

Systematic Review Research on Needle/Syringe Programs and Opiate Substitution Programs in Low and Middle Income Countries

Des Jarlais DC ¹, Feelemyer J. ¹, Arasteh K. ¹
Hagan H. ²

¹The Baron Edmond de Rothschild Chemical Dependency
Institute, Beth Israel Medical Center

² College of Nursing, New York University

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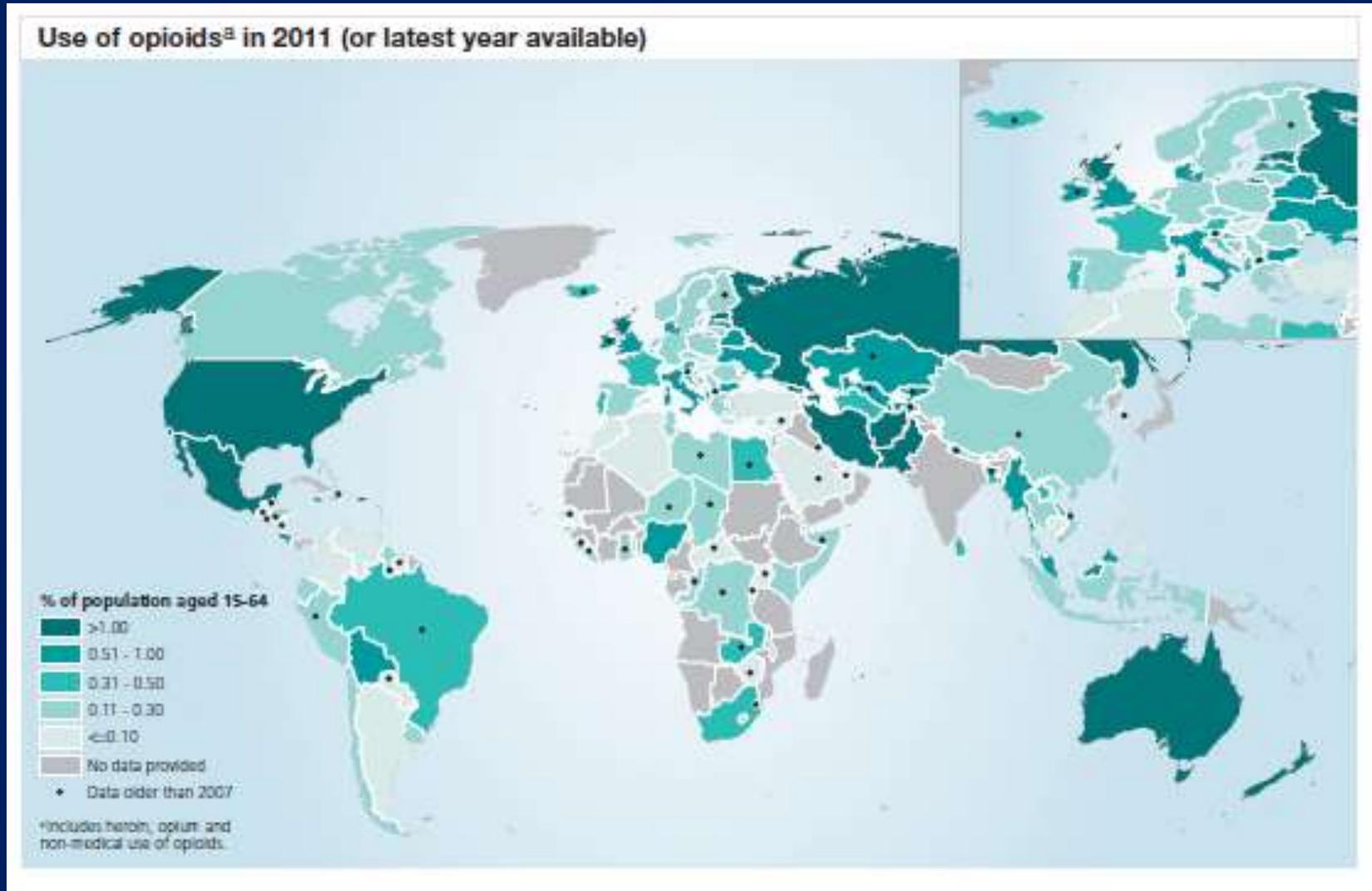
Conflicts of Interest

No Conflicts of Interest

Global Drug Use

- UNODC World Drug Report 2012
- Based on official country reporting

Opioid Use Globally, 2011



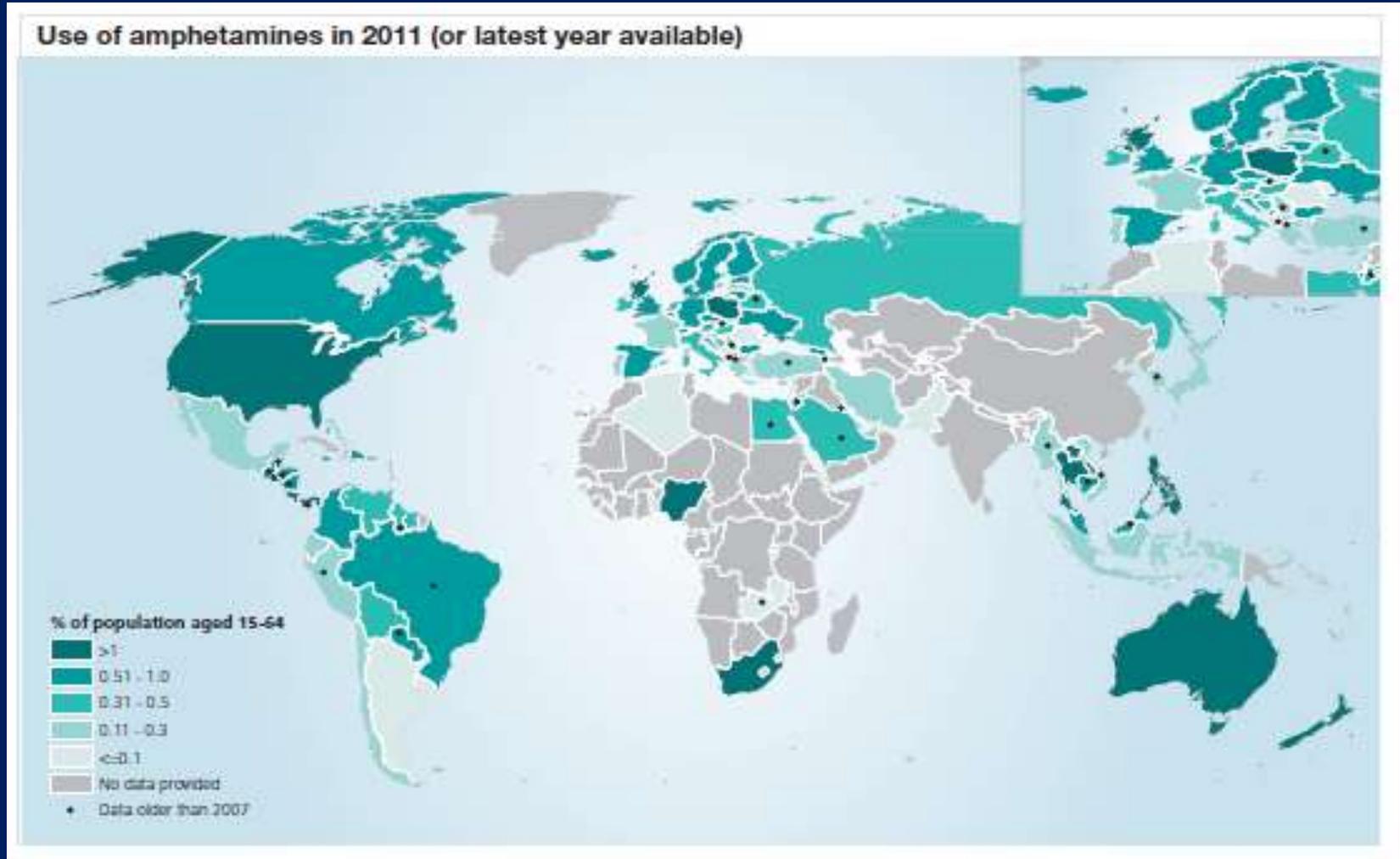
Source: UNODC estimates based on annual report questionnaire data and other official sources

Cocaine Use Globally, 2011



Source: UNODC estimates based on annual report questionnaire data and other official sources

Amphetamine Use Globally, 2011



Source: UNODC estimates based on annual report questionnaire data and other official sources

Objectives

- Assess current structural level NSP and OST programs in LMIC, examining overall retention of participants in OST programs, and changes in biomarkers (HIV, HCV) among participants in NSP programs.



Success of HIV prevention for persons who inject drugs in high income settings

- HIV incidence among PWID often too low to measure accurately, but best estimates typically $< 0.5/100$ person-years.
- In US, about 4000 newly identified cases of HIV among PWID among 1.3 million PWID.
- Many of the new infections are sexual transmission.

Low and Middle-Income Country Harm Reduction Programs

- Although most high income countries have had NSP and OST treatment available for decades, there has only been a recent emergence of these programs in many low and middle income countries
- Low and middle income countries often lack the **funding** for harm reduction programs making it more difficult to implement and maintain these programs for drug users at needed levels of coverage.

Low and Middle-Income Country Harm Reduction Programs

- Low and middle income countries often lack the **trained staff** needed for proper implementation of programs.
- Implementation of programs **may not follow good clinical practices** in low and middle income countries, e.g., restrictions on numbers of syringes, restrictions on methadone dosages, lack of take home dosages.
- **Severe stigmatization of drug users** in low/middle income countries may discourage use of programs.

NSP and OST Evaluation for this study

This review specifically focuses on low and middle-income countries as defined by World Bank Classification

- Low and middle-income locations lack systematic reviews of NSP and OST programs
- Analyzing NSP and OST programs in low and middle-income countries is crucial due to funding and resource constraints
- Many low and middle-income countries have HIV prevalence among people who inject drugs (PWID) that has surpassed 20%

Methods

- **Systematic literature review** conducted to collect coverage information related to NSP and OST programs in low and middle-income countries
- Studies selected for inclusion had to have data available that documented the following information:
 - For per NSP programs, **at least 50% coverage of PWID and 10-15 syringes available PWID per year**
 - For OST programs, utilization of methadone or bupenorphine and measurement of **retention over time among OST participants**

Methods (continued)

- Primary studies were selected for inclusion along with national surveillance reports
- Data from studies and reports had to be recorded during period of NSP implementation/expansion or during OST treatment
- NSP studies had to include at least 95% PWID; OST studies had to include opiate users, regardless of drug route of administration

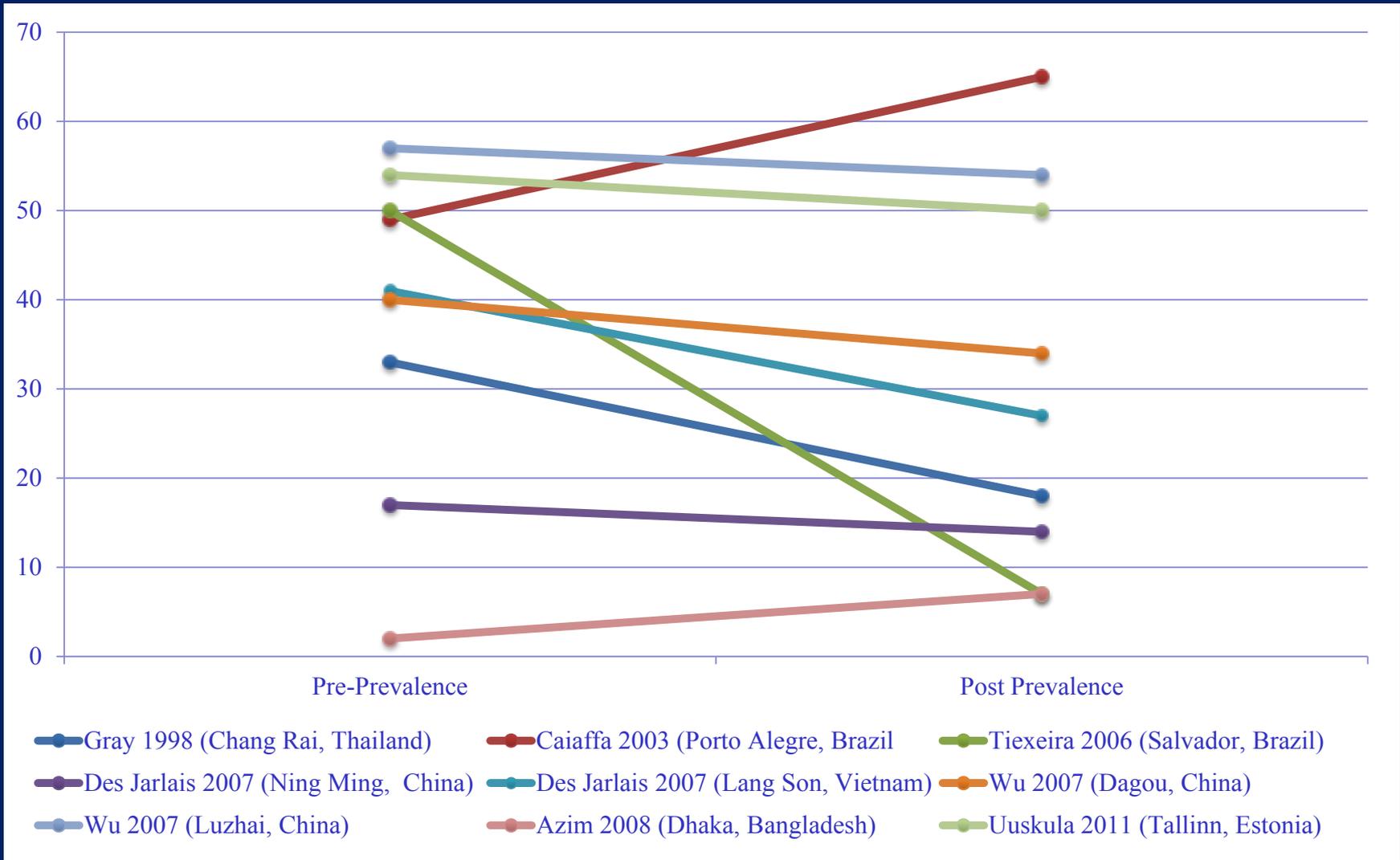
Results

- **12 NSP and 63 OST studies** and reports examining 17 LMIC countries were included in the systematic reviews
- Countries evaluated include: Afghanistan, Bangladesh, Brazil, China, Georgia (republic), India, Indonesia, Iran, Kyrgyzstan, Lithuania, Malaysia, Mauritius, Taiwan, Tanzania, Thailand, Ukraine, and Vietnam

NSP Results

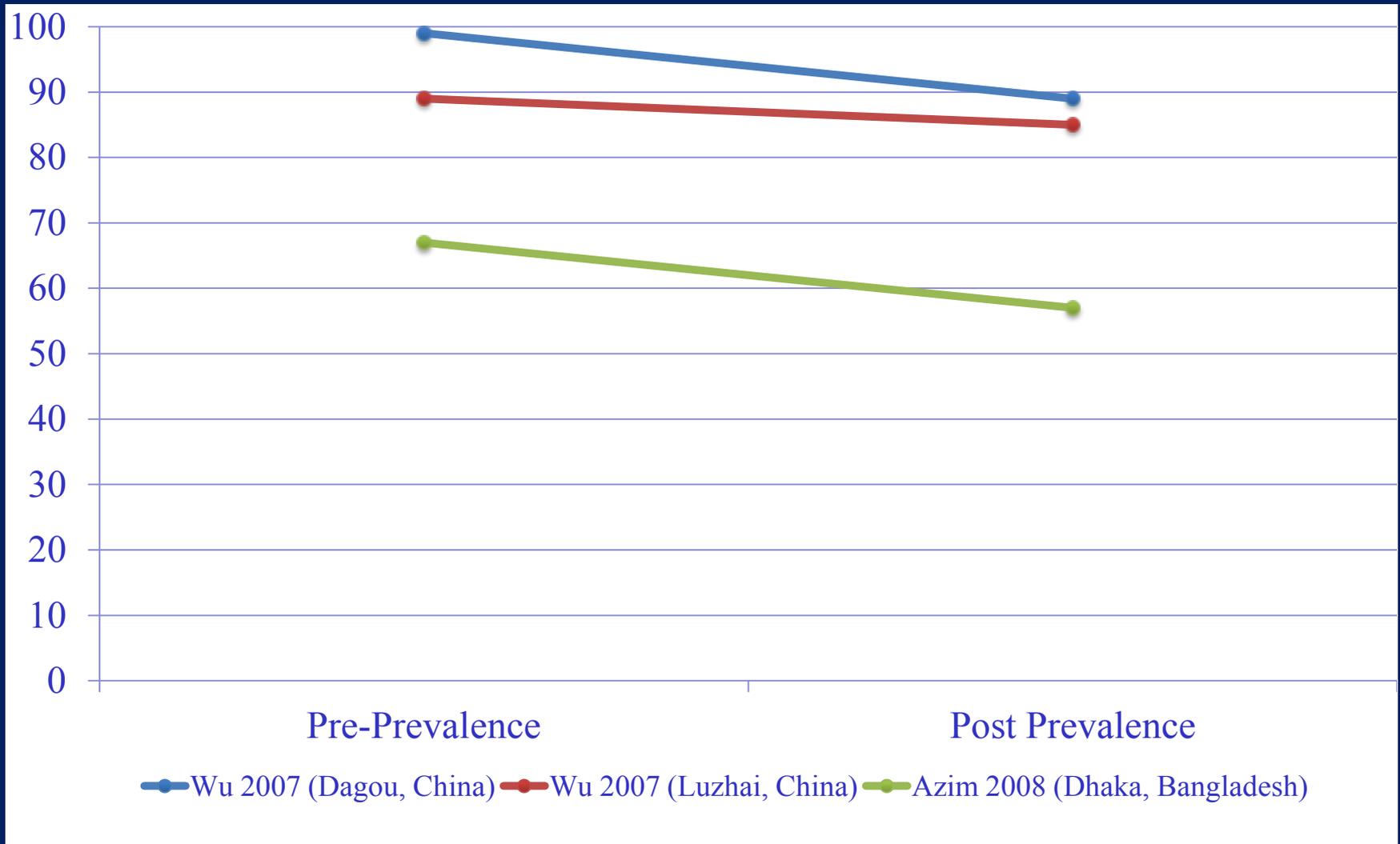
- **Seven of the nine locations** that analyzed **HIV prevalence** showed a **decrease** after NSP implementation
- **All three locations** that analyzed **HCV prevalence** reported decreases while one location analyzing **HCV incidence** saw **stabilization** of incidence rates during NSP implementation and expansion
- **Three of the four countries** with national surveillance data available demonstrated **decreases** in the number of newly reported HIV cases during NSP implementation and expansion

HIV Prevalence Changes among PWID



Seven of the nine locations that analyzed HIV prevalence showed a decrease after NSP implementation

HCV Prevalence Changes among PWID

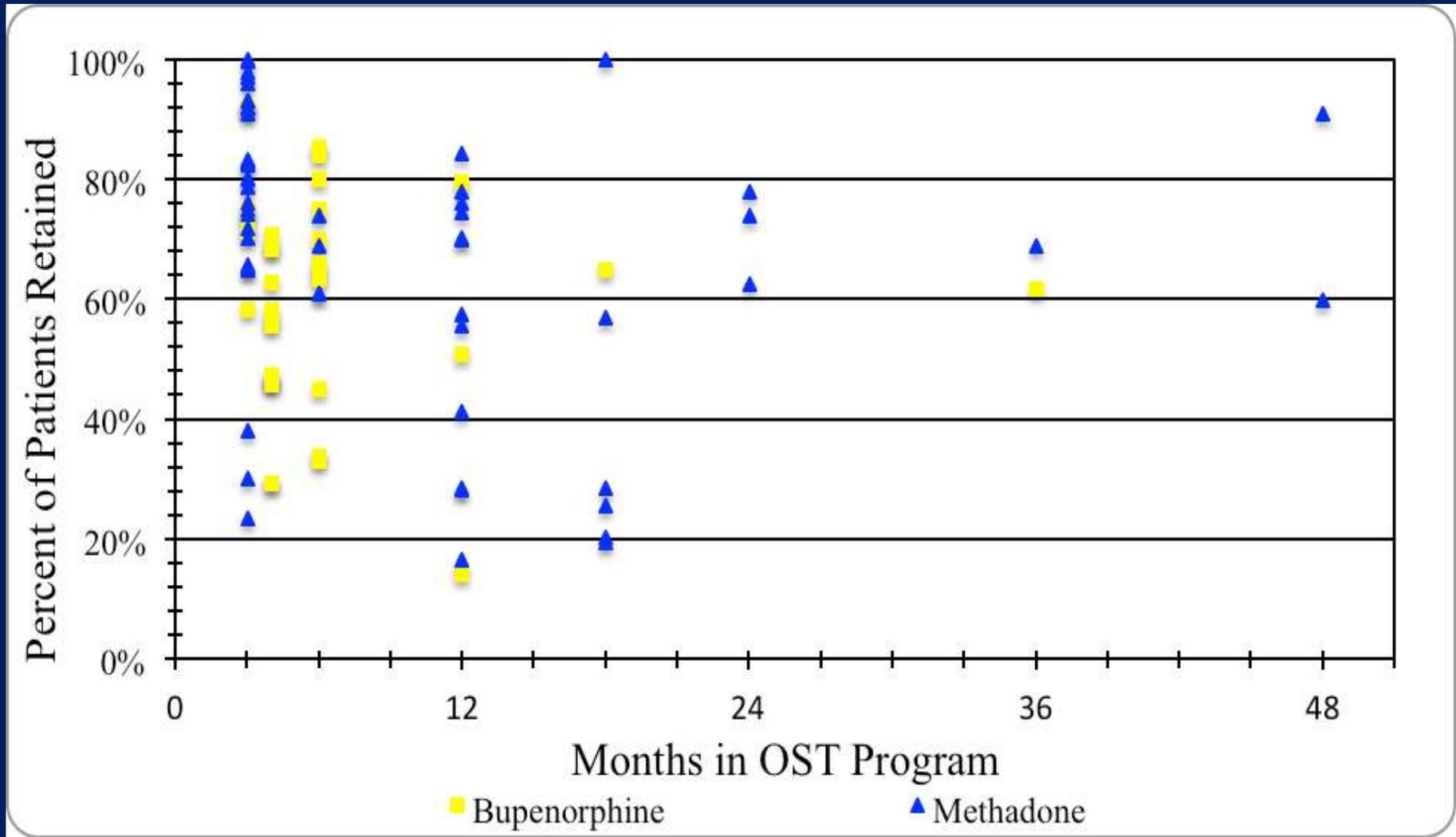


All three locations that analyzed HCV prevalence showed a decrease after NSP implementation

OST Results

- OST programs in LMIC had similar retention values after 12 months (54.3%) to high income country OST programs (~50%)
- Retention was slightly higher for programs that utilized methadone (56.6%) compared to bupenorphone (48.3%) after twelve months of treatment
- Although dosage of OST varied slightly among studies, there was no statistically significant difference in retention based on the dosage of OST pharmacologic substance given

OST Treatment Retention by OST Type



Retention remained above 50% for studies with follow-up times greater than 12 months up to 48 months

Discussion-NSP Studies

- The majority of the NSP studies and reports in low and middle-income countries documented successful reductions in blood-borne infection
 - In **Lithuania**, newly reported cases decreased dramatically in the initial years of NSP and only increased in the last year when needle/syringe distribution levels were drastically reduced
 - Late implementation of NSP in the PWID epidemic in **Porto Alegre, Brazil** was attributed as cause of the increase in HCV prevalence during NSP expansion
 - In **Dhaka Bangladesh**, early implementation of NSP led to initial reductions in blood-borne infection but then increased as a result of continued high risk sexual behaviors among PWID

Discussion-OST Studies

- LMIC OST programs have reached 50% retention levels after twelve months, and indicator of OST programs success
- Retention in OST programs has been associated with many positive outcomes outside of reduced drug use, including:
 - Better highly active anti-retroviral therapy (HAART) adherence and initiation for HIV positive drug users
 - Higher levels of virologic response
 - Reduced crime and increased legal employment

Limitations

- Reductions in blood-borne infection **cannot be solely attributed to NSP**
 - Factors including entry of new PWID into the population, PWID deaths, access to drug treatment such as opiate substitution treatment, HAART and other harm reduction interventions were not considered
- Many low and middle-income countries have started NSP and OST programs only in the last five to ten years, and therefore do **not have enough longitudinal data for evaluation of their programs**
- **Retention could have been influenced by other factors** external to the OST program (such as participation in other harm reduction programs)

Conclusions

- If implemented on a large-scale and according to WHO guidelines, HIV prevention/harm reduction programs for drug users in LMIC appear to be as successful as high-income country programs in retaining program participants over time and reducing blood-borne infection
- OST and NSP programs are gaining wider acceptance in LMIC, and there have been many new pilot programs implemented, especially within the last five years.

Conclusions

- Implementation according to **Good Clinical Practices** remains a critical issue.
- Implementation on a **public health scale** remains a critical issue.
- **Sustainability** remains a critical issue as international funding declines.
- **Continued monitoring and evaluation** will be needed.

Conclusions

- Early implementation and expansion of NSP can prevent high seroprevalence epidemics among PWID
- OST programs have the potential to reduce drug use, overdose, and relapse, while improving quality of life and continued abstinence in drug users
- It is important to work collaboratively with law enforcement and government officials to help reduce stigma, police issues, drug paraphernalia laws, and increase funding for NSP and OST programs

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