

Motivational Incentives: From Research to Practice

Maxine L. Stitzer, Ph.D.
PI, Mid Atlantic Node
NIDA CTN

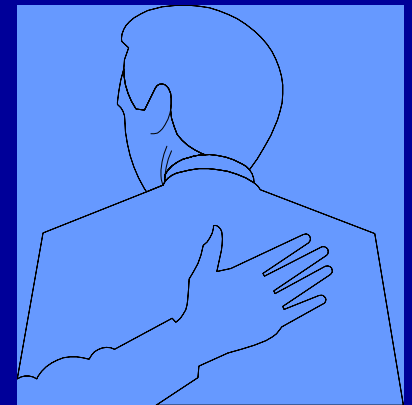
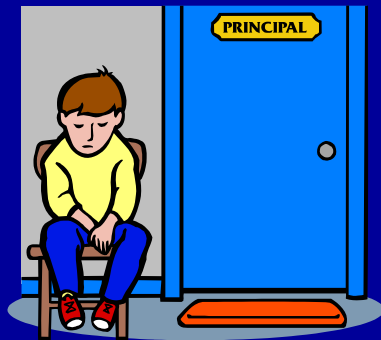
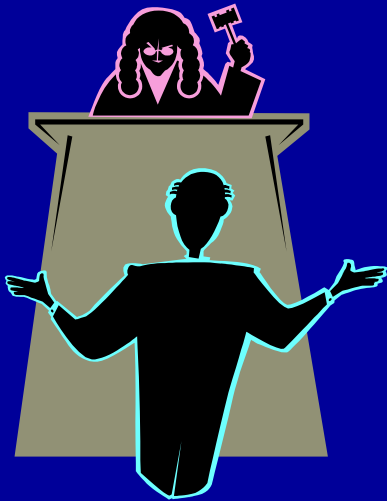
NIDA Blending Conference
Seattle, WA
October 17, 2006

Outline

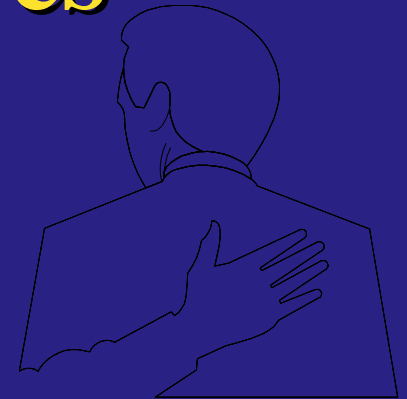
- History of Motivational Incentives in drug abuse treatment
- Results of CTN MIEDAR study
 - main findings, subgroup analyses
- Dissemination implications

Behavior is changed by consequences

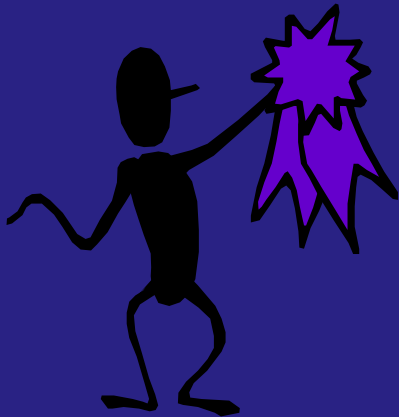
- Rewards increase desired behavior
- Punishment and sanctions decrease undesired behavior



Motivational Incentives



Making treatment a more attractive option through positive reinforcement of behavior change

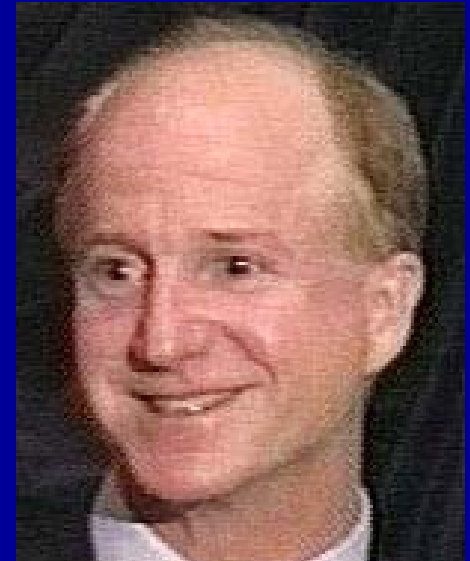


Origin of Incentives Research

- Stitzer and colleagues in 1980's demonstrate that methadone take-home incentives and monetary rewards, when delivered contingent on desired behavior change, could improve outcome of methadone maintenance patients.
 - Counseling attendance
 - On-going drug use
 - On-time fee payments

Voucher Reinforcement: Making sustained abstinence an attractive option

- Points earned for cocaine negative urine test results
 - Trade in points for goods
 - Escalating schedule with reset penalty
 - \$1000 + available over 3 months



Steve Higgins

Voucher Reinforcement

- Elegantly incorporates behavioral principles designed to initiate & sustain abstinence
- Substantial efficacy demonstrated in controlled trials

BUT

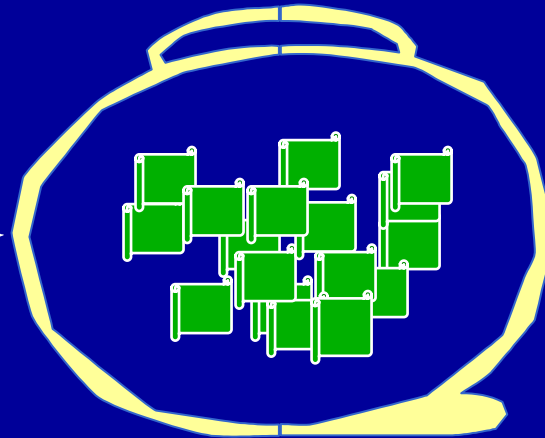
- Sample sizes were small
- Intervention costs are high

Nancy Petry's Fishbowl Method Reduces Cost

Incentive = draws from a bowl

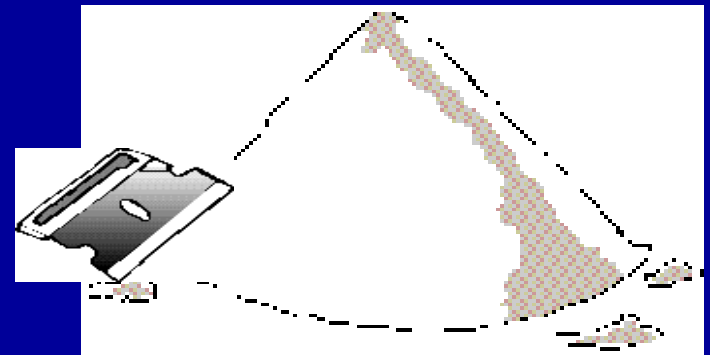
QuickTime™ and a
Photo - JPEG decompressor
are needed to see this picture.

- Draws earned for each negative urine or BAC
- Not all draws earn prizes
- Prize values are inversely related to draw probability



CTN MIEDAR Study in Outpatient Psychosocial Counseling Treatment

- Randomized controlled trial completed at 8 clinics nationwide
- Sample = 415 stimulant abusers (cocaine; methamphetamine)
- 3-month evaluation of usual care with and without added incentive program



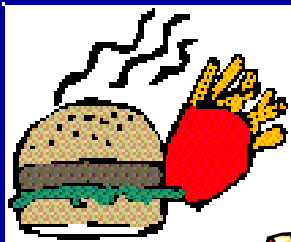
Draws Escalate with Stimulant and Alcohol-Free Test Results Bonus draws for opiate and marijuana-negative



Fishbowl Method: Half the chips are winners

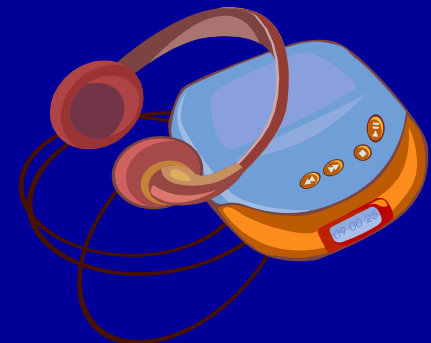
42%

SMALL
(\$1 items)



8%

LARGE
(\$20 items)



Total Earnings

- \$400 in prizes could be earned on average
 - If participant tested negative for all targeted drugs over 12 consecutive weeks



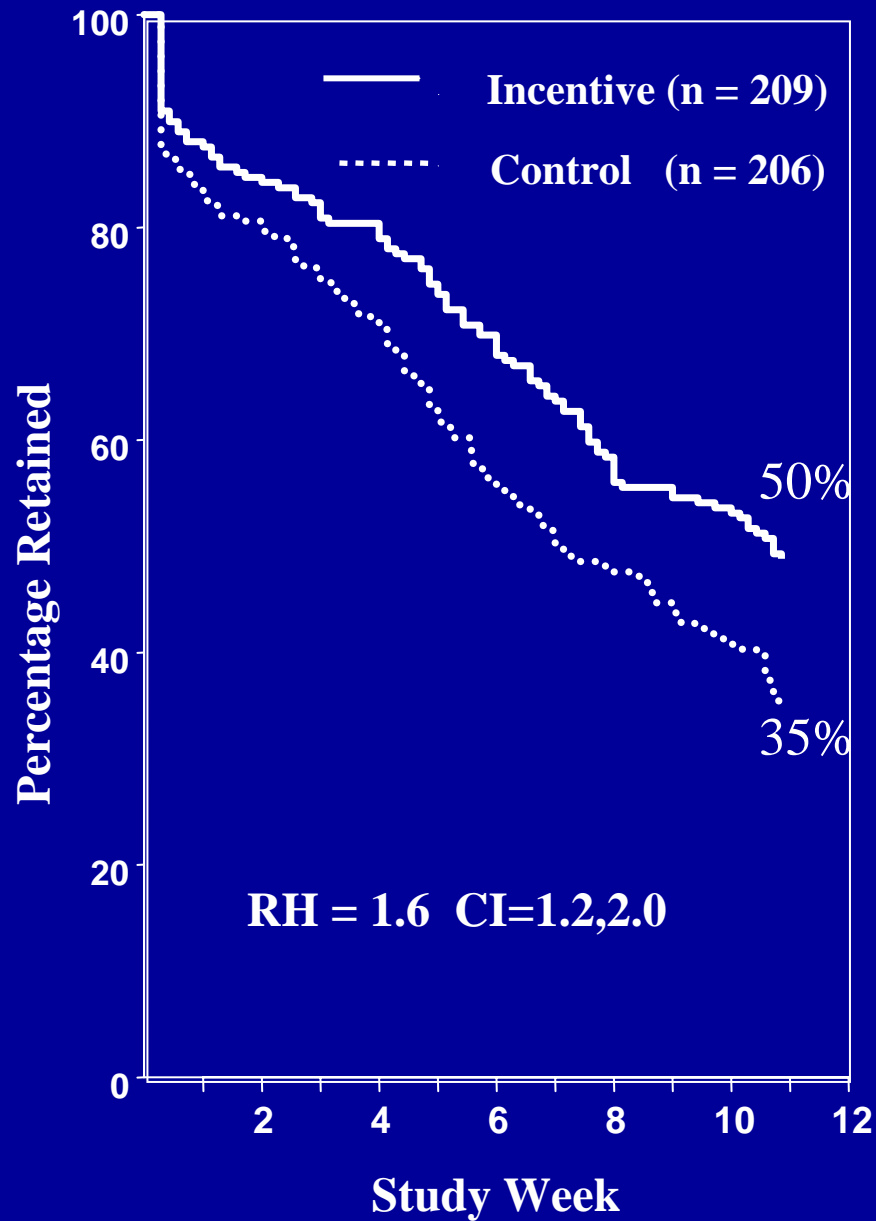
PATICIPANT DEMOGRAPHICS (N = 415)

FEMALE	55%
MINORITY	58%
AGE (mean yrs)	36
EDUC (mean yrs)	12
EMPLOYED	35%
PROB/PAROLE	36%
CONTROLLED ENV	29%

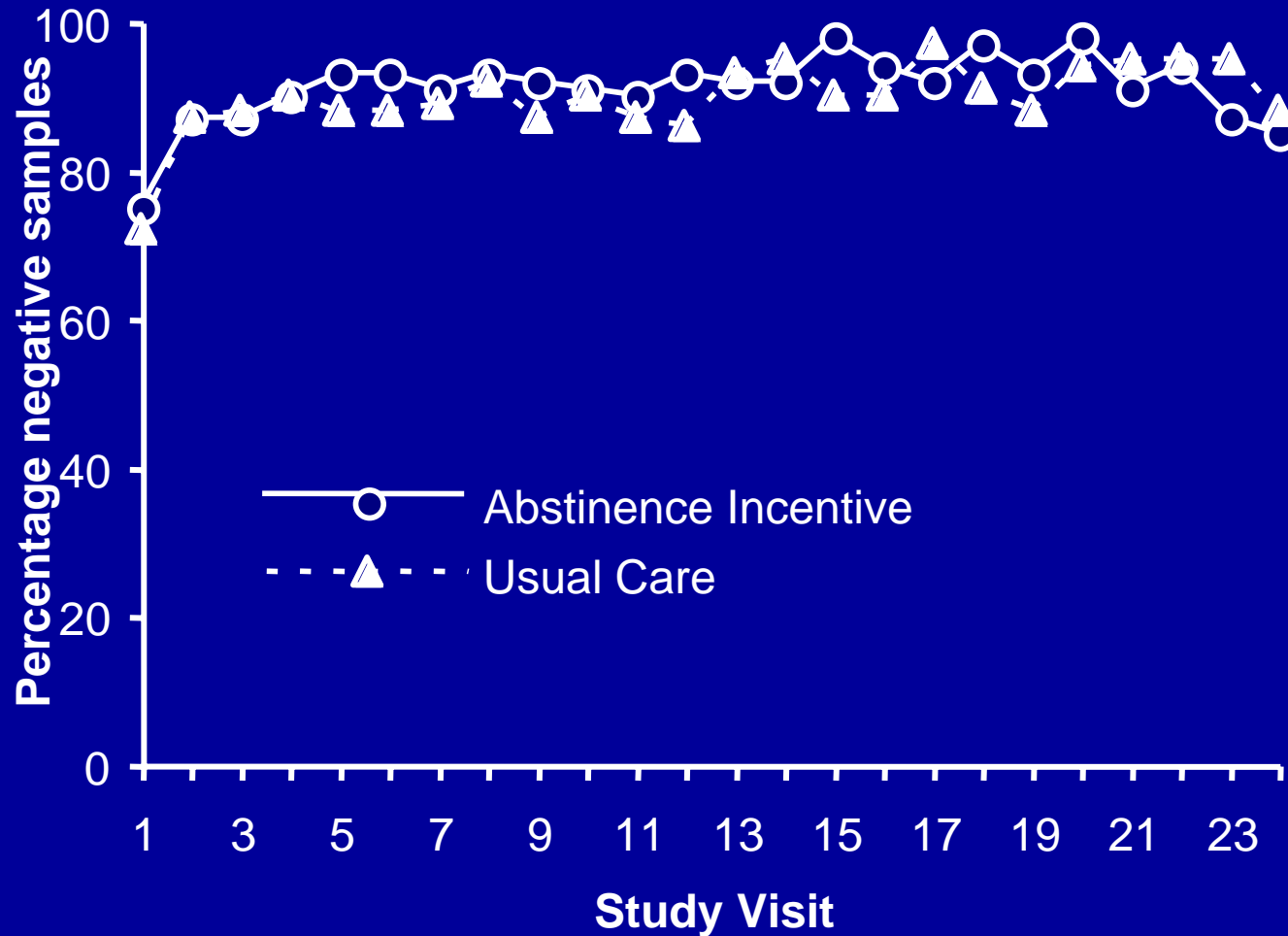
Outpatient Psychosocial Treatment: MIEDAR Study Results

Petry et al., Archives of General Psychiatry 62, 1148-56, 2005

Incentives Improve Retention in Counseling Treatment



Percent of Submitted Samples Stimulant and Alcohol Negative



Effects on Abstinence Duration

	<u>Incentive</u>	<u>Control</u>	<u>Stats</u>
LDA (mean wks)	4.4	2.6	p<.001
Consecutive Weeks of Abstinence (%)			
≥ 4	40	21	2.48 (1.6-3.8)
≥ 8	26	12	2.69 (1.6-4.6)
≥ 12	19	5	4.48 (2.2-9.2)

Psychosocial Counseling Study

- Abstinence incentives were effective in treatment of stimulant abusers
 - Better retention
 - Prolonged durations of in-treatment abstinence

New Analyses

- 1) Did incentives work with the methamphetamine abusers?
- 2) What characteristics predicted outcome?
- 3) Was there any adverse impact on gambling behavior?

Methamphetamine Subsample (n = 113)

Roll et al. Am. J. Psychiat, in press

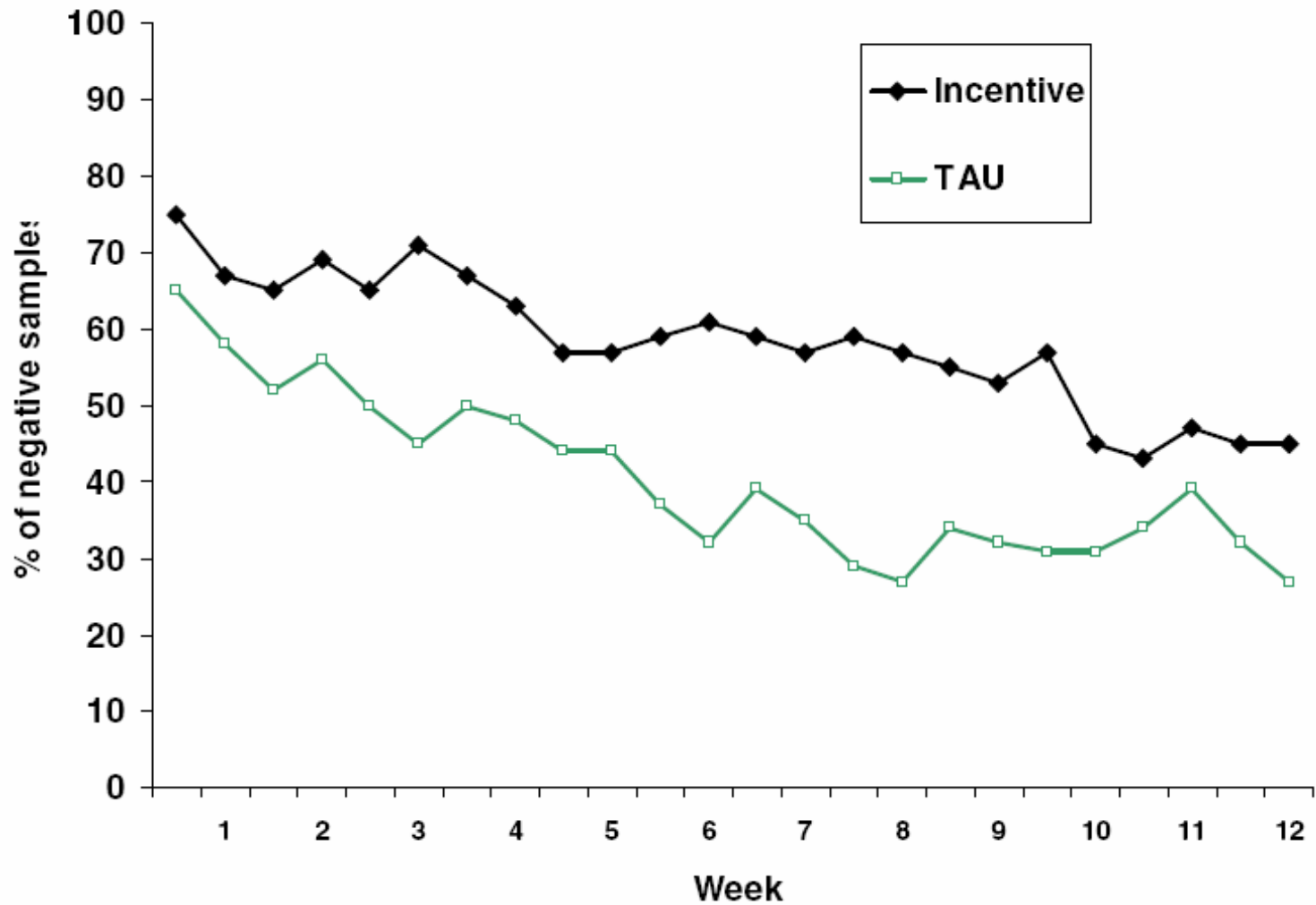
Effects on retention

<u>Outcome measure</u>	<u>Incentive</u> (N = 51)	<u>Control</u> (N = 62)
Retained 12 weeks (%)	55	39
Cox survival ns	HR = 1.51 (CI = .90-2.54)	

Methamphetamine Users: Effects on Drug Use

<u>Outcome measure</u>	<u>Incentive</u> (N = 51)	<u>Control</u> (N = 62)
Negative samples (%)	58	42*
LDA (mean wks)	4.6	2.8*
Abstinent throughout (%)	18	6*

Methamphetamine Users: Percent stimulant negative samples



Which patients did well on incentives?

- Variables that made no difference:
 - gender, race, age
 - employment, CJ referral, psych history
- Variables that did make a difference:
 - Urine positive versus negative at intake (stimulants, cannabis)

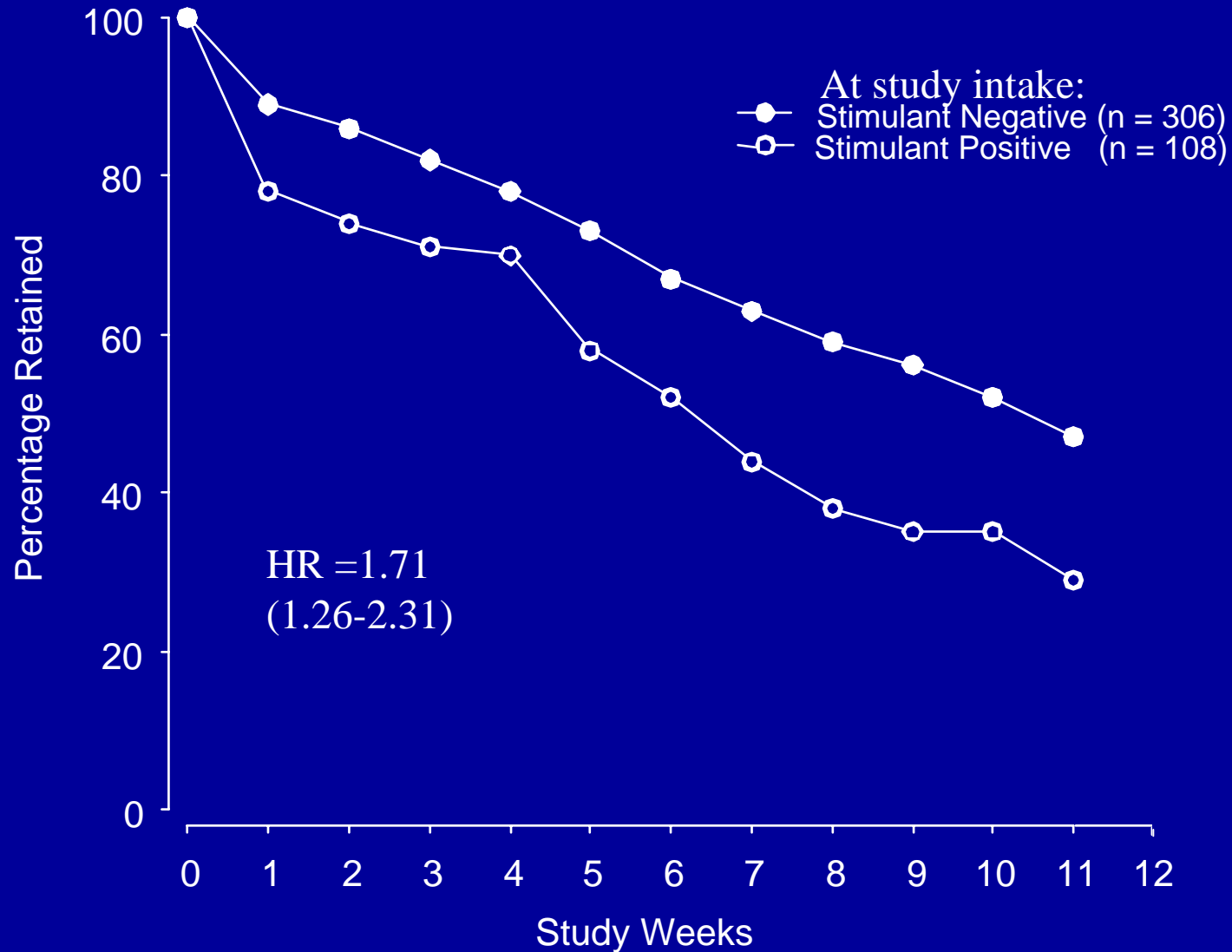
Analysis Objective

- Examine overall impact of intake stimulant urine test result on treatment outcome
- Determine whether incentive effects differ for those who enter the study with stimulant positive vs negative urines

Methods

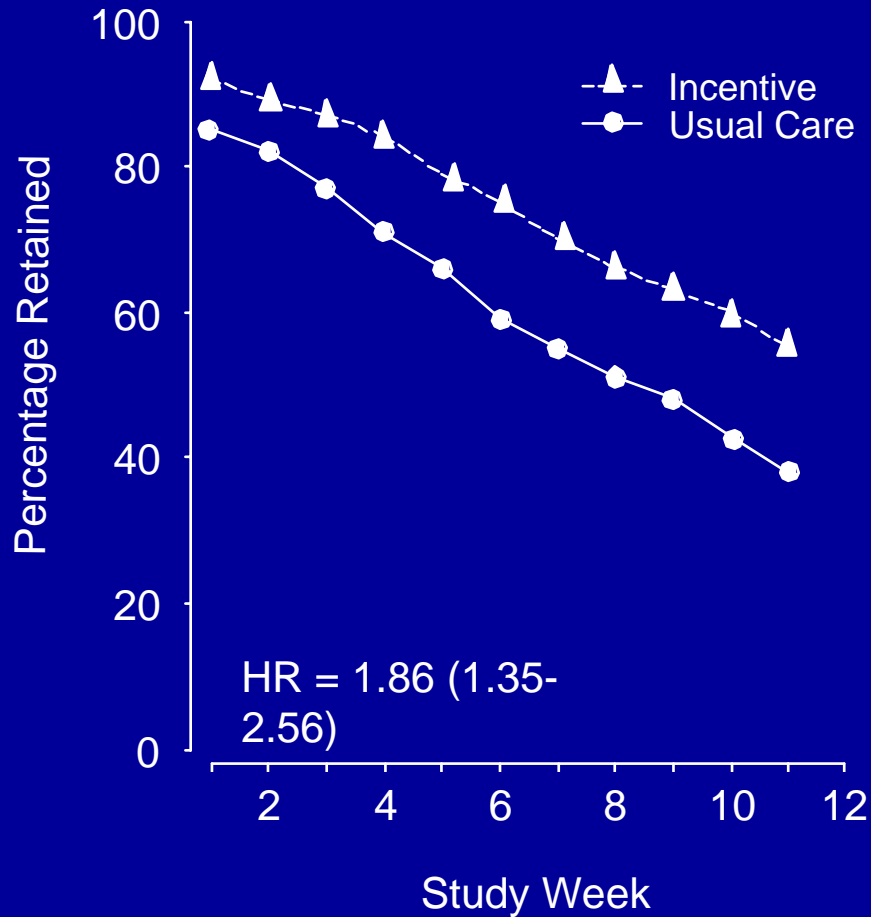
- Group participants according to first study urine result
 - stimulant (meth or coc) positive $N = 108$
 - stimulant negative $N = 306$

Overall Effect on Retention

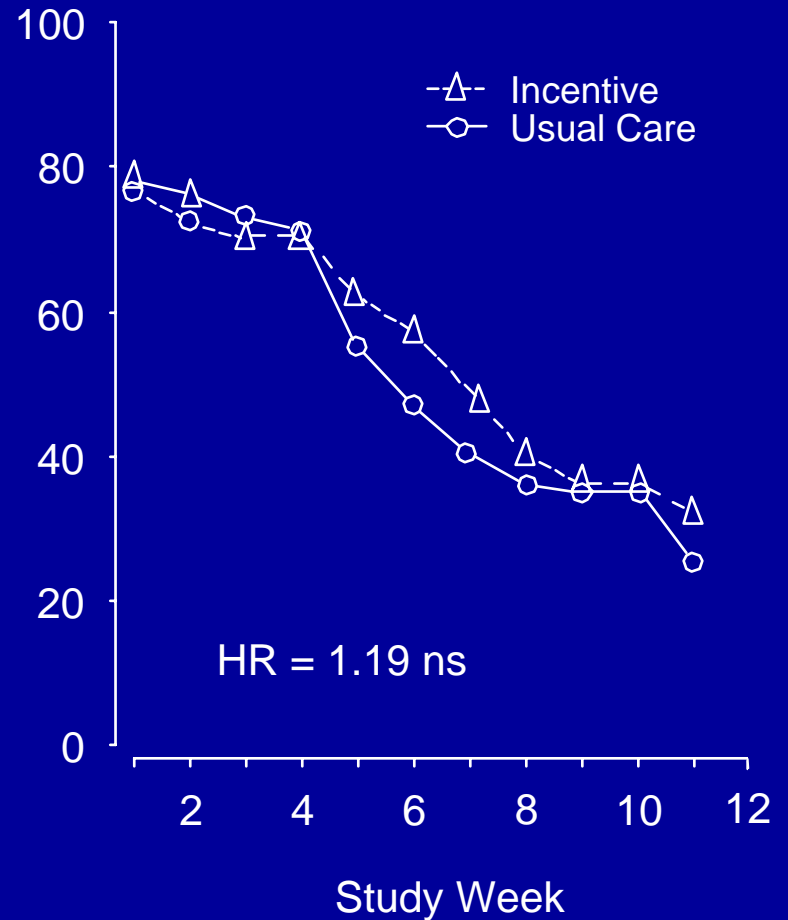


Effect of Incentives

Stimulant Negative (n = 306)



Stimulant Positive (n = 108)



Treatment Implications

- Importance of initial urinalysis results in psychosocial counseling programs
 - Positive urine confers poor prognosis
- Why no effect in urine positive clients?
 - No exposure to reinforcers
 - Removed from treatment
 - Zero tolerance clinic culture
- Implications for treatment selection
 - Interventions other than abstinence incentives may be needed for those entering tx stimulant positive

Concerns About Incentive Programs

- Internal vs external motivation
- Long-term benefits?
- Are there adverse side-effects?

Influence on Gambling Behavior

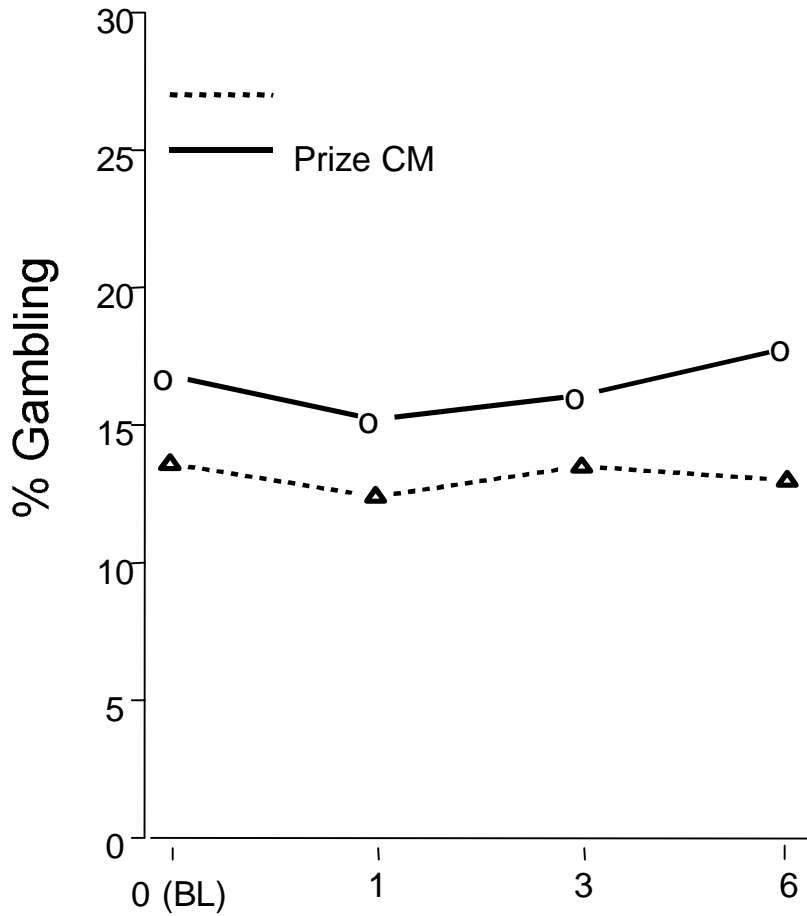
from Petry et al. Drug & Alcohol Dependence, 2006

- Concern: Does exposure to prize draw procedure stimulate gambling behavior of substance abusers?
- Data collection (intake, 1, 3, 6 months)
 - number of days gambling (past 30 days)
 - amount spent (among those gambling)
- Analysis
 - methadone vs psychosocial counseling
 - incentive vs control

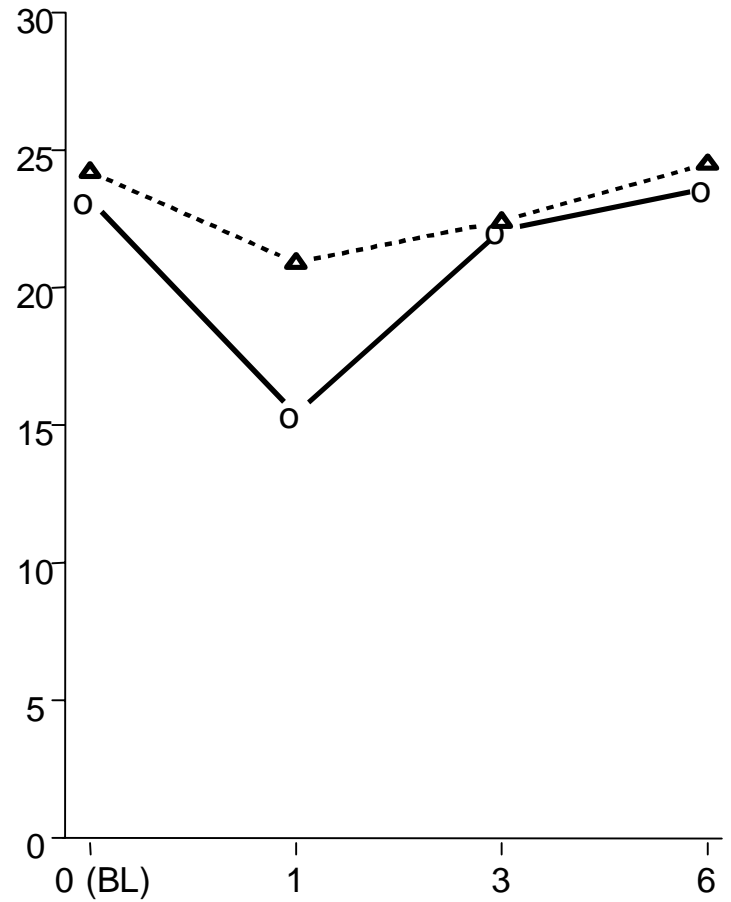
Gambling Behavior

	<u>Methadone</u>	<u>Psychosocial</u>
% with any gambling	37	26
Mean days per month	5	2
\$ spent per month	\$20	\$10

Non methadone patients (N=415)



Methadone patients (N=388)



Study Month

Gambling Conclusions

- Amount of gambling modest in both methadone and psychosocial counseling samples
- No adverse impact of exposure to prize draw incentive procedures

Conclusions from the Research

- Abstinence incentives are safe and effective for cocaine and methamphetamine abusers being treated in community programs

Incentives Recognized as an Evidence-Based Practice



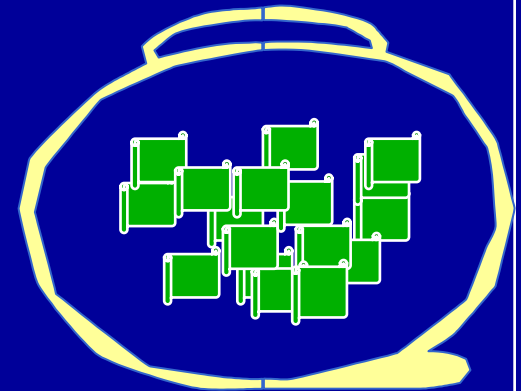
- Have been “endorsed” by NIDA (1999)
- Appear on most every list of evidence-based practices for treating substance use disorders (e.g., ADAI, 2005)
- Has been singled out, along with CBT and MI as being an an effective behavioral therapy (Carroll & Onken, 2005)

Moving Incentives Into Practice

NIDA/ATTC Blending Team

Awareness Enhancement Campaign

Goal is to fertilize ground for adoption of this evidence-based practice and stimulate innovation



Acknowledgements

- NIDA CTN for funding
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