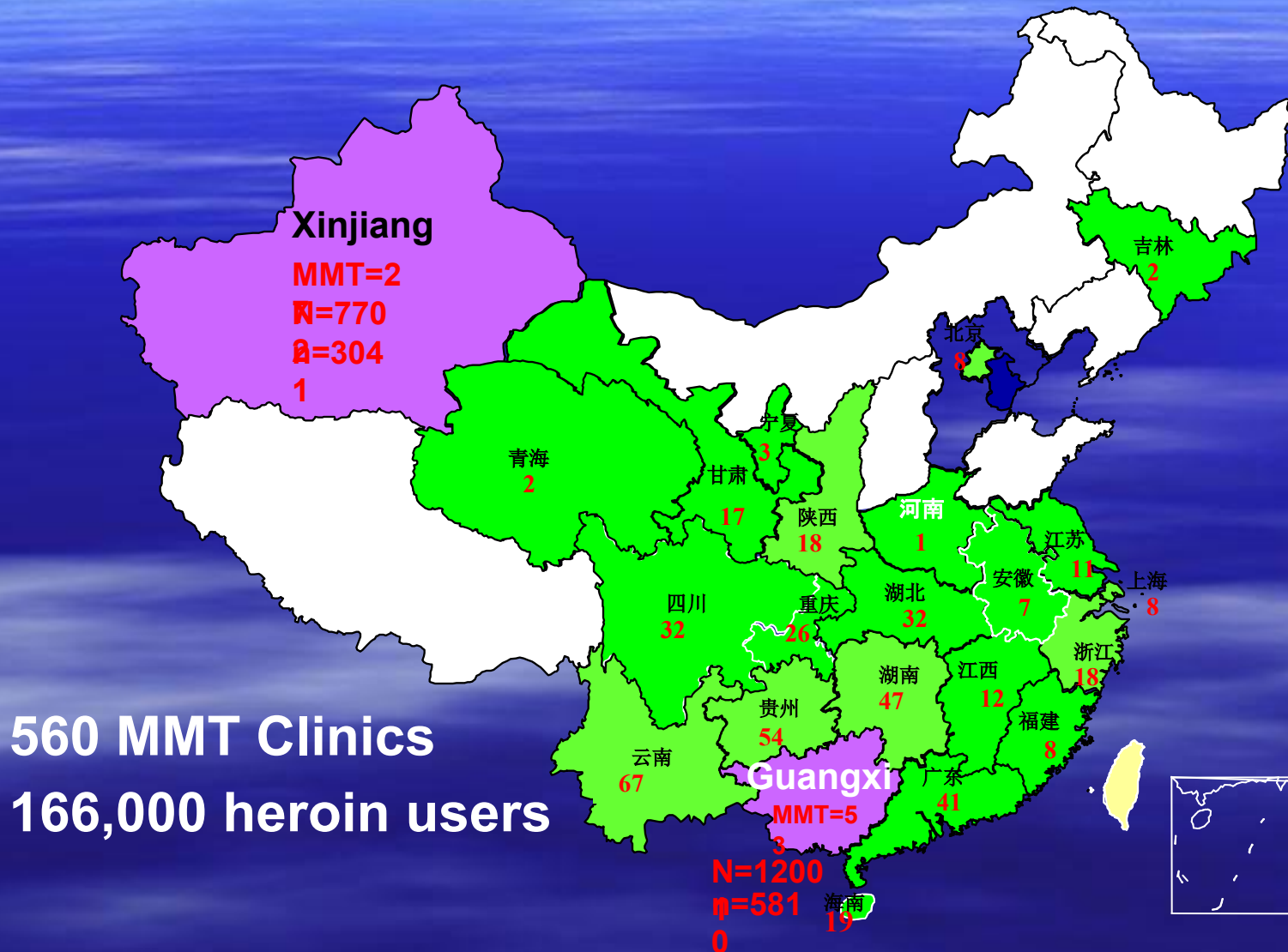


# Milestones in China's National Response to HIV/AIDS & Drug Abuse

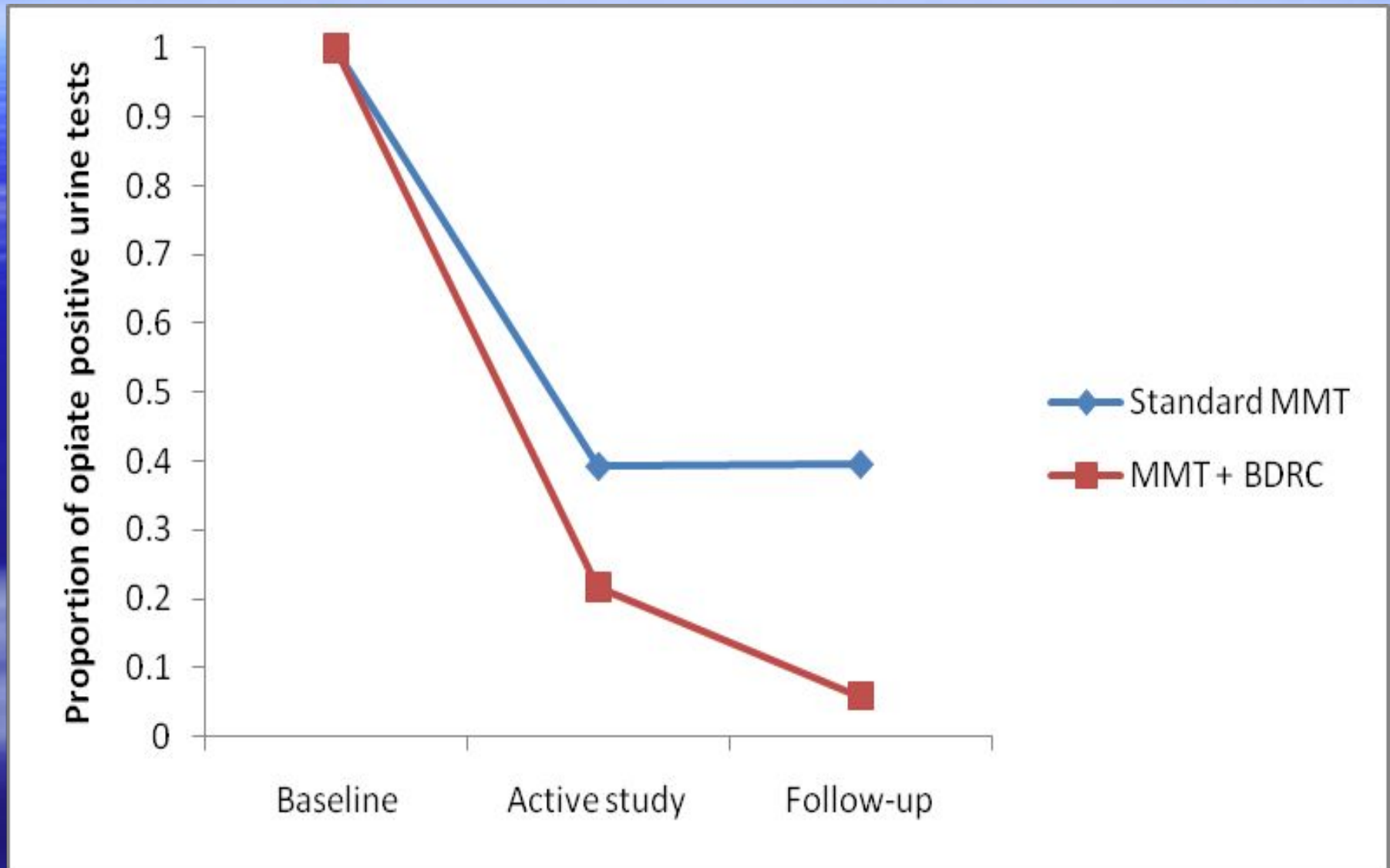


Premier Wen Jiabao, visited Wuhan Detox. Center in June 2004

# Methadone treatment in 2009



# Improving the efficacy of treatment: Counseling



# Buprenorphine/Naloxone offers new opportunities for HIV prevention and care

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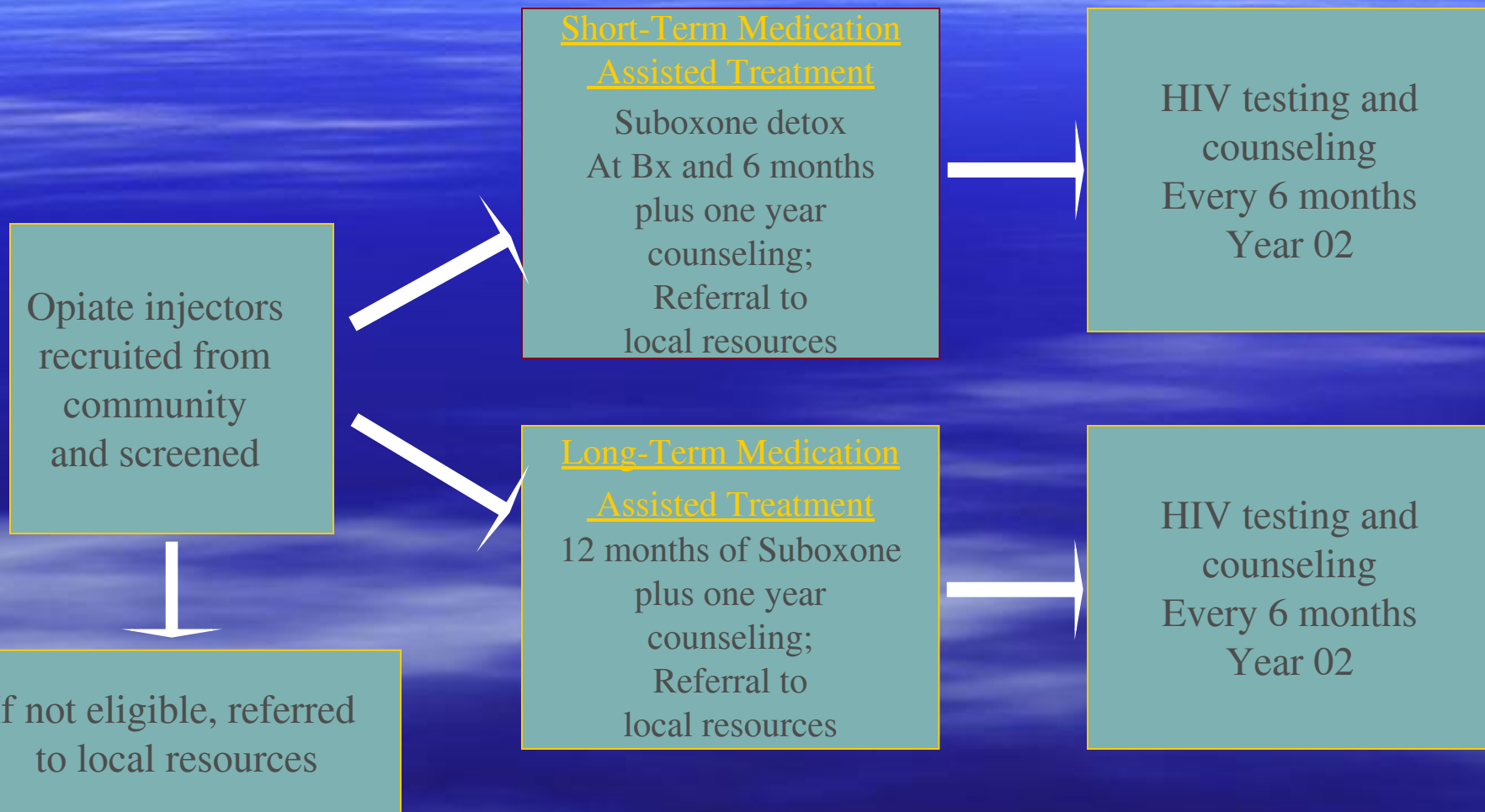


- **Partial agonist, longer half-life**
- **Reduced risk of overdose**
- **Less severe withdrawal**
- **Fewer interactions with anti-retrovirals**

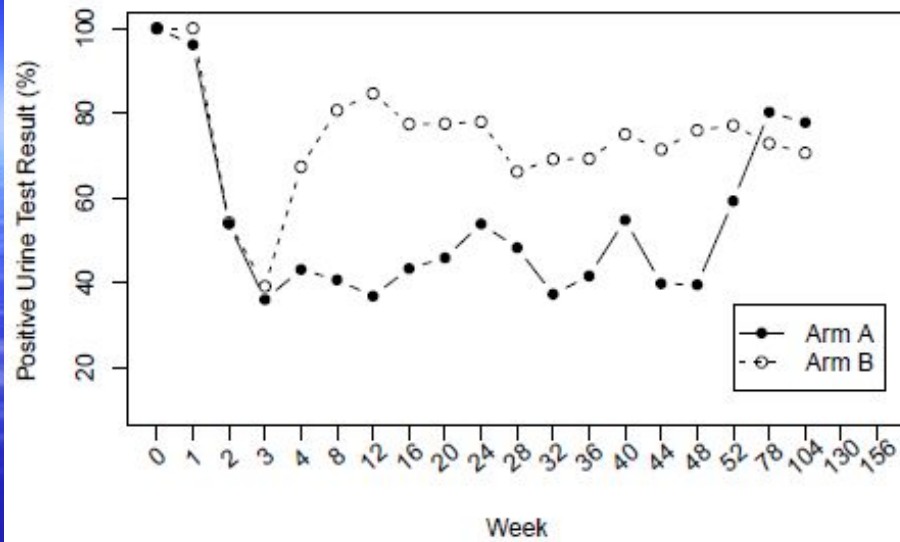


# HPTN 058: comparing new delivery strategies

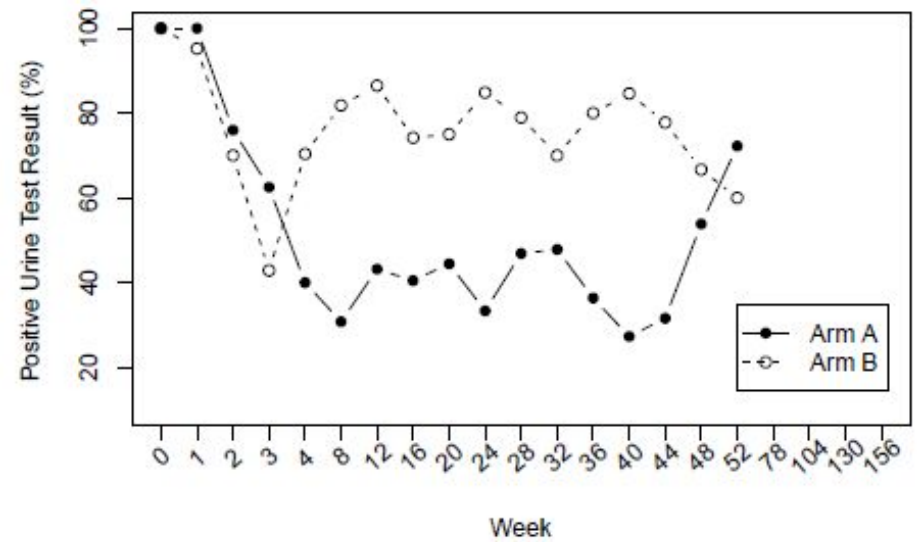
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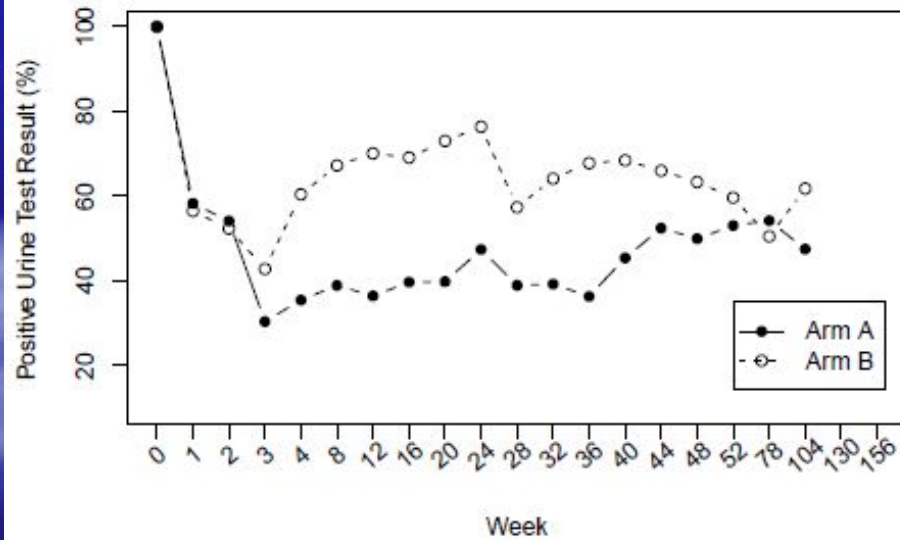
### Heng County, China



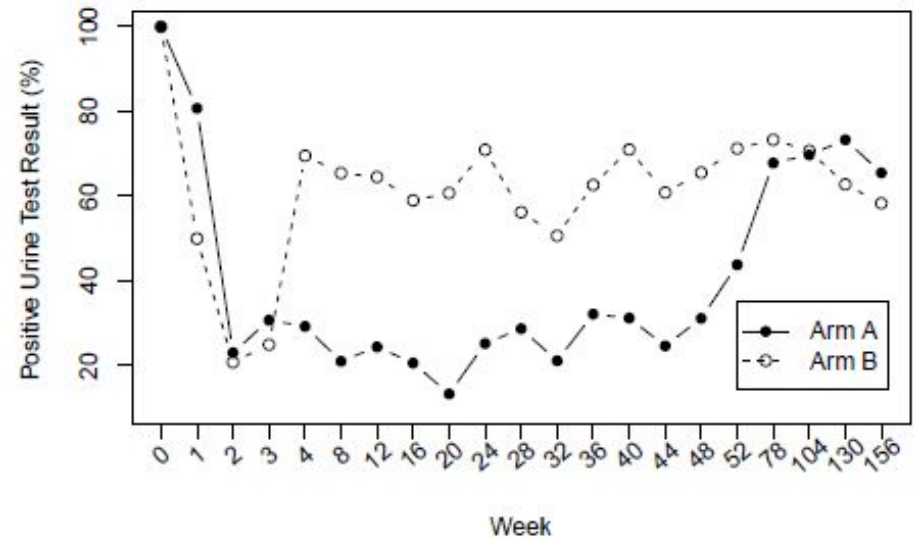
### Nanning, China



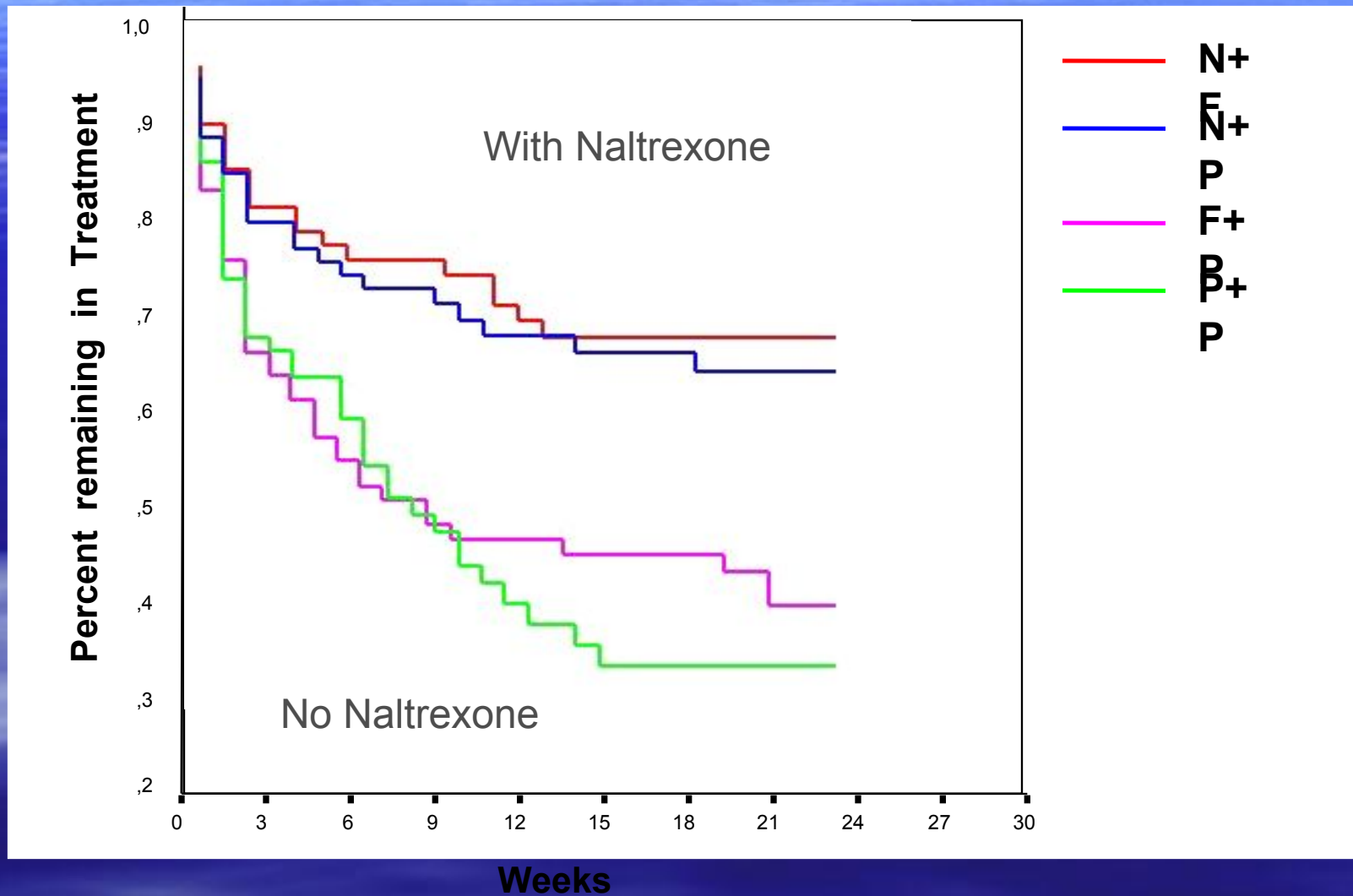
### Xinjiang, China



### Chiang Mai, Thailand



# New treatment approaches: Oral Naltrexone treatment in St. Petersburg (N=280)







# Effective drug treatments

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- **recognize addiction as a chronic disease**
- **use pharmacologic and counseling interventions**
- **are accessible, acceptable, and affordable -- to those users most likely to become infected**



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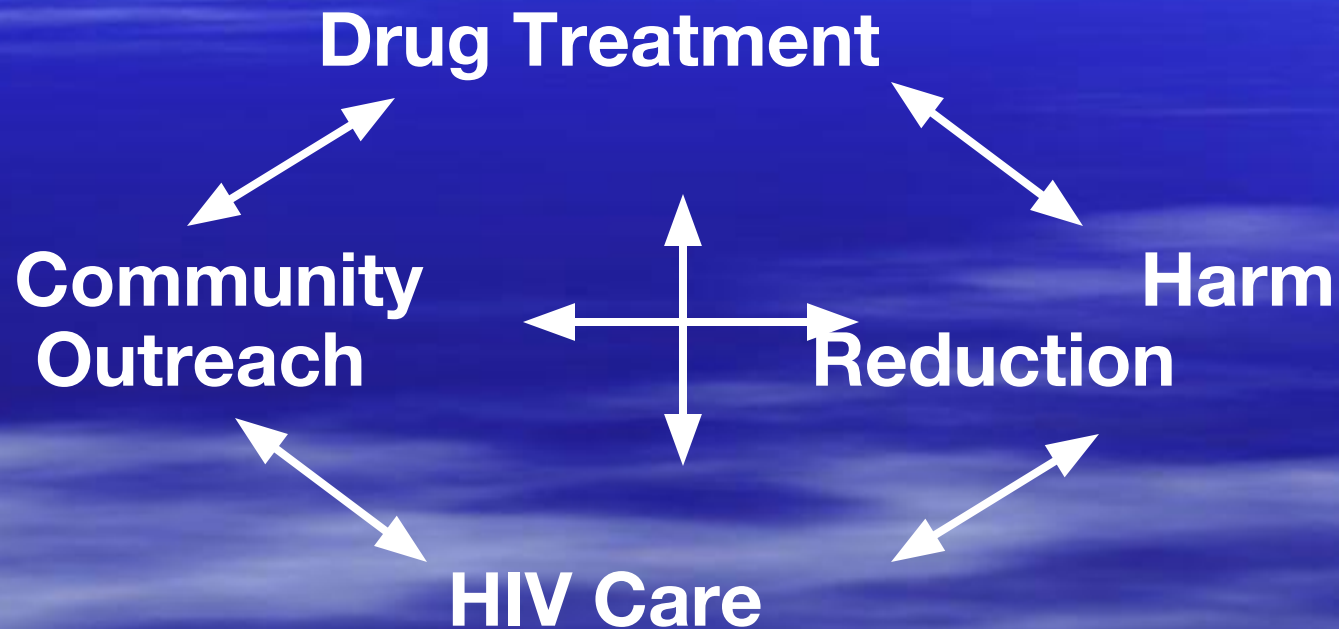
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PARK STREET  
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# Drug treatment is necessary but not sufficient for HIV prevention in communities

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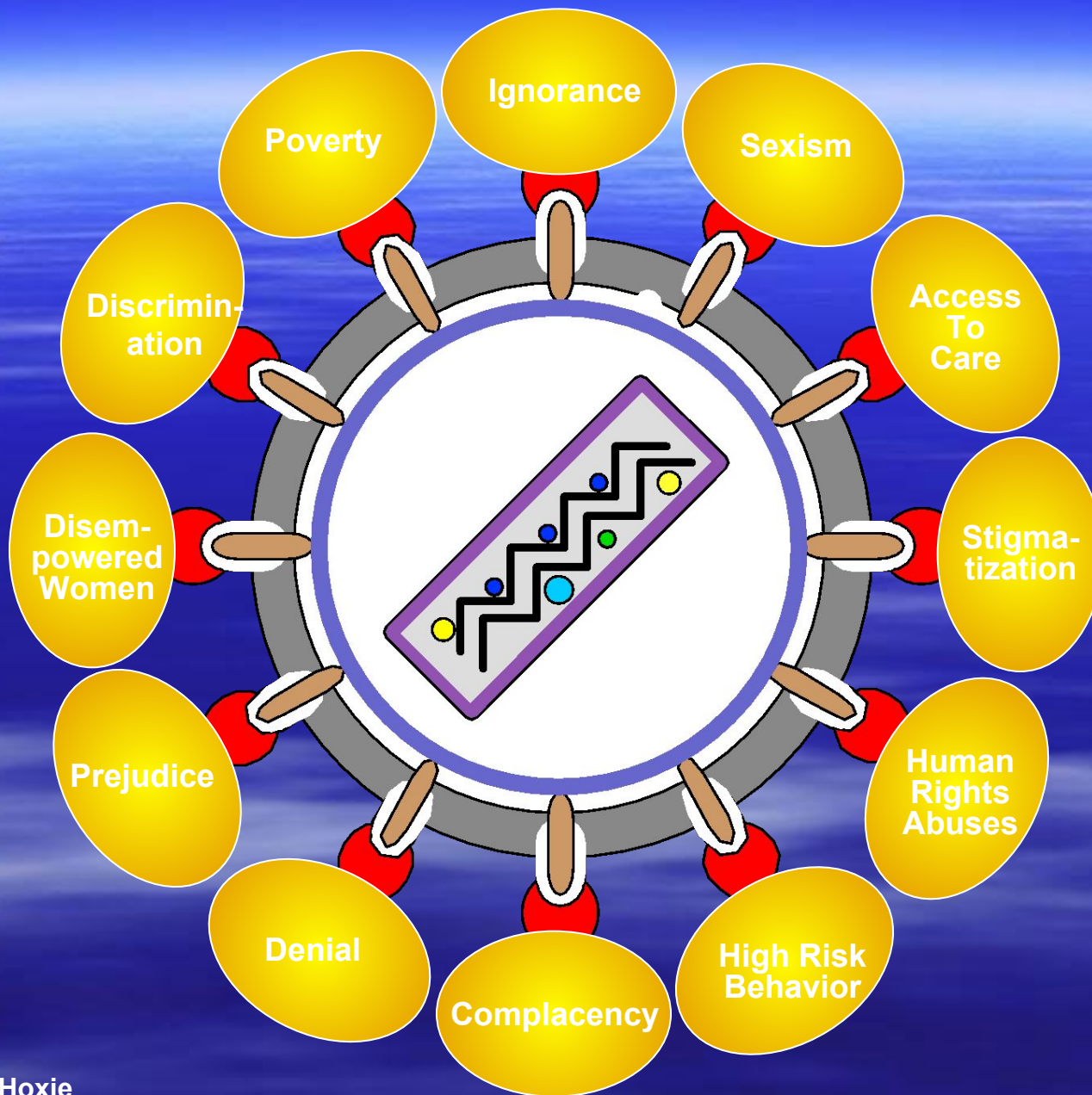
# Summary

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- IDUs are small segment of the population but a major part of the HIV infected population
- Neglecting the health of even a small segment of the community jeopardizes the public health
- Alcohol and non-injection drug use is a major risk factor in all risk groups
- Research on opiate injectors in methadone treatment has provided “proof of concept” that drug treatment is HIV prevention
- Despite selected expansion of methadone treatment as harm reduction—coverage remains extremely limited

Need for expanded treatments, improved efficacy





Courtesy of Jim Hoxie