

# ***The Evidence Behind Medication Assisted Therapies and Behavioral Interventions for Opioid Addiction***

January 15, 2015  
1:00-2:30 pm ET

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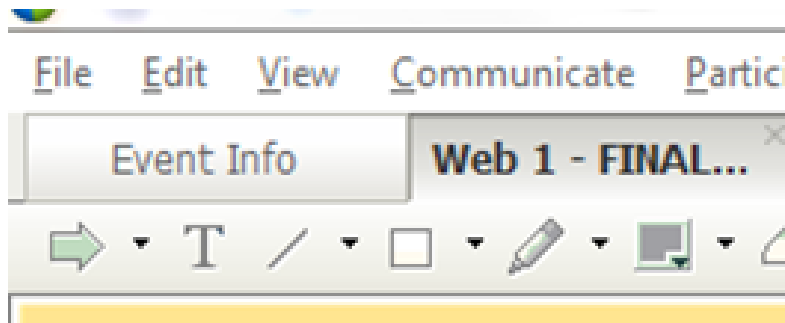
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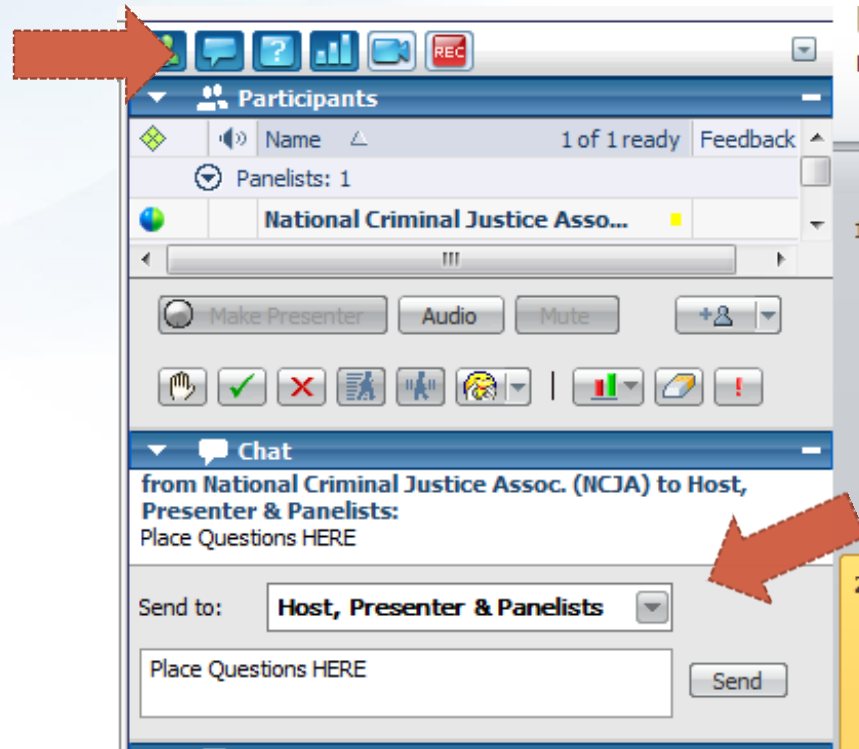
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# Moderator

Cabell Cropper

National Criminal Justice Association

# Presenters

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# Medication-Assisted Treatment: Policy Guided by Evidence



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January 15, 2015

National Criminal Justice Association  
Webinar on the Evidence Behind  
Medication-Assisted Treatment (MAT)

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**Michael Botticelli, Acting Director**  
Office of National Drug Control Policy

# Office of National Drug Control Policy

- Component of the Executive Office of the President
- Coordinates drug-control activities and related funding across the Federal Government
- Produces the annual *National Drug Control Strategy*

# Knowledge of Addiction: 20<sup>th</sup> Century *Versus* 21<sup>st</sup> Century Approach

## Myths & Misconceptions

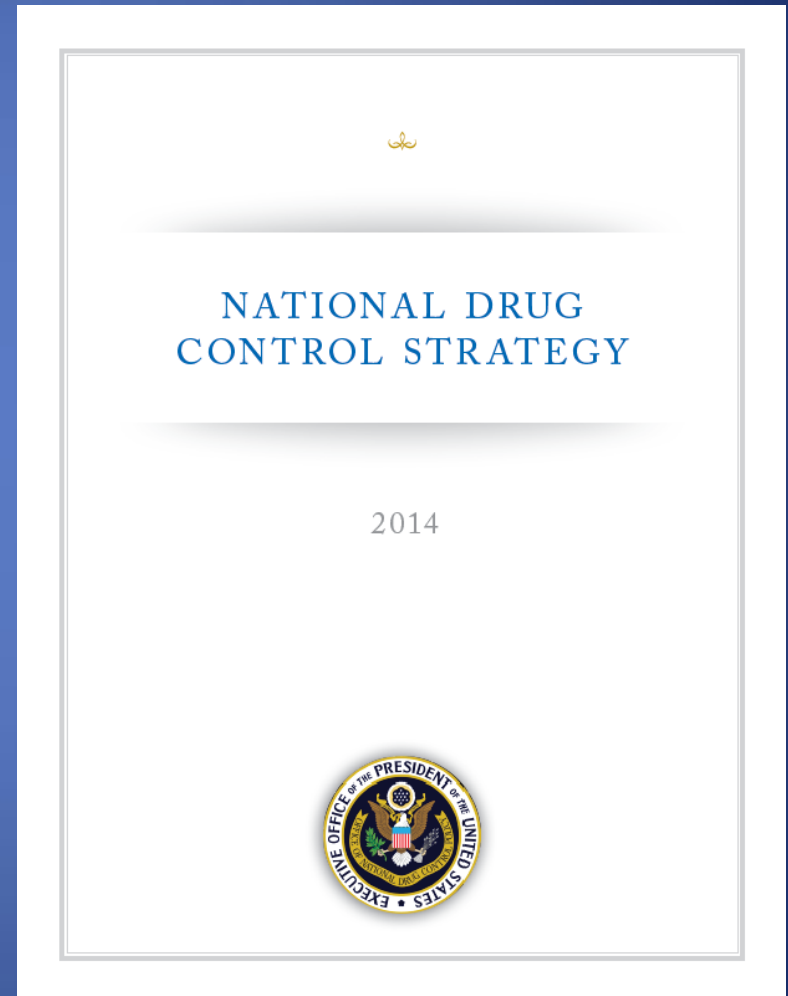
- Morally Flawed
- Lacking in Willpower
- Punitive Responses

## What Does the Science Tell Us?

- Disease of the Brain
- Health Problem
- Therapeutic Response better

# National Drug Control Strategy

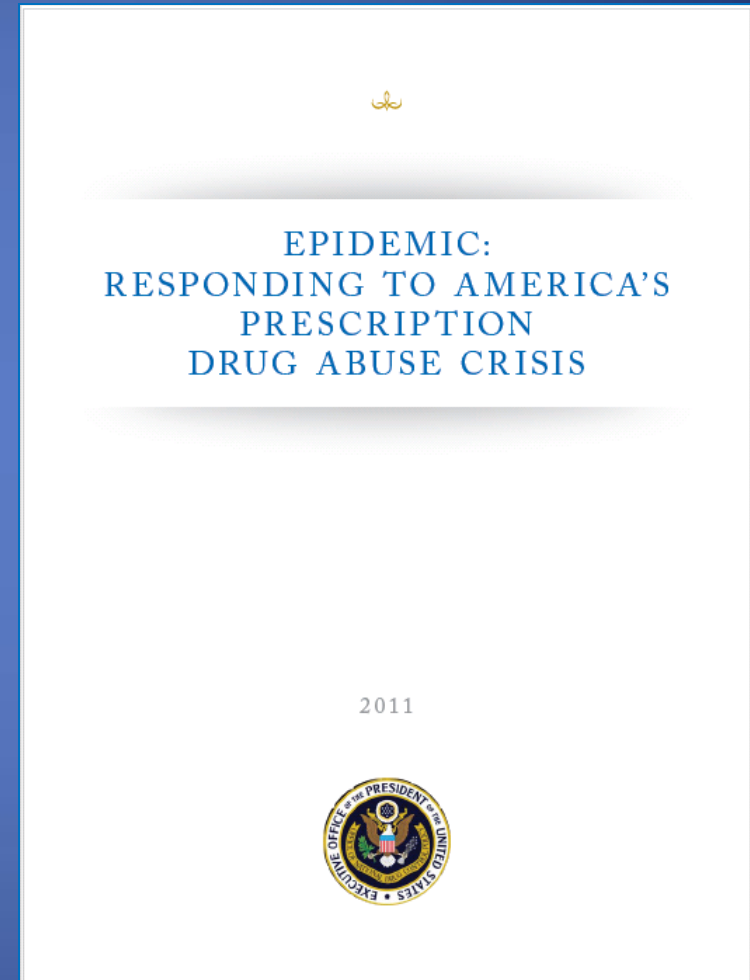
- The President's science-based plan to reform drug policy:
  - 1) Prevent drug use before it ever begins through education
  - 2) Expand access to treatment for Americans struggling with addiction
  - 3) Reform our criminal justice system
  - 4) Support Americans in recovery
- Coordinated Federal effort on 112 action items
- Signature initiatives:
  - **Prescription Drug Abuse**
  - Prevention
  - Drugged Driving





# Prescription Drug Abuse Prevention Plan

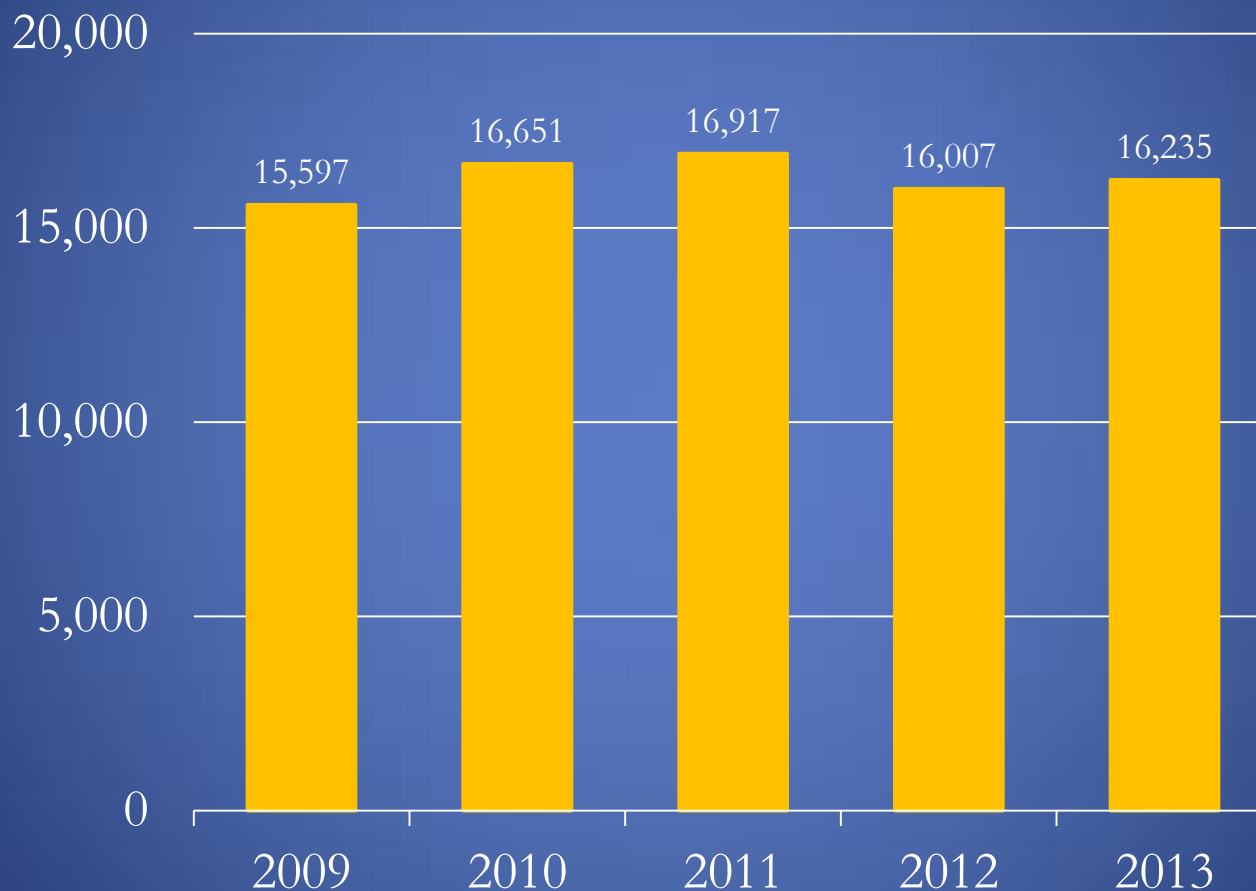
- Coordinated effort across the Federal Government
- Four focus areas:
  - 1) Education
  - 2) Prescription Drug Monitoring Programs
  - 3) Proper Disposal of Medication
  - 4) Enforcement



A large number of colorful pills and capsules are scattered across a black background. The pills vary in color, including white, yellow, orange, red, blue, and green. Some are round, some are oval, and some are capsule-shaped. They are scattered in a way that suggests a large quantity, with some pills in sharp focus in the foreground and others blurred in the background.

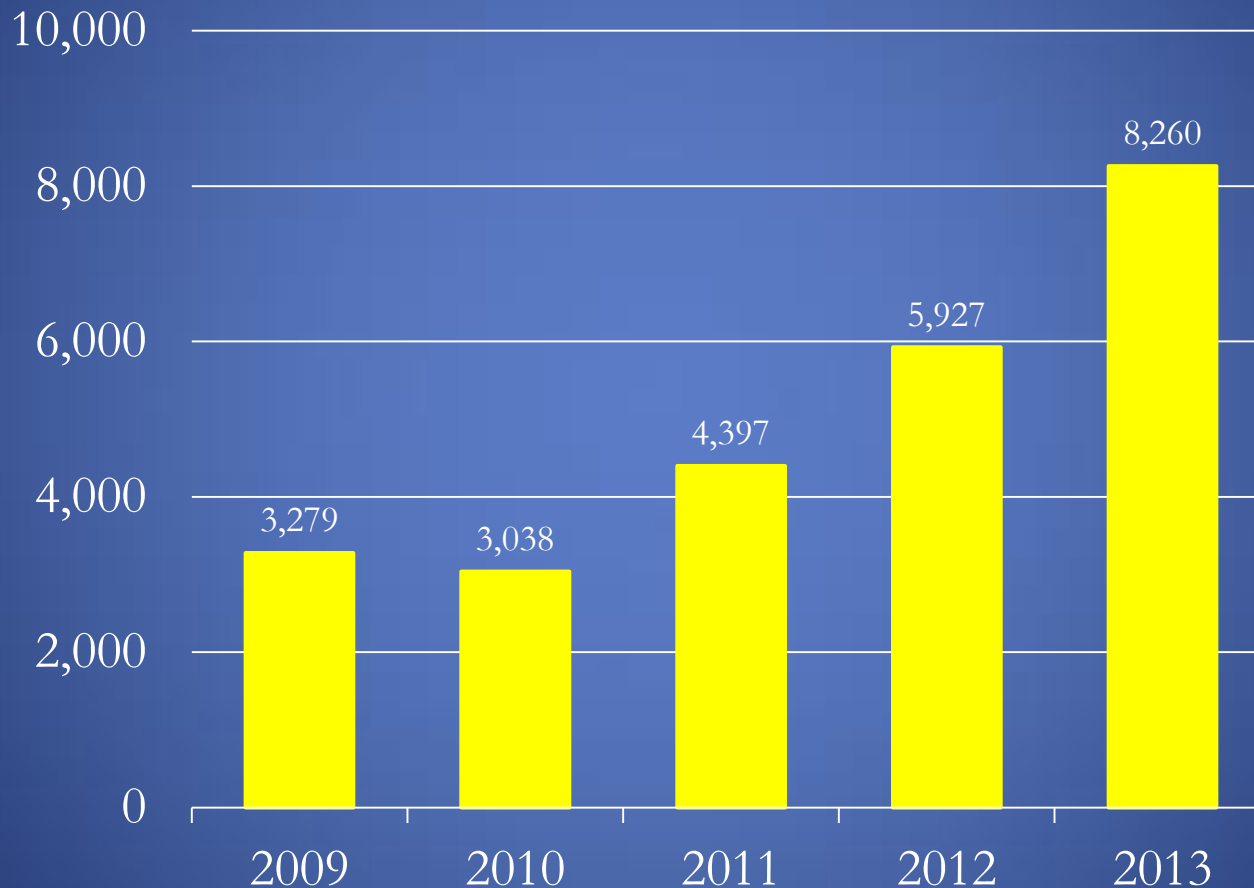
# The Nation's Non-medical Opioid Use Crisis

# Drug Poisoning Deaths Involving Opioid Analgesics, 2009 to 2013



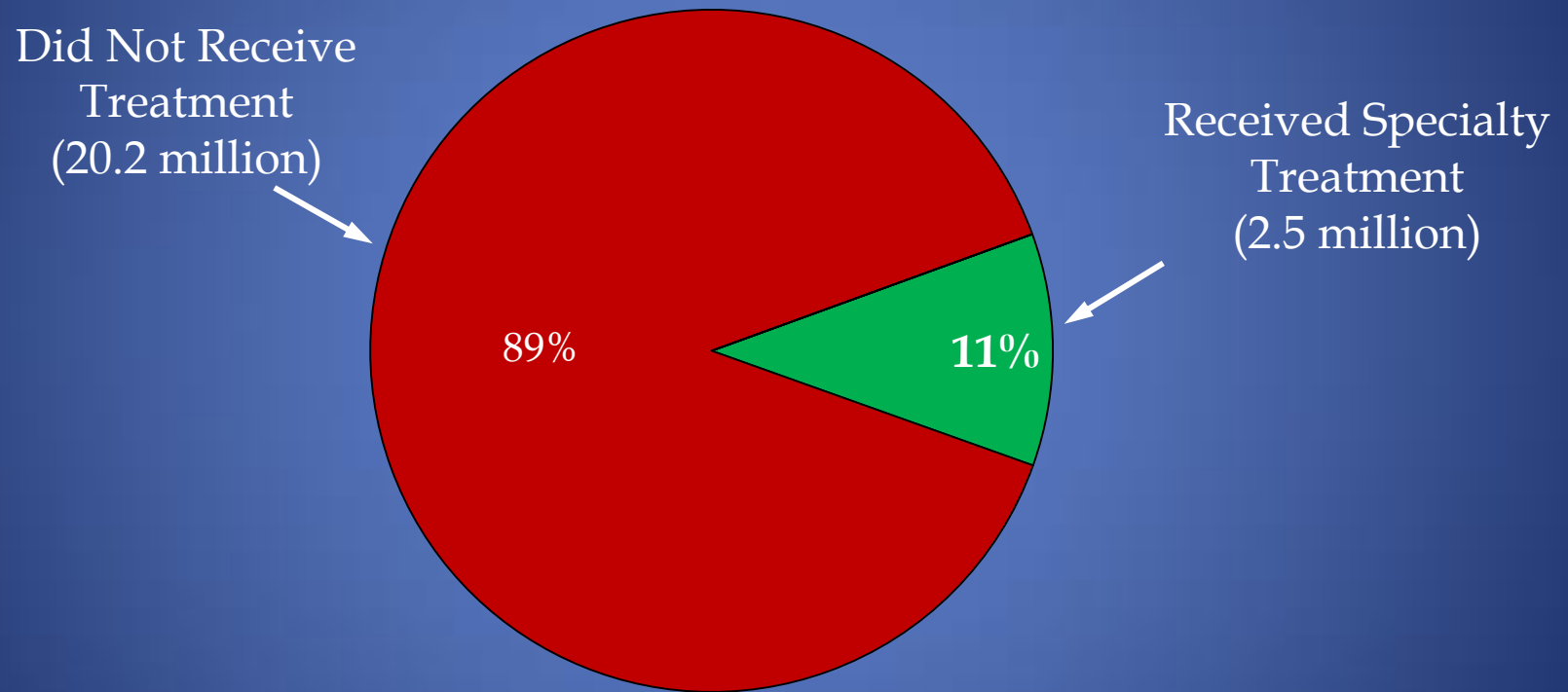
Source: Centers for Disease Control and Prevention/National Center for Health Statistics [NCHS]. *Multiple Cause of Death 1999-2012* on CDC WONDER Online Database, released 2014. Data for 2013 are unpublished from NCHS (December 30, 2014).

# Drug Poisoning Deaths Involving Heroin 2009 to 2013



Source: Centers for Disease Control and Prevention/National Center for Health Statistics [NCHS]. *Multiple Cause of Death 1999-2012* on CDC WONDER Online Database, released 2014. Data for 2013 are unpublished from NCHS (December 30, 2014).

# Persons Aged 12 or Older Needing Treatment for Illicit Drug or Alcohol Use and Obtaining Specialty Treatment, 2013



*22.7 Million Needing Treatment\* for Illicit Drug or Alcohol Use*

*\*Treatment need is defined as having a substance use disorder or receiving treatment at a specialty facility within the past 12 months.*

## 2 Additional Strategies to Address Existing Opioid Use Disorders

- Medication-Assisted Therapy (MAT)
  - Methadone Maintenance
  - Buprenorphine Maintenance
  - Injectable Naltrexone
  - MAT includes psychosocial treatment and treatment and recovery support services
- Overdose Prevention and Education

# Why Refer CJ Involved People to the Highest-Quality Evidence-Based Treatments?

- Evidence Based Treatment works
- Treatment cascade – get more people in better treatments and keep them in longer to reduce demand
- “Maintenance” type treatments encourage engagement
- Studies show high rates of fatal overdose<sup>1</sup> and non-fatal overdose<sup>2</sup> among those leaving incarceration (reentry populations)

Source: 1. Binswanger IA, Blatchford PJ, Mueller SR, Stern MF. Mortality after prison release: opioid overdose and other causes of death, risk factors, and time trends from 1999 to 2009. *Ann Intern Med.* 2013 Nov 5;159(9):592-600.  
2. Kinner SA1, Milloy MJ, Wood E, Qi J, Zhang R, Kerr T. Incidence and risk factors for non-fatal overdose among a cohort of recently incarcerated illicit drug users. *Addict Behav.* 2012 Jun;37(6):691-6.

# Major Research Findings Supporting MAT for Criminal Justice Involved Populations\*

- Decreases deaths in and out of prison
- Is underutilized by drug courts
- As a maintenance therapy, is highly effective compared to no-MAT or detoxification
- May work better in CJ-Involved populations than MAT without CJ-Involvement
- Decreases recidivism

\* Please see slides 17–22 for in-depth information about studies supporting these bullets



# A drug policy for the 21st century



# Criminal Justice Reform: Public Health and Public Safety Collaboration

- Evidence-Based Treatment and Recovery
  - Expand access and availability to evidence-based treatment
  - Increase use of medication-assisted treatment and awareness of overdose prevention
  - Improve continuity of care and recovery support
- Opportunities for Successful Transition

For More Information:

[WHITEHOUSE.GOV/ONDGP](https://www.whitehouse.gov/ondcp)

THE FOLLOWING SLIDES PROVIDE  
ADDITIONAL SUPPORT FOR BULLETS  
ON SLIDE 13,

“MAJOR FINDINGS SUPPORTING MAT FOR  
CRIMINAL JUSTICE INVOLVED  
POPULATIONS”

# MAT and Deaths

- MAT is a form of long-term overdose prevention in that heroin users on MAT experience fewer overdose deaths than those not on MAT<sup>1</sup>
- MAT in prison can reduce deaths during incarceration<sup>2</sup>
  - MAT protected against unnatural deaths, including:
    - Suicide, (including suicide in first 4 weeks)
    - Drug-induced deaths
    - Violent deaths and other injury-related deaths

1. Schwartz RP, Gryczynski J, O'Grady KE, Sharfstein JM, Warren G, Olsen Y, Mitchell SG, Jaffe JH. Opioid agonist treatments and heroin overdose deaths in Baltimore, Maryland, 1995-2009. *Am J Public Health*. 2013 May;103(5):917-22. doi: 10.2105/AJPH.2012.301049. Epub 2013 Mar 14

2. Larney S, Gisev N, Farrell M, Dobbins T, Burns L, Gibson A, Kimber J, Degenhardt L. Opioid substitution therapy as a strategy to reduce deaths in prison: retrospective cohort study. *BMJ Open*. 2014 Apr 2;4(4):

# MAT Underused in Drug Courts

- In a survey of drug courts
  - 98% of drug courts reported clients with opioid problems
  - More have problems with prescription drugs than heroin
  - Court rules often do not permit MAT
  - Court referral sources often do not provide MAT
  - Opposition to MAT from judges, prosecutors and counties

Source: Matusow H, Dickman SL, Rich JD, Fong C, Dumont DM, Hardin C, Marlowe D, Rosenblum A.

**Medication** assisted treatment in US **drug** courts: results from a nationwide survey of availability, barriers and attitudes. *J Subst Abuse Treat.* 2013 May-Jun;44(5):473-80.

# MAT Effectiveness

- MAT does not exist for all drug use problems, but it can be helpful for opioid use disorder and polypharmacy when combined with behavioral treatment
- MAT is more effective than no MAT (detox) for opioid use disorder even with high-quality behavioral treatment
  - MAT with maintenance produces substantially better outcomes than detoxification<sup>1</sup>
  - 50% abstinent at the end of active treatment vs 8% when medication is withdrawn

Sources : 1. Weiss RD, Potter JS, Griffin ML, McHugh RK, Haller D, Jacobs P, Gardin J 2nd, Fischer D, Rosen KD. Adjunctive Counseling During Brief and Extended Buprenorphine-Naloxone Treatment for Prescription Opioid Dependence: A 2-Phase Randomized Controlled Trial Published in final edited form as: Arch Gen Psychiatry. 2011 December; 68(12): 1238–1246.



# MAT may work even better in CJ involved people than in those without CJ involvement

- Participants in Methadone in Baltimore on probation or parole were more likely to test positive for cocaine at baseline
- Positive cocaine tests went down over 12 months to a greater degree for probation/parolees
- Both groups decreased illegal activity, but those in supervision showed bigger decreases
- Methadone retained both groups in treatment equally well



# MAT and Recidivism

- Opioid Users often reoffend, but MAT reduces this<sup>1</sup>
  - For example, in study of Canadian female inmates, 47% returned to custody in 1 year. This rate is higher than among the non-using population
  - Women on methadone in prison more likely to engage in MAT afterwards
  - Women on methadone during incarceration and afterwards had
    - Lower rates of return to custody than women who stop MAT after prison or who are never on MAT in the first place.
    - Better drug use, crime, health, and social outcomes than those not in treatment.

# Medications Currently Available

## *For Nicotine Use Disorder*

- Nicotine Replacement Therapies (NRT)
- Bupropion
- Varenicline

## *For Alcohol Use Disorder*

- Disulfiram
- Naltrexone
- Acamprosate
- Naltrexone Depot
- Topiramate

## *For Opioid Use Disorder*

- Methadone
- Naltrexone (Vivitrol)
- Buprenorphine
- Buprenorphine/Naloxone



# Relapse Prevention Medications for Opioid Addiction

## A Brief Overview

Marc Fishman MD  
Johns Hopkins University Dept of Psychiatry  
Maryland Treatment Centers  
Baltimore MD



JOHNS HOPKINS  
MEDICINE  
SCHOOL OF MEDICINE

National Criminal  
Justice Association  
Webinar  
Jan 2015



# Rationale for medication

- Impact the biology of addiction
- Improve outcomes
- Reduce high rates of relapse
- Without medications >80% of heroin addicts relapse within 30d after detoxification

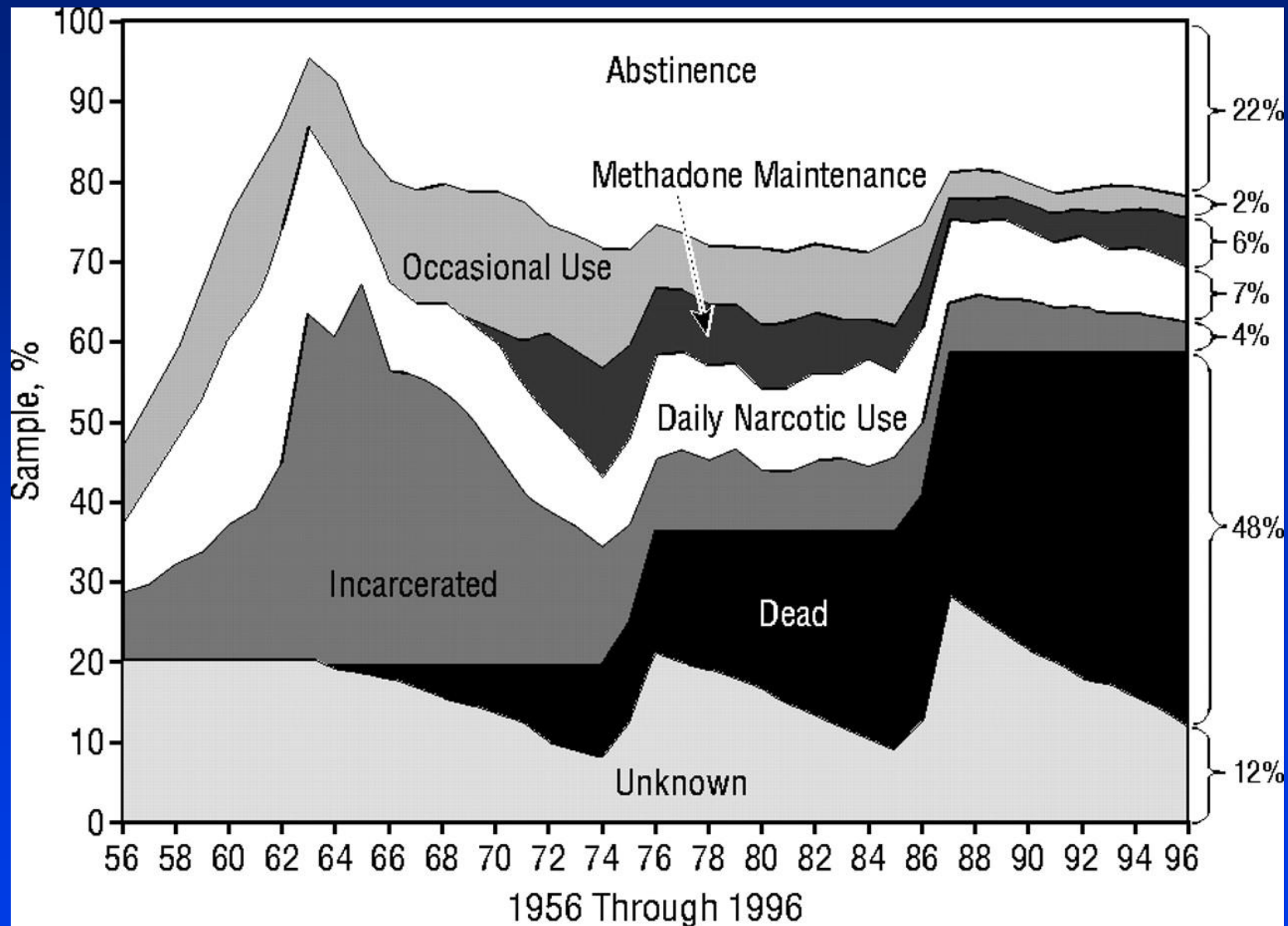
# Conceptual Issues

- Should medications be used in the treatment of addiction?
  - Is this a scientific question?
  - Is this a practical question?
  - Is this a philosophical question?

# The power of language

- “Drug-free” treatment
- “Abstinence-based” treatment
- Medication assisted treatment
- Medication assisted recovery
- Counseling assisted medication
- Relapse prevention medications

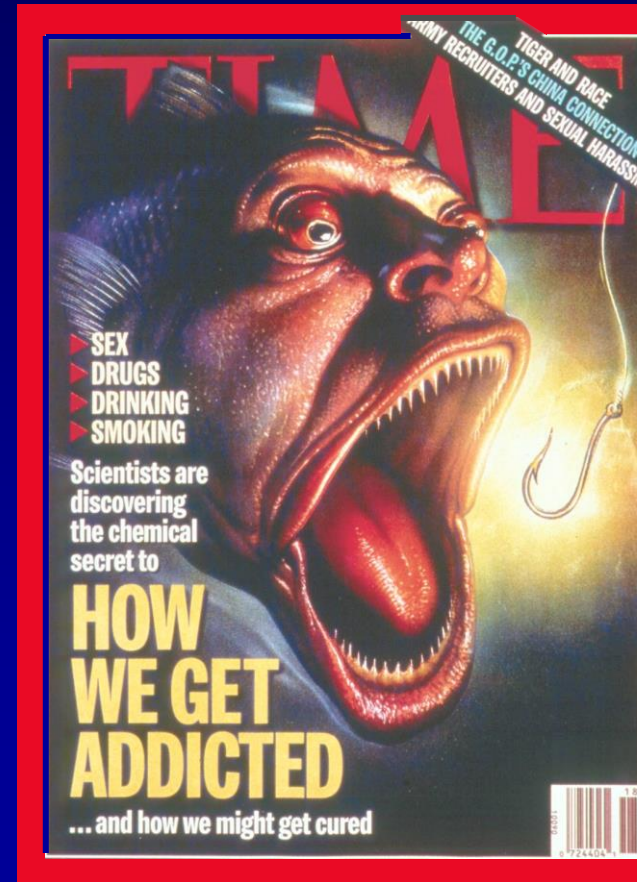
# Heroin Addiction History





# Anti-addiction medications - potential effects

- Block the effects of action
- Reduce cravings
- Reduce reward
- Prevent withdrawal
- Act as non-impairing substitute
- Reduce the power of relapse triggers





# Medications for Opioid Addiction

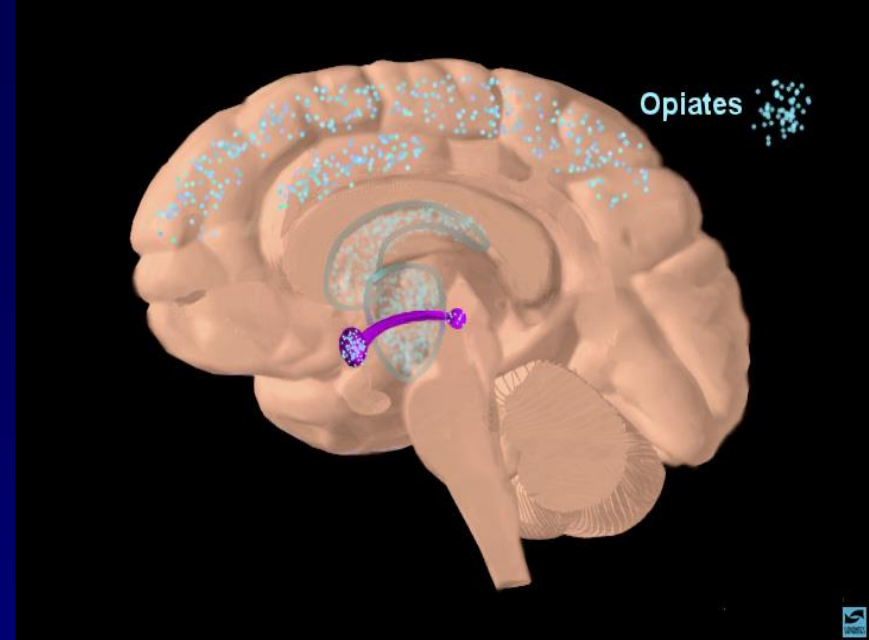
Methadone

Buprenorphine

Naltrexone

Extended Release Naltrexone

# Mechanisms



- Agonist: medication that activates a receptor
  - “Turner on-er”
- Antagonist: medication that blocks a receptor
  - “Turner off-er”
- Partial agonist/antagonist: medication that does some of both

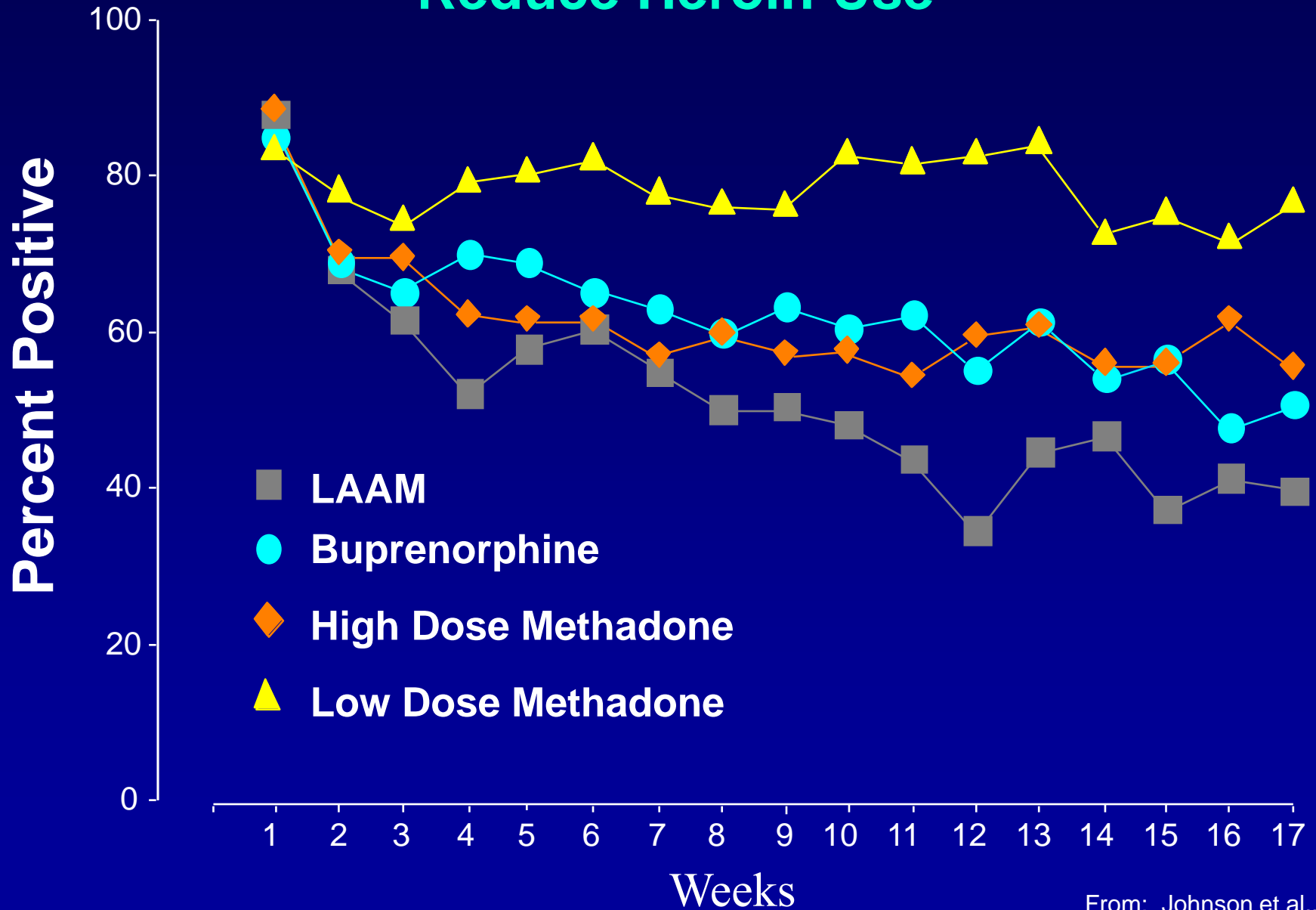
# Conceptual underpinnings

- Use as many effective tools as are available
- One size does not fit all: as many doors as possible
- A full continuum of care: multiple services with flexible responses
- Engagement promotes progress
- Expectation of relapsing/remitting course
- Expectation of variable and shifting treatment readiness
- Recovery as a gradual process, not an overnight event -- expectation of incremental progress

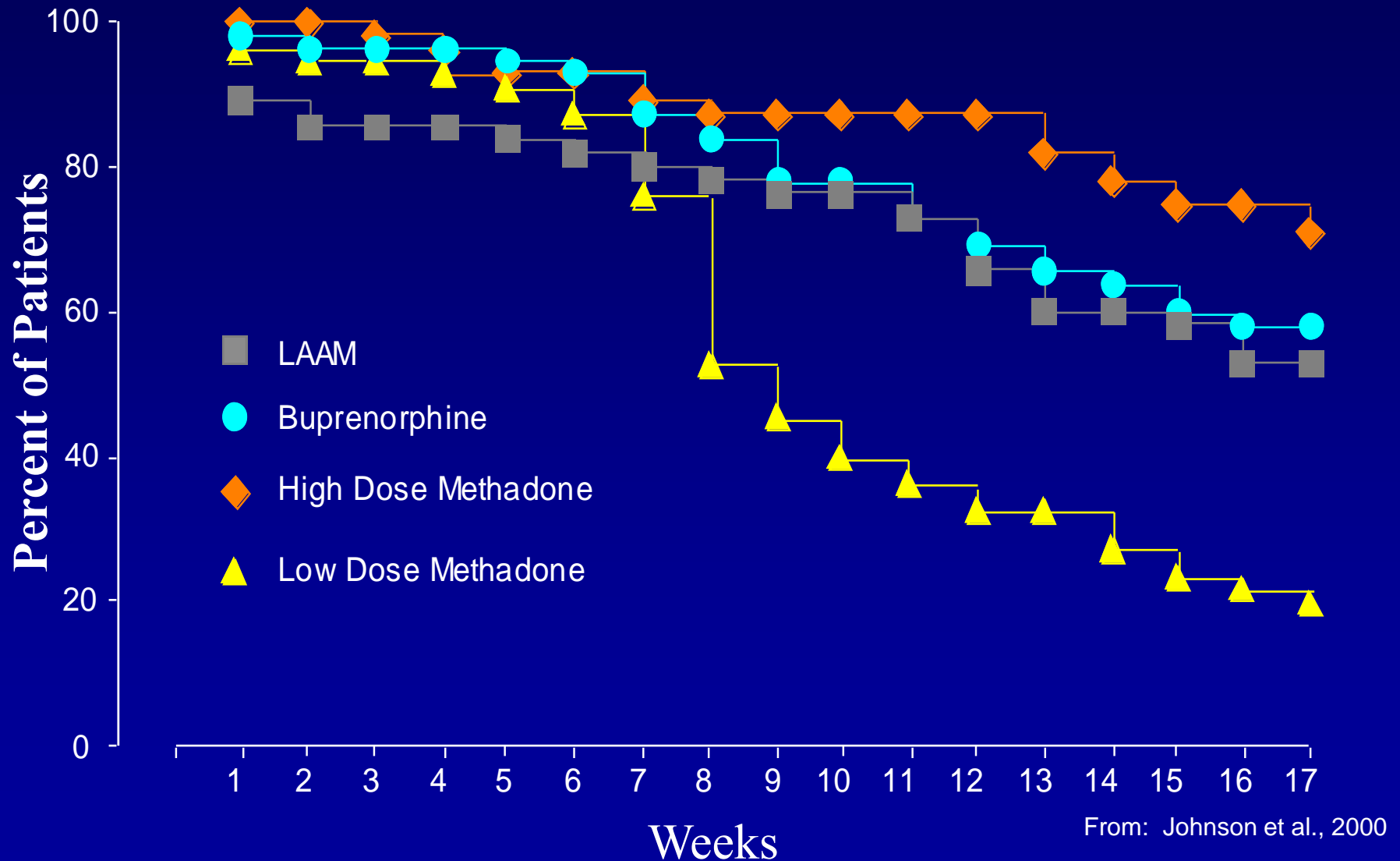
# Relapse prevention medications improve outcomes

- Decreased drug use
- Decreased mortality
- Decreased criminal behavior and recidivism
- Decreased HIV and HCV transmission
- Increased employment
- Decreased homelessness
- Increased treatment retention
- Improved psychiatric symptoms

# Buprenorphine & Higher Dose Methadone Reduce Heroin Use

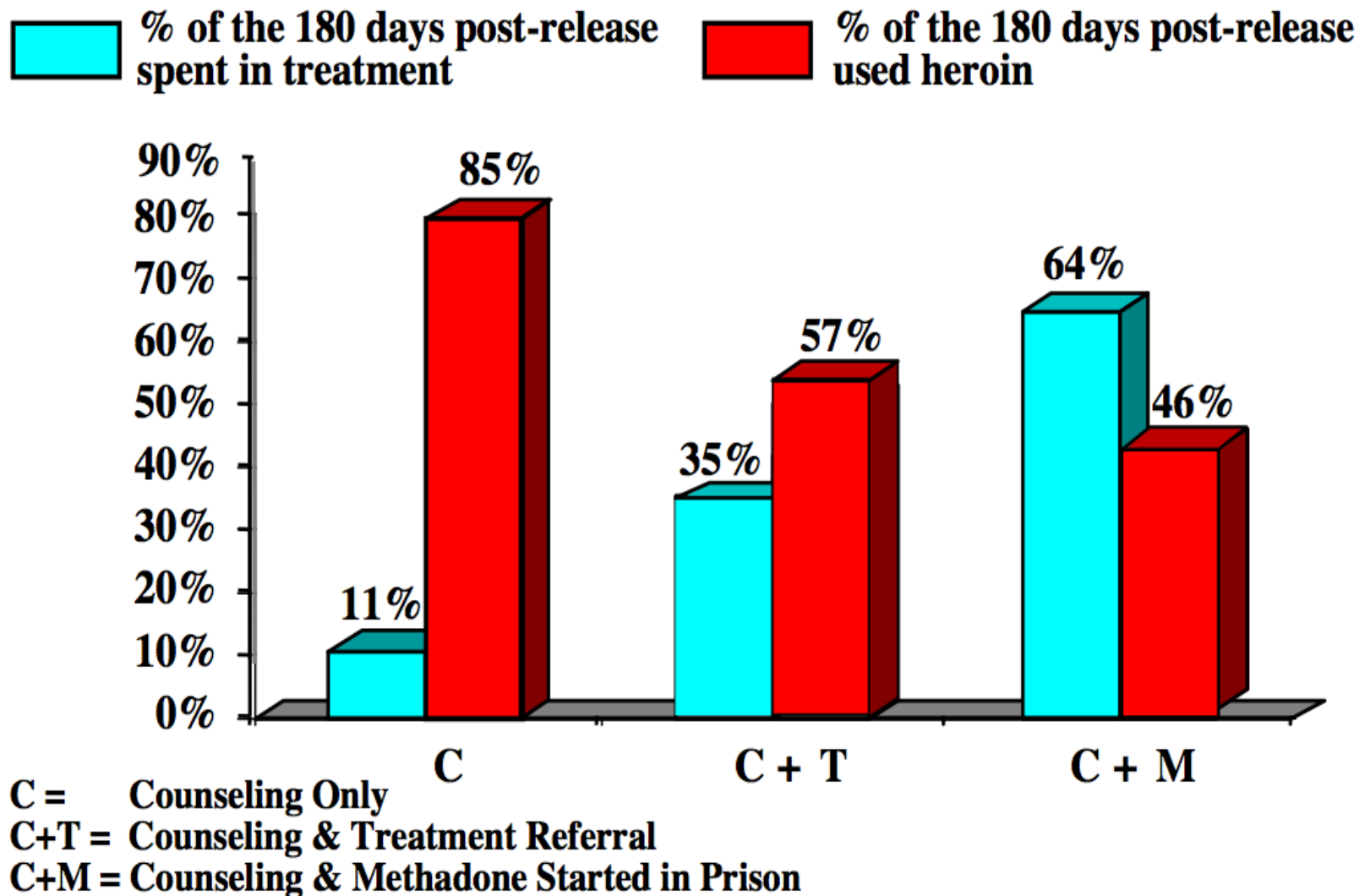


# Buprenorphine & Higher Dose Methadone Increase Time in Treatment



# Treatment Linkage & Days Used Heroin

## 6 Months Post-release



Source: Gordon, MS et al., *Addiction* 103:1333-1342, 2008.

# Is relapse prevention Rx just trading one addiction for another?

## DSM-IV Criteria For Substance Dependence

A maladaptive pattern of use leading to clinically significant impairment or distress, manifested by 3 or > of the following in a 12-month period:

1. Tolerance (increased amounts or diminished effects)
2. Withdrawal (withdrawal syndrome or use to relieve or avoid withdrawal)

(Addictive Behaviors – loss of control)

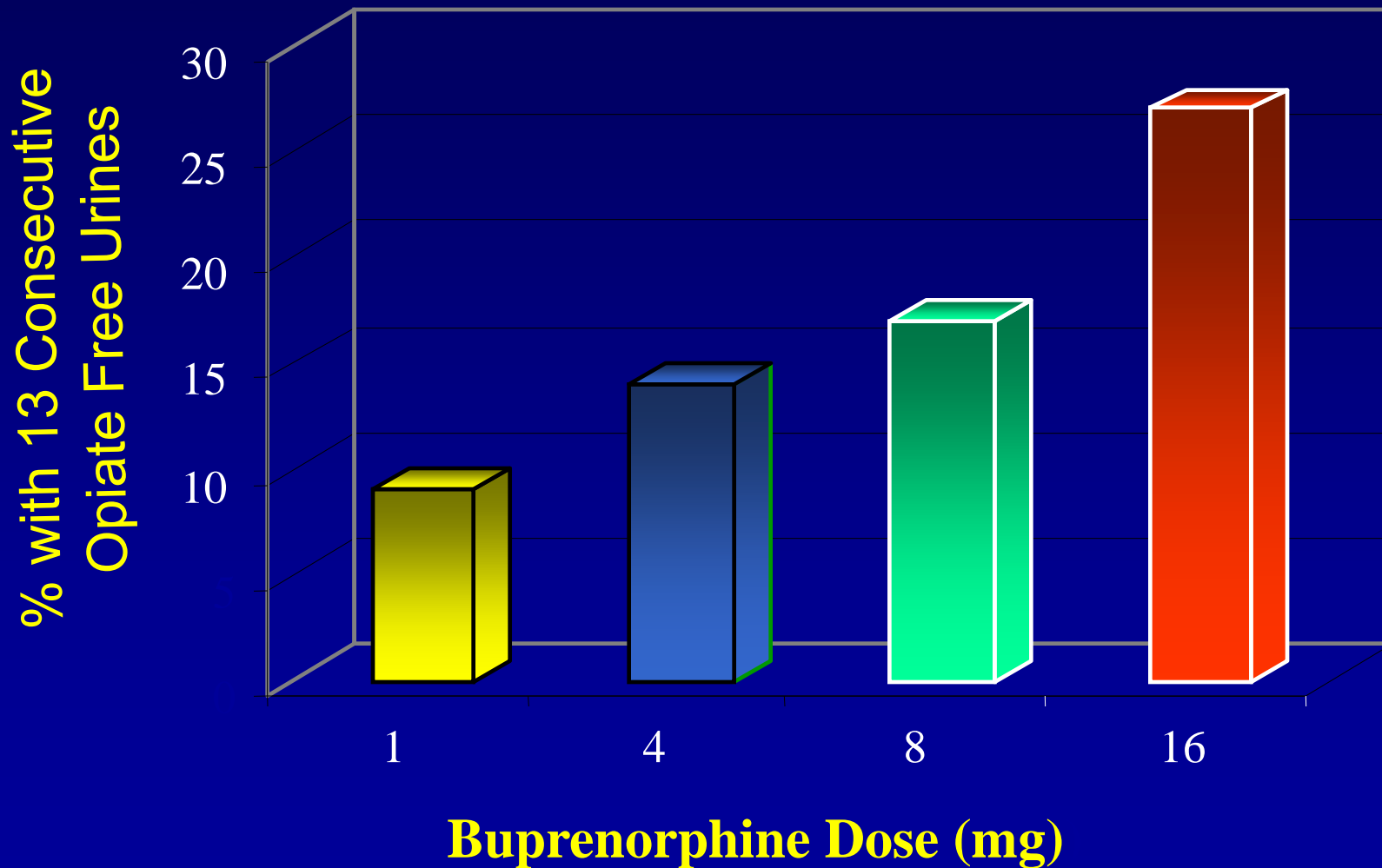
3. Efforts or desire to cut down or control use
4. Taking larger amounts or over a longer period than intended
5. Social, recreational or occupational activities given up
6. Preoccupation -- time spent in activities necessary to obtain the substance
7. Use despite persistent or recurrent physical or psychological problems



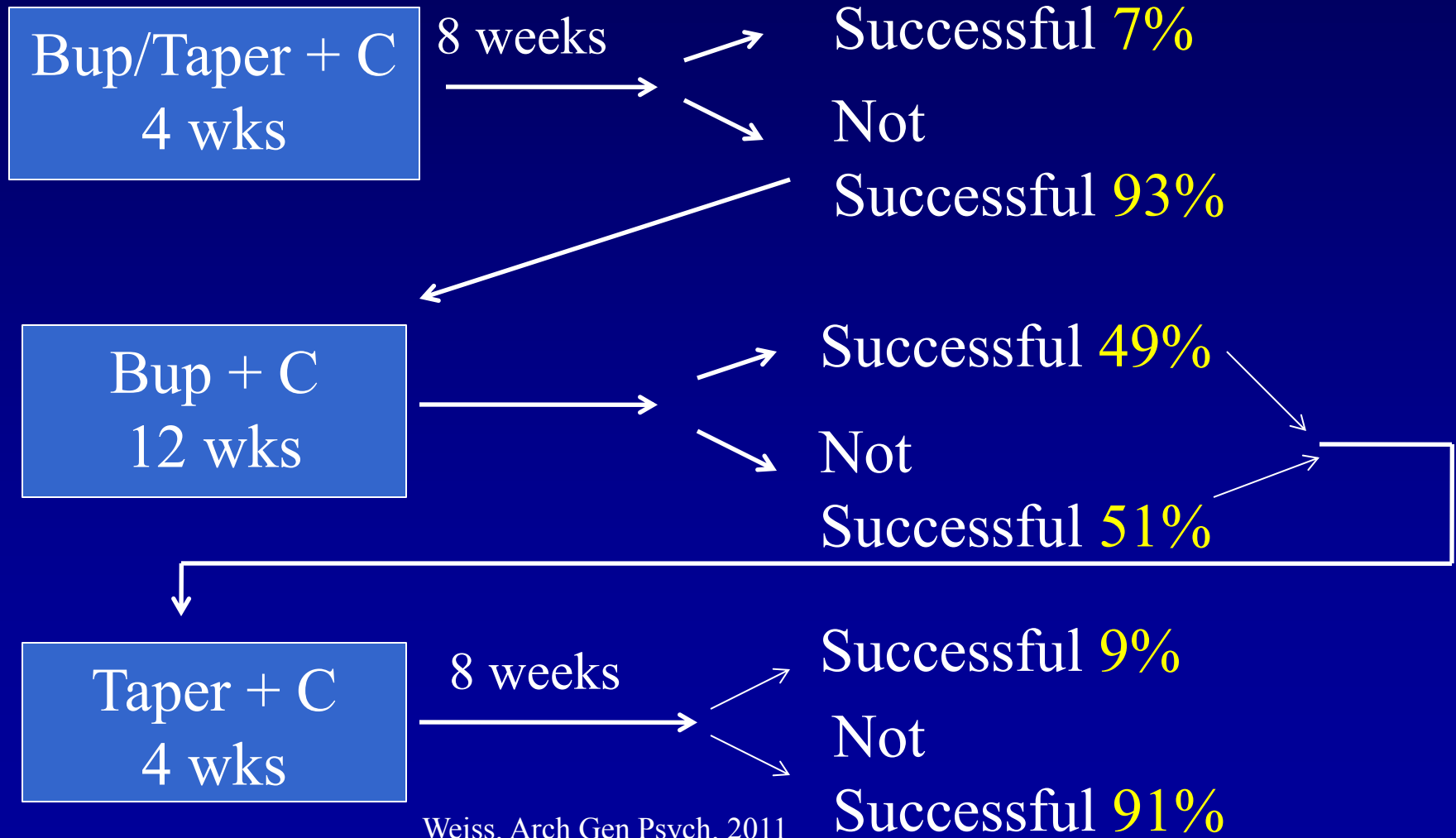
# Why medication? Can you be in “real” recovery on medicines?

- Medicines just a crutch or band-aid
  - Maybe. Like meetings or groups.
- If the patients like it so much, there must be something wrong with it. They must be “drug-seeking.”
  - But if they don’t utilize treatment, it almost doesn’t matter how good treatment is. 95% is showing up.
- If medications are an “easy fix” will patients refuse needed psychosocial treatments and supports.
  - Actually, they come to psychosocial treatment *more*.

# Dose?



# Duration of treatment?



# What do we do with this patient?

- 26 M injection heroin
- 4 episodes residential tx (2 AMA, 1 completed), 3 episodes outpatient treatment
- Longest abstinence 6 months while incarcerated, 4 months while in recovery house, 2 months while in IOP
- Previous buprenorphine treatment (monthly supply Rx x 4), took erratically, sold half
- Now intermittently buying street buprenorphine
- Presents in crisis seeking treatment (“Can I have my meds now, I’m kind of in a rush...”)

# If only it were that easy



*"We found this in your brain."*

# Medications, mischief, and monkey business

- Side effects
- Diversion
- Non-compliance
- Inconsistency
- Other substances

# Relapse prevention Rx delivery

## Toolbox for success

- Frequent monitoring for response
- Monitoring for and attention to other substances
- Structure and limitations on Rx supply as needed
- Access to medication as contingency
- Supervised Rx administration as needed
- Extrinsic motivators, criminal justice supervision
- Team approach with close collaborations
- Integrated services: counseling, medical care, co-occurring disorders, housing



# Conclusions

## Opioid addiction medications

- Relapse prevention medications for opioid addiction have 50+ years demonstrated effectiveness
- Outcomes best when integrated with full array of comprehensive treatment services and individualized delivery
- Should be the standard of care, but only 35% of opioid addicted persons treated
- We need to do a better job implementing the tools we have, while we work on improving them

# Pharmacological Treatment

- Question:
  - Which is better: medications or counseling?
- Answer:
  - Yes!

# We've come a long way...



# But we have a long way to go.



# Behavioral interventions for opioid substitution patients: Combining two controversial treatments

Nancy M. Petry, Ph.D.

Professor of Medicine

University of Connecticut School of Medicine

Supported by NIH grants P30-DA023918, R01-DA13444, R01-DA016855, R01-DA027615  
R01-DA022739, R01-DA024667, R01-HD075630, R01-AA021446, P50-DA09241, P6AA03510



# Outline

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Two controversies:

1.) Polydrug use with opioid substitution

2.) Contingency management therapy

- Background of this behavioral therapy
- Prize CM in substance abuse treatment generally
- Prize CM for opioid substitution patients



# Controversy #1

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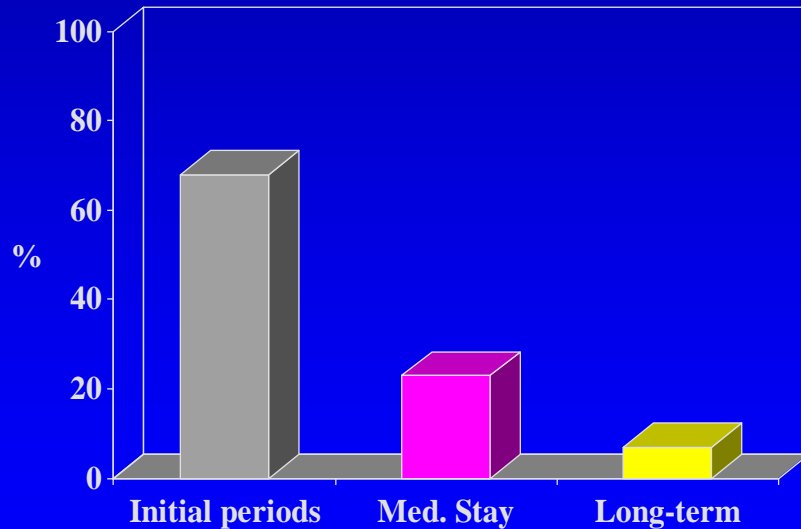
Other substance use  
in opioid-substitution patients



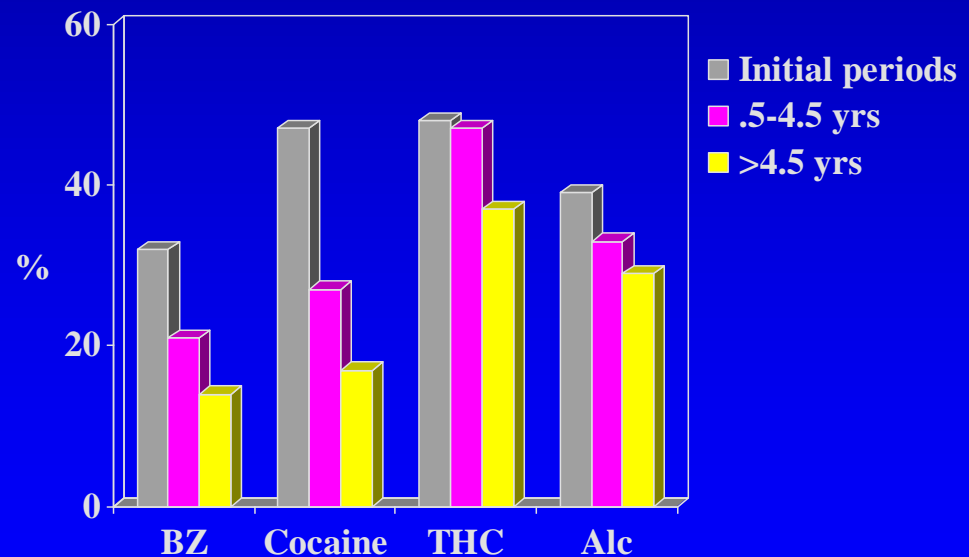
- Most opioid dependent patients have polydrug use problems, that almost always pre-date opioid substitution therapy.
- Opioid substitution pharmacotherapies are highly efficacious in reducing illicit opioid use.
- However, opioid substitution medications typically have no impact or modestly reduce some other substance use.

# Toxicology screens in methadone patients based on treatment duration

Proportion positive for opioids



Proportion positive for other drug use








Should we expect that a pharmacotherapy  
designed and developed to address one  
medical condition (opioid dependence)  
impact other conditions  
(i.e., non-opioid substance use)?



Would we expect that antihypertension medications impact weight loss?




We need other effective therapies to reduce  
polysubstance use in  
opioid-substitution patients.



# Controversy #2: Behavioral therapies for substance use treatment

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Positive reinforcers (rewards) can promote  
development of new behavioral patterns  
(e.g., drug abstinence)



# Positive reinforcers increase the probability of behaviors re-occurring.

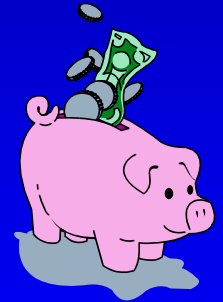
➤ With employees

Salaries, commission, awards, social praise



➤ With children

Special foods, allowances



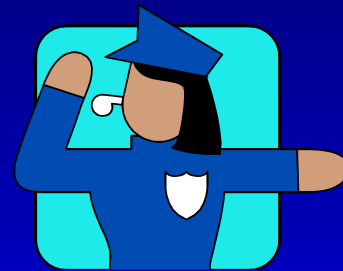
➤ With pets

Treats




# Punishers reduce the probabilities of behaviors re-occurring

➤ Fines, tickets, jail



➤ Poor evaluations, getting fired, negative social interactions


➤ Detention, time out



Both rewards and punishers can be very effective in changing behaviors when applied according to behavioral principles.



➤ However, in substance abuse treatment, punishers are most often applied.



Both rewards and punishers can be very effective in changing behaviors when applied according to behavioral principles.

---



- However, in substance abuse treatment, punishers are most often applied.
- Everyone would rather be rewarded than punished!





# Contingency management principles

- 1.) Frequently monitor a specific *objective* target behavior.
- 2.) Provide tangible positive reinforcement each time the target behavior occurs.
- 3.) Withhold reinforcement if the target behavior does not occur (slight punisher).

# Prize-based contingency management (CM)

Reinforce abstinence frequently (2-3 times per week):

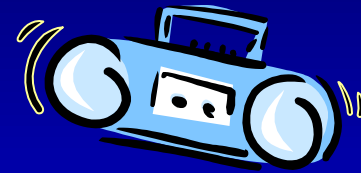
- One draw for each negative sample provided.
- Draws escalate for consecutive negative samples.



# Half the cards are winning



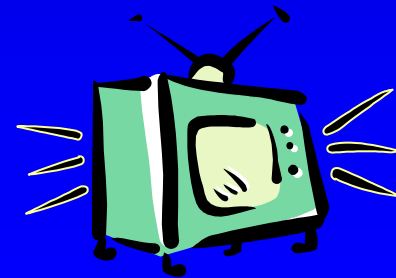
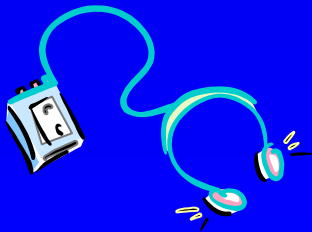
➤ ~1/2 chance of winning a small \$1 prize



➤ ~1/13 chance of winning a large \$20 prize



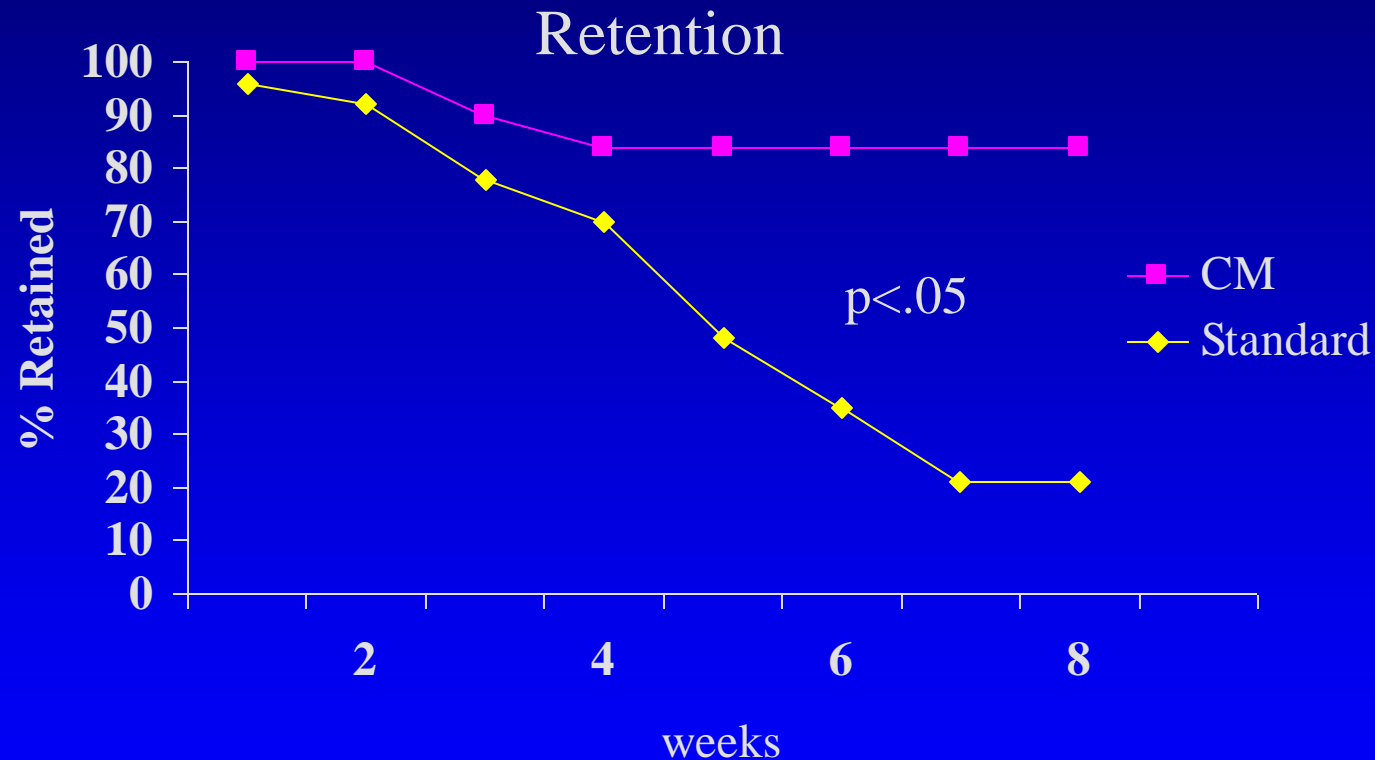
➤ 1/500 chance of winning a jumbo \$100 prize



# Sample cabinets

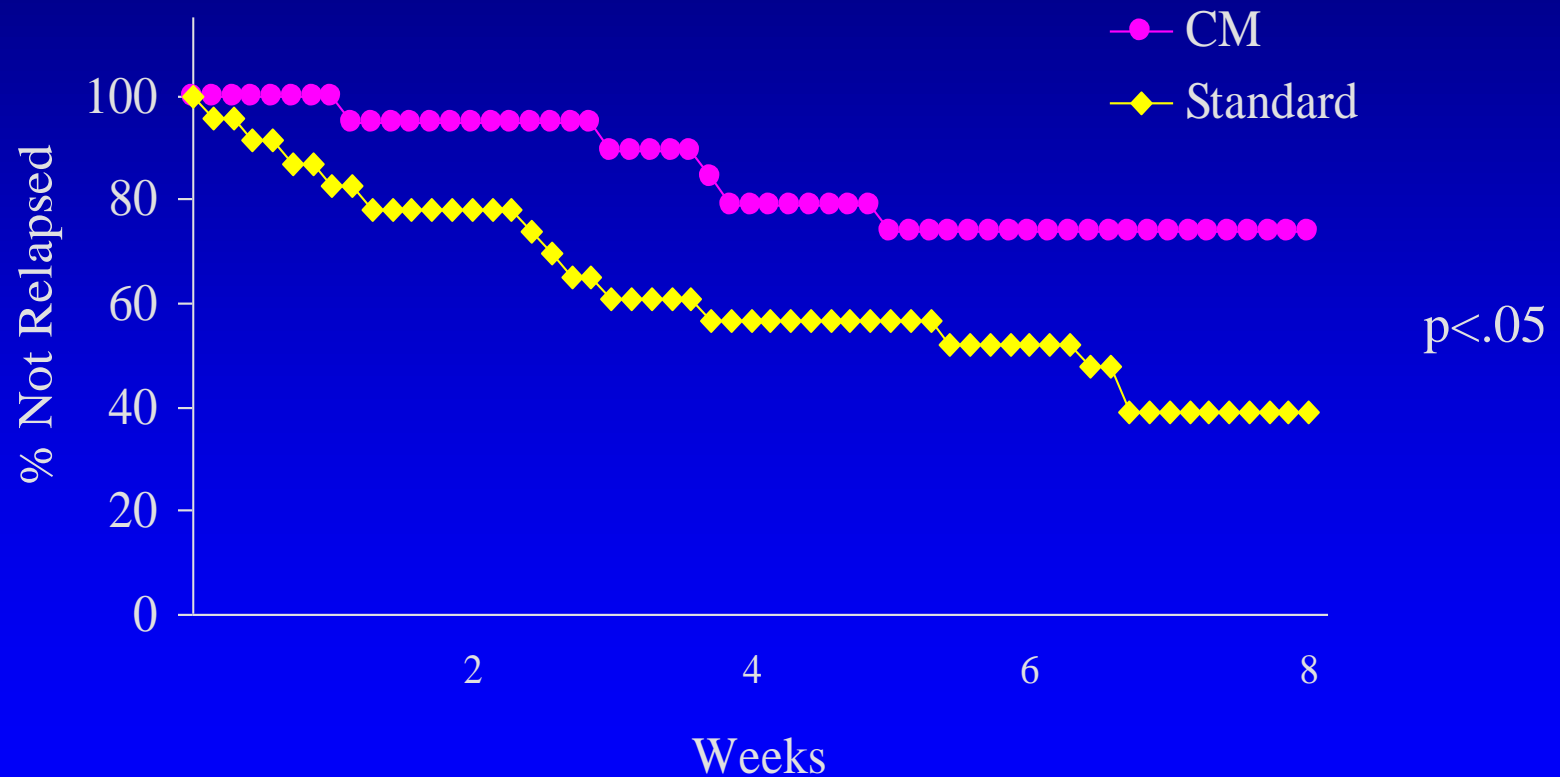


# Initial study with alcohol dependent patients



*Petry, Martin, Cooney, & Kranzler (2000). Journal of Consulting and Clinical Psychology*

# Time until first heavy drinking episode

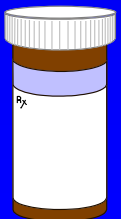


*Petry, Martin, Cooney, & Kranzler (2000). Journal of Consulting and Clinical Psychology*



# CM is highly efficacious in reducing substance use

- Alcohol (Petry et al., 2000; Alessi & Petry, 2013)
- Marijuana (Budney et al., 2000; Kadden et al, 2007; Litt et al, 2013)
- Stimulants (Higgins et al., 1994,2000,2007; Petry et al., 2003,2005ab,2006,2011,2012abc), including methamphetamine (Roll et al., 2008)
- Smoking (Alessi et al., 2008; Ledgerwood et al., in press)
- Polydrug use in opioid-maintained patients (Ghitza et al., 2008; Peirce et al., 2006; Petry et al., 2002,2005c,2007,2012c).



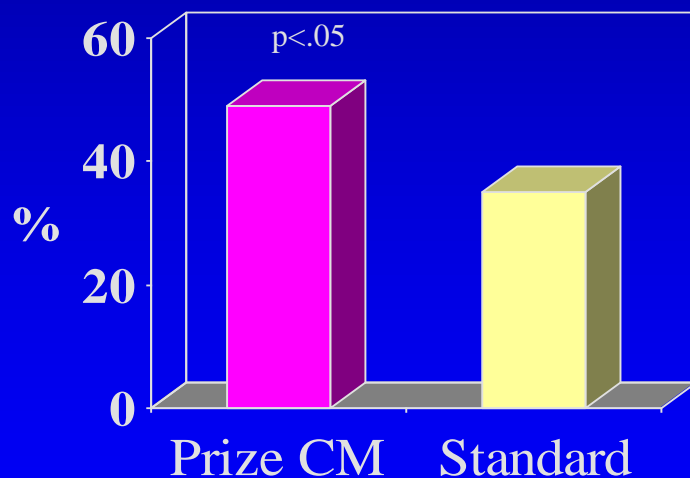
# Nationwide implementation: CM in the National Drug Abuse Clinical Trials Network



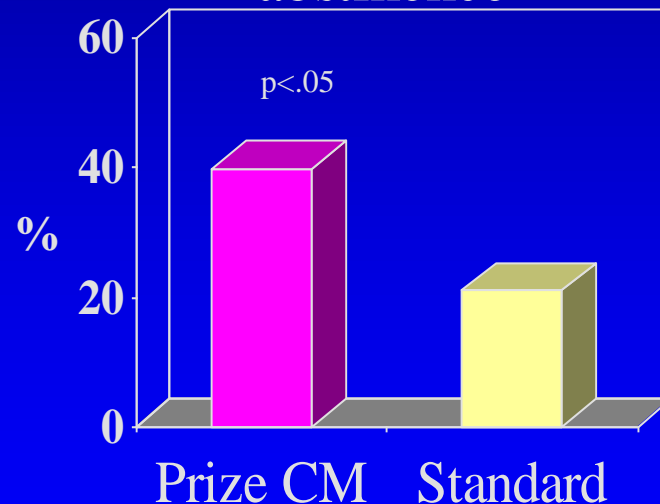


# CTN outpatient sample

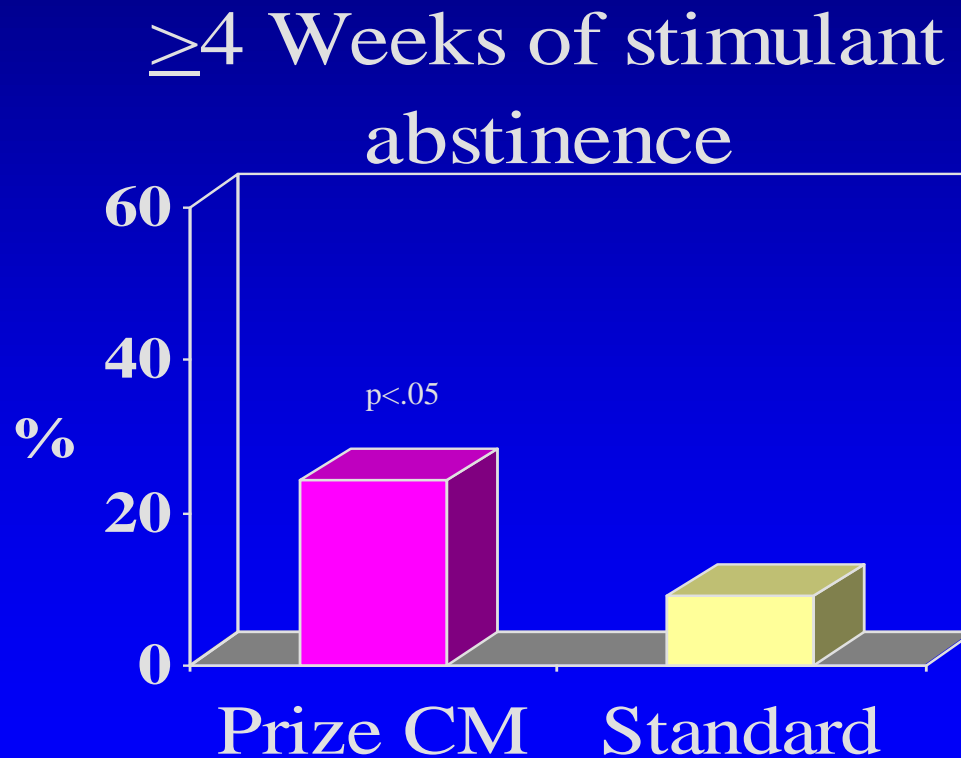
Remained 12 weeks in  
treatment



$\geq 4$  Weeks of stimulant  
abstinence



# CTN methadone maintenance sample



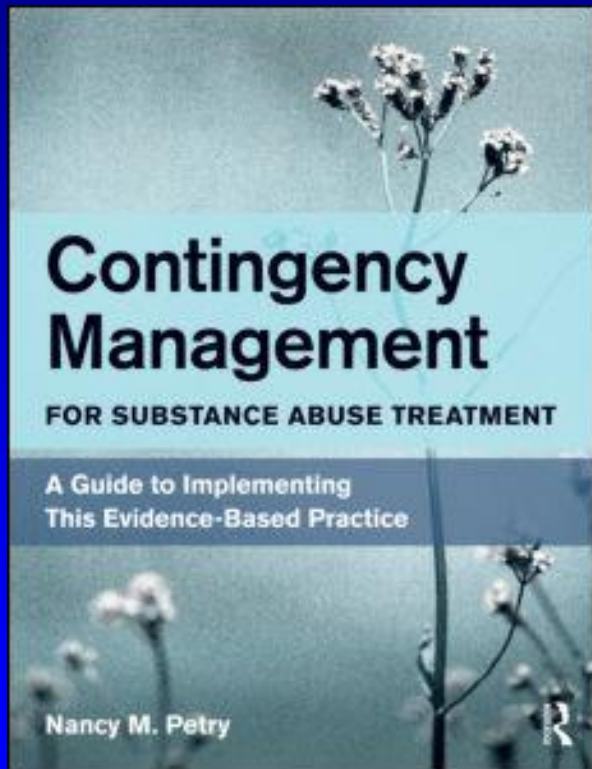
*Peirce et al. (2006). Archives of General Psychiatry.*



# Summary

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- CM is effective for treating substance use, even in polysubstance using opioid maintained patients.
- Costs are reasonable (about \$50-\$200 per patient), and prize CM is cost-effective (Olmstead et al., 2007ab,2009; Sindelar et al., 2007).
- Dissemination of prize CM is ongoing, and the VA is implementing CM nationwide (Pettry et al., 2013).

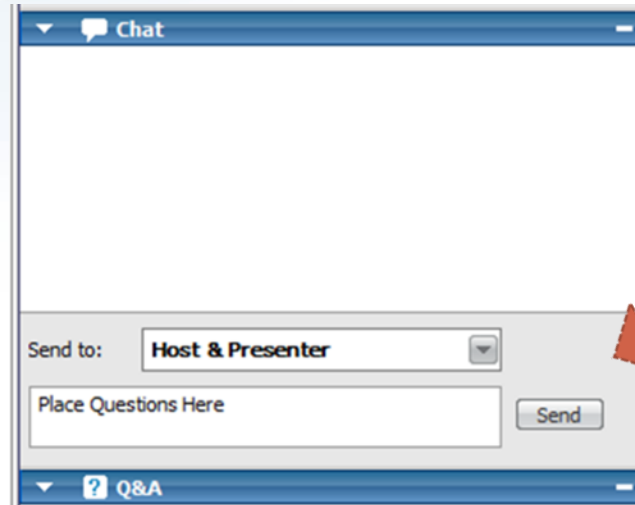


For a step-by-step guide to designing and implementing CM programs in clinical settings:

Petry, N.M. (2012). *Contingency Management for Substance Abuse Treatment: A Guide to Implementing this Evidence-based Treatment*. Routledge: New York.

# Q & A

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Q&A

## Moderator

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Johns Hopkins University School of Medicine

Psychiatrist

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Professor of Medicine /Director of Behavioral Cardiovascular Prevention

University of Connecticut Health Center

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**Planning For Success: Leveraging Health Reform to Enhance Successful Reentry and  
Address the Needs of Super-Utilizers**

**February 26, 2015  
3:00-4:30 PM ET**

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