

Methamphetamine and HIV: Intersecting epidemics among MSM

Grant Colfax, MD

Co-Director

HIV Epidemiology

AIDS Office

San Francisco Department of Public Health

What's new?

- Update epidemiology of MSM methamphetamine use
- Describe relationship between methamphetamine use and HIV risk among MSM
- Describe current and potential future methamphetamine/HIV prevention research among MSM

Methamphetamine use among MSM

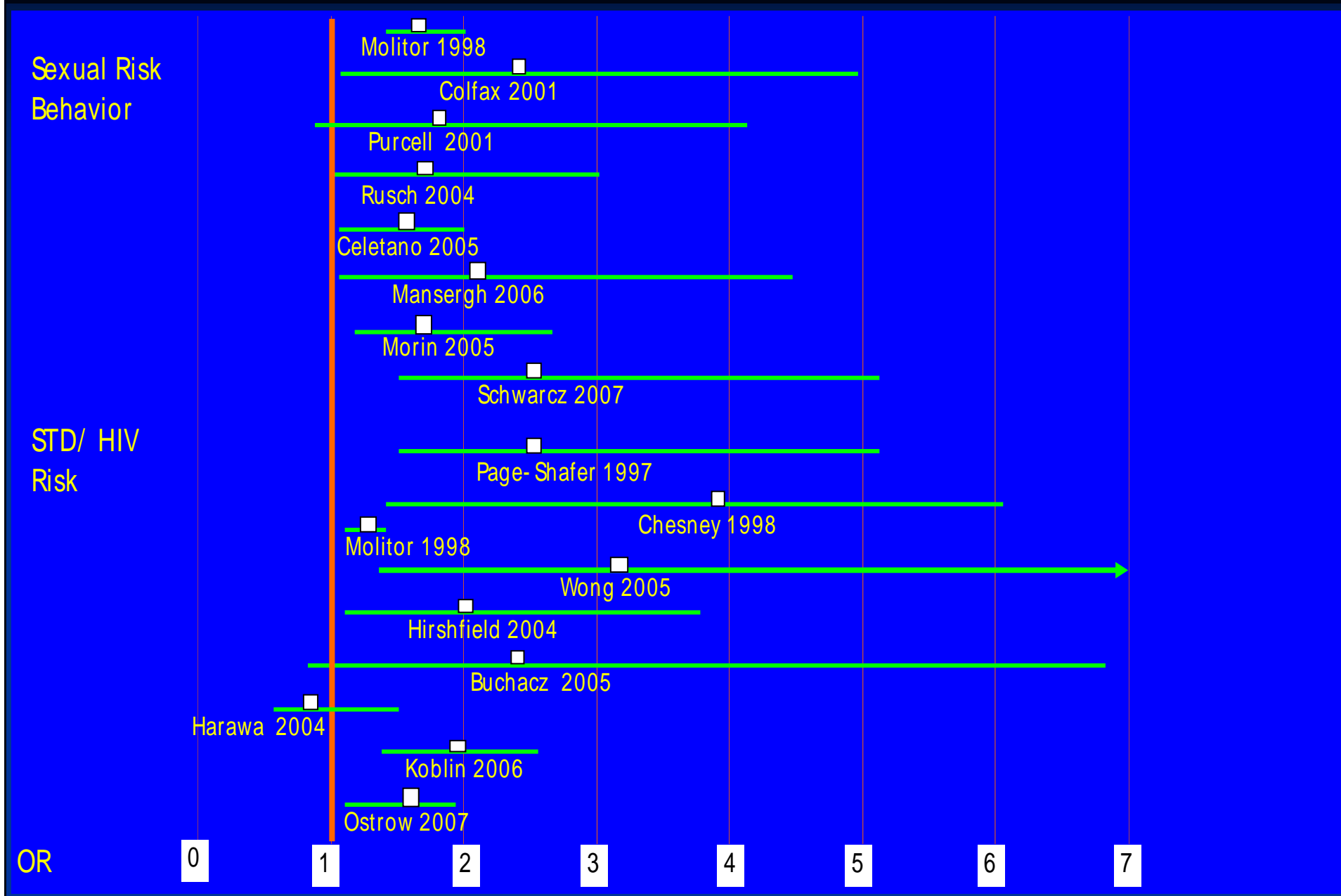
CDC National HIV Behavioral Surveillance Survey

Site	Meth use	
	Last 12 months	Weekly or more
San Francisco	21%	6%
Miami	18%	NA
San Diego	15%	NA
New York	14%	3%
Los Angeles	13%	4%
Chicago	10%	2%
Baltimore	7%	3%

Characteristics of meth users, SF NHBS

- No difference in prevalence of meth use by race/ethnicity
- 66% reported meth use during recent sex
- 8% were injectors
- 93% also reported using poppers or cocaine
- 24% had *ever* sought meth treatment

Methamphetamine and HIV risk



Methamphetamine and HIV seroconversion

EXPLORE study results

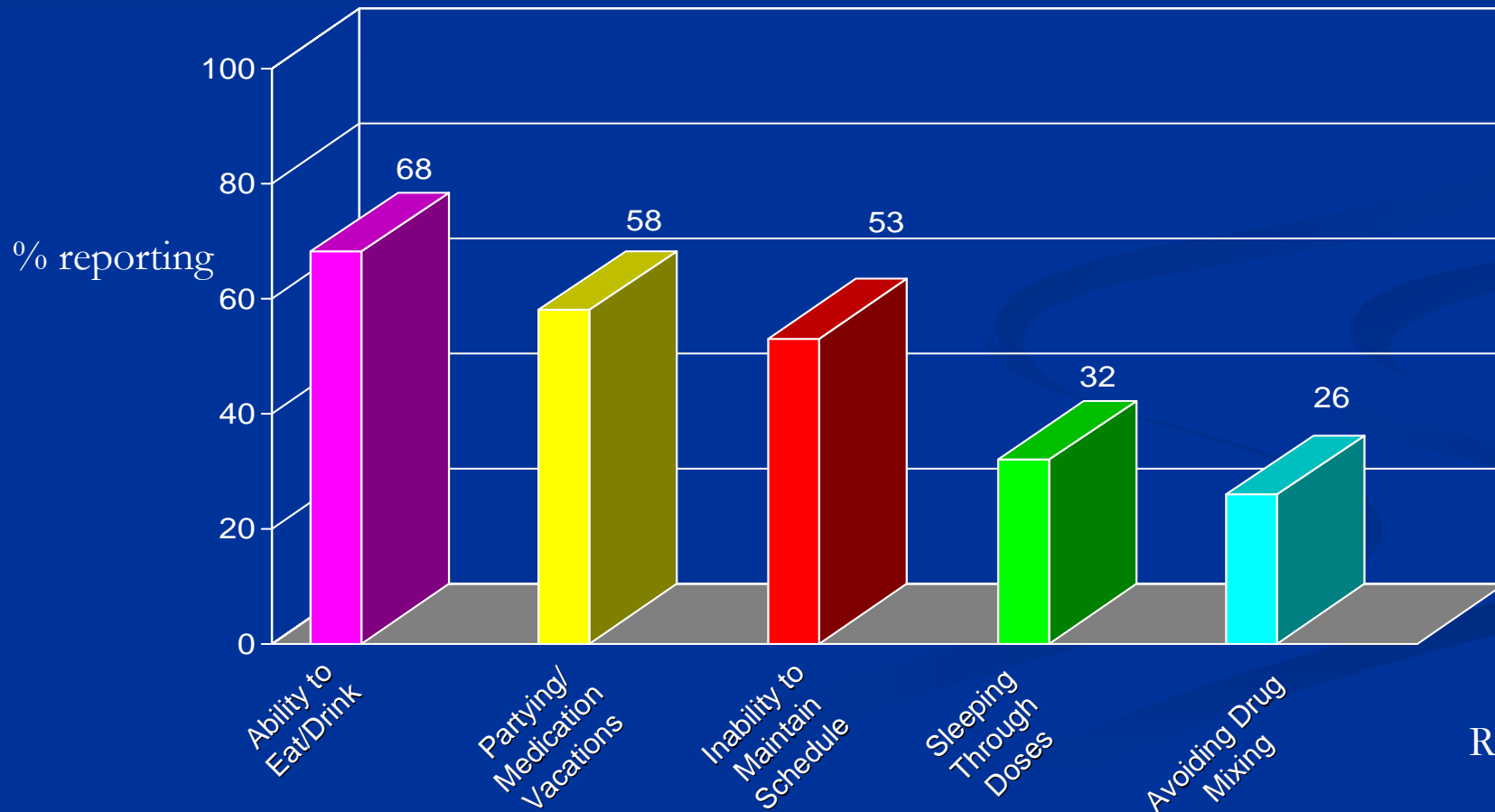
Risk factor for HIV	AHR	95% CI	Attributable fraction
Methamphetamine use	1.9	1.4-2.6	16
URA with HIV+	3.4	2.2-5.1	18
URA with unknown status	2.8	2.1-3.8	28
Gonorrhea	2.5	1.4-4.2	4

How can methamphetamine use be independently associated with HIV infection?

- Unmeasured behavioral confounders
 - More traumatic sex
 - Partner selection
 - More likely to be HIV-positive
 - Biased reporting
- Direct biologic effects
 - Impaired T-cell responses
 - Pro-inflammatory
 - Increased viral load

Non-adherence due to methamphetamine use

- 100% of meth users claimed that their meth use had an effect on adherence



Methamphetamine is associated with primary drug resistance

- OPTIONS cohort
 - 400 SF MSM with recent HIV infection
 - 27% reported meth use in 30 days prior to enrollment
 - Meth use independently associated with primary NNRTI resistance (Adj OR 3.5, 95% CI 1.2-10.8)

Interventions for methamphetamine users

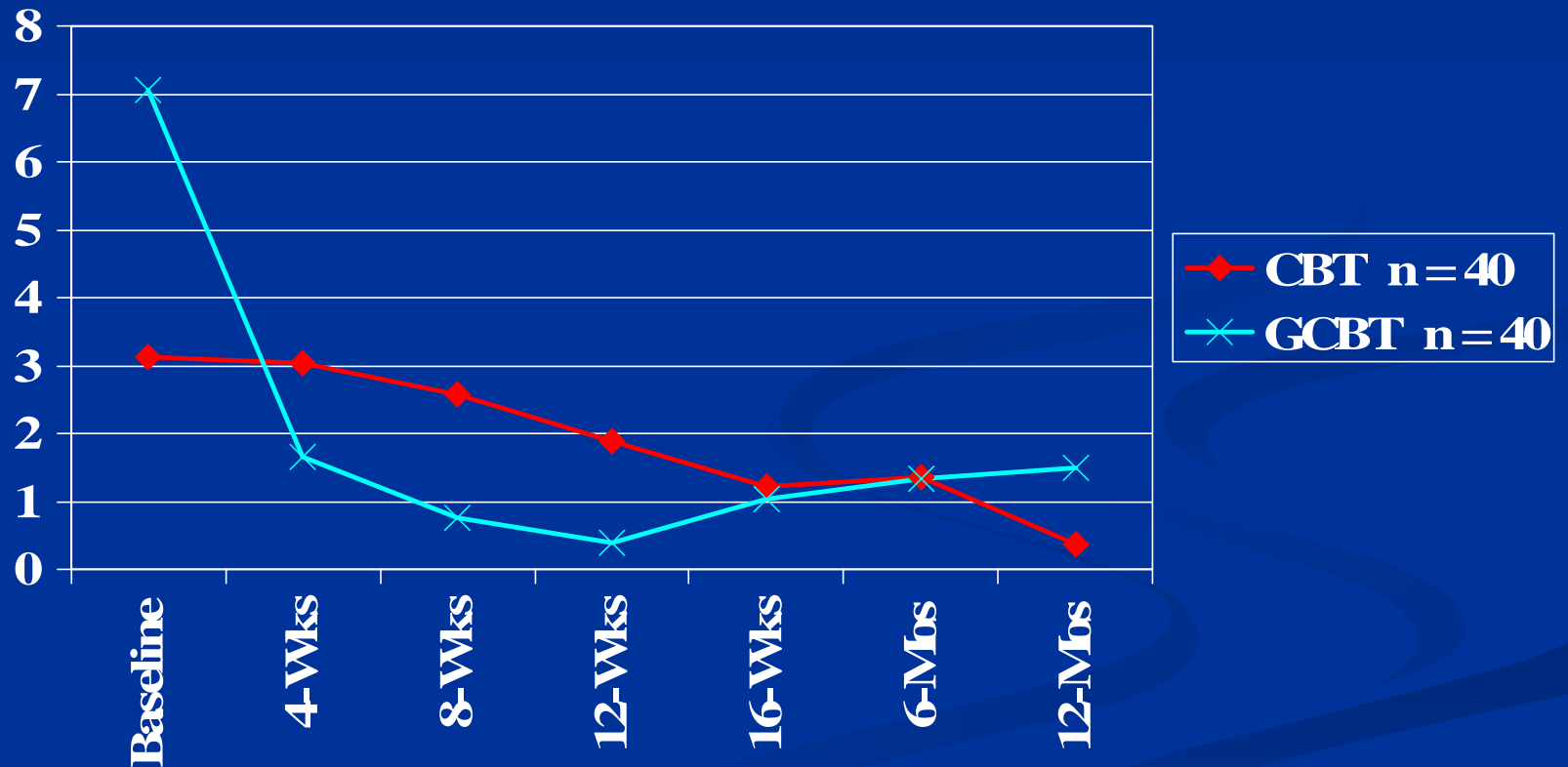
- Approaches
 - Counseling
 - Contingency management
 - Pharmacologic
 - Structural

Counseling for meth dependence is associated with reduced meth use

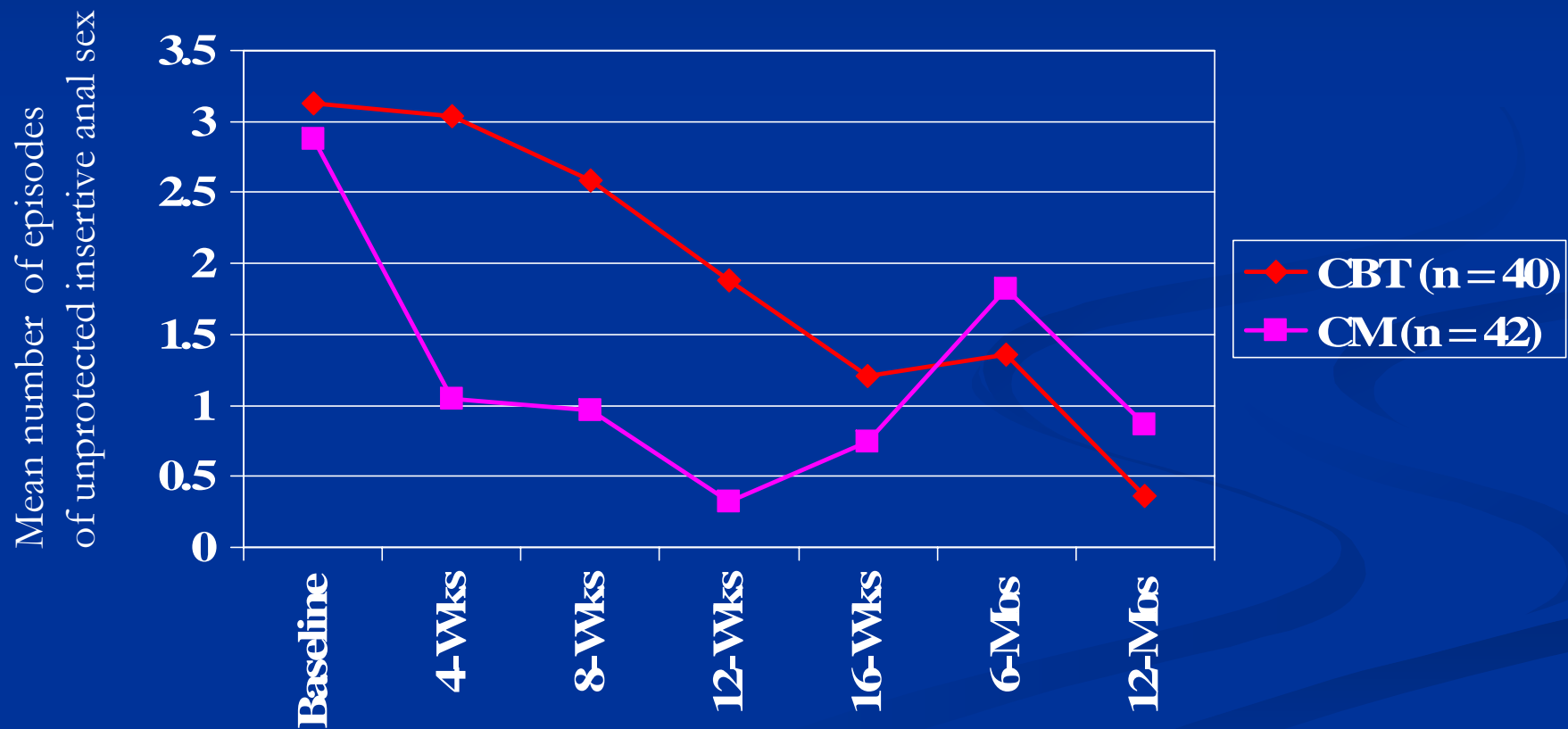
- MATRIX intervention
 - Meth-dependent persons in treatment programs
 - Relapse prevention model
 - Primarily heterosexuals
- 56 behavioral sessions vs. standard outpatient treatment
- Compared with standard treatment:
 - Meth use decreased more in intervention during active phase
 - Similar reductions in meth use in standard and intervention arms at 6-month follow-up

Risk behavior declines among MSM in meth behavioral interventions

Mean number of episodes of unprotected insertive anal sex



MSM in contingency management reduce risk



Will a behavioral risk-reduction approach work among diverse SUMSM?

- Project MIX
 - Multi-site CDC collaborative intervention
 - 1198 SUMSM enrolled
 - 62% men of color
 - Randomized 6-session group intervention
 - Not targeted to treatment-seeking MSM
- Primary outcome: sexual risk behavior

Behavioral interventions

Challenges

- How efficacious are they?
 - To date, small sample sizes among MSM
 - Unknown what degree of behavior change is necessary to reduce HIV infection rates
 - Are behavioral effects sustained?
- Feasibility
- Generalizability
 - Most tested among treatment-seeking populations
 - Can heavy meth users consistently engage in and re-learn healthier behaviors?

Pharmacologic treatment for methamphetamine users

- Failed or unpromising agents: sertraline, amlodipine, imipramine, dextroamphetamine
- Bupropion: some promise among less heavy users (Ahmed, in press, 2007).
 - Phase 2 study of bupropion among MSM in progress
 - Safety
 - Adherence
 - Sexual risk

Pharmacologic approaches

- Mirtazapine (Remeron)
 - “Dual action” - - works on serotonergic and dopaminergic pathways
 - Small RCT in Thai meth-dependent persons
 - Mirtazapine reduced meth withdrawal symptoms
 - Independent of effects on depression
 - Efficacy study among high-risk MSM in progress

Pharmacologic approaches....

- Aripiprazole (Abilify)
 - “Atypical” antipsychotic
 - D2 partial agonist
 - May prevent meth withdrawal
 - May decrease effects of meth use
 - Some drug discrimination studies show aripiprazole blocks meth’s effects compared with placebo

Sources: Lile 2005; De la Garza, 2005

Pharmacologic interventions

Challenges

- Likely will need to be combined with behavioral therapy for greatest efficacy
 - But very intensive behavioral platforms may overwhelm any detectable drug effects
- Side effects
- Duration
- Cost

Structural interventions

- Increased federal regulation in meth precursors associated with declines in:
 - Meth-related hospital admissions
 - Meth potency
 - Meth-related arrests
- Effects may be transient
 - Will market forces ensure that supply = demand?

Conclusions and future directions

- Meth epidemic among MSM continues
 - High across all areas in US
 - Meth use common, frequent use less so
 - What keeps most MSM from using meth?
 - What causes some MSM to become heavy meth users?
- Meth use increases risk of HIV infection
 - Meth about doubles risk
 - Behavioral dis-inhibition
 - Plausible biologic mechanisms
- Critical need for continued testing of interventions
 - Distinguish populations: heavy users vs. episodic users; injectors
 - Are effects of interventions sustainable, and will they reduce HIV?
 - Pharmacologic interventions promising, but not proven

Acknowledgements

- SFDPH: Susan Buchbinder, James Gaspar, Robert Guzman, Tim Matheson, David Bandy, Jeff Klausner, Willi McFarland, Henry Raymond-Fisher
- UCSF: Robert Grant, Rick Hecht, Paula Lum, Meg Newman, Eric Vittinghoff
- UCLA: Cathy Reback, Steve Shoptaw
- UCSD: Steffanie Strathdee, Tom Patterson
- CDC: Gordon Mansergh, David Purcell
- NIDA: Jamie Biswas, Lynda Erinoff, Elizabeth Lambert, Jacques Normand, Steve Oversby