NDCI
NATIONAL DRUG COURT INSTITUTE

Using Medication Assisted Treatment in Treatment Courts

Developed by:
National Drug Court Institute

OBJECTIVES

1. Learn the biological basis for addiction and substance use disorders.
2. Know the medications currently FDA-approved for the treatment of Opioid Use Disorders.
3. Learn the key indications and contraindications for medications used to treat Opioid Use Disorders.
4. Recognize how physicians decide on treatment changes and reduce the risk of diversion.

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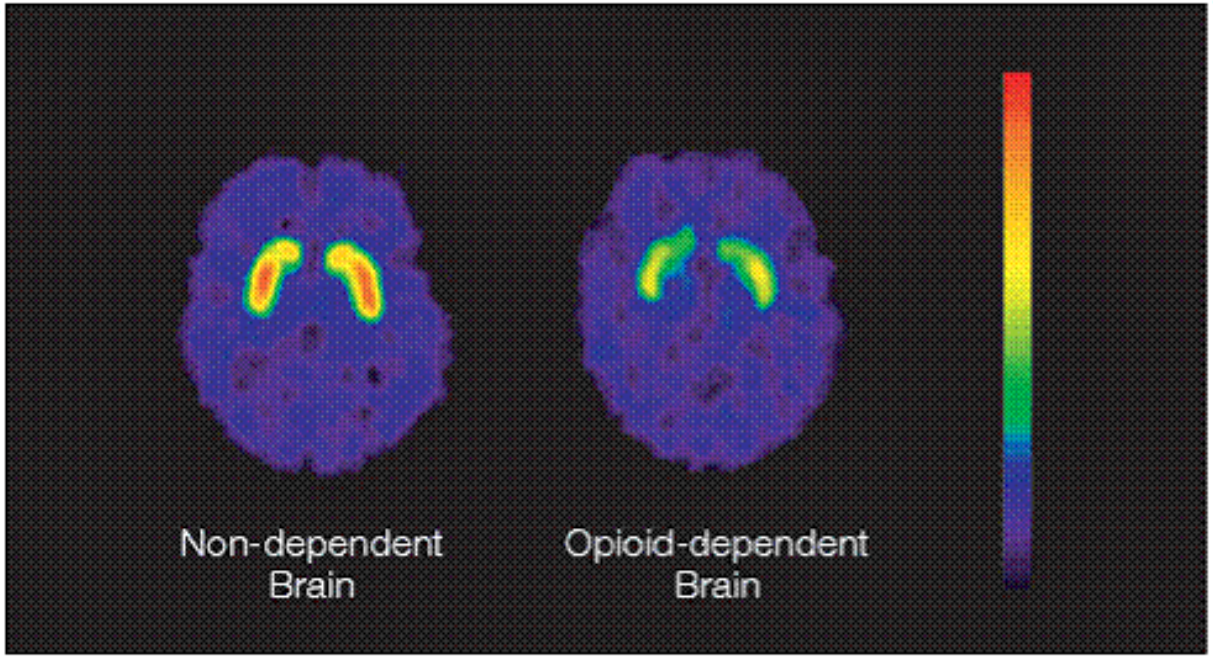
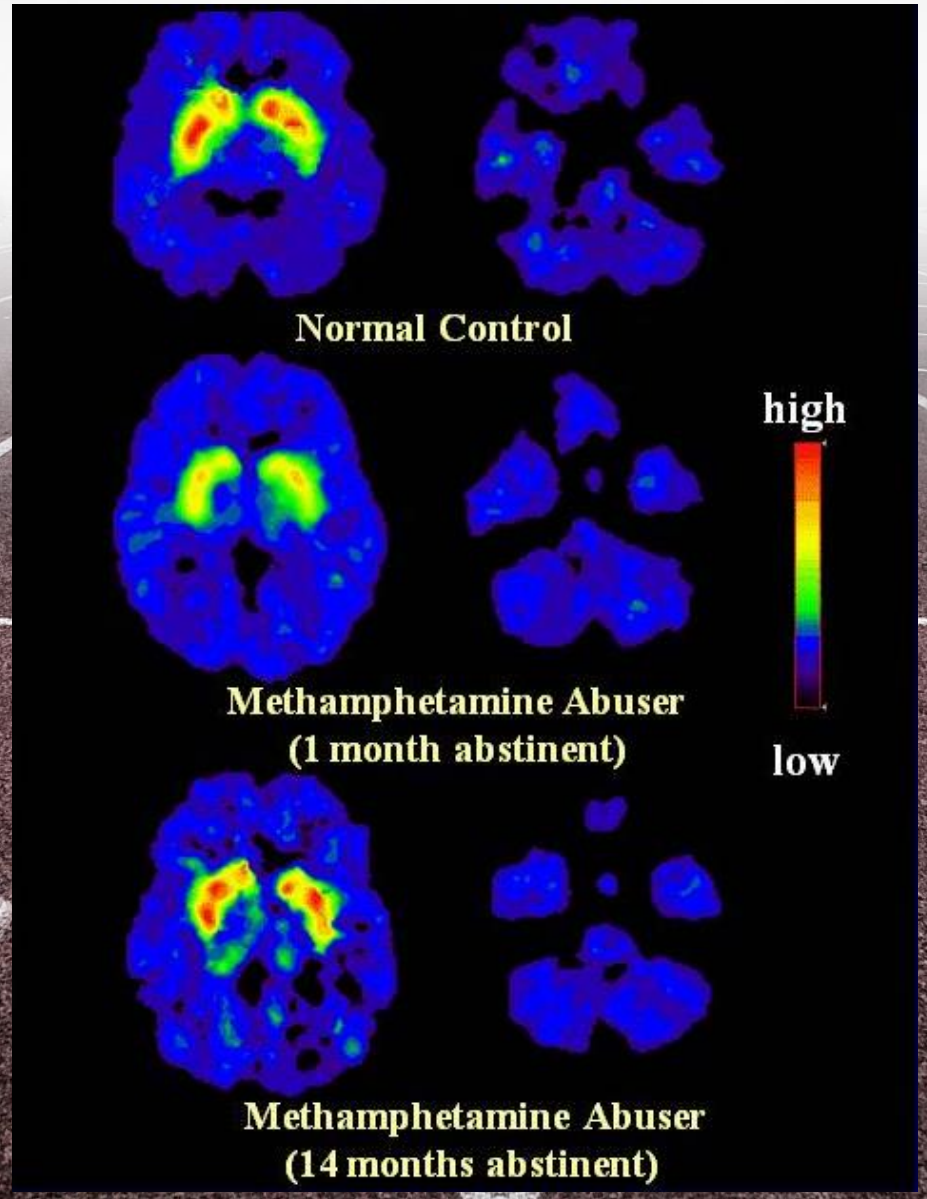
This is Your Brain on Drugs

Non–Opioid-Dependent and Opioid-Dependent Brain Images

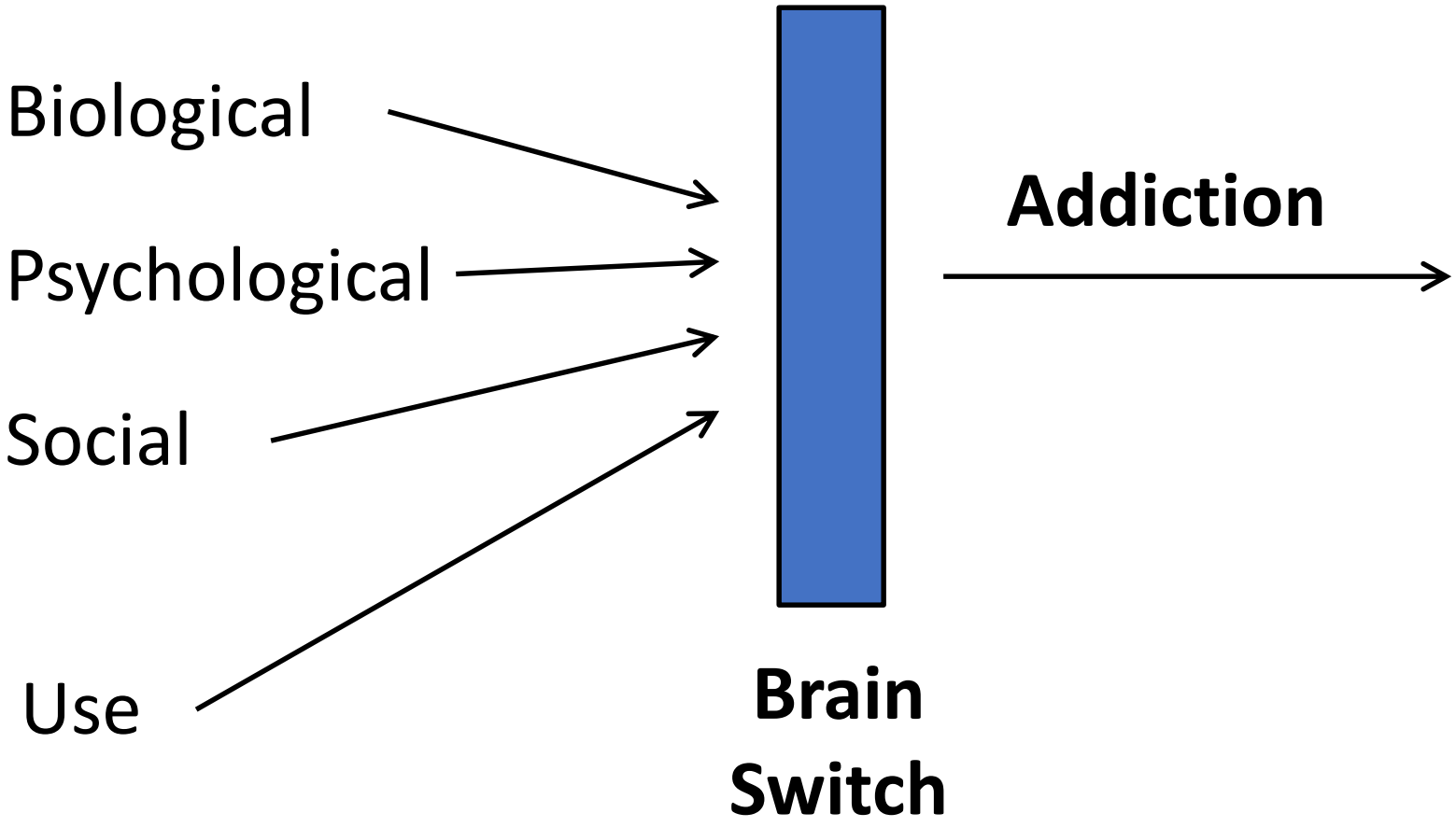


PET scan images show changes in brain function caused by opioid dependence. The lack of red in the opioid-dependent brain shows a reduction in brain function in these regions.

This is Your Brain on Drugs



A Biopsychosocial Illness



Olsen and Levounis, *Sober Siblings*, 2008; Levounis, *Bench to Bedside: From the Science to the Practice of Addiction Medicine, J Med Toxic*ol, 2016.

The Root Cause of the Disaster

ADDICTION RARE IN PATIENTS TREATED WITH NARCOTICS

To the Editor: Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients[1] who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients,[2] Percodan in one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

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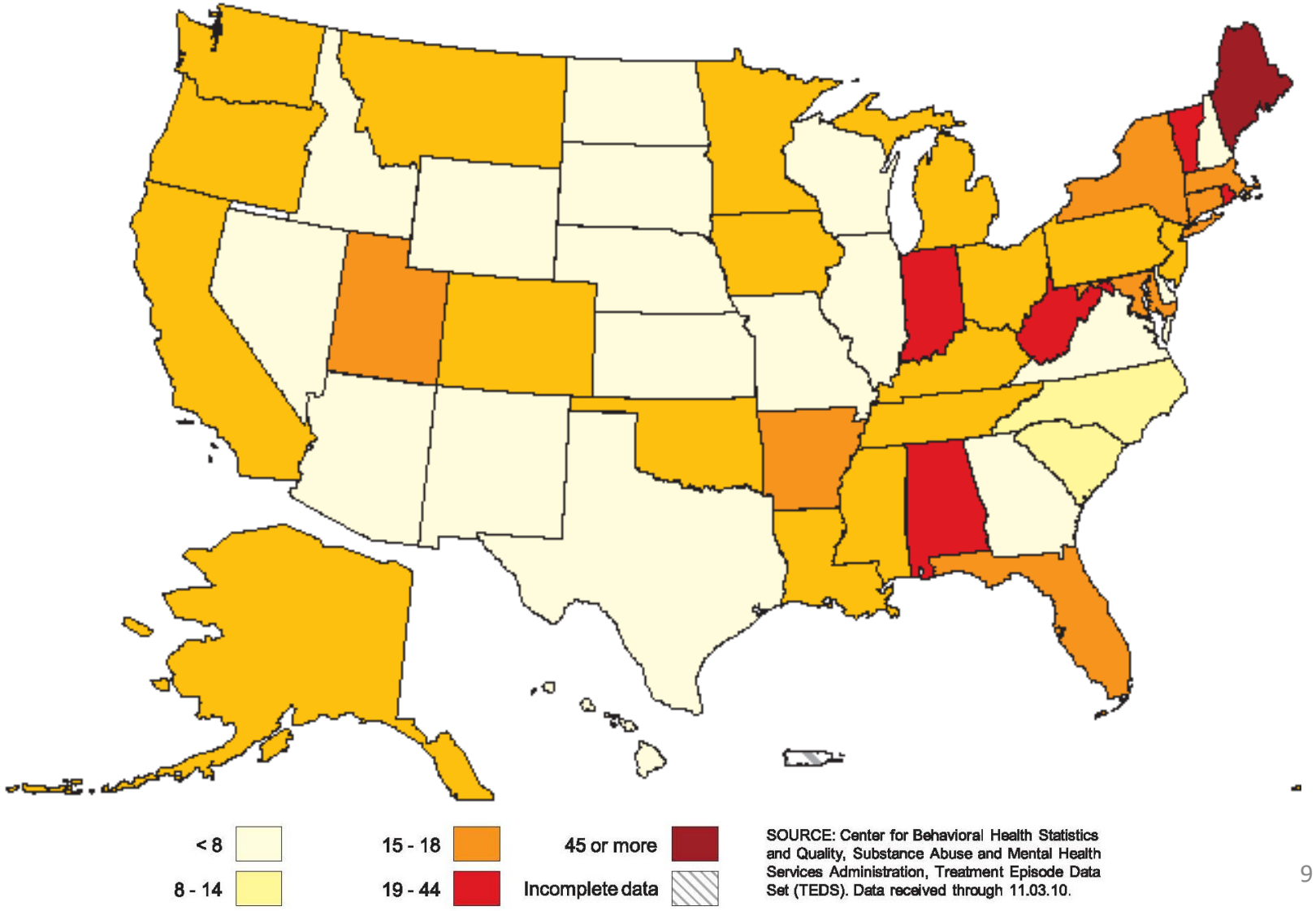
1. Jick H, Miettinen OS, Shapiro S, Lewis GP, Siskind Y, Slone D. Comprehensive drug surveillance. JAMA. 1970; 213:1455-60.
2. Miller RR, Jick H. Clinical effects of meperidine in hospitalized medical patients. J Clin Pharmacol. 1978; 18:180-8.

Porter and Jick, *N Engl J Med*, January 10, 1980.

The False Promise

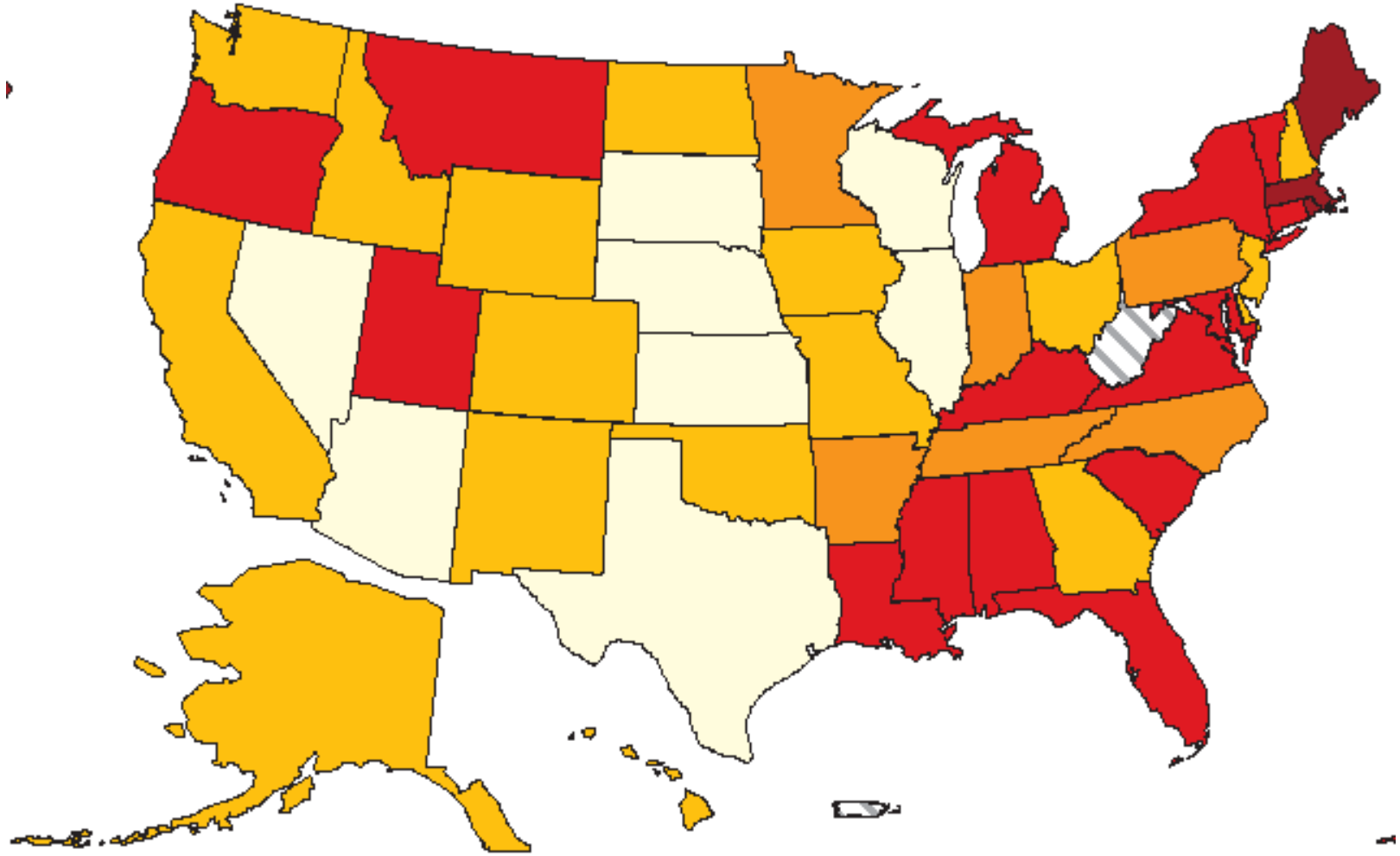
Admissions: 1999

Primary non-heroin opioid admission rates (per 100,000)



Admissions: 2001

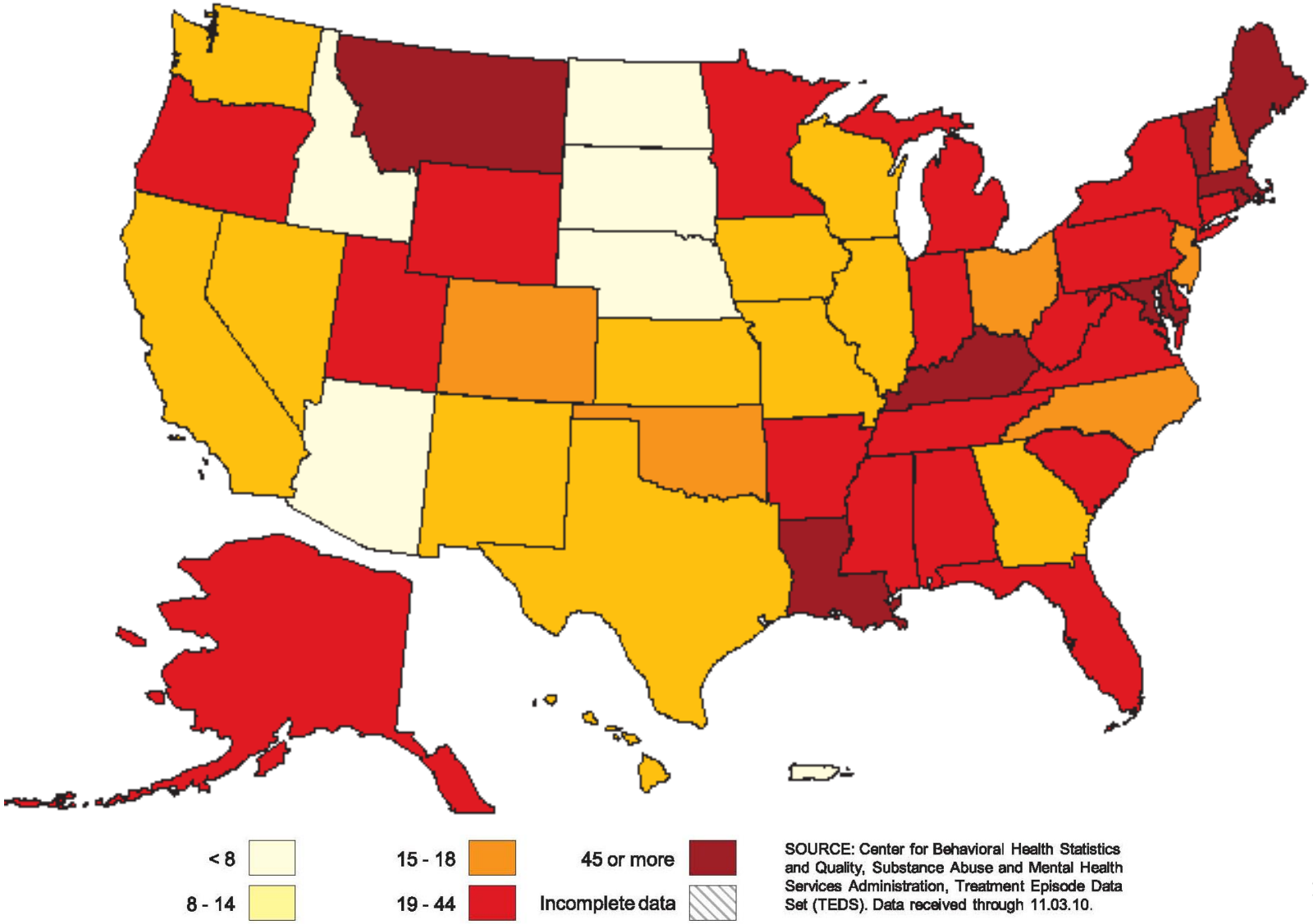
Primary non-heroin opioid admission rates (per 100,000)



SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

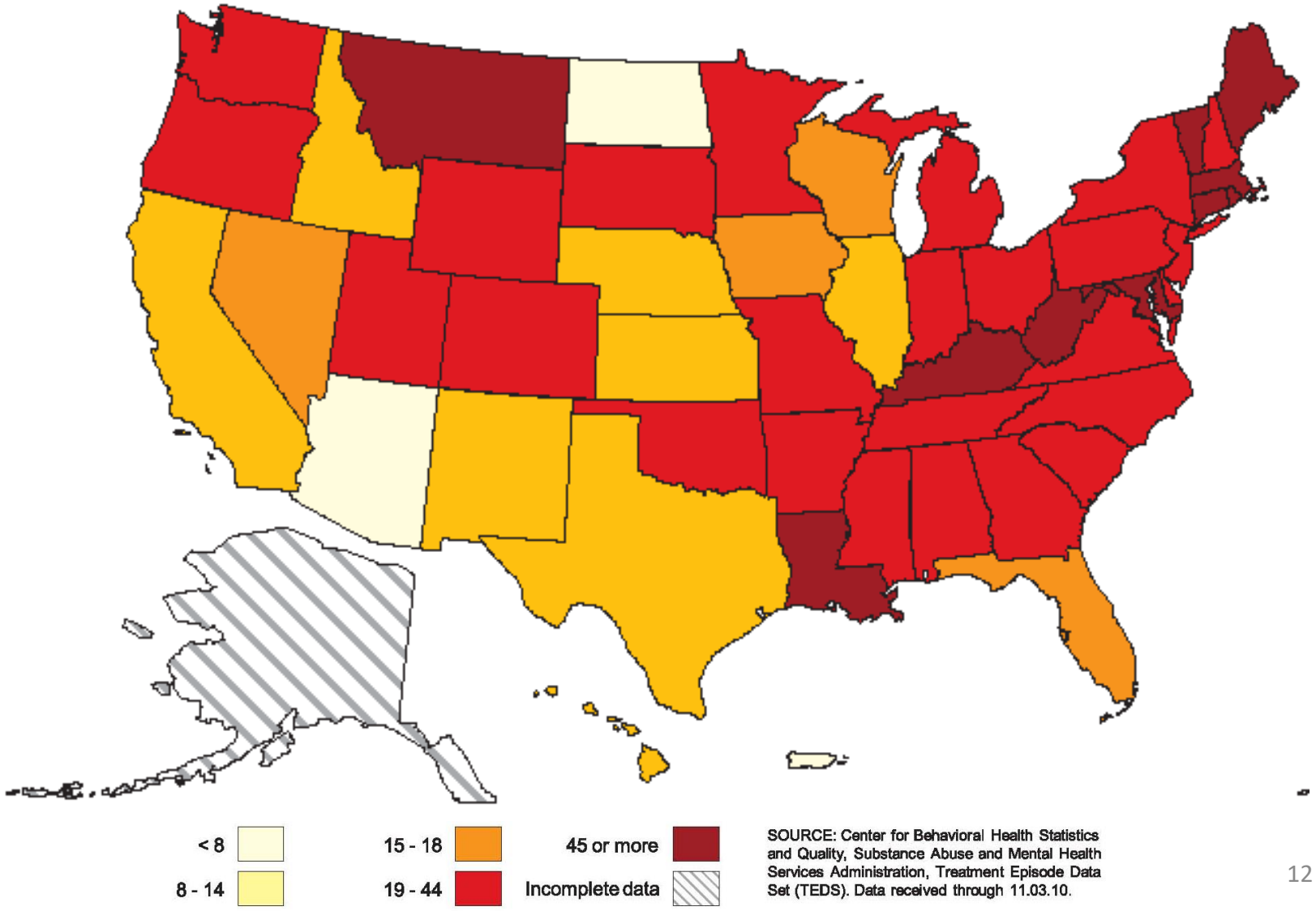
Admissions: 2003

Primary non-heroin opioid admission rates (per 100,000)



Admissions: 2005

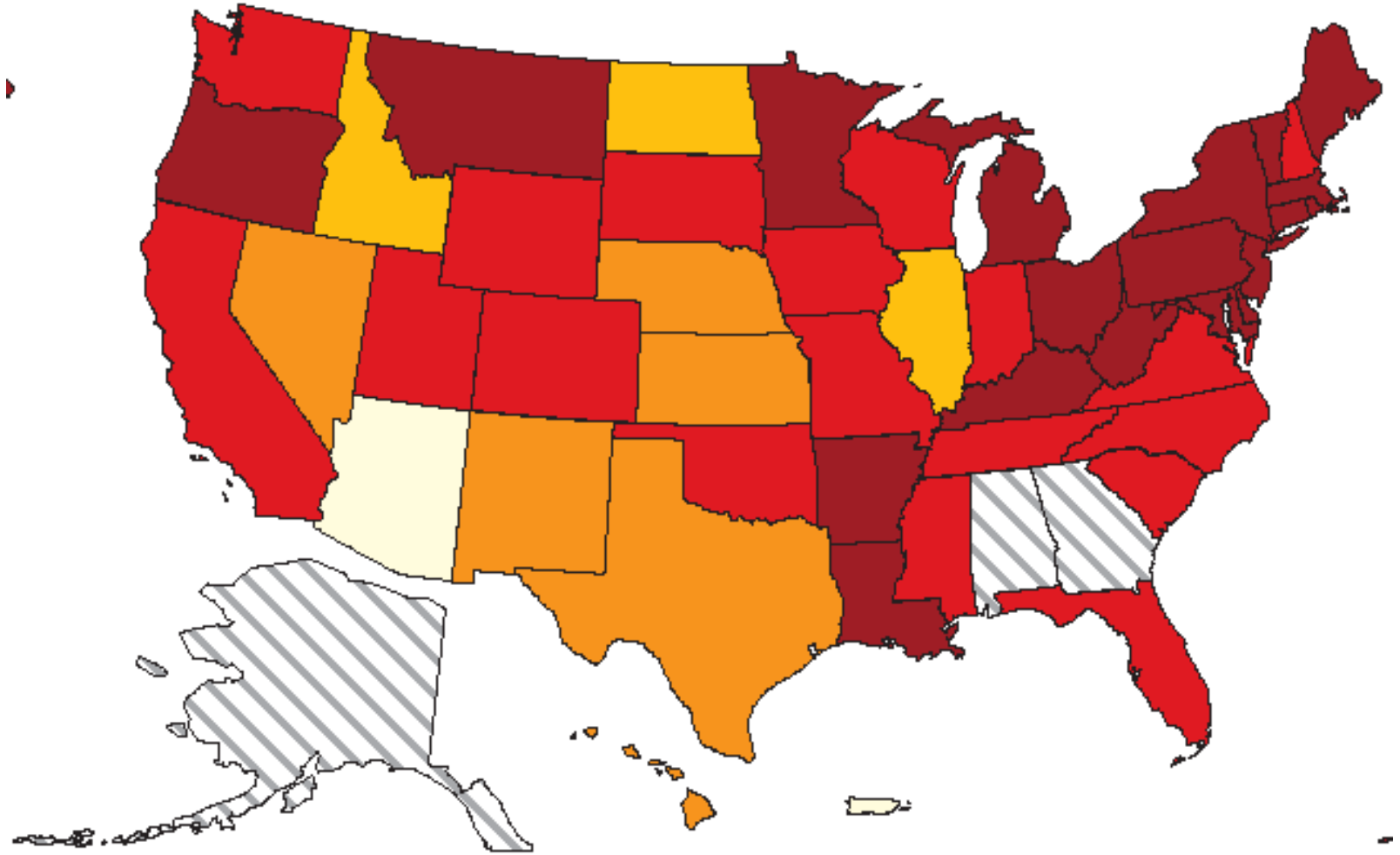
Primary non-heroin opioid admission rates (per 100,000)



SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

Admissions: 2007

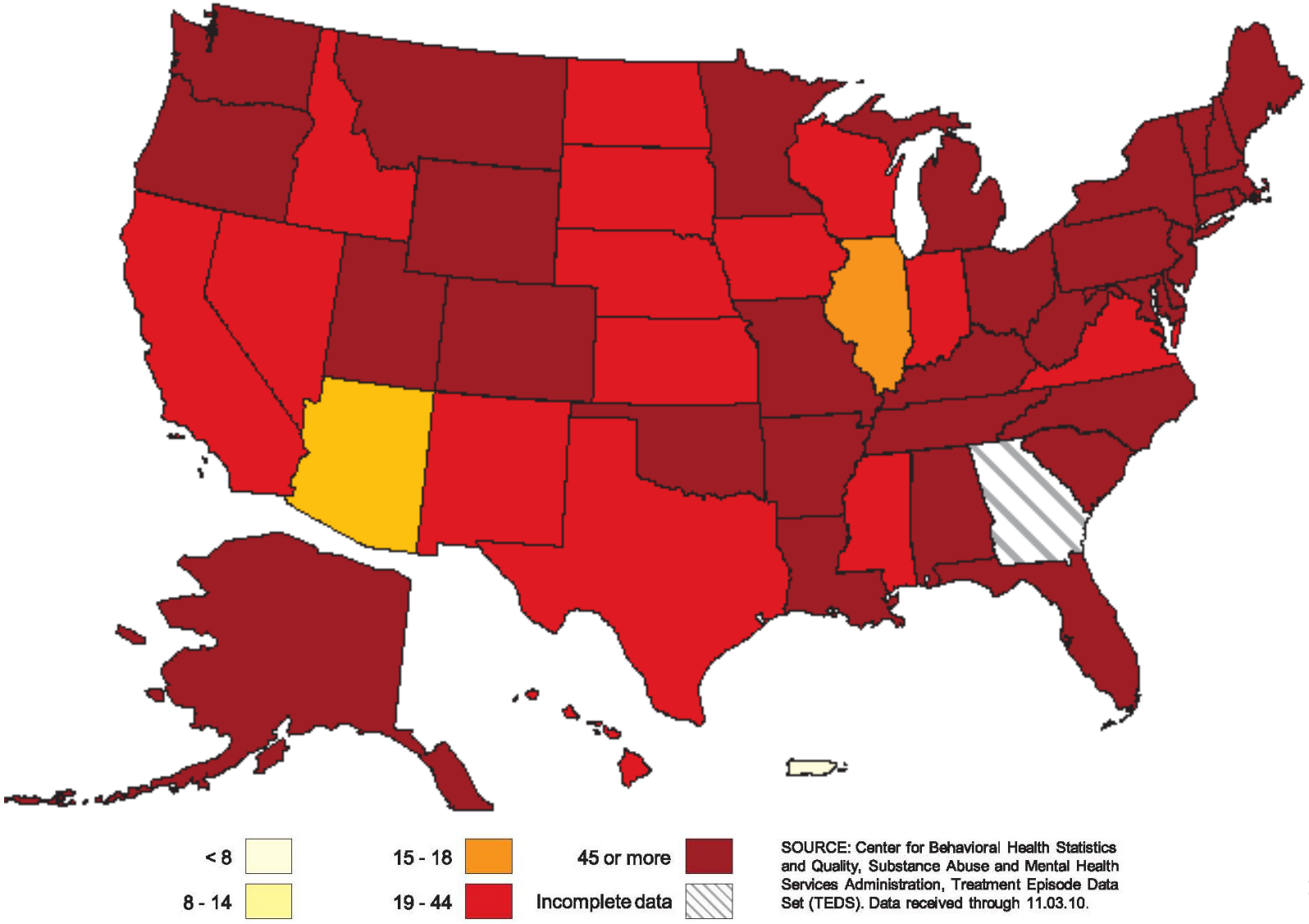
Primary non-heroin opioid admission rates (per 100,000)



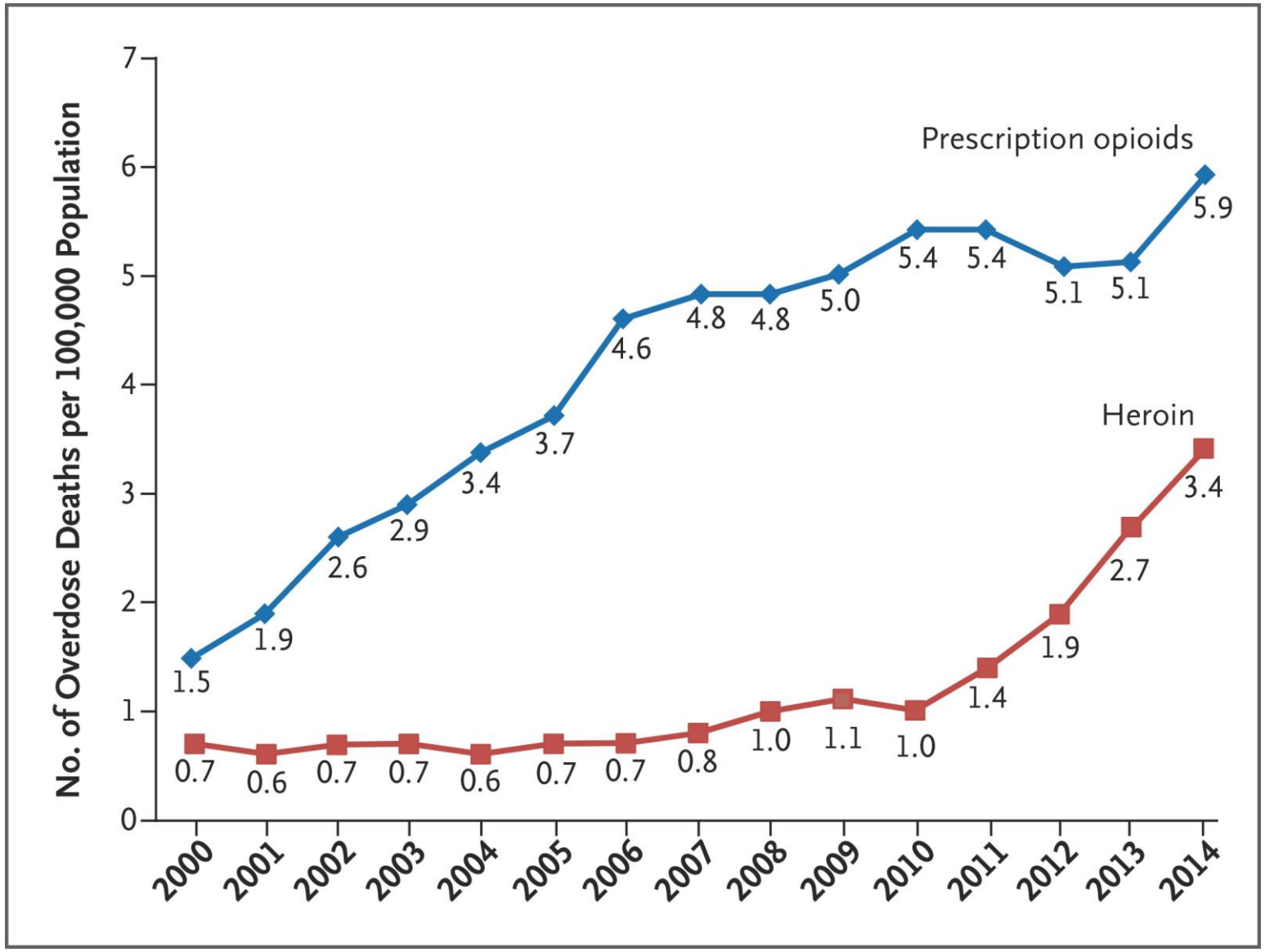
SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

Admissions: 2009

Primary non-heroin opioid admission rates (per 100,000)

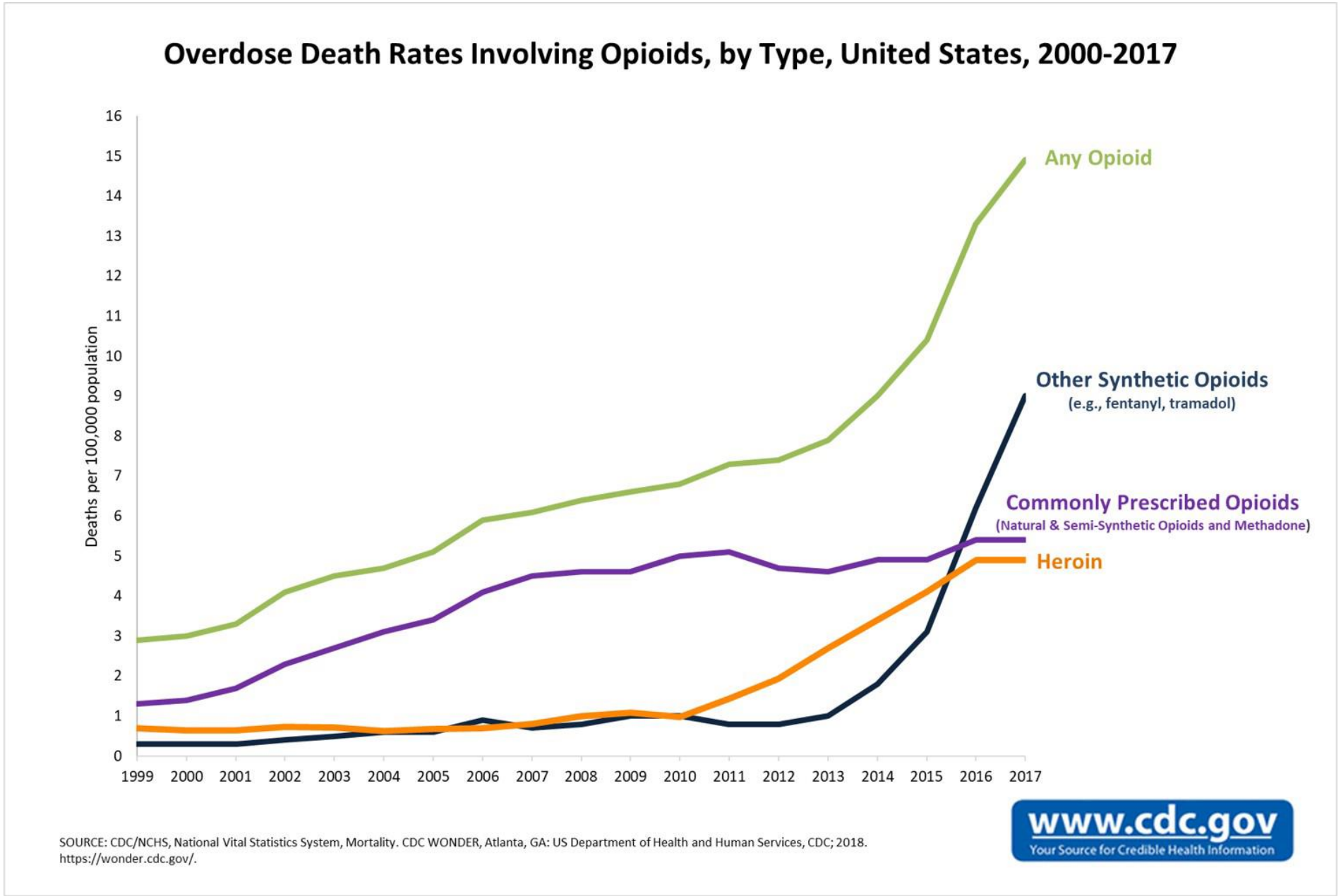


From Pills to Heroin

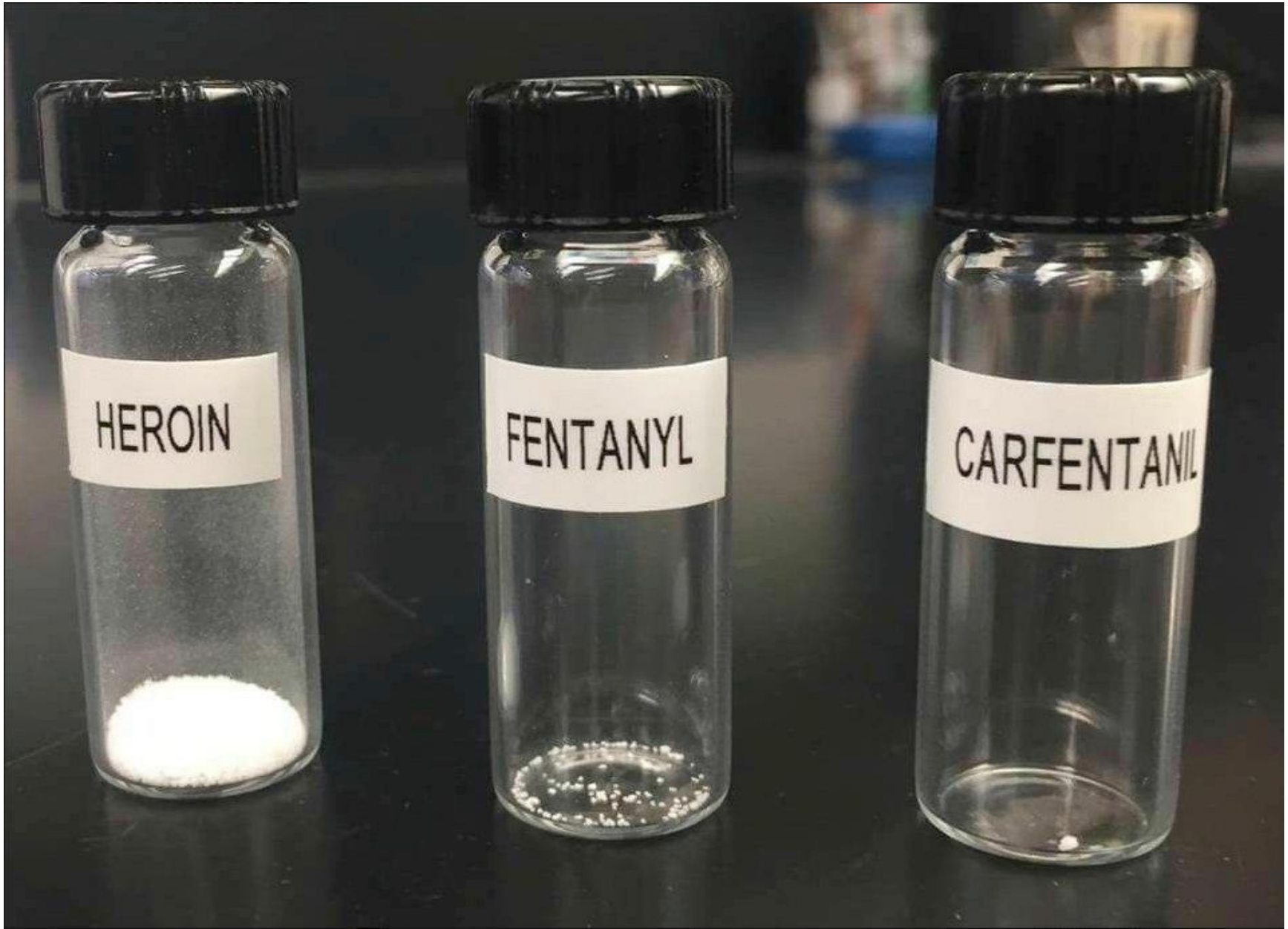


Compton, *New England Journal of Medicine*, 2016.

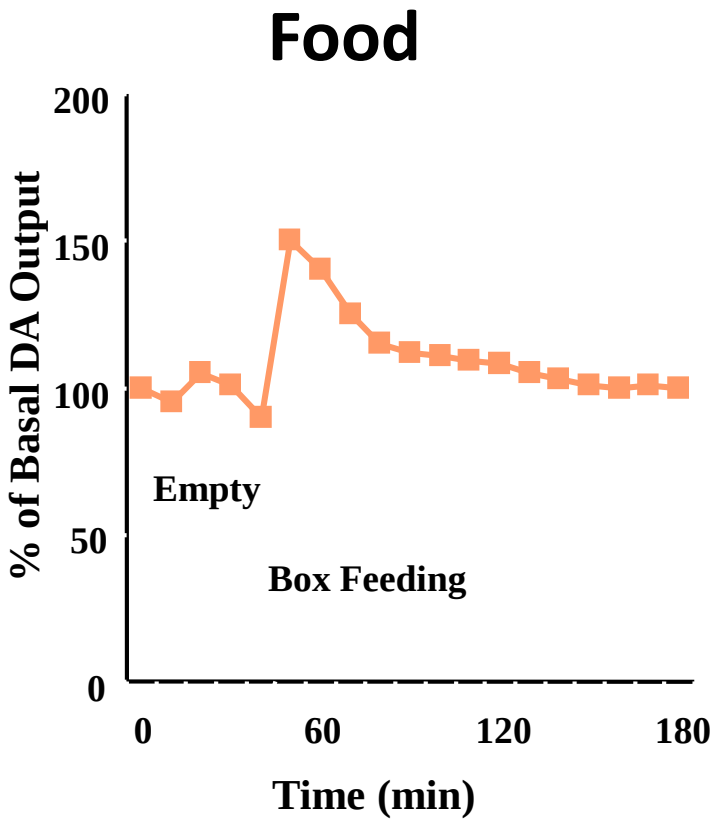
From Heroin to Fentanyl

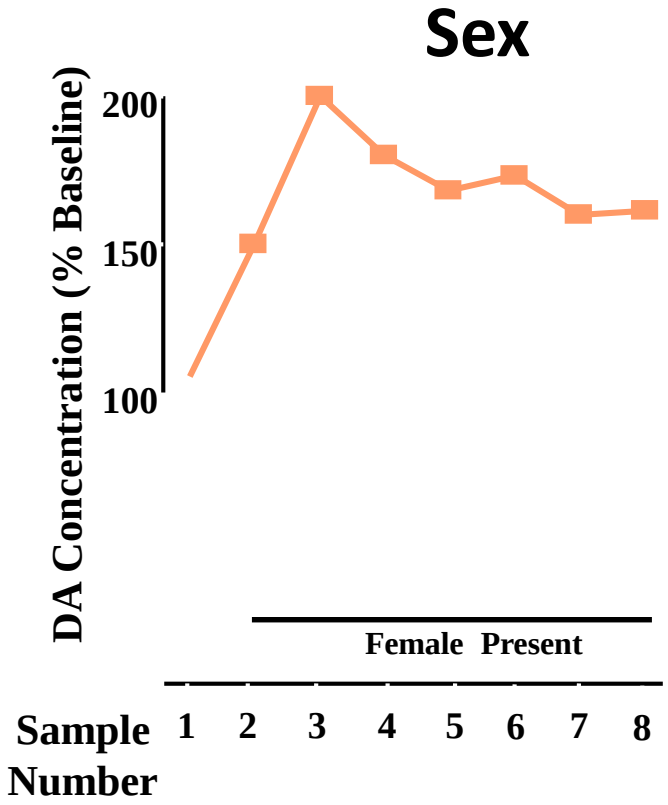


From Fentanyl to Carfentanil



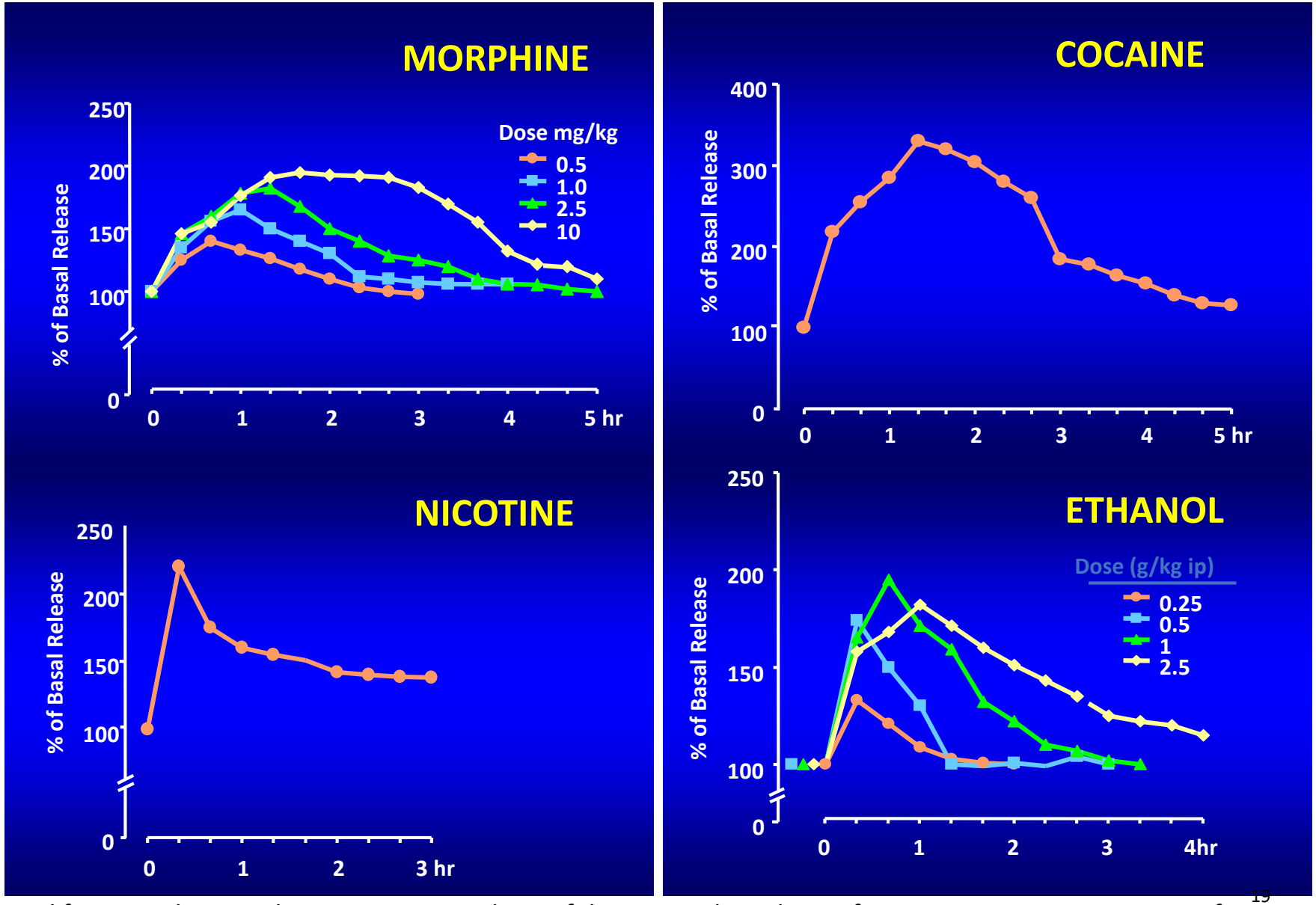
Natural Rewards





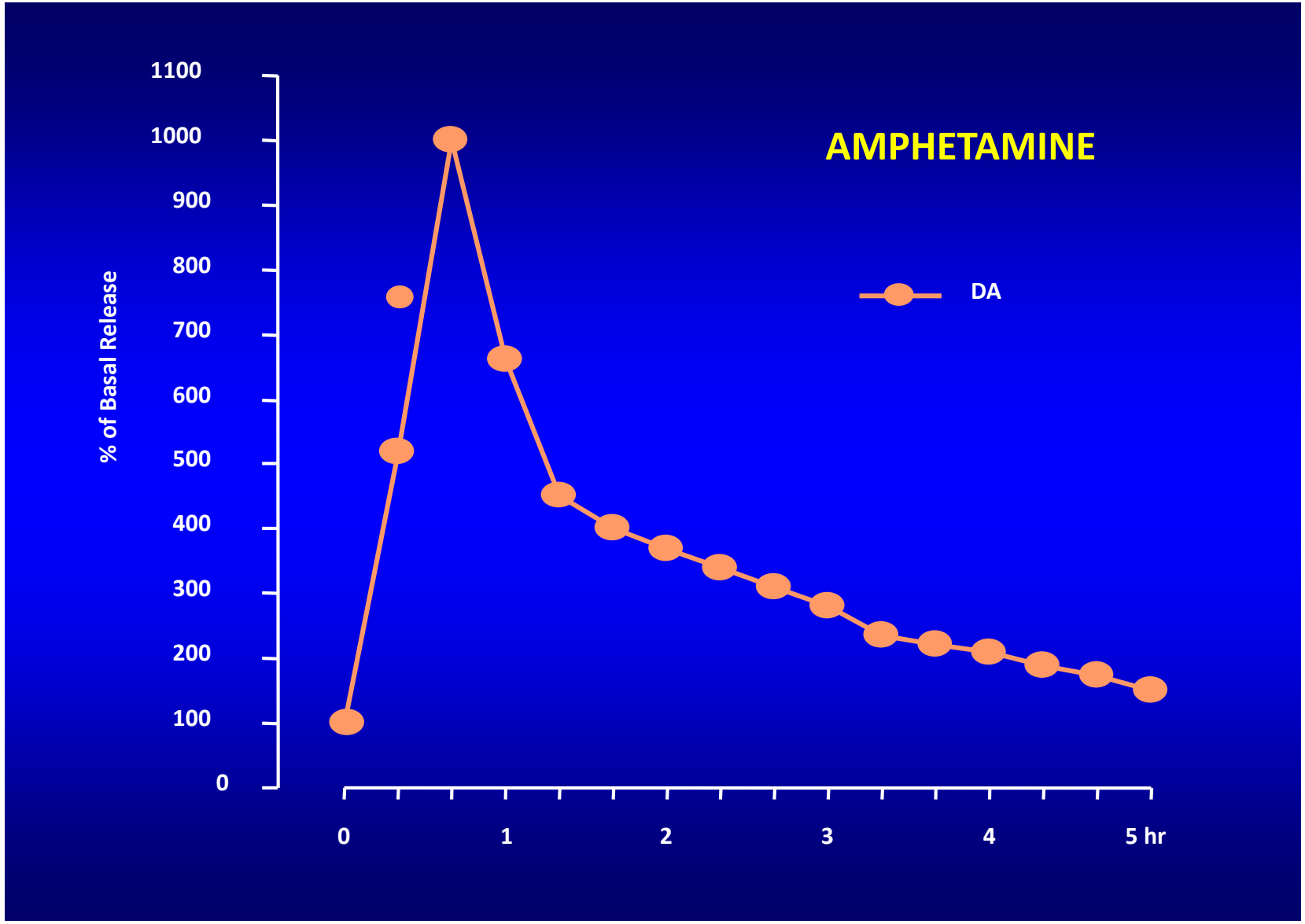
Adapted from: Di Chiara et al, *Neuroscience*, 1999
Adapted from: Fiorino and Phillips, *J Neuroscience*, 1997

Effects of Drugs on Dopamine Levels



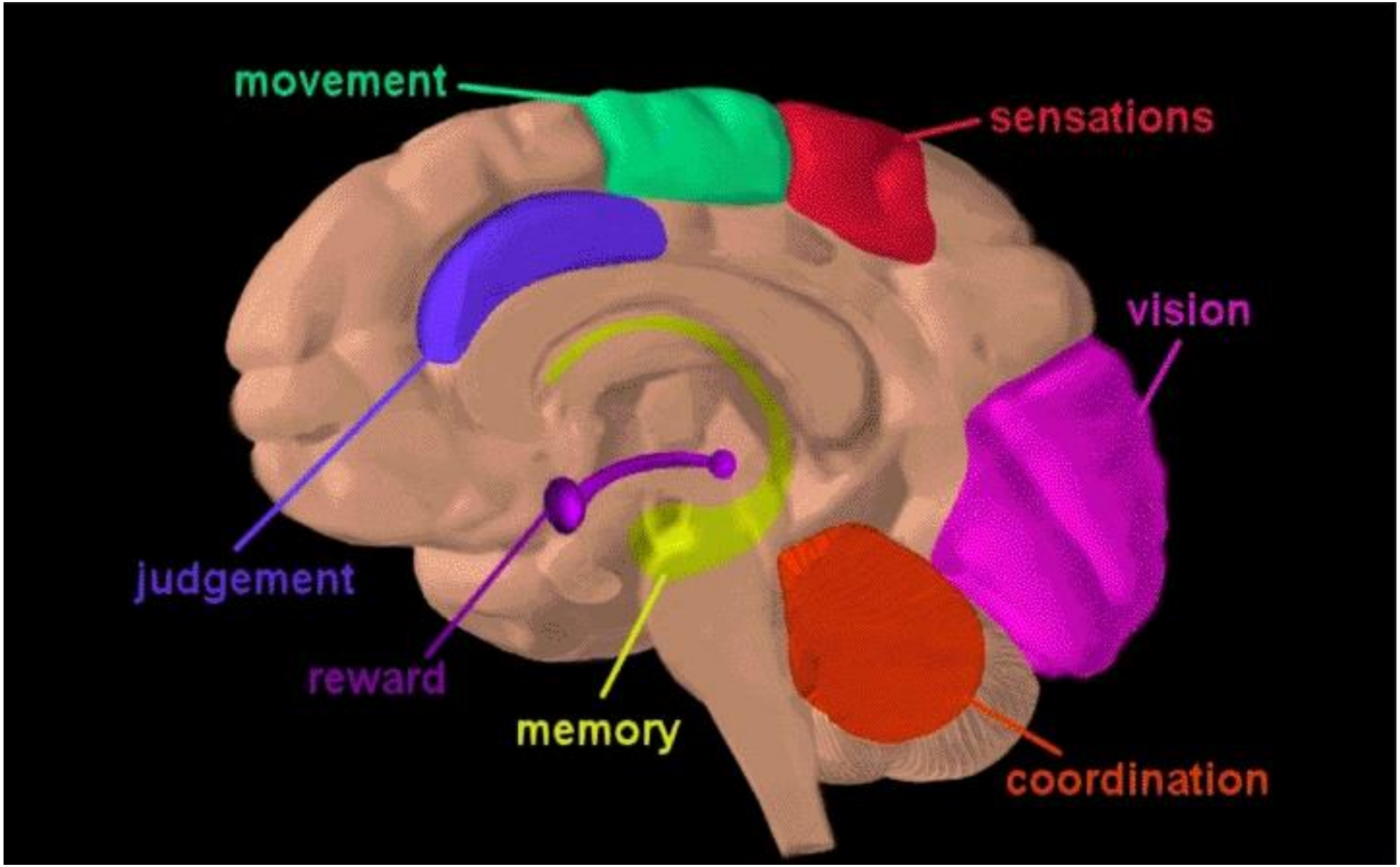
Adapted from: Di Chiara and Imperato, *Proceedings of the National Academy of Sciences USA*, 1988; courtesy of Nora D Volkow, MD

Effects of Amphetamines on Dopamine Levels



Adapted from: Di Chiara and Imperato, *Proceedings of the National Academy of Sciences USA*, 1988; courtesy of Nora D Volkow, MD.[20]

Pleasure-Reward Pathways



National Institute on Drug Abuse, www.nida.nih.gov.

The person must have at least two of the following for a given substance within the same 12-month period:

- Drinking or using a drug in an amount that is greater than the person originally sets out to consume (or using over a longer period of time on a given occasion).
- Worrying about cutting down or stopping; or unsuccessful efforts to control use.
- Spending a large amount of time using a substance, recovering from it, or doing whatever is needed to obtain it.
- Common use of a substance resulting in (1) failure to take care of things at home, work, school (or to fulfill other obligations); and/or (2) giving up once-enjoyed recreational activities or hobbies.
- Craving, a strong desire to use alcohol or another substance.
- Continuing the use of a substance despite problems caused or worsened by it — (1) in areas of mental (e.g., blackouts, anxiety) or physical health; or (2) in relationships (e.g., using a substance despite people's objections or it causing fights or arguments).
- Recurrent alcohol/substance use in a dangerous situation (such as driving or operating machinery).
- Building up "tolerance" as defined by either needing to use noticeably larger amounts over time to get the desired effect or noticing less of an effect over time after repeated use of the same amount.
- Experiencing withdrawal symptoms (e.g., anxiety, irritability, fatigue, nausea/vomiting, hand tremor or seizure in the case of alcohol) after stopping use.

THE PERSON MUST HAVE AT LEAST TWO OF THE FOLLOWING FOR A GIVEN SUBSTANCE WITHIN THE SAME 12-MONTH PERIOD:

PHYSIOLOGY

- **Tolerance**
- **Withdrawal**

THE CORE PROBLEM OF SUBSTANCE USE

- **Knowledge** of adverse consequences, yet continued use

INTERNAL PREOCCUPATION

- **Desire** to cut down
- **Time**—a great deal of time—spent using
- **Larger** amounts or longer periods of use than intended
- **Craving**

EXTERNAL CONSEQUENCES

- **Activities** given up
- **Role** obligations neglected
- **Social** or interpersonal problems
- **Hazardous** use

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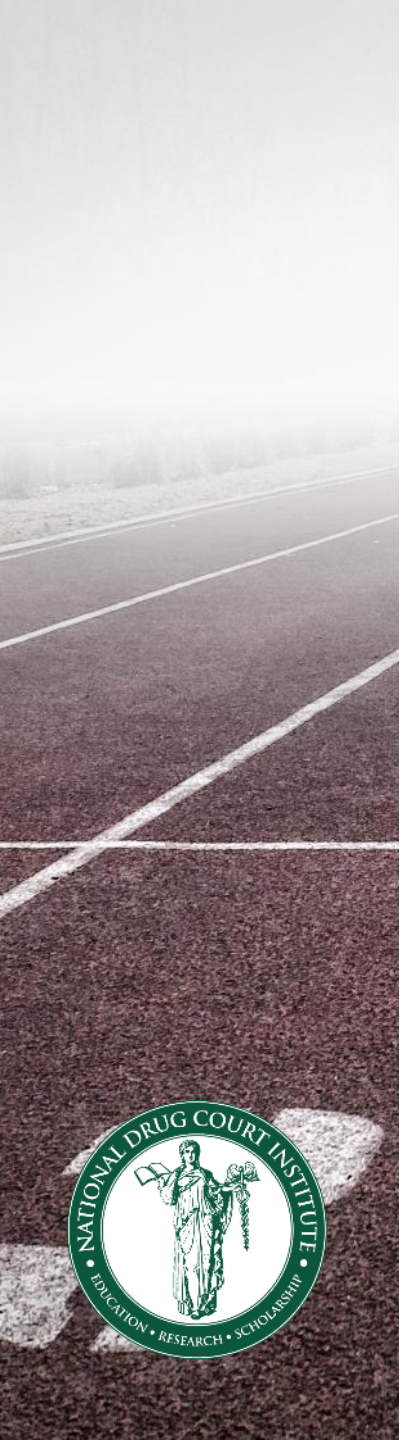
Medication Treatment Strategies for SUD

- Agonist (replacement/substitution)
- Antagonist (blockade)
- Partial Agonists



Addictions for which we have FDA-approved medications

Opioids

Alcohol

Tobacco

Addictions for which we do not have FDA-approved medications

Cocaine

Methamphetamine

Cannabis

Inhalants

Hallucinogens

Behavioral Addictions

Medications for Opioid Use Disorder

Methadone

Buprenorphine

Naltrexone

Psychotherapy Approaches to Addiction

- Motivational Interviewing
- Cognitive-Behavioral Therapy
- Family Structural Therapy
- Contingency Management Strategies
- Mindfulness Therapy

Narcotic Anonymous

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Maintenance Therapy with Methadone

Benefits

- Lifestyle stabilization
- Improved health and nutritional status
- Decrease in criminal behavior
- Employment
- Decrease in injection drug use/shared needles

Downsides:

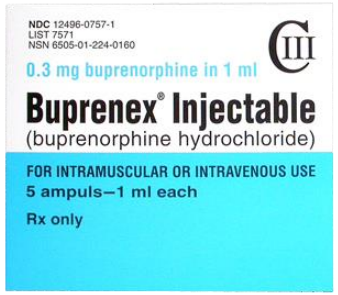
- Overdose possible
- Oversedation possible
- Withdrawal
- EKG Changes
- Diversion
- Meaning of maintenance treatment

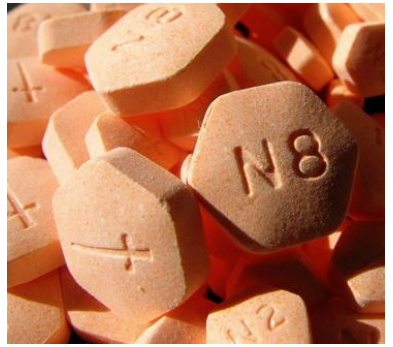
CSAT, 2005

Maintenance Therapy with Buprenorphine

Buprenorphine/Naloxone *(Suboxone)*

- ✔ Partial, long acting mu agonist
- ✔ Duration of action: 24-36 hours
- ✔ Dose: range from 8-24 mg sublingually
- ✔ (New formulations, dosing is slightly different)





Strain et al., 1999

Maintenance Therapy with Buprenorphine

Benefits

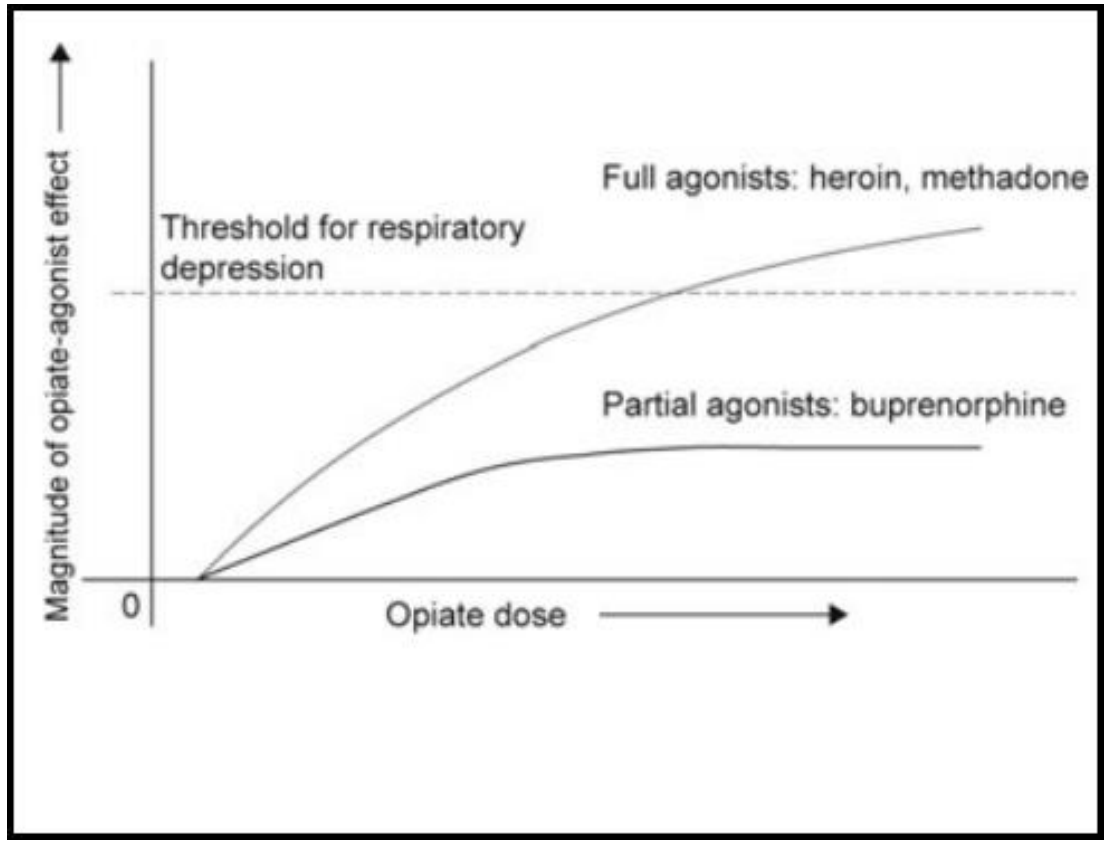
- Lifestyle stabilization
- Can be provided in a doctor's office by someone licensed to prescribe it
- Available by prescription
- Withdrawal more easily tolerate
- One physician for patient with multiple illnesses

Downsides:

- Diversion (+/-)
- Withdrawal (but milder than methadone withdrawal)
- Meaning of maintenance treatment

CSAT, 2005

The Ceiling Effect*



Ceiling on the mu-opioid agonist effects of buprenorphine, a partial agonist, in contrast to the more linear relationship between dose and agonist effect observed with methadone

*Maremmani I, Gerra G: Buprenorphine-based regimens and methadone for the medical management of opioid dependence: selecting the appropriate drug for treatment. Am J Addict 2010;19:557-568

Opioid Dependence Therapy: Antagonist Treatment

Naltrexone

Why antagonist therapy?

- Block effects of a dose of opiate *(Walsh et al. 1996)*
- Prevent impulsive use of drug
- Relapse rates high (90%) following detoxification with not medication treatment
- Dose (oral): 50 mg daily
- Dose (intramuscular): 380 mg once a month
- Blocks agonist effects
- Side effects: hepatotoxicity, monitor liver function tests every 3 months

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Red Flags for Misuse or Diversion*

- Symptoms of intoxication or symptoms associated with heavier use *(agitation, agitation, psychosis, shortness of breath, palpitations)*
- Demands for a particular, usually fast acting, medication *(amphetamine Immediate Release)*
- "Extended-release doesn't work for me"
- Repeated lost prescriptions
- Discordant pill count *(escalation of doses)*
- Excessive preoccupation with securing medication supply
- Multiple prescribers

*Slide courtesy Frances Levin, M.D.

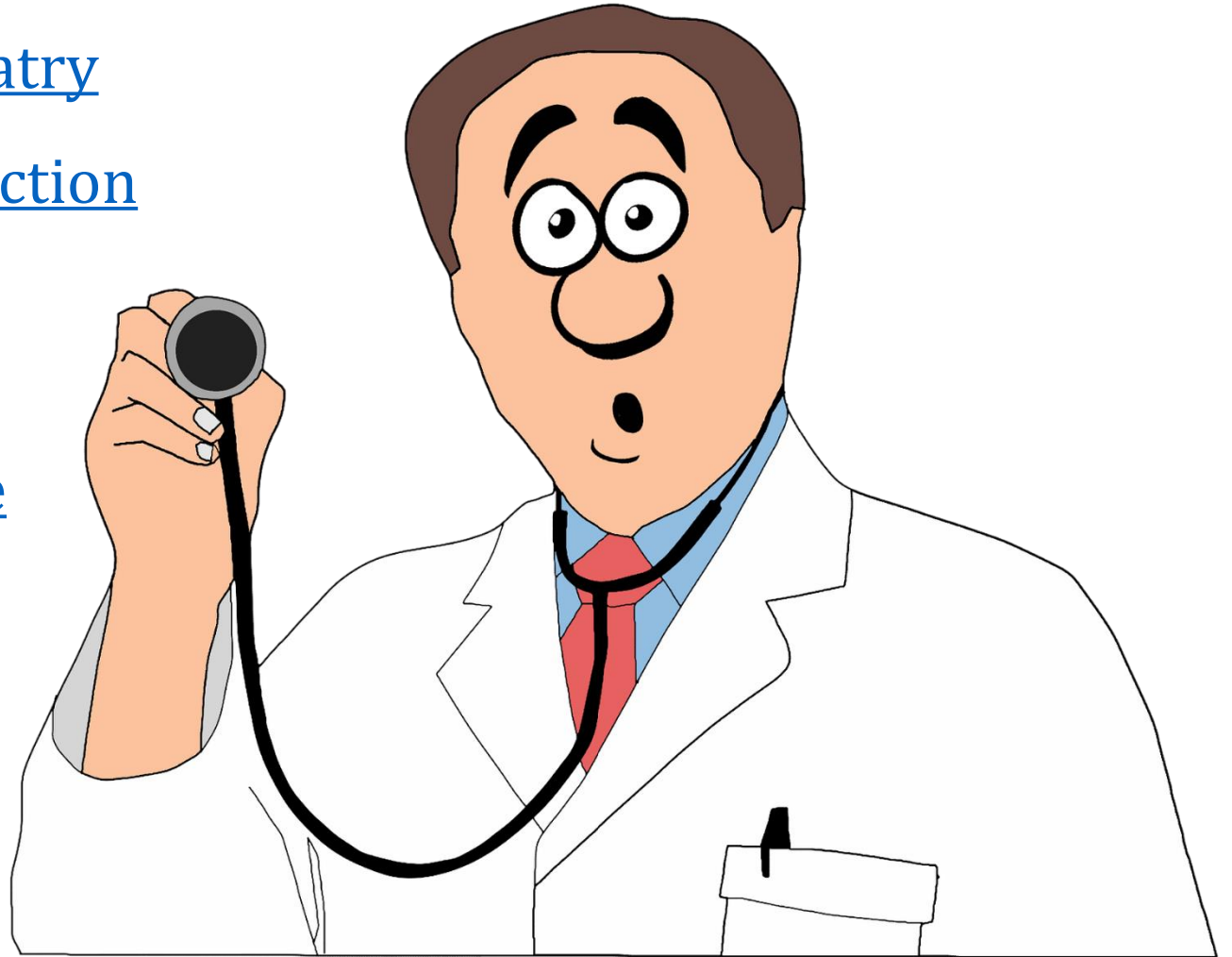
Where Can Physicians Receive Data-2000 Qualifying Training?

American Academy of Addiction Psychiatry

American Osteopathic Academy of Addiction Medicine

American Psychiatric Association

American Society of Addiction Medicine



Take Home Points

- Addiction is a biological disease.

- Three medications are FDA-approved for treatment of opioid addiction:
  - buprenorphine/naloxone (available by prescription from qualified providers),
  - methadone (must be given through a licensed narcotic treatment program), and
  - naltrexone (an opioid antagonist best for highly motivated patients).

- These medications are appropriate adjuncts and should be considered part of the “toolbox” for treating addictions.

APPENDIX

Principles of Effective Treatment
according to the National Institutes of Health (NIH)

Principles of Effective Treatment

According to National Institute of Health (NIH)

- Addiction is a complex but treatable disease that affects brain function and behavior.
- No single treatment is appropriate for everyone.
- Treatment needs to be readily available.
- Effective treatment attends to multiple needs of the individual, not just his or her drug abuse.

Principles of Effective Treatment

According to National Institute of Health (NIH)

- Remaining in treatment for an adequate period of time is critical.
- Counseling—individual and/or group—and other behavioral therapies are the most commonly used forms of drug abuse treatment.
- ***Medications are an important element of treatment for many patients, especially when combined with counseling and other behavioral therapies.***

http://www.drugabuse.gov/publications/drugfacts/treatment-approaches-drug-addiction

Principles of Effective Treatment

According to National Institute of Health (NIH) Part 2

- Many drug-addicted individuals also have other mental disorders.
- An individual's treatment and services plan must be assessed continually and modified as necessary to ensure that it meets his or her changing needs.
- Medically assisted detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug abuse.
- ***Treatment does not need to be voluntary to be effective.***

Principles of Effective Treatment

According to National Institute of Health (NIH) Part 2

- Drug use during treatment must be monitored continuously, as lapses during treatment do occur.
- Treatment programs should assess patients for the presence of HIV/AIDS, hepatitis B and C, tuberculosis, and other infectious diseases as well as provide targeted risk-reduction counseling to help patients modify or change behaviors that place them at risk of contracting or spreading infectious diseases.

http://www.drugabuse.gov/publications/drugfacts/treatment-approaches-drug-addiction