

THE OPIOID EPIDEMIC, NEUROBIOLOGICAL MODEL OF ADDICTION, AND TREATMENT APPROACHES

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PRESENTATION: LEGISLATIVE FINANCE COMMITTEE
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My Background

Emergency physician and rural health researcher



On my drive between Fort Defiance and ABQ

- Associate Professor
 - Emergency Medicine
 - Psychiatry and Behavioral Sciences
- Researcher
 - Behavioral health – substance use, mental health
 - Rural health outcomes
- Director of NM Bridge (BHSD)
 - Support rural ERs in addressing opioid use disorder

Today's Agenda

Three waves of the opioid crisis

- Prescription opioids - OxyContin
- Heroin
- Synthetic opioids - Fentanyl

The neurobiological model of addiction

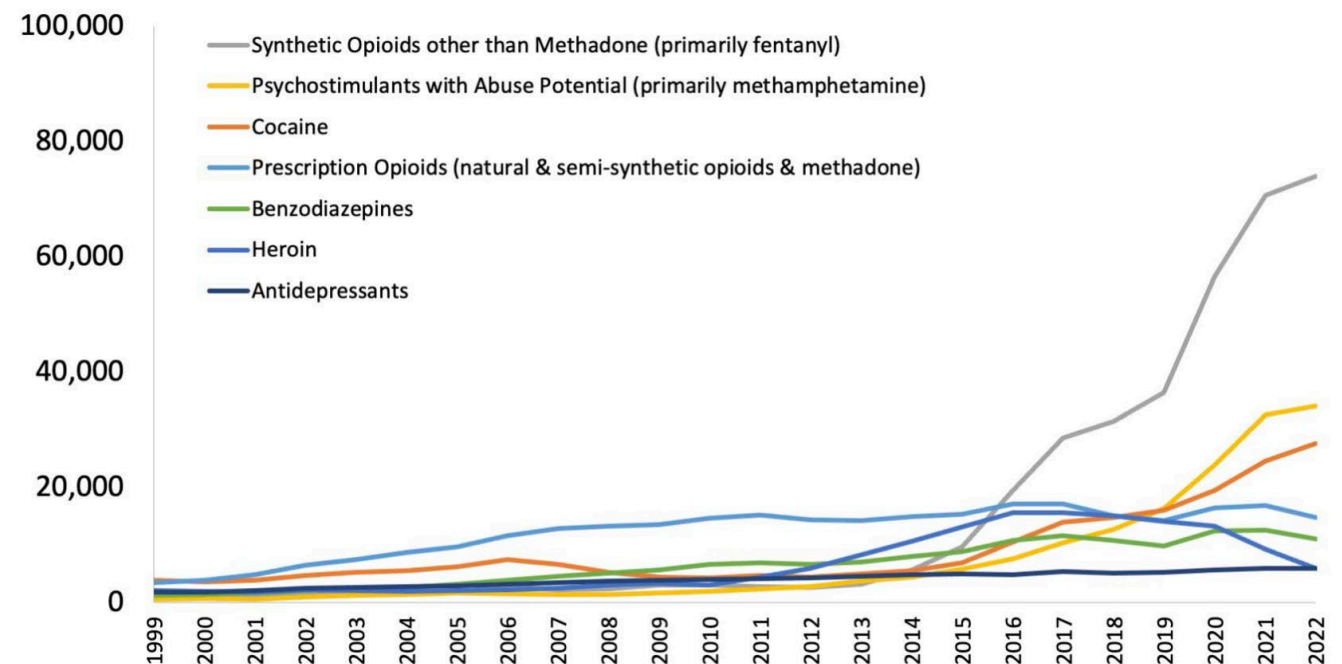
Current treatment approaches

- Impact of fentanyl

National Opioid Crisis

- Opioid use is common and is the **leading cause of accidental death**
- **Over 1 million** Americans have died from opioids since 2019
- Illegally manufactured (synthetic) **Fentanyl** is particularly deadly

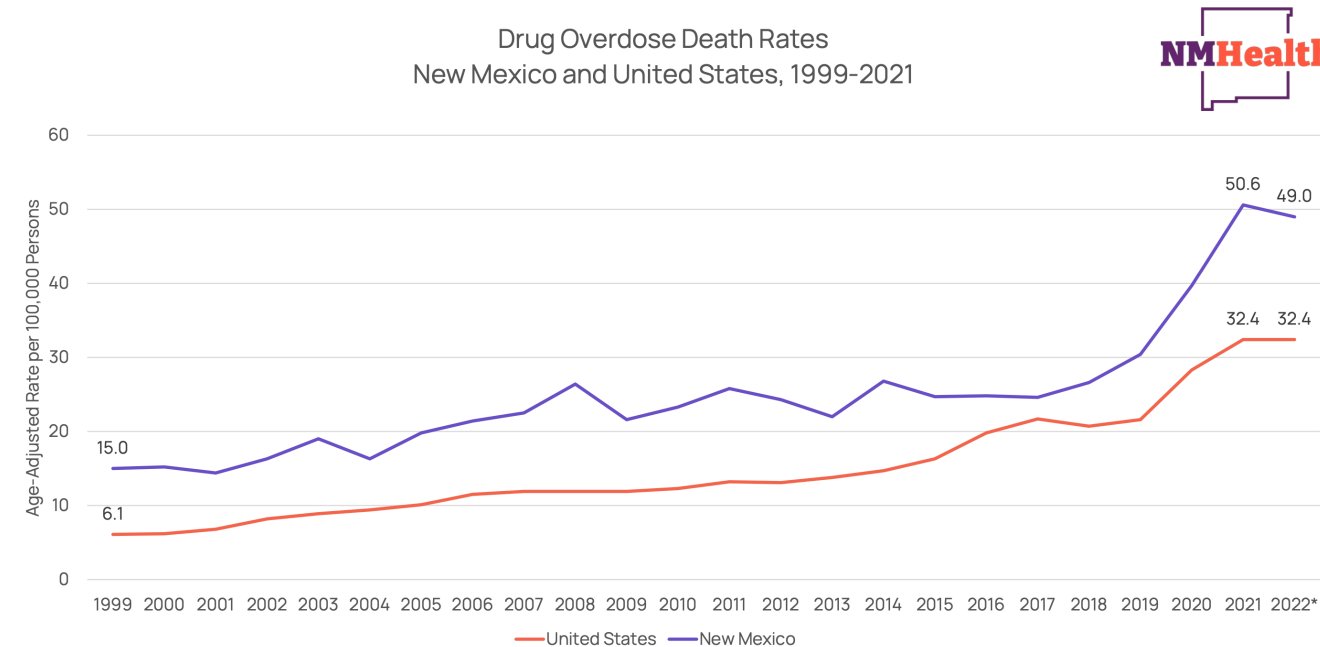
Figure 2. U.S. Overdose Deaths*, Select Drugs or Drug Categories, 1999-2022



National Institute on Drug Abuse

New Mexico's Opioid Crisis

- Historic context - over 50 years
 - Particularly in Española and surrounding communities
- New Mexico has the 6th highest drug-overdose rate in the nation (2021)
- Fentanyl deaths surged in 2019
- Stabilizing overdose rates in 2022



Source: United States rate - CDC WONDER; New Mexico rate - NM Department of Health Bureau of Vital Records & Health Statistics, UNM GPS population estimates
Drug overdose deaths are identified through ICD-10 codes (X40-X44, X60-X64, X85, Y10-Y14).
Rates are per 100,000 and age adjusted to the US 2000 standard population.
*2022 rates for New Mexico were calculated using 2021 population estimates. Avoid drawing conclusions or comparing 2022 rates to past years.
These data were analyzed and prepared by NMDOH Substance Use Epidemiology Section. For any questions regarding this data, please email malinda.gowin@doh.nm.gov.



Definitions: Opioids

Opioids are a class of drug found in the opium poppy plant

The opioid drug class contain both legal prescription pain medications and illegal street drugs

- However, many legal prescription pain medications (e.g., fentanyl), can be created illegally in drug labs and sold as street drugs

Types of opioids:

Type	Origin	Examples
Natural opiates	Derived from opium poppy plants	Morphine, Codeine, Heroin
Semi-synthetic opioids	Made in labs, from poppy plant, potent	Oxycodone, hydrocodone
Synthetic opioids	Made in labs, from chemicals, very potent	Fentanyl

Three Waves

First Wave – 1990s + OxyContin

- Insufficient regulation of the pharmaceutical and health care industries facilitated a **profit-driven quadrupling of opioid prescribing**

Second Wave – 2010 + Heroin

- Heroin as a substitute for pills

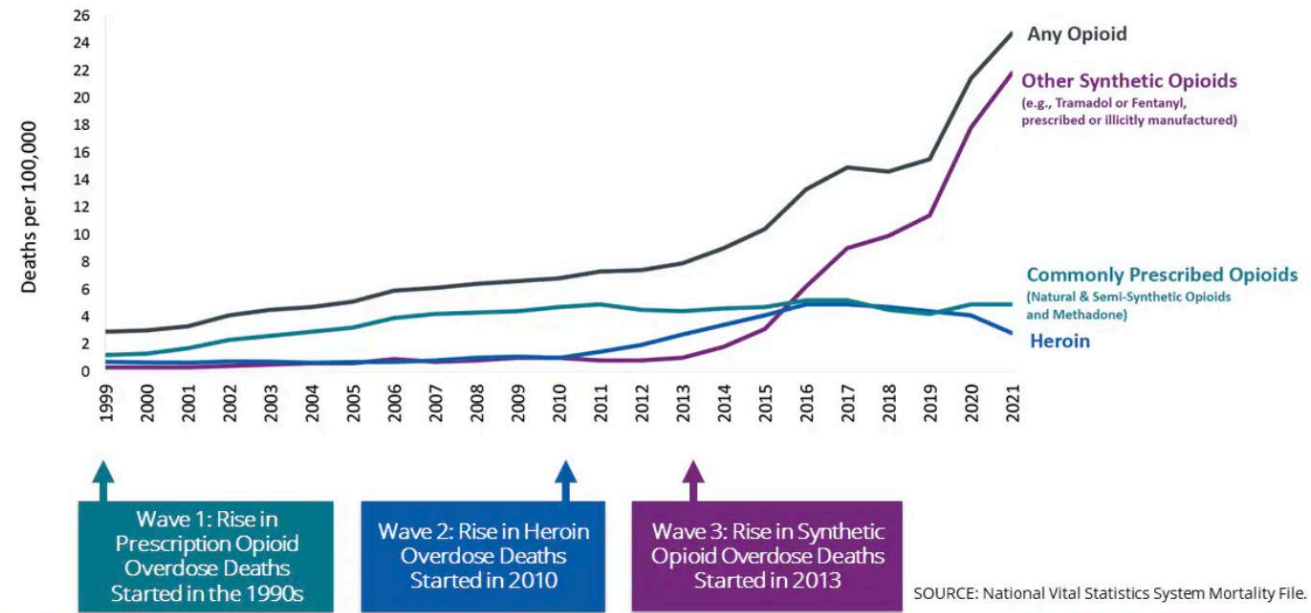
Third Wave – 2013 + Fentanyl

- Illegally manufactured fentanyl

Fourth Wave? – now

- Fentanyl + stimulants (cocaine, meth)

Three Waves of Opioid Overdose Deaths



This rise in opioid overdose deaths is shown in three distinct waves.

What is addiction?

Substance use disorder: A diagnostic term which refers to recurrent use of drugs that causes clinically and functionally significant impairment, such as health problems, disability, and failure to meet major responsibilities at work, school, or home.

Addiction: A term used to indicate the most severe, chronic stage of substance-use disorder, in which there is a substantial loss of self-control, as indicated by compulsive drug taking despite the desire to stop taking the drug.

From “addict” to “brain disease”

Addict

- Historically, the **stigma of addiction** is driven by the perception that addiction is related to character flaws and ethical shortcomings.

Brain Disease

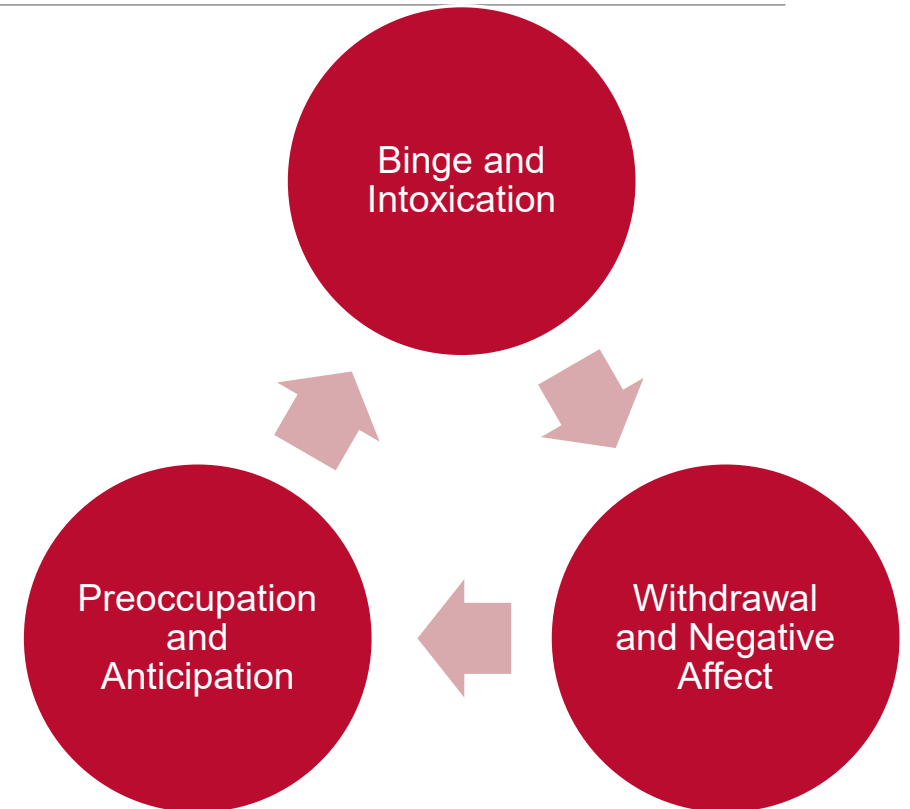
- Advancements in scientific research have proven this **historical perspective to be categorically false** and potentially harmful by fostering negative attitudes toward those seeking help for addictive disorders.

Neurobiological
Framework

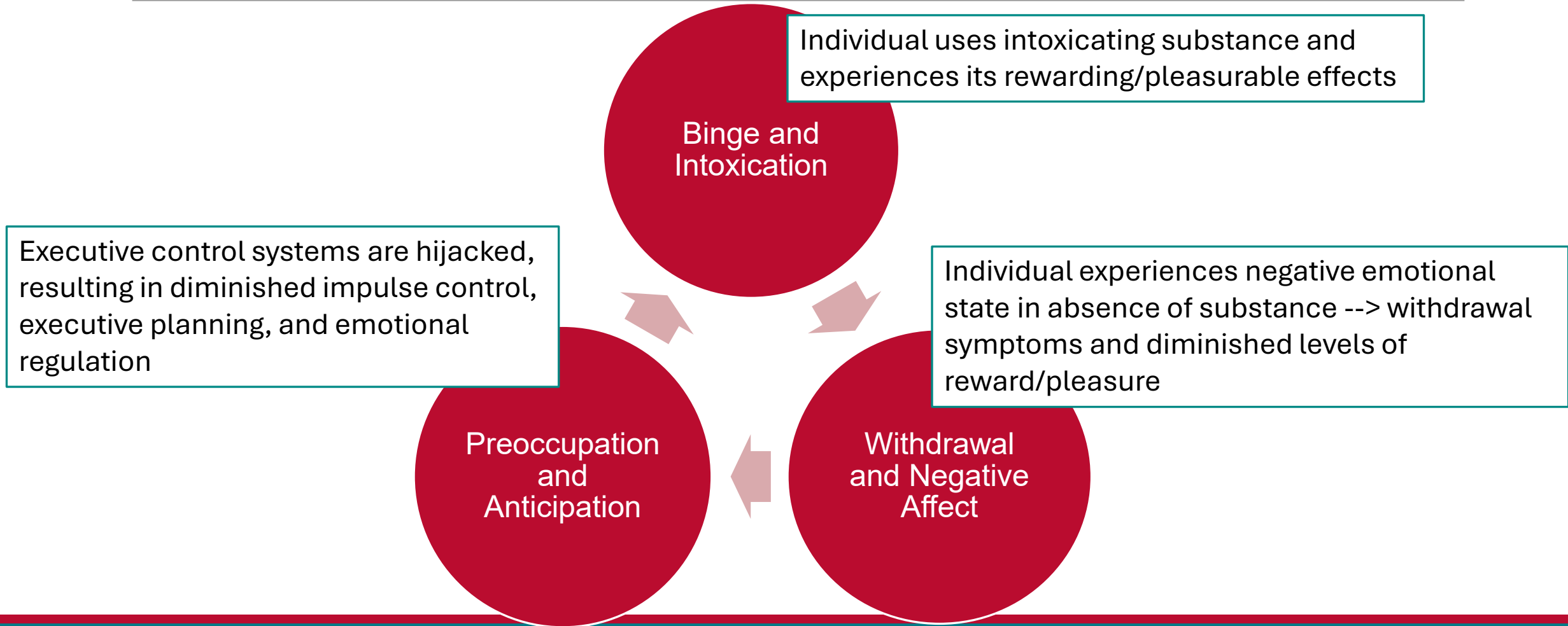
- Contemporary models of addiction utilize a **neurobiological framework** for the onset, development, and maintenance of an addiction.

Neurobiological framework

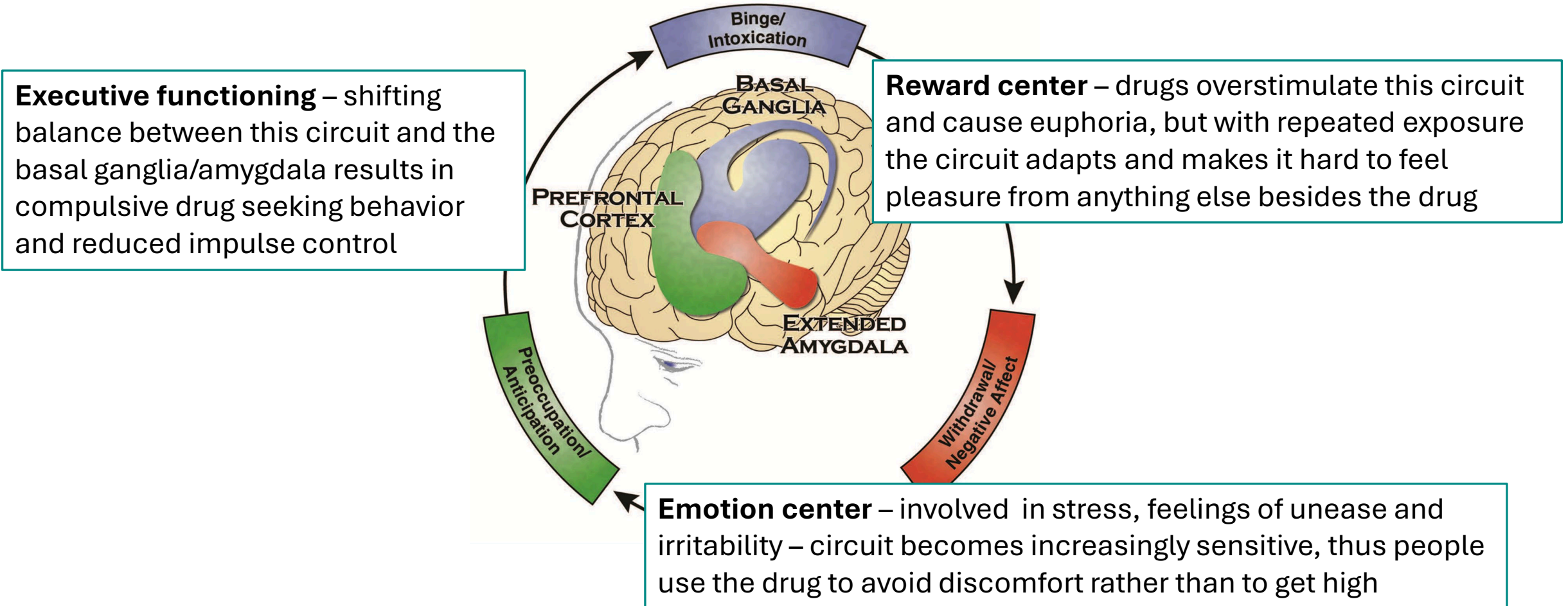
- It defines addiction as a chronic and relapsing disorder marked by specific neuroadaptations predisposing an individual to pursue substances regardless of potential consequences
- These neuroadaptations occur in the **3 distinct neurobiological stages**
 - Intoxication/binge
 - Withdrawal/negative affect
 - Preoccupation/anticipation



Three stages explained

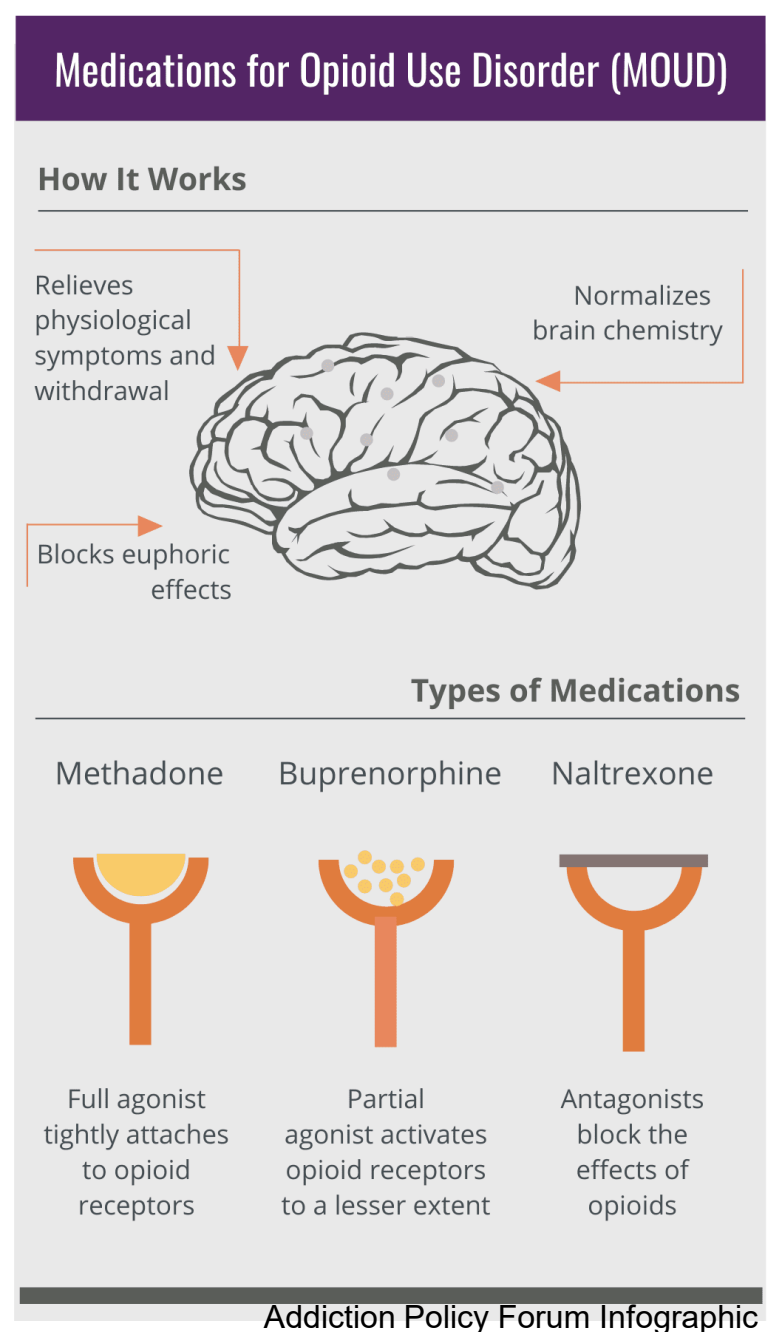


These are linked to parts of the brain



Using this model to inform treatment

- **Medical treatment** can help to restore healthy function in the affected brain circuitry – and reduce addiction behaviors
- There are FDA-approved medications to treat OUD which can be used with behavioral health counseling
 - Methadone, Buprenorphine, and Naltrexone



Medications for Opioid Use Disorder (MOUD) – also known as MAT

MOUD	Prescribed	Mortality Benefit	Mechanism	Effective
Methadone	At a clinic	> 50% reduction	Agonist	Yes
Buprenorphine	Any physician	> 50% reduction	Partial Agonist	Yes
Naltrexone	Any physician	Insufficient data	Antagonist	Yes

- All three reduce OUD – but only methadone and buprenorphine reduce mortality
 - When taken as prescribed, neither produce a euphoric high and are equally effective
- Patients on MOUD are less likely to overdose, die, use illicit opioids, develop Hepatitis C or HIV, suffer other infections complications, have contact with the criminal justice system
- Studies show that diversion (use without a prescription) is primarily for controlling withdrawal

Ideally, SUD is integrated into medical treatment

A few highlighted ways UNM is doing this -

- MOUD in the inpatient setting
 - New addiction medicine consult service
- MOUD treatment with at-risk populations
 - ED-based MOUD (NM Bridge)
 - Metropolitan Detention Center
 - Street Medicine
- Crisis Triage Center
 - Connection to SUD treatment
- Certified Community Behavioral Health Clinic (CCBHC)
 - In process of certification, Jan 2025
- NM Poison Center
 - Statewide service offering 24/7 addiction medicine consultation