

Drug Abuse and Addiction in America: Challenges and Opportunities



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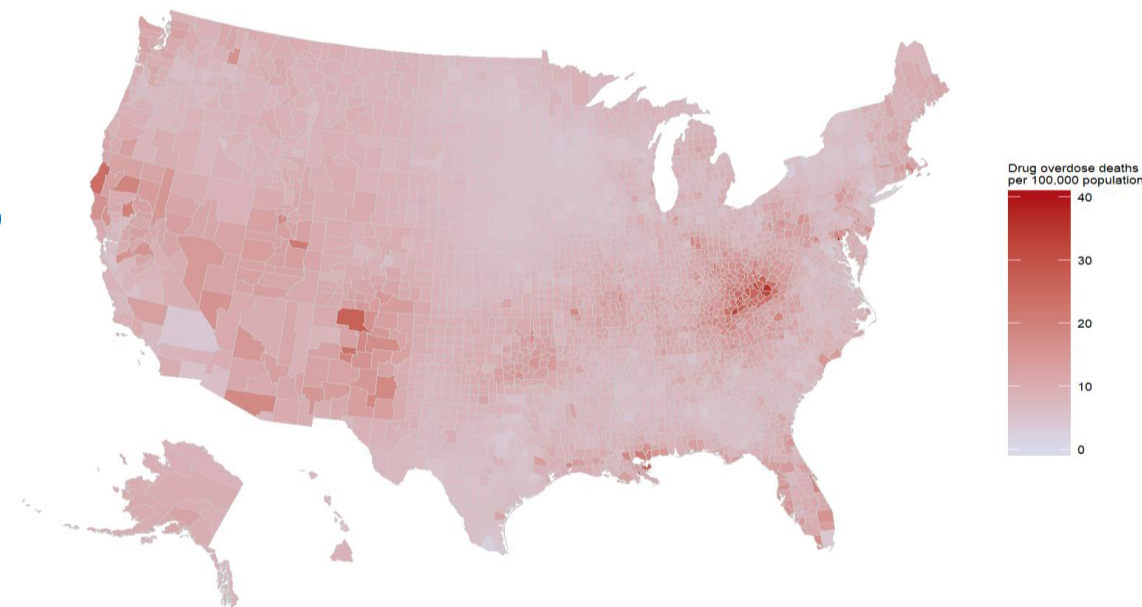
Disclosures

- No disclosures

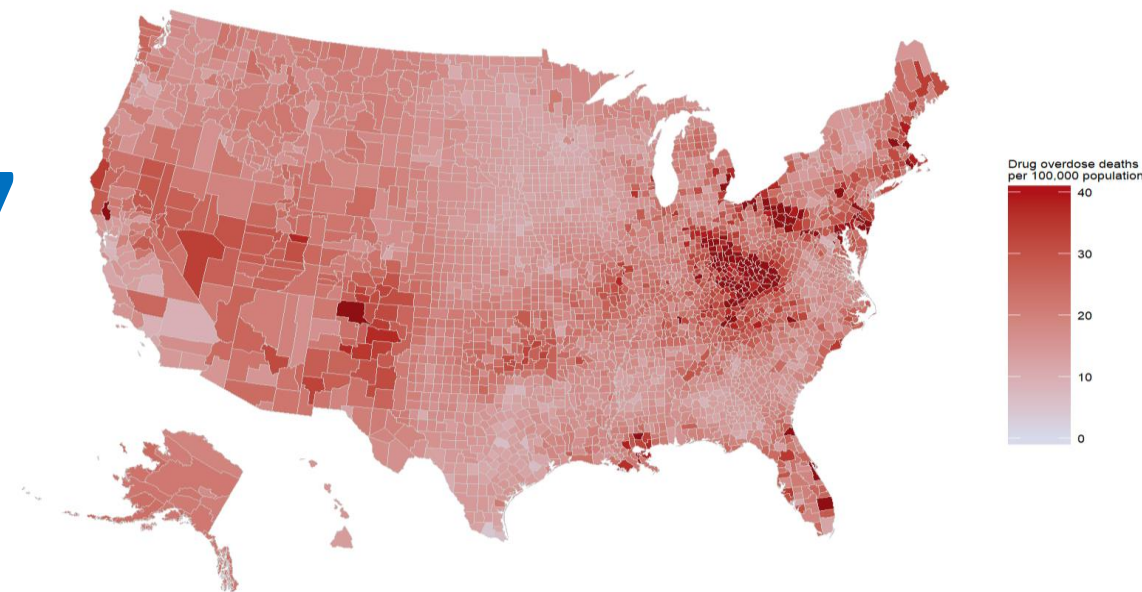
THE CRISIS: NATIONAL OVERDOSE DEATH RATES

IN 2017, THERE WERE
70,237 OVERDOSE
DEATHS (9.6% HIGHER
THAN 2016)

2003

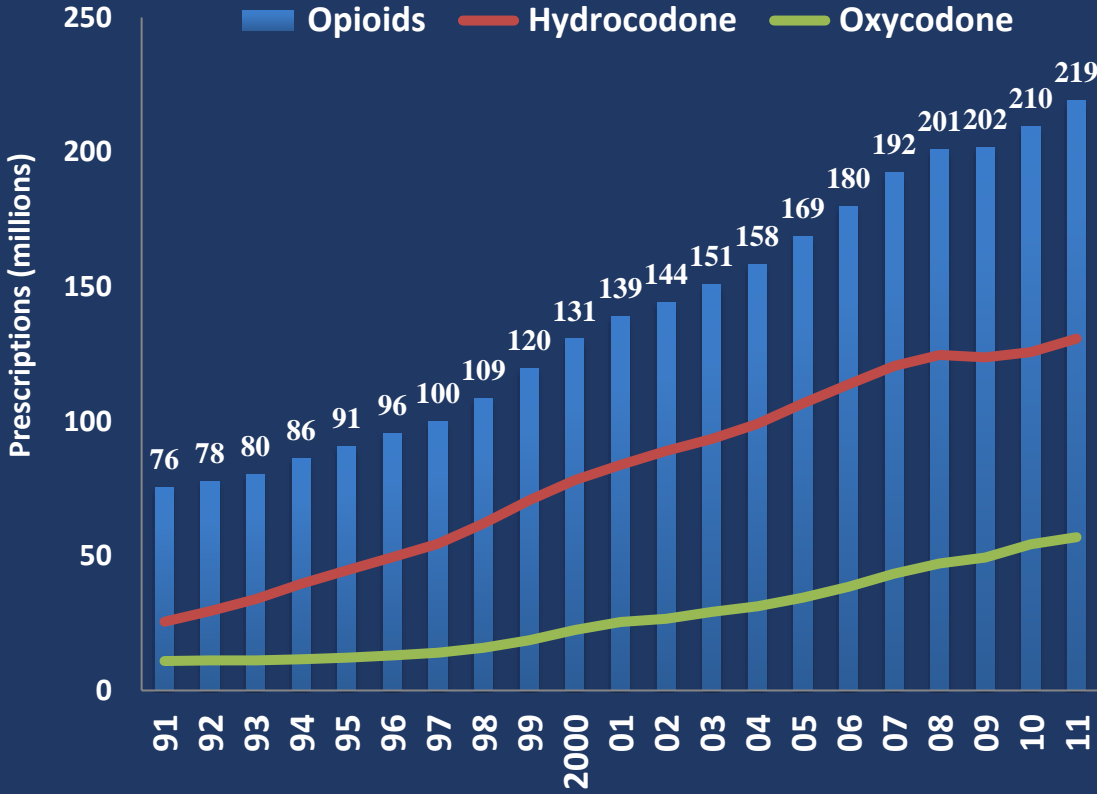


2017



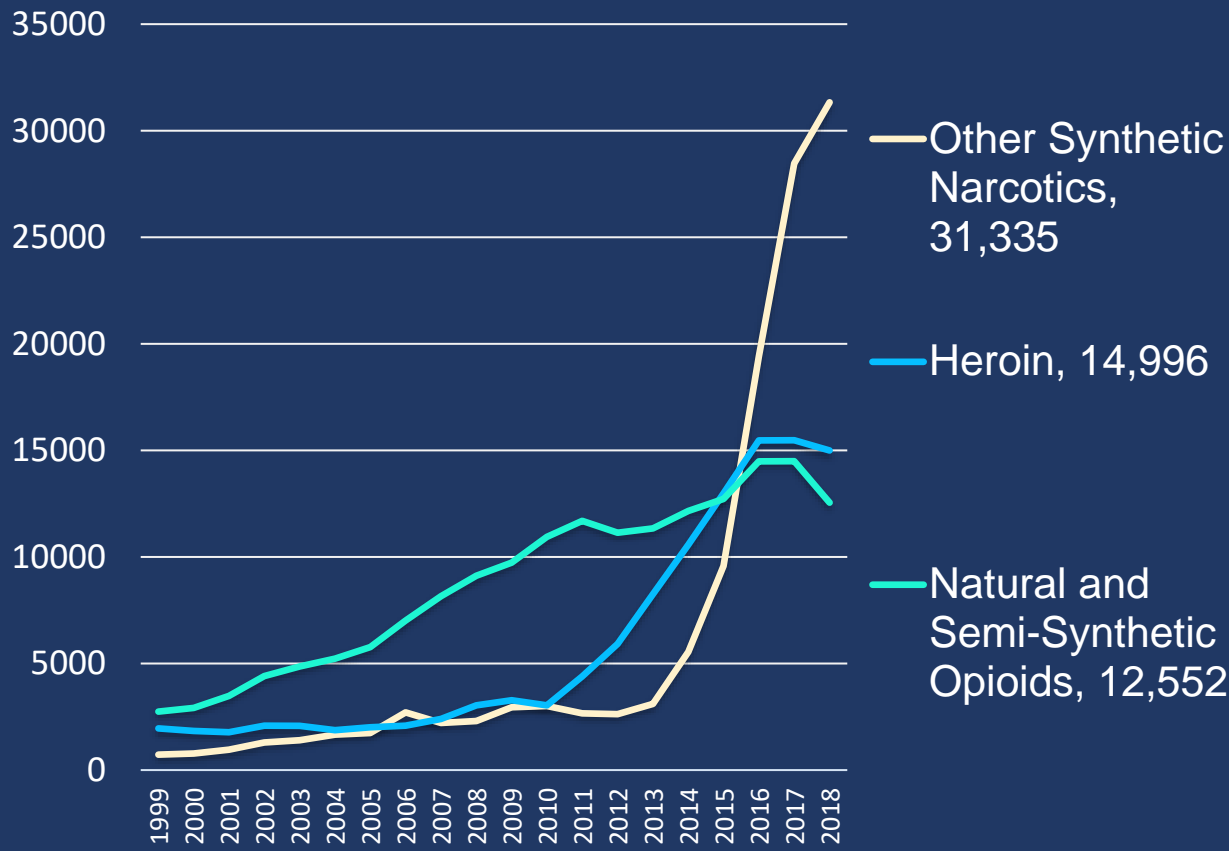
- **SOURCE:** National Center for Health Statistics, National Vital Statistics System, mortality data (<http://www.cdc.gov/nchs/deaths.htm>).
- **SUGGESTED CITATION:** Rossen LM, Bastian B, Warner M, Khan D, Chong Y. Drug poisoning mortality: United States, 2003–2017. National Center for Health Statistics. 2019. (Available from: <https://www.cdc.gov/nchs/data-visualization/drug-poisoning-mortality/>).

Opioid Prescriptions: 1991-2011



IMS's Source Prescription Audit (SPA) &
Vector One®: National (VONA)

Waves Opioid Crisis: Overdose Fatalities

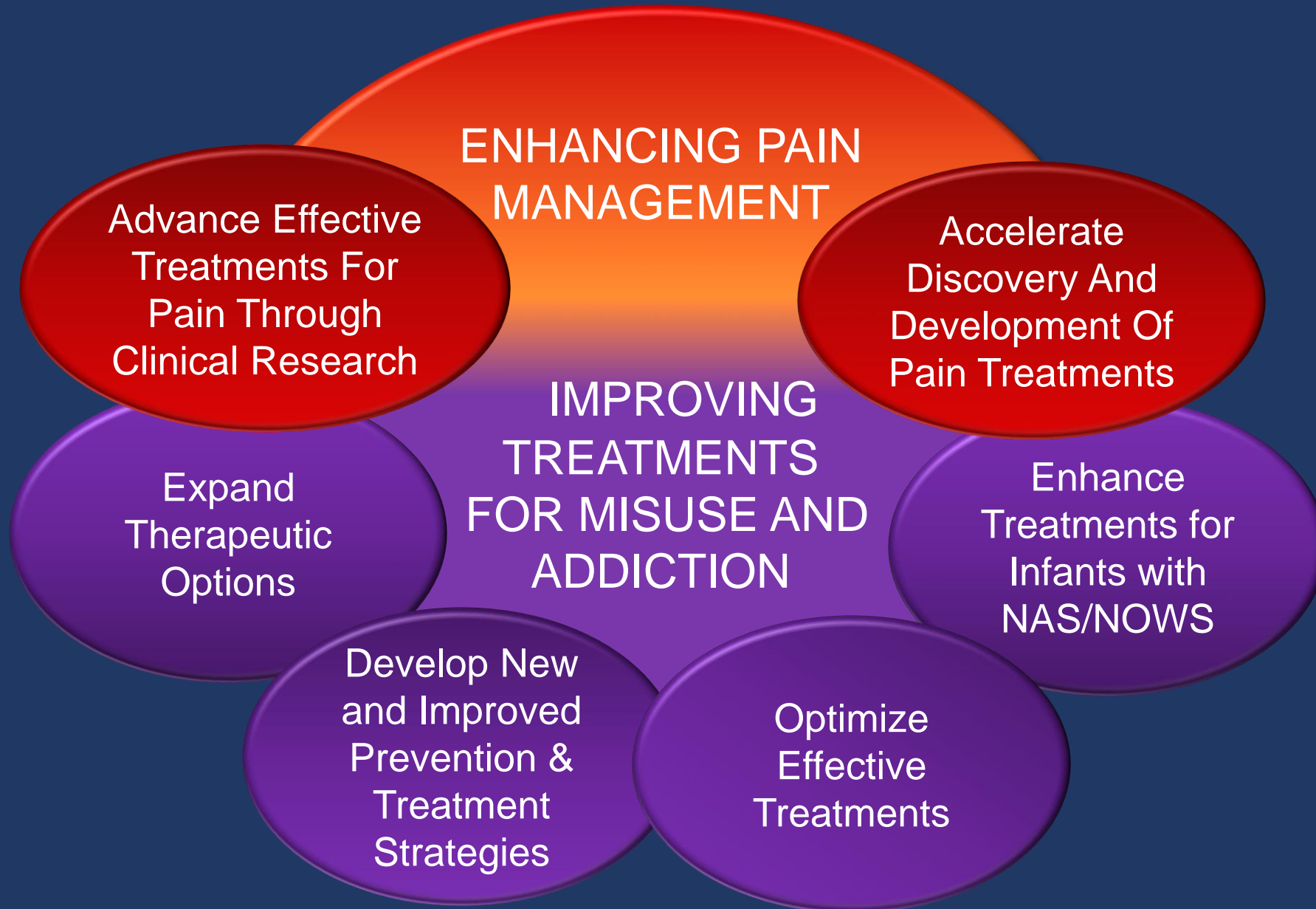


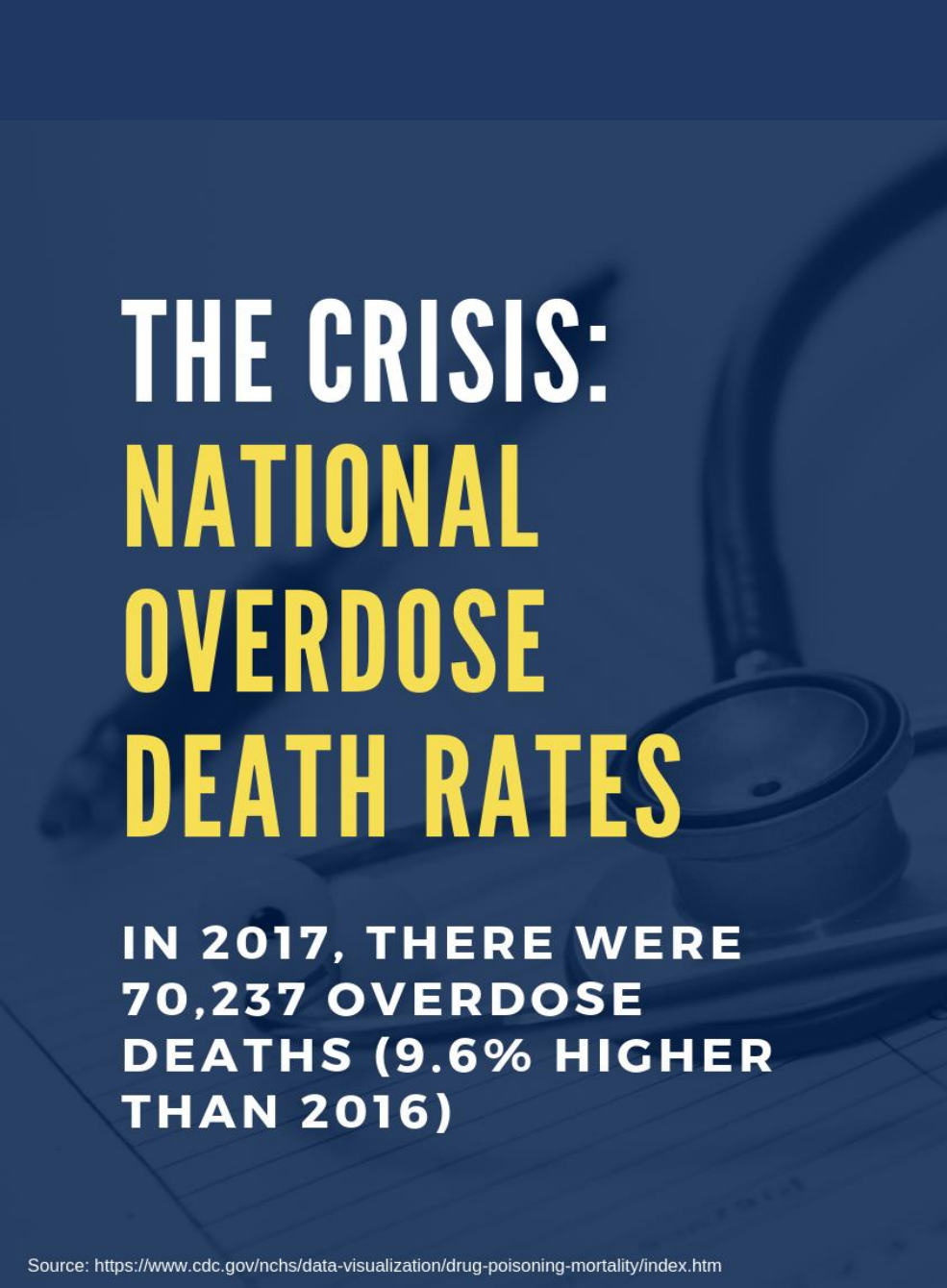
Other Synthetic
Narcotics,
31,335

Heroin, 14,996

Natural and
Semi-Synthetic
Opioids, 12,552

HELPING to END ADDICTION LONG-TERMSM (HEAL) Initiative





THE CRISIS: NATIONAL OVERDOSE DEATH RATES

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Source: <https://www.cdc.gov/nchs/data-visualization/drug-poisoning-mortality/index.htm>

NIH HEAL Initiative

Improving Prevention and Treatment for
Opioid Misuse, OUD and Overdoses

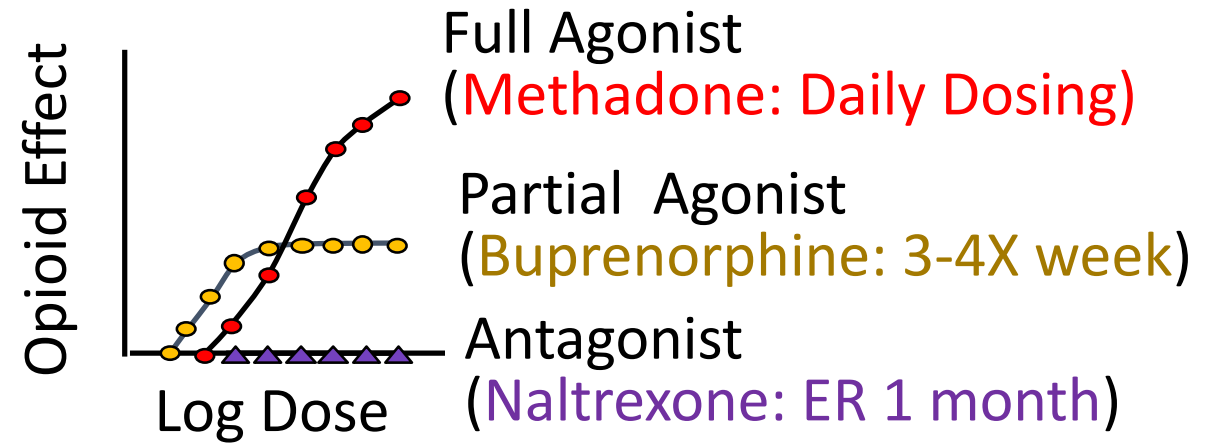
Expand
Therapeutic
Options

Prevention

Implementation
Science

Knowledge Gaps

Medications for Opioid Use Disorder (MOUD)



DECREASES

OPIOID USE
OPIOID-RELATED
OVERDOSE DEATHS
CRIMINAL ACTIVITY
INFECTIOUS DISEASE
TRANSMISSION

INCREASES

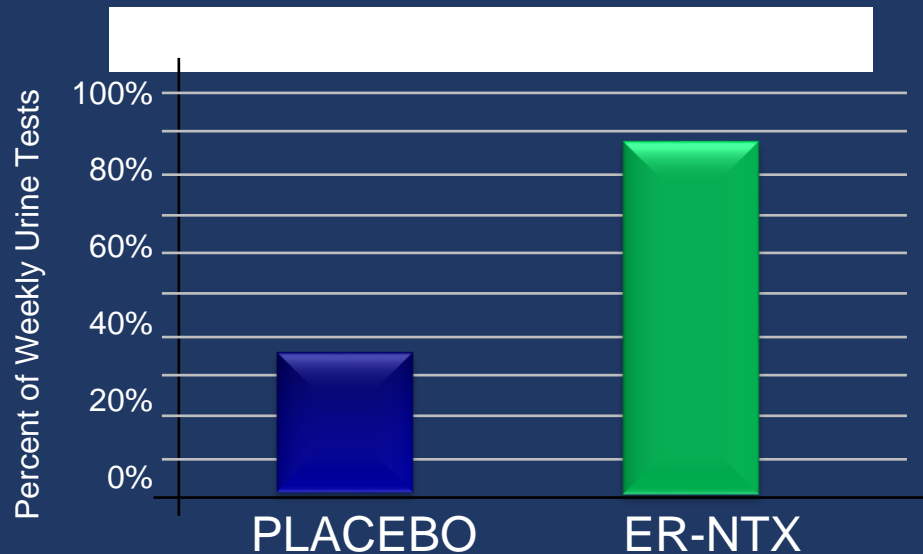
SOCIAL FUNCTIONING
RETENTION IN
TREATMENT

Extended Release (ER) Formulations Facilitate Use in Health Care & Justice Settings and Improve Compliance

Mu Antagonist: NALTREXONE

Vivitrol®

Once-month Injection



■ Placebo: N=124
■ ER-NTX: N=126

Krupitzky et al., Lancet 2011

Mu Partial Agonist: BUPRENORPHINE

SUBLOCADE™

(Buprenorphine ER),
Once-Month Injectable
FDA Approval 11.30.2017



CAM2038

Subcutaneous
Buprenorphine ER:
Once-Week Injection
Once-Month Injection



PROBUPHINE®

6 months implant

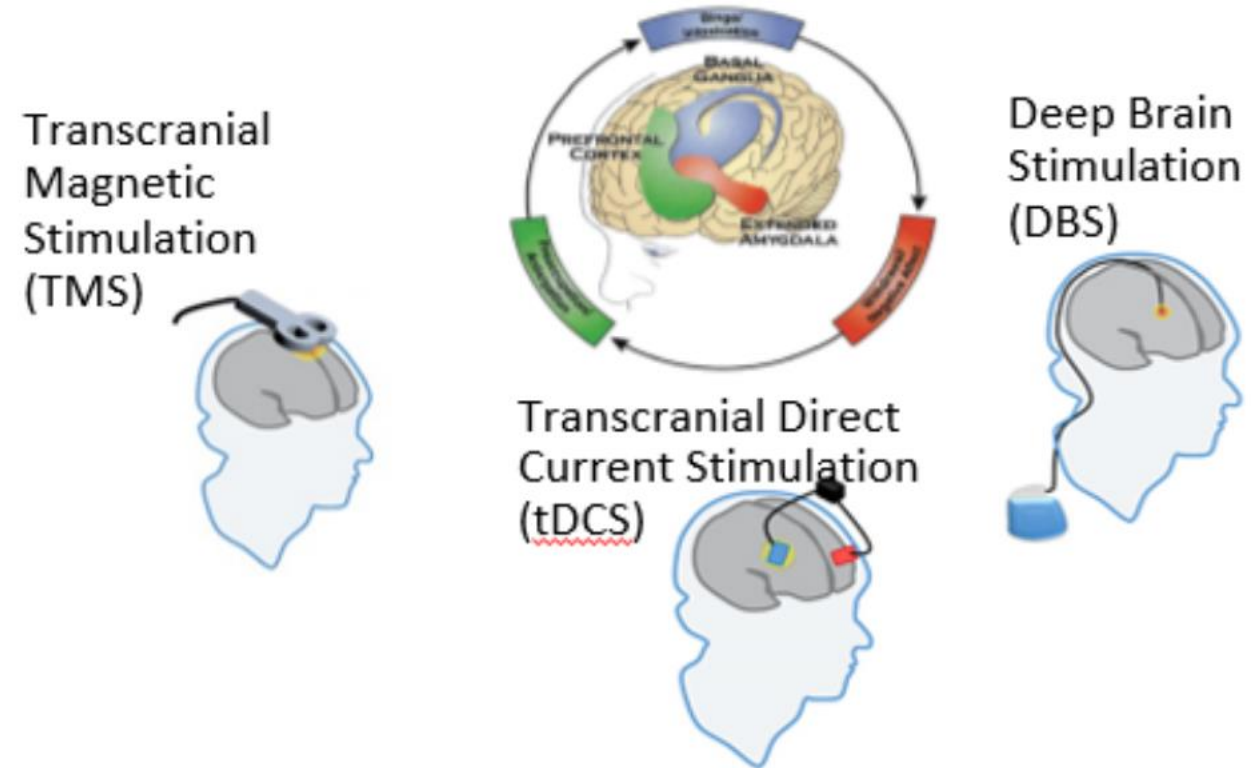


OUD pipeline BEFORE HEAL

Early Preclinical Time to Launch: >12 yrs		Late Preclinical 10-12 yrs		Phase I 6-10 yrs	Phase Ib 5-9 yrs	Phase II 4-6 yrs	Phase III 3-5 yrs	New Formulation <3 yrs	
				ANS6637 ALDH2 inhibitor	Guanfacine α 2 adren agonist				
				C4X3256 OX-1 antagonist	Ketamine NMDA antagonist				
			Mor, Her, Oxy, Hydro vaccine	Semiglutide GLP-1R agonist					
Oxy/Fentanyl nano-vaccine				Cannabidiol	Lorcaserin 5HT2c agonist				
Fentanyl vaccine			Heroin Vaccine	Tradipitant NK-1 antagonist	Gabapentin VDCC blocker				
Heroin/Fent vaccine									Naloxone Hi-dose nasal spray
Fentanyl mAb									

EXPAND THERAPEUTIC OPTIONS: OUD

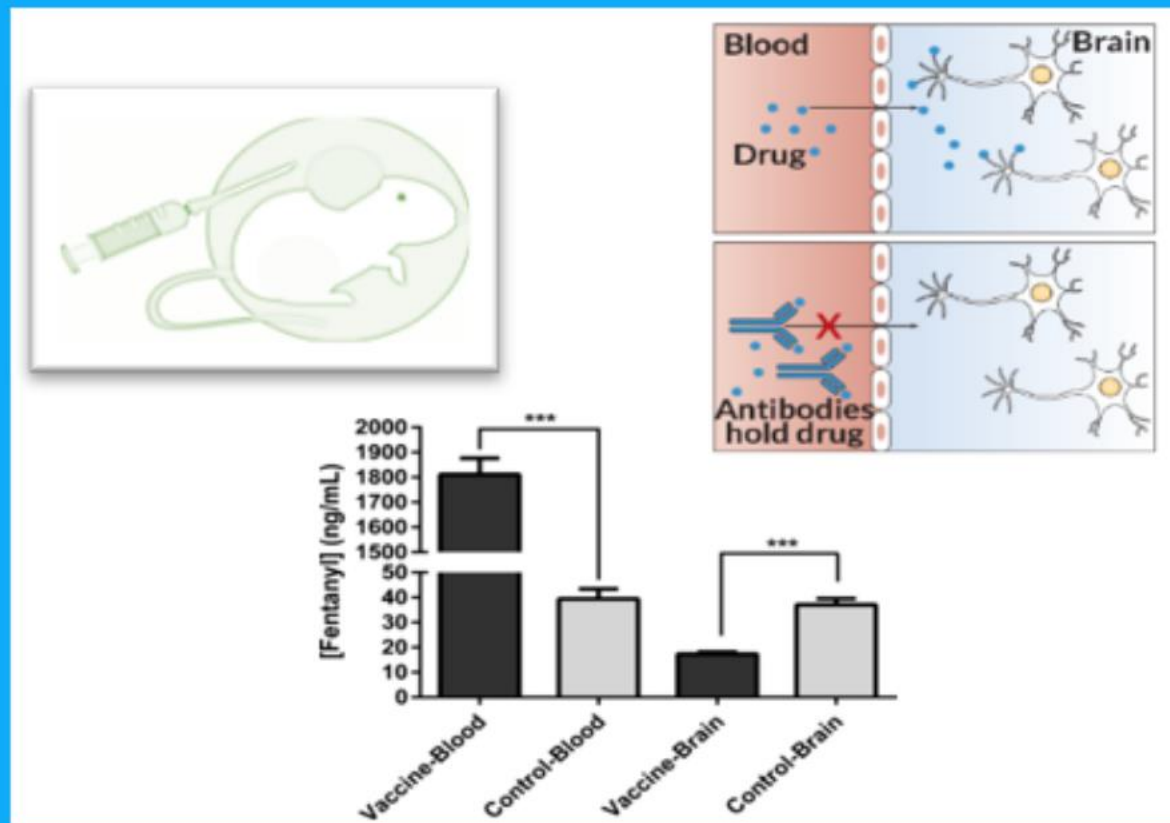
ADDICTION CYCLE AND RELEVANT BRAIN REGIONS

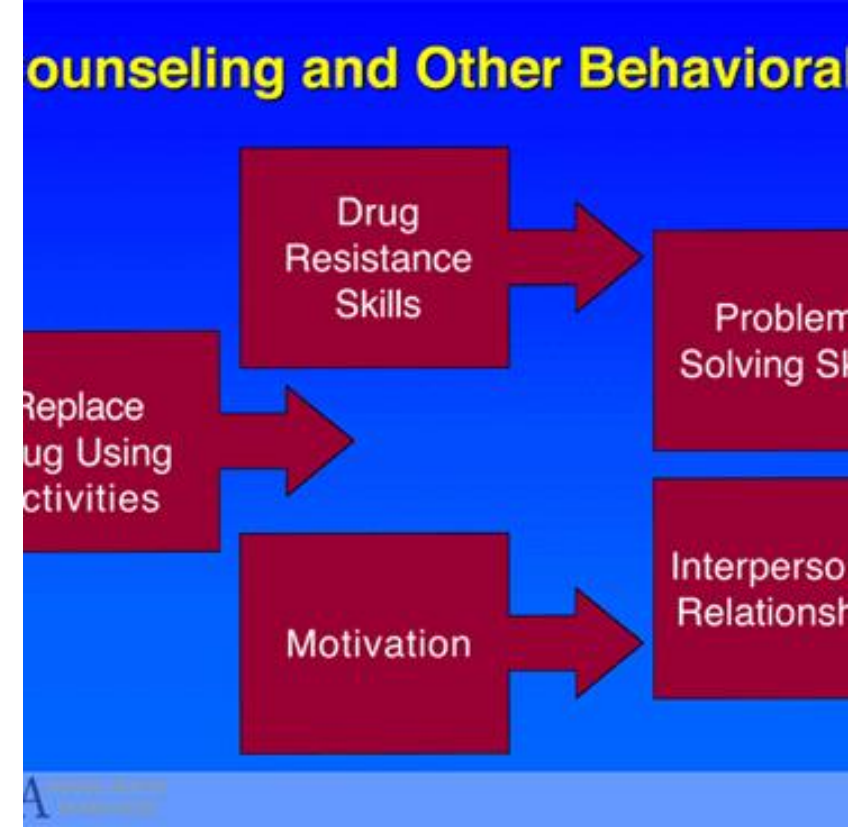
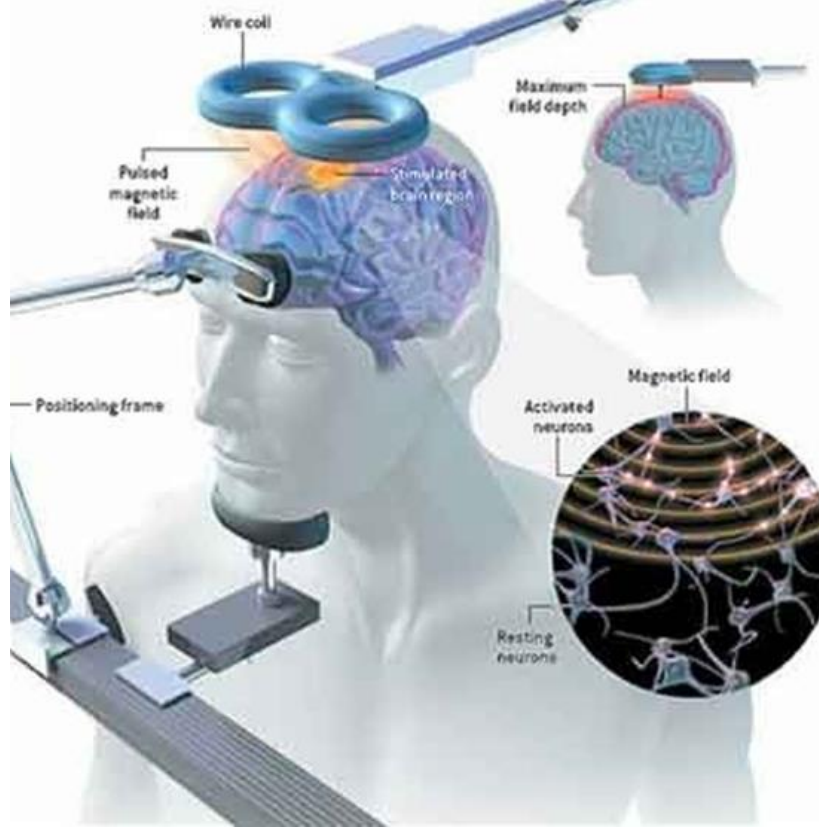


EXPAND THERAPEUTIC OPTIONS: OUD

VACCINES AND IMMUNOTHERAPIES

- Vaccines (fentanyl and analogues), heroin/morphine
- Reduced drug reaching brain
- Protection against overdose





End Game

Ultimately, we anticipate multiple medications, integrated with devices and psychosocial interventions, employed in an orchestrated fashion, will be needed to achieve truly effective treatments tailored for maximal efficacy for individual patients.



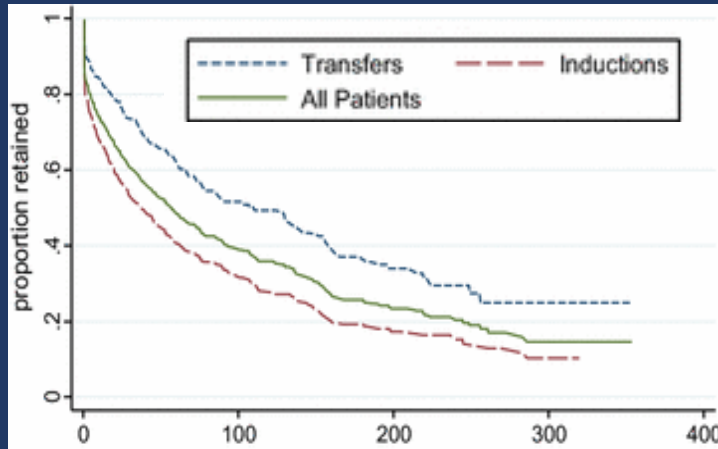


Implementing MOUD in Healthcare Settings



Primary Care: Low Threshold Office-Based Buprenorphine Treatment

Unobserved induction,
At most weekly visits,
No psychosocial treatment.



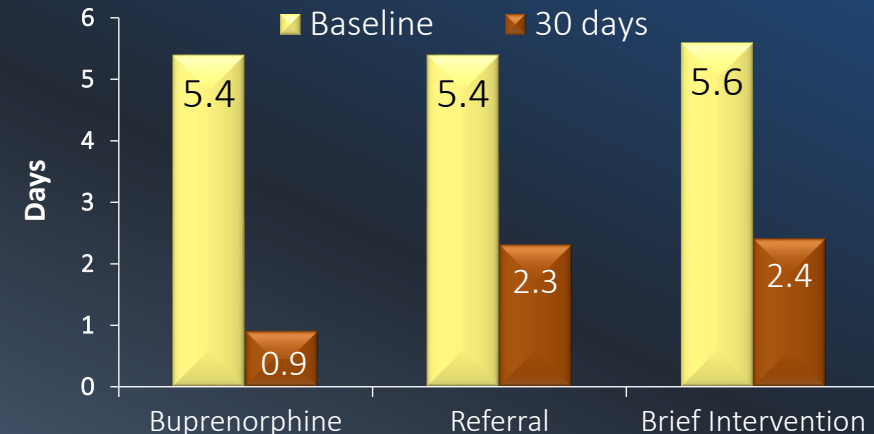
- Treatment retention at 38 weeks equivalent to office-based opioid treatment.

Bhatraju EP et al., Addict Sci Clin Pract.

Emergency department-initiated buprenorphine

- Reduced self-reported illicit opioid use
- Increased engagement in treatment
- Decreased use of inpatient services

Self-Reported Illicit Opioid Use in the Past 7 Days



D'Onofrio G et al., JAMA April 28, 2015.

IMPLEMENTING MEDICATIONS FOR OUD IN HEALTHCARE



- Optimizing Retention, Duration and Discontinuation MOUD
- Subthreshold OUD Trial
- ED-Initiated Buprenorphine
- MOUD for OUD Expecting Mothers
- Rural Expansion MOUD
- Hospital Initiation MOUD

CTN Node Expansion



Appalachian Node –
Univ. of Pittsburgh & WV Univ.

Great Lakes Node –
Rush University

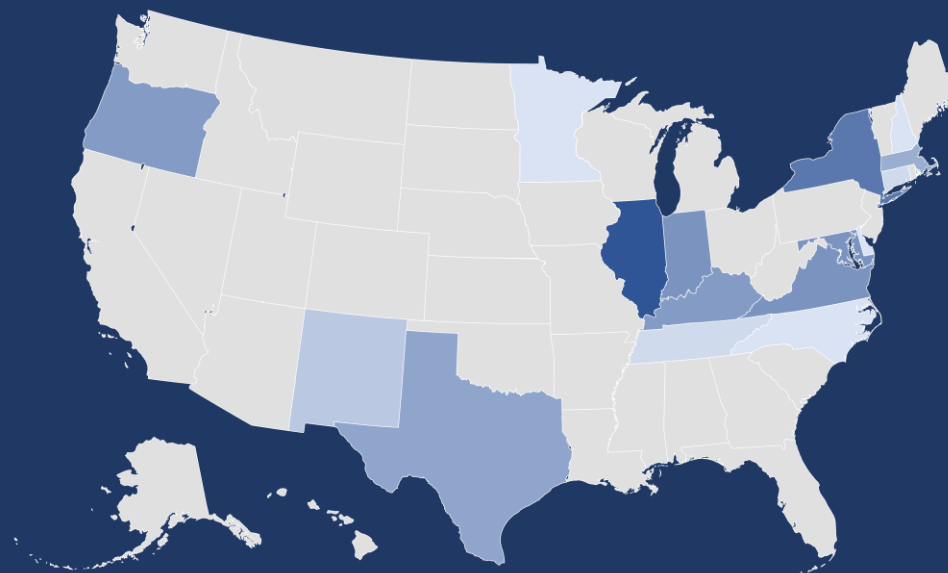
Greater Intermountain Node –
Univ. of Utah

Greater Southern CA Node –
UCLA

Southwest Node –
Univ. of New Mexico

18 States + Puerto Rico
88 communities
>25,000 justice-involved
individuals

Count of Communities



STATE POLICY ROLLOUTS
LEVERAGING TECHNOLOGY
PEER NAVIGATION SUPPORT
INTER ORGANIZATIONAL
LINKAGES
MOUD COMPARATIVE
EFFECTIVENESS

The HEALing Communities Study: Integrating Evidence Based interventions across Settings



Healthcare

- Primary care
- Emergency departments
- Inpatient hospital care
- Behavioral health

Criminal Justice

- Jails
- Prisons
- Parole/Probation
- Drug courts

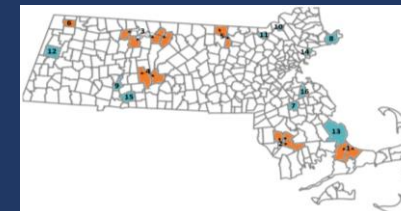
Community

- Families
- Schools
- Police and fire departments
- Faith-based organizations
- Local industry

Ohio State University
PI: Rebecca Jackson



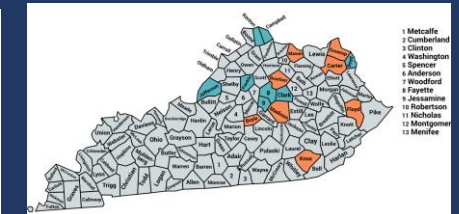
Boston Medical Center
PI: Jeffrey Samet



Columbia University
PI: Nabila El-Bassel



University of Kentucky
PI: Sharon Walsh

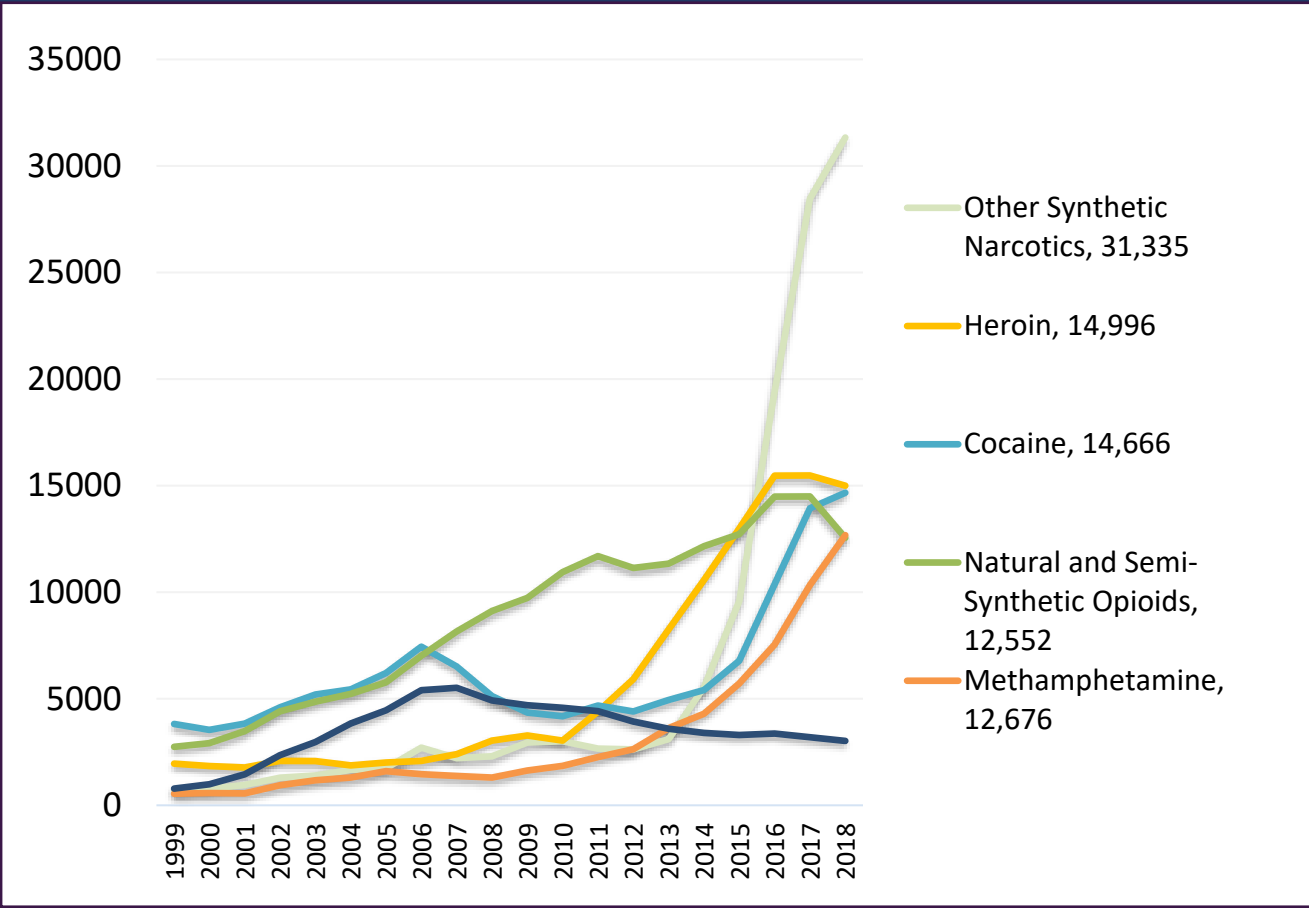
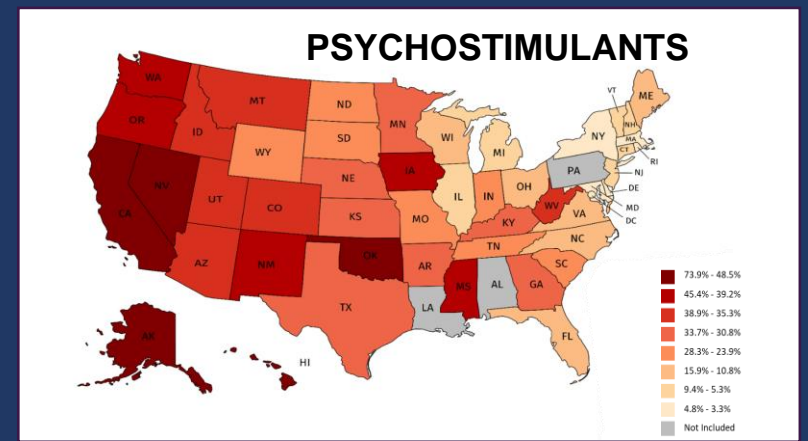
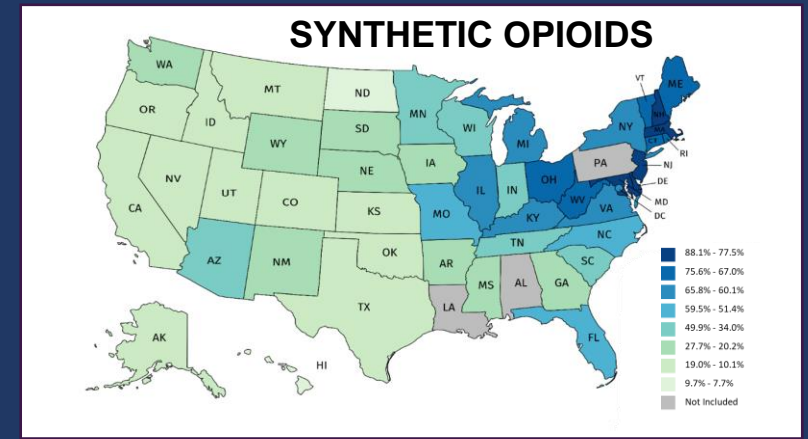


Orange Rural Communities

Teal Urban Communities

OD Deaths: Provisional Data 3/ 2018 – 2/ 2019

Source: CDC National Vital Statistics System, September 12, 2019



OVERDOSE MORTALITY BY CLASS OF DRUG

ADAPTED FROM NCHS STATISTICS

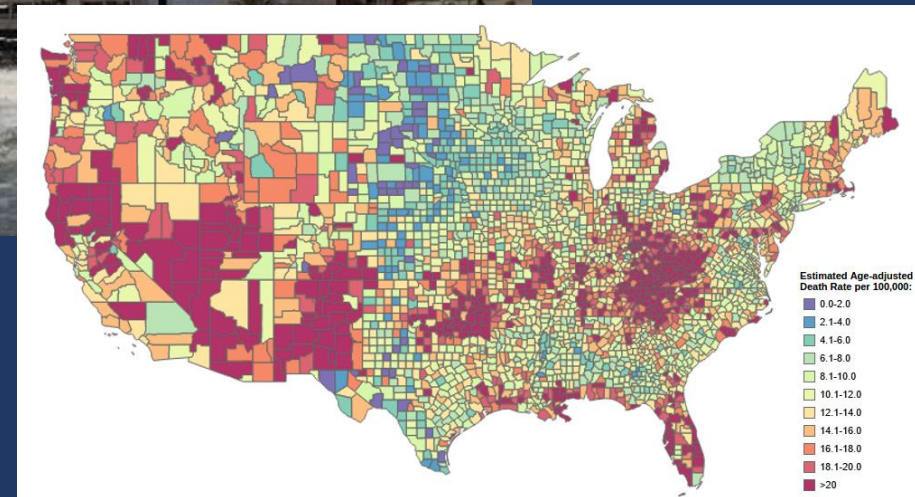
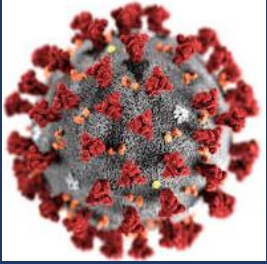
CDC National Vital Statistics System, January 15, 2020

	HEROIN	NAT & SEMI – SYNTHETIC	METHADONE	SYNTHETIC OPIOIDS	COCAINE	OTHER PSYCHO-STIMULANTS
JUNE 2018 *	15,408	13,703	3,226	30,817	15,408	11,667
JUNE 2019 *	14,973	12,275	2,883	33,752	15,391	14,687
Change	-2.82%	-10.42%	-10.63%	9.52%	-0.11%	25.88%

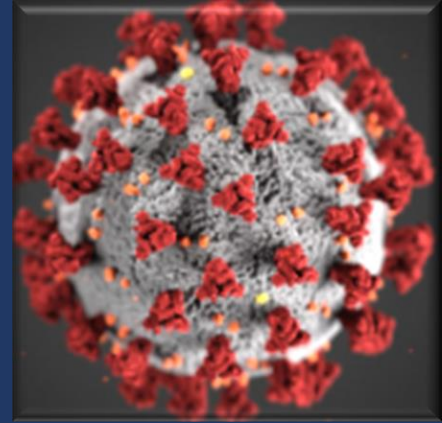
* Number of predicted deaths for the 12 months ending in June of the indicated year

PRESENTATION TITLE

Intersection between Opioid crisis and COVID-19

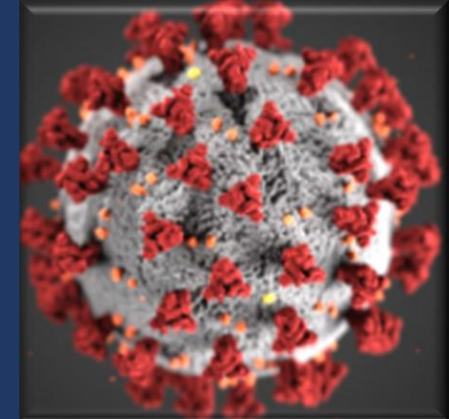


COVID-19: Potential Implications for People with SUD



- SUD-related lung impairment may increase risk for serious effects from COVID-19 (smoking/vaping, opioids, methamphetamine)
- Stress on health systems may be a barrier to care for those with SUD
- Populations experiencing homelessness or incarceration at higher risk for SUD; may have increased exposure to COVID-19
- Difficulties in accessing medications (including methadone clinics)
- Restriction of community support system like syringe exchange programs
- Challenges of stress and social isolation to sustain recovery

COVID-19: Potential Implications for SUD Research



- Lab closures
- IRB closures
- Halted recruitment/enrollment/patient interaction in clinical trials
- Healthcare system overwhelmed with clinical needs and research delays
- Public health partners for HEALing Communities overwhelmed
- Researchers not permitted into correctional facilities

Notice of Special Interest (NOSI) regarding the Availability of Administrative Supplements and Urgent Competitive Revisions for Research on the 2019 Novel Coronavirus Notice Number: NOT-DA-20-047

- Key Dates

Release Date: March 19, 2020

First Available Due Date: March 19, 2020

Expiration Date: March 31, 2021

- Related Announcements

PA-18-935 Urgent Competitive Revision to Existing NIH Grants and Cooperative Agreements (Urgent Supplement - Clinical Trial Optional)

PA-18-591 Administrative Supplements to Existing NIH Grants and Cooperative Agreements (Parent Admin Supp Clinical Trial Optional)

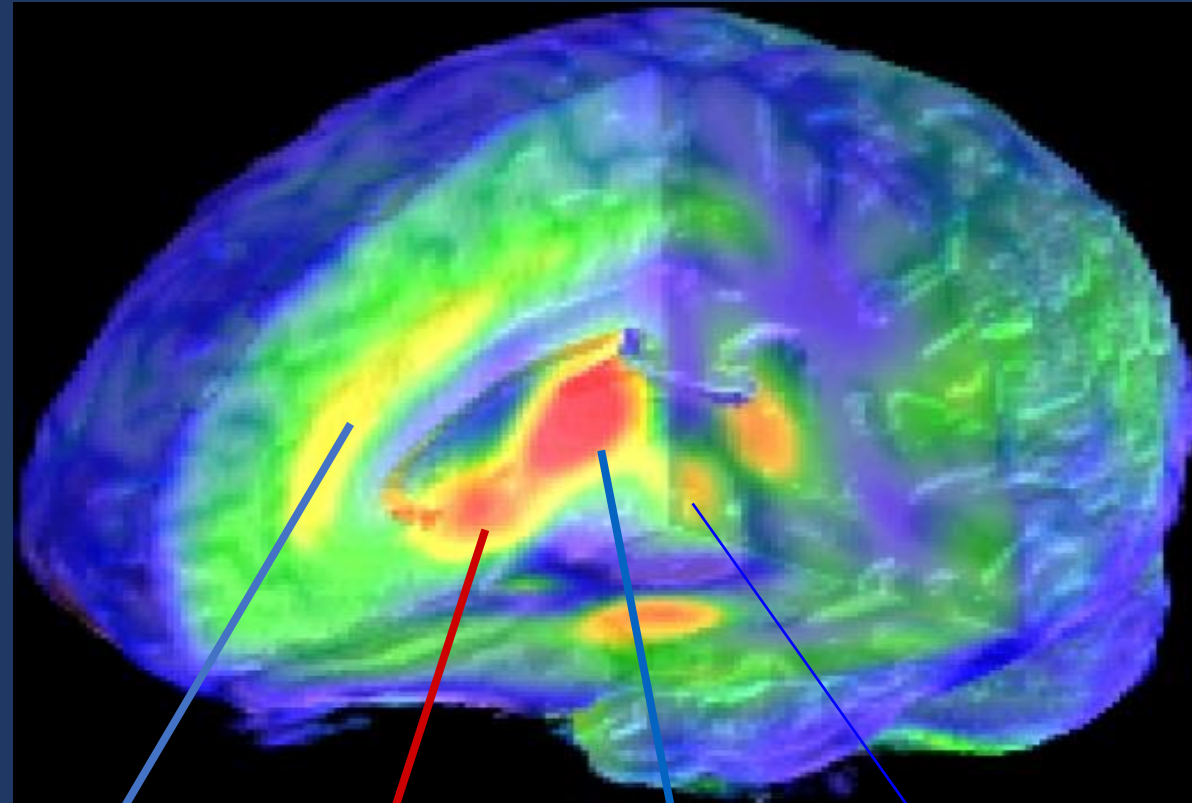
- Issued by

National Institute on Drug Abuse (NIDA)

- Purpose

- NIDA is issuing this Notice of Special Interest (NOSI) to highlight the urgent need for research on the 2019 Novel Coronavirus (2019-nCoV, also known as COVID-19). NIDA is especially interested in research collecting and examining data on the risks and outcomes for COVID-19 infection in individuals suffering from SUD.

Analgesic & Reward Mechanisms of Mu Opiate Drugs (Heroin, Vicodin, Morphine)



ACC
(pain)

Accumbens
(reward)

Thalamus
(pain)

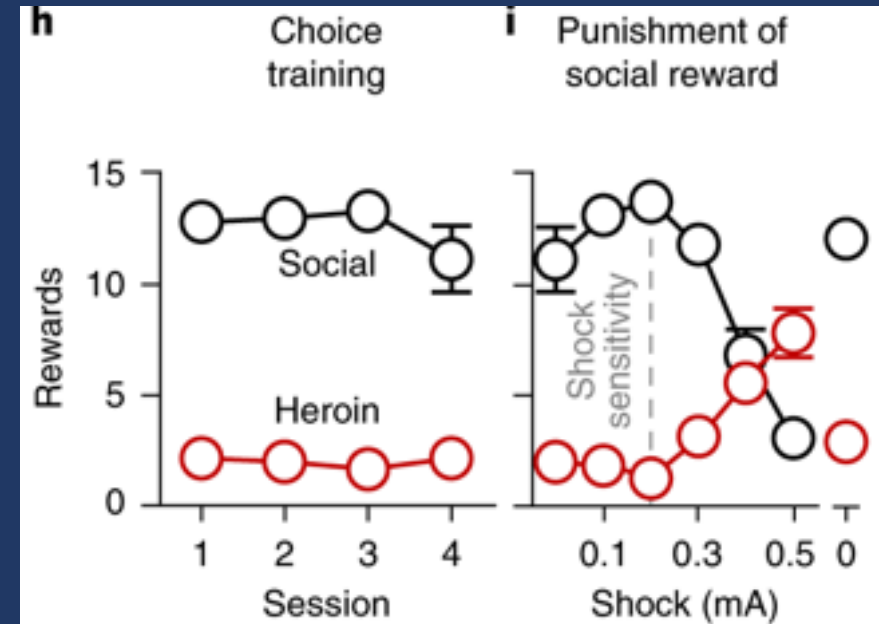
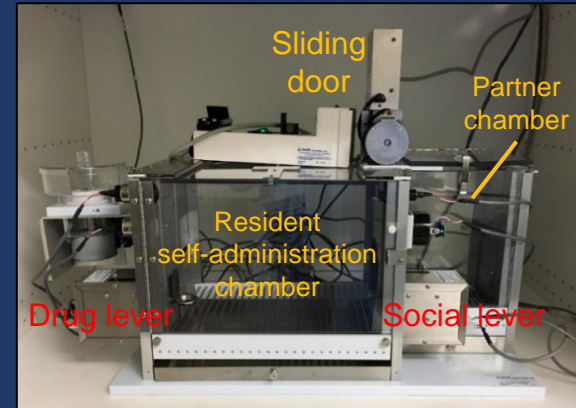
PAG
(pain)

Social Interaction Favored over Heroin Unless Social Interaction is Punished



James Nachtwey. *TIME* Special Report

HEROIN



Plethora of new targets for pain therapy development

