



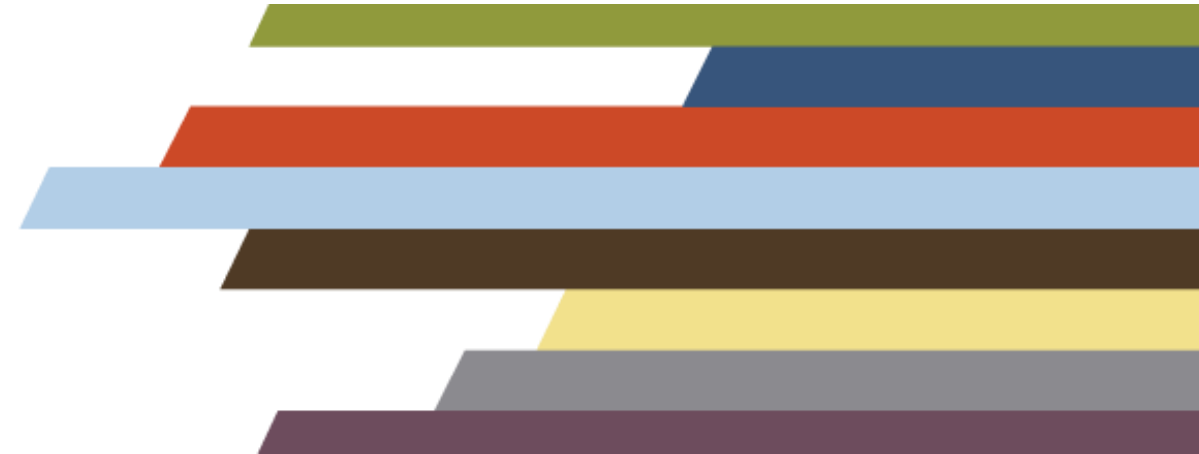
New England (HHS Region 1)

ATTC

Addiction Technology Transfer Center Network
Funded by Substance Abuse and Mental Health Services Administration

Medication Assisted Treatment

Taylor D'Addario, BA, LCDP



Disclosures

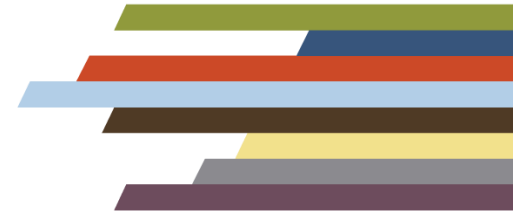
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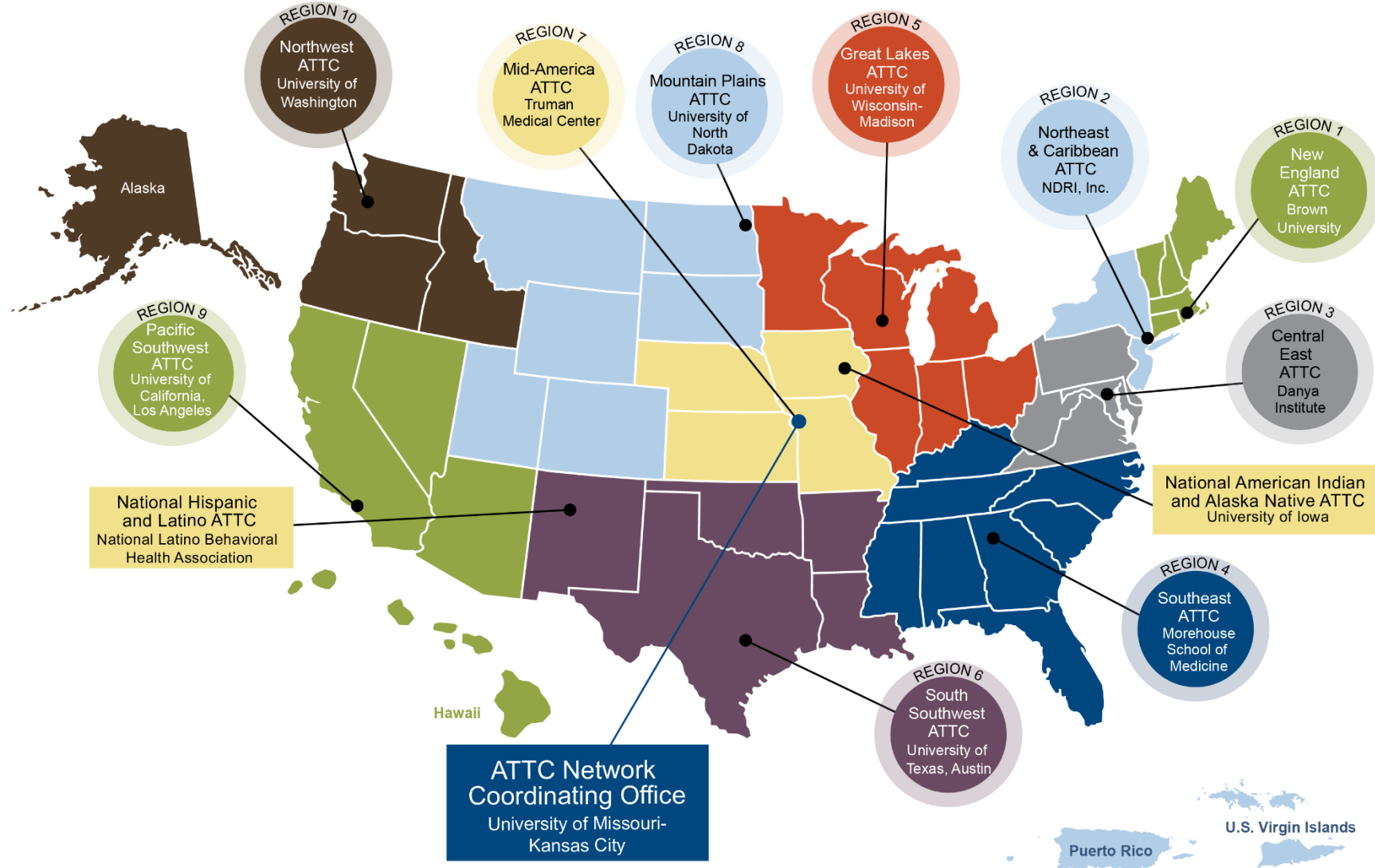




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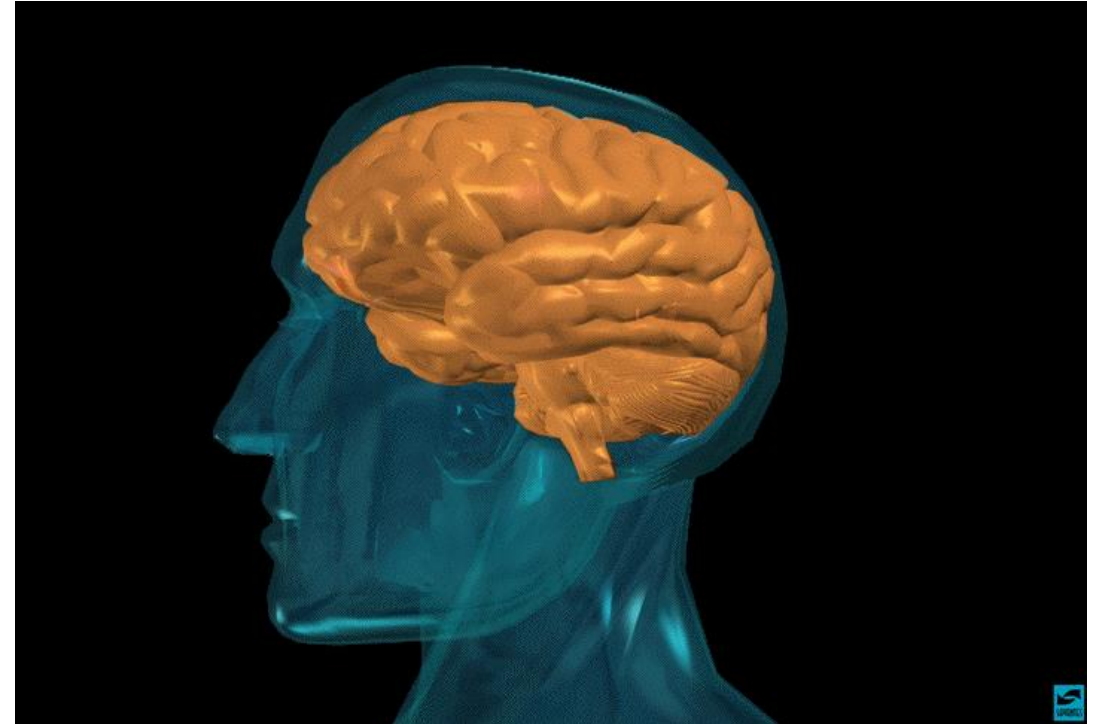
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U.S.-based ATTC Network



Introductions & Grounding Exercise

- Name
- What you hope to learn today
- Group Grounding Exercise



NIDA, 2007, Brain Regions and Their Functions, drugabuse.gov

Goals of Today's Training

- Addiction
 - and how it affects the brain
 - dopamine and the reward pathway
- Medications
 - for addiction treatment
 - how they work & what they do
- Benefits
 - of addiction treatment to the CJ System

What is Addiction anyway?

Short Definition of Addiction (American Society of Addiction Medicine, 2011):

- Addiction is a **primary, chronic disease of brain** reward, motivation, memory and related circuitry. Dysfunction in these circuits leads to characteristic **biological, psychological, social and spiritual manifestations**.
 - inability to consistently abstain, impairment in behavioral control, craving, diminished recognition of significant problems with one's behaviors and interpersonal relationships, and a dysfunctional emotional response.
- Like other chronic diseases, addiction often involves **cycles of relapse and remission**. Without treatment or engagement in recovery activities, addiction is progressive and can result in disability or premature death.

Addiction, Dependency, Disease

- By whichever label one wants to approach addiction, science has suggested that it is a chronic condition that requires life-long management.
- It can be compared to Type 2 Diabetes, chronic hypertension, asthma and obesity in that all of these conditions involve a complex of physiological and behavioral components
- The idea that one treatment episode will resolve SUD is unsupportable

Genetics

- Basic neurochemical functions in the human brain may be “set” by genes
- Some people are born with “imbalances”
- Of certain neurotransmitters such as serotonin
- Chronic lower levels of serotonin may result in vulnerability to substance use disorder—hence the concern about depression and SUD



Basic Opioid Facts

Description: Opium-derived, or synthetics which relieve pain, produce morphine-like addiction, and relieve withdrawal from opioids

Medical Uses: Pain relief, cough suppression, diarrhea

Methods of Use: Intravenously injected, smoked, snorted, or orally administered

Let's Talk About Medication Assisted Treatment

- Why is MAT a good idea?
- Why is MAT a not so good idea?

Honest Conversations About MAT

- Medications: Methadone, Buprenorphine, Vivitrol/Naltrexone
- Diversion and Safety concerns
- Treatment Clinics (good and bad)
- Attracting criminal behaviors
- Therapeutic Communities



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Myth #1

“Medication is not a part of treatment.”

- Medication can be an effective part of treatment.
- Medication is used in the treatment of many diseases, including addiction.
- Decisions about using medications are based on an objective assessment of the individual client's needs.

Myth #2

“Medications are drugs too”

- Changing the old language
- Medicine- any substance used in treating disease of illness, a remedy. The science of restoring or preserving health due to a physical condition by means of drugs or surgical operations.
- Symptoms diminish

Myth #3

“MAT is not effective”

- MAT medications are FDA approved- they go through the same protocols for approval that all other medications do.
- We tend to have a biased perception:
 - Patients who improve, leave and are forgotten
 - Patients who do *not* improve return frequently and are remembered
- Leads us to think that most patients do not improve
 - ...contrary to scientific data.

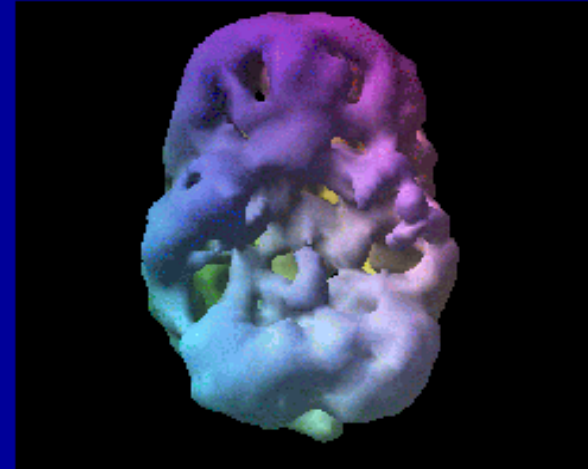
Myth #4

“Clients who are not using drugs at the present moment do not need MAT.”

- **More than half of inmates will relapse within one month of release.**
- Reasons why?

What is required for recovery?

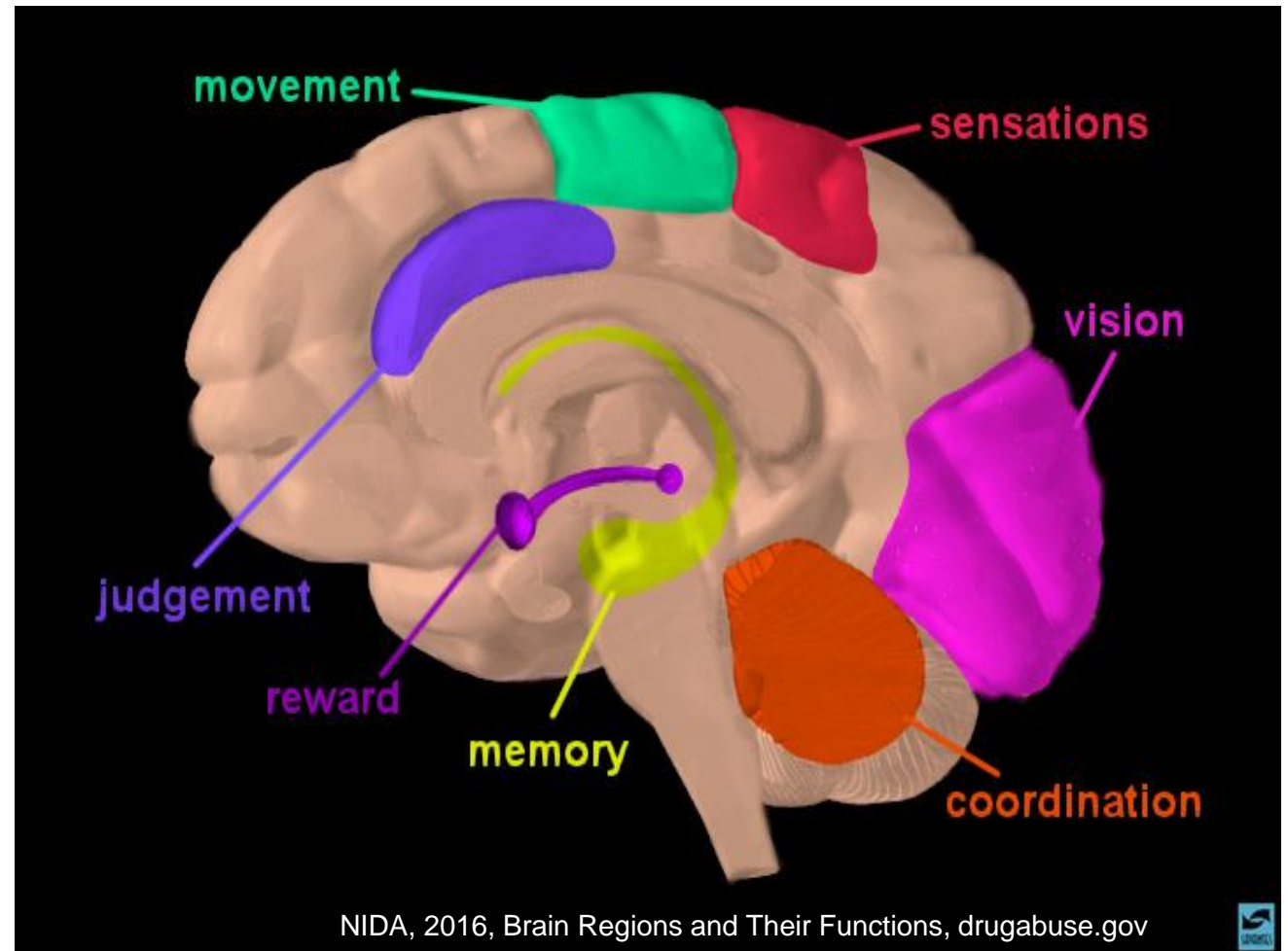
- An understanding of co-occurring conditions
 - Victimization
 - Mental health problems
 - Health problems
 - Deprivation of capability
- Accessibility of providers
- Availability of resources
- Respect for even the limited autonomy
- Wrap-around services and goods
- Patience with relapse
- Active use of recovery supports
- An understanding of a long term process
- An appreciation of how extraordinarily difficult recovery is



Walker, R, 2008, The Neuroscience of Addiction

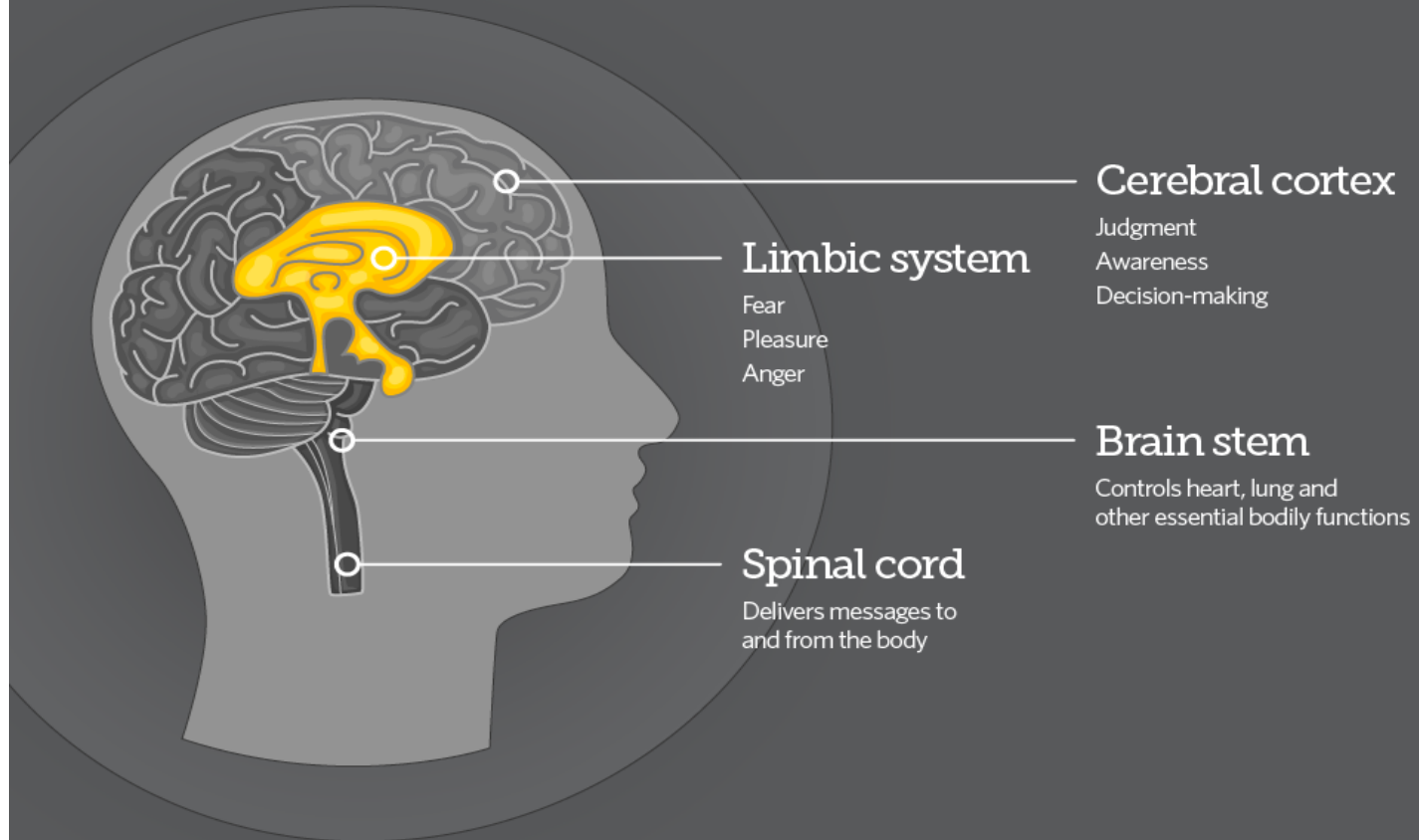
How the Brain gets Hijacked by Opioids

- Disrupts dopamine functioning

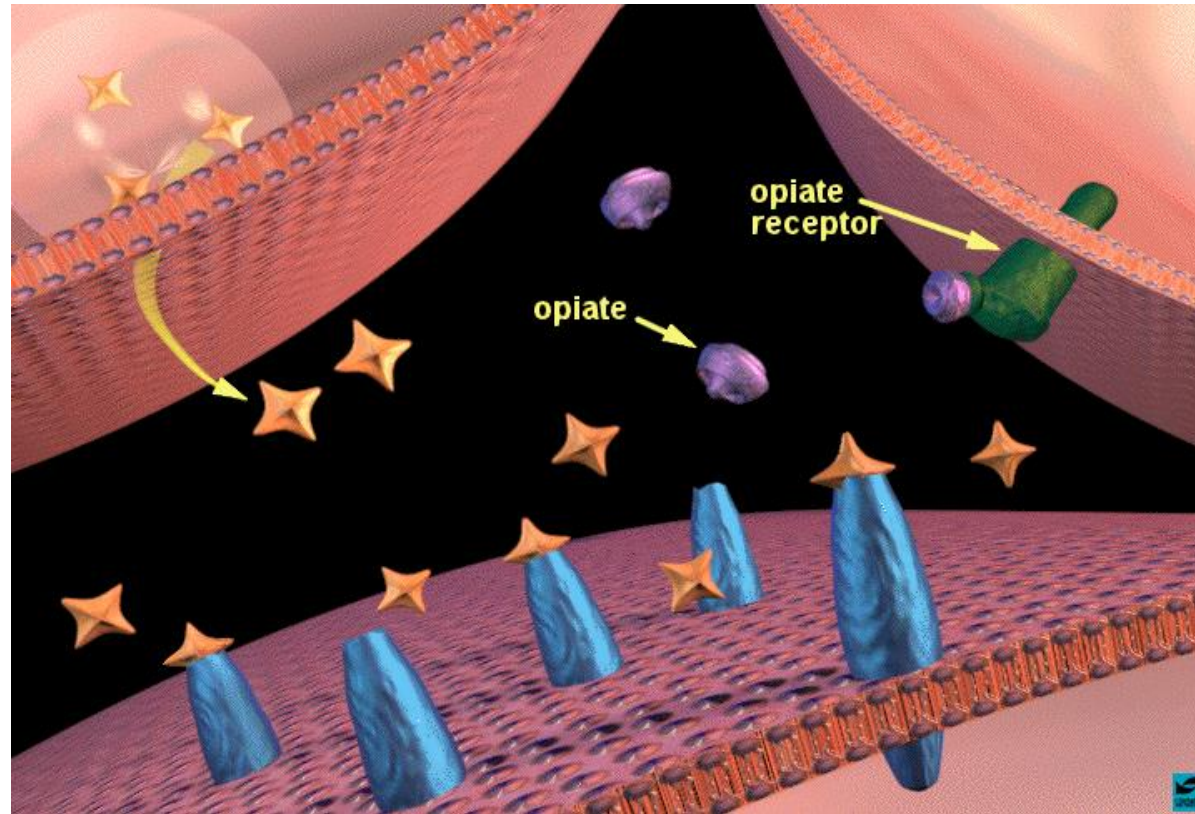


The Brain and Addiction

Opioids and the medications used to treat addiction affect the limbic system, the brain's pleasure and reward center. The obsessive behavior and cravings that characterize opioid addiction result from dysfunctional circuits in the limbic system that can disconnect it from the reasoning power of the cerebral cortex.



Opioid Addiction in the Brain: What's going on?



NIDA, 2007, Brain Regions and Their Functions ,drugabuse.gov

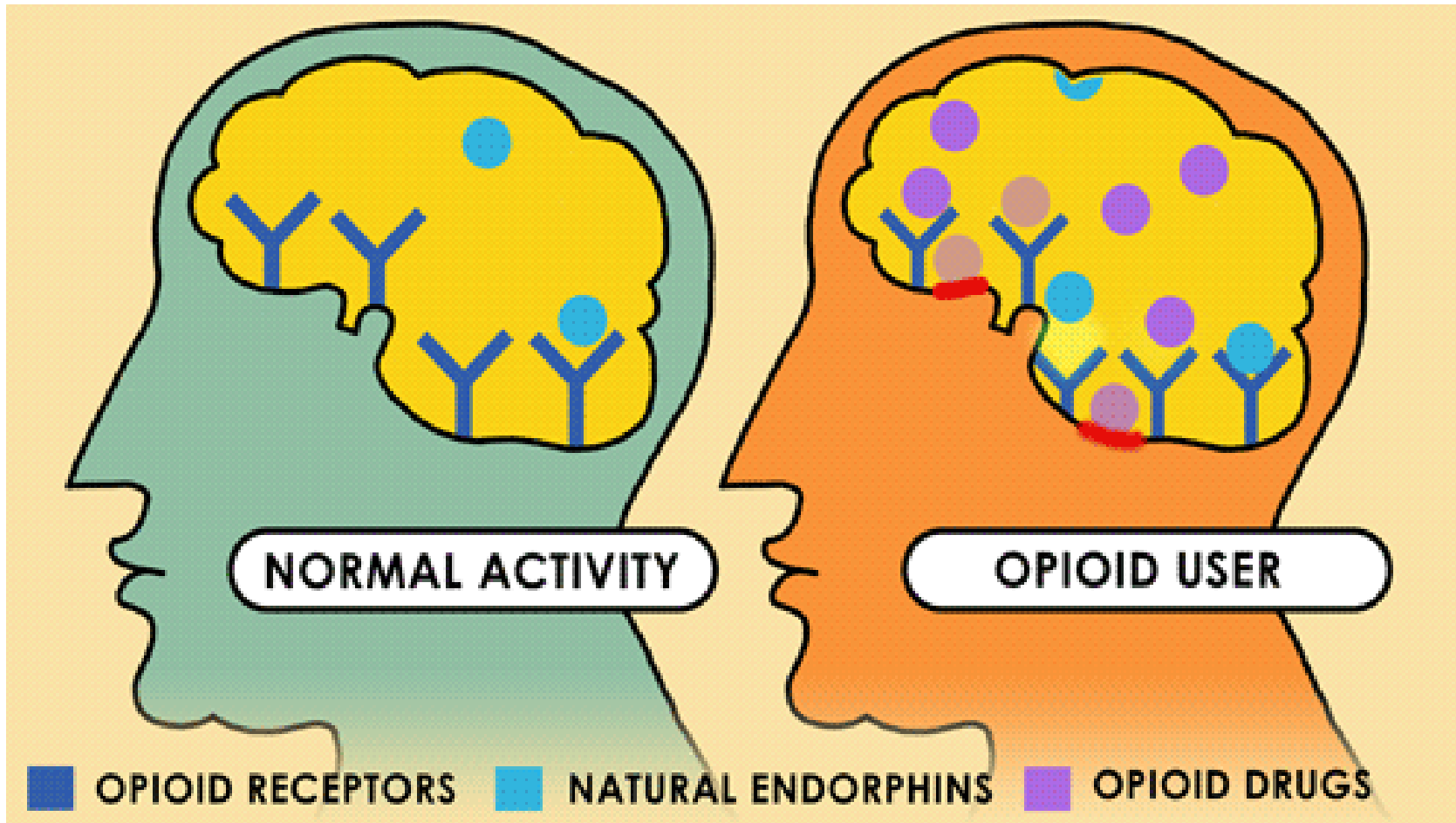


Illustration by Danny Miller / Yahoo News 2016

Prevalence of Opioid Dependence and Medication Assisted Treatment

- 2.4 million Americans reported using heroin at some time in their lives,
 - 800,010 reported current use, with 171,000 new users (NHSDA, 1997).
- Heroin snorting and smoking has become commonplace in the northeastern US.
- Synthetic narcotics such as hydromorphone, oxycodone, have gained prominence as drugs of dependence.
- Opioid death rates are 120x's greater in MA for those with a history of incarceration.
- Majority of life-threatening incidents occurs within 4 weeks of release.

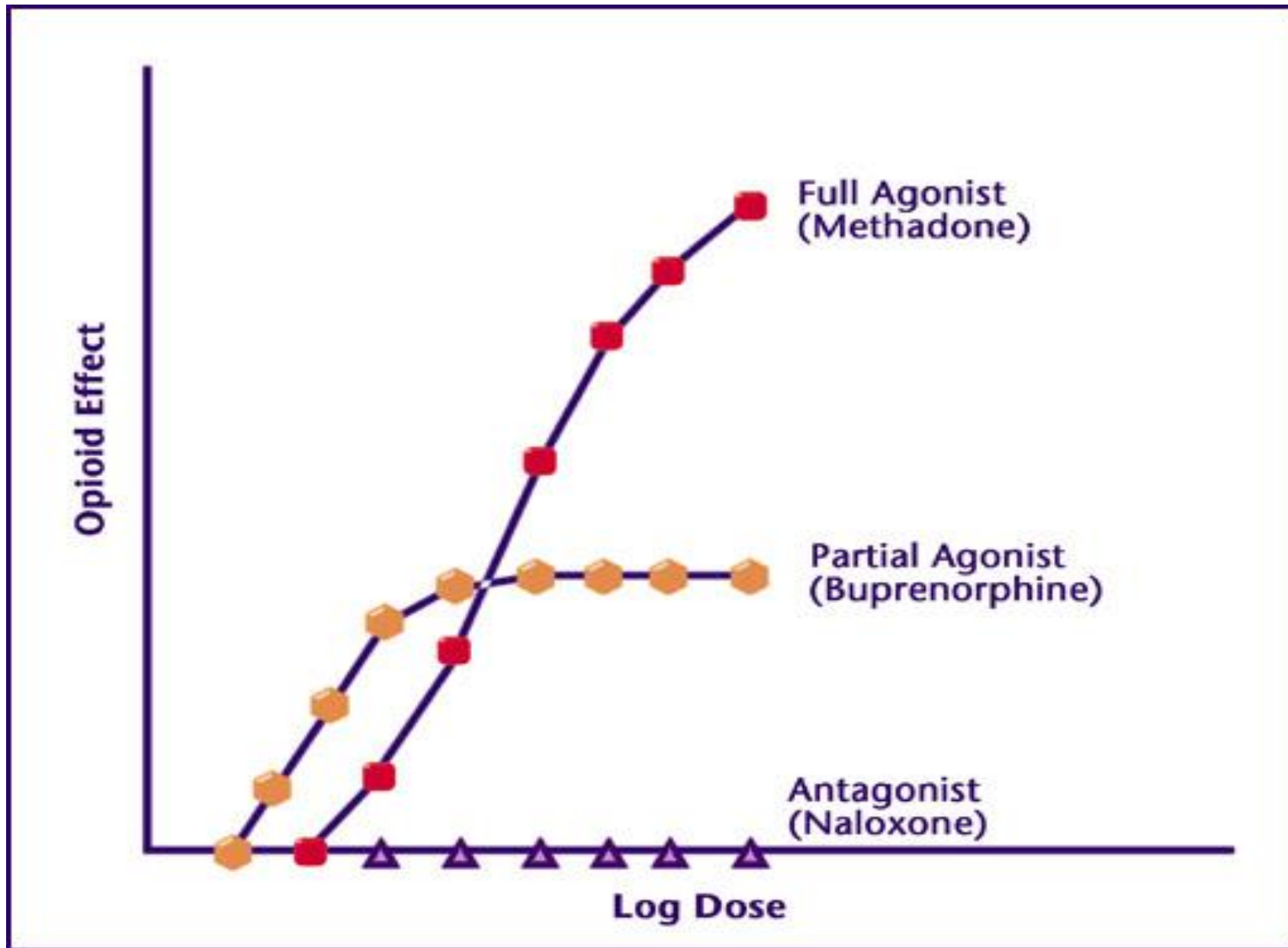
So How Do Medications Work for Opioid Addiction?

There are three types of medications:

- **Full Agonists-Methadone**
 - - produce opioid effects
- **Partial Agonists-Suboxone-Buprenorphine**
 - - produce moderate opioid effects
- **Antagonists-Naltrexone**
 - - block opioid effects

Definitions

- Agonist is a medication that blocks cravings:
 - Attach to same receptor
 - Creates similar feeling to drug but delivered in a controlled way.
- Partial Agonist is a medication that possesses both agonist and antagonist properties. While it binds tightly to opioid receptors in the brain, it does not have a “full agonist” effect like heroin.
- Antagonist is a medication that binds to receptors in the brain and block a chemical reaction from occurring.



FDA-Approved Medications

Methadone



In use since the 1960s, the slow-acting synthetic opioid agonist effectively treats moderate to severe heroin addiction. It is only available in heavily regulated clinics.

Buprenorphine/Suboxone



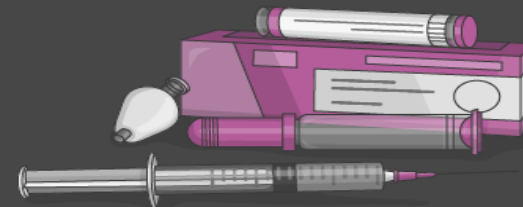
Approved in 2002, the long-acting opioid agonist relieves drug cravings with fewer side effects than other opioids and is available by prescription from certain doctors. Suboxone is designed to deter illicit use.

Naltrexone/Vivitrol



Approved in pill form in 1984, it has been available since 2010 as a 30-day time-release injectable medication called Vivitrol. Patients must be completely off all opioids for seven to 10 days. Both block the effect of opioids, do not activate the opioid receptor system, and do not cause physical dependence.

Naloxone



Approved in 1971, the short-acting medication, also known as Narcan and Evzio, reverses opioid overdoses but does not treat opioid addiction.

Antagonist: Naltrexone*

*Used to treat **opiate and alcohol** addiction.

- **Trade Names/Formulations**

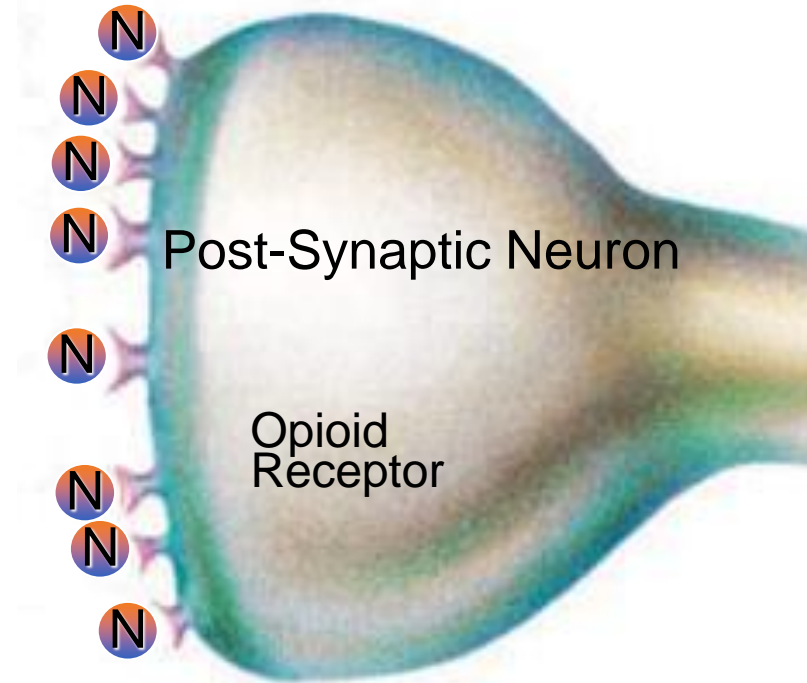
- Depade® oral tablets 50mg
- ReVia® oral tablets 50mg
- Vivitrol® Extended-release injection naltrexone 1x per month or 1x every 3 months

How Does Naltrexone Work?

Addictive Properties: **Not addictive and no withdrawal symptoms.**

It's an Antagonist- Stickiest!

1. It blocks opioid receptors,
2. the reinforcing “reward” effects from dopamine are reduced,
3. drug consumption is thus reduced.



How Naltrexone Works cont...

- Naltrexone blocks the euphoric and sedative effects of drugs such as heroin, morphine, and codeine.
- Naltrexone binds and blocks opioid receptors, and is reported to reduce opioid cravings. There is no abuse and diversion potential with naltrexone.
- If a person relapses and uses the problem drug, naltrexone prevents the feeling of getting high.
- Patients on naltrexone may have reduced tolerance to opioids.
- Best treatment outcomes when apart of a comprehensive treatment plan.

Naltrexone Side Effects and Disadvantages

- Requires 1-2 weeks of abstinence

Urge your client to see a physician if:

- Upset stomach or vomiting
- Diarrhea
- Headache
- Nervousness
- Sleep problems/tiredness
- Joint or muscle pain

Partial Agonist: Buprenorphine

Suboxone®

- Approved in 2002
- 3 stages- Induction, Stabilization, Maintenance
- Partial agonist: 4:1 Ratio BUP:naloxone
 - blocks the symptoms of withdrawal
 - blocks the euphoria
- Partial Agonist means:
 - can trigger withdrawal symptoms at critical dose levels- respiratory depression
 - There is a 'ceiling effect' that limits the amount that can be prescribed.

How Buprenorphine Works

- A synthetic opioid- suboxone®
- Buprenorphine is an opioid partial agonist. This means that, like opioids, it produces effects such as euphoria or respiratory depression. With buprenorphine these effects are weaker than those of full drugs such as heroin and methadone.
 - Harm Reduction

The Role of Buprenorphine in Opioid Treatment

- Partial Opioid Agonist
 - Produces a ceiling effect at higher doses
 - Has effects of typical opioid agonists—these effects are dose dependent up to a limit
 - Binds strongly to opiate receptor and is long-acting
- Safe and effective therapy for opioid maintenance and detoxification
- Increased treatment access

Advantages of Buprenorphine

- Patient can participate fully in treatment activities and other activities of daily living easing their transition into the treatment environment
- Limited potential for overdose
- Minimal subjective effects (e.g., sedation) following a dose
- Available for use in an office setting
- Lower level of physical dependence
- Take Home's

Disadvantages of Buprenorphine & Side Effects

- Lower level of physical dependence (i.e., patients can discontinue treatment)
- Because of buprenorphine's opioid effects, it can be misused, particularly by people who do not have an opioid dependency
- Nausea, vomiting, and constipation
- Muscle aches and cramps
- Cravings
- Inability to sleep
- Distress and irritability
- Fever

Full Agonist: Methadone

- **Agonist: Methadone approved in 1964**
- Occupy the receptor and activate that receptor
- Increasing doses of the drug produces increasing receptor-specific effects until a maximum effect achieved
- Used to block chronic pain

Methadone: Research Says...

- Most studied MAT
- Reduces death rate, relapse and use
- MMT significantly reduces drug injecting;-> MMT reduces HIV transmission;
- MMT reduces criminal activity

How Does Methadone Work?

- Methadone works by changing how the brain and nervous system respond to pain.
- It lessens the painful symptoms of opiate withdrawal and blocks the euphoric effects of opiate drugs such as heroin, morphine, and codeine, as well as semi-synthetic opioids like oxycodone and hydrocodone.
- Methadone is offered in pill, liquid, and wafer forms and is taken once a day. (SAMHSA 2018)

Six findings were noted from Dr. Dole's research team-1964

- No euphoric/analgesic effects
- Doses between 80-120mg held at level to block their euphoric and tranquilizing effects
- No change in tolerance level over time
- Could be taken once a day
- Relieved craving attributed to relapse
- Medically safe and nontoxic

SO, If doses of 80- 100 are effective...

...What's up with the high doses?

- Heroin is about 60-70 % pure today- was about 20 % when study was conducted.
- Medication interference/ hepatitis C etc. Effects of methadone can be decreased as a result of a patient's medication regime.

Full Agonist: Methadone

- Ideal Properties
- Narcotic blockade – prevents euphoric appeal of heroin
- Cross tolerance – prevents withdrawal
- Orally effective
- Free from dysphoric effect
- Medically safe
- Compatible with normal performance

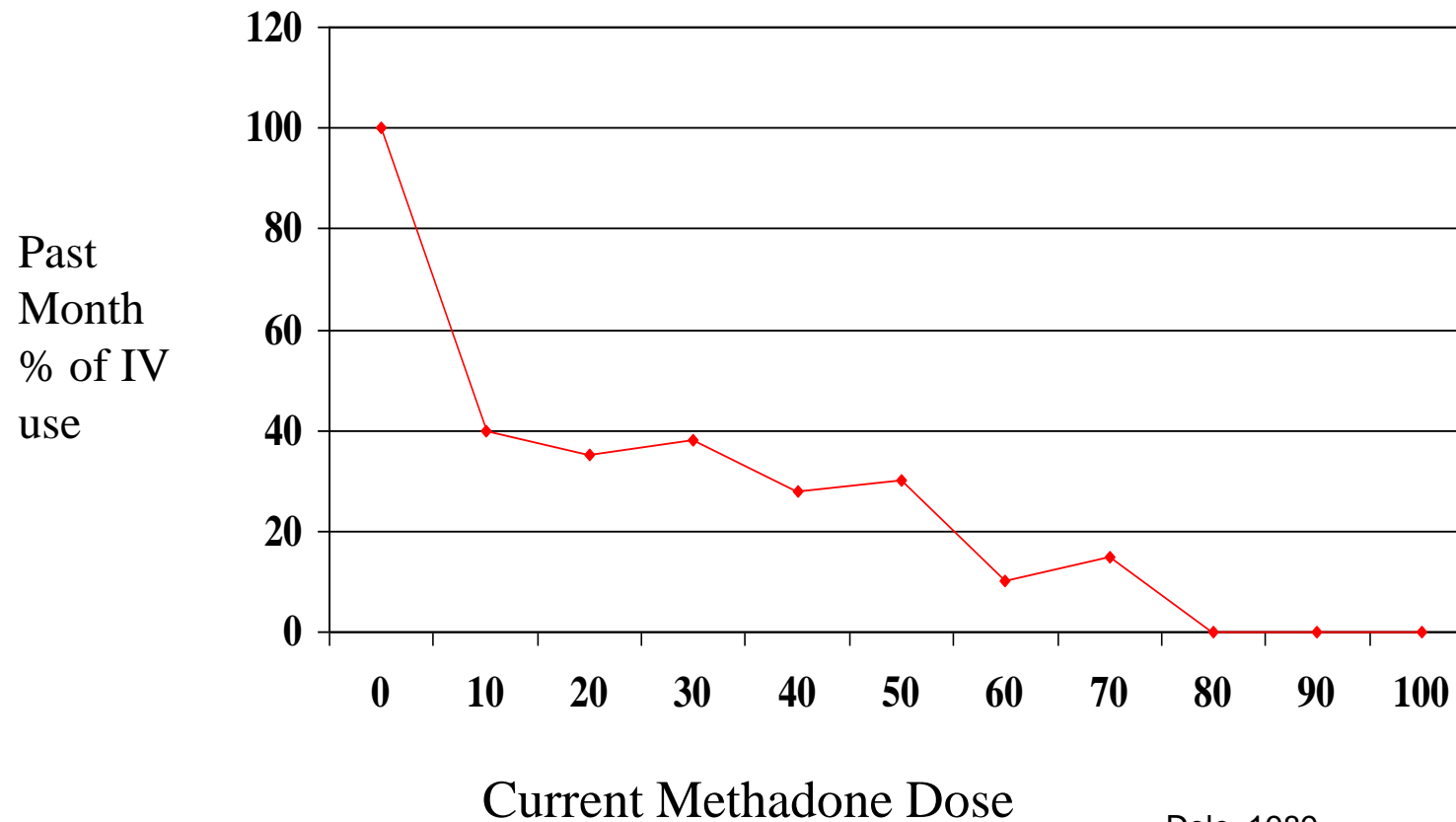
Agonist Therapy: Methadone

- Proper dose lasts between 24 - 36 hours
- Does not create euphoria, sedation or analgesia
- Duration of treatment individualized(20mg-930mg)
- Most significant long term effects on health is marked improvement
- Side effects usually subside within a month

Methadone: Long-Term Effects

- Long-term administration
 - tolerance to analgesic, sedative, and euphoric effects
 - health improvement
- Rare:
 - constipation
 - weight gain
 - decreased libido
 - menstrual irregularities

Recent Heroin Use by Methadone Dose



Dole, 1989

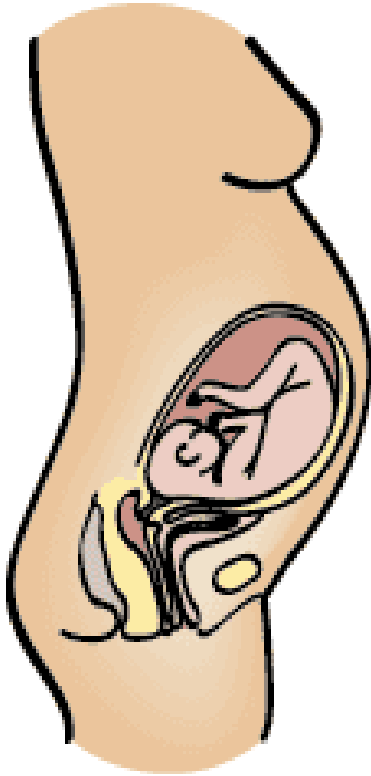
MMTP: Criteria for Admission

- Voluntary choice and consent of patient
- Current dependence
- Patient education
 - Duration of treatment
 - Adverse effects
 - Program expectations

MMTP: Exceptions to Current Dependence

- Recently released from correctional facility
- Recent discharge from chronic facility
- Pregnant patient
- Previously treated patients
- Minors

Methadone Maintained Pregnancy



- Methadone: synthetic opioid which reduces craving and blocks the euphoric effects if supplemental narcotics are taken
- Recommended since 1970's
- Prevents erratic opioid levels in mother and fetus
- Associated with improved fetal growth and longer duration of gestation
- As pregnancy progresses, require higher doses of methadone
- Lowering dose during pregnancy will promote illicit drug use

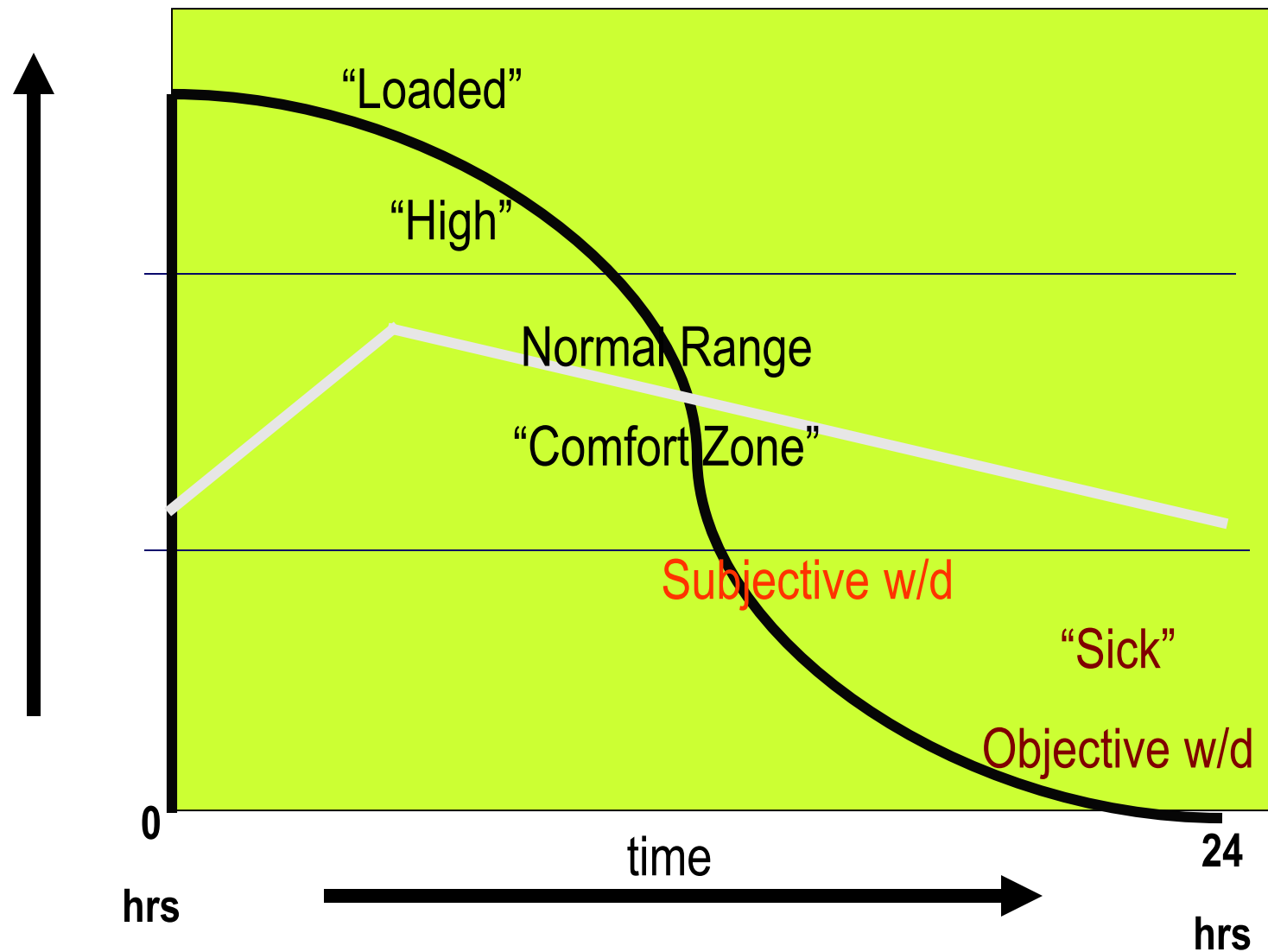
Agonist Therapy Methadone, cont.

- Indicated for use with pregnant and nursing mothers
 - preferable to street drugs
 - prevents fetal withdrawal
 - does not harm infant

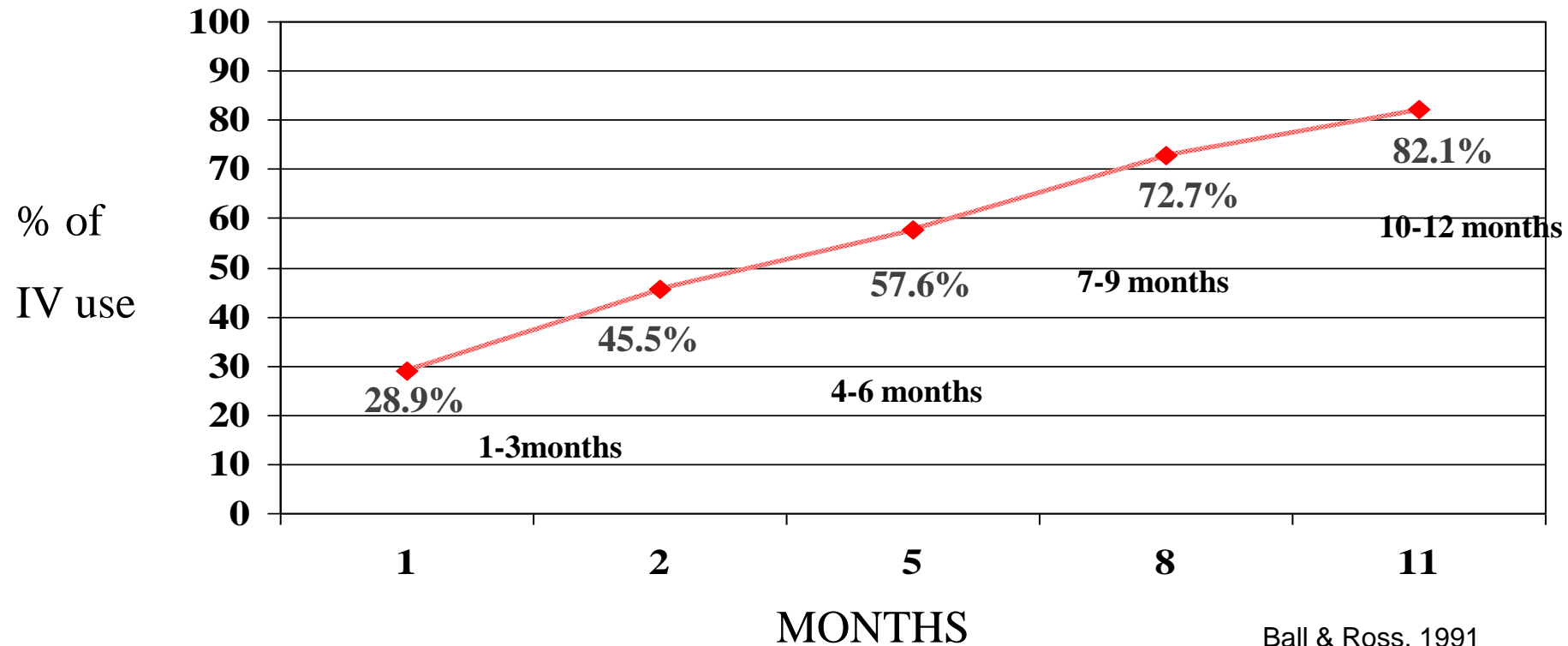
Dose Determination

- History of use
- History of last agonist treatment
- Induction Period
- Achievement of a steady state
- Peak and trough

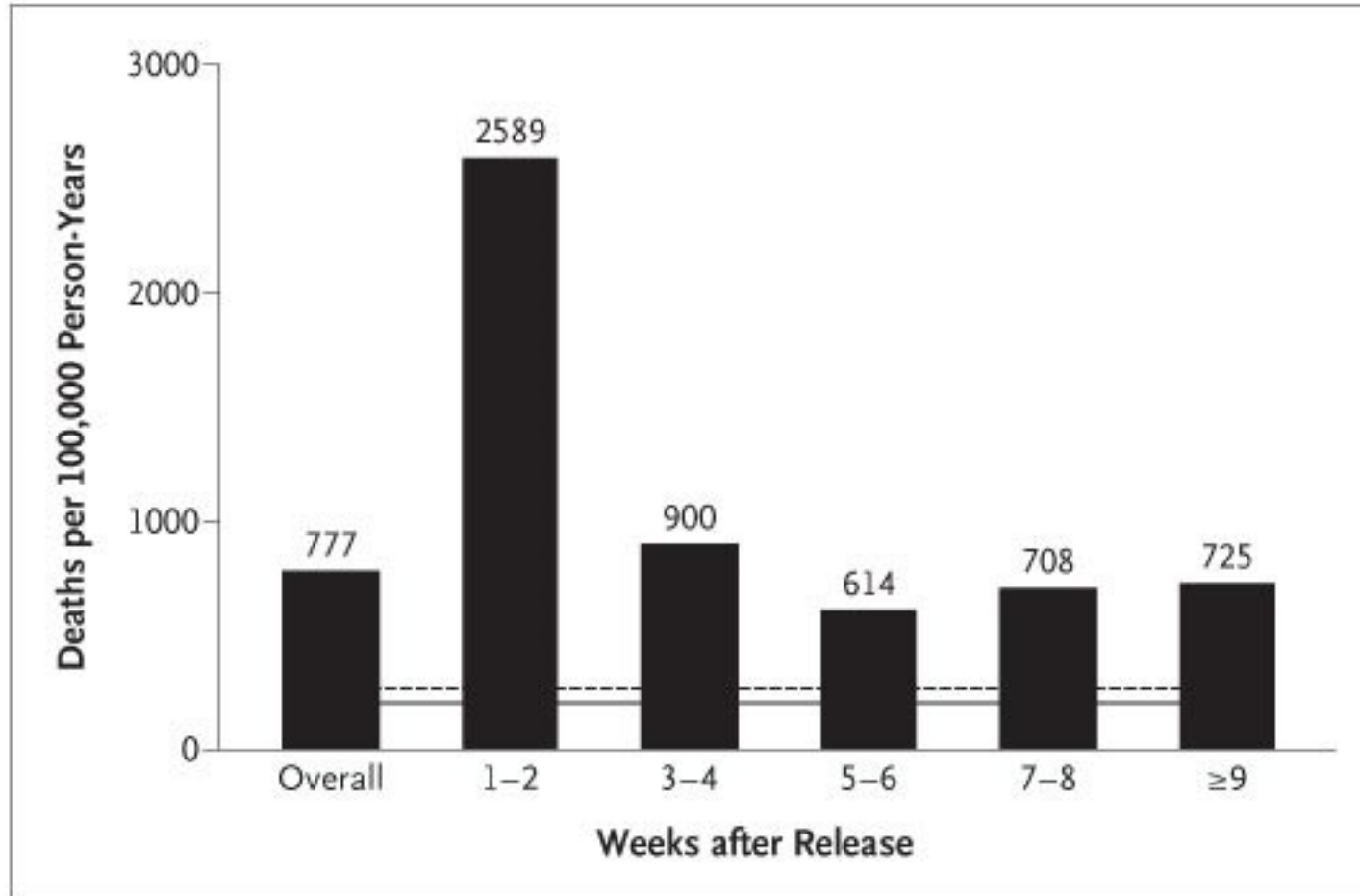
Methadone 24-hour.....at steady state



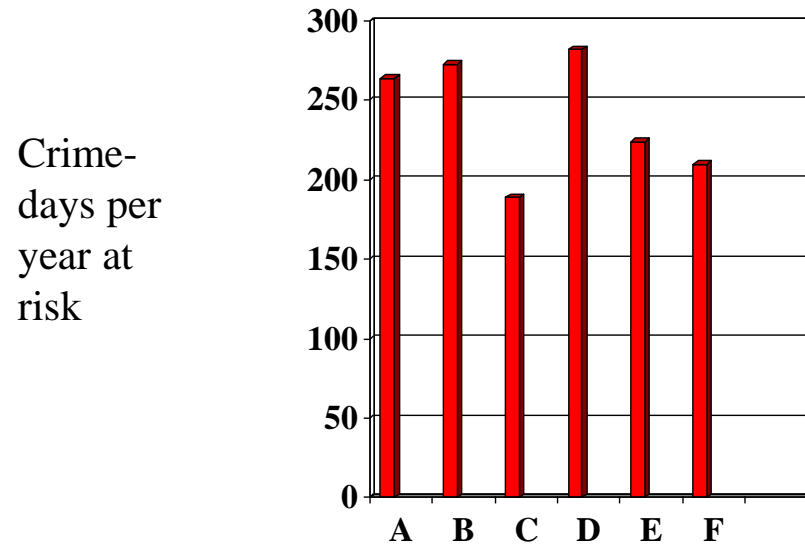
Rapid Return to IV Drug Use Following Premature Termination of MM TX



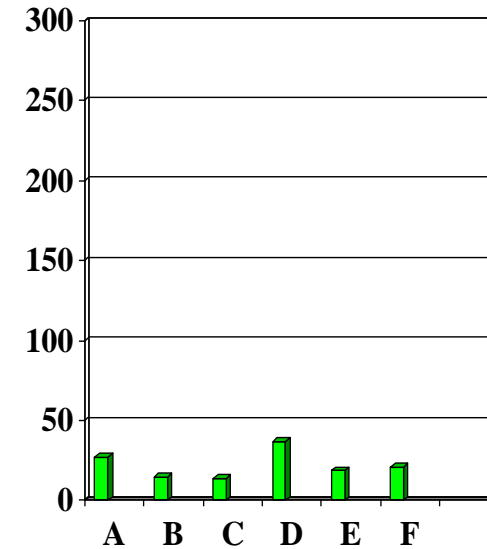
Risk After Release



Crime Before and During MM Treatment at 6 Programs



Program: Before Treatment Crime



Program: In-Treatment Crime

Barriers to Effective Use of Opiate Treatment of Opiate Addiction in the Criminal Justice Department

- Misperceptions and stigmas
- Unavailability of effective services
- Lack of trained officers, physicians and other health care professionals
- Unnecessary Regulation
- But...MAT strengthens the efficacy of the criminal justice system and helps it meet it's goals.

**THANK
YOU!**