

Substance Use Disorders and Medication Assisted Treatments

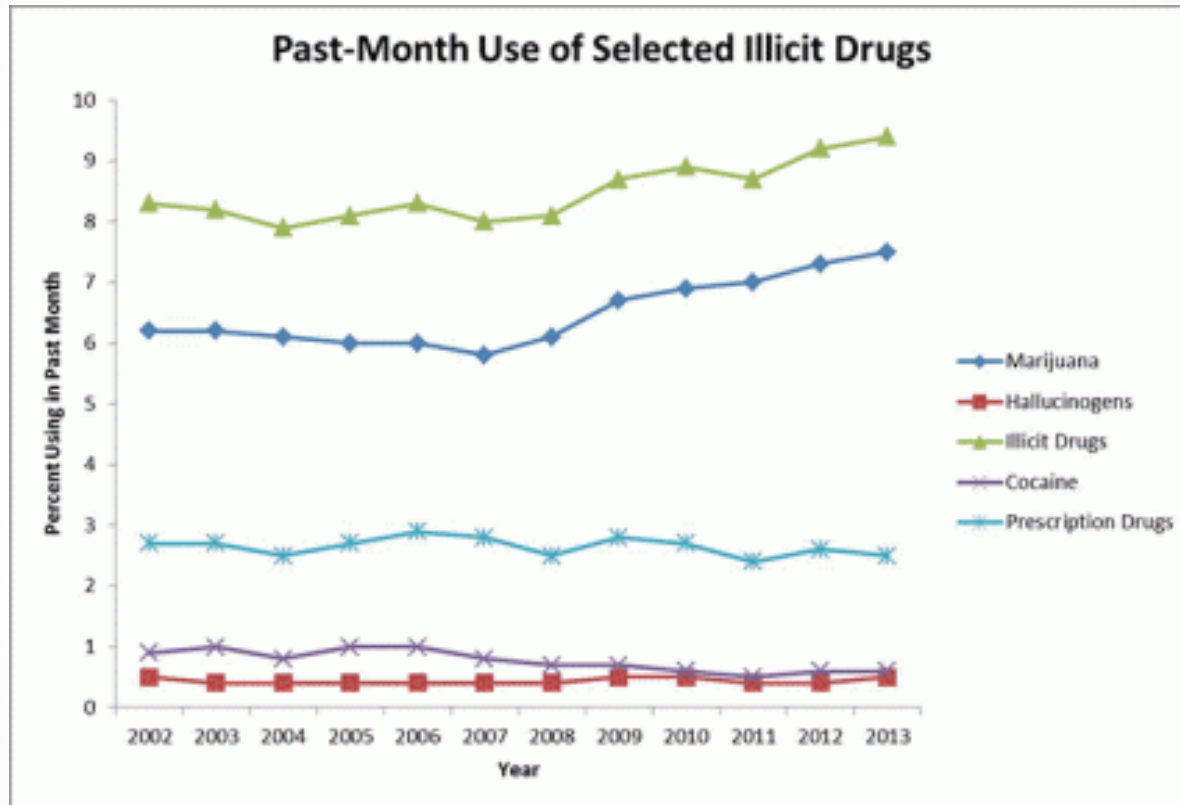
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Why is it a problem?

- 91 Americans die daily from opiate overdose
 - (~130 die daily from colon cancer)
- 1,000 visits daily to ER for not using opiates correctly
- It is a public health epidemic

Use of Illicit Drugs

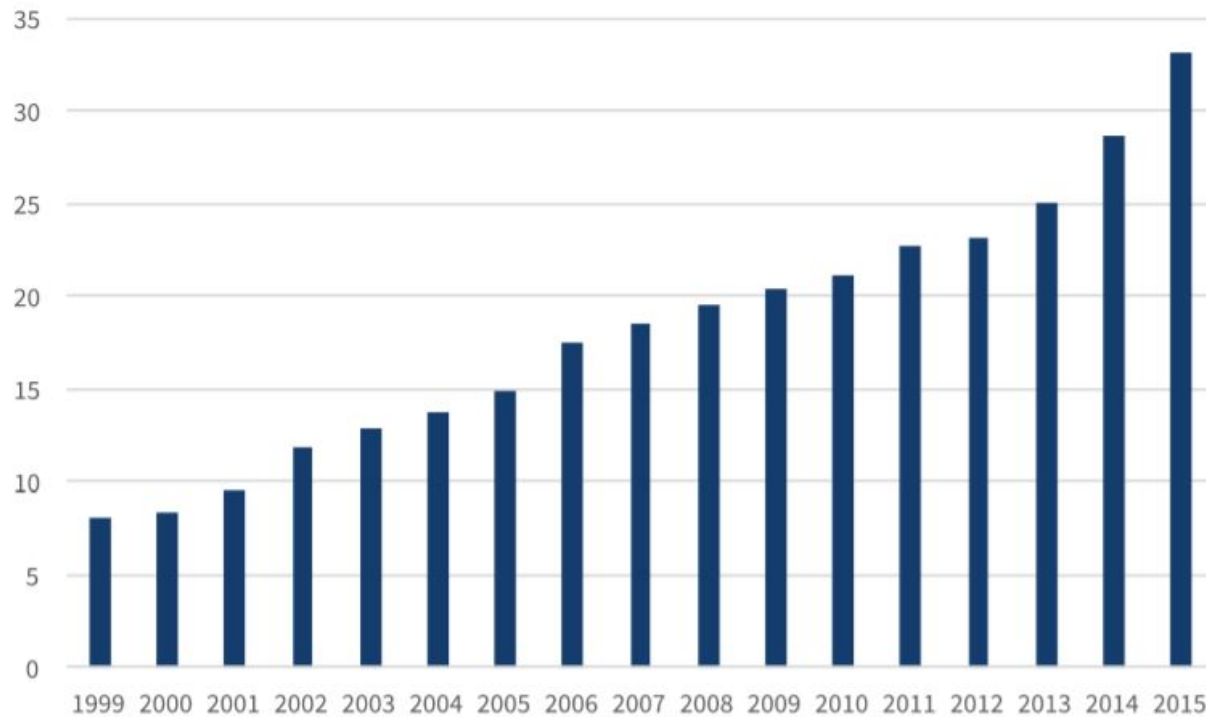


Why is it a problem?

- Binge drinking in the last month
 - Men: 30.2%
 - Women: 16.0%
- Heavy ongoing alcohol use
 - Men: 9.5%
 - Women: 3.3%

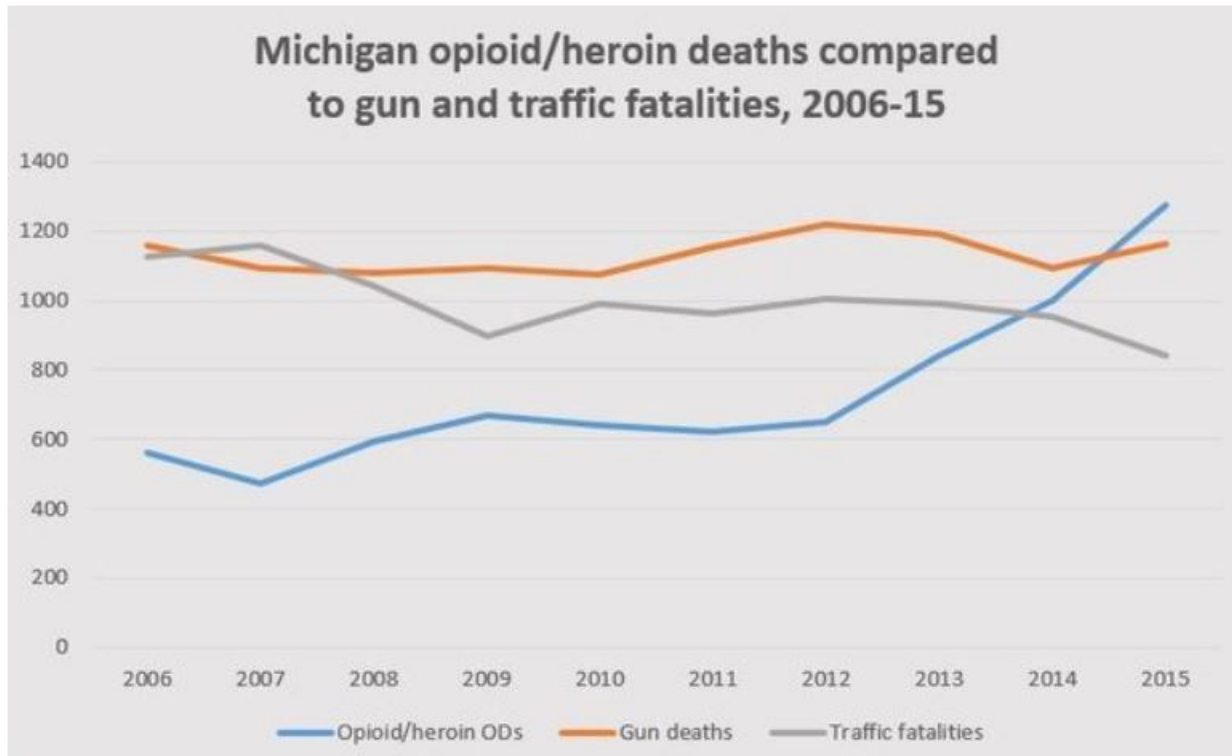
Opioid Overdose Deaths

Figure 1. Opioid-involved Overdose Deaths, 1999-2015
(Thousands of Deaths)



Source: CDC Wonder database, multiple cause of death files

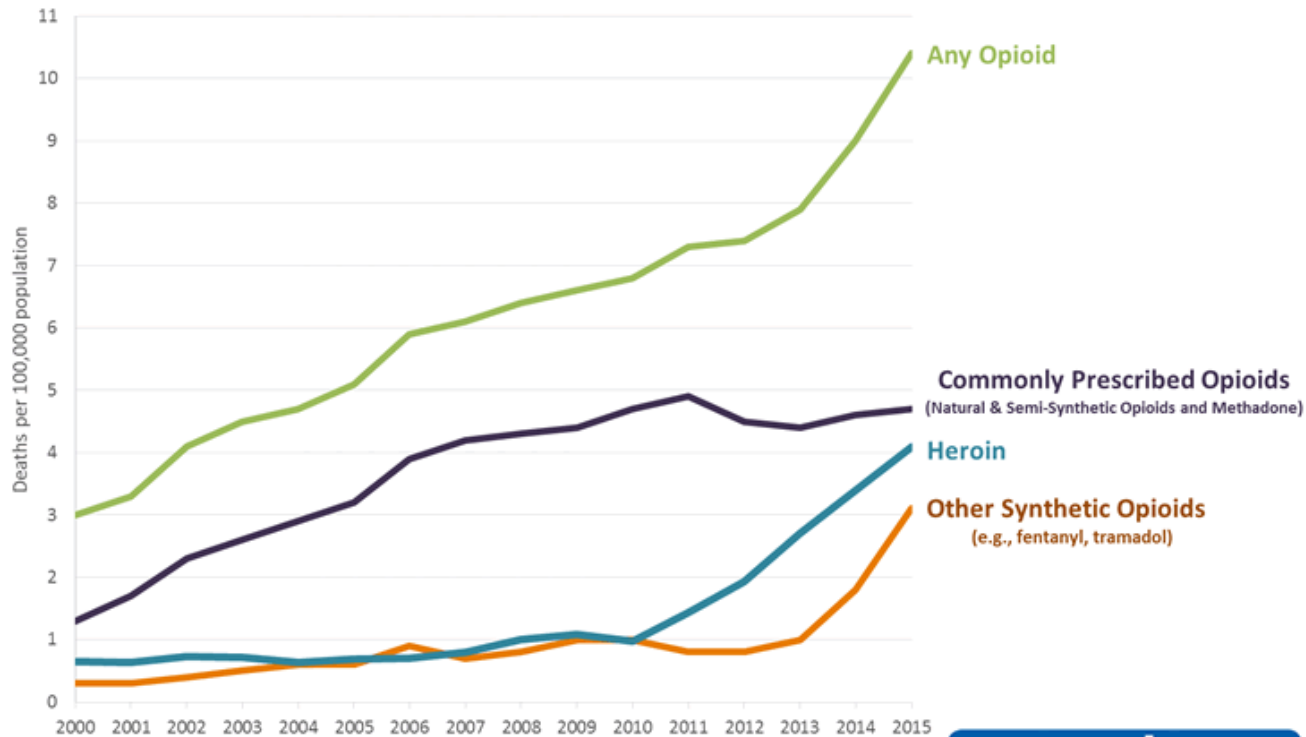
Deaths in Michigan



Source: Michigan Department of Health and Human Services

Opioid Deaths in US

Overdose Deaths Involving Opioids, United States, 2000-2015

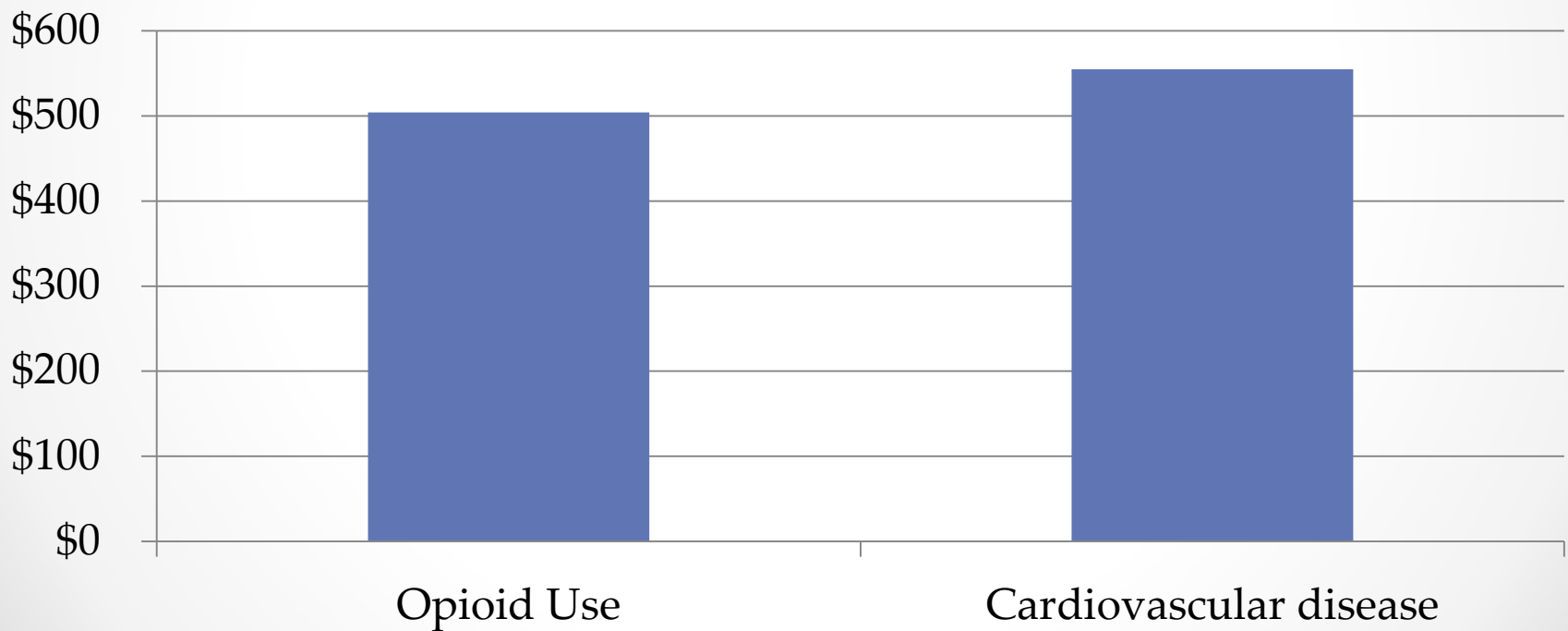


SOURCE: CDC/NCHS, National Vital Statistics System, Mortality. CDC WONDER, Atlanta, GA: US Department of Health and Human Services, CDC; 2016. <https://wonder.cdc.gov/>.

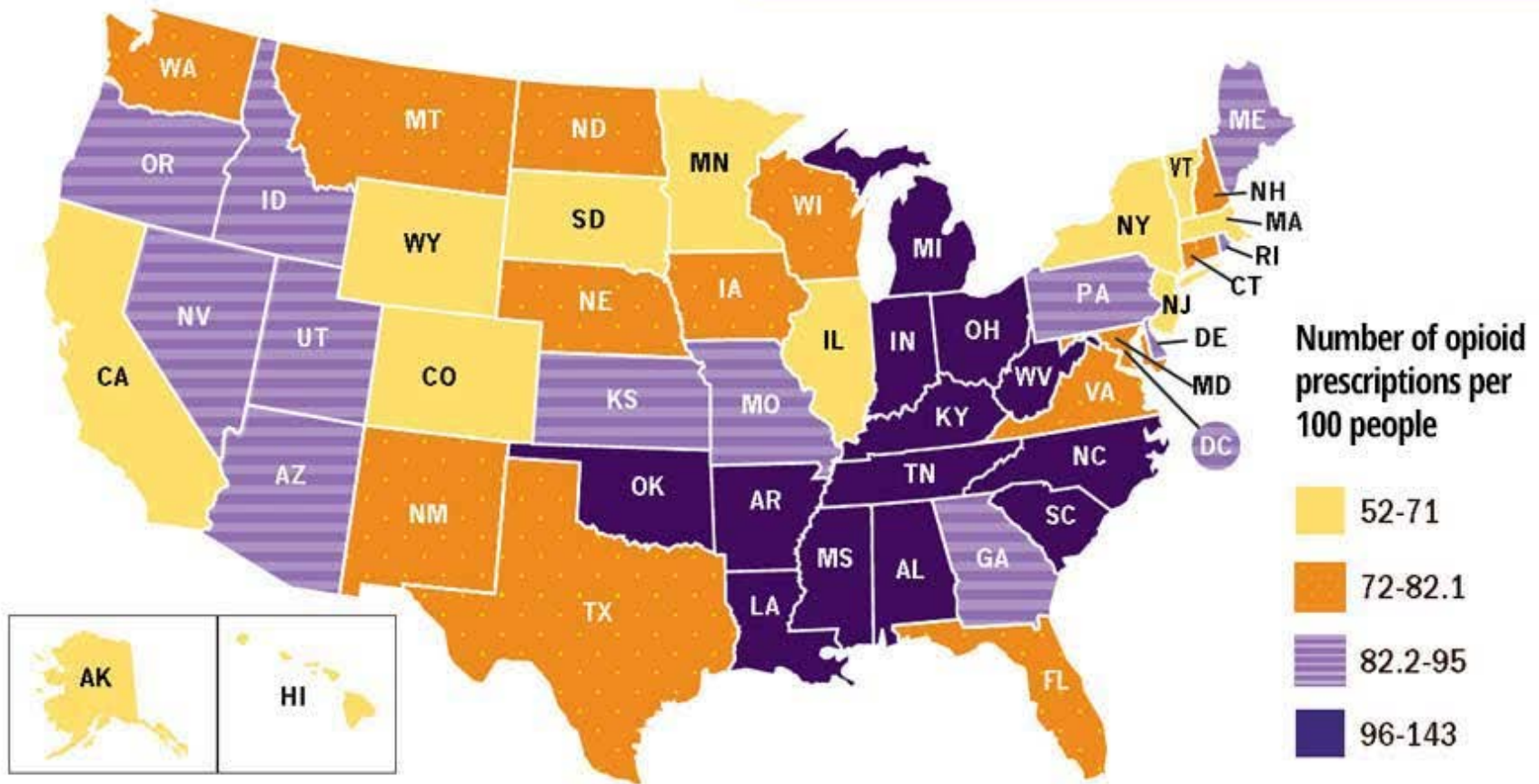
www.cdc.gov
Your Source for Credible Health Information

Cost of the Opioid Epidemic

Chronic Disease Costs (billions)

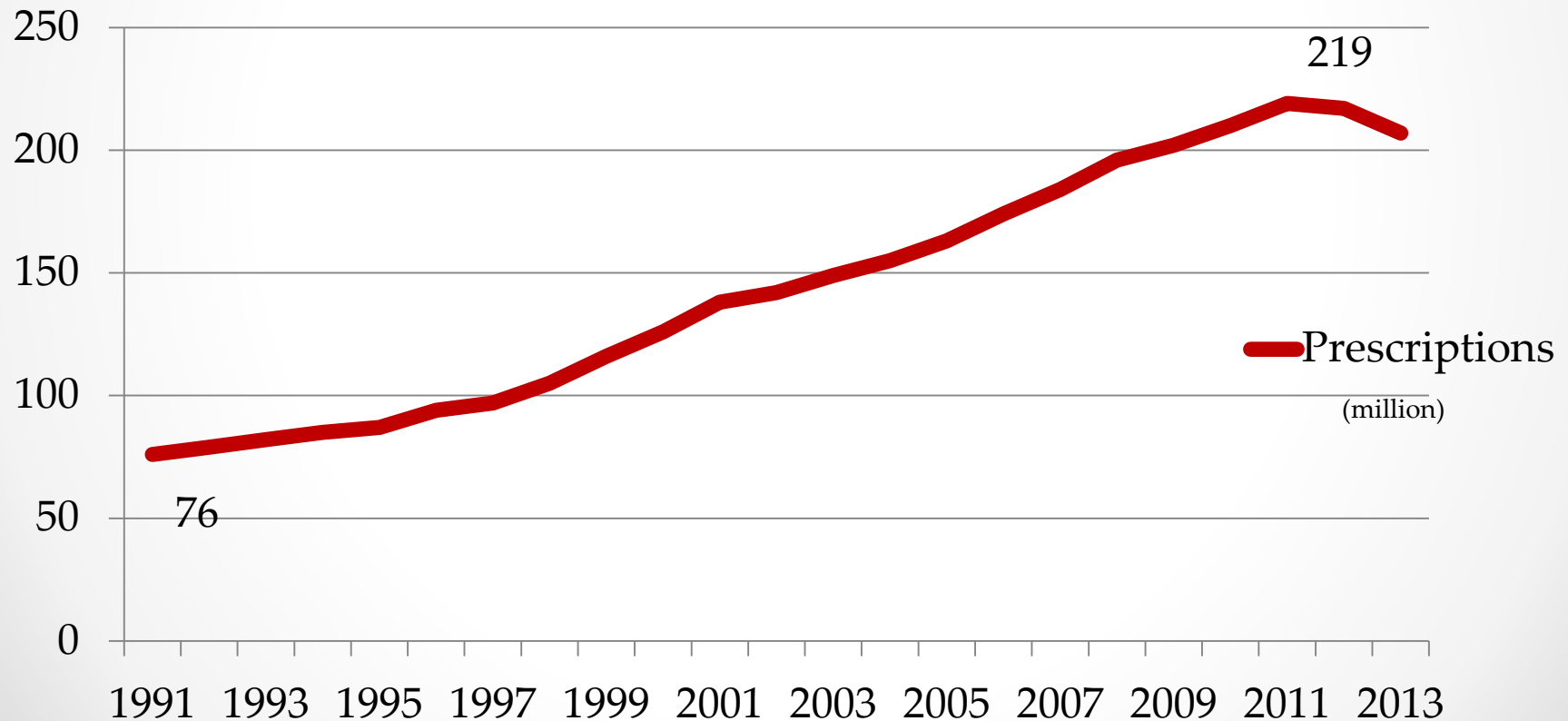


Some states have more opioid prescriptions per person than others.

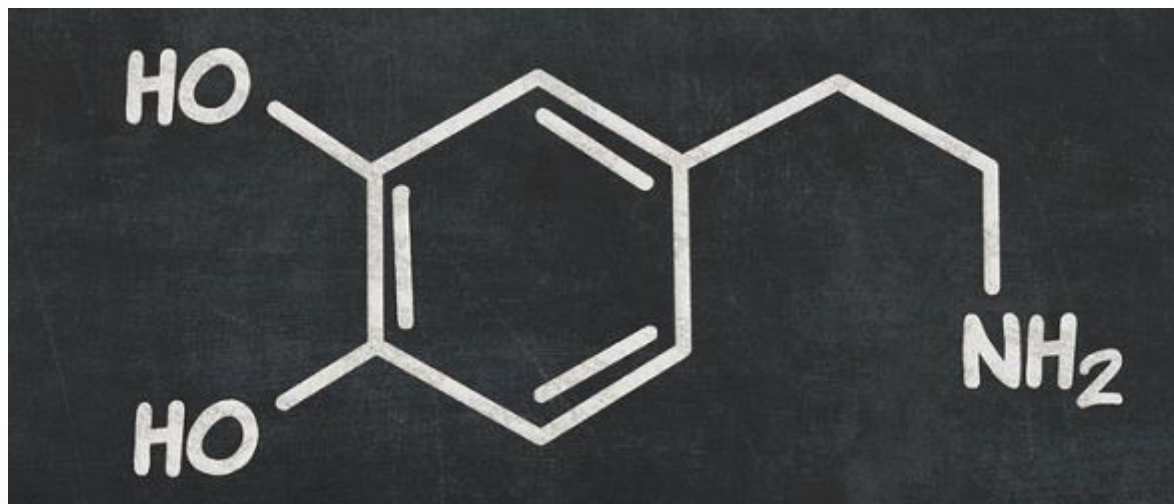


SOURCE: IMS, National Prescription Audit (NPA™), 2012.

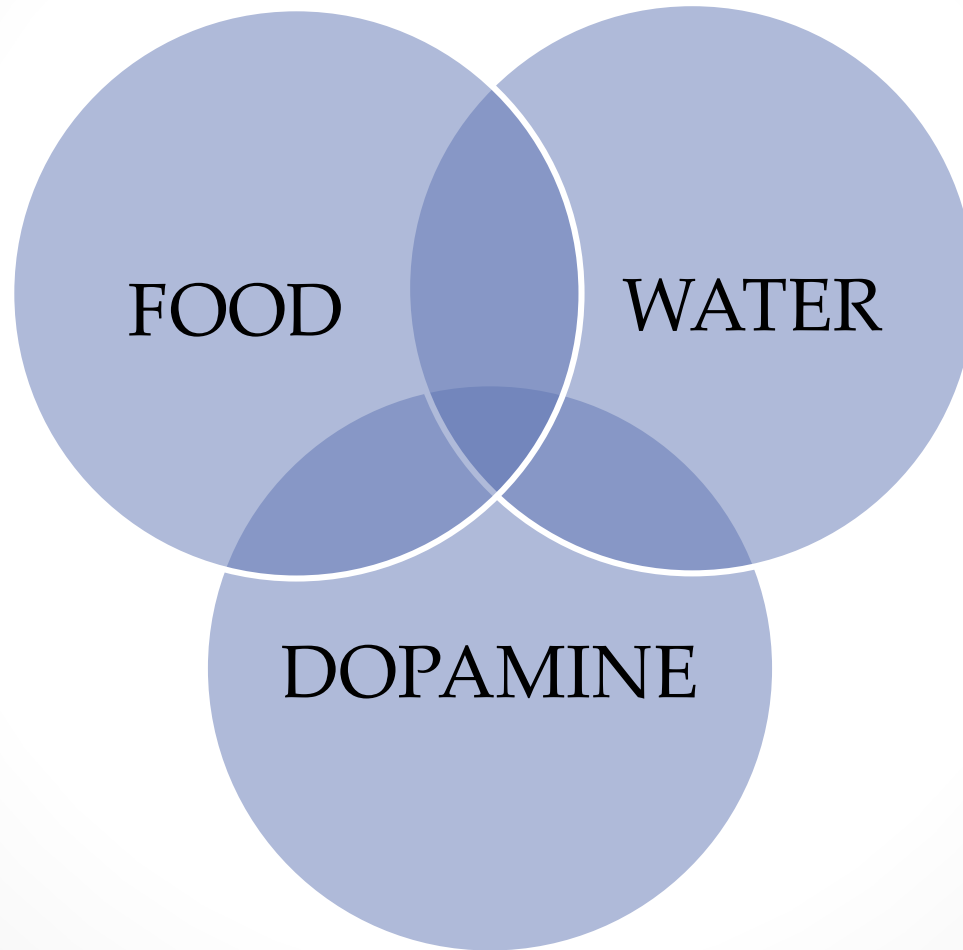
Number of US Opioid Prescriptions



So now what...



Survival

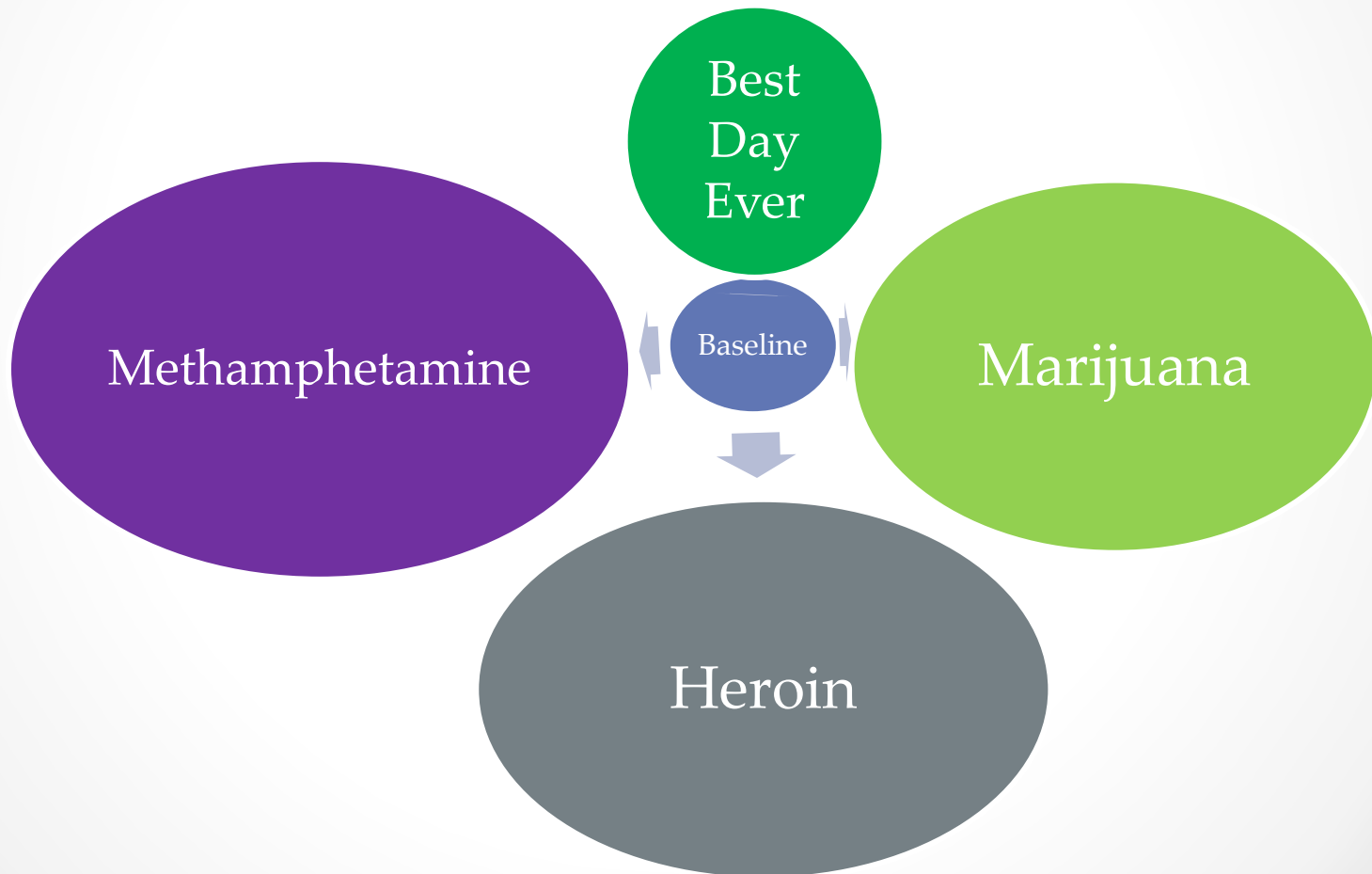


Responses to Dopamine

- Motivation and Drive
- Pleasure
- Food
- Water
- Chocolate







Methamphetamine

Best
Day
Ever

Baseline

Marijuana

Heroin

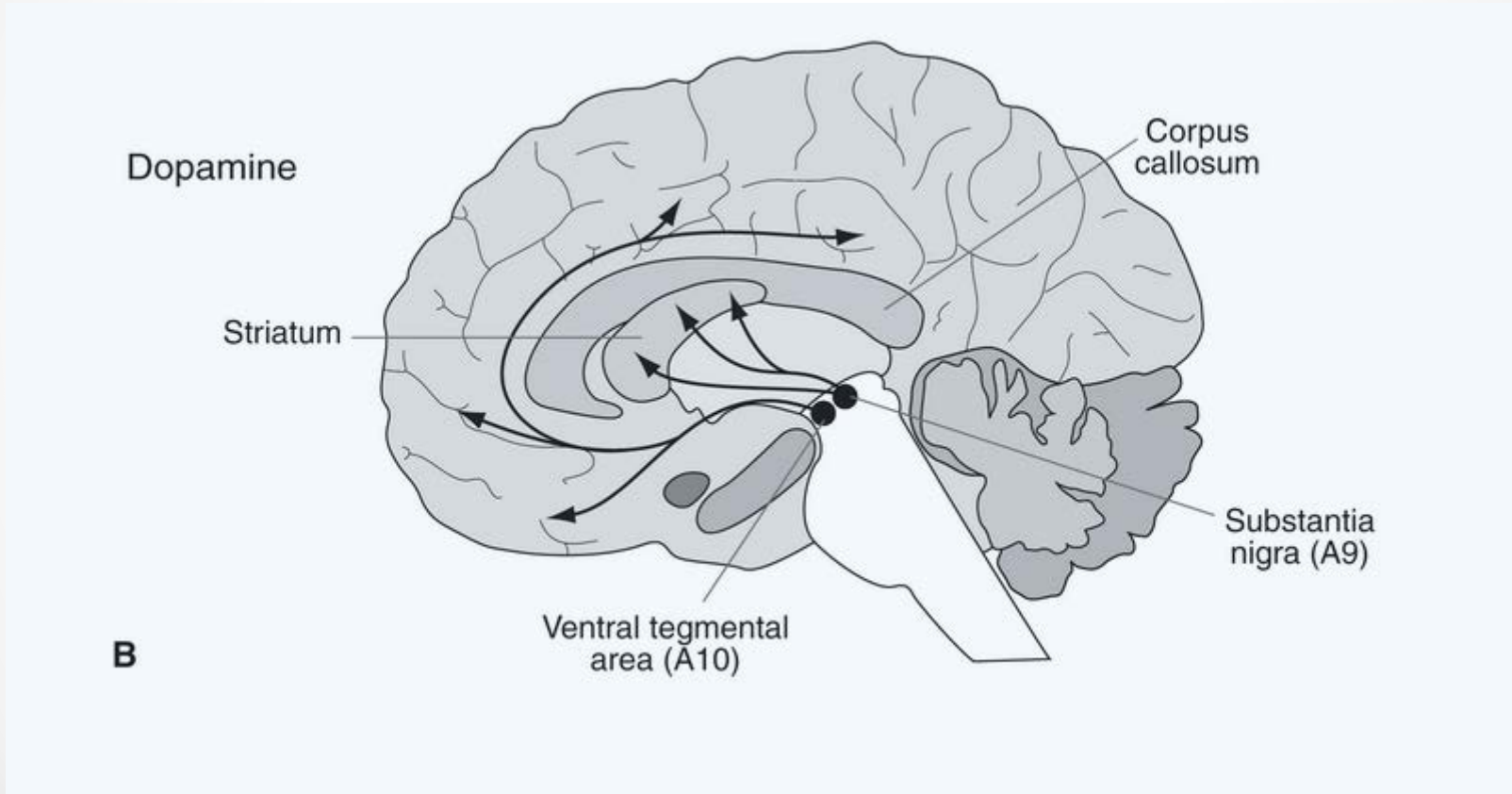
ASAM Definition of Addiction

- **Short Definition of Addiction:**
- **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. This is reflected in an individual pathologically pursuing reward and/or relief by substance use and other behaviors.
- Addiction is characterized by 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.

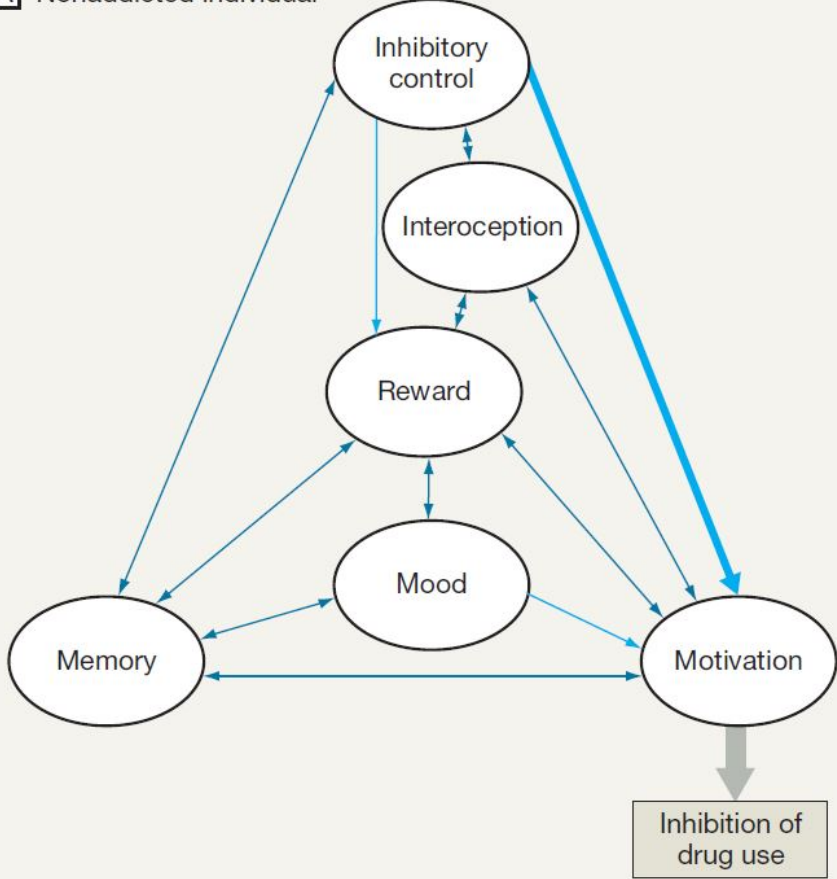
A Brief Overview of the Brain

- <https://www.youtube.com/watch?v=0-8PvNOdByc>

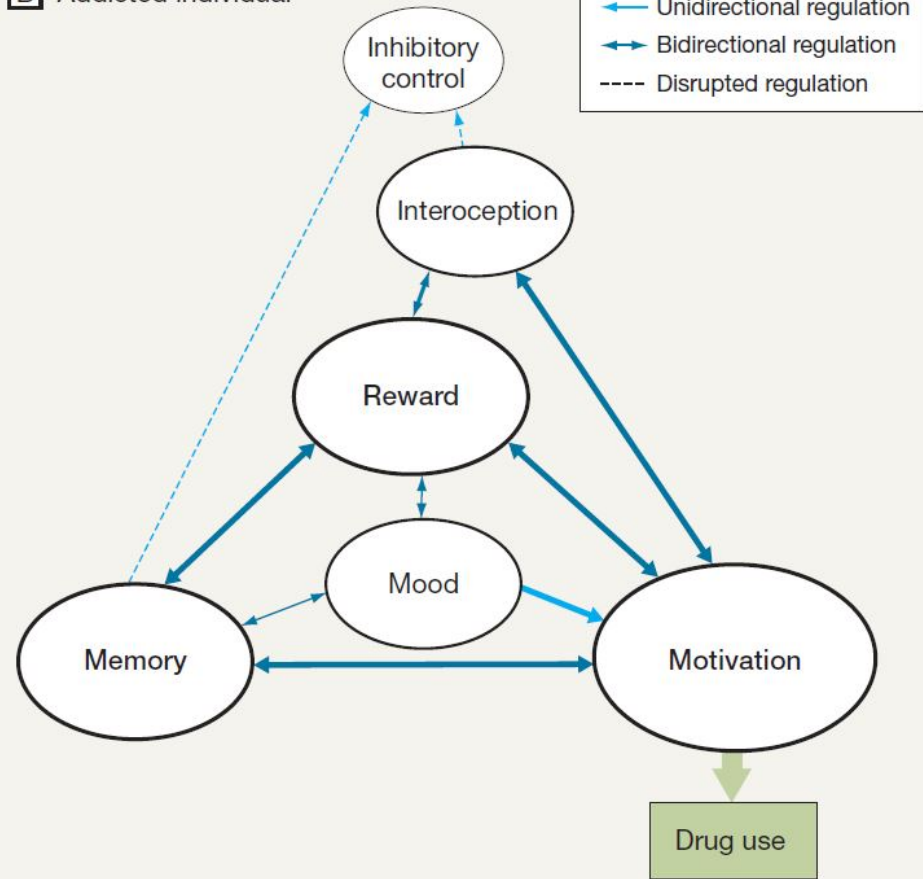
Dopamine Reward Pathway



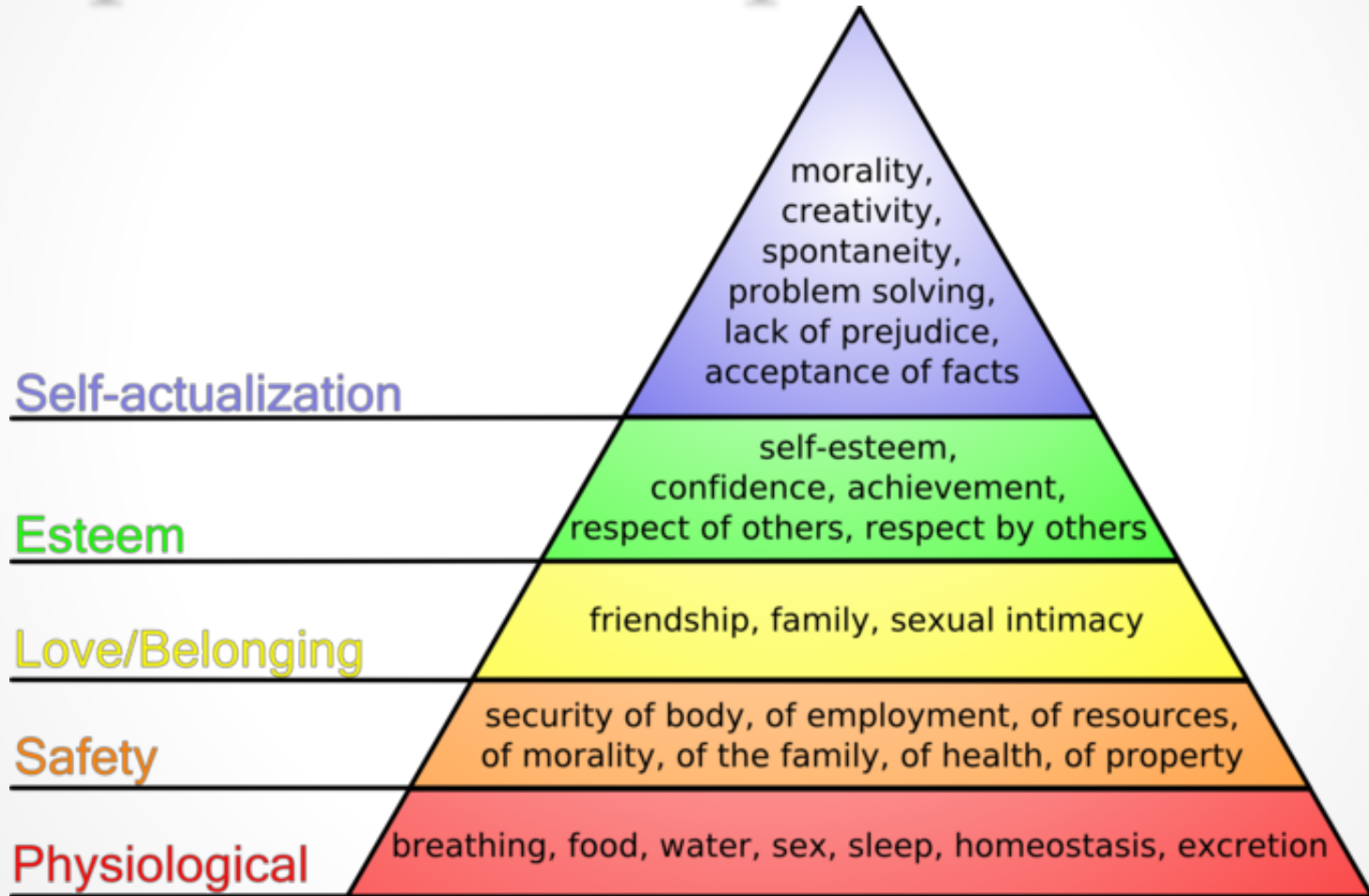
A Nonaddicted individual



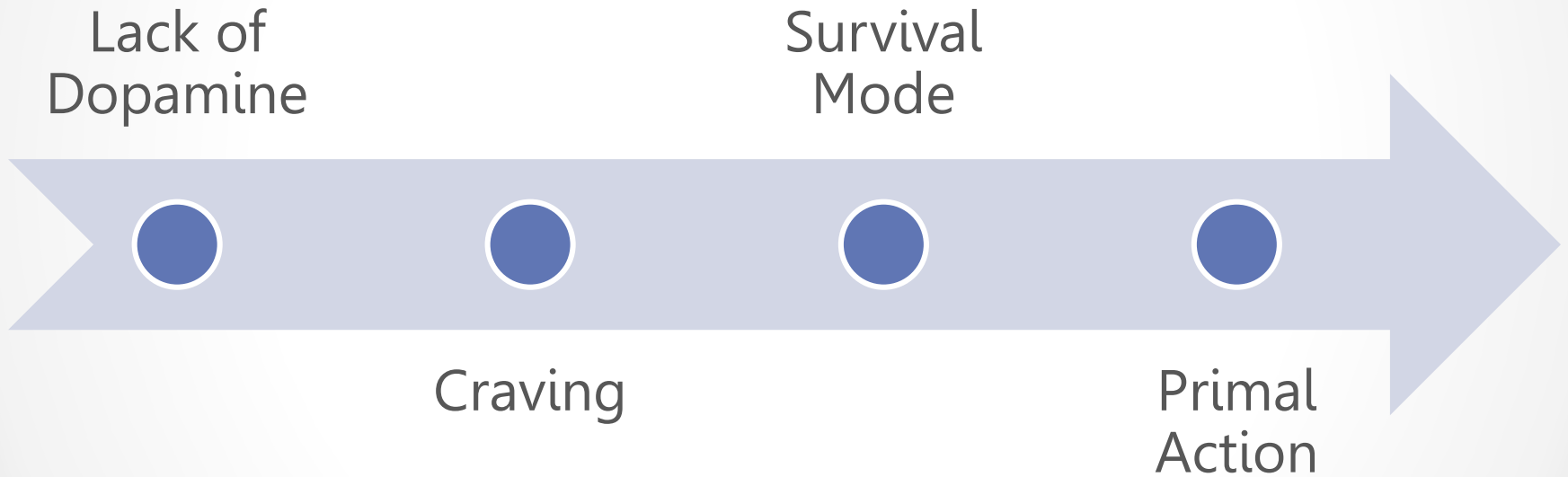
B Addicted individual



Dopamine Depleted Brain



Behavior



Treatment Approaches for SUD

- Medication Assisted Treatment
- Cognitive Behavioral Therapy
- Twelve-step approaches
- Therapeutic communities
- Community reinforcement/**contingency management**

(Jaffe et al, 2009)

Pharmacotherapy for SUD

• Alcohol

- Naltrexone (PO & IM)
- Topamax
- Acamprosate
- Disulfiram

• Opiates

- Suboxone
- Methadone
- Naltrexone

Stimulants

- Citalopram

Marijuana

- N-acetyl cysteine
- Chantix (?)
- Bupropion (?)

Cocaine

- Citalopram (?)

Opiate Use Disorder

Figure 1
How OUD Medications Work in the Brain



Methodone



*Full agonist:
generates effect*

Buprenorphine



*Partial agonist:
generates limited effect*

Naltrexone



*Antagonist:
blocks effect*

Methadone

- **Mechanism of Action**
 - Full mu agonist.
- **Dosing Range**
 - 40-120mg+ daily.
- **Monitoring**
 - Administered by licensed Methadone Treatment Program (MTP).
 - Daily dosing at the beginning.
 - Take home dosing when client stabilizes.



Buprenorphine

- Subutex, Suboxone, Zubsolv, Bunavail, Probuphine, *injection*
- Mechanism of Action
 - Partial mu agonist.
- Dosing Range
 - 2/0.5mg–24/6mg (divided up to 4x daily).



Buprenorphine

- DATA 2000/CARA 2016
- Complete training for waiver
 - MD/DO 8 Hours
 - PA/NP 24 Hours
- Submit application
- 30 patients in first year
- Treat up to 100 patients with updated waiver after first year



Methadone Vs Buprenorphine

	Methadone	Buprenorphine
Location	<ul style="list-style-type: none">• Methadone clinic	<ul style="list-style-type: none">• Waivered prescriber
Availability	<ul style="list-style-type: none">• Limited number of facilities	<ul style="list-style-type: none">• Potentially more widely available• Limited by waivered prescribers
Stigma	Generally increased	Can be prescribed by PCP
Frequency	<ul style="list-style-type: none">• Daily	<ul style="list-style-type: none">• Individualized, but eventually monthly
Diversion potential	<ul style="list-style-type: none">• On site dosing low• Take home dosing higher	<ul style="list-style-type: none">• Variable based on prescribing

Naltrexone

- Mechanism of Action
 - Blocks mu receptor
- Dosing Range
 - 380mg monthly (extended release injection).



Relapse

- Low rates (50%) of continuous abstinence at 3 months following treatment
- Common context: social situation, peer influence, negative intra- or interpersonal states
- Access to treatment is a key

DSM-V Diagnosis of a Substance Use Disorder

...

Impaired control over substance use 1-4

1. Opioids are often taken in larger amounts or over a longer period than was intended.
2. There is a persistent desire or unsuccessful efforts to cut down or control opioid use.
3. A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.
4. Craving, or a strong desire or urge to use opioids.

Social impairment 5-7

5. Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home.
6. Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.
7. Important social, occupational, or recreational activities are given up or reduced because of opioid use.

Risky use of the substance

8-9

8. Recurrent opioid use in situations in which it is physically hazardous.
9. Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.

Pharmacological criteria

10. Tolerance, as defined by either of the following:

- A need for markedly increased amounts of opioids to achieve intoxication or desired effect.
- A markedly diminished effect with continued use of the same amount of an opioid.
 - **Note:** This criterion is not considered to be met for those taking opioids solely under appropriate medical supervision.

11. Withdrawal, as manifested by either of the following:

- The characteristic opioid withdrawal syndrome (refer to Criteria A and B of the criteria set for opioid withdrawal) OR
- Opioids (or a closely related substance) are taken to relieve or avoid withdrawal symptoms.

Treatment Philosophies

Abstinence

- Complete abstinence from all drugs and other intoxicants
- Powerless over addiction so treatment goal is to prevent all use

Harm Reduction

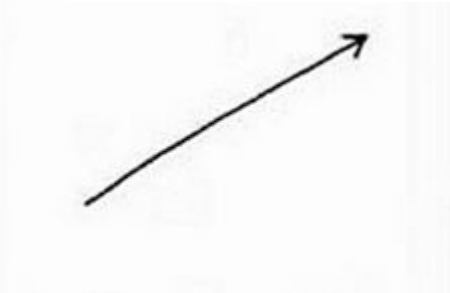
- Harm reduction is a set of strategies that encourage substance users and service providers to reduce the harm done to drug users, their loved ones and communities by their licit and illicit drug use

Harm Reduction

- It's a continuum, not a polarity
- Clients choose goals; professionals give clear recommendations and feedback
- Often results in setting small, progressive goals

Defining Recovery

What we expect



What is reality

