Opioid Use Disorder: Medications and Beyond

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UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Session Agenda

- Presentation
  - Background- Why should I care?
  - Defining Opioid Use Disorder (Addiction)
  - Opioid Use Disorder Treatment
  - Treatment Outcomes
- Discussion
- FAQs

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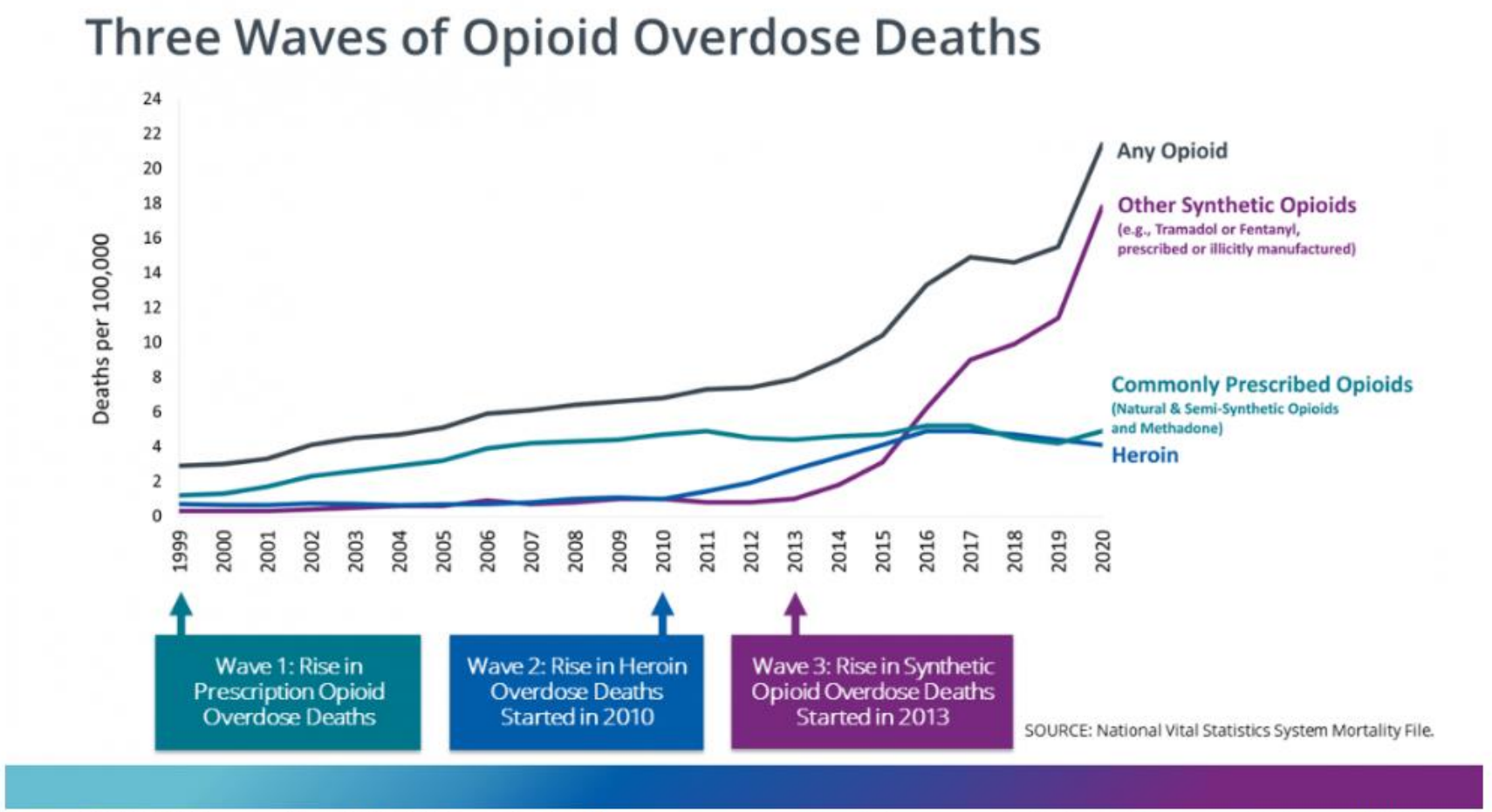
INTRODUCTION: WHY SHOULD I CARE?

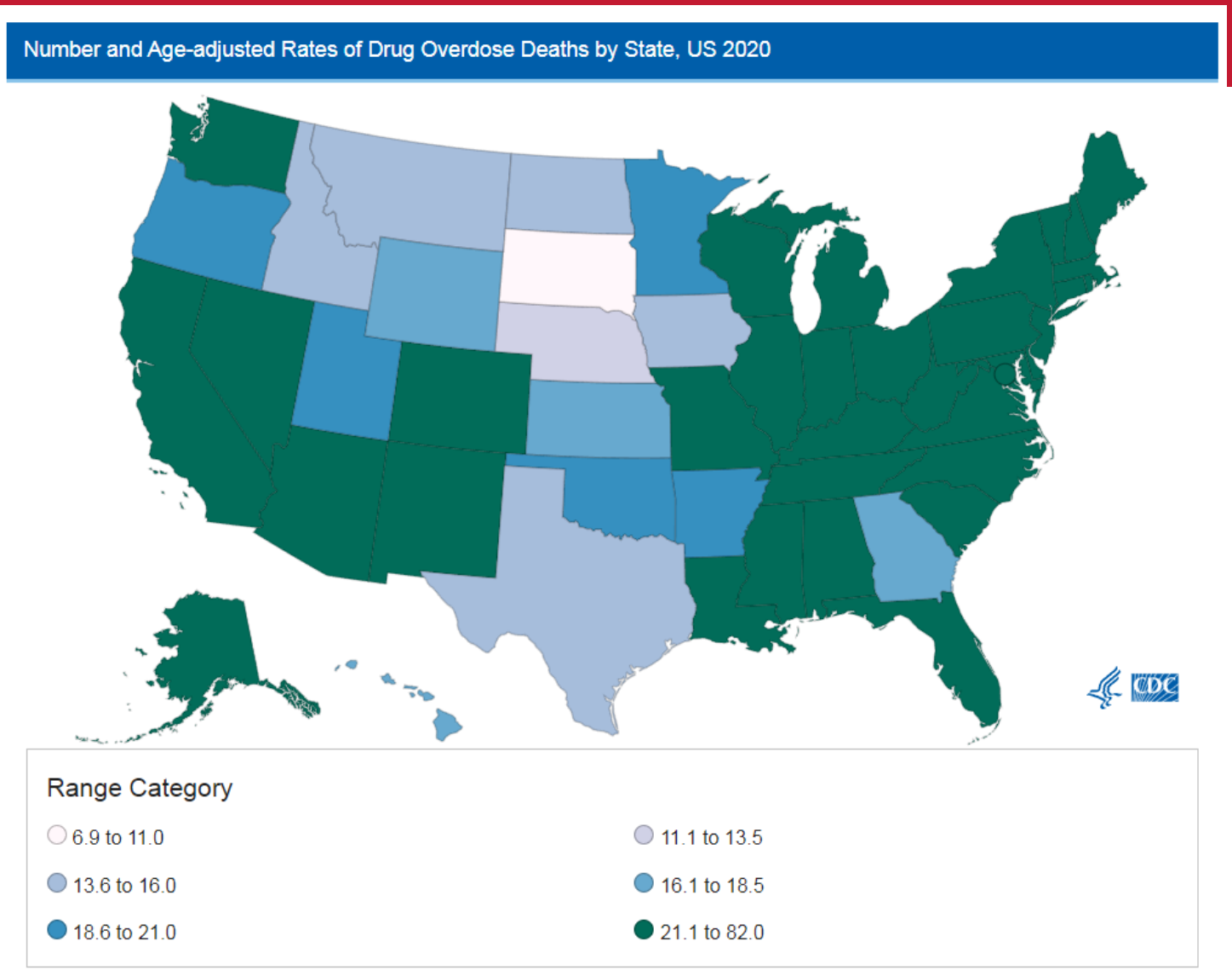
Why are we here?



From 1999–2020, more than 564,000 people died from an overdose involving any opioid, including prescription and illicit opioids[1].

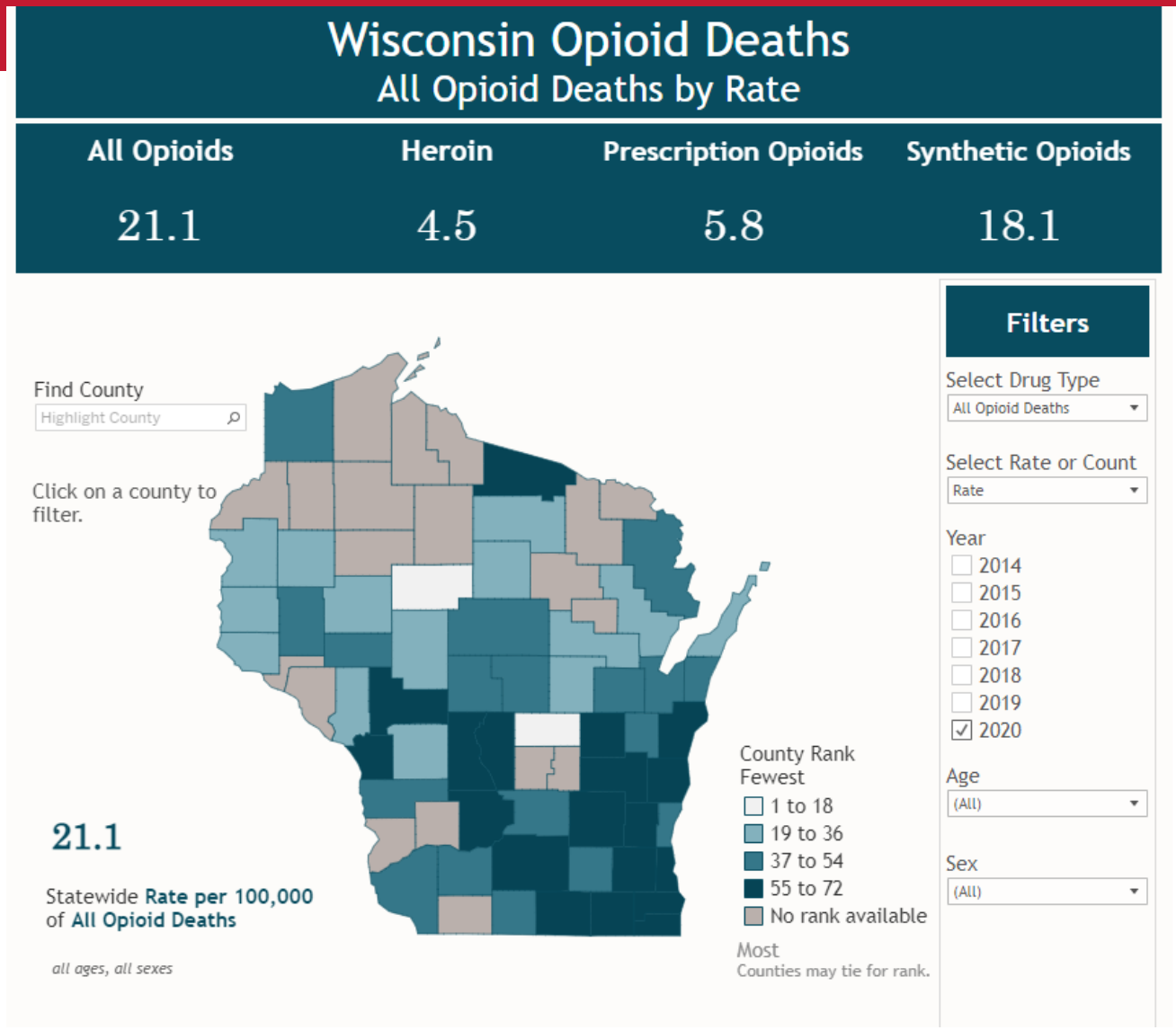
https://www.cdc.gov/opioids/basics/epidemic.html

Overdose Deaths Rates- 2020



https://www.cdc.gov/drugoverdose/deaths/2020.html

Wisconsin Opioid Deaths by Rate- 2020



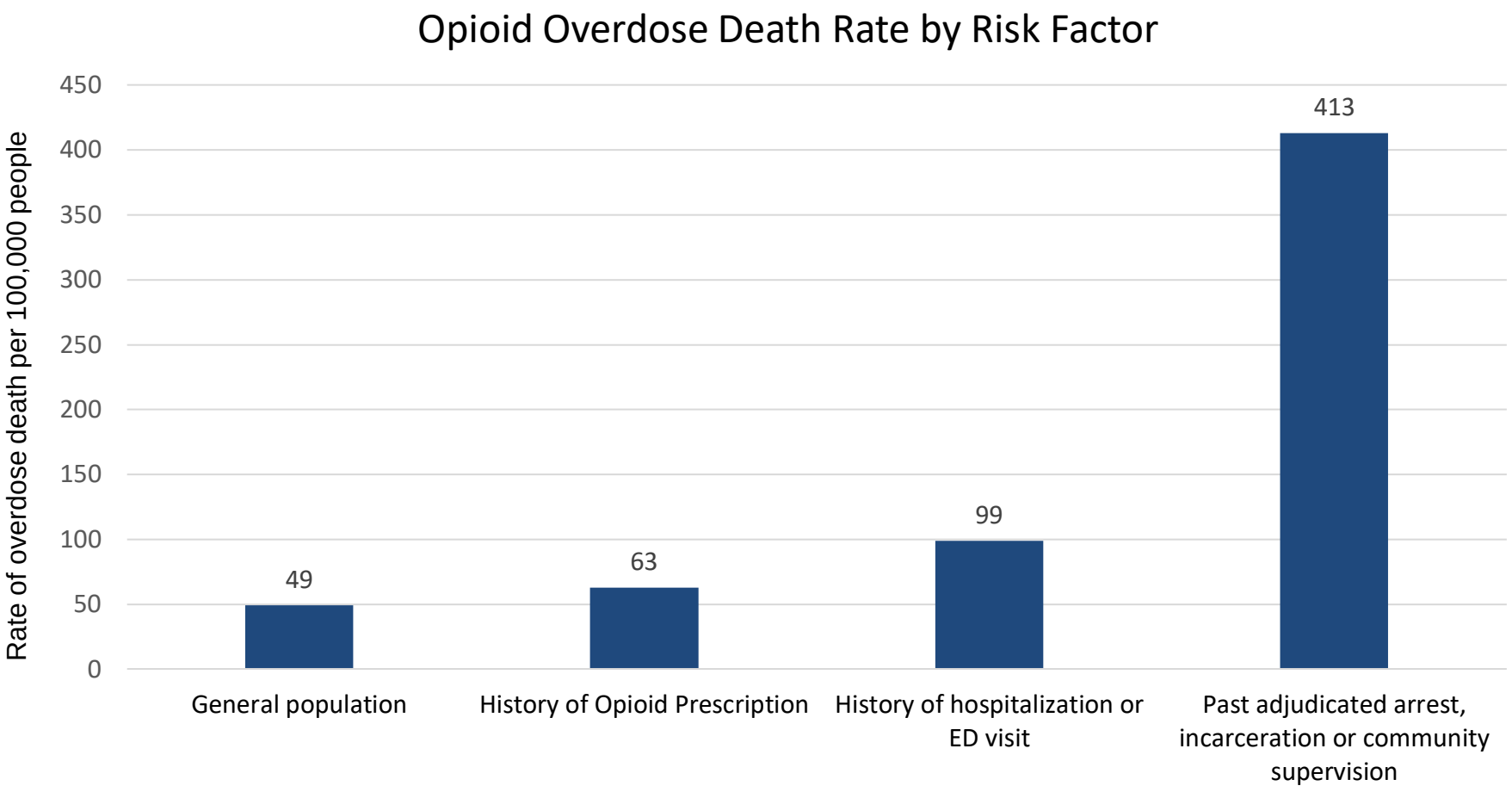
https://www.dhs.wisconsin.gov/opioids/deaths-county.htm

Why Focus on Substance Use in the Justice System?

- Each year, **1 in 3 people** with opioid use disorder (OUD) are arrested.
- Rates of substance use disorders are **4-9 times** higher among individuals on probation/parole as compared to non-supervised individuals.
- Individuals with justice involvement have significantly higher rates of **overdose death.**
- Linkage to evidence-based treatment improves outcomes and **saves lives.**

Brinkley-Rubinstein, Let al, (2018). Criminal justice continuum for opioid users at risk of overdose. *Addictive behaviors*, *86*, 104-110.
Merrall, E, et al. Meta-analysis of drug-related deaths soon after release from prison. *Addiction*. 2010; 105:1545-1554. doi:10.1111/j.1360-0443.2010.02990.x
Fearn NE, et al. Trends and correlates of substance use disorders among probationers and parolees in the United States 2002-2014. *Drug Alcohol Depend*. 2016

Justice Involvement and Overdose Death (Maryland Residents)



Eisenberg MD, et al. Use of Opioid Overdose Deaths Reported in One State's Criminal Justice, Hospital, and Prescription Databases to Identify Risk of Opioid Fatalities. JAMA Intern Med. 2019.

Medications for Opioid Use Disorder (MOUD) Save Lives

- **Methadone, Buprenorphine** (suboxone), and **XR Naltrexone** (Vivitrol) are evidence-based treatments for opioid addiction
  - Reduce illicit drug use
  - Increase retention in treatment
  - **Methadone and Buprenorphine reduce death rates by 50%**

- Only **1 in 20** justice-referred adults in specialty treatment for opioid addiction receive one of these medications compared to 8 in 20 from other sources.

Krawczyk N, Picher CE, Feder KA, Saloner B. Only One In Twenty Justice-Referred Adults In Specialty Treatment For Opioid Use Receive Methadone Or Buprenorphine. Health Affairs. 2017

Drug Court Current Practices

- Recent survey of drug courts in high opioid mortality communities found (N=169):
  - 75% rely principally on medical judgement for medication decisions
  - 73% provide access to all 3 FDA-approved MOUD
  - 80% provide naloxone training & 62% provide naloxone kits
  - 25-50% of clients with OUD receive MOUD

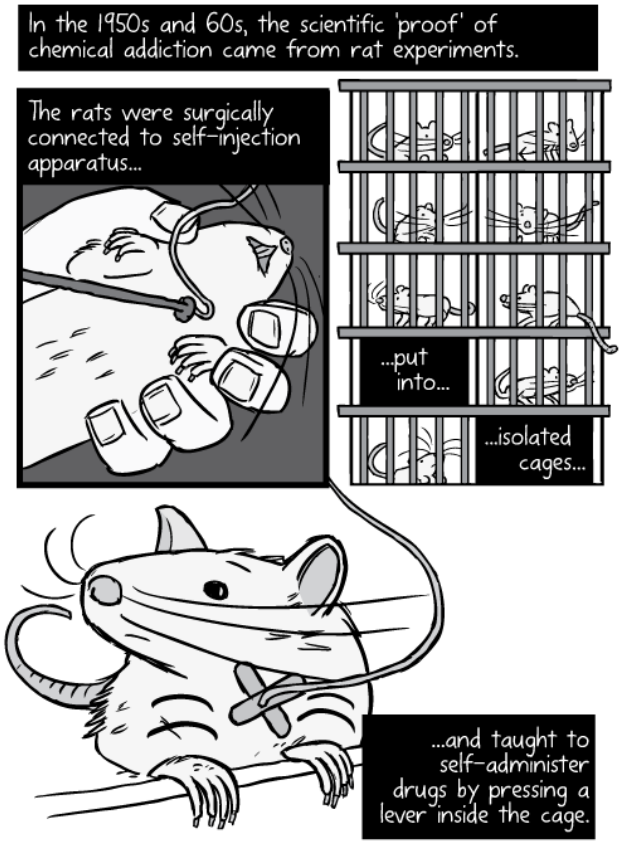
This is a missed opportunity!

Marlowe DB et al. (2022). doi: 10.1016/j.jsat.2022.108850.

WHAT IS ADDICTION?

Rat Model of Addiction

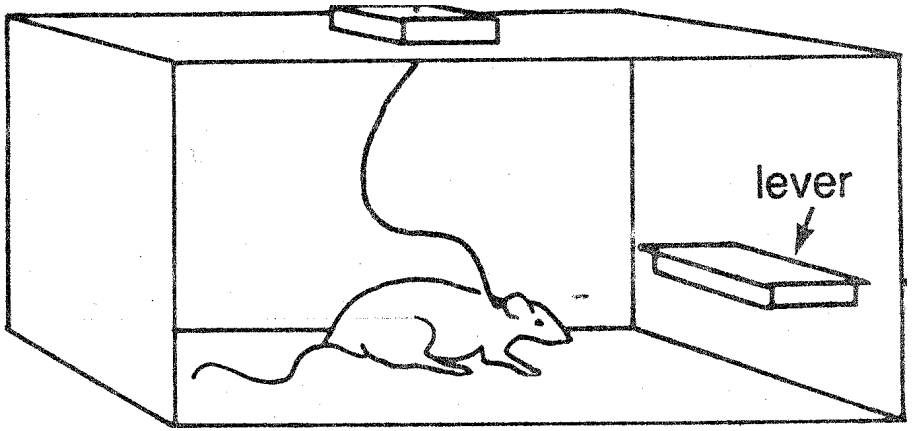
- Much of what we know about neurochemical changes during addiction are from rat models.
- Example:
  - Caged rats are given injections of addictive drugs via lever-pressing
  - Lever-pushing becomes so compulsive that rats will choose the drug over food or water



Mate' G. *In the Realm of Hungry Ghosts.* 2020 edition. North Atlantic Books; 2020.
https://www.stuartmcmillen.com/comic/rat-park/#page-2

Understanding human behaviors and brain changes through rat models

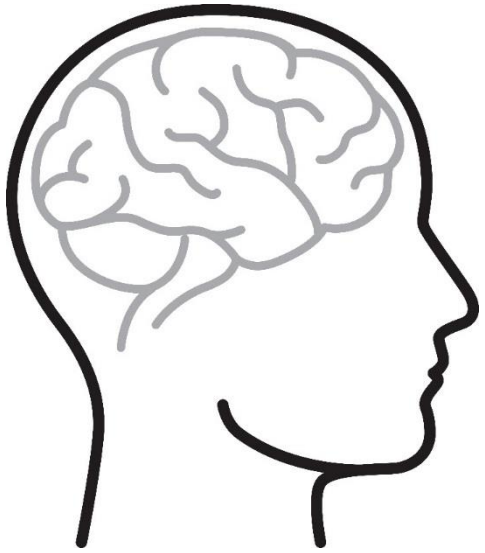
- Caged rats will learn to push the lever in response to substances that increase dopamine levels such as cocaine.
- Over time, random lever pushing becomes compulsive.
- *Many rats in caged environments will become so compulsive that they die of thirst or starvation rather than going to the other end of the cage to eat or drink.*



Routtenberg, 1965

Wise RA, Biological Psychiatry 2002

What Happens to the Brain during Opioid Use Disorder?



Dopamine

Dopamine

- Needed for daily life.
- Responsible for motivation and desire:
  - Drives us to get food.
  - Drives us to get water.
  - Drives us to procreate.
- Important for bonding.
- Opioids (and many other addictive drugs) cause significant increases of dopamine in the brain.

Natural Progression of Opioid Use & Use Disorder

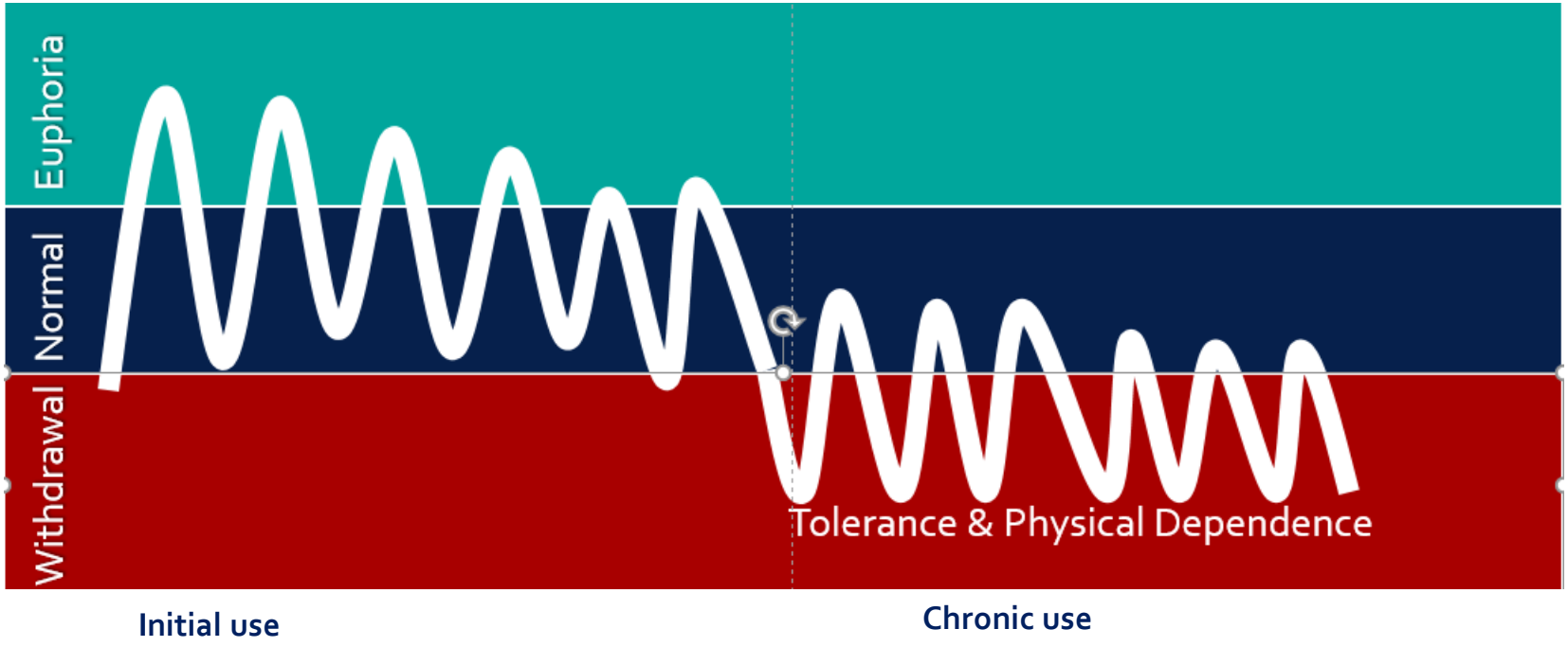


Image used with permission of ASAM. Reproduced from content in the ASAM Buprenorphine Course by the American Society of Addiction Medicine.

Alford DP. http://www.bumc.bu.edu/care/

"We can never understand addiction if we look for its sources exclusively in the actions of chemicals, no matter how powerful they are."

Gabor Maté, MD
In the Realm of Hungry Ghosts (Page 142)

“Rat Park”

- In 1970-80s, Bruce Alexander (Vancouver) developed experiments called “Rat Park.”
- Rats were placed in a more natural environment- scenic, comfortable, and sociable.
- Rats had access to two levers:
  - Morphine solution
  - Inert solution

Raz S, Behav Pharmacol 2010; Alexander BK, Pharmacol Biochem Behav 1981; Felitti et al, Am J Prev Med 1998; Mate’ 2020; Image: http://www.stuartmcmillen.com/comics_en/rat-park/#page-1

Rat Park Findings

- Compared to caged rats, ***rats in rat park were less attracted to morphine.***
- Researchers attempted various alterations:
  - Making the morphine solution more sweet
  - Forcing rats to develop physical dependence to morphine prior to rat park
- ***Caged rats*** consumed up to ***20 times more morphine*** than those living in rat park.

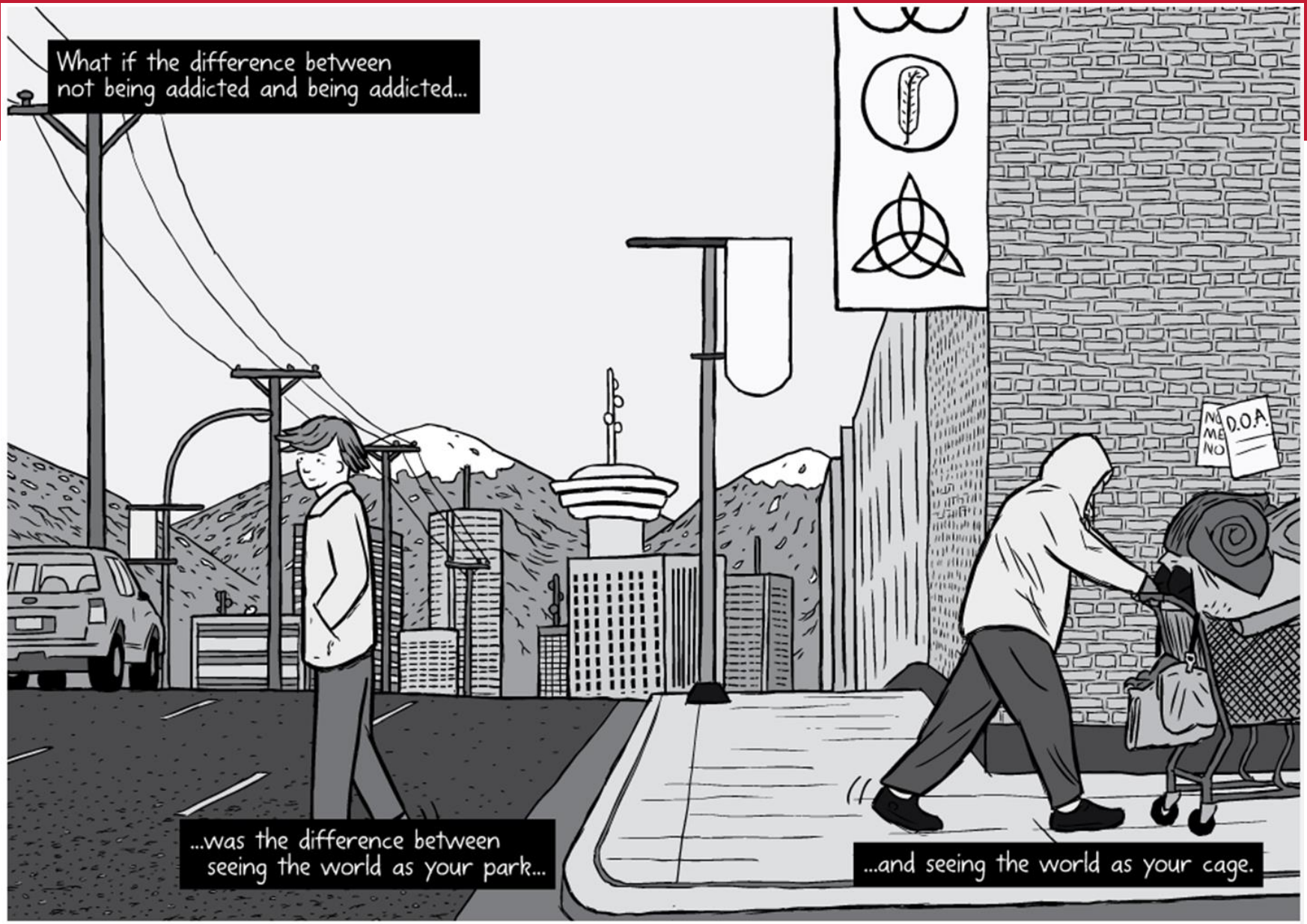
"Nothing we tried instilled a strong appetite for morphine or produced anything that looked like addiction in rats that were housed in a reasonably normal environment." – Dr. Alexander

Raz S, Behav Pharmacol 2010; Alexander BK, Pharmacol Biochem Behav 1981; Felitti et al, Am J Prev Med 1998; Mate' 2020

Rat Park Lessons

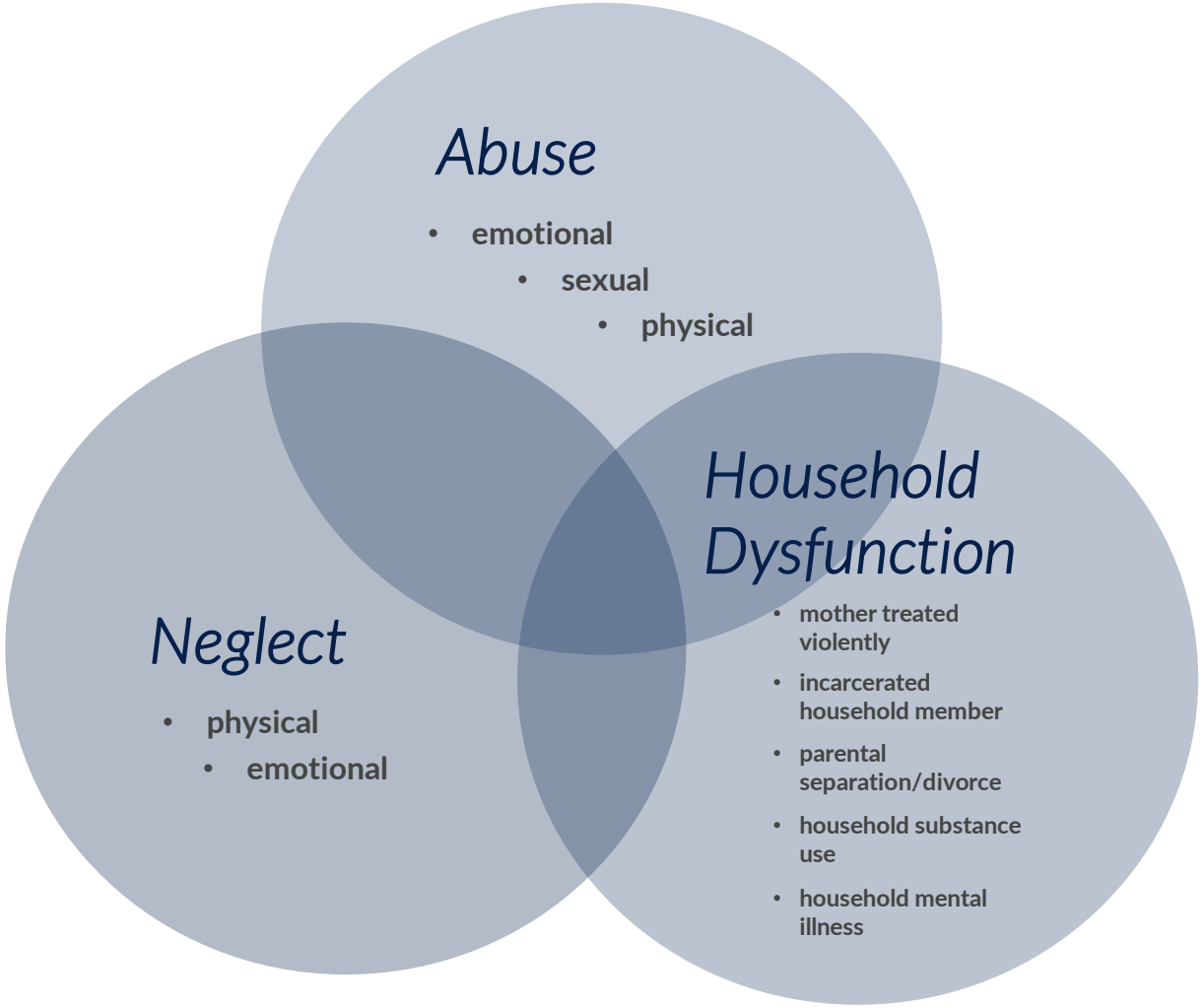
- What are the human correlates of these findings?
  - ***Emotional isolation, powerlessness,*** and ***stress*** promote the development of addiction.
  - Experience of ***abuse and neglect*** predisposes to addiction (ACEs increase risk for development of addiction).
  - The converse is also true: e.g., Vietnam veterans had low rates of addiction post return despite heavy use of heroin in Vietnam.
  - ***Social support helps recovery.***

Koob GF, Handb Clin Neurol 2014
Weiss F, Advances Neurosci Addiction 2010



http://www.stuartmcmillen.com/comics_en/rat-park/#page-1

Adverse Childhood Experiences

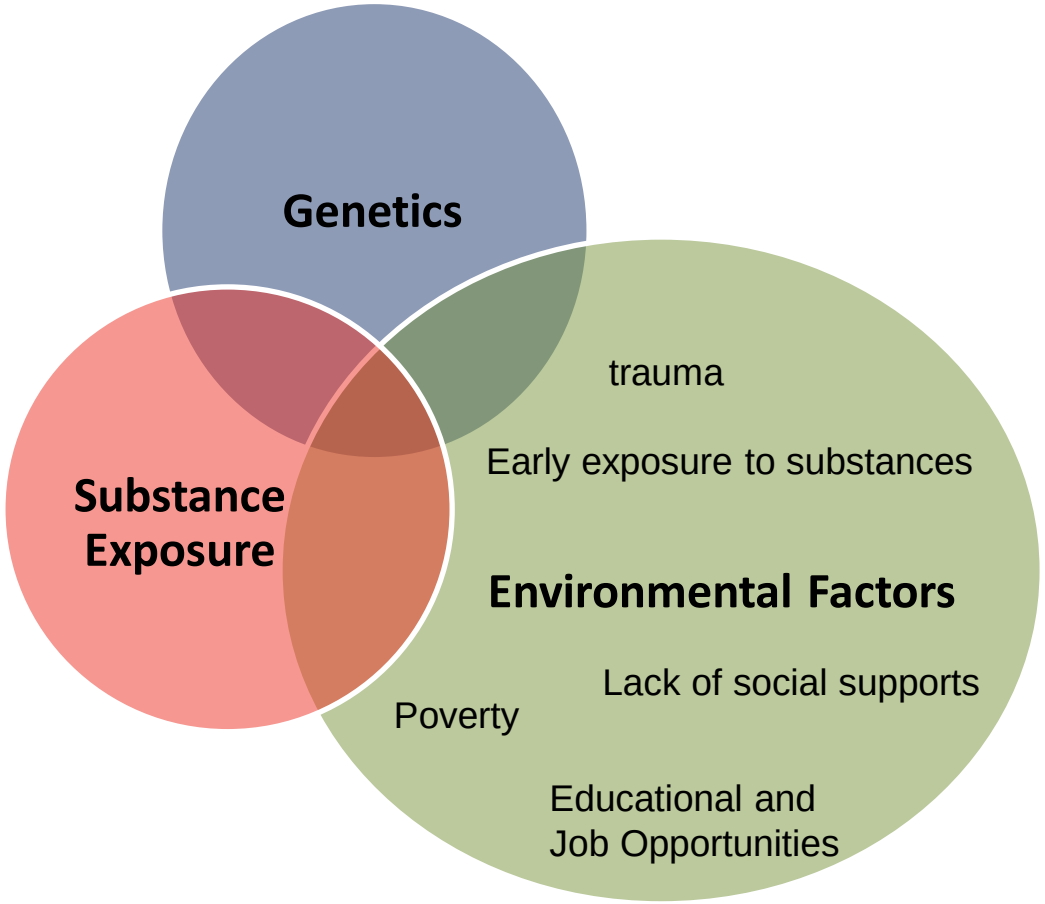


Out of 100 people:

33% Report No ACEs	51% Report 1-3 ACEs	16% Report 4-10 ACEs
With 0 ACEs	*With 3 ACEs*	*With 7+ ACEs*
1 in 16 who smoke	1 in 9 who smoke	1 in 6 who smoke
1 in 69 with alcohol use disorder	1 in 9 with alcohol use disorder	1 in 6 with alcohol use disorder
1 in 480 inject drugs	1 in 43 inject drugs	1 in 30 inject drugs
1 in 14 has heart disease	1 in 7 has heart disease	1 in 6 has heart disease
1 in 96 attempts suicide	1 in 10 attempts suicide	1 in 5 attempts suicide

https://azednews.com/the-impact-adverse-childhood-experiences-and-toxic-stress-have-on-students/

Substance Use Disorders are Chronic Conditions



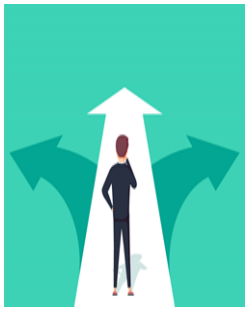
McLellan, A. T., Starrels J. L., et al. (2014 Jan). *Public Health Reviews, 35*(2).

Mate'. In the Realm of Hungry Ghosts

SAMHSA Model of Recovery

Health

Home



Purpose

Community

SAMHSA website: https://www.samhsa.gov/find-help/recovery.

Substance Use Disorder and Treatment

- Many people use drugs and alcohol, but the majority will not develop a substance or alcohol use disorder.
- Substance use disorder is not simply about the use of drugs; it is about the behaviors and symptoms around the use of drugs.

- Many people get better without formal treatment.
  - Treatment shortens the time it takes to get better.
  - Treatment reduces negative outcomes along the way (HIV, hepatitis C, worsened mental health, overdose death).

Opioid Use Disorder Diagnosis

Diagnostic and Statistical Manual of Mental Disorders 5 Criteria	
1. More or longer than intended 2. Unable to cut back or control 3. Time dedicated to obtaining, using, recovering from	**Loss of control**
4. Physical or psychological consequences 5. Activities given up 6. Failure to fulfill major obligations (work, school or home) 7. Continued use despite social or interpersonal problems caused or made worse 8. Recurrent use in hazardous situation	**Continued use despite consequences**
9. Craving, strong desire, or urge	**Craving or compulsion**
10. Tolerance (unless taken solely under appropriate medical supervision) 11. Withdrawal (unless taken solely under appropriate medical supervision)	

Severity is based on number of symptoms: Mild 2–3 symptoms, Moderate 4–5 symptoms, Severe ≥6 symptoms.

Source: American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington, DC: Author.

Does Language Matter?

- Language can affect attitudes toward and treatment of people with SUDs.
- A randomized controlled trial was held with mental health professionals.
  - Two groups were given the same clinical scenario: one with a **“substance abuser”** and the other with a **“person with a substance use disorder.”**

Those in the “substance abuser” condition agreed more with the notion that the character was personally culpable and that punitive measures should be taken.

Kelly JF. (2010). Int J Drug Policy. 2010 May;21(3):202-7. doi: 10.1016/j.drugpo.2009.10.010

Language Matters

Terms to Avoid Using	Terms to Use
Addict Junkie Drug abuser Alcoholic	Person who uses drugs *or* Person with substance use disorder Person with alcohol use disorder
Substance abuse Substance dependent	Substance use *or* Substance use disorder (clinical diagnosis)
Clean (drug test) Dirty (urine drug test)	Negative drug test Positive drug test
Drug habit	Substance use Substance use disorder (clinical diagnosis)
Staying clean	In recovery/in remission
Replacement therapy Medication-assisted treatment (MAT)	Medication for addiction treatment (MAT) Medication for opioid use disorder (MOUD)

Source: **Saitz et al. (2021) Recommended Use of Terminology in Addiction Medicine. J Addict Med.**

OPIOID USE DISORDER TREATMENT

Goals of Treatment

- Stay alive
- Reduce harm
- Improve health and wellbeing
  - Reduce cravings
  - Adapt thought patterns and behaviors
  - Improve coping skills
  - Identify sense of purpose
  - Identify community
  - Reduce criminogenic behaviors
- Feel “normal”

Medications for Opioid Use Disorder (MOUD)

- Medication for opioid use disorder (MOUD)
  - Methadone
  - Buprenorphine (Suboxone®, Zubsolve®, Subutex, Probuphine® implant, Sublocade injection)
  - Injectable extended release (ER) Naltrexone (Vivitrol®)
- Behavioral support (licensed SUD treatment or individual counseling)
- Approximately 1/2 of treatment providers offer methadone or buprenorphine.[1]
- Detox alone is not a treatment and actually increases risk of overdose without linkage to next level of care.[2]

Sources: [1] SAMHSA National Survey of Substance Abuse Treatment Services (N-SSATS): 2020. [2] Strang et al. *BMJ*. 2003. 326:960-1.

MOUD

As compared to treatment without medication or with placebo, medications for OUD (MOUD) have been shown to:

- Reduce illicit opioid use,
- Retain people in treatment, and
- Reduce risk of opioid overdose death (Methadone and buprenorphine)

"Discussing medications that can treat OUD with patients who have this disorder is the clinical standard of care."

Source: Substance Abuse and Mental Health Services Administration. (2018). Medications for Opioid Use Disorder. Treatment Improvement Protocol (TIP) Series 63, Full Document.

MOUD:

- All three of the medications do two things:
  - Help control cravings (block negative reinforcement)
  - Reduce the experience of using opioids on top of the medication (block positive reinforcement)

- Two key differences:
  - The way the medications work in the brain.
  - Regulation around dispensing.

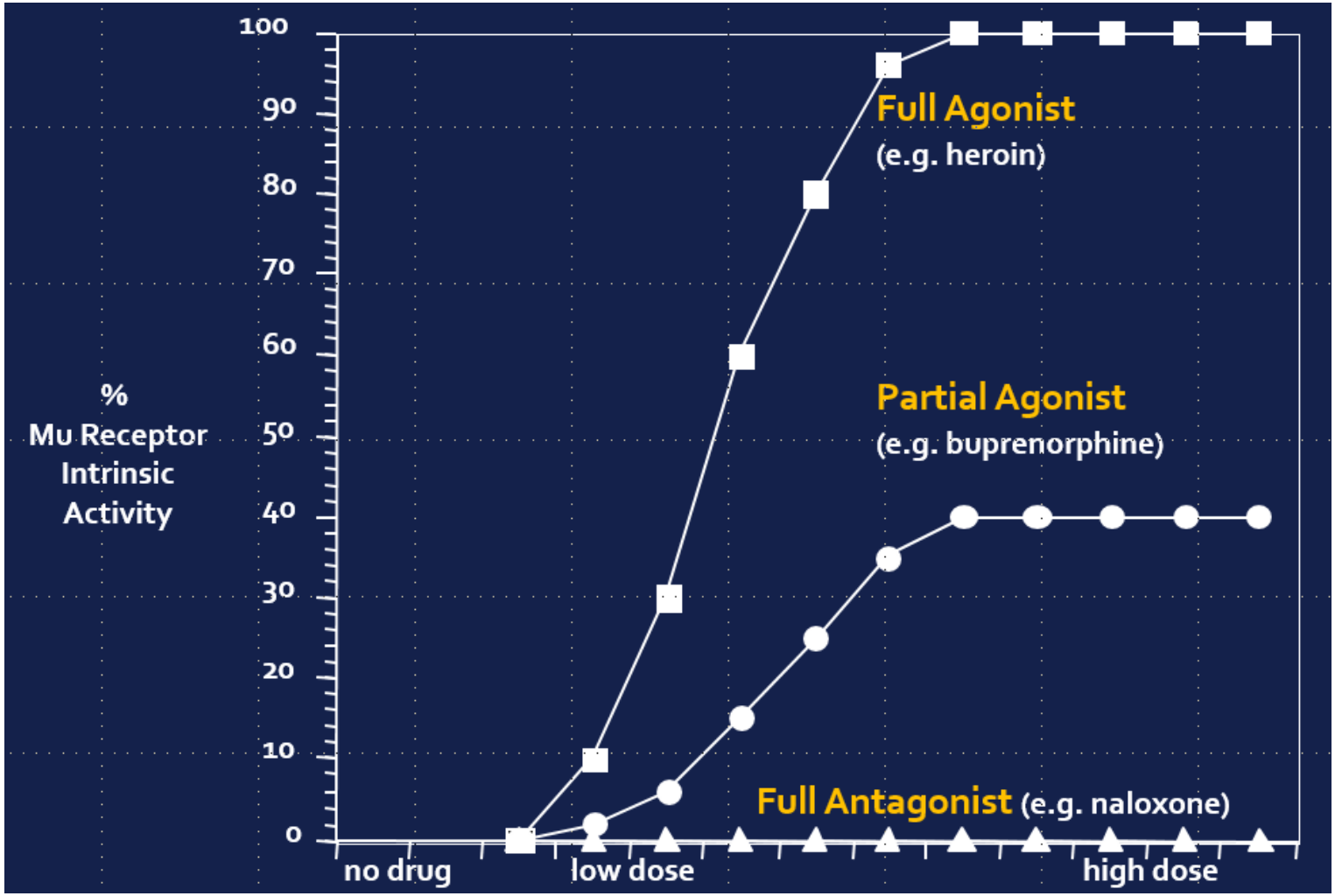
Source: Substance Abuse and Mental Health Services Administration. (2018). *Medications for opioid use disorder.* Treatment Improvement Protocol (TIP) Series 63, Full Document. HHS Publication No. (SMA) 18- 5063FULLDOC. Rockville, MD: Author.

How the medications work and their effects

	Action in the Brain	Relieves withdrawal symptoms	Provides Opioid Blockade	Pain Relieving Properties
Methadone	Opioid agonist (turns receptor on fully)	X (30-40mg)	X (>60mg)	X
Buprenorphine (suboxone)	Opioid Partial Agonist (turns receptor on partially)	X (4-8mg)	X (12-24mg)	X
XR Naltrexone (Vivitrol)	Opioid Antagonist (blocks the receptor)		X	

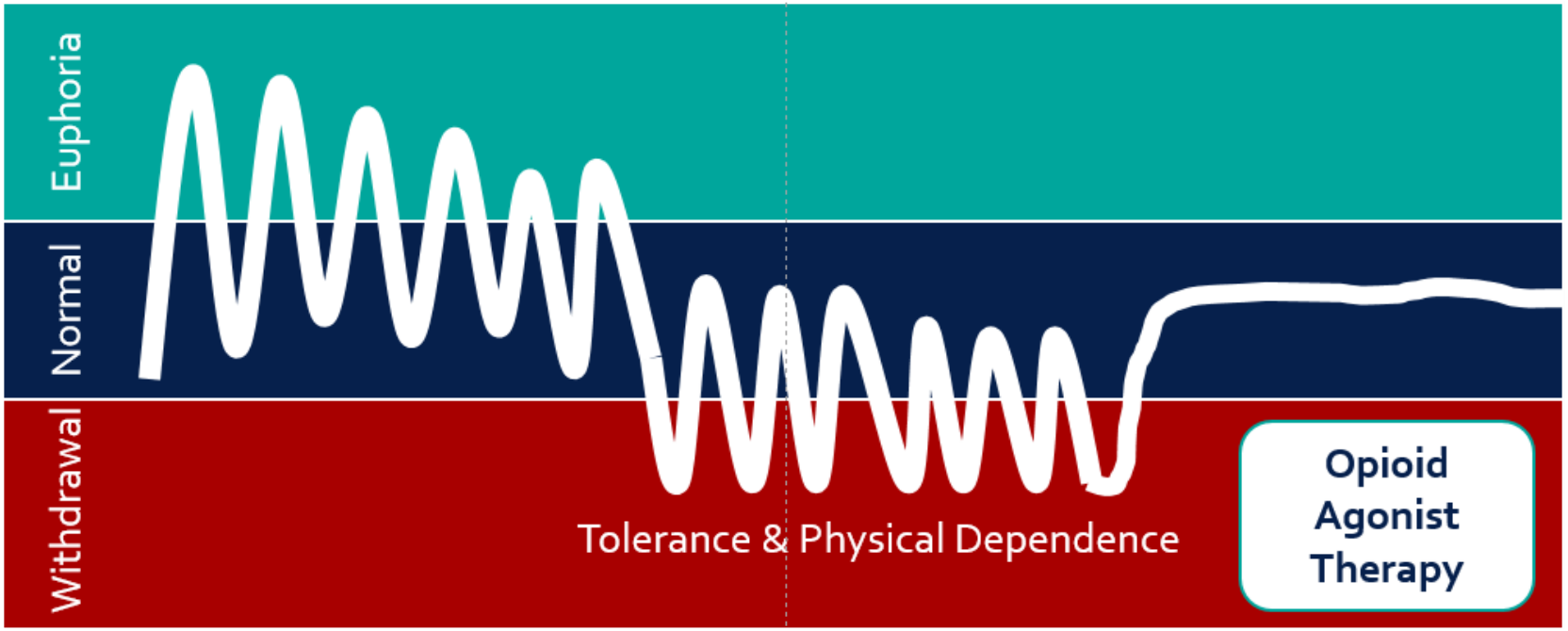
Source: Substance Abuse and Mental Health Services Administration. (2018). *Medications for opioid use disorder.* Treatment Improvement Protocol (TIP) Series 63, Full Document. HHS Publication No. (SMA) 18- 5063FULLDOC. Rockville, MD: Author.

MOUD- Receptor Activity



Source: American Society of Addiction Medicine. ASAM Buprenorphine Waiver Training. Image used with permission.

Opioid Agonist Therapy (buprenorphine or methadone)



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Alford DP. http://www.bumc.bu.edu/care/

MOUD: Regulatory Differences

Medication	Controlled Substance	Requirements
Methadone	X	Only able to be dispensed in an opioid treatment program
Buprenorphine	X	Can be dispensed in an opioid treatment program Can be prescribed from office-based setting if clinician has a DEA license
XR Naltrexone		Can be prescribed by anyone with prescribing authority Administered in clinical setting

Duration of Treatment

- Longer length of treatment is associated with better outcomes (methadone and buprenorphine).
  - Patients should continue as long as they benefit and no contraindications.

- Data are limited for long-term use of XR Naltrexone, but the current recommendation is that patients should continue as long as they see benefit, want to continue, and no contraindications.

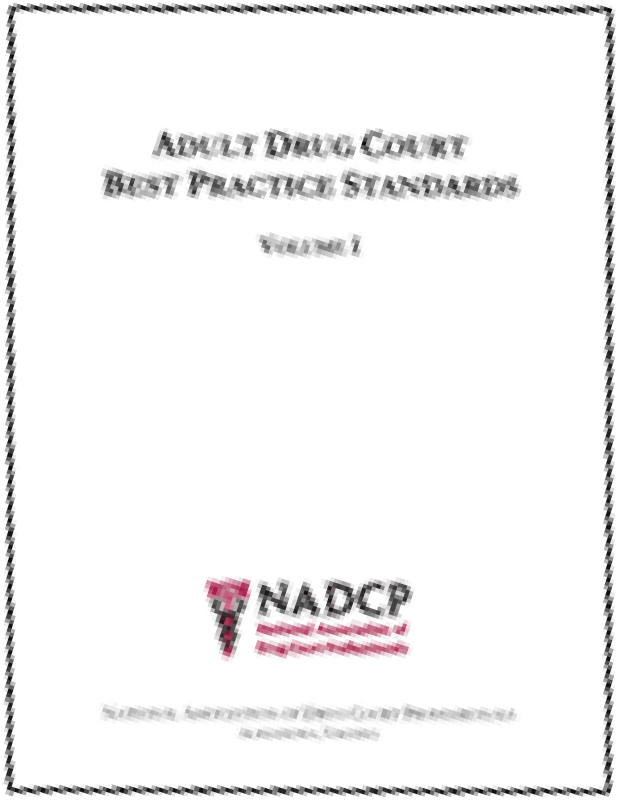
Source: Substance Abuse and Mental Health Services Administration. (2018). *Medications for opioid use disorder.* Treatment Improvement Protocol (TIP) Series 63, Full Document. HHS Publication No. (SMA) 18- 5063FULLDOC. Rockville, MD: Author.

Treatment Selection: Methadone, Buprenorphine or XR Naltrexone?

- **Patient preference / past experience**
  - The medicine that works best is the one they are willing to take!
- **Ease of withdrawal**/ability to abstain from opioids for at least 10 days (for XR Naltrexone)
- **Past overdose/risk of future overdose**
  - Buprenorphine and methadone reduce risk of overdose death
- **Co-occurring pain**
  - Buprenorphine and methadone may be better options
- **Access to treatment medication**
  - Can they get to methadone treatment every day
  - Do they have a primary care clinic that already offers buprenorphine or XR naltrexone

Drug Court Best Practice Standards

- Recommend that the clinical assessment directs the treatment plan.
- Recommend drug courts know about MOUD and obtain expert medical consultation.
- Recommend courts allow the use of all FDA-approved medications when prescribed.
- Recommends drug court supports participants to receive social services (housing assistance, mental health treatment, vocational or educational services)



https://www.nadcp.org/standards/adult-drug-court-best-practice-standards/ Accessed 2/12/2023

Ten Key Components

1. Integrate SUD treatment with justice processing
2. Nonadversarial approach
3. Early and prompt identification and entry into drug court
4. Continuum of SUD treatment and rehabilitation services
5. Frequent toxicology testing
6. Coordinated strategy governs court responses
7. Ongoing judicial interaction
8. Monitoring and evaluation gauge effectiveness
9. Interdisciplinary education
10. Community partnerships enhance drug court effectiveness

https://www.ojp.gov/pdffiles1/bja/205621.pdf Accessed 2/12/2023

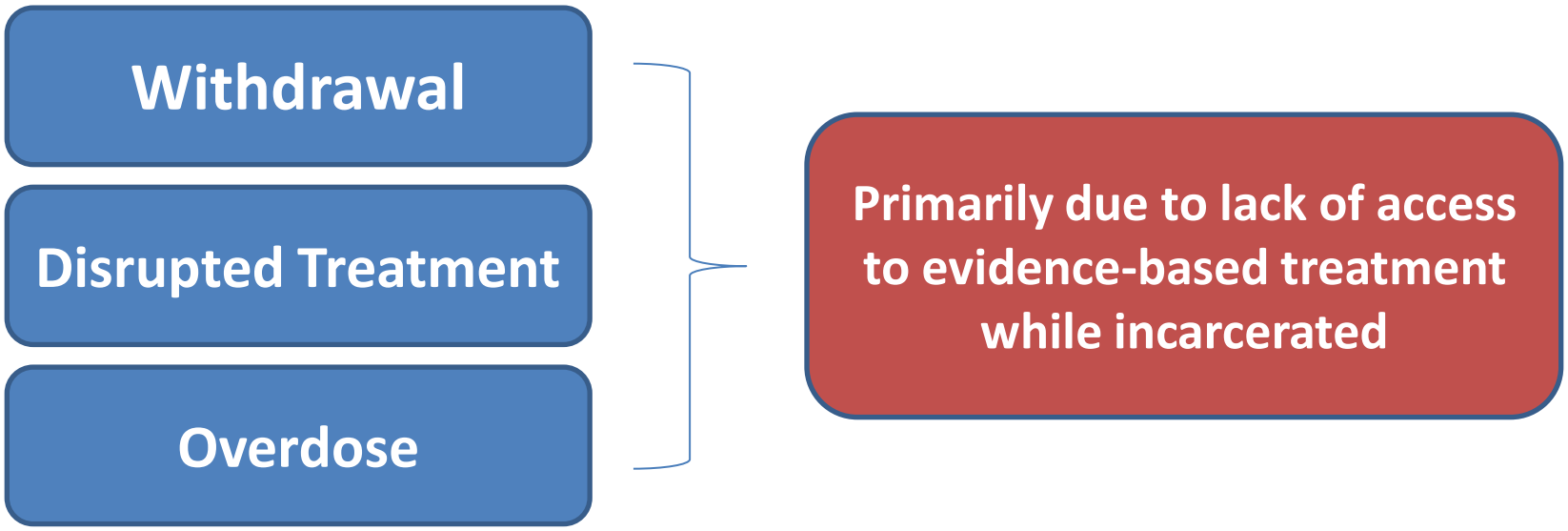
Drug Court Current Practices

- Recent survey of drug courts in high opioid mortality communities found (N=169):
  - 75% rely principally on medical judgement for medication decisions
  - 73% provide access to all 3 FDA-approved MOUD
  - 80% provide naloxone training & 62% provide naloxone kits
  - **25-50% of clients with OUD receive MOUD**
  - **36% of jails in these communities do not offer agonist MOUD (buprenorphine or methadone)**

This is a missed opportunity!

Marlowe DB et al. (2022). doi: 10.1016/j.jsat.2022.108850.

Harms of Incarceration for People With Opioid Use Disorder

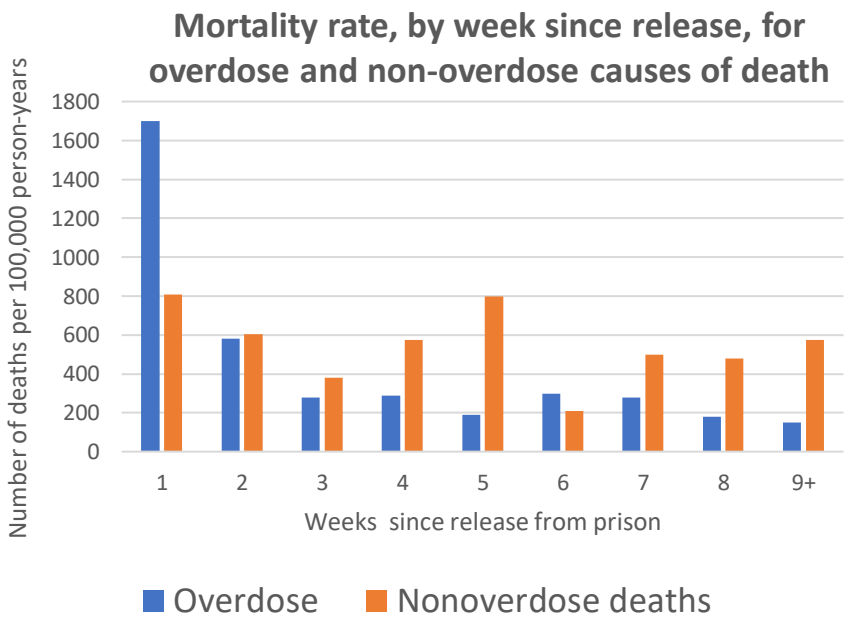


Slide Credit: Dr. Jonathan Giftos, used with permission

Increased Risk of Death on Leaving Jail/Prison

Biswanger 2013:

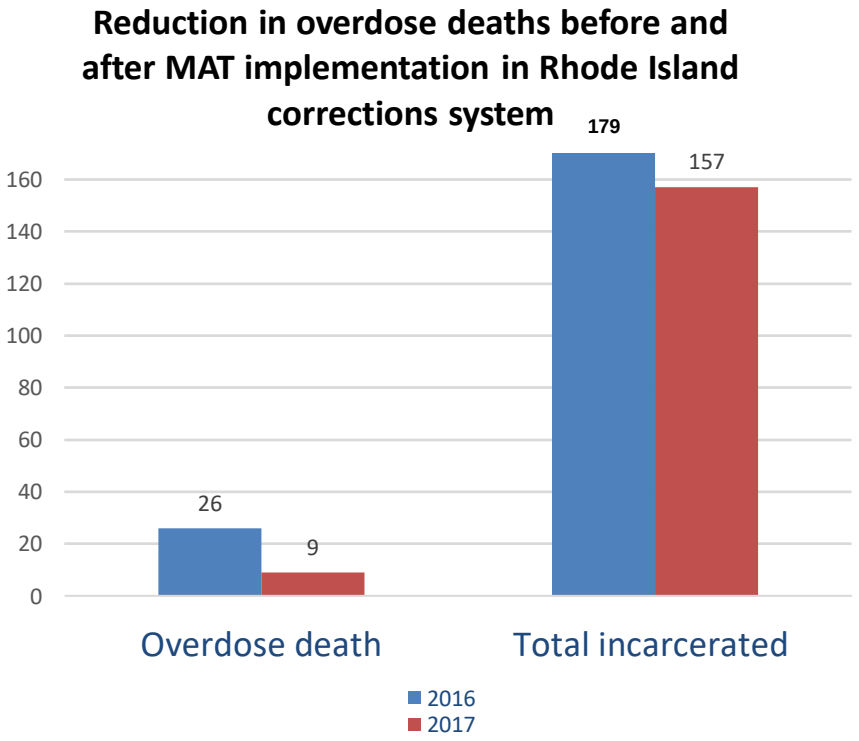
- **Overdose was the leading cause of death in former prisoners.**
- **Overdose risks are associated with transition from prison to the community.**



Binswanger et al. (2013). Annals of internal medicine, 159(9), 592-600.

MOUD in Jails/Prisons Reduces Mortality

- In mid-2016, the Rhode Island Department of Corrections started offering all three medications for opioid use disorder: methadone, buprenorphine, and XR naltrexone.
- After implementation, there was a **61% reduction in mortality.**
- Number needed to treat to save one person's life is 11.



Green, T. C., et al. (2018). Postincarceration fatal overdoses after implementing medications for addiction treatment in a statewide correctional system. JAMA psychiatry, 75(4), 405-407.

"Withholding or failing to have available all classes of FDA-approved medications for the treatment of opioid use disorder in any criminal justice setting is denying appropriate medical treatment"

- National Academies "Medications for Opioid Use Disorder Save Lives"

http://nationalacademies.org/hmd/Reports/2019/medications-for-opioid-use-disorder-save-lives.aspx

Legal Briefs and the Cost of Not Providing Care

U.S. Department of Justice
Civil Rights Division

The Americans with Disabilities Act and the Opioid Crisis: Combating Discrimination Against People in Treatment or Recovery

The opioid crisis poses an extraordinary challenge to communities throughout our country. The Department of Justice (the Department) has responded with a comprehensive approach prioritizing prevention, enforcement, and treatment. This includes enforcing the Americans with Disabilities Act (ADA), which prohibits discrimination against people in recovery from opioid use disorder (OUD) who are not engaging in illegal drug use, including those who are taking legally-prescribed medication to treat their OUD. This guidance document provides information about how the ADA can protect individuals with OUD from discrimination—an important part of combating the opioid epidemic across American communities. While this

pply to

Example B

A jail does not allow incoming inmates to continue taking MOUD prescribed before their detention. The jail's blanket policy prohibiting the use of MOUD would violate the ADA.

abilities in many

pportunities as

everyone else to enjoy employment opportunities,[1] participate in state and local government programs,[2] and purchase goods and services.[3] For example, the ADA protects people with disabilities from discrimination by social services agencies; child welfare agencies; courts; prisons and jails; medical facilities, including hospitals, doctors' offices, and skilled nursing facilities; homeless shelters; and schools, colleges, and universities.

2) Does an individual in treatment or recovery from opioid use disorder have a disability under the ADA?

Typically, yes, unless the individual is currently engaged in illegal drug use. *See* Question 5.

The ADA prohibits discrimination on the basis of disability.[4] The ADA defines disability as (1) a

https://www.ada.gov/opioid_guidance.pdf

https://bja.ojp.gov/library/publications/managing-substance-withdrawal-jails-legal-brief

TREATMENT OUTCOMES

MOUD: Treatment Outcomes

Outcome	Methadone	Buprenorphine	XR Naltrexone
Increased retention in treatment	X	X	X
Reduced illicit opioid use	X	X	X
Reduced risk of overdose death	X	X	
Reduced all-cause mortality	X	X	
Reduced HIV risk behaviors	X	X	
Reduce recidivism (when started in jail)		X	

Source: Substance Abuse and Mental Health Services Administration. (2018). *Medications for opioid use disorder.* TIP 63. HHS Publication No. (SMA) 18-5063. Rockville, MD: Author.

Retention in Treatment at 12 Months With Reduced Illicit Drug Use

Treatment	
Treatment without medication	6%
XR Naltrexone[a,b]	10–31%
Buprenorphine[a]	60–90%
Methadone[a]	74–80%

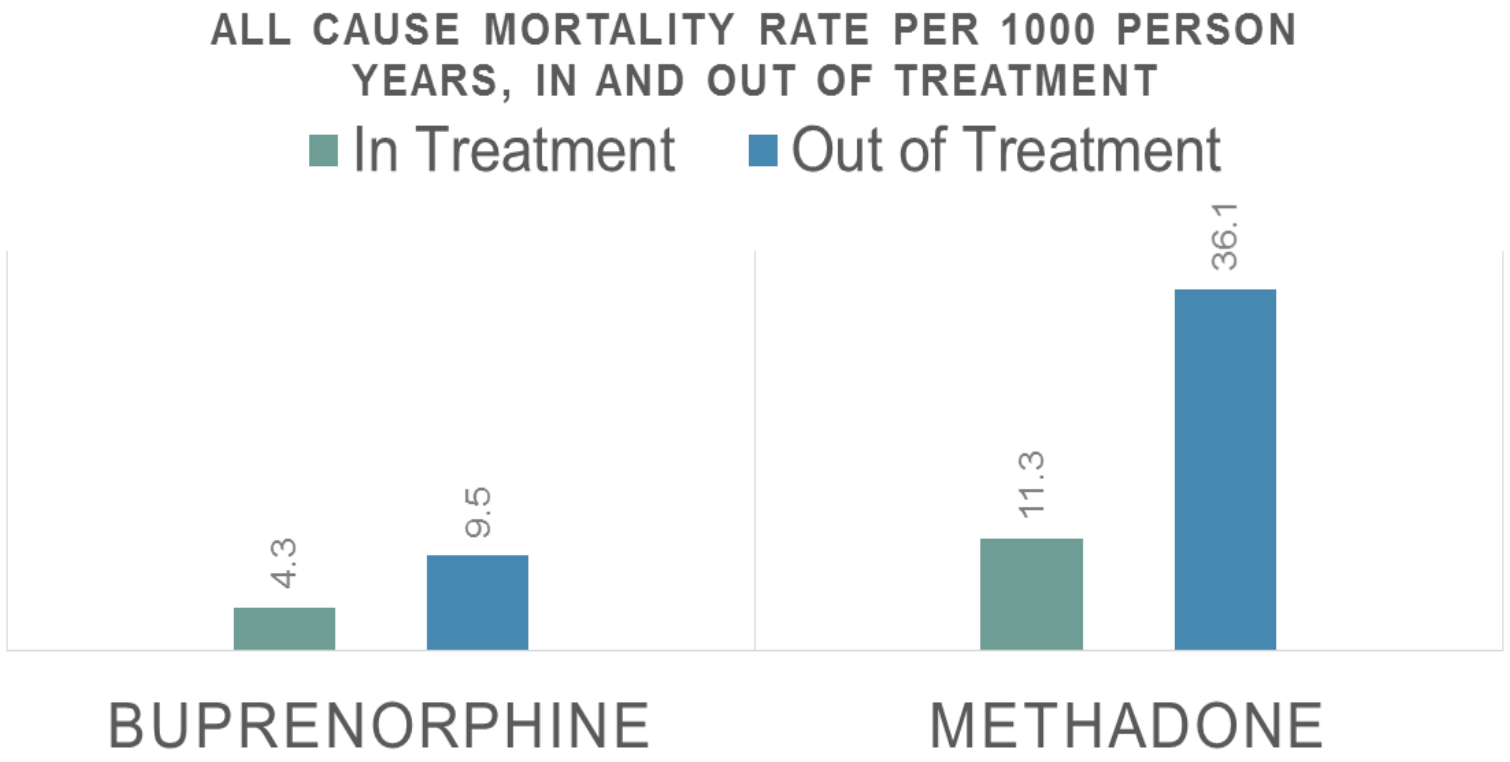
[a] Based on a meta-analysis of research studies, the rates of success are lower in real-world settings.

[b] Most XR Naltrexone studies were only 3–6 months; 12-month registry study only had percentage discontinued due to meeting goals. The numbers presented here are different from the report referenced because these values were updated based on Jarvis et al.'s study.

Sources: California Health Care Foundation. *Why health plans should go to the MAT in the fight against opioid addiction.*

Jarvis et al. *Addiction.* 2018;113(7):1188-1209.

Benefits of Long-Term Agonist Treatment



Systematic review and meta-analysis including prospective and retrospective cohort studies among people with OUD

Sordo L et al. BMJ 2017 April 26; 357:j1550

MOUD: FREQUENTLY ASKED QUESTIONS

Isn’t allowing someone to use methadone or buprenorphine just trading one drug for another?

- Addiction is about the behaviors someone displays around their drug use.
- Someone who is stable in their recovery and is taking one of these medications is able to participate in all of their daily life activities and no longer exhibits those behaviors.

Aren't lower doses of buprenorphine and methadone better? Why are some people on such high doses?

- Everyone's dose is different.
- Doses are increased or decreased based on someone's symptoms.
- Goal is to have a dose that controls someone's cravings to a level that allows them to be able to engage in other daily activities.
- Doses that are too low will not provide opioid blockade.

- Higher doses have been shown to increase retention in treatment and to reduce illicit opioid use.

Mattick et al. (2014). Buprenorphine maintenance vs placebo or methadone maintenance for opioid dependence. Cochrane Database of Systematic Reviews 2014, Issue 2. Art. No.: CD002207. DOI: 10.1002/14651858.CD002207.pub4

Why do some people take these medications for so long? Isn't shorter treatment course better?

- All care should be individualized
- Longer treatment = better outcomes
  - Lower risk for resumed use
  - Better health outcomes
  - Less risk of death
- Opioid use disorder is a chronic condition, meaning that the treatments are generally long-term.

We hear that people sell buprenorphine, but you say that people typically don't use it to get high… then why would someone buy it?

- Most people who report buying buprenorphine on the street report they buy it because they want to
  - Avoid withdrawal (79%).
  - Maintain abstinence (67%).
  - Self-wean off drugs (53%).

- Buprenorphine does not provide a good "high" to someone who is an experienced opioid user.

Cicero et al. (2018). Understanding the Use of diverted buprenorphine. Drug and Alcohol Dependence, 193:117-123

Someone with opioid use disorder should never be given opioid pain medications.

- False!
- People with OUD can receive opioids for pain management, especially in relation to a surgery or an acute injury, but it is typically done in very controlled settings (small volumes given, close follow-up, etc.).

Questions, Feedback & Discussion

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