

Myths and Facts
about
Medication Assisted Treatment

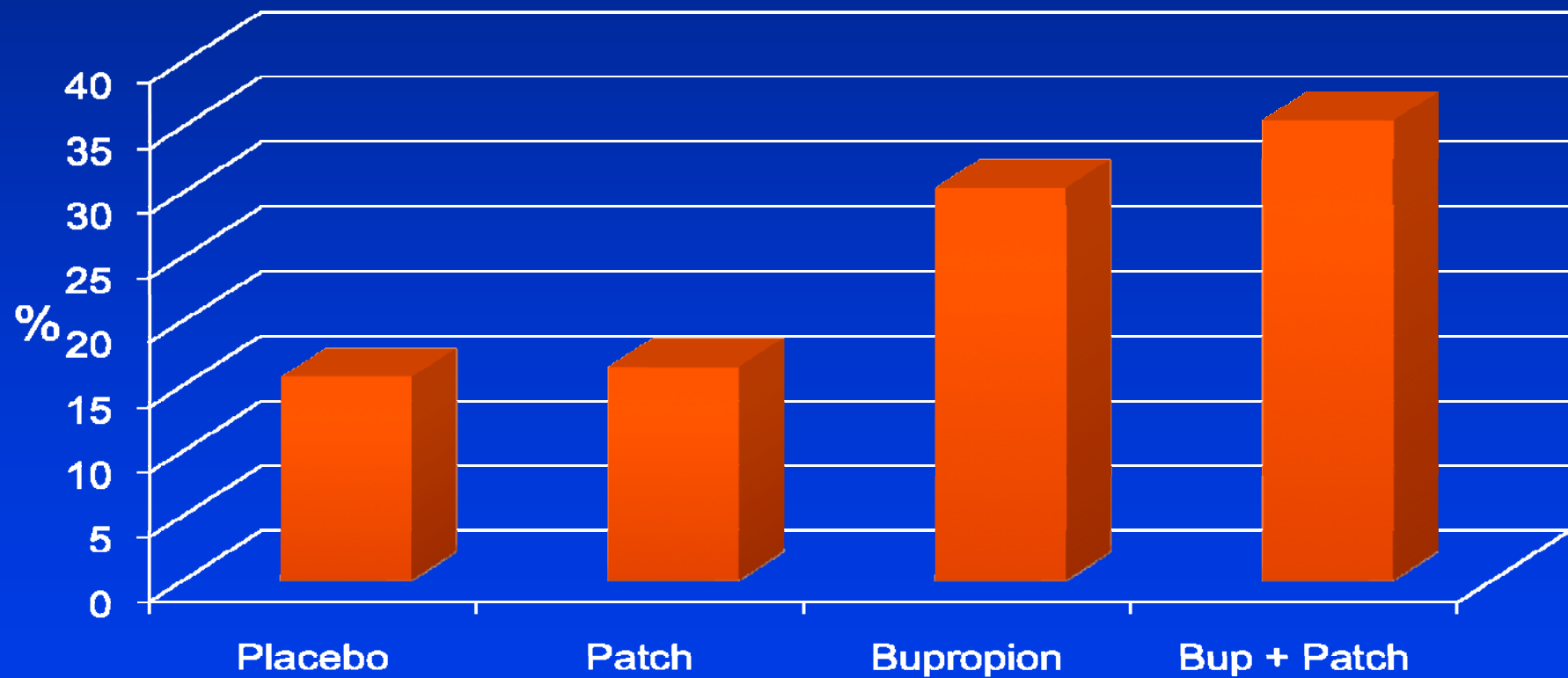
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FDA-approved Medications: Nicotine Dependence

- Bupropion (Wellbutrin, Zyban)
- Nicotine Therapy (Gum, Patch, Lozenge, Inhaler)
- Varenicline (Chantix)

12-Month Smoking Abstinence Rates (Jorenby et al., 1999)



Randomized Comparative Effectiveness Trial (Piper et al, 2009)

Placebo

Patch

Lozenge

Patch + Lozenge

SR Bupropion

SR Bupropion + Lozenge

FDA-approved Medications: Alcohol Dependence

- Disulfuram (Antabuse)
- Oral naltrexone (Revia)
- Injectable extended release naltrexone (Vivitrol)
- Acamprosate (Campral)
- Alcohol withdrawal: benzodiazepines (e.g., valium, librium)

FDA-approved Medications: Cocaine & Methamphetamine Dependence

- None
- Several medications have shown promising results
- Several compounds are under development

FDA-approved Medications: Opioid Dependence

- Methadone
- Buprenorphine (Subutex)
- Buprenorphine/Naloxone (Suboxone)
- Oral Naltrexone (Revia)

FDA-approved Medications: Opioid Dependence

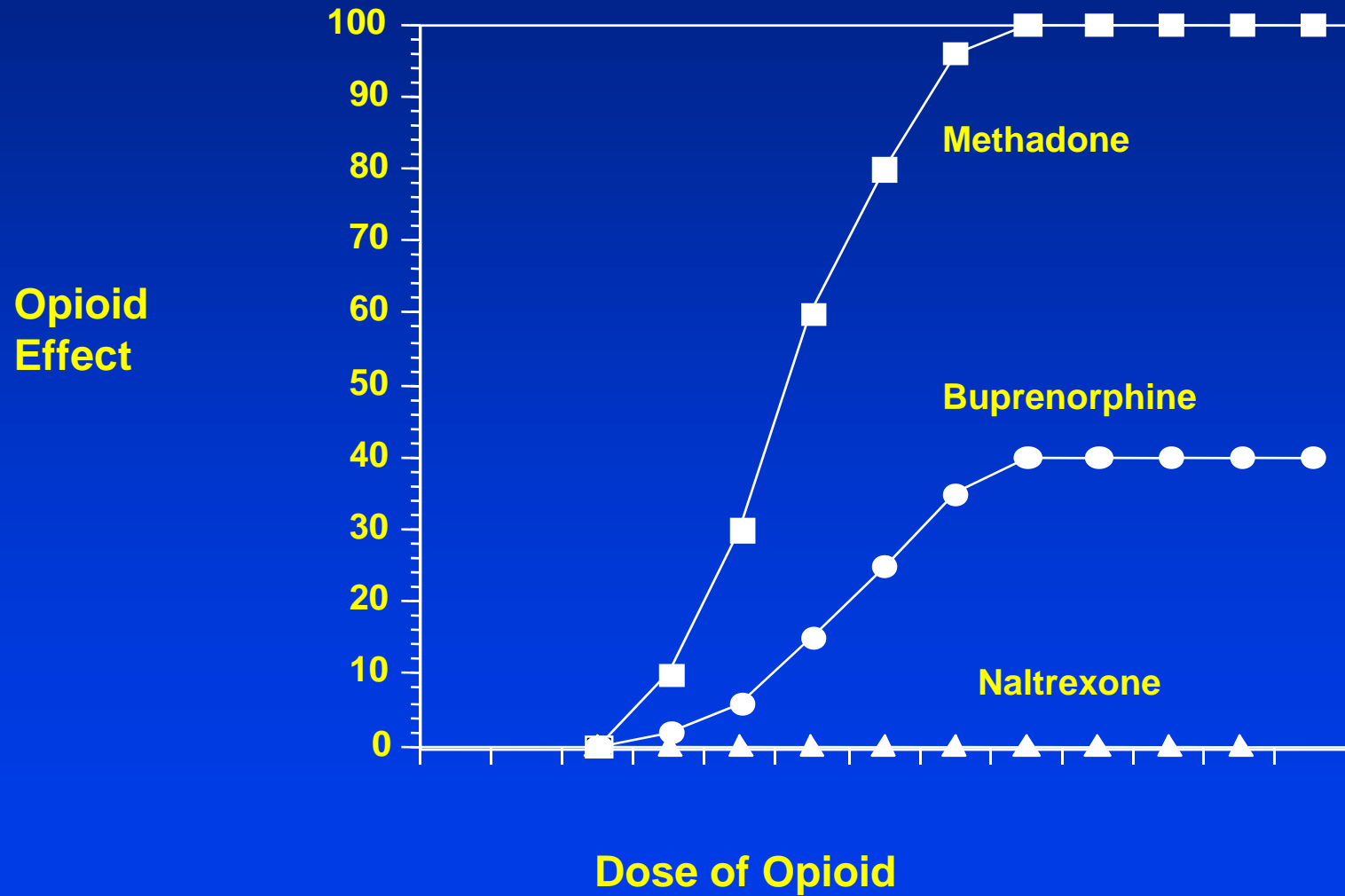
Opioid Agonists

- 1) Full agonist: Methadone (oral)
- 2) Partial agonist: Buprenorphine (sublingual)

Opioid Antagonist

- 3) Naltrexone (oral)

What is the Difference Between an Opioid Agonist & Antagonist?

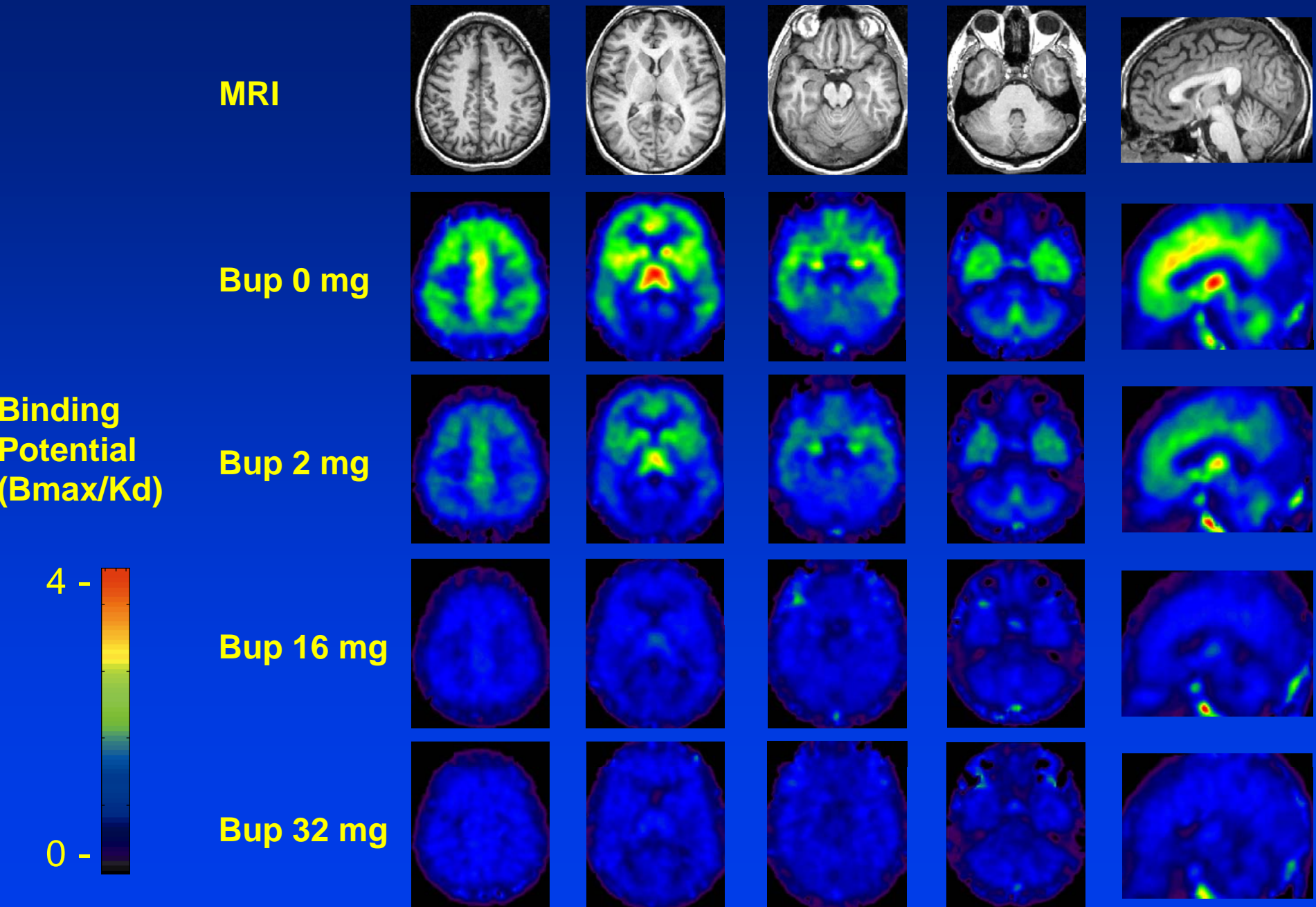


Opioid Agonists

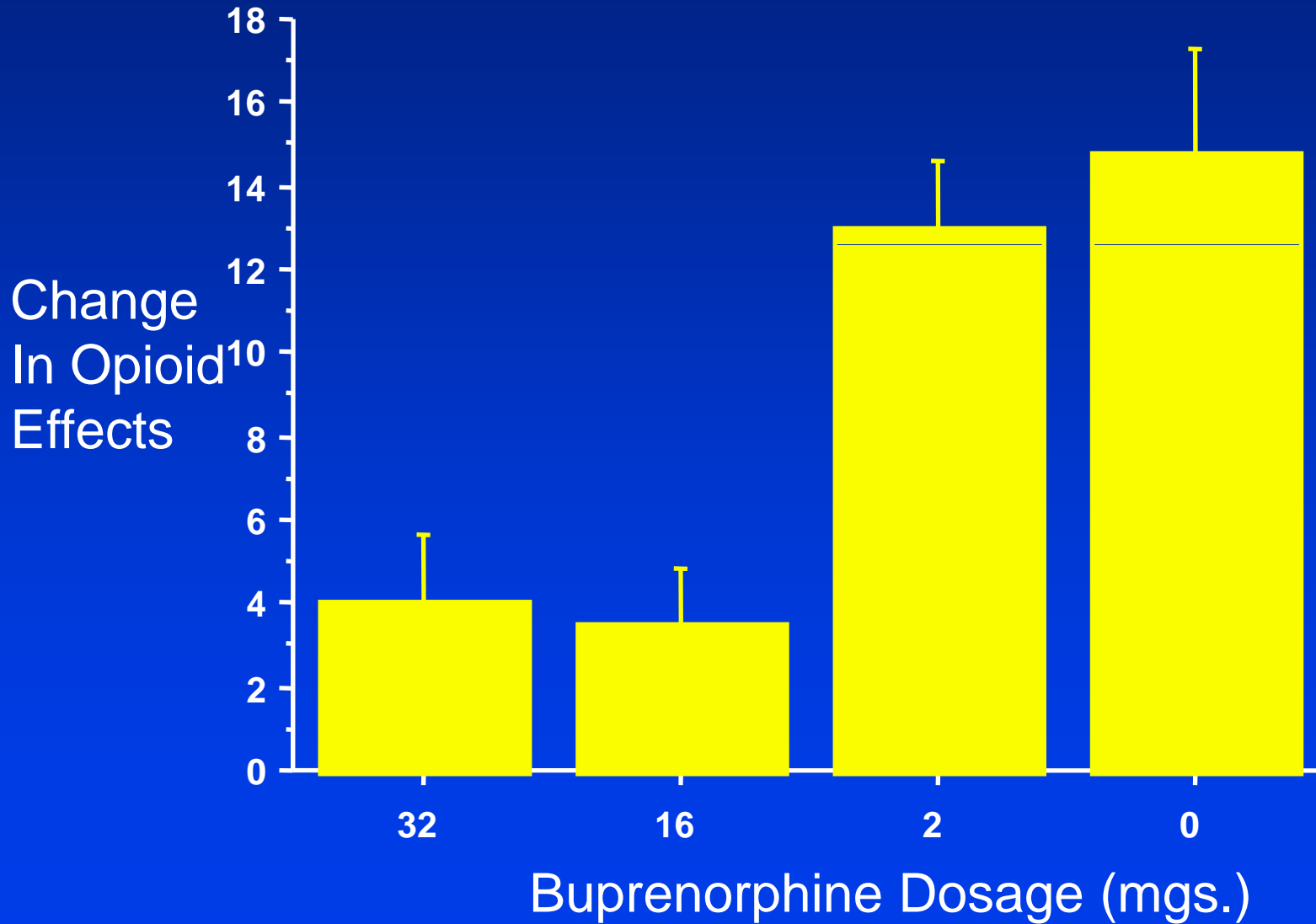
Methadone and Buprenorphine

- Activate the opioid receptors
 - Buprenorphine's opioid effect plateaus at higher doses, which explains its superior safety profile
- Reduce heroin craving
- Alleviate withdrawal
- Block heroin's euphoric effects by occupying the receptor

Effects of Buprenorphine Dose on μ -Opioid Receptor Availability



Buprenorphine Blocks Dilaudid's Effects



What is the Difference Between Heroin Addiction and Opioid Agonist Treatment?

	<i>Heroin Addiction</i>	<i>Agonist Treatment</i>
Route	Injected	Oral or Sublingual
Onset	Immediate	Slow
Euphoria	Yes	No
Dose	Unknown	Known
Cost	High	Low
Duration	4 hours	24 hours
Legal	No	Yes
Lifestyle	Chaotic	Normal

Where Can Patients Get Methadone & Buprenorphine Treatment?

Opioid Treatment Programs (OTPs)

- Methadone or buprenorphine
- Counseling & drug testing
- Clinic administered dosing
 - Take home doses contingent on performance

Outpatient Counseling Programs

- Buprenorphine only
- Counseling & drug testing
- Clinic administered dosing initially and then by prescriptions

Physician Office-Based Treatment

- Buprenorphine with physician monitoring
- Referral to counseling & drug testing
- Doses self-administered through prescriptions
- Widely used internationally
- In US often limited to insured patients

How Long Should Patients Stay on Buprenorphine or Methadone Treatment?

Shorter-term: “Detoxification”

Longer-term: “Maintenance”

Length of treatment should be individually determined by the patient and physician

How Effective is Detoxification with Opioid Agonists?

- Reducing withdrawal symptoms
- Helps some patients remain drug-free after detoxification
- Most patients relapse quickly after medication is discontinued
 - 29% success at completion of 2 week detox (Ling et al., 2005)
- Low success rate for both inpatient & outpatient detox
- Relapse is associated with increased risk of overdose death and recidivism

How Effective is Opioid Agonist Maintenance Treatment ?

Many studies show its effectiveness in reducing:

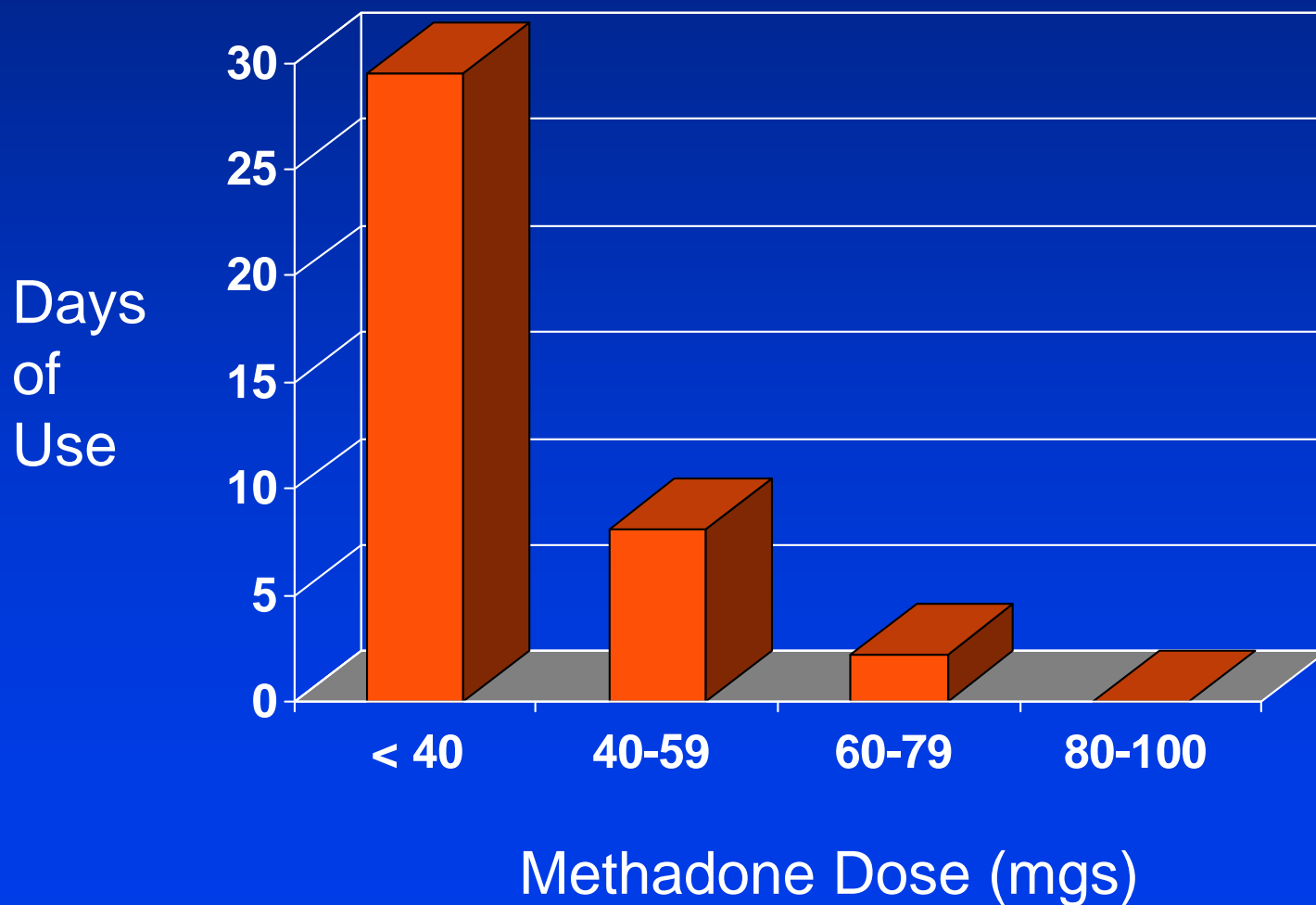
- Heroin use
- Criminal activity
- HIV risk behavior

What are the Characteristics of Effective Maintenance Treatment?

- Higher doses (individualized to patients' needs)
- Longer time in treatment
- Psychosocial services of appropriate intensity & duration

Higher Methadone Dose is Associated with Less Frequent Heroin Use

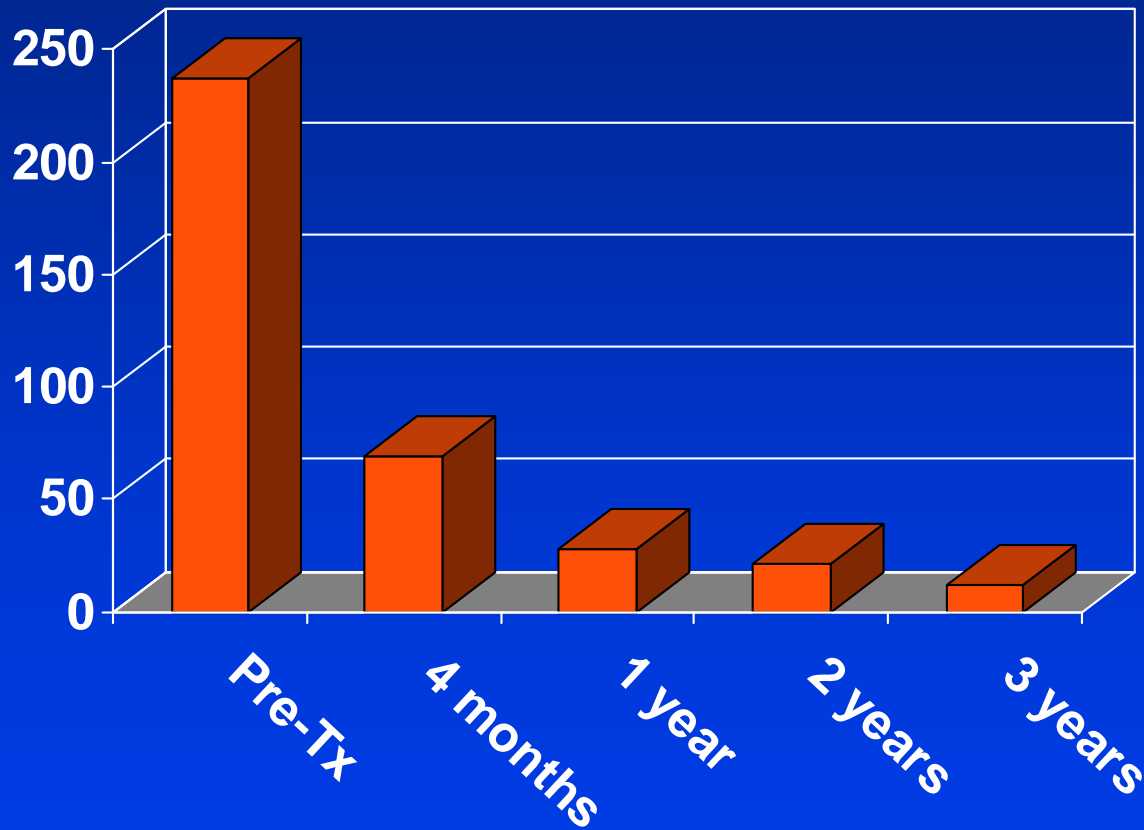
(Ball & Ross 1991)



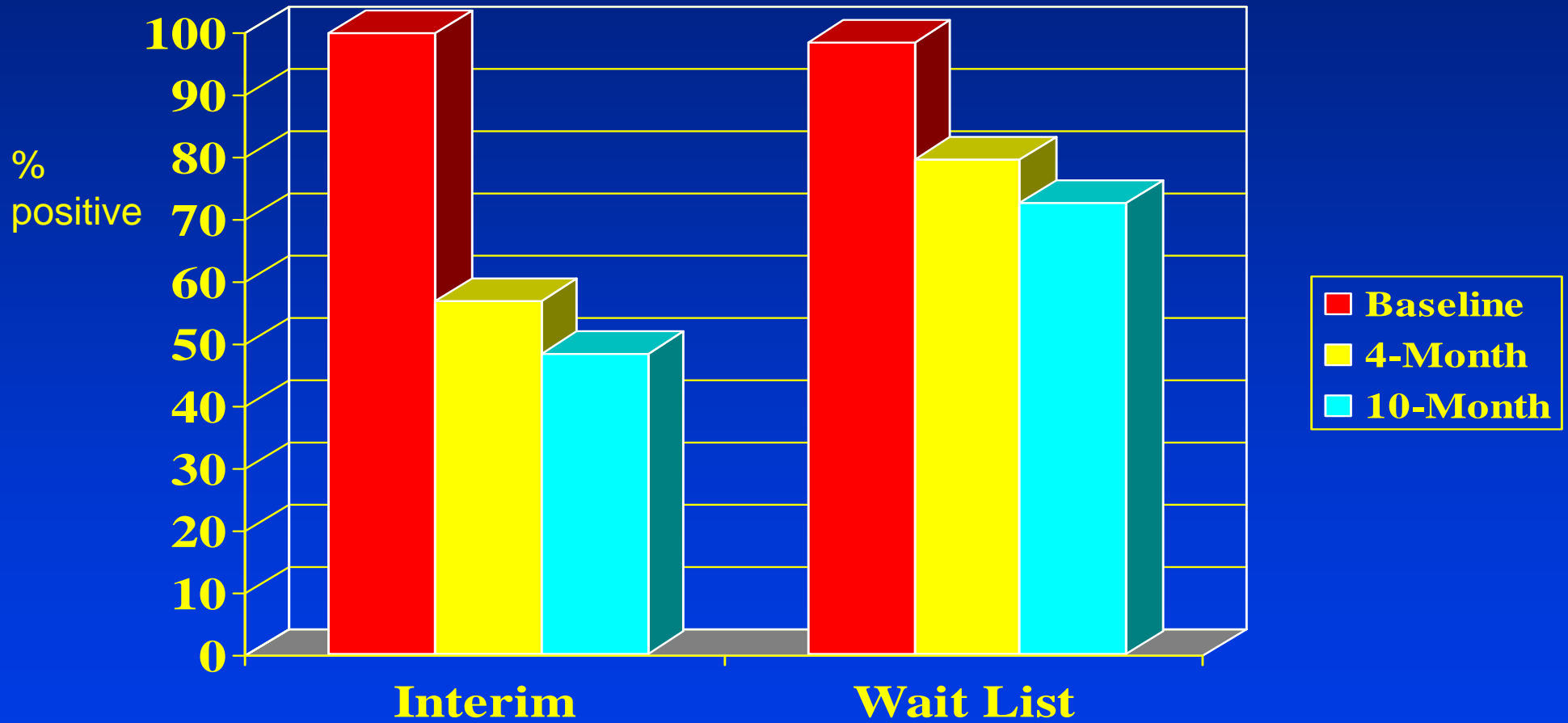
Longer Time in Methadone Treatment Associated with Fewer Days of Crime

(Ball & Ross 1991)

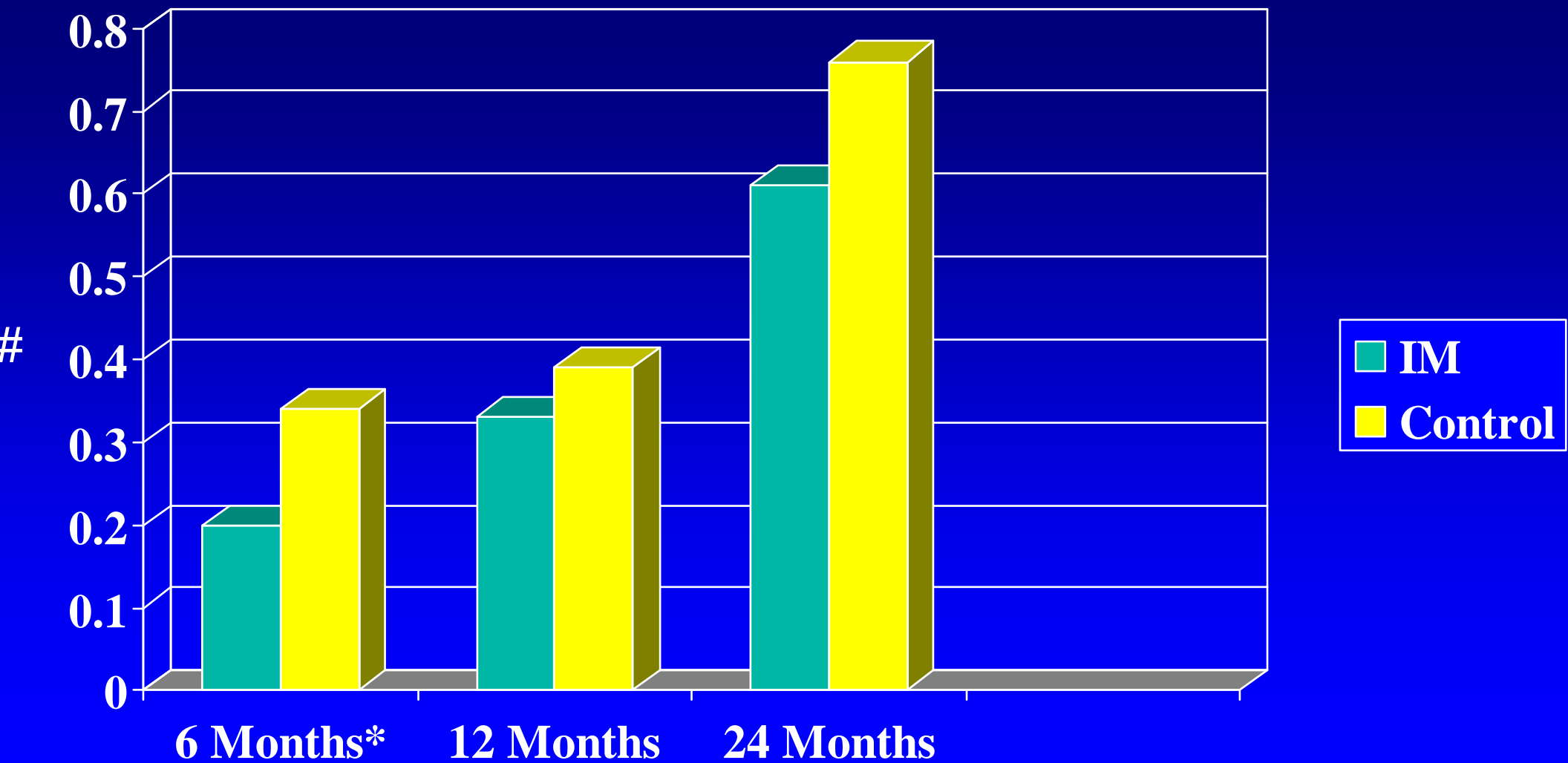
Days Criminal Activity



Interim Methadone Reduces Positive Heroin Drug Tests Compared to Waiting List



Mean Number of Post-Enrollment Arrests



* $p < .02$

Severity Rating Scale of Arrest Charges

Non-Severe

- 1: Baudy House-Prostitution, Possession of Marijuana
- 2: Pimping, Trespassing, Failure to Obey, Disorderly Conduct
- 3: Theft Less than \$500, Malicious destruction of property more than \$500, Forgery, Uttering
- 4: Theft greater than \$500, Carrying a handgun, Drug sales

Severe

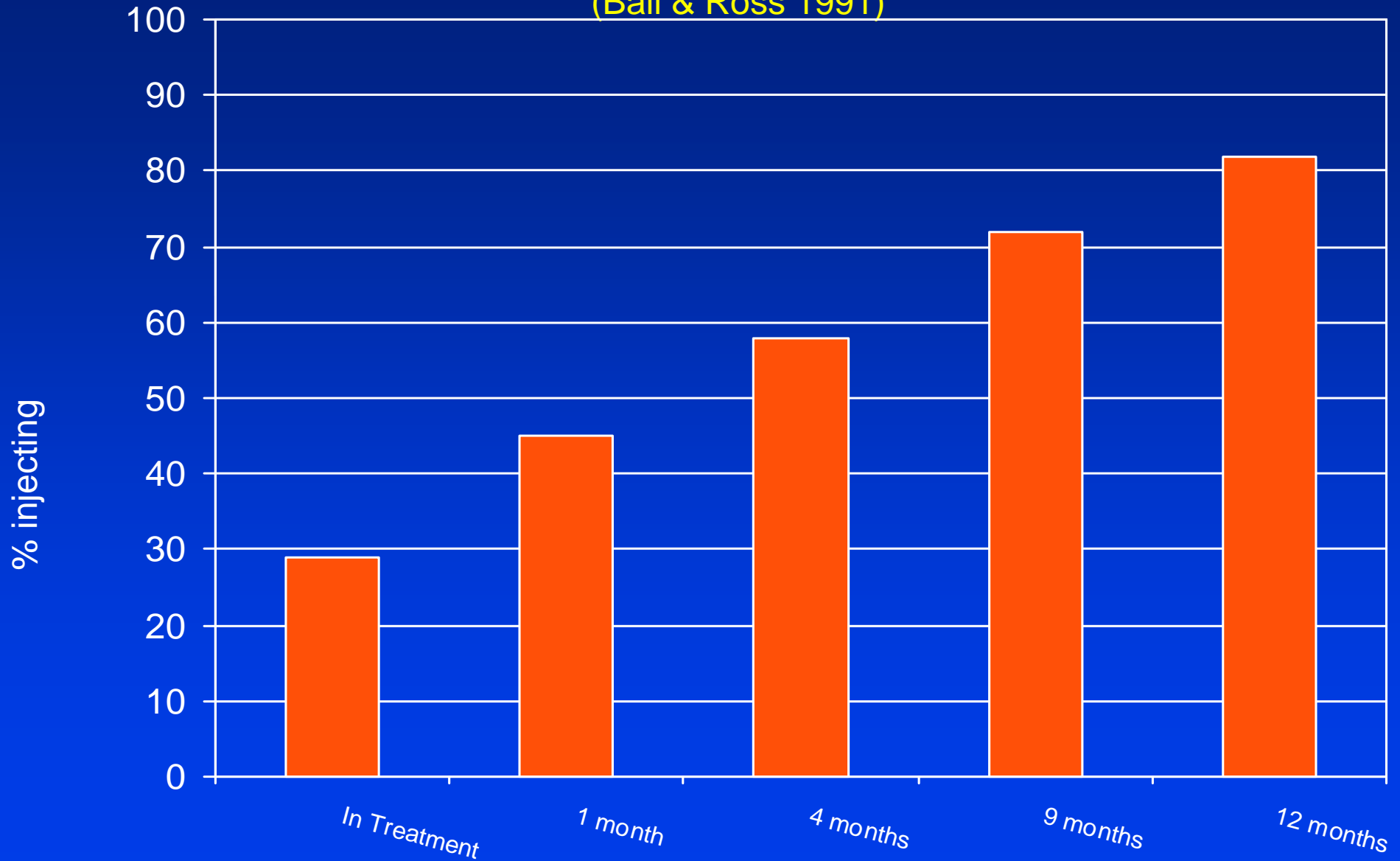
- 5: Burglary, Second degree assault, Battery
- 6: Robbery with a deadly weapon, Assault first degree
- 7: Attempted first degree murder, Rape

Most Arrests of Heroin Addicted Individuals (In or Out of Treatment) Are for Non-Severe Charges

<u>Charge Severity</u>	<u>Interim</u>	<u>Waiting List</u>
Not arrested	84%	79%
<i>Non-severe (1-4)</i>	13%	20%
<i>Severe (5 – 7)</i>	3%	1%

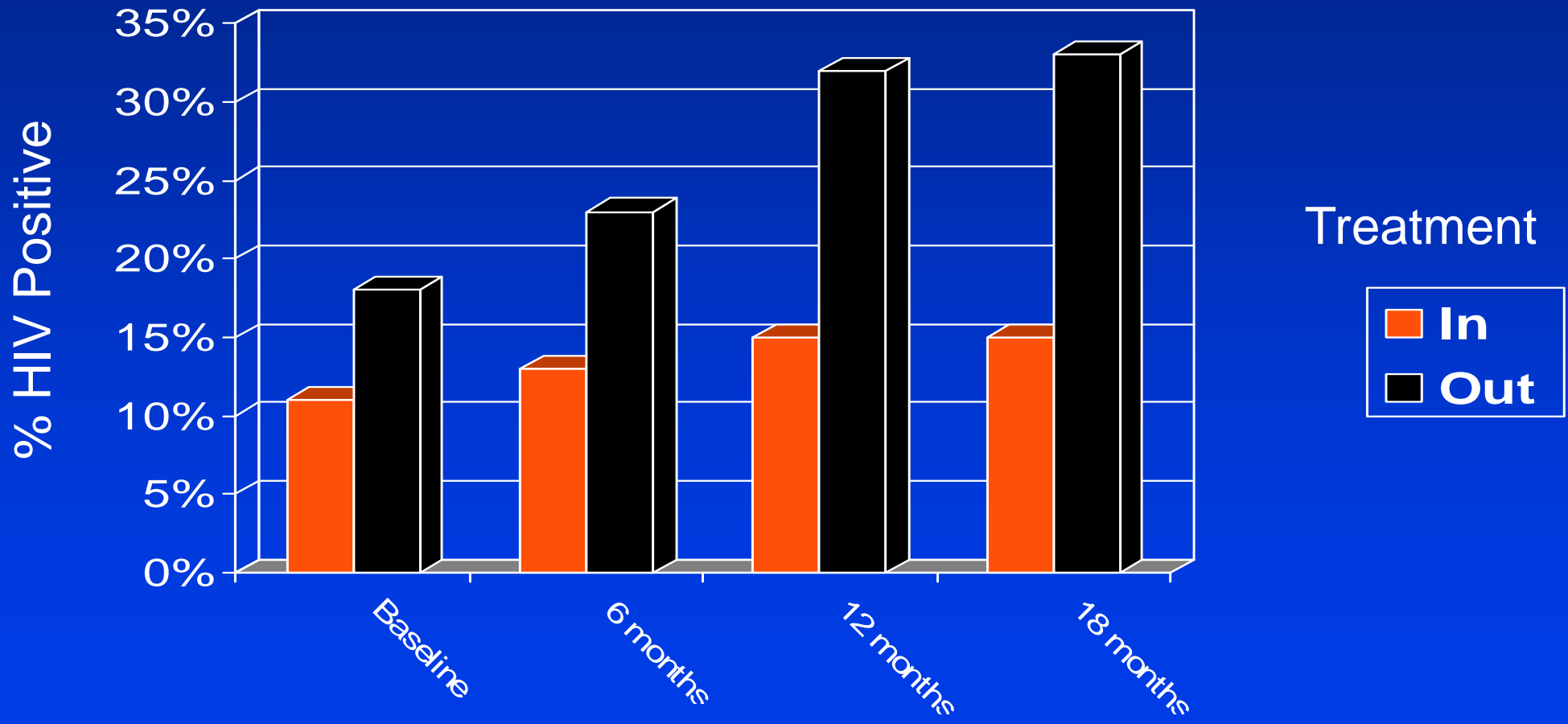
Discharge from Methadone Treatment is Associated with Increased Drug Injection

(Ball & Ross 1991)



Methadone Treatment Reduces Likelihood of HIV Infection

(Metzger et al., 1993)



Myths & Beliefs about Methadone Treatment

- “I don’t believe in methadone”
- “It’s just substituting one drug for another”
- “You have to stay on it for life”
- “Methadone withdrawal is worse than heroin withdrawal”
- “It eats your bones and rots your teeth”
- “ I won’t let probationers complete probation until they’re off methadone”

Buprenorphine/naloxone vs. Buprenorphine Alone

Combination of buprenorphine with naloxone (Suboxone):

- Sublingual buprenorphine is well absorbed
- Naloxone decreases Suboxone's abuse potential
 - injection precipitates withdrawal

Buprenorphine Alone (Subutex):

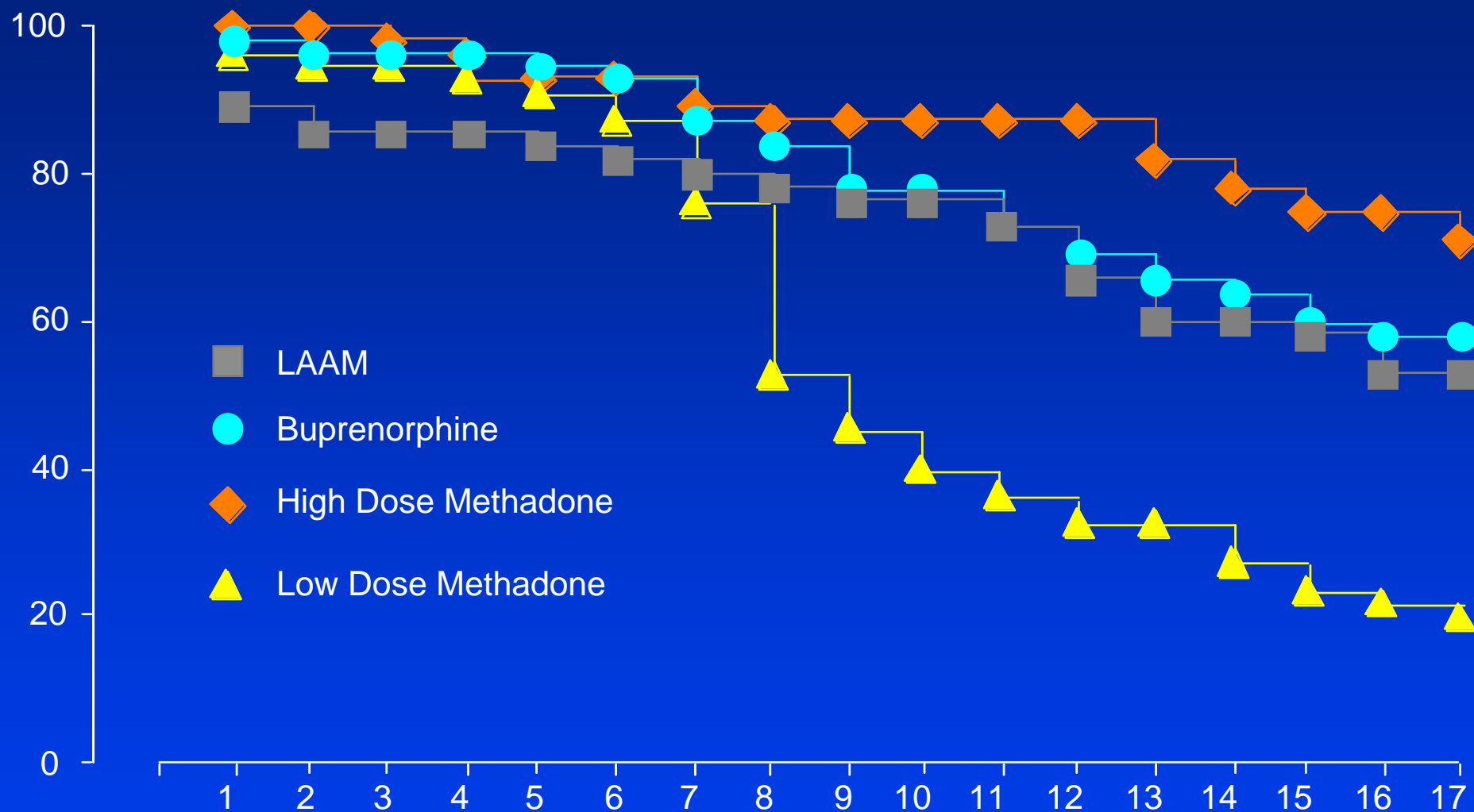
- Rare indications for use

Buprenorphine Treatment

- Buprenorphine more effective than placebo
- Buprenorphine as effective as moderate doses of methadone

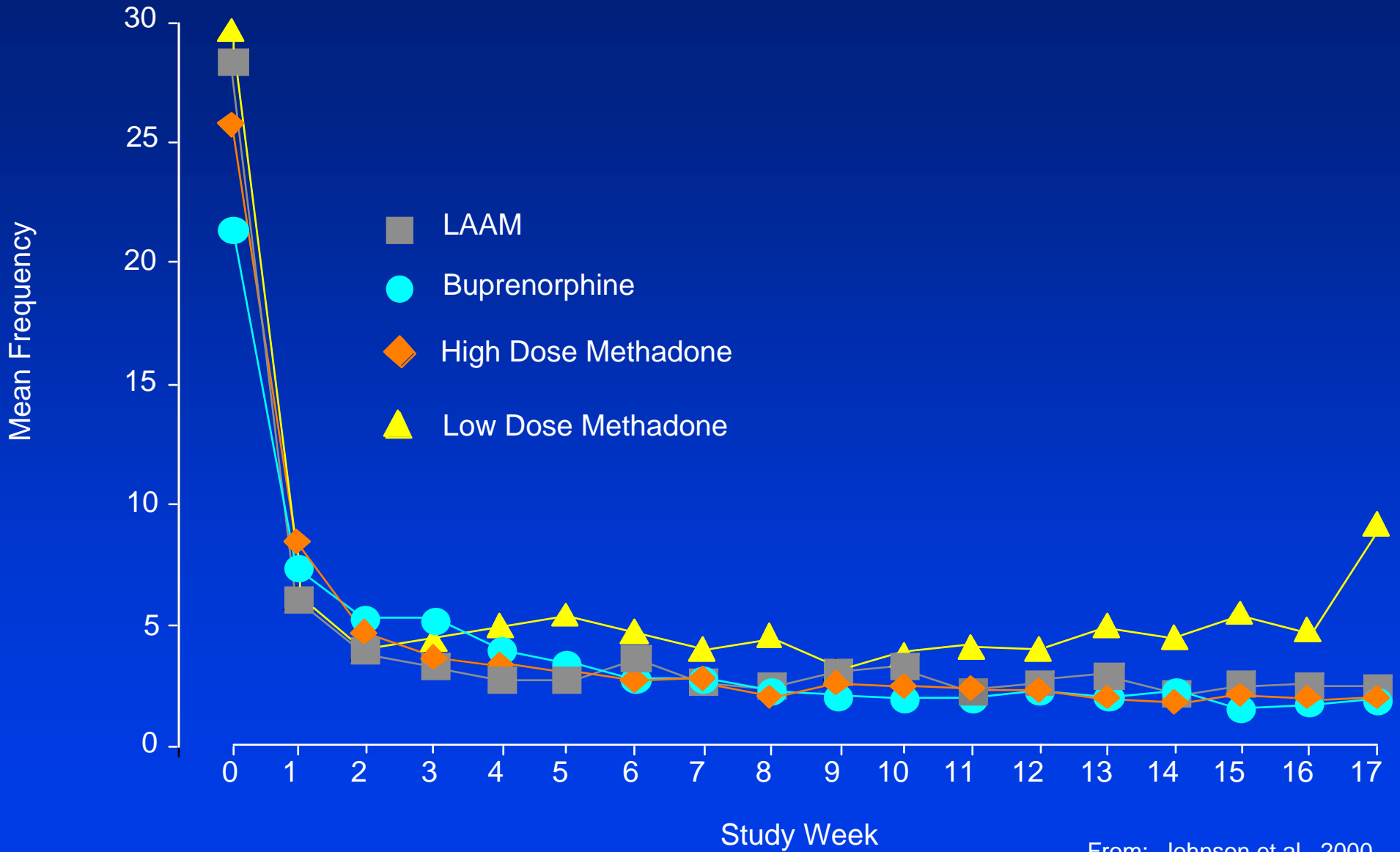
Buprenorphine & High Dose Methadone Increase Time in Treatment

Percent of Patients



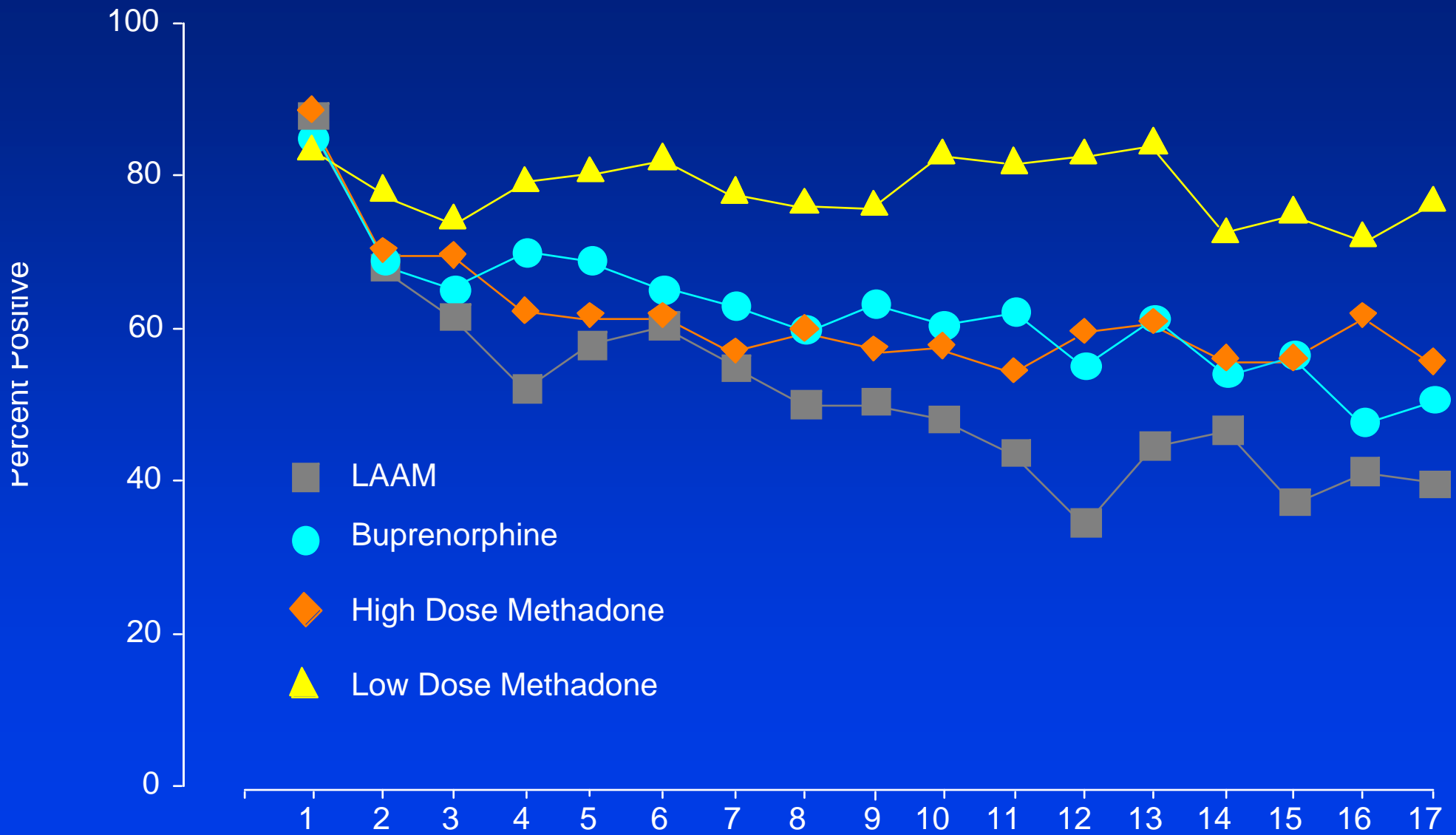
From: Johnson et al., 2000

Self-Reported Opiate Use



From: Johnson et al., 2000

Opioid Positive Urine Specimens



From: Johnson et al., 2000

No Myths About Buprenorphine (Yet)

(Schwartz et al., 2008)

- Out-of-treatment heroin addicts hold a more favorable view of buprenorphine than of methadone.
- Some believe its easier to “get off” buprenorphine than methadone
- Buprenorphine may attract people to treatment who otherwise would not enter

Agonist Treatment In Criminal Justice System

- These medications can be used in probation, parole and drug courts
 - Although not uniformly available
- Highly effective at reducing drug use and criminal behavior
- Unfortunately agonist treatments often are not continued upon incarceration

Treating Heroin Addicted Inmates

- Most heroin-addicted inmates in the US do not receive opioid agonist treatment while incarcerated (Rich et al., 2005)
- Although it is widely used internationally
 - Australia, Canada, Europe, Iran and elsewhere (Dolan 2001)
- Re-addiction upon release is common
- Re-addiction may be accompanied by:
 - ✓ Increased criminal activity
 - ✓ Re-incarceration
 - ✓ Overdose death

Arrestees response to withdrawal: “Cold turkey” in Jail *

- Sought non-opioids from medical staff
- Self-injury to obtain stronger medications
- Faked symptoms to obtain medications
- Obtained drugs or meds from cell-mates

* Mitchell et al., (2009)

“I mean, I went through the detox from the methadone and it was horrible. I was so sick. The only thing they gave me at jail was Clonidines and something else . . . for my stomach, because I kept vomiting so much. And I never want to go on that (methadone) again because that, I was, I literally wanted to die because of how much pain I was in.”

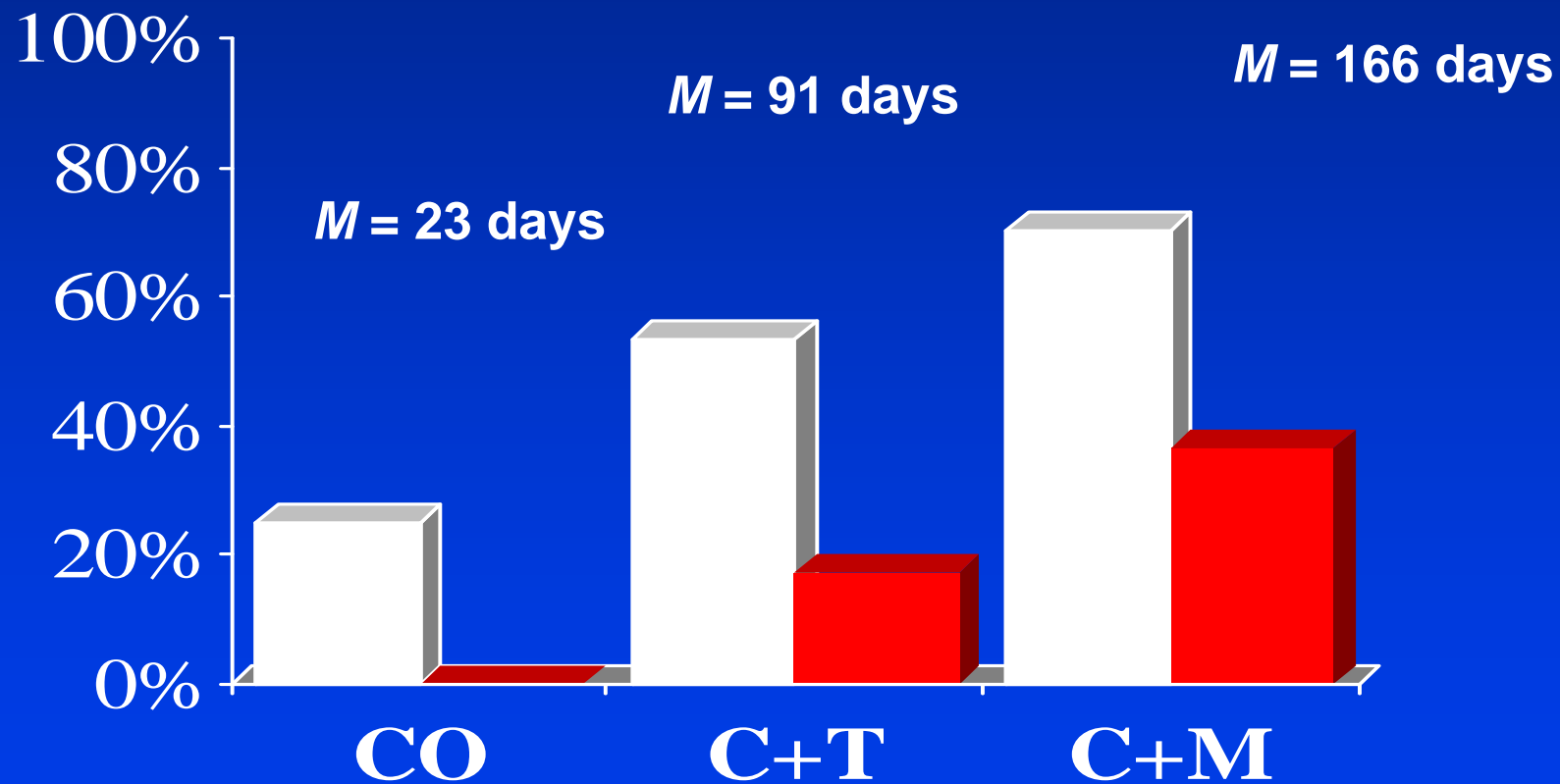
Agonist Treatment in Jails

Uses of Agonist Treatment

- Detoxification from heroin (if desired/indicated)
- Initiate opioid agonist treatment (which can be continued upon release)
- Continue agonist treatment for arrested patients

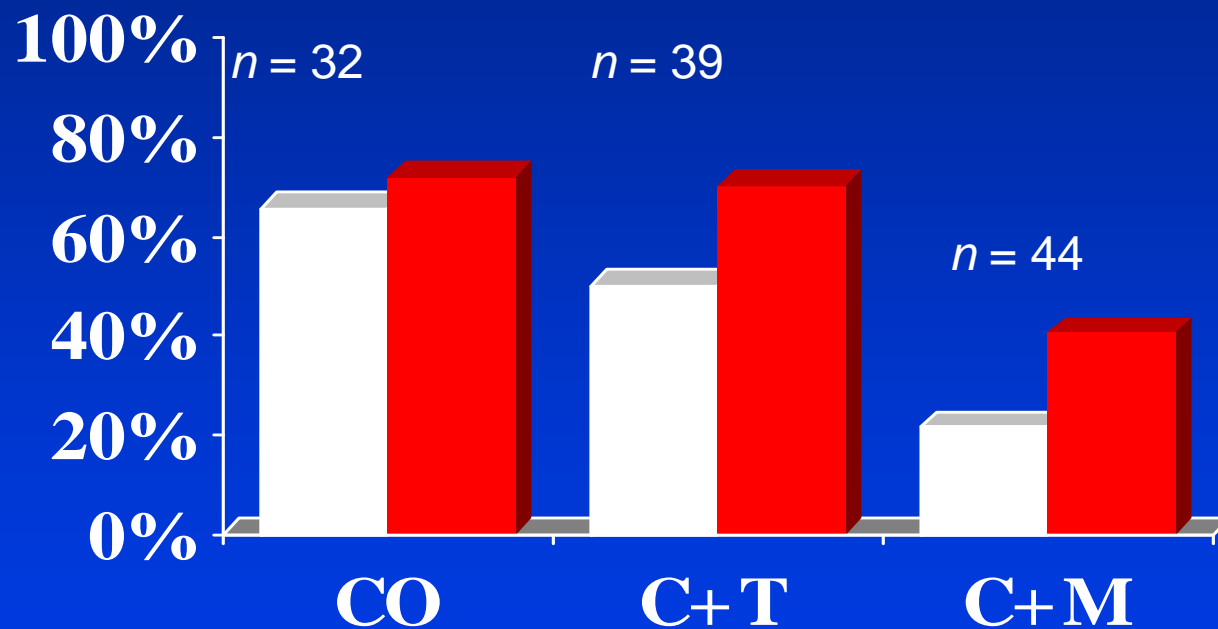
Community Treatment Status

■ Entered Community Treatment ■ Completed 1-year



Drug Testing 1-Year Post Release

■ Opioid positive* ■ Cocaine positive**



Prisons

Uses of Agonist Medications

- Initiate treatment for in-prison heroin users
- Initiate treatment for in-prison abstainers who are non-tolerant but want to prevent relapse upon release

Opioid Agonist Treatment: Summary

- Methadone and buprenorphine are FDA-approved
- Block the euphoric effects of heroin
- Both can be provided in OTPs
- Buprenorphine can be provided in physician offices & clinics
- Reduce heroin use, HIV risk and criminal behavior
- Longer treatment duration and higher dose are associated with better outcomes
- Can be provided to probationers, parolees, Drug Courts, and inmates

II. Opioid Antagonists

Opioid Antagonist Treatment

Oral Naltrexone

- Highly effective pharmacologically
- Hampered by poor patient adherence
- Useful for highly motivated patients

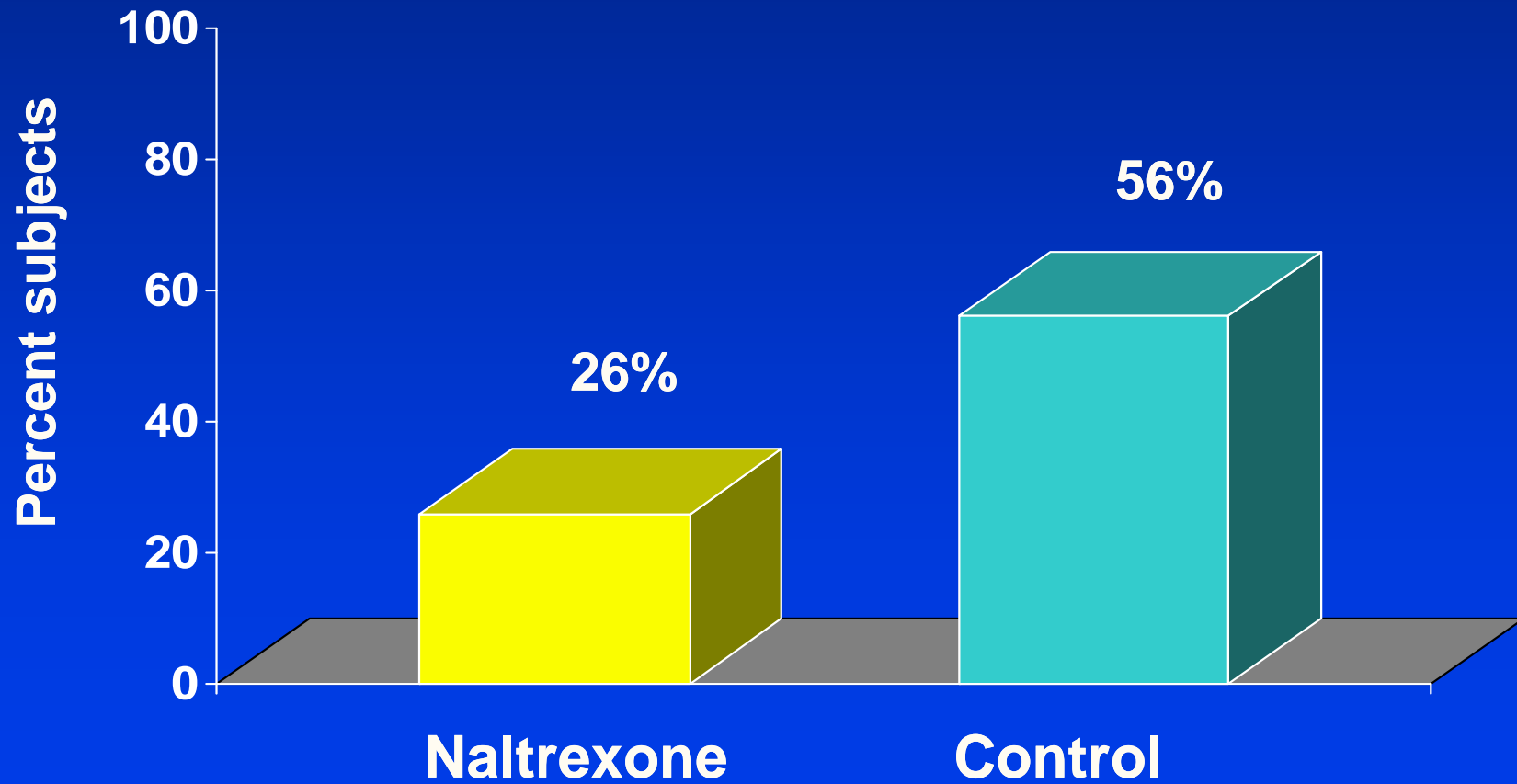
Depot IM formulation (Vivitrol ®)

- FDA-approved only for alcohol dependence
- Under study for opioid dependence
- Opioid blockade last about 30 days

Randomized Trial with Federal Probationers:
% Drug Tests Positive at 6 month follow-up
(Cornish et al., 1997)

<u>Drug</u>	Oral Nltx (N=34)	Control (N=17)
<i>Opioid</i>	8%	30%
Cocaine	33%	49%
Alcohol	2%	4%

Re-Incarceration at 6 months (Cornish et al., 1997)



Depot Naltrexone Study (O'Brien & Colleagues)

- 400 adult probationers and parolees at five sites
 - Excludes individuals wanting opioid agonist treatment
- Counseling available to all participants
- Random assignment: Naltrexone v. No medication
- Medication for six months
- 12 & 18-month follow-up: drug use & arrest

Summary

- Opioid antagonists are effective when taken but have poor adherence
- Depot naltrexone (if approved by the FDA for opioid dependence) may become an alternative for select patients who do not want opioid agonists
- Opioid agonists and antagonists are underutilized in both community and criminal justice settings