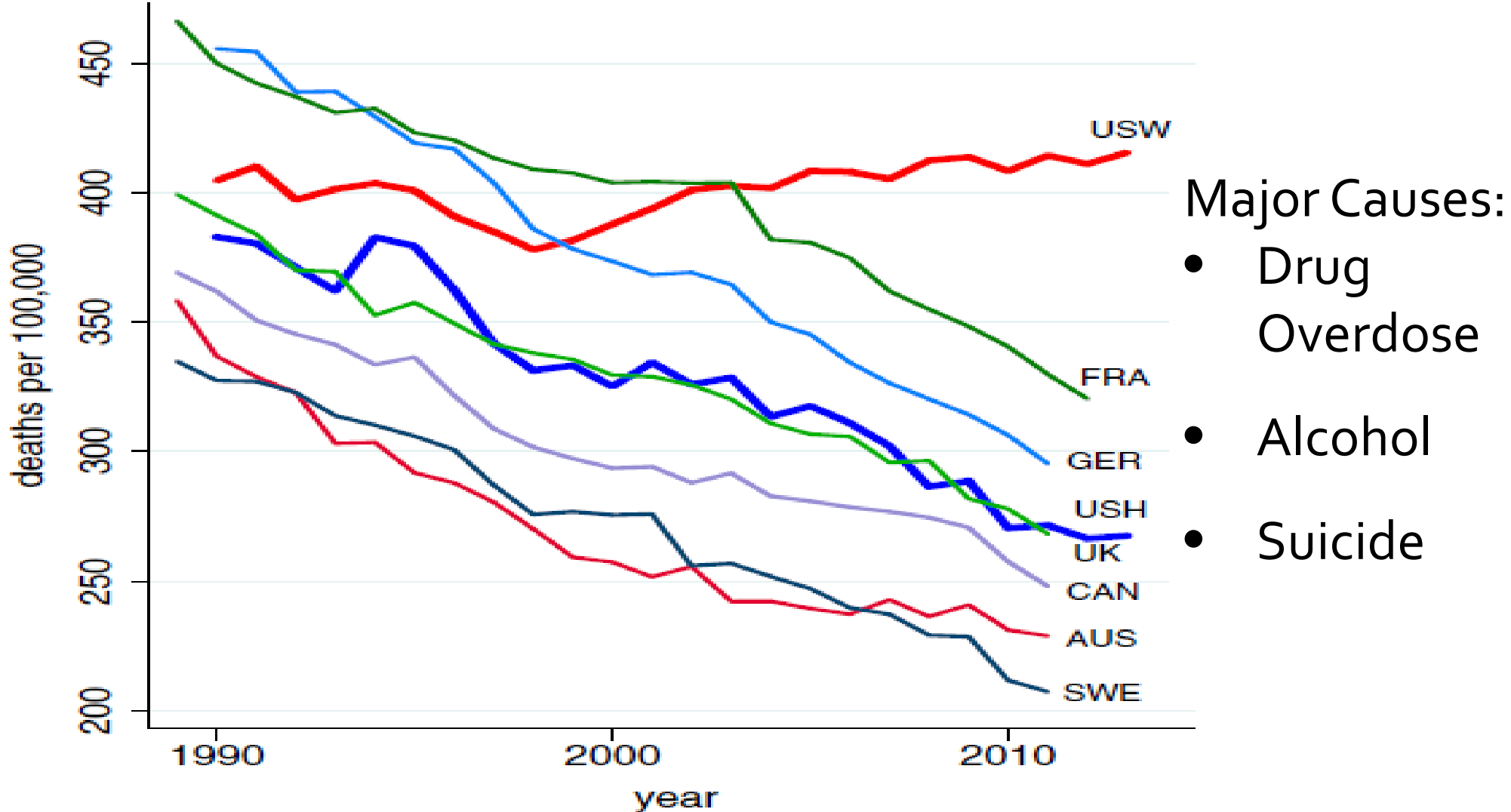


# Helping to End Addiction Long-Term: NIH HEAL Initiative

Kathy Etz, Ph.D.  
Clinton Wright, M.D., M.S.



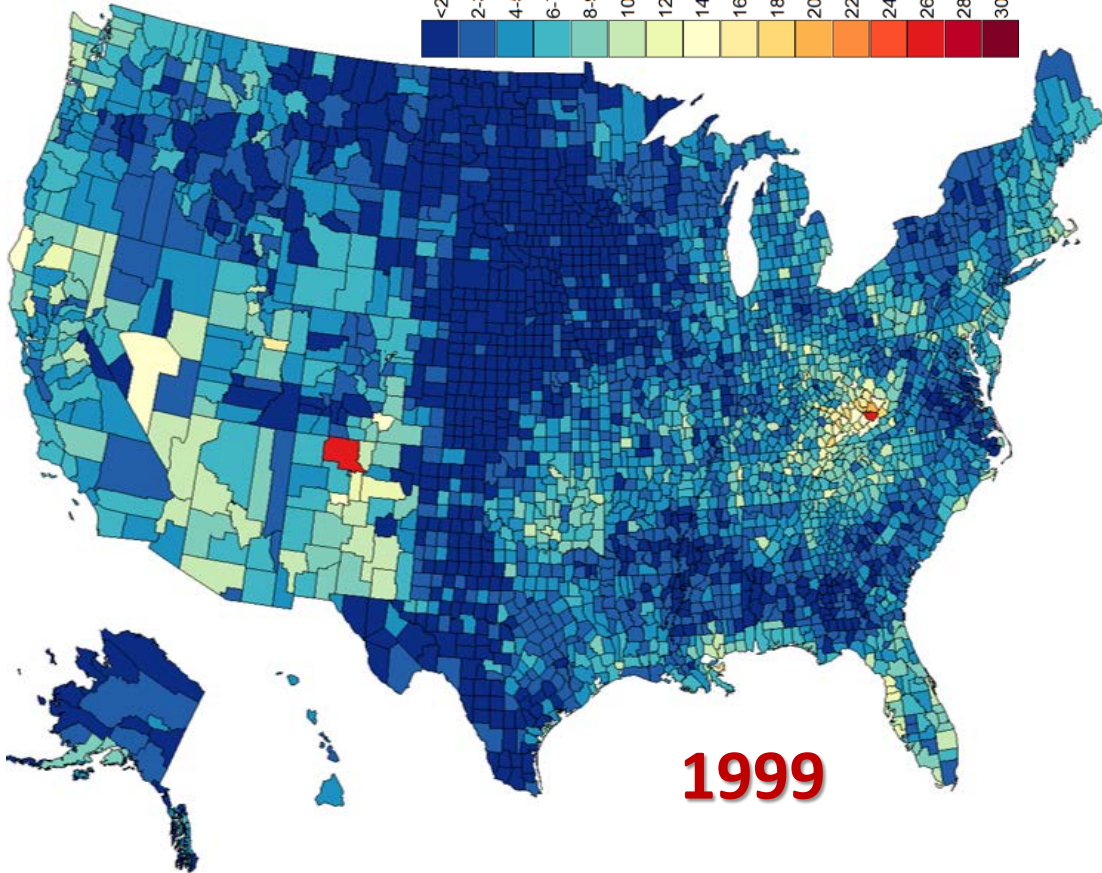
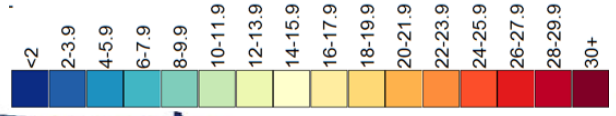
# Overall Increases in Deaths in 45-54 Year Old, White, Non-Hispanics in USA (Compared to Other Countries)



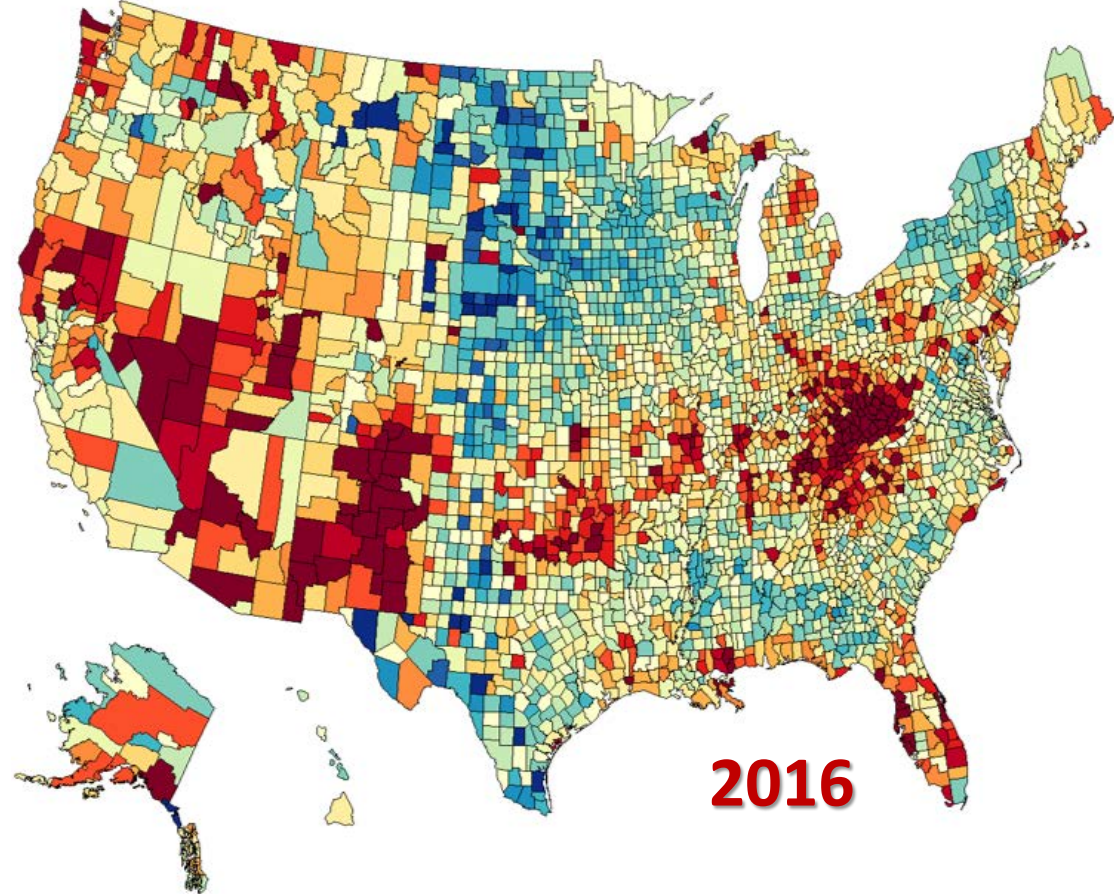
# 63,362 OD Deaths in 2016—42,249 from Opioids (Rx and Illicit)

## Virtually *All of the U.S.* Reports Increased Drug Overdoses:

Estimated Age-adjusted Death Rates per 100,000 for Drug Poisoning by County



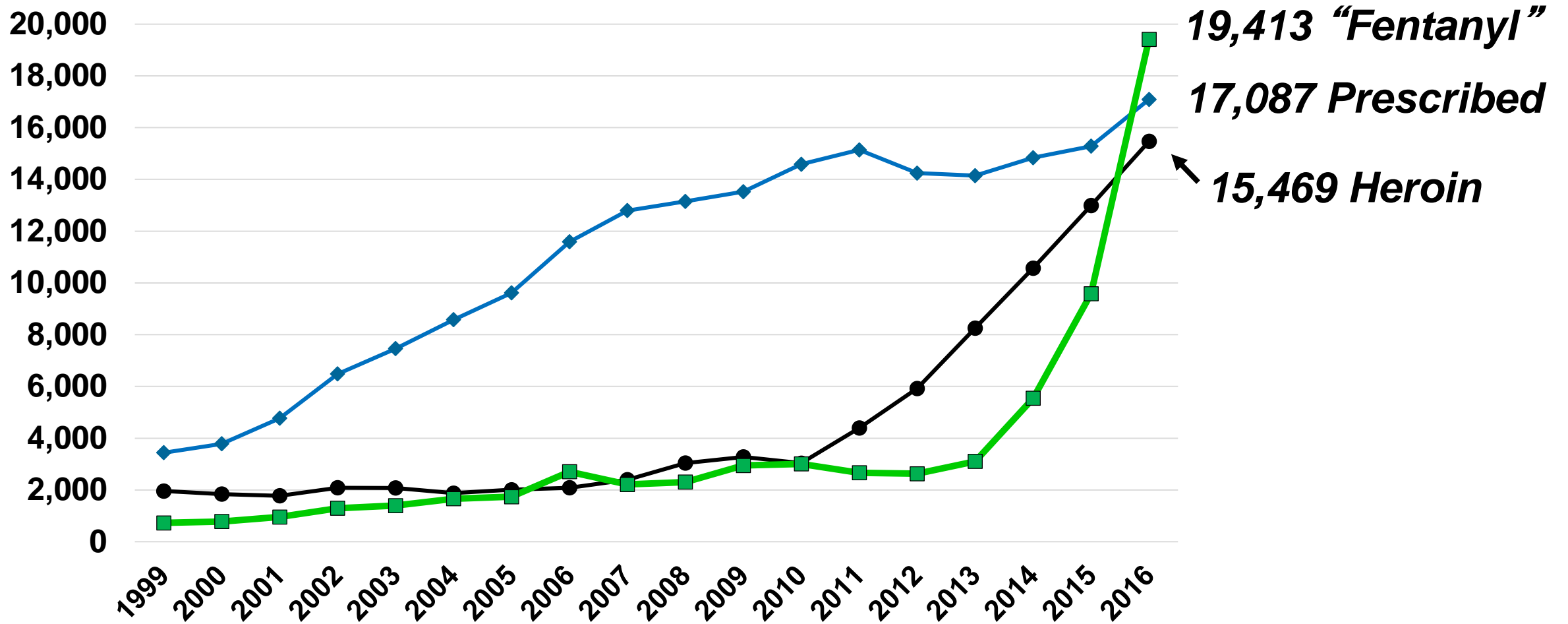
1999



2016

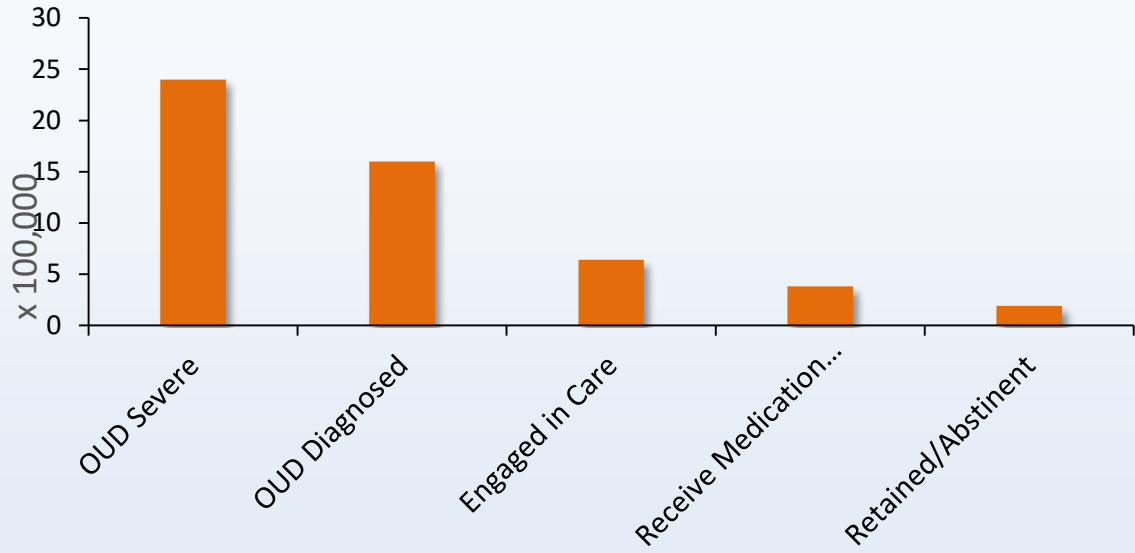
Source: <https://www.cdc.gov/nchs/data-visualization/drug-poisoning-mortality/index.htm>

# Evolution of Drivers of Opioid Overdose Deaths: *Opioid Analgesics* ➡ *Heroin* ➡ *Fentanyl*



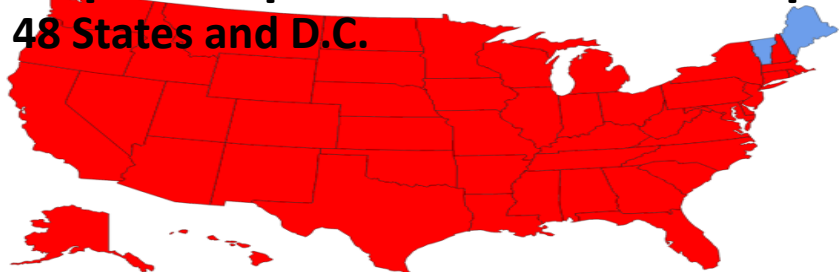
Source: NCHS WONDER, NCHS Data Brief 294

# Medications are *Underused*



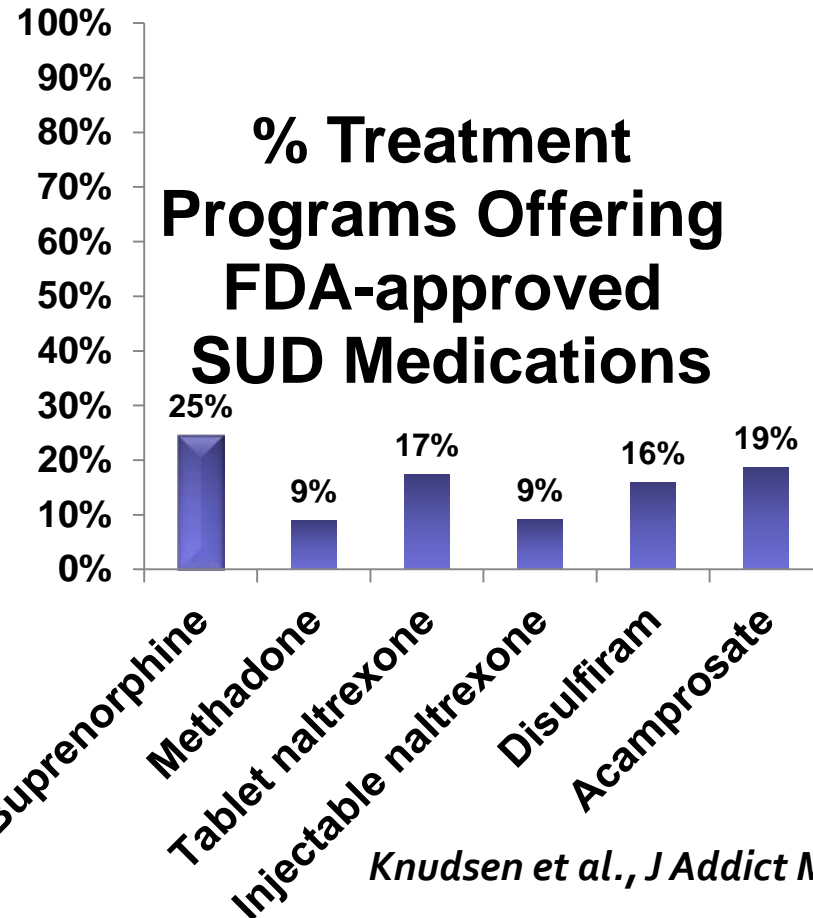
Williams AR, Nunes E, Olfson M. Health Affairs Blog, 2017

**Opioid Use Disorder Rates Exceed Buprenorphine Treatment Capacity – 48 States and D.C.**

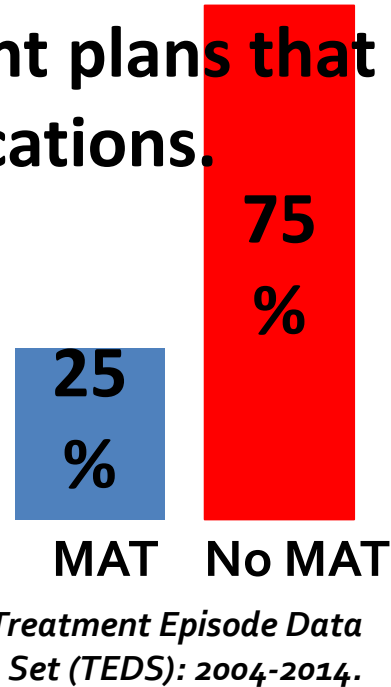


Jones C et al., Am J Public Health 2015.

In 2014, only 25% of opioid admissions had treatment plans that included receiving medications.



Knudsen et al., J Addict Med 2011



# HHS Priority Action Plan: Reduce Opioid Morbidity and Mortality



- 1) Access:** *Expand and improve prevention, treatment and recovery support services;*
- 2) Overdoses:** *Expand availability of naloxone (overdose-reducing drugs)*
- 3) Data:** *Strengthen public health data and reporting;*
- 4) Research:** *Better research on addiction and pain;*
- 5) Pain:** *Better pain management.*

# New NIH Initiative to Address the Crisis:

## *HEAL: Helping to End Addiction Long-term*

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- **\$500M just added by Congress**
  - Adds to \$600M current funds = \$1.1B for FY18
  - Will propel HEAL
- Collaborative, cross-cutting research
  - From basic to behavioral – and everything between
  - Innovative partnerships – across agencies, sectors, organizations – will ensure rapid progress
- Advances ***national priorities for pain, addiction research***

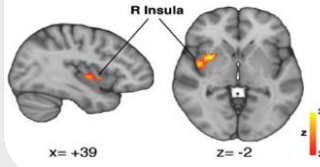
# NIH Seeks to Respond to the Crisis... With Research

**Pain Management**  
Safe, more effective strategies

*Non-Pharmacological  
Treatments (e.g., TMS)*



*Biomarkers for Pain*



*Vaccines or Antibodies  
Against Opioids or  
Pain Producing  
Chemicals*

*Non-Opioid  
Analgesics*



**Opioid Addiction  
Treatment**  
New and innovative  
medications and  
technologies



*Respiratory  
Stimulation  
Devices*

**Overdose Reversal**  
Interventions to reduce  
mortality and link to  
treatment



VIEWPOINT

# Helping to End Addiction Over the Long-term The Research Plan for the NIH HEAL Initiative

**Francis S. Collins, MD, PhD**  
National Institutes of Health, Bethesda, Maryland.

**Walter J. Koroshetz, MD**  
National Institutes of Health, Bethesda, Maryland; and National Institute of Neurological Diseases and Stroke, Bethesda, Maryland.

**Nora D. Volkow, MD**  
National Institutes of Health, Bethesda, Maryland; and National Institute on Drug Abuse, Bethesda, Maryland.

**Extraordinary focus by all** segments of society is required to respond to the nation’s opioid crisis. Now is the time to channel the efforts of the scientific community to deliver effective—and sustainable—solutions to this formidable public health challenge. Recognizing this opportunity, Congress added \$500 million to the base appropriation of the National Institutes of Health (NIH), starting in fiscal year 2018.<sup>1</sup> The NIH will invest these much-needed resources to support science that advances national priorities for addiction and pain research<sup>2</sup> with a bold new trans-NIH initiative called Helping to End Addiction Long-term (HEAL).<sup>3</sup> In this Viewpoint, we outline the initial components of this cross-cutting, interdisciplinary program.

More than 25 million US adults are affected by daily pain.<sup>4</sup> More than 2 million individuals in the United States have an opioid use disorder (OUD), most starting with opioid analgesics prescribed to them or procured from diverted medications, but once addicted, often shift-

Table. Research Plan for the NIH HEAL Initiative

Opportunities	Components
<b>Improving Treatments for Opioid Misuse and Addiction</b>	
New treatments for addiction	Identify new targets, develop new medications/immunotherapies; reformulate existing medicines
	Improve overdose reversal medicines
	Develop new therapies for opioid-induced respiratory depression
Optimization of effective treatments for addiction	Enhance NIDA Clinical Trials Network for opioid research
	Establish Justice Community Opioid Intervention Network
	Initiate HEALing Communities Study
NOWS	Expand ACT NOW pilot study; use results to conduct clinical trials to determine best practices for clinical care of NOWS
<b>Enhancing Pain Management</b>	
Better understanding of chronic pain	Establish Acute to Chronic Pain Signatures program

# **NIDA: HEAL - TREATMENT ENHANCEMENTS** *Focused Medications Development Research Project*

*Despite effective OUD medications their utility is limited due to:*

- Low treatment rates
- Adherence challenges
- Increased potency of illicit opioids



*Goal is to advance rapidly the development of compounds to prevent and reverse overdose and treat the different stages of OUD including:*

- New formulations of existing medications to improve OUD treatment compliance, prevent relapse and reduce diversion
- Stronger, longer-acting opioid antagonist formulations to counteract overdoses
- Interventions to counteract respiratory depression by means other than antagonists
- Novel non-opioid based medications and immunotherapies for OUD
- Medication targeting endpoints other than abstinence (i.e., insomnia, craving, dysphoria).

# NIDA/SAMHSA: HEAL - *Integrated Treatment* *The HEALing Communities Study*

● *Draw upon all we know now and develop integrated intervention strategies to stem the crisis quickly*

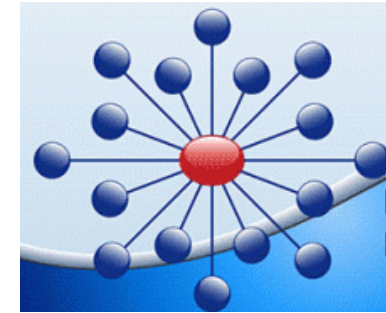
- Prevent OUD and OD
- Screen and diagnose
- Engage and retain in medication-assisted treatment
- Help sustain long-term recovery



- *Pilot Demonstration Project* – involving wide-ranging federal, state, local partnerships, integrating ALL of the stakeholders
  - Health care (ED and primary care), criminal justice, treatment programs, government agencies, emergency rooms, first responders
- *Partnership with SAMHSA and other federal, state agencies and local communities and Involve: Health care, criminal justice, and community programs*

# NIDA: HEAL - *TREATMENT ENHANCEMENTS* *Clinical Trials Network (CTN) Expansion*

- *NIDA collaboration with academics and community providers*
  - Develop, validate, refine, and translate into practice new treatment options for SUD
- *Expand the size and scope of the CTN*
  - Expand access in primary care, ED and rural areas
  - Facilitate implementation science
- *Contribute to improved quality of and access to treatment for OUD*
  - Introduce sustainable interventions in underserved, highly impacted areas
  - Implement OUD treatment practices in general medical settings
  - Expand the OUD treatment clinical and research workforce



# NIDA: HEAL - JUSTICE INITIATIVE

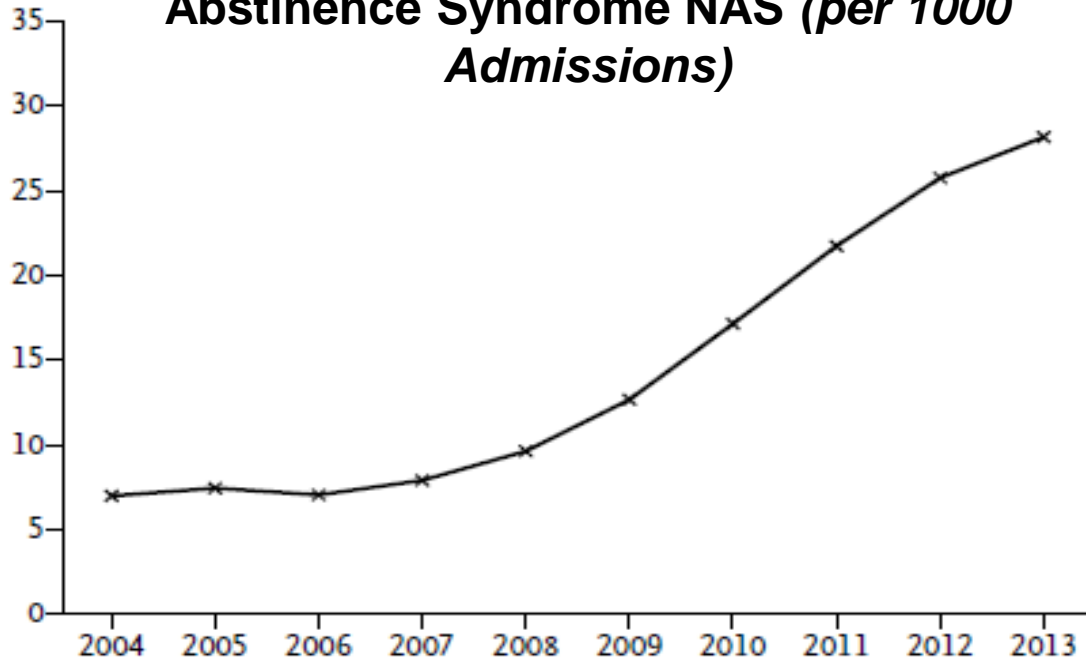
*Justice Community Opioid Innovation Network (JCOIN)*

- Increase collaborations between justice systems and community-based treatment providers to improve continuity of care and transform responses to the opioid crisis
  - Enhance access and retention in OUD treatment
- Justice community-related research
  - National survey of addiction treatments in jails, prisons and communities
  - Effectiveness and implementation studies of new and existing medications, interventions, and technologies in justice settings
  - Leveraging existing data sources
  - Developing innovative research methods



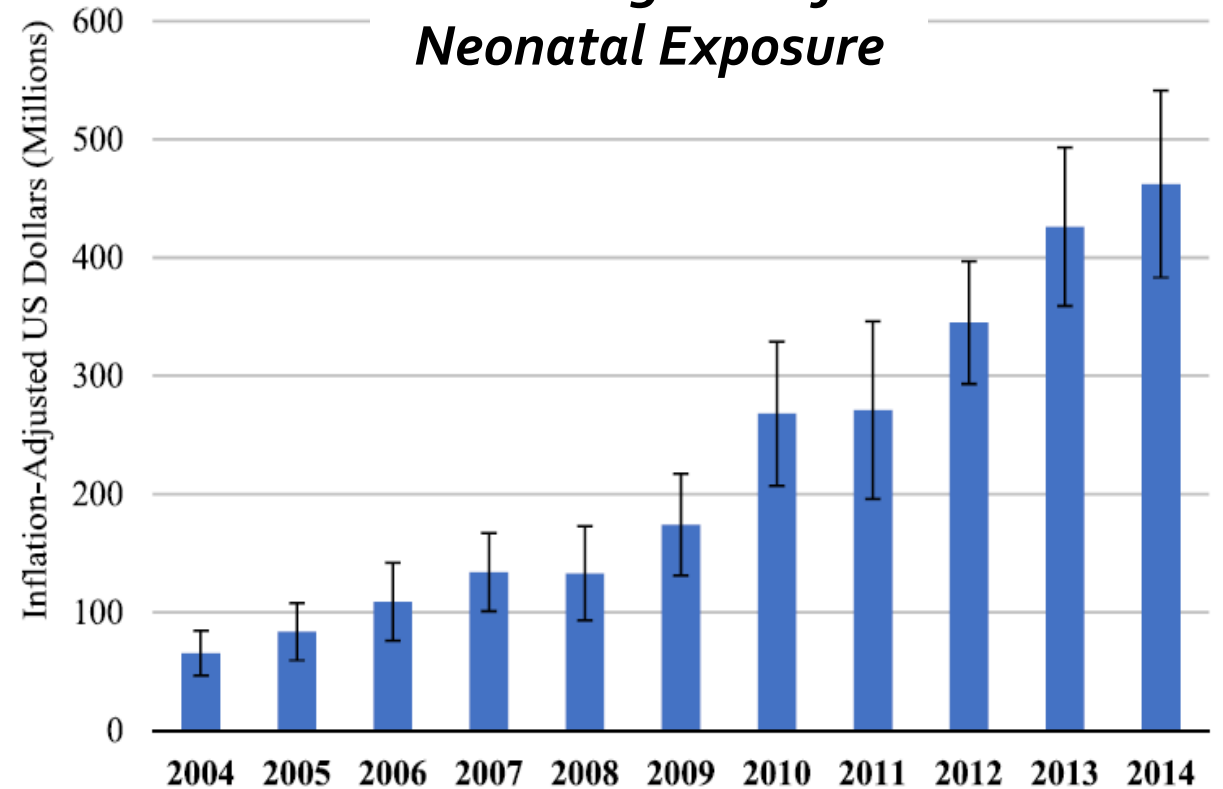
# Opioid Use and Misuse During Pregnancy

**Increasing NICU Admissions for Neonatal Abstinence Syndrome NAS (per 1000 Admissions)**



Source: Tolia VN, Patrick SW, et al., *NEJM* 2015;372:2118-2126.

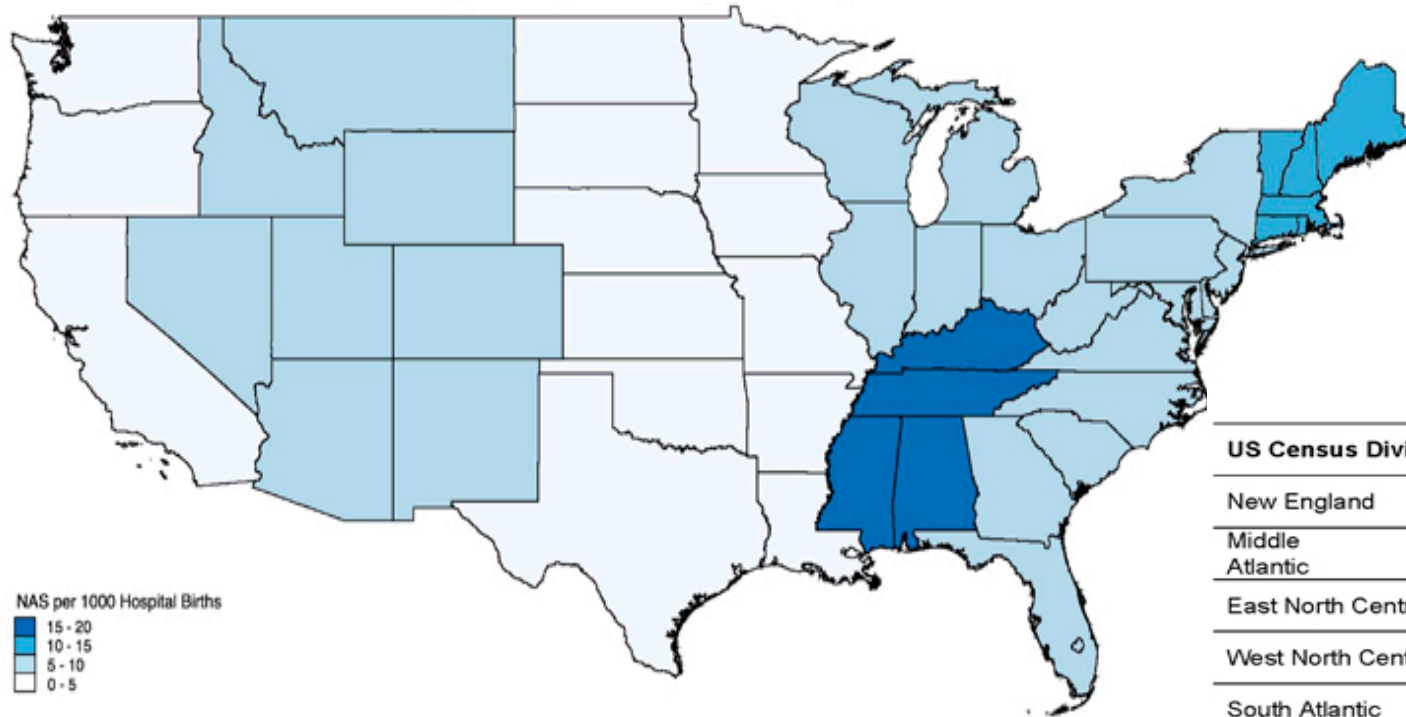
**Increasing Costs for Neonatal Exposure**



Source: Winkelman TNA, Villapiano N, Kozhimannil KB, Davis MM, Patrick SM.. *Pediatrics*. 2018;141(4):e20173520

# Increasing Neonatal Abstinence Syndrome: Incidence & Geography, U.S. 2009-2012

Neonatal Abstinence Syndrome per 1000 Hospital Births by US Census Division, 2012



NAS per 1000 Hospital Births

- 15 - 20
- 10 - 15
- 5 - 10
- 0 - 5

US Census Division	NAS Rate per 1000 Births (95% CI)
New England	13.7 (12.5-14.5)
Middle Atlantic	6.8 (5.9-7.6)
East North Central	6.9 (6.0-7.8)
West North Central	3.4 (3.0-3.8)
South Atlantic	6.9 (6.3-7.4)
East South Central	16.2 (12.4-18.9)
West South Central	2.6 (2.3-2.9)
Mountain	5.1 (4.6-5.5)
Pacific	3.0 (2.7-3.3)

Patrick SW, Davis MM, Lehman CU, Cooper WO. Increasing incidence and geographic distribution of neonatal abstinence syndrome: United States 2009 to 2012. *J Perinatol.* 2015 Aug;35(8):667. doi: 10.1038/jp.2015.63. PubMed PMID: 26219703.

# Increasing NAS:

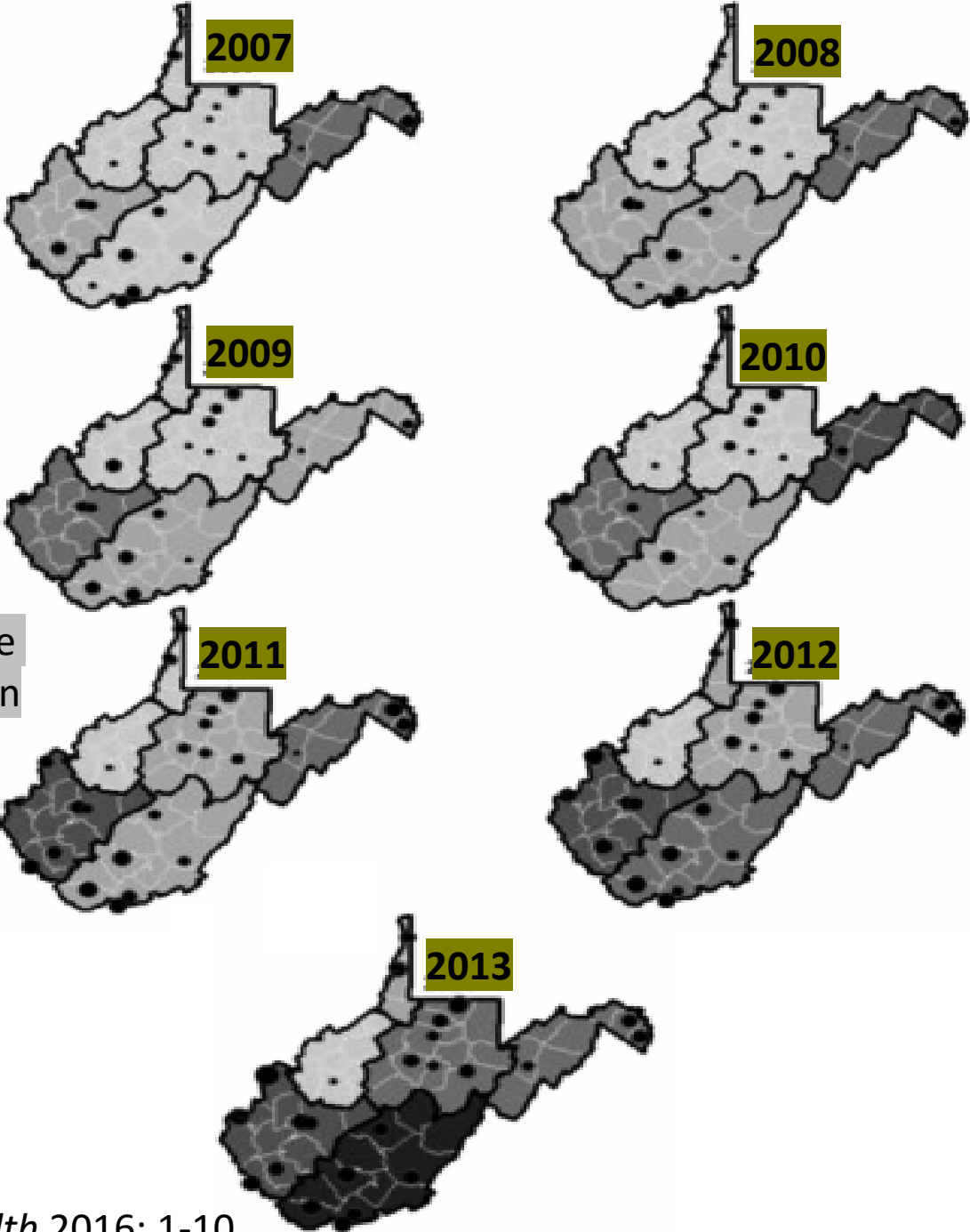
## West Virginia 2007-2013

NAS cases per 1000 live births by hospital

- 0.0 – 1.2
- 1.3 – 13.9
- 14.0 – 27.9
- 28.0 – 74.9
- 75.0 - 100
- 101.0 +

NAS cases per 1000 live births by SAMSHA region

- 0.2 – 10.0
- 10.1 – 20.0
- 20.1 – 30.0
- 30.1 – 40.0
- 40.1 +



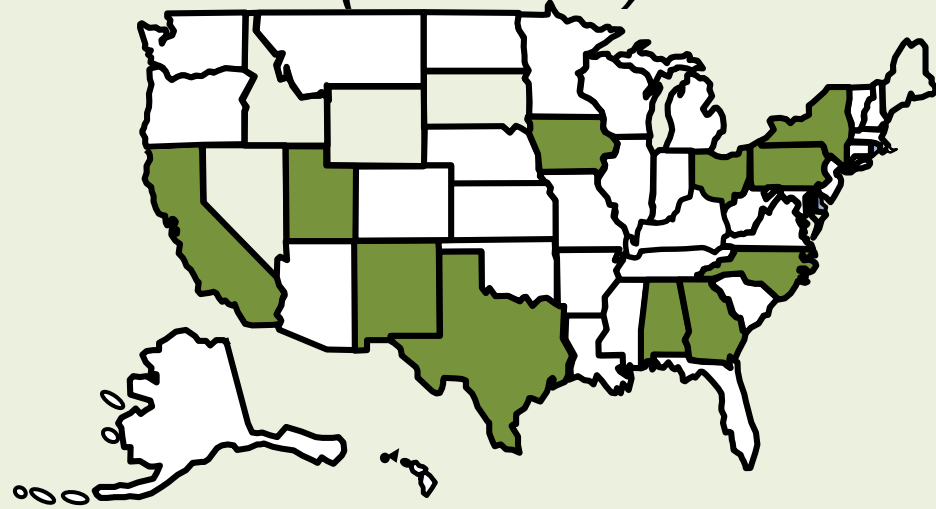
Source: Stabler ME, et al. *Journal of Rural Health* 2016; 1-10



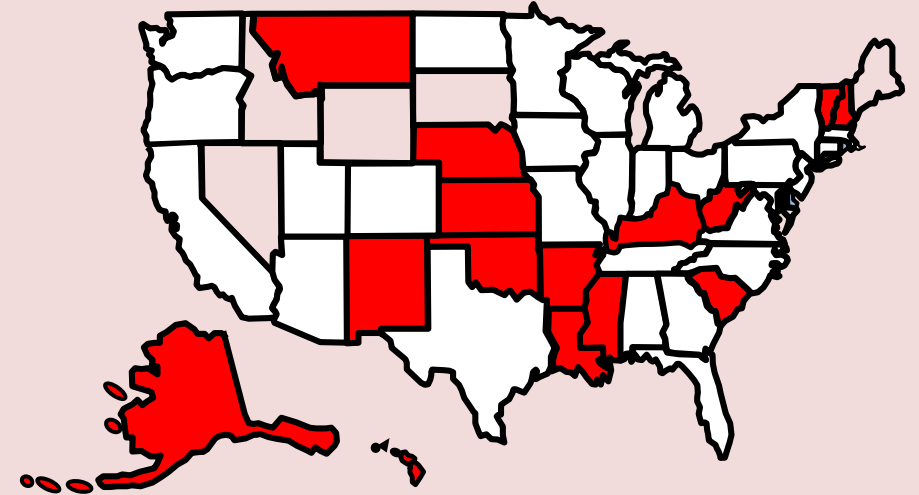
# HEAL – Neonatal Opioid Withdrawal

## *Advancing Clinical Trials in NOWs: Pilot Study*

**Neonatal Research Network Centers  
(2016-2021)**



**IDeA States Pediatric Clinical  
Trials Network**



- ***1 year pilot funding from Director's Discretionary Fund 2017***
- ***20 clinical sites participating***
- ***Assess prevalence of NOWs at different sites, current approaches to treatment, and develop common protocols for future studies***



# HEAL – Neonatal Opioid Withdrawal

## *Advancing Clinical Trials in NOWs: Pilot Study*

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- Clinical trials for care of infants with NOWs
  - Determine effectiveness of currently used medications to treat withdrawal
  - Compare pharmacologic approaches to drug-free strategies
    - Eat, sleep, console
  - Assess impact of prenatal exposure to opioids
    - Effects on developing brain structure and function
    - Higher risk for school performance problems
    - Long-term risk for addiction
- Determine best practices to improve short- and long-term outcomes

# Additional Research Priorities

- Precision treatments for addiction
- Prevention
- Non-pharmacological treatments
- Integrated models of pain management
- Linkages between pain, addiction, mental health
- Education



# Follow *HEAL* on our Website...



## NIH HEAL INITIATIVE

### HEAL Initiative

[Prevent Addiction](#)

[Improve Treatments](#)

[Public-Private Partnership](#)

[Events](#)

[News and Announcements](#)

[Resources](#)

In April 2018, NIH launched the HEAL (Helping to End Addiction Long-term) Initiative, an aggressive, trans-agency effort to speed scientific solutions to stem the national opioid public health crisis. This Initiative will build on extensive, well-established NIH research, including basic science of the complex neurological pathways involved in pain and addiction, implementation science to develop and test treatment models, and research to integrate behavioral interventions with Medication-Assisted Treatment (MAT) for opioid use disorder (OUD). Successes from this research include the development of the nasal form of naloxone, the most commonly used



[www.nih.gov/heal-initiative](http://www.nih.gov/heal-initiative)