Prevalence and correlates of methamphetamine/amphetamine use among young adult injection drug users in five U.S. cities

DC Ompad, MH Latka, SA Strathdee, DW Purcell, SL Bailey, SM Hudson, H Thiede, V Nandi, RS Garfein for the DUIT Study Team

Methampetamine use in the U.S.

- In 2005, approximately 6.4% of U.S. residents reported ever using methamphetamine (SAMHSA, 2006)
- Use of methamphetamine is widespread, but generally higher on the West Coast and in the Midwest (CDC, 1995;Hutin, et al., 2000;National Drug Intelligence Center, et al., 2005;Rawson, et al., 2002)
- Recent reports indicate that availability has increased in the Northeast Region (National Drug Intelligence Center, et al., 2005)
- Current data suggest that methamphetamine use is more prevalent among males and non-Hispanic whites (Arria, et al., 2002;Yacoubian, Jr., 2002)

Methamphetamine and amphetamine (M/A) use and HIV risk

- M/A use is associated with preferring to have sex while on amphetamine, greater interest in sex, and greater frequency of sexual behavior (Kall, et al., 1995;Klee, 1993)
- Zule et al. (1999) observed in a qualitative study that methamphetamine injectors were significantly more likely than heroin injectors to have multiple sex partners and sex partners who injected drugs
- M/A use has been associated with
  - Higher number of sexual partners (Molitor, et al., 1998),
  - HIV infection among men who have sex with men (MSM) (Chesney, et al., 1998;Koblin, et al., 2006).

State of M/A research

- *Most* studies examining M/A use have been conducted among whites and/or MSM
- More data are needed regarding M/A use among
  - Non-white ethnic/racial minorities
  - Women
  - Heterosexual men

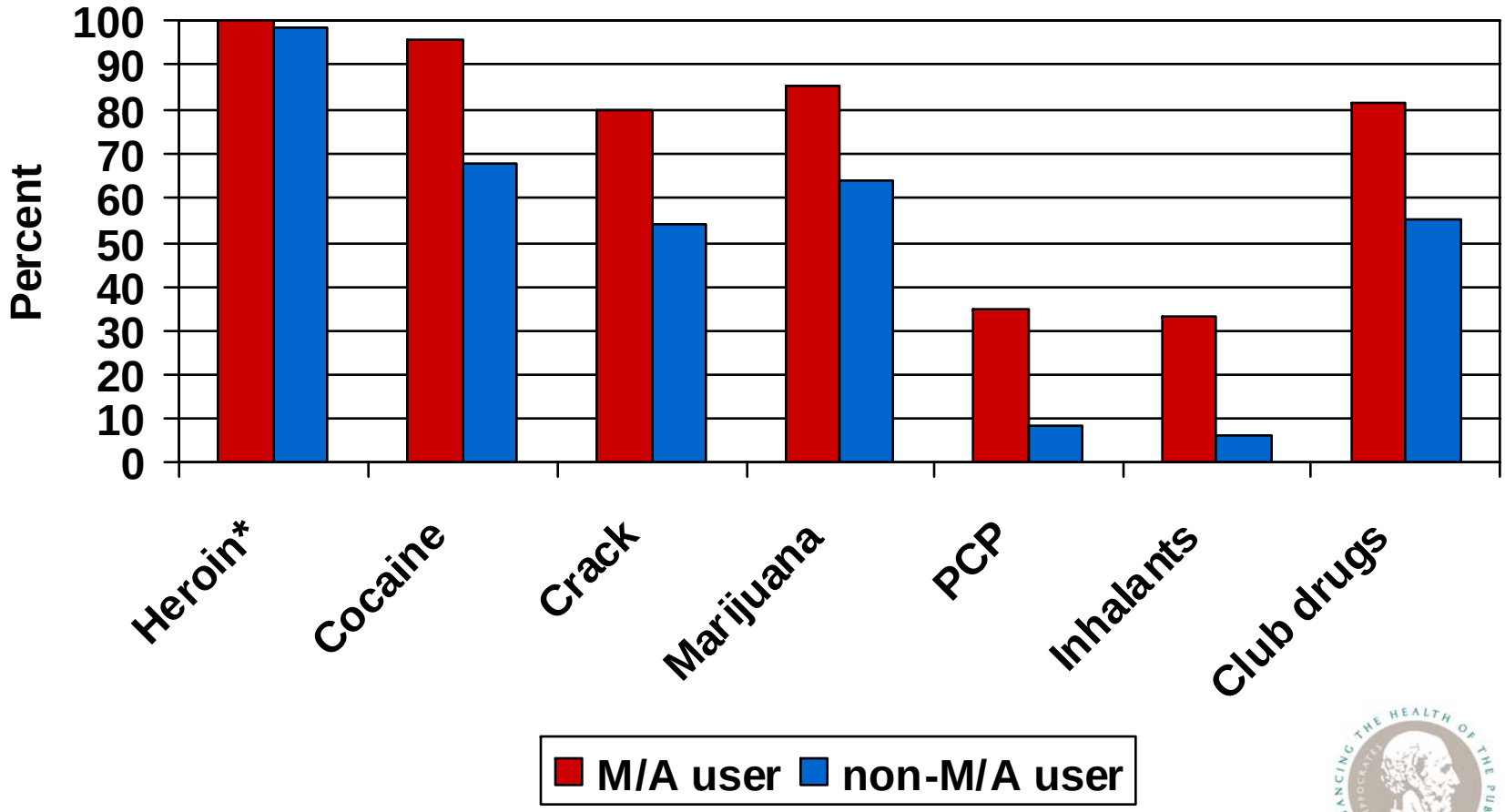
Study Design and Participants

- Multi-site, randomized controlled trial
- Eligibility:
  - 15-30 years old
  - Injected in the past 6 months
  - HIV and HCV seronegative at baseline
  - English speaking
- Recruited via street outreach, targeted advertising, and respondent-driven chain referral
- Assessments at baseline and 3 and 6 months post-intervention

Sample characteristics

- 69.3% male
- Race/ethnicity
  - 64.0% white non-Hispanic
  - 7.7% black non-Hispanic
  - 16.8% Hispanic
  - 11.5% other/mixed
- Sexual partnerships in last 3 months
  - 49.8% men who have sex with women only (MSWO)
  - 22.8% women who have sex with men only (WSMO)
  - 8.2% men who have sex with men (MSM)
  - 5.9% women who have sex with women (WSW)
  - 13.3% no sex in last 3 months

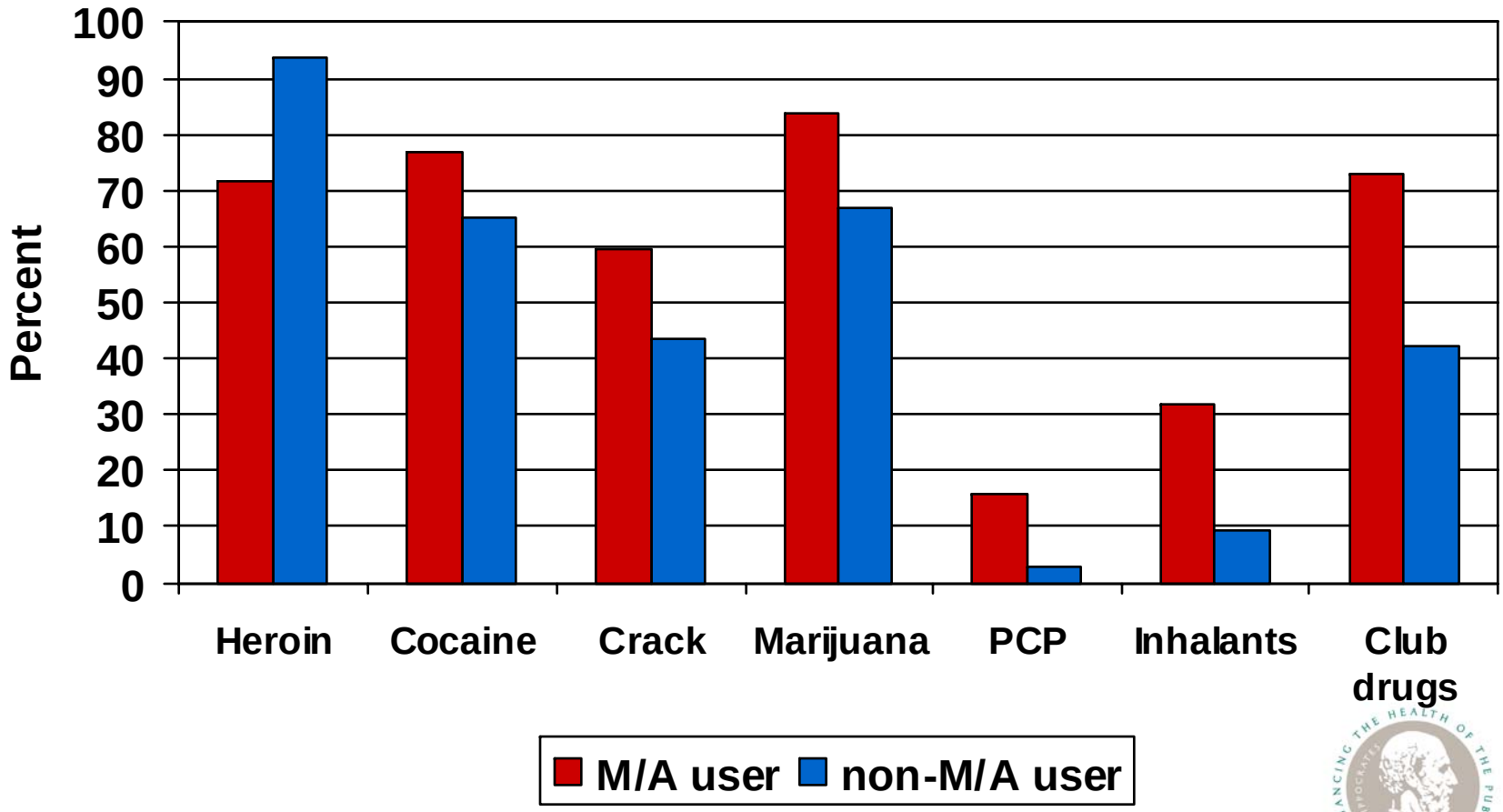
Drug use in low prevalence cities



p<0.001, *p=0.039

THE NEW YORK ACADEMY OF MEDICINE

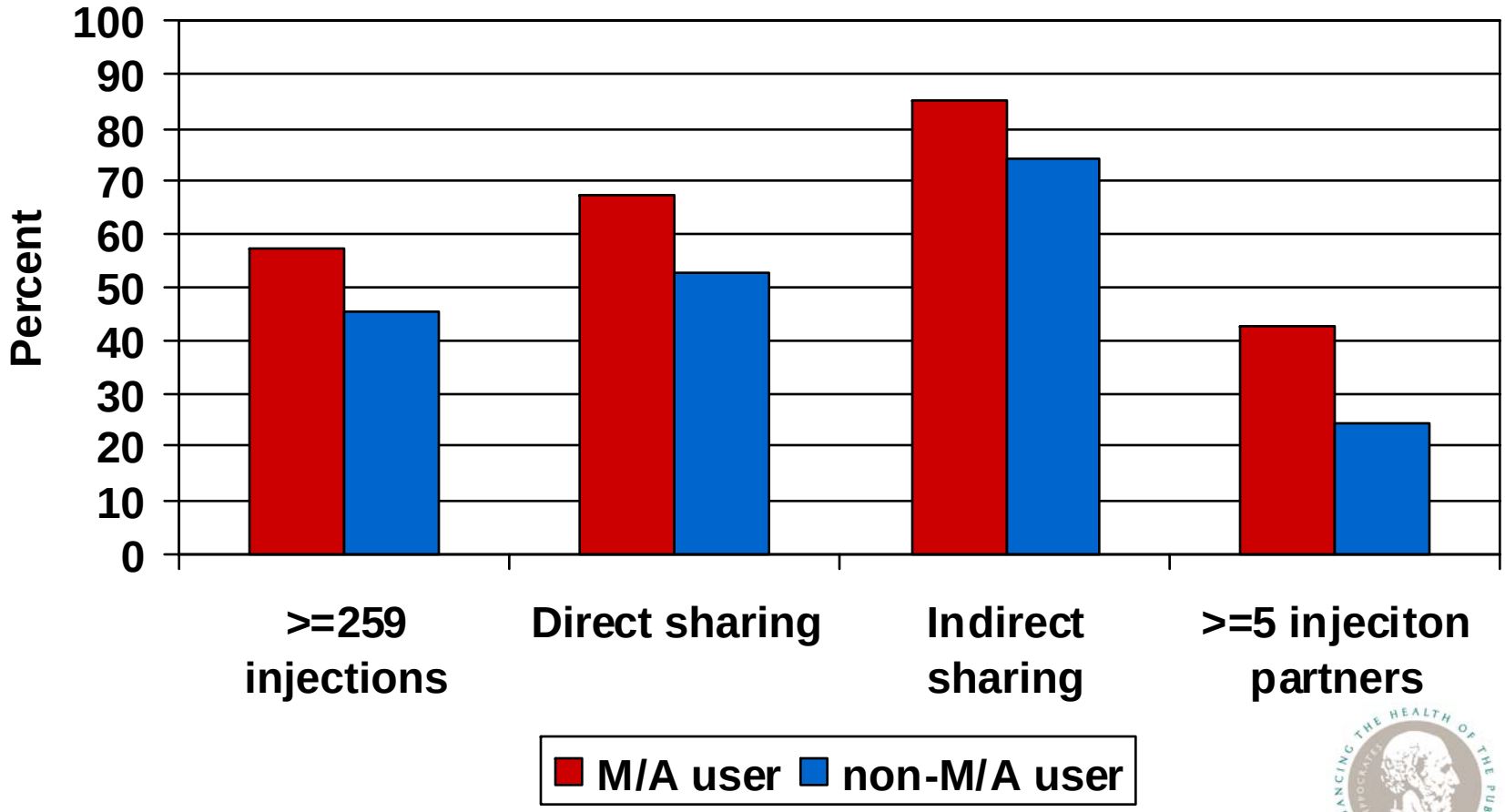
Drug use in high prevalence cities



p<0.001

THE NEW YORK ACADEMY OF MEDICINE

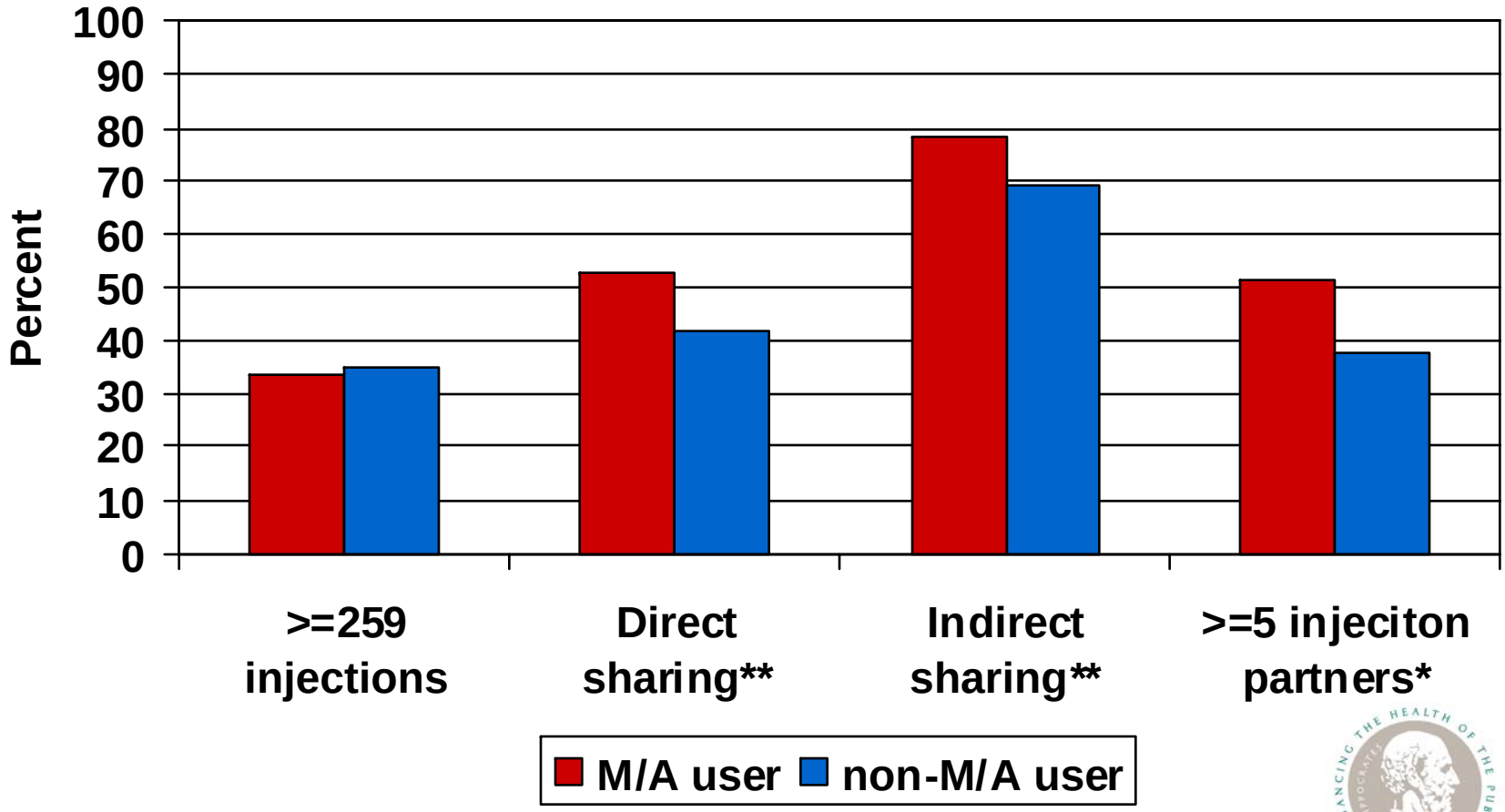
Injection drug use behaviors in low prevalence cities



p<0.001

THE NEW YORK ACADEMY OF MEDICINE

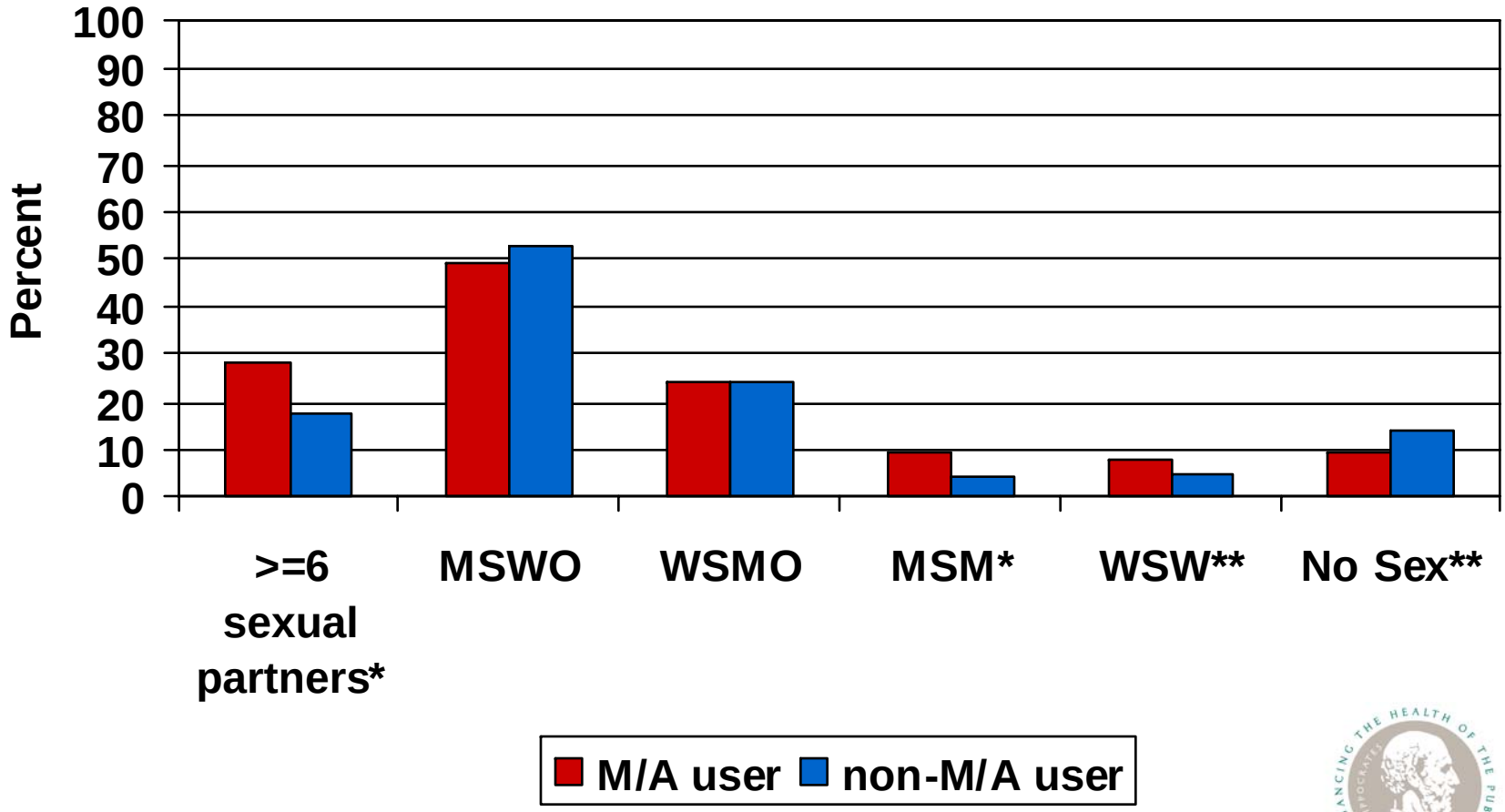
Injection drug use behaviors in high prevalence cities



*p<0.001, **p=0.002

THE NEW YORK ACADEMY OF MEDICINE

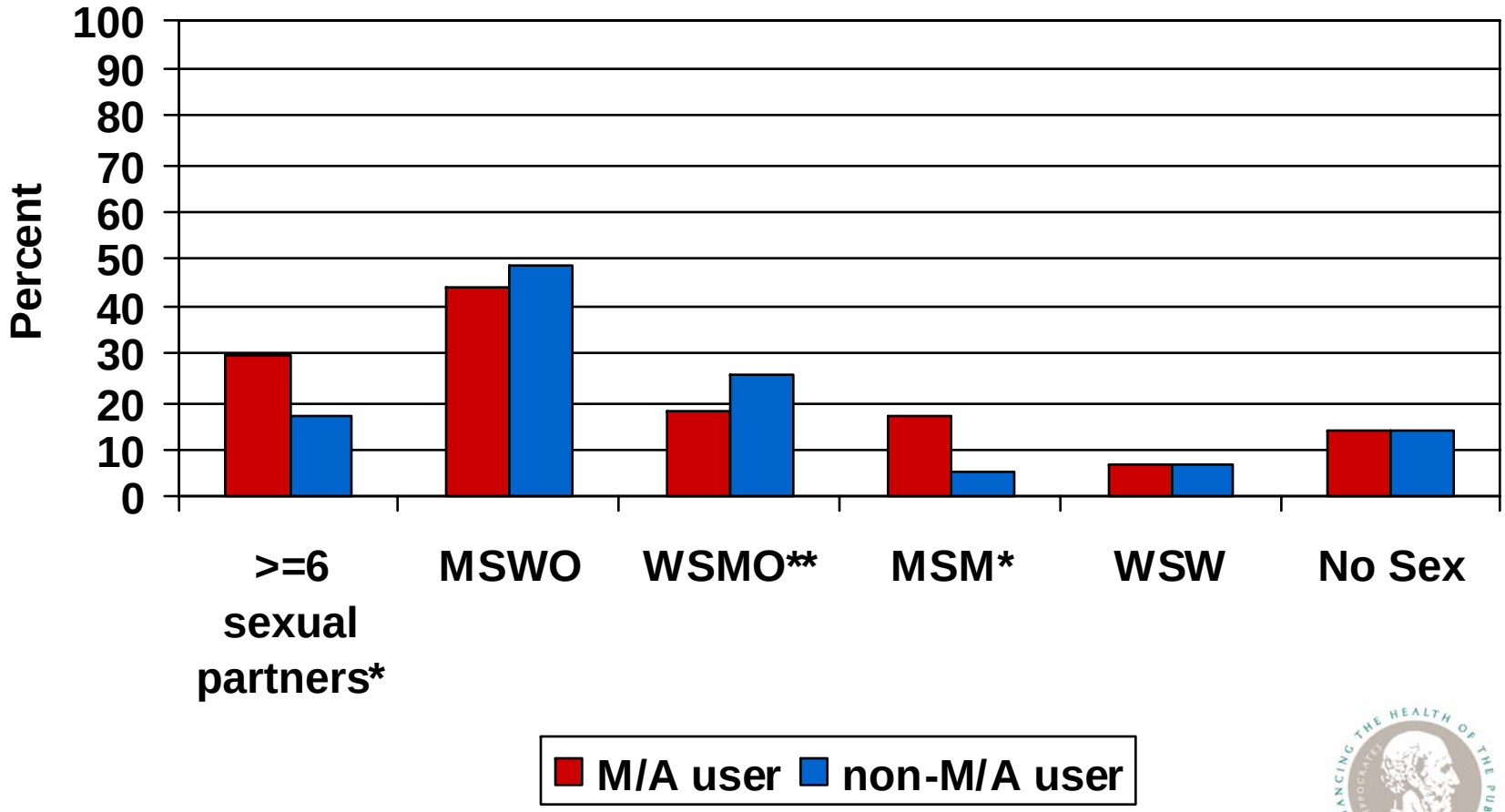
Sexual behaviors in low prevalence cities



*p<0.001, **p<0.02

THE NEW YORK ACADEMY OF MEDICINE

Sexual behaviors in high prevalence cities



*p<0.001, **p<0.02

THE NEW YORK ACADEMY OF MEDICINE

Correlates of M/A use in low prevalence cities

	Crude OR	95% CI	Adjusted OR	95% CI
Race/Ethnicity				
White, Non-Hispanic	1.00	-	1.0	
Black, Non-Hispanic	0.39	0.22, 0.70	0.20	0.04, 0.86
Hispanic	0.69	0.51, 0.94	0.51	0.31, 0.84
Other/mixed	1.19	0.79, 1.78	1.21	0.73, 2.00
Homelessness	2.00	1.58, 2.53	1.59	1.14, 2.21
Drug use, last three months				
Cocaine	10.60	6.36, 17.68	4.93	2.58, 9.41
Crack	3.43	2.60, 4.52	1.63	1.12, 2.37
Inhalants	7.54	5.62, 10.13	3.48	2.36, 5.14
PCP	5.85	4.44, 7.72	2.32	1.58, 3.41
Club drugs	3.59	2.65, 4.88	2.30	1.58, 3.33
$\geq$ 5 injection partners in last three months	2.29	1.81, 2.89	1.50	1.09, 2.07
Same or opposite sex sexual partnerships				
MSWO	1.0		1.0	
WSMO	1.08	0.82, 1.43	1.77	1.20, 2.60
MSM	2.33	1.51, 3.60	1.26	0.63, 2.52
WSW	1.73	1.11, 2.69	2.04	1.10, 3.77
No sex	0.70	0.48, 1.04	1.46	0.88, 2.42

Correlates of M/A use in high prevalence cities

	Crude OR	95% CI	Adjusted OR	95% CI
Race/Ethnicity				
White, Non-Hispanic	1.00	-	1.0	-
Black, Non-Hispanic	0.64	0.40, 1.02	0.44	0.26, 0.75
Hispanic	1.10	0.69, 1.78	0.89	0.52, 1.53
Other/mixed	0.84	0.59, 1.20	0.75	0.51, 1.11
Homelessness	2.03	1.53, 2.70	1.94	1.42, 2.63
Drug use, last three months				
Cocaine	1.79	1.34, 2.42	1.45	1.04, 2.02
Inhalants	4.50	2.91, 6.97	3.37	2.12, 5.35
PCP	6.08	2.94, 12.60	4.69	2.20, 9.98
Cooker, cotton, water sharing in last three months	1.61	1.18, 2.19	1.46	1.04, 2.06
Same or opposite sex sexual partnerships				
MSWO	1.0	-	1.0	-
WSMO	0.81	0.57, 1.14	1.00	0.69, 1.47
MSM	3.61	2.01, 6.47	4.27	2.30, 7.94
WSW	1.10	0.62, 1.94	1.15	0.63, 2.12
No sex	1.06	0.70, 1.61	1.27	0.81, 1.99
Site				
Los Angeles	1.0	-	1.0	-
Seattle	0.67	0.51, 0.89	0.70	0.51, 0.96

Summary

- Differences in the prevalence of M/A use between cities and among specific subpopulations.
  - The finding that no participants in Baltimore or Chicago and only one participant in New York reported M/A as the drug they injected most often is supported by U.S. Drug Enforcement Agency reports suggesting that M/A is not widely available for purchase in Maryland, Chicago, or New York City (USDOJ, 2005d).
- M/A use was generally higher among MSM as compared to MSWO, WSMO and WSW.
  - Within cities the association between same or opposite sex sexual partnerships and M/A was not consistent.
  - In multivariate analysis, compared to MSWO, MSM in high (but not low) prevalence cities and WSMO and WSW in low (but not high) prevalence cities were more likely to report recent M/A use.

THE NEW YORK ACADEMY OF MEDICINE

Summary

- Recent M/A users were significantly more likely than recent non-M/A users to use a greater number of types of drugs yet there were differences between low and high prevalence cities
  - Recent M/A users were significantly more likely to report recent use of cocaine, inhalants, and PCP in all cities, but use of crack and club drugs were significant correlates only in low prevalence cities.
- Of the sexual behaviors considered, only same or opposite sex sexual partnerships remained significant.
  - Because we thought the multivariate analyses might be masking associations among MSM, we conducted a subanalysis.
  - Among MSM, there were no significant relationships between methamphetamine use and anal sex behaviors in either low or high prevalence cities (data not shown).
- With respect to injection risk, we found that recent M/A use was associated with more injecting partners in low prevalence cities and sharing of injection paraphernalia (e.g., cookers, cottons and water) in high prevalence cities.

THE NEW YORK ACADEMY OF MEDICINE

Limitations

- The sample was recruited in five cities and targeted young IDUs.
  - It does not represent older IDUs or even all young IDUs.
  - A major advantage of a younger study population is that it is likely to reflect new trends in drug use.
- Our ability to look at methamphetamine-specific behaviors was limited because participants were queried as to their M/A use together.
  - We were not able to examine methamphetamine use separately from amphetamines nor could we estimate the proportion of the population that used methamphetamine versus amphetamine.
- Study was a cross-sectional analysis and thus we were unable to determine the temporal relation between M/A use and risk behaviors.

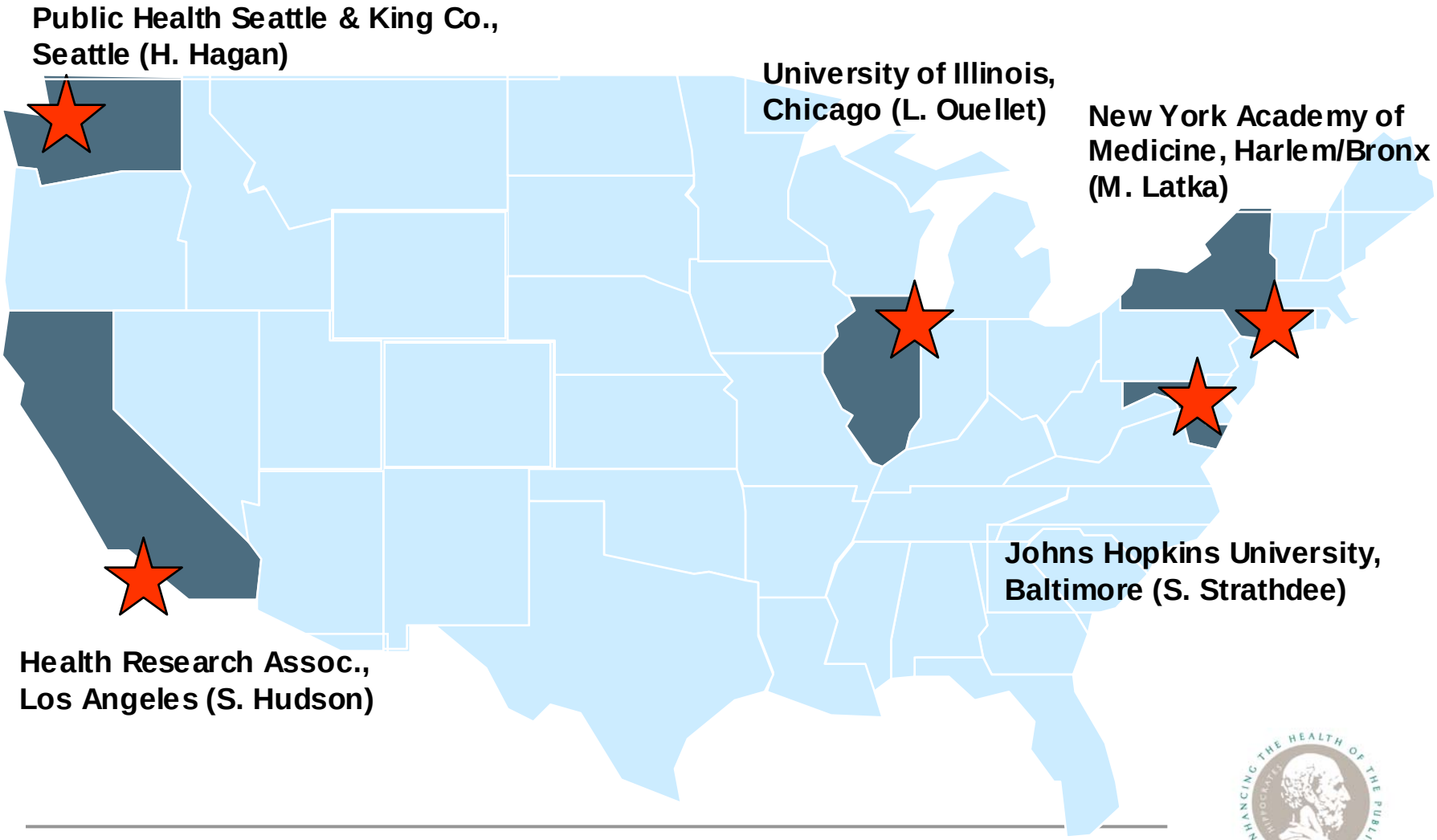
Conclusions

- Our findings highlight the importance of targeting subpopulations such as WSMO and WSWs for methamphetamine education, prevention and treatment programs.
- The difference in correlates of M/A use between cities with low and high prevalence of M/A use deserves attention in future research to inform the design of interventions.
- Efforts to decrease M/A use should take into consideration the local context when developing individual- and community-based programs.

Acknowledgements

- The authors would like to acknowledge the contributions of the study participants and staff.
- This study was funded in its entirety by a cooperative agreement from the Centers for Disease Control and Prevention. U64/CCU317662; U64/CCU517656; U64/CCU917655; U64 CCU217659; U64/CCU017615.

DUIT Collaborators



THE NEW YORK ACADEMY OF MEDICINE

DUIT Study Team

- Baltimore
  - Steffanie Strathdee
  - Elizabeth Golub
  - Marie Bailey-Kloch
  - Karen Yen-Hobelman
- Chicago
  - Lawrence Ouellet
  - Susan Bailey
  - Joyce Fitzgerald
- Los Angeles
  - Sharon Hudson
  - Peter Kerndt
  - Karla Wagner
- New York
  - Mary Latka
  - David Vlahov
  - Danielle Ompad
  - Farzana Kapadia
- Seattle
  - Holly Hagan
  - Hanne Thiede
  - Nadine Snyder
  - Jennifer V. Campbell
- CDC
  - Richard Garfein
  - David Purcell
  - Ian Williams
  - Paige Ingram
  - Andrea Swartzendruber