Drug Abuse Treatment as HIV Prevention

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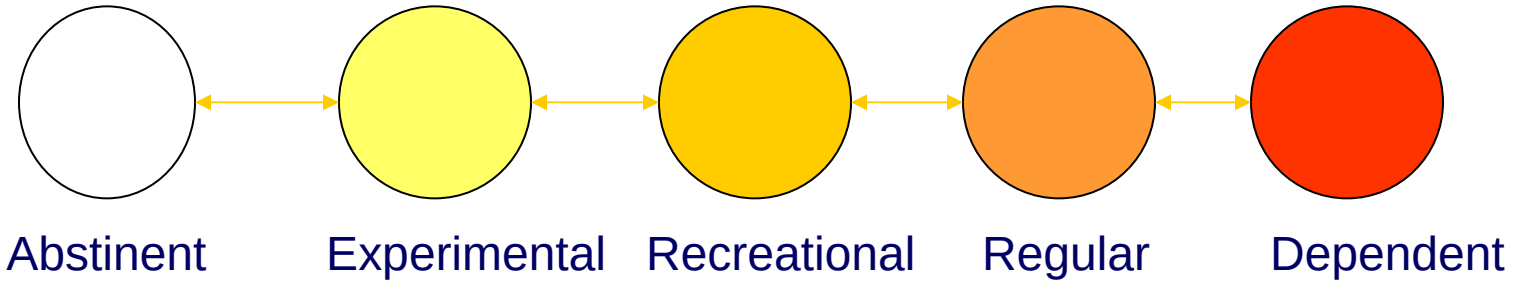
Outline

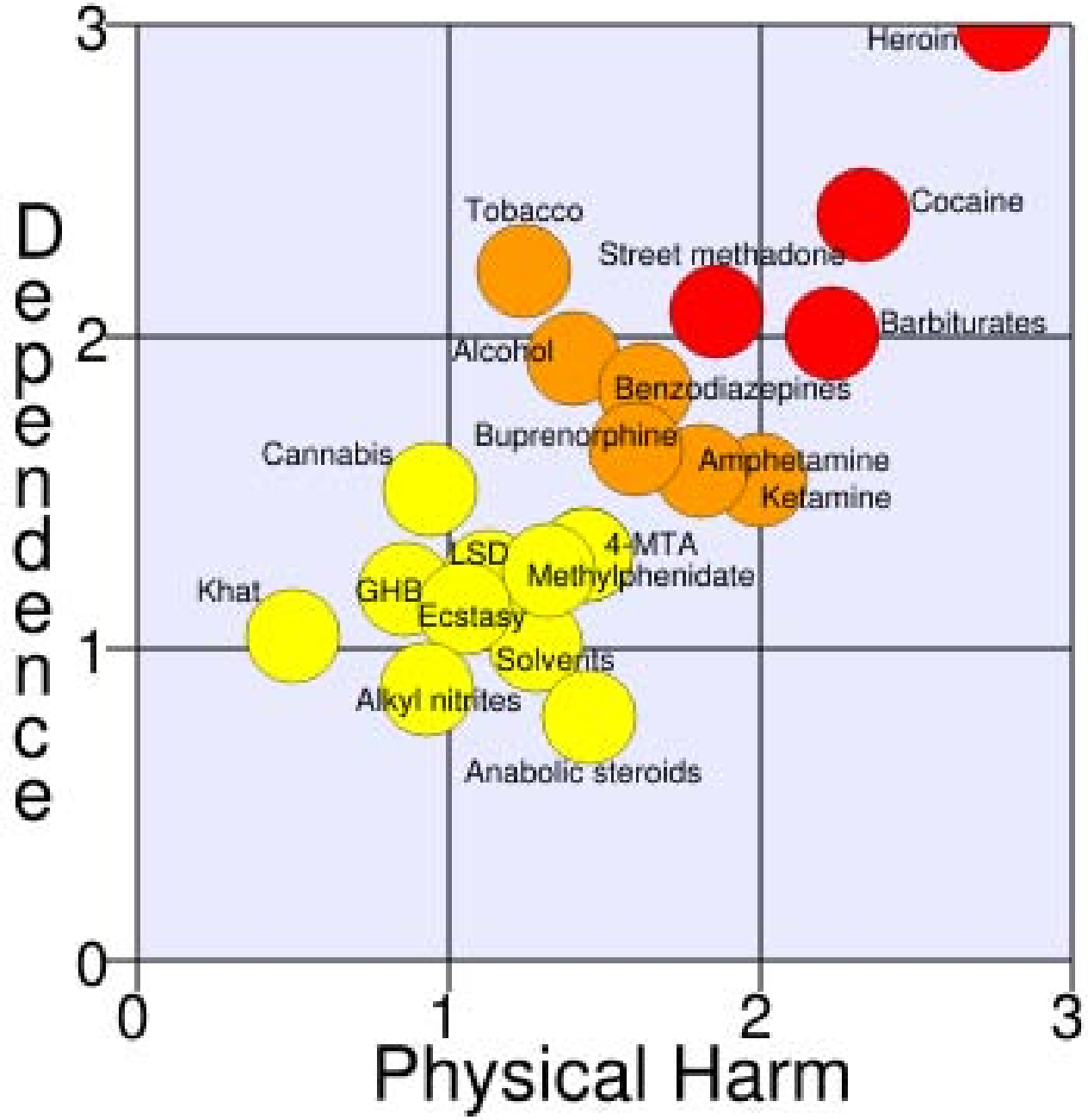
- The disease of opiate dependence
- Risk behaviors of opiate dependent individuals
  - Data from surveys of not-in-treatment individuals in Malaysia
- Reductions of risk behaviors during drug treatment
  - Data from RCTs in Malaysia and in the US

The spectrum of drug use

- Drug using patterns range across a spectrum, from no use to dependent use, and may include more than one drug
- For many drugs, a person can move along the spectrum (in either direction) and cease using at any point

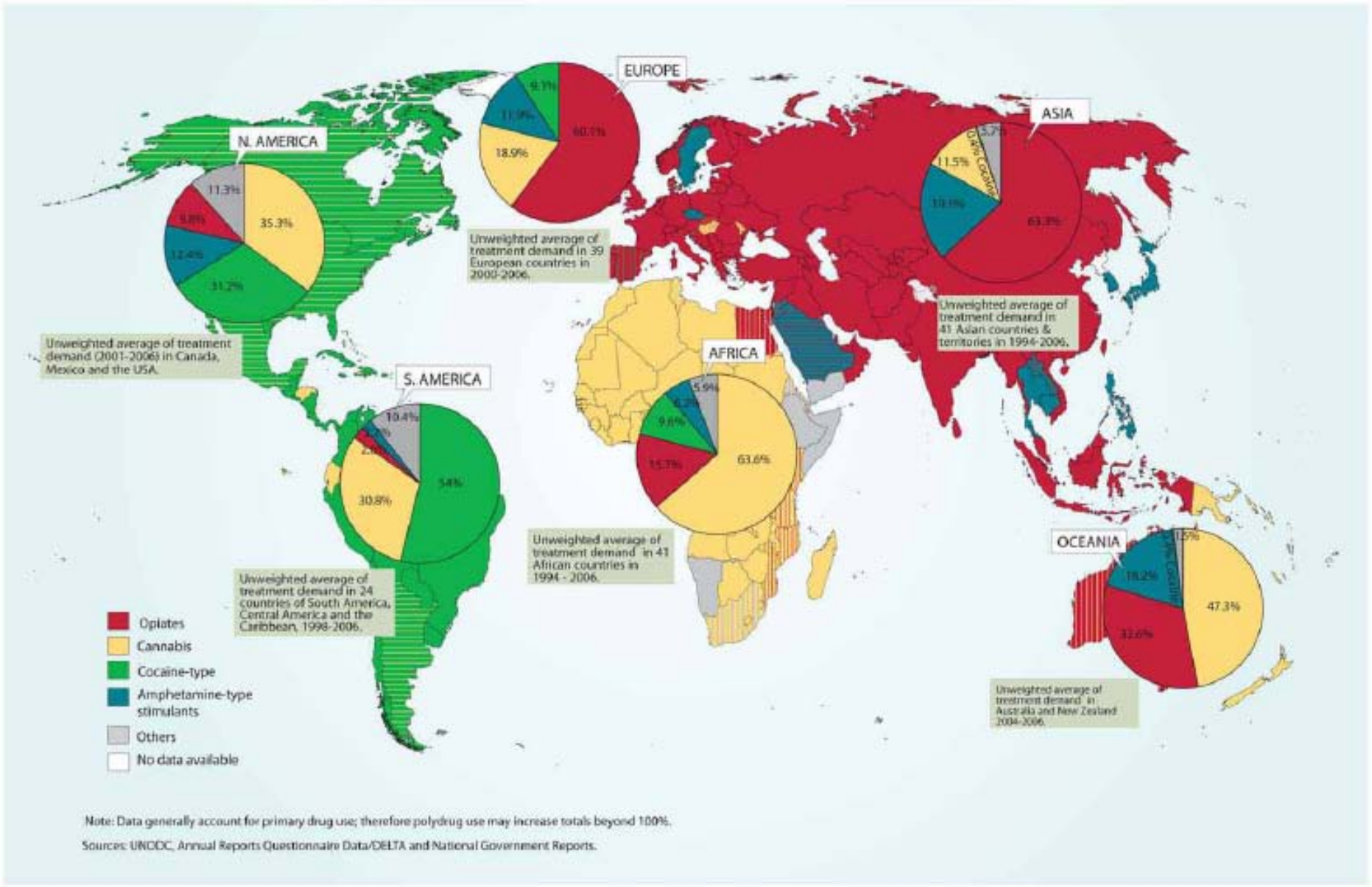


- **Opiate use has a distinctively different pattern**
  - **Most people who begin to use opiates either stop after initial short period of experimentation or become dependent**



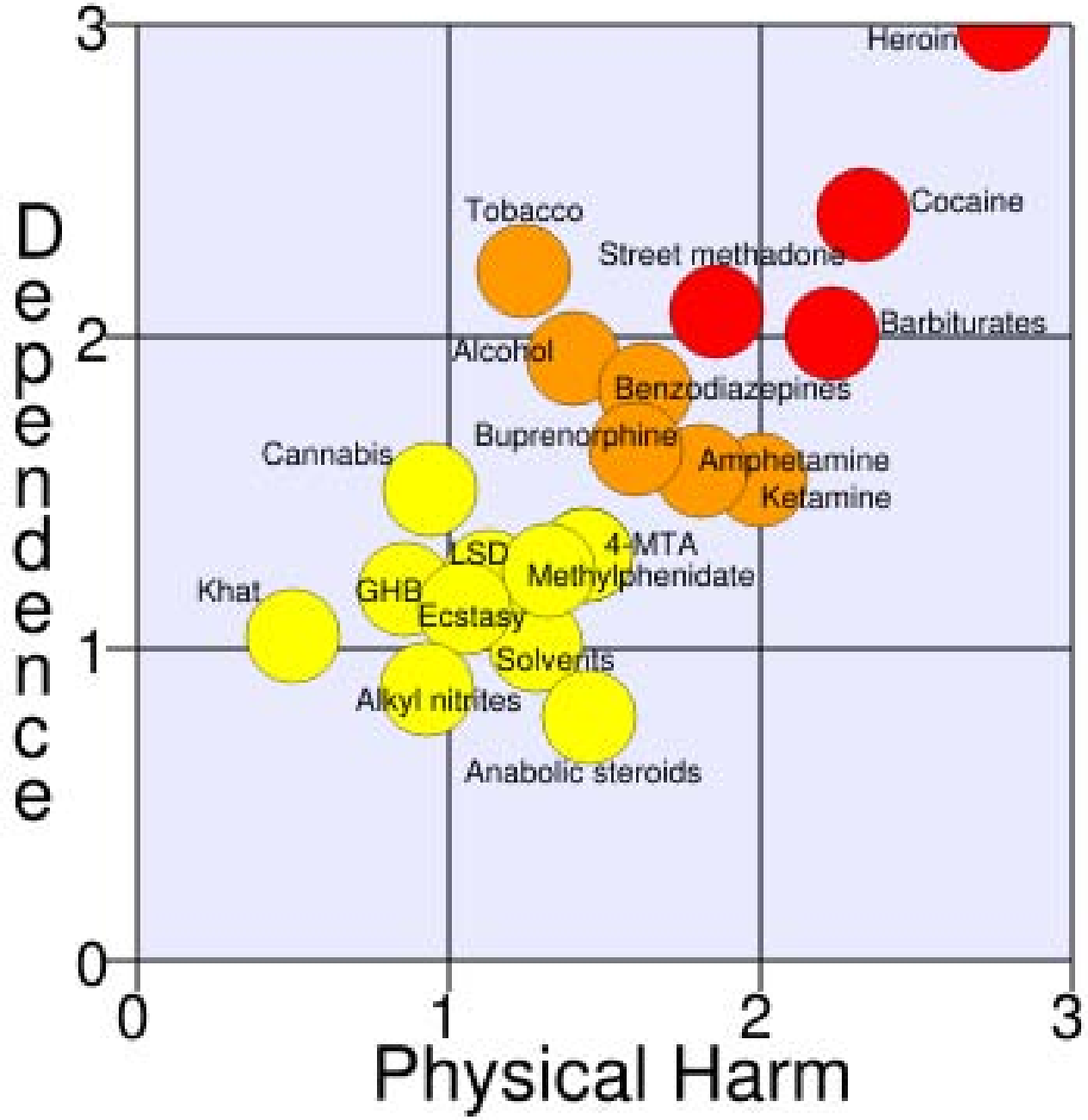
D . Nutt, L . King, W . Saulsbury, C . Blakemore (2007). Development of a rational scale to assess the harm of drugs of potential misuse. The Lancet, 369, 1047 – 1053.

Main problem drugs (as reflected in treatment demand), 2006 (or lates 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.



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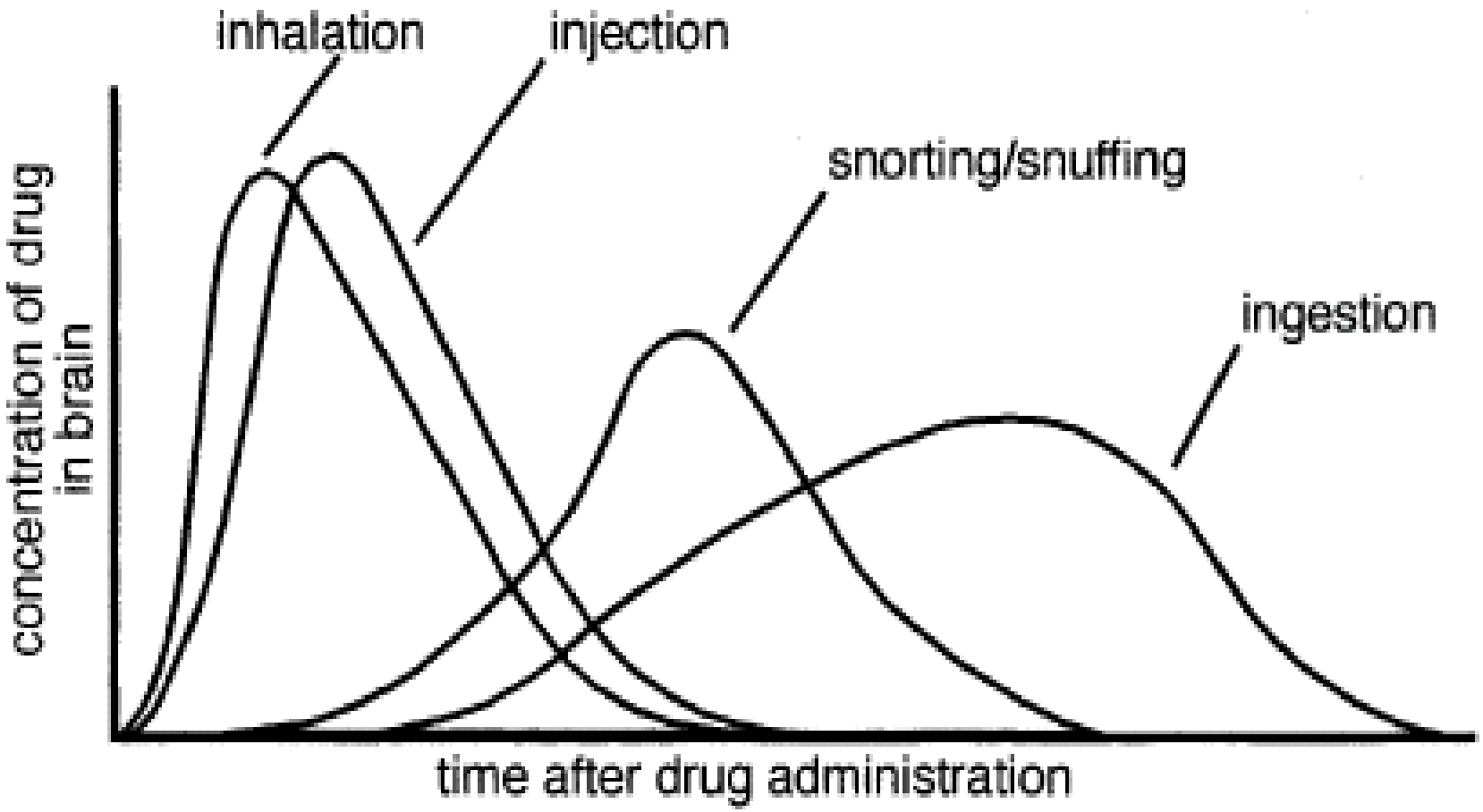
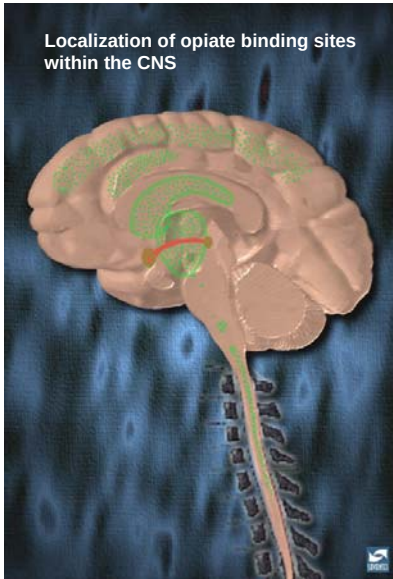
Concentration levels in the brain



Source: The Brain: Understanding the Neurobiology of Addiction National Institute on Drug Abuse, NIH

The disease of opiate dependence

- Chronic disorder with high risk of persistence, relapse and recurrence
  - Similar to diabetes, hypertension or other medical disorders in some clinical features, prognosis, or treatment aspects
- Multi-factor etiology
  - Social factors (e.g., culture, family, peers, environment)
  - Psychological factors (e.g., developmental environment, emotional distress, classical and operant conditioning)
  - Psychiatric comorbidity (e.g., depression, anxiety)
  - Genetic risk
- Clearly identifiable neurobiological components
  - Opioids bind to brain receptors and mimic the action of natural endorphins produced by the body
  - Acute and chronic effects on neurochemistry and brain motivation, reward, stress, pain, and other systems



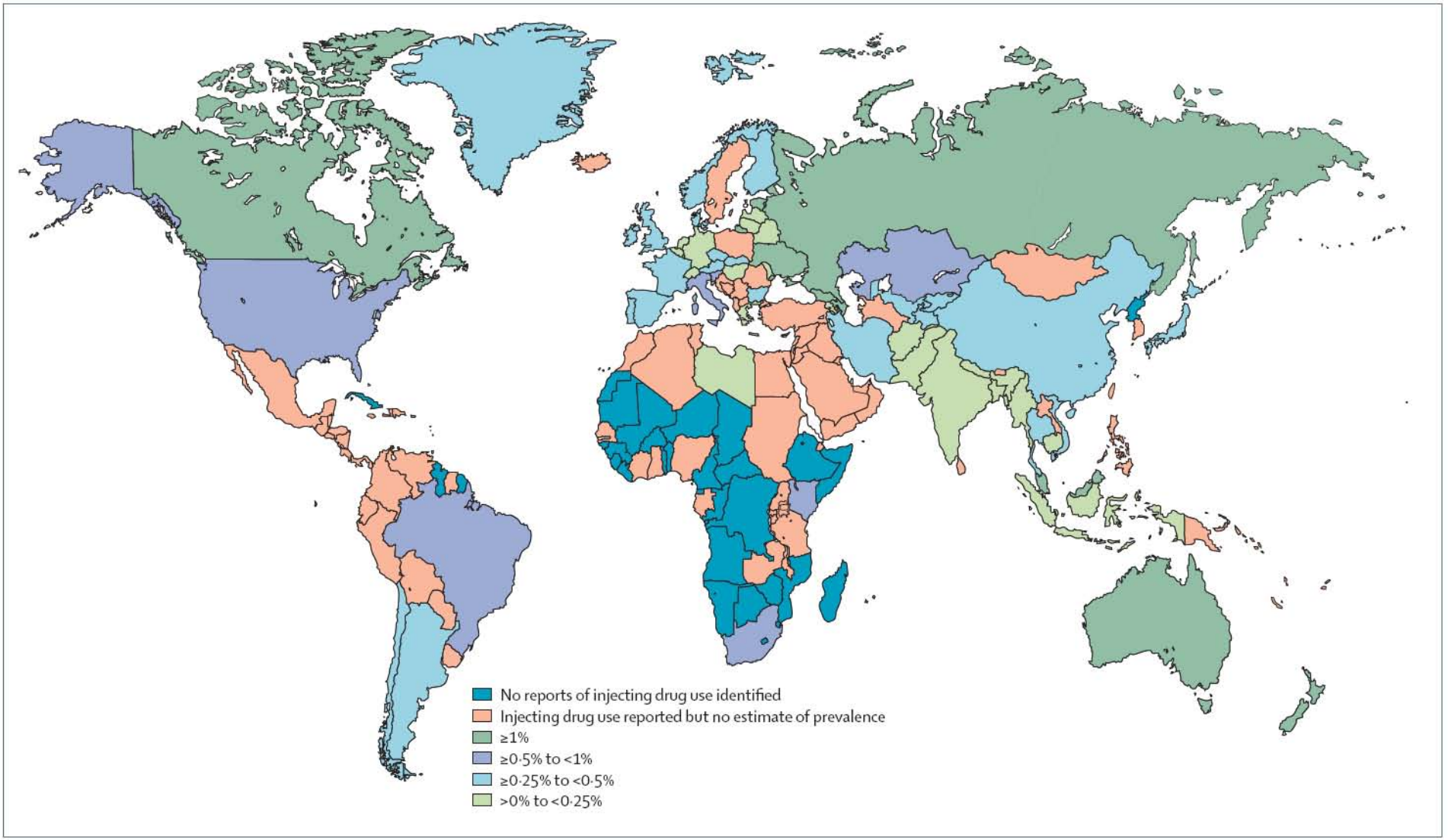
Consequences of opiate dependence

- Dysregulation of brain reward systems and higher-order executive functions
  - Increased difficulties in dealing with stress or experiencing natural rewards, deterioration of emotional and coping skills
  - Lowered motivation and drive
  - Impaired cognitive functioning (learning and memory, decision making, problem solving)
- Specific pattern of behavioral risks
  - Increased risk of contracting bloodborne and infectious diseases
  - Adverse impact on general health status
  - Adverse impact on the individual's ability to fulfill family (e.g., parent, spouse) and social roles
  - Vocational and/or educational disruption
  - Violence and crime

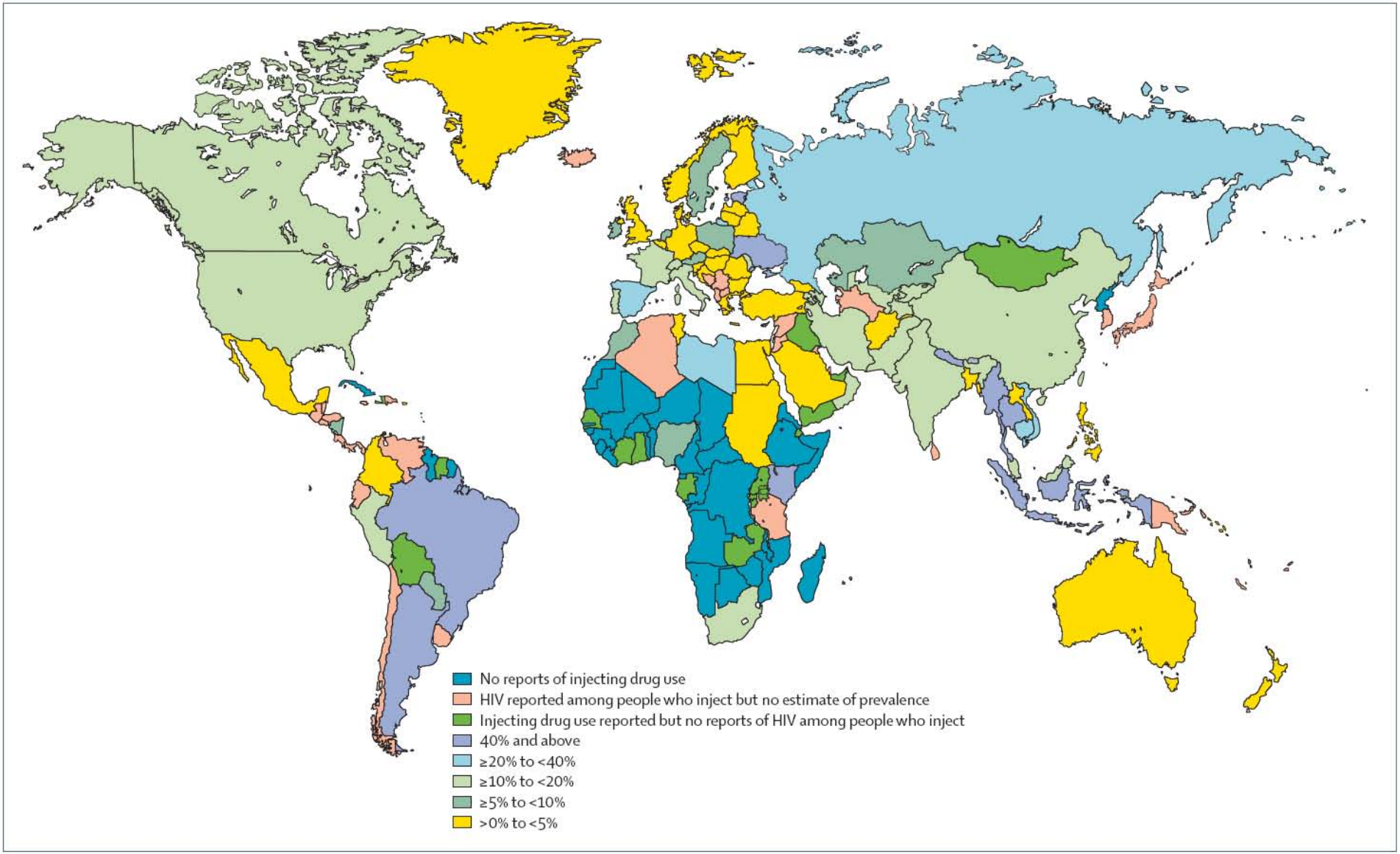
Behavioral risks

- Unsafe injection practices
  - Reusing ones own needles and/or equipment
  - Ineffective cleaning techniques
  - Non-sterile process and paraphernalia during drug preparation (dirty water, cooker, filtering devices, etc.)
- Sharing injection equipment and materials
  - Restrictions on buying needles and syringes
  - Fear of police arrest while carrying injection equipment
  - Unintentional sharing
    - “Port doctors”
    - Hiding own equipment in places that other drug users can find it
- Risks related to the disease of opiate dependence, often not under volitional control of the individual
  - Impaired decision making due to intoxication or withdrawal
  - Taking risks to alleviate withdrawals or satisfy cravings
  - Vulnerability to consequences of risky decisions made by other users
  - Opportunity, impulse

Prevalence of IDU



Prevalence of HIV among IDU



IDU and HIV

	Estimated number of people who inject drugs			Estimated number of people who inject drugs and who are HIV positive		
	Lower	Mid	Upper	Lower	Mid	Upper
Eastern Europe	2 540 000	3 476 500	4 543 500	18 500	940 000	2 422 000
Western Europe	816 000	1 044 000	1 299 000	39 000	114 000	210 500
East and southeast Asia	3 043 500	3 957 500	4 913 000	313 000	661 000	1 251 500
South Asia	434 000	569 500	726 500	34 500	74 500	135 500
Central Asia	182 500	247 500	321 000	16 500	29 000	47 000
Caribbean	137 500	186 000	241 500	6000	24 000	52 500
Latin America	1 508 000	2 018 000	2 597 500	181 500	580 500	1 175 500
Canada and USA	1 604 500	2 270 500	3 140 000	127 000	347 000	709 000
Pacific Island states and territories	14 500	19 500	25 000	<250	500	500
Australia and New Zealand	105 000	173 500	236 500	500	2500	6000
Middle East and north Africa	89 000	121 000	156 500	1500	3500	6500
Sub-Saharan Africa*	534 500	1 778 500	3 022 500	26 000	221 000	572 000
Extrapolated global estimates	11 008 500	15 861 500	21 222 000	764 000	2 997 500	6 589 000

All estimates rounded to the nearest 500; global figure totalled from regional estimates before rounding. 2007 UN population division estimates have been used to derive 2007 estimates of IDU population size. *Estimates for sub-Saharan Africa should be viewed with considerable caution as the prevalence estimates were derived from three of 47 countries in the region (South Africa, Mauritius, and Kenya). Additionally, the estimated range of injecting drug use for this region was derived by applying the regional observed error; this large error band reflects the considerable uncertainty around these estimates.

Table 7: **Regional and global estimates of the number of people who inject drugs, and the number who may be HIV positive, 2007**

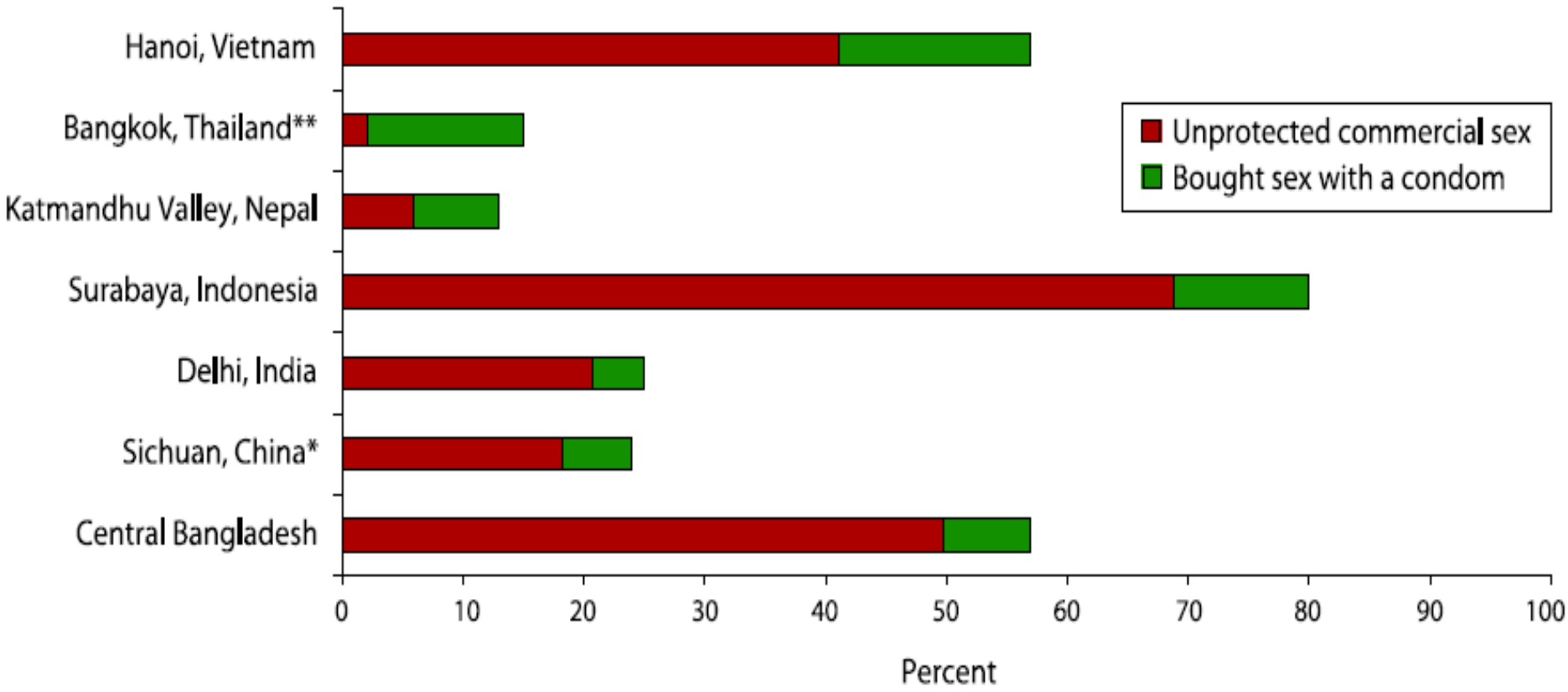
Drug use, HIV, and infectious diseases

- Injection drug users (IDUs)
  - Highest prevalence of HIV and HCV
  - Highest risk of new HIV infection
  - Contribute significantly to HIV transmission to the general population
- Many drug users are young, unmarried, sexually active and only a small fraction of them report consistent condom use
  - Knowledge about HIV/AIDS, sexually transmitted diseases (STDs) and blood borne viruses is generally very poor

Sex related risks

- Exchanging sex for money or drugs
- Impaired decision making increases the willingness to take sexual risks
  - sex with anonymous partners,
  - sex with multiple partners
  - not using condoms

IDU and safe sex



Monitoring the AIDS Pandemic (The MAP Network) Report 2005

Malaysia

Population:
27 million (2008 est.)

GDP per capita:
$14,400 (2007 est.)

Industrial-based

Rural to urban migration

Proximity to Golden Triangle

Major heroin abuse problem since 1970s

Survey sites in Malaysia

24 hour General Clinic at Penang site

Downtown Johor Bahru site

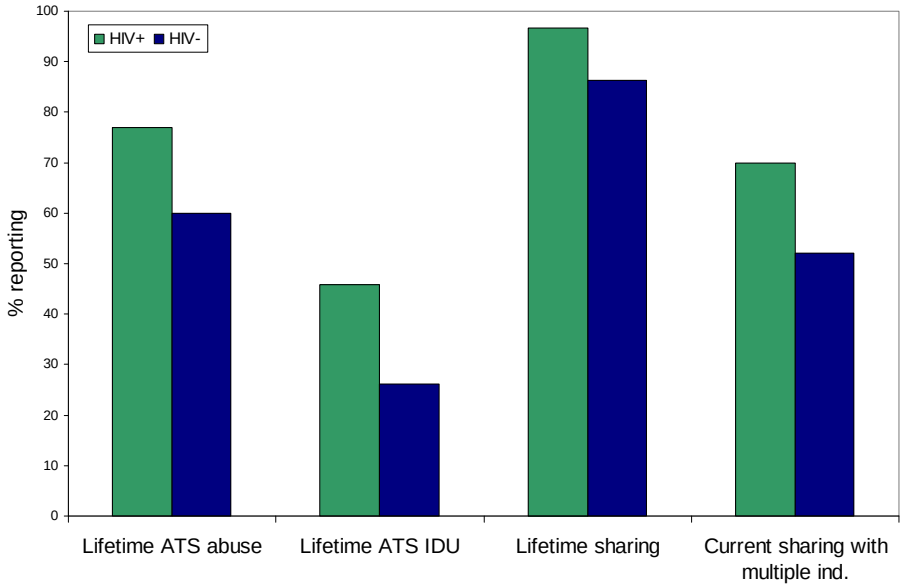
Interview session at Kuala Lumpur site

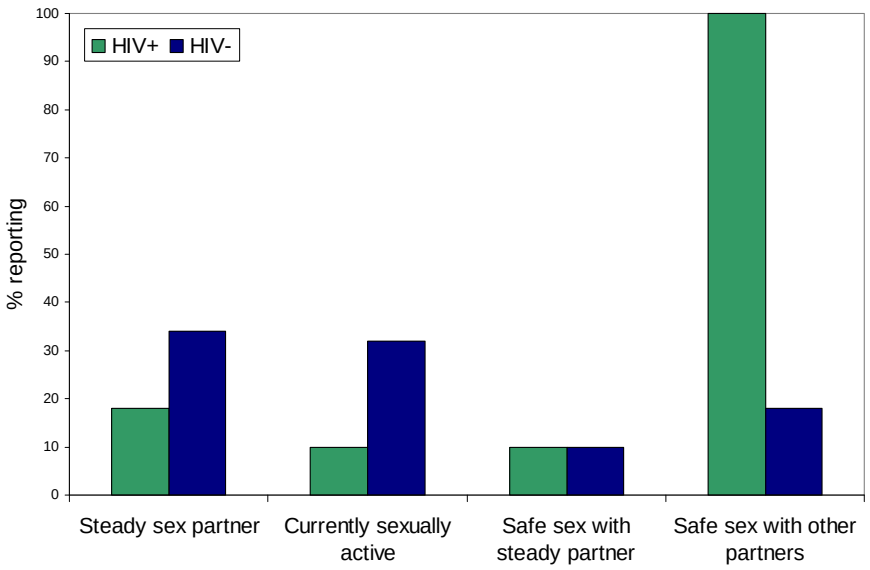
HIV risk behaviors

Lifetime sharing needles or works	**81.4% (223/274)**
Current sharing needles or works (past 30 days)	**55.1% (151/274)**
Sharing with more than 2 to 3 people (past 30 days)	**73.5% (111/151)**
Always cleaning needles/works before sharing (past 30 days)	**46.4% (70/151)**
Cleaning by rinsing in water ***None reported using bleach***	**86.4% (133/154)**
Self-reported HIV-positive in the sample	**27.8% (68/245)**

High rates of risk behaviors among not-in-treatment opiate abusers

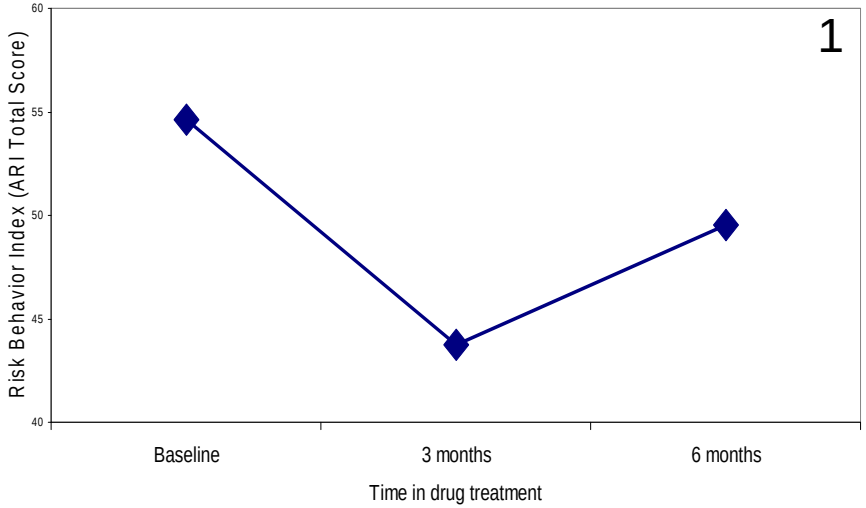
HIV status and risk behaviors

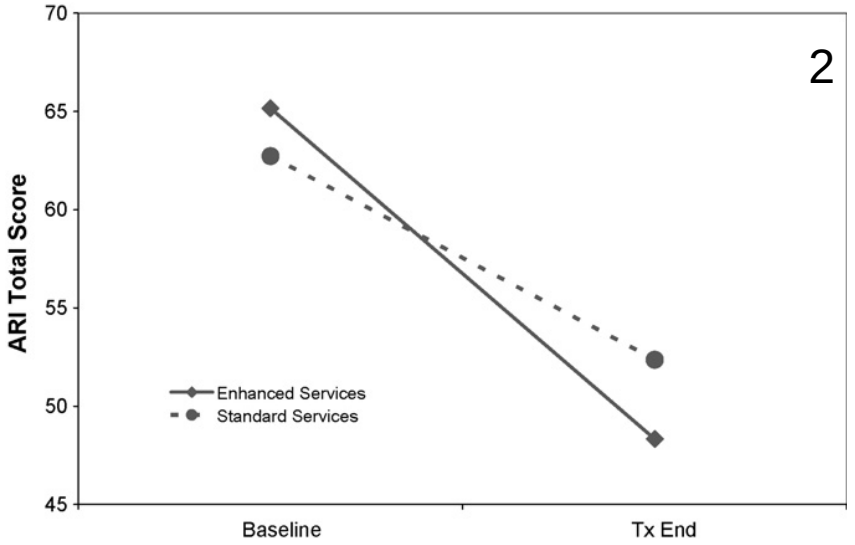


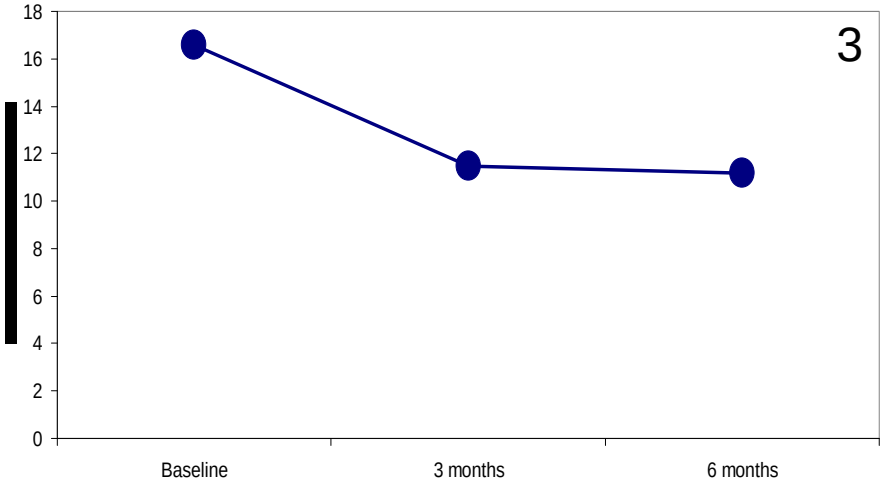


- Data from surveys conducted between 2006 and 2008 enrolling not-in-treatment drug users in Malaysia (N=732); 26.5% HIV-positive (self-report)
- 56.2% of HIV-positive report current sharing of injecting equipment, majority of them share with multiple individuals
- Opiate abusers (in Malaysia) who know that they are HIV+ do not seem to significantly change their risk behaviors

Treatment effects on HIV risks







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2. Chawarski, M.C., Mazlan, M., & Schottenfeld, R.S. (2008). Behavioral drug and HIV risk reduction counseling (BDRC) with abstinence-contingent take-home buprenorphine: A pilot randomized clinical trial. Drug and Alcohol Dependence, 94, 281–284.
3. Sullivan, L.E., Moore, B.A., Chawarski, M.C., Pantalon, M.V., Barry, D.T., O'Connor, P.G., Schottenfeld, R.S., & Fiellin, D.A. (2008). Buprenorphine/naloxone treatment in primary care is associated with decreased HIV risk behaviors. Journal of Substance Abuse Treatment, 35, 87-92

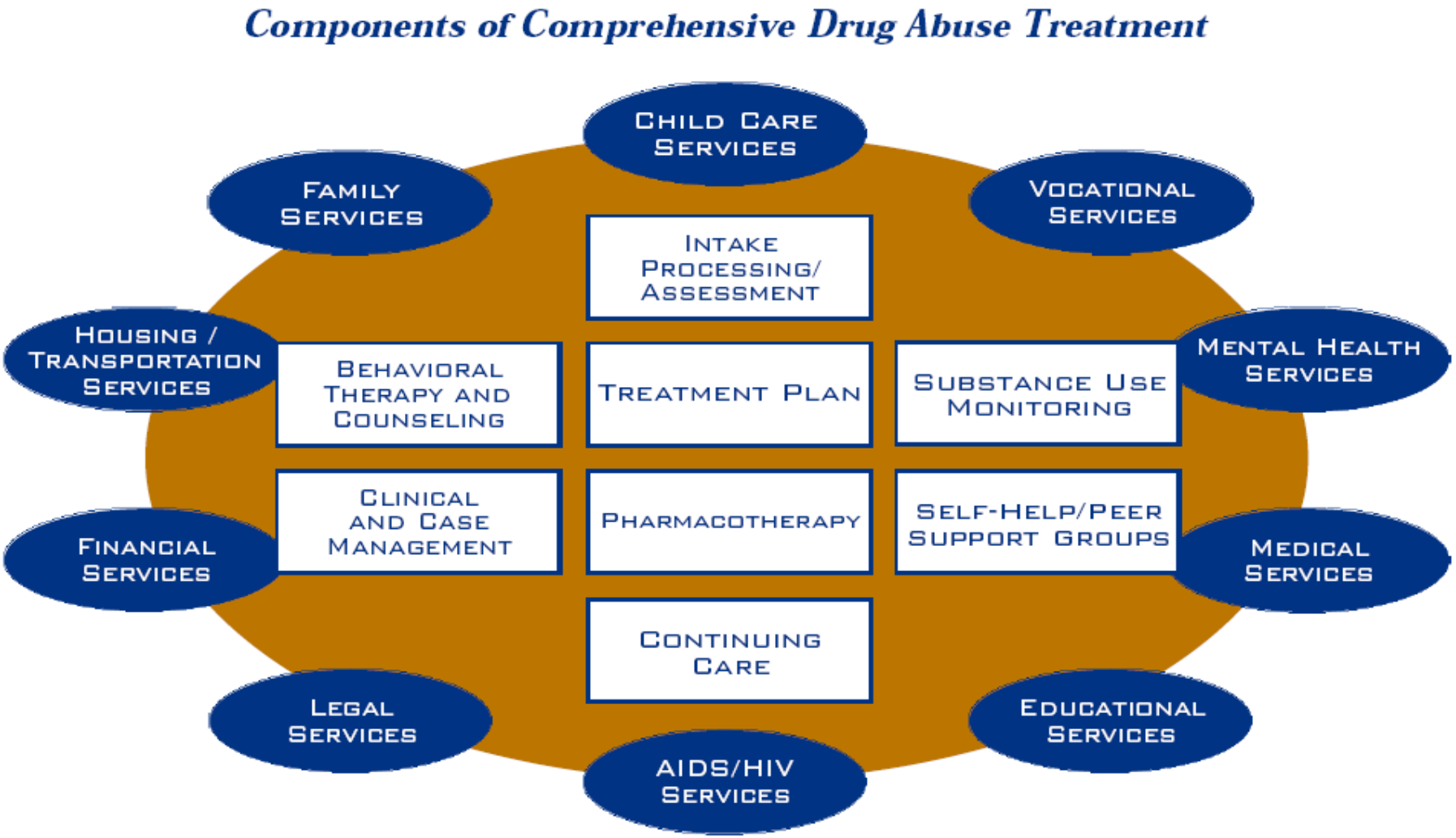
Fiellin, D.A., Pantalon, M.V., Chawarski, M., Moore, B.A., Sullivan, L.E., O'Connor, P.G., & Schottenfeld, R. (2006). Counseling plus buprenorphine-naloxone maintenance therapy for opioid dependence. New England Journal of Medicine, 355(4): 365-374.

How effective is drug treatment in reducing HIV?

- IOM 2007 report concludes

  "Evidence from prospective cohort and case-control studies shows that continuous opioid agonist maintenance treatment is associated with protection against HIV seroconversion. This association persists after controlling for many confounders. These studies also show that the risk of seroconversion is inversely related to the length of time in treatment."

Comprehensive drug treatment



Drug treatments as HIV prevention

- Drug treatments prevent HIV transmission by
  - Reducing or eliminating drug use and drug related risk behaviors (e.g., needle use and needle sharing) and other risk behaviors
  - Providing opportunity to educate about consequences of drug use and drug- and sex-related risk behaviors
  - Teaching decision making skills and coping and problem solving strategies
  - Supporting lifestyle changes
  - Providing a platform to enhance rehabilitation, HIV education and medical care

Acknowledgments

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  - Richard S. Schottenfeld, Yale University
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