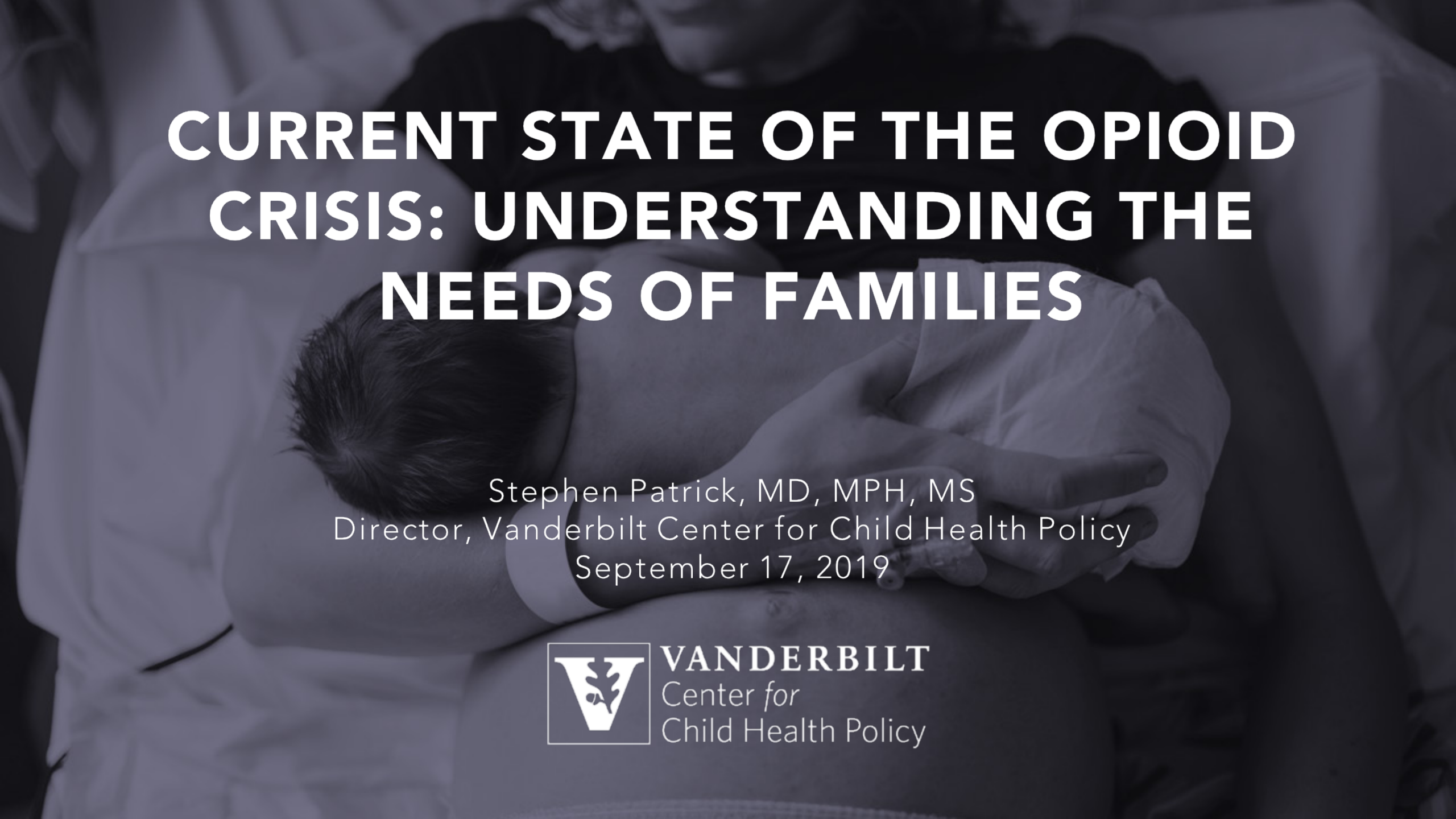

CURRENT STATE OF THE OPIOID CRISIS: UNDERSTANDING THE NEEDS OF FAMILIES

Stephen Patrick, MD, MPH, MS
Director, Vanderbilt Center for Child Health Policy
September 17, 2019

VANDERBILT
Center *for*
Child Health Policy

TODAY'S CHARGE

How can the opioid crisis serve as a vehicle to advance human services that improve family outcomes even after the crisis subsides?

OVERVIEW

- The opioid crisis
- Neonatal abstinence syndrome
- Beyond opioids – Key Issues
- Looking ahead

1827: Morphine marketed by Merck

- Pain relief
- Treatment of ‘opium addiction’
- Treatment of ‘alcoholism’

Frakt, Austin. "Painkiller Abuse, a Cyclical Challenge." The New York Times 22 Dec. 2014.
Additional Source: Hendree Jones, PhD

1874: Diacetylmorphine discovered

- 1898 Bayer pharmaceutical marketed under name Heroin
- The marketing campaign
- "safe, non-addictive" substitute for morphine

1906: American Medical Association approved Heroin for general use and recommended that it be used in place of morphine.

Frakt, Austin. "Painkiller Abuse, a Cyclical Challenge." The New York Times 22 Dec. 2014.
Additional Source: Hendree Jones, PhD

NEJM 1980

ADDICTION RARE IN PATIENTS TREATED WITH NARCOTICS

To the Editor: Recently, we examined our current files to determine the incidence of narcotic addiction in 39,946 hospitalized medical patients[1] who were monitored consecutively. Although there were 11,882 patients who received at least one narcotic preparation, there were only four cases of reasonably well documented addiction in patients who had no history of addiction. The addiction was considered major in only one instance. The drugs implicated were meperidine in two patients,[2] Percodan in one, and hydromorphone in one. We conclude that despite widespread use of narcotic drugs in hospitals, the development of addiction is rare in medical patients with no history of addiction.

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HERSHEL JICK, M.D.
Boston Collaborative Drug Surveillance Program
Waltham, MA 02154 Boston University Medical Center

1. Jick H, Miettinen OS, Shapiro S, Lewis GP, Siskind Y, Slone D. Comprehensive drug surveillance. JAMA. 1970; 213:1455-60.
2. Miller RR, Jick H. Clinical effects of meperidine in hospitalized medical patients. J Clin Pharmacol. 1978; 18:180-8.

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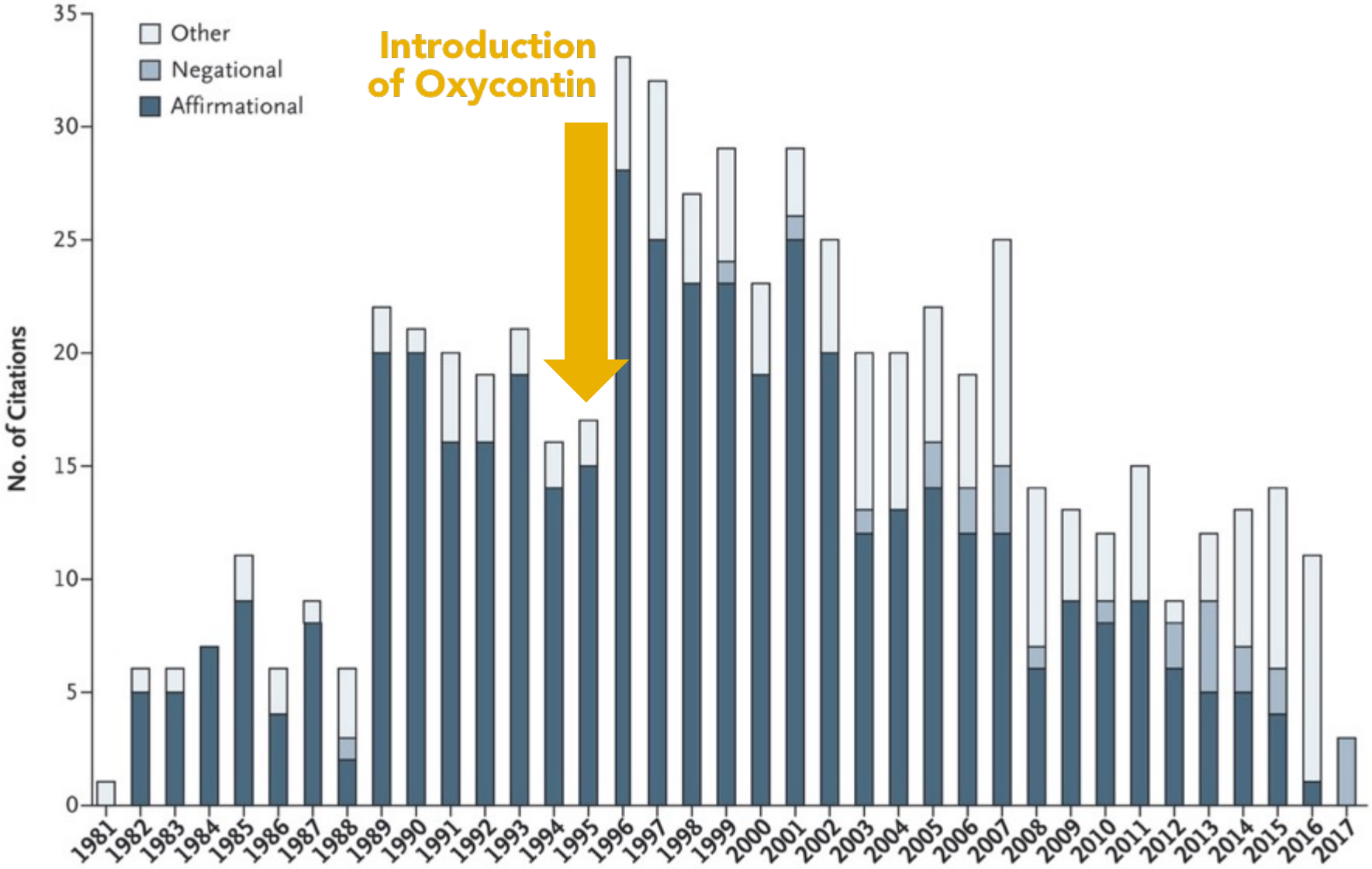
Number and Type of Citations of the 1980 Letter



Leung PT et al. *N Engl J Med* 2017;376:2194-2195.

1996	American Pain Society "Pain as the 5th Vital Sign Campaign"
1998	Federation of State Medical Boards published "Model Guidelines for the Use of Controlled Substances for the Treatment of Pain."
2003	*The New York Times* reports tripling of young adults (18-25) abusing opioid pain relievers. DEA and FDA create task force to crack down on internet sales of opioids.
2007	Maker of OxyContin, Purdue Pharma, plead guilty to "criminal charges that they misled regulators, doctors and patients about the drug's risk of addiction and its potential to be abused." Results in a $600M settlement.
2000+	Rapid expansion of opioid use in the US

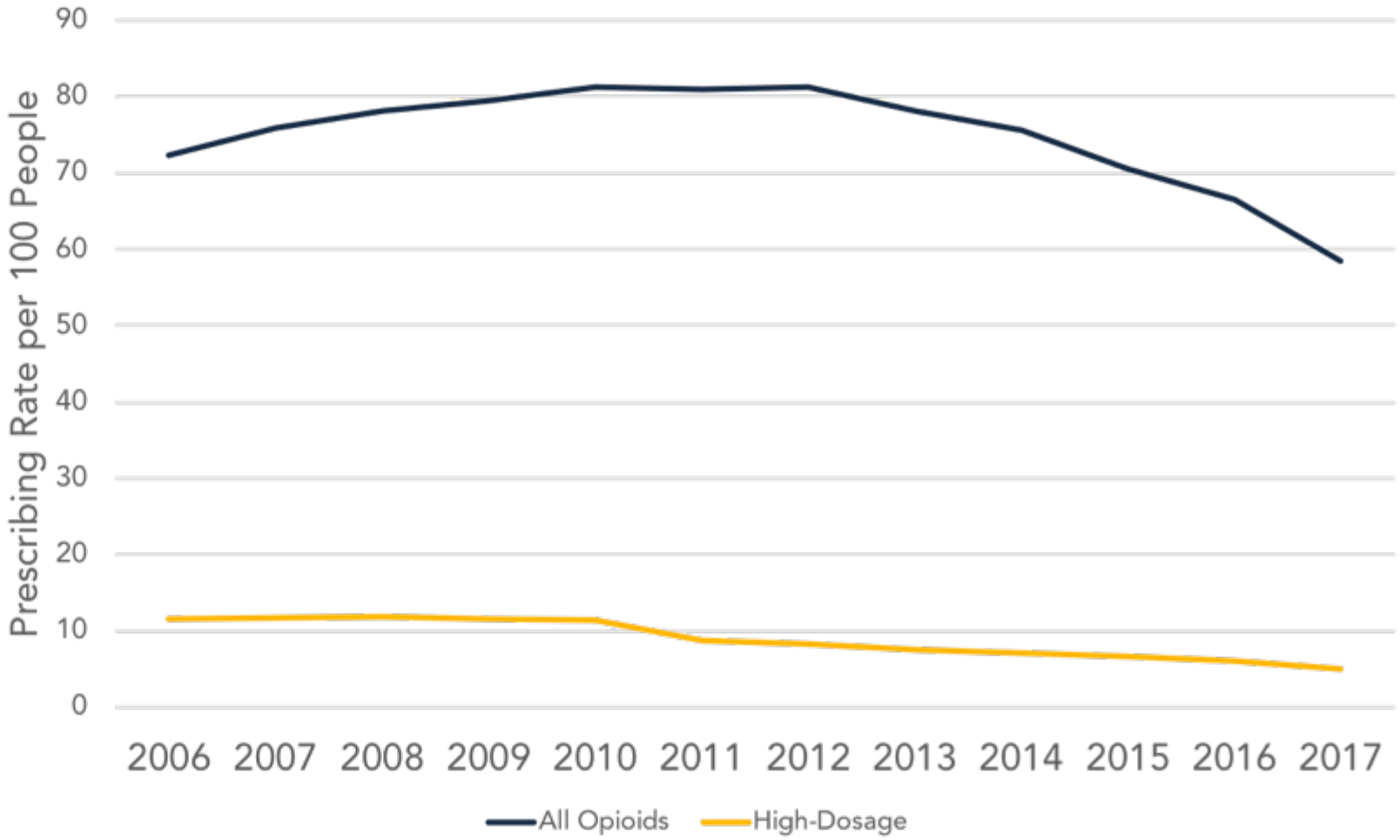
Frakt, Austin. "Painkiller Abuse, a Cyclical Challenge." The New York Times 22 Dec. 2014.

OPIOID PRESCRIPTIONS ARE INCREASING

From 1999 to 2015, opioid prescribing rates rose by **3x**

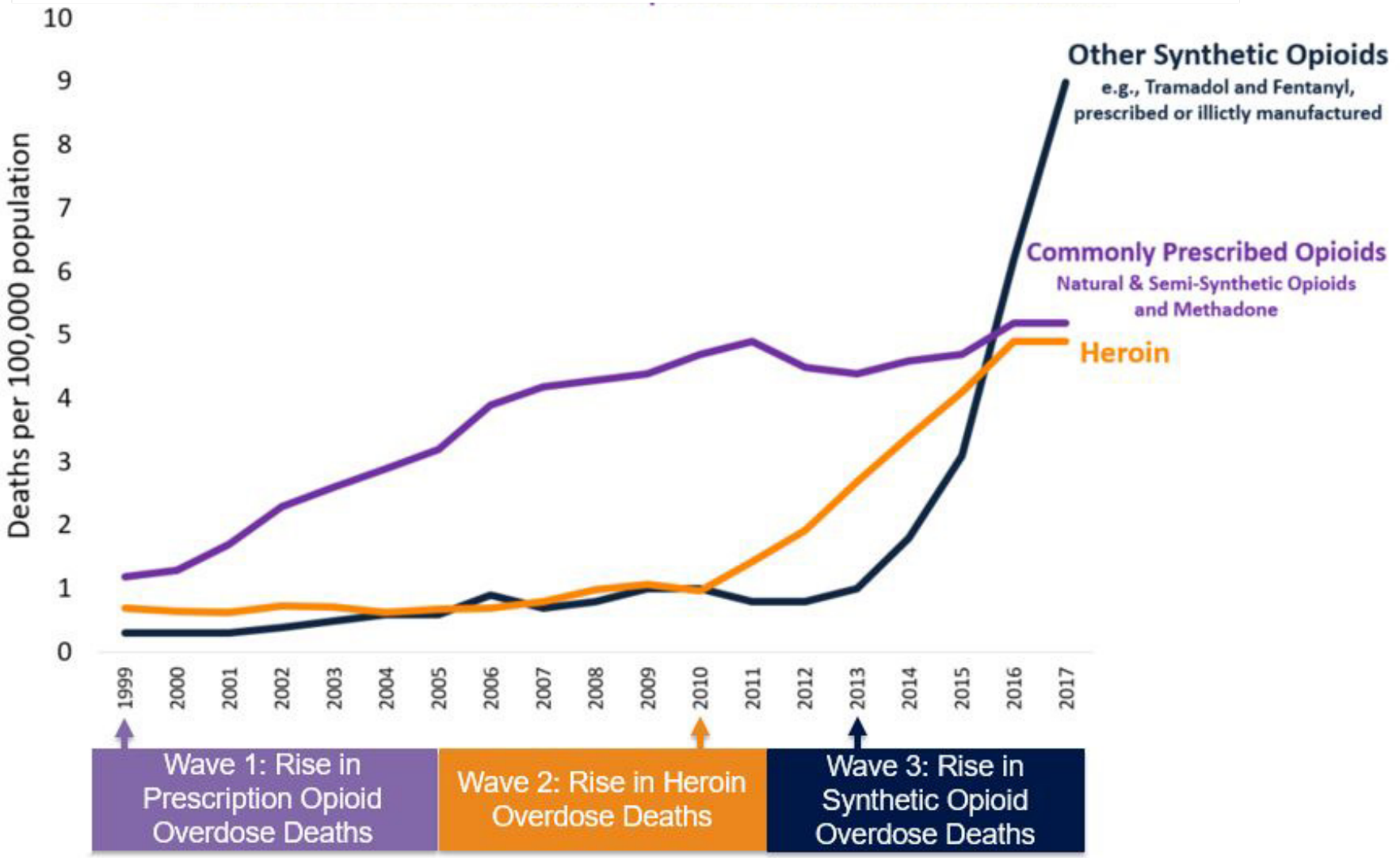
The US uses **4x** as many opioids as Europe

Opioid Prescribing in the US Has Dropped



Source: CDC, https://www.cdc.gov/drugoverdose/data/prescribing.html

3 Waves of the Rise in Opioid Deaths



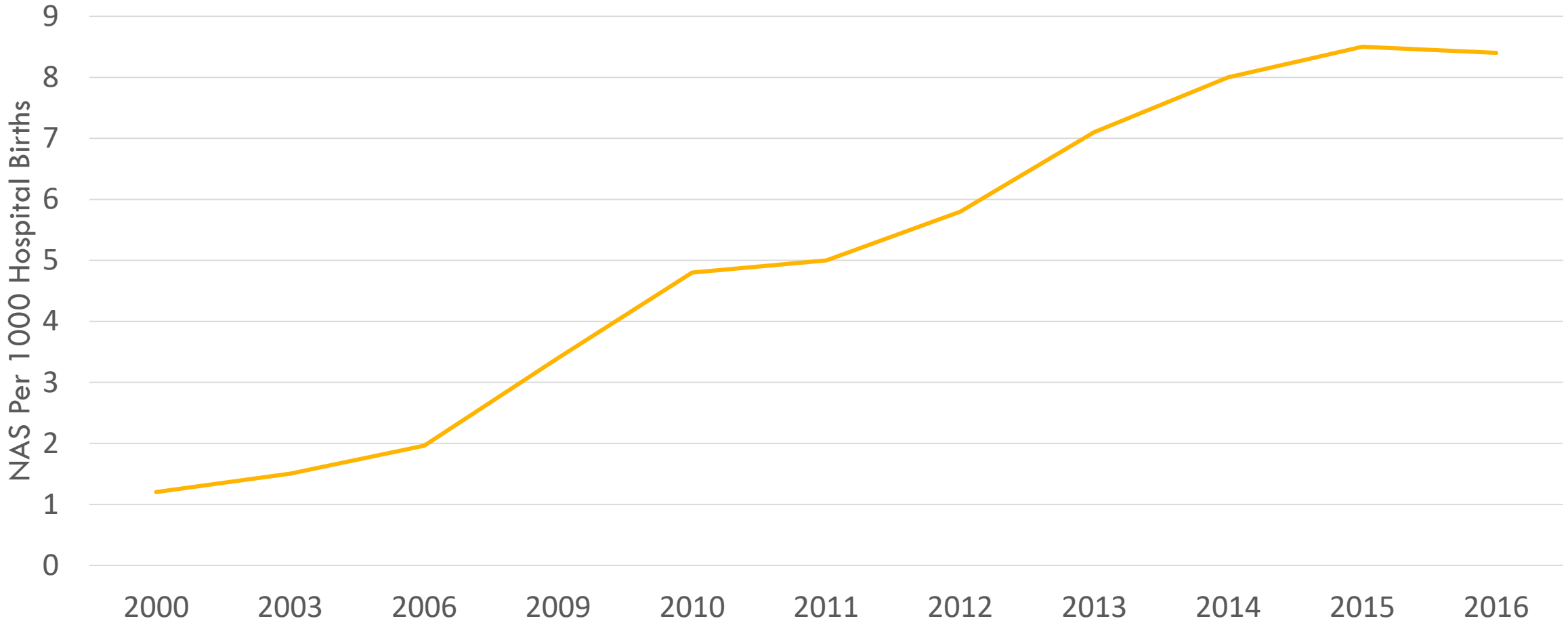
SOURCE: National Vital Statistics System Mortality File.


BIRTH
PRE-PREGNANCY
PRENATAL
NEONATAL
CHILDHOOD & BEYOND

NEONATAL ABSTINENCE SYNDROME (NAS)

- A withdrawal syndrome experienced by drug exposed newborns after birth
- Generally follows opioid exposure, though other drugs have been implicated
  - Alcohol, benzodiazepines (valium, etc.), barbiturates (phenobarbital, etc.)
- 40-80% of methadone exposed newborns develop NAS
  - ~5% of those exposed to opioid pain relievers

Incidence of NAS in the US, 2000-2016



Patrick SW, et. al. Neonatal Abstinence Syndrome and Associated Healthcare Expenditures – United States, 2000-2009. JAMA. 2012 May 9;307(18):1934-40.
Patrick SW, Davis MM, Lehman CU, Cooper WO. Increasing incidence and geographic distribution of neonatal abstinence syndrome: United States 2009 to 2012. J Perinatol. Apr 30 2015.
Winkelman TNA, Villapiano N, Kozhimannil KB, Davis MM, Patrick SW. Neonatal Abstinence Syndrome - Incidence and Costs Among Infants Enrolled in Medicaid, 2004-2014. Pediatrics. 2018 Apr;141(4).

MEDICAID COSTS

Mean hospital costs for an infant with NAS covered by Medicaid are often **5-fold higher** than for an infant without NAS.

NAS resulted in approximately $2 billion in excess costs among Medicaid-financed deliveries between 2004 and 2014.

Winkelman TNA, Villapiano N, Kozhimannil KB, Davis MM, Patrick SW. Neonatal Abstinence Syndrome - Incidence and Costs Among Infants Enrolled in Medicaid, 2004-2014. Pediatrics. 2018 Apr;141(4).

NAS TREATMENT

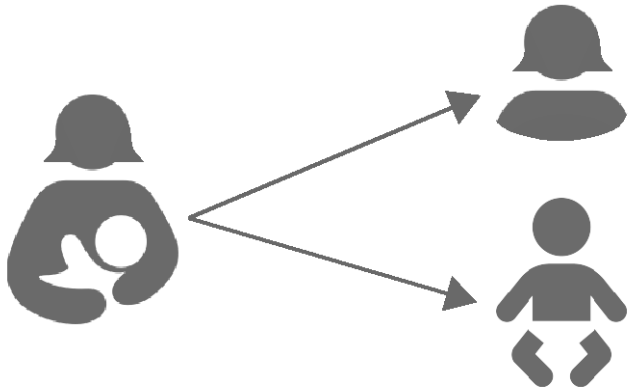
Goal of treatment: to "control" withdrawal, minimizing complications (e.g. seizure)

Non-pharmacologic intervention (e.g. environmental controls, etc)

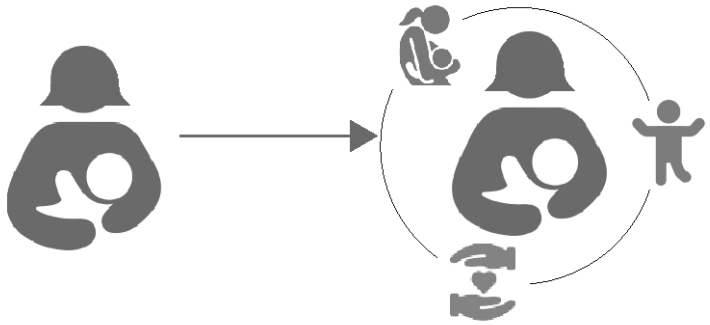
- Rooming in, Breastfeeding

Involves using opioids (morphine, methadone) and slowing decreasing dose

SHIFTING MODELS OF CARE



vs



Traditional (and common):

Transfer to a tertiary care facility
Separate mom & baby, place baby in NICU
Treatment separate from mother
Breastfeeding not allowed, or inconsistent
Focus on correct medicine, instead of care process
Burn-out common, lack of trauma-informed processes
Care not standardized
Long lengths of treatment & stay

Newer care models:

Transfer to a tertiary care facility not necessary
Keep dyad intact, out of NICU when possible
Treatment inclusive of mother
Breastfeeding encouraged & supported
Focus on care process, not just medications
Engage staff in trauma-informed care
Use of standardized protocols
Greater provider/patient satisfaction, reduced stay

Wachman EM, Schiff DM, Silverstein M. Neonatal Abstinence Syndrome: Advances in Diagnosis and Treatment. JAMA. 2018. 219(13): 1362-1374.

TEAM HOPE

An interdisciplinary team from the Vanderbilt University Medical Center and the Monroe Carrell Jr. Children's Hospital, Team HOPE seeks to **provide evidence-based care for opioid-exposed infants.** The team is comprised of:

- physicians
- nurses
- social workers
- child life specialists
- lactation consultants
- volunteers

CHARACTERISTICS OF TEAM HOPE INFANTS

231

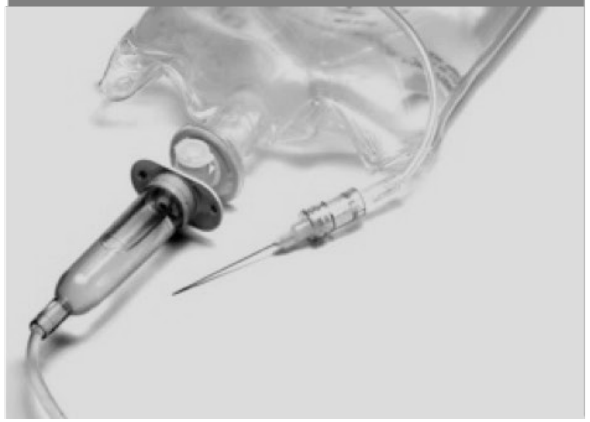
Infants met the Team HOPE inclusion criteria

24%

Were diagnosed With NAS

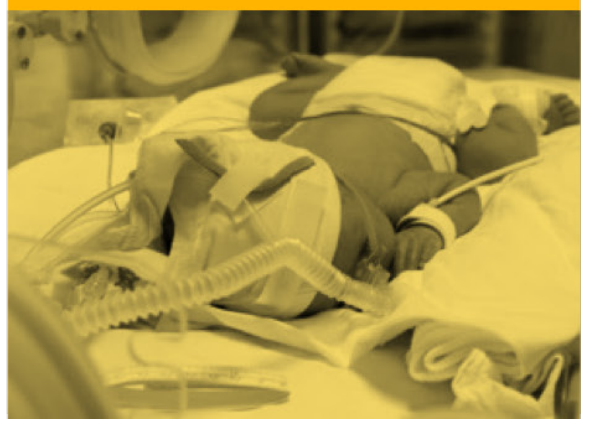
19%

Received one or more doses of morphine



3

Were readmitted within 7 days of discharge



STEPHEN PATRICK, MD, MPH, MS @STEPHENWPATRICK

LENGTH OF STAY (DAYS)

5 DAYS: median length of stay for all Team HOPE infants

13 DAYS: median length of stay for infants diagnosed with NAS

KEY POINT #1:
It's Not Just About Opioids

Percent of Women Using Substances in Past Month

	Pregnant Women Age 15-44	Non-Pregnant Women Age 15-44
Illicit Drugs	**8.5%**	**14%**
Marijuana	7.1%	12.2%
Cocaine	0.4%	0.8%
Opioids	1.4%	1.6%
Psychotherapeutics	1.8%	3.0%
Legal Drugs	**22.6%**	**61.2%**
Tobacco	14.7%	20.8%
Alcohol	11.5%	54.5%
Binge Alcohol Use	5.2%	29%
Illicit OR Legal Drugs	**24.7%**	**62.5%**

Source: 2017 National Survey on Drug Use and Health

STEPHEN PATRICK, MD, MPH, MS @STEPHENWPATRICK

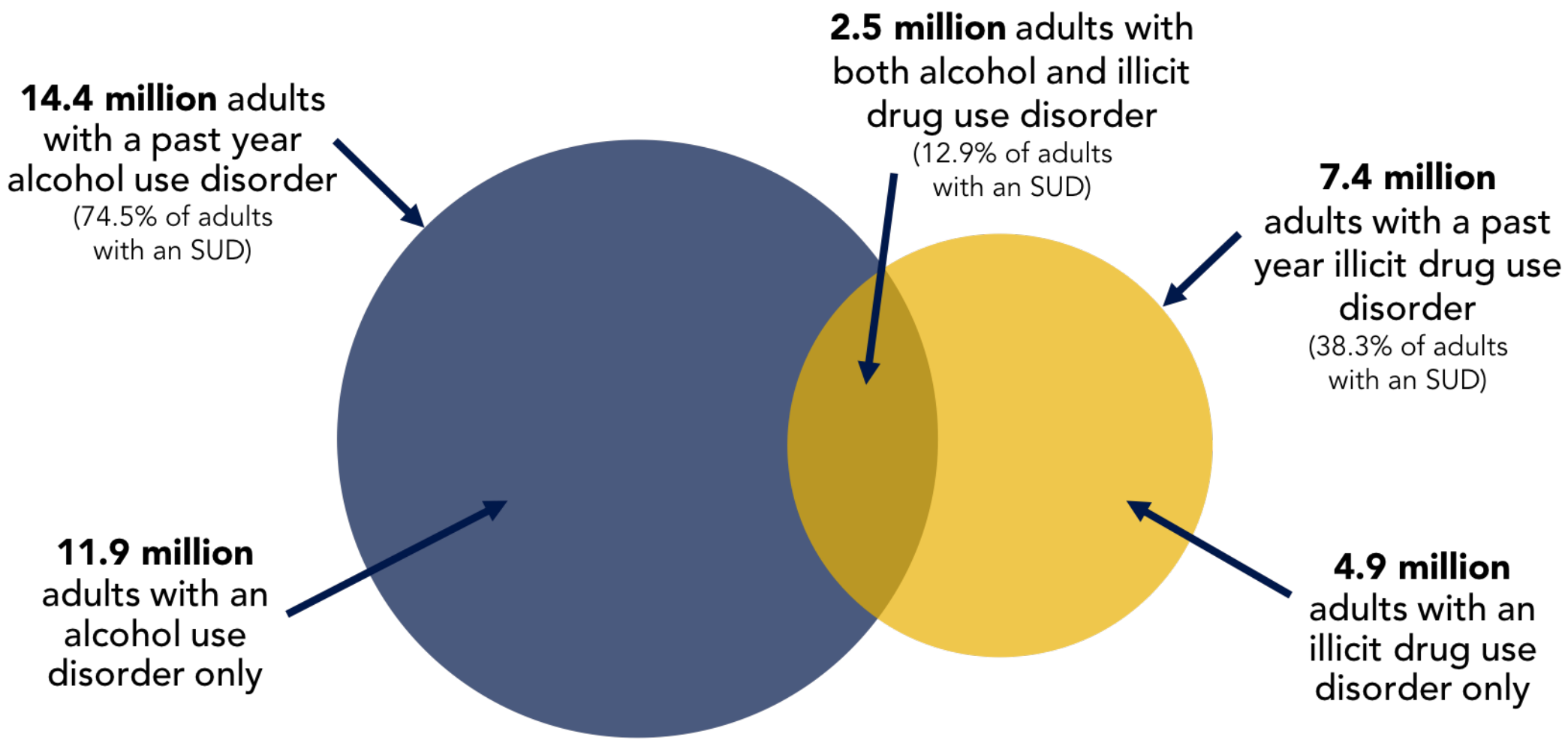
Percent of Women Using Substances in Past Month

	Pregnant Women Ages 18-25		Non-Pregnant Women Ages 18-25	
Illicit Drugs	8.5%	**11%**	14%	**21.5%**
Marijuana	7.1%	9.7%	12.2%	19.7%
Cocaine	0.4%		0.8%	
Opioids	1.4%		1.6%	
Psychotherapeutics	1.8%		3.0%	
Legal Drugs	**22.6%**		**61.2%**	
Tobacco	14.7%	21.2%	20.8%	21.8%
Alcohol	11.5%		54.5%	
Binge Alcohol Use	5.2%	6.9%	29%	32.8%
Illicit OR Legal Drugs	**24.7%**		**62.5%**	

Source: 2017 National Survey on Drug Use and Health

KEY POINT #2:
Getting Into Treatment is Difficult

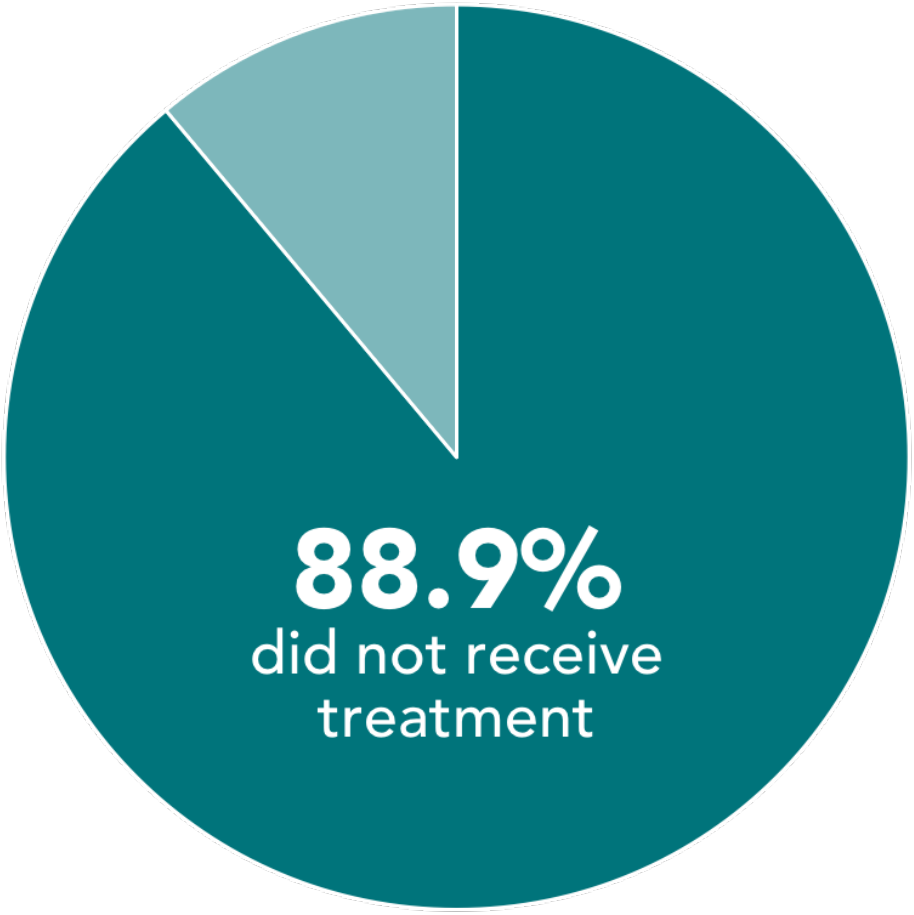
Millions need treatment…



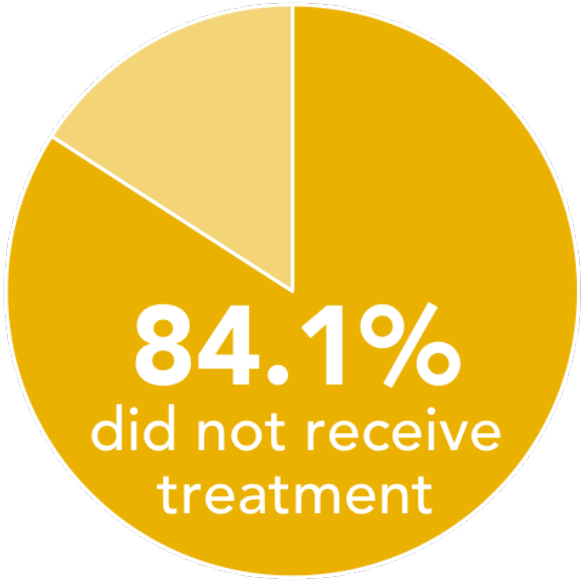
19.3 million adults aged 18 or older with past year SUDs (2018)

...and most aren't getting it

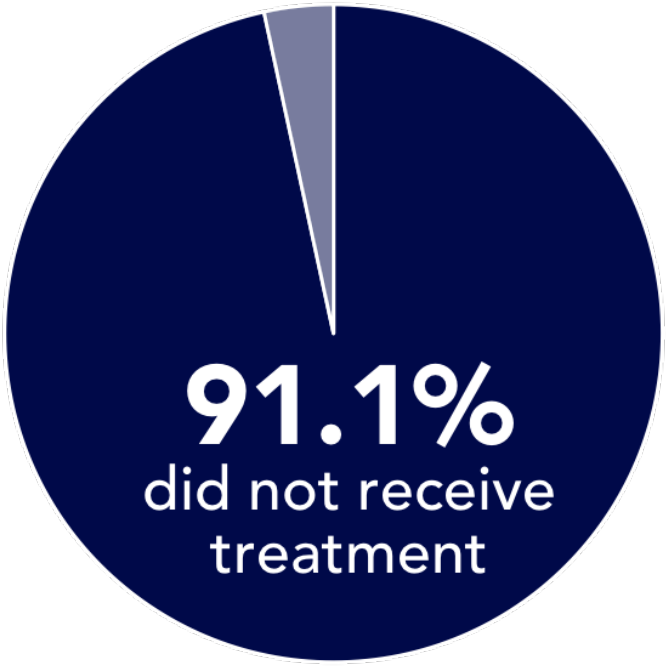
21.2 million people needed **substance use treatment** in 2018



8.7 million people needed **illicit drug use treatment** in 2018



15.5 million people needed **alcohol use treatment** in 2018



Source: Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2017 and 2018.

Medications for Opioid Use Disorder Improve Outcomes

Buprenorphine, methadone and naltrexone

- Methadone - full mu-opioid receptor agonist, typically requires daily outpatient visits to an OTP to receive medication
- Buprenorphine - partial mu-opioid receptor agonist and kappa-opioid receptor antagonist generally used in the outpatient setting, not requiring daily visits
- Naltrexone – (Vivitrol, injectable) – opioid antagonist, most affinity for the mu-opioid receptor, used in outpatient setting

Getting Treatment Difficult, Expensive

- 849 heroin-using "secret shoppers," trying to get treatment with Medicaid or self-pay
- Appointments offered to 52% of those with Medicaid, 62% of self-pay
  - Rural: Medicaid 48%, self-pay 54%
- Wait time: median 6 days Medicaid, 5 days self-pay
- Median cash payment for an appointment: $250

Beetham T, Saloner B, Wakeman SE, Gaye M, Barnett ML. Access to Office-Based Buprenorphine Treatment in Areas With High Rates of Opioid-Related Mortality: An Audit Study. Annals of internal medicine. 2019;171(1):1-9.

Despite evidence that medications for opioid use disorder improve outcomes for mothers and infants, most pregnant women with opioid use disorder in the US are not receiving these medications.

PREGNANCY, INSURANCE: BARRIERS TO ACCESSING TREATMENT

Opioid agonist therapy (OAT) providers are less likely to treat pregnant women.

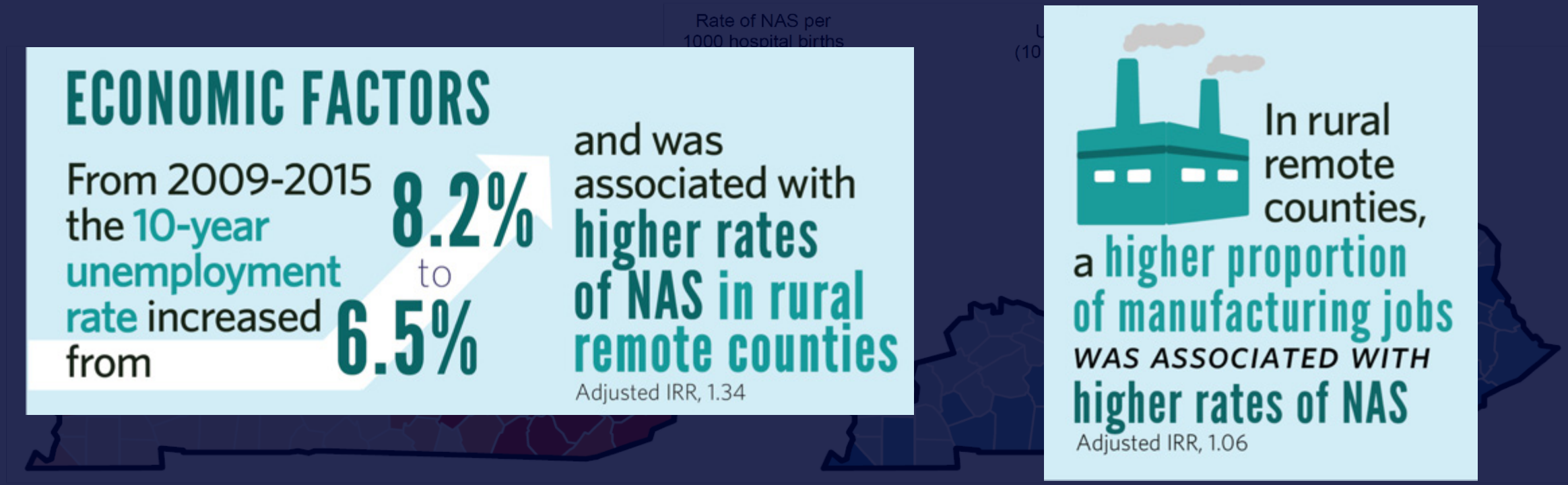
91% Of opioid treatment providers accept pregnant patients.

53% Of buprenorphine providers accept pregnant patients.

Patrick, SW, Buntin, MB, Martin, PR, Scott, TA, Dupont, W, Richards, M, & Cooper, SO. (2018) Barriers to Accessing Treatment for Pregnant Women with Opioid Use Disorder in Appalachian States. Substance Abuse, DOI: 10.1080/08897077.2018.1488336. Funded by NIDA K23DA038720

KEY POINT #3:
Communities Matter

Economic Factors, Lack of Opportunity Matters



Patrick SW, Faherty LJ, Dick AW, Scott TA, Dudley J, Stein BD. Association Among County-Level Economic Factors, Clinician Supply, Metropolitan or Rural Location, and Neonatal Abstinence Syndrome. Jama. 2019;321(4):385-393.

MENTAL HEALTH

IN OUR STUDY

had a shortage of mental health providers

Counties with a **shortage of mental health providers** were associated with **higher rates of NAS**

Adjusted IRR, 1.17

Patrick SW, Faherty LJ, Dick AW, Scott TA, Dudley J, Stein BD. Association Among County-Level Economic Factors, Clinician Supply, Metropolitan or Rural Location, and Neonatal Abstinence Syndrome. Jama. 2019;321(4):385-393.

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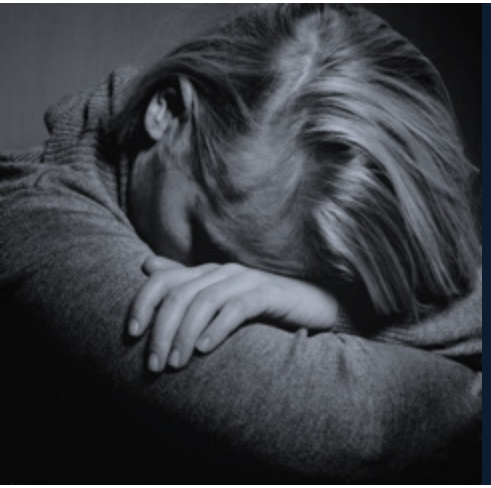
KEY POINT #4:
Context Matters

TRAUMA & TOXIC STRESS



Trauma common among women in treatment

- 74% reported sexual abuse
- 72% reported emotional abuse
- 52% reported physical abuse

Adverse child experiences likely also common

- Adults with >5 adverse child experiences compared to 0
  - 8 times as likely to have life time substance dependence (aOR 7.7, 95%CI 4.7-12.7)
  - 10 times as likely to have ever injected drugs (aOR 10.1, 95%CI 4.6-22.0)

Covington SS. Women and addiction: a trauma-informed approach. Journal of psychoactive drugs. 2008;Suppl 5:377-385; Dube, S. R., et al. (2003). "Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study." Pediatrics 111(3): 564-572

How can human services programs partner with health systems to set families up for success?

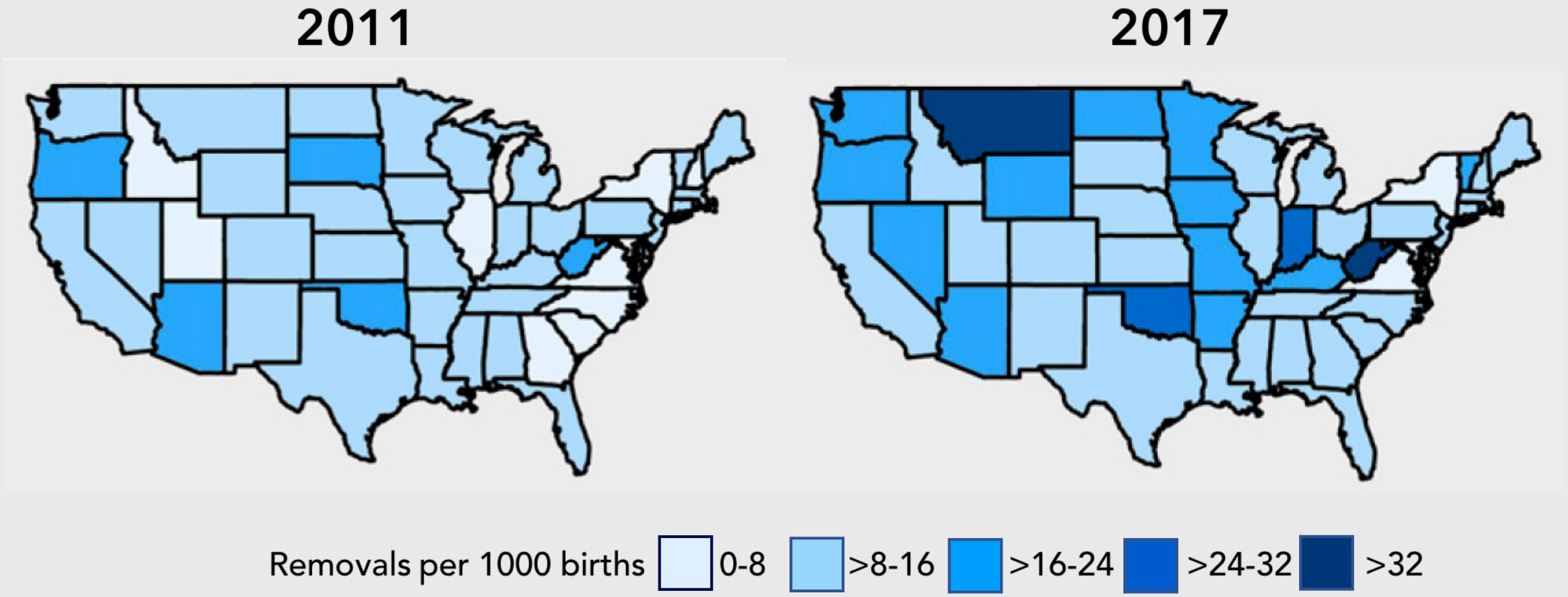
Start with training/bonding during the birth hospitalization

- Breastfeeding
- Engaging family
- Promoting maternal (and paternal recovery
- Assesses family needs/follow-up
- Assesses other risks (mental health, infectious)

Consider post-discharge needs

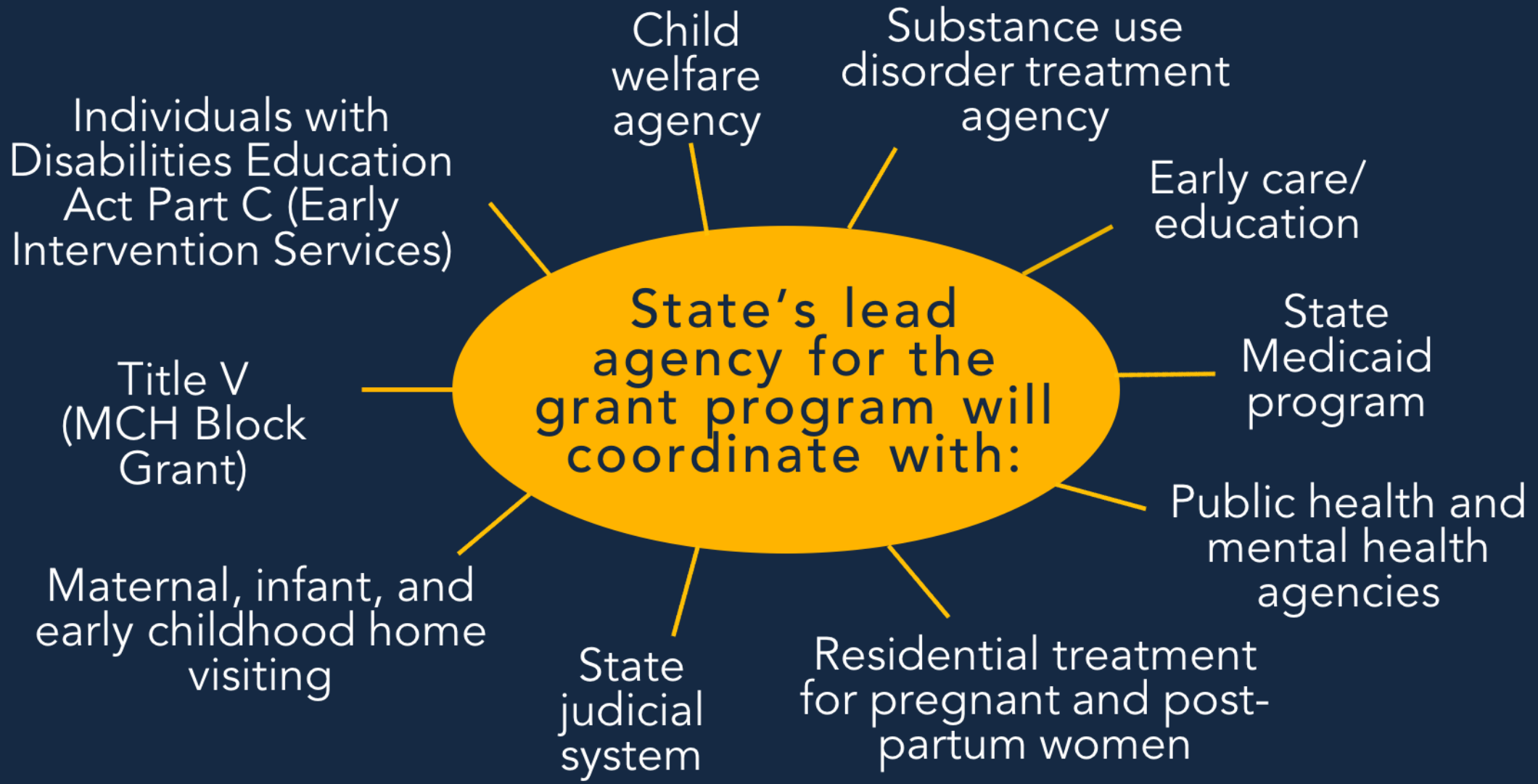
- Home Visitation
- Child Welfare
- IDEA Part C (Early Intervention)
- More frequent pediatrician follow-up
- Early Head Start
- Coordinate with maternal treatment and recovery
- Programs for economic stability
- Housing

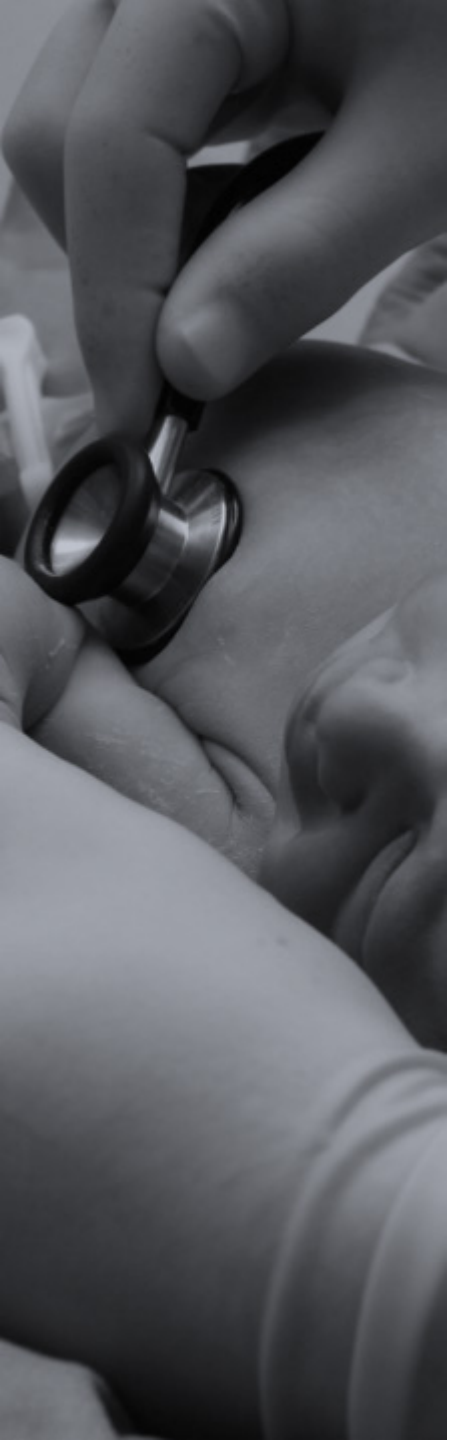
More Infants US in the Foster Care System



Patrick SW, Frank RG, McNeer E, Stein BD. Improving the Child Welfare System to Respond to the Needs of Substance-Exposed Infants. Hospital pediatrics. 2019;9(8):651-654.

PLANS OF SAFE CARE





CONCLUSIONS

- The scope of the current crisis is unprecedented
- We cannot forget about substances other than opioids
- This is not just about drug use, it's about the context, community, economic opportunity, social network
- The opioid crisis could be a vehicle to connect & grow collaborations in human services and beyond

QUESTIONS?

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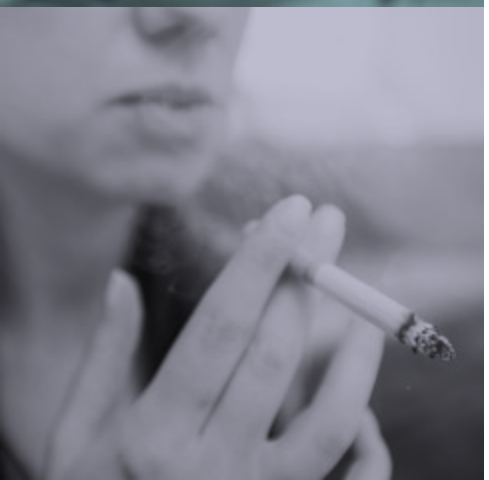
@VUMCchildpolicy



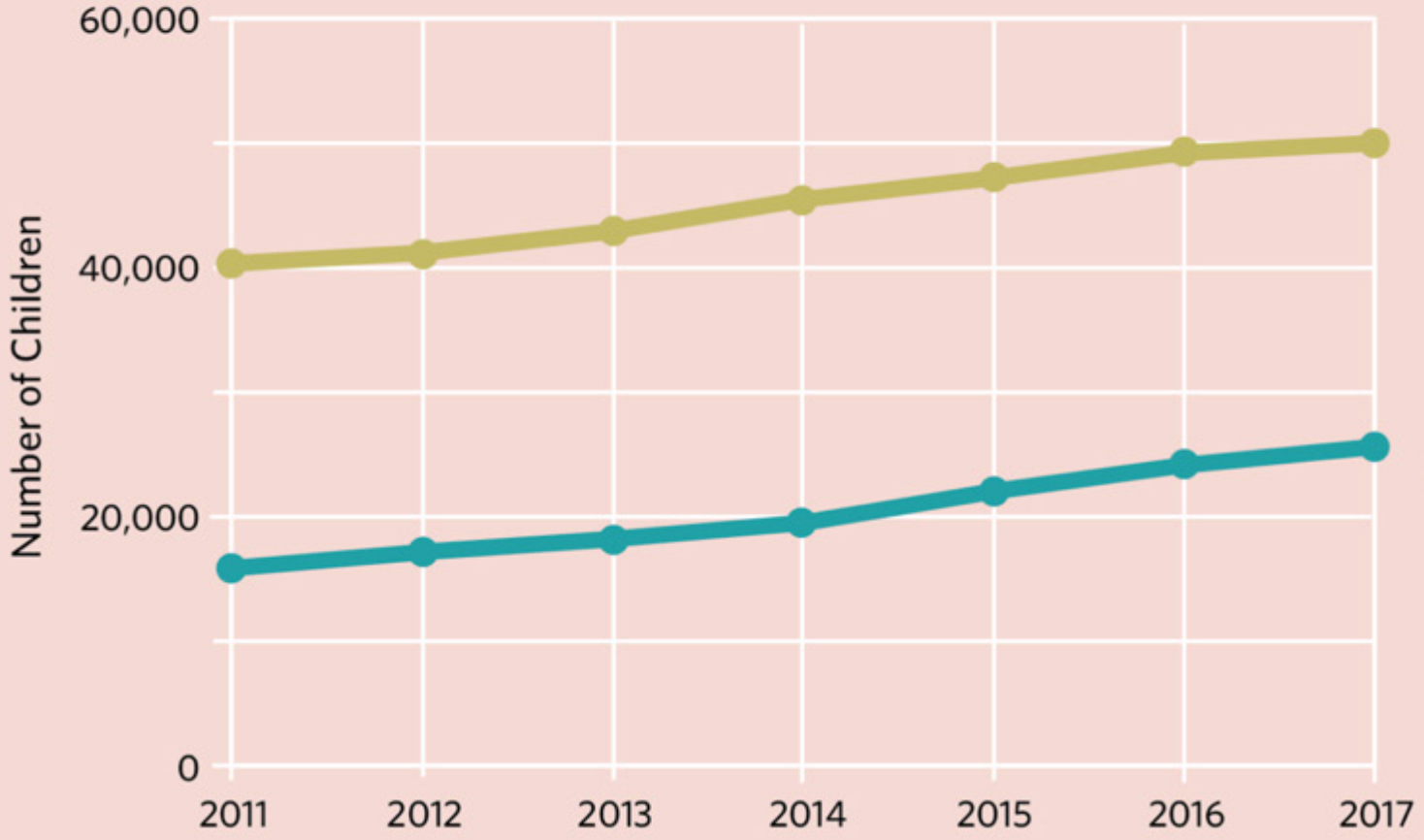
USING MULTIPLE SUBSTANCES

- Opioid misuse often occurs with other substances
  - Among pregnant women misusing opioids in last year (compared to those who did not), in the last month:
    - 22.9% used marijuana (versus 2.6%)
    - 23.9% used alcohol (versus 8.1%)
    - 43.5% used tobacco (versus 14.5%)

Kozhimannil KB, Graves AJ, Levy R, Patrick SW. Predictors of Prescription Opioid Abuse Among Pregnant US Women. Women's Health Issues. 2017 Mar 31. pii: S1049-3867(16)30329-2. doi: 10.1016/j.whi.2017.03.001. [Epub ahead of print]

Overall Foster Care Removals & Parental Substance Use Removals

for Infants (<1 year) in the U.S. Foster System Are Growing



At least 1/2

of U.S. foster care placements for infants are associated with

PARENTAL SUBSTANCE USE

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KEY POINT:
Transition from Incarceration High-Risk

The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

Release from Prison — A High Risk of Death for Former Inmates

Ingrid A. Binswanger, M.D., Marc F. Stern, M.D., Richard A. Deyo, M.D., Patrick J. Heagerty, Ph.D., Allen Cheadle, Ph.D., Joann G. Elmore, M.D., and Thomas D. Koepsell, M.D.

Binswanger I, et al. NEJM. 2007. Slide Credit: Tyler Winkleman, MD

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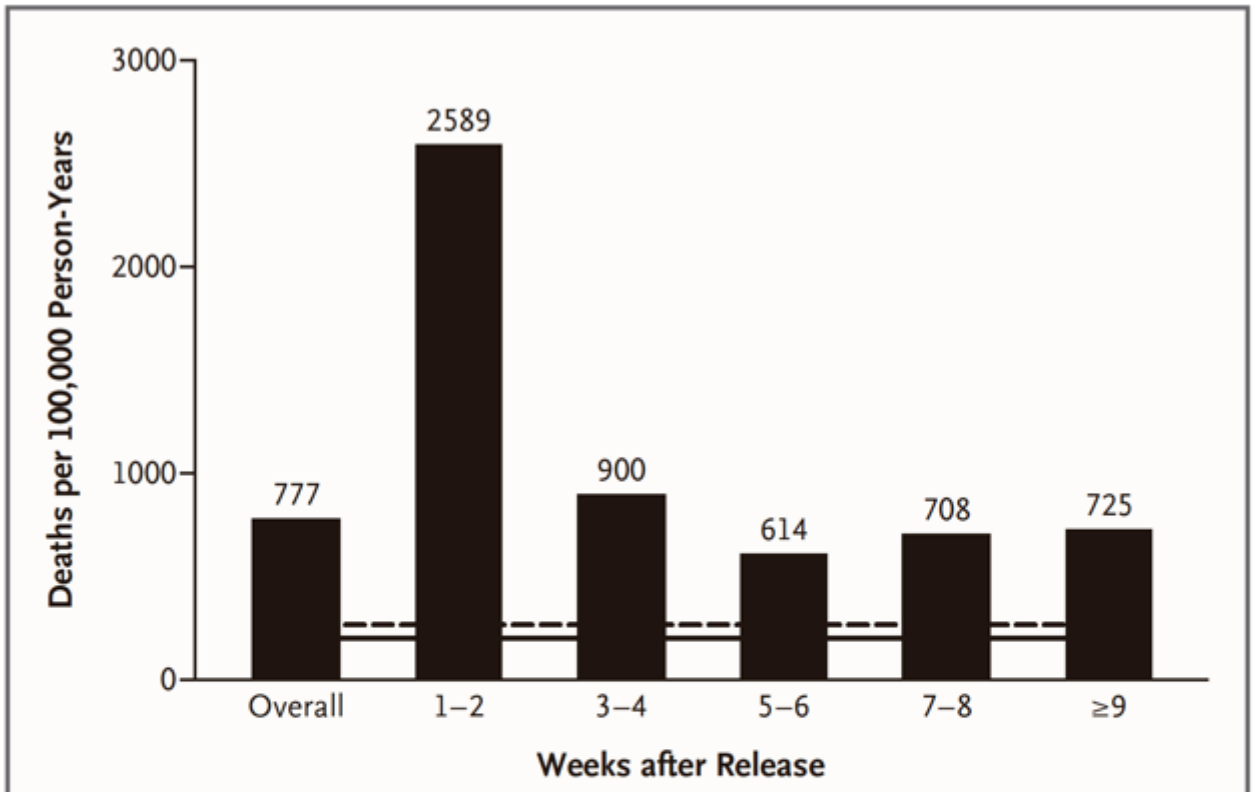
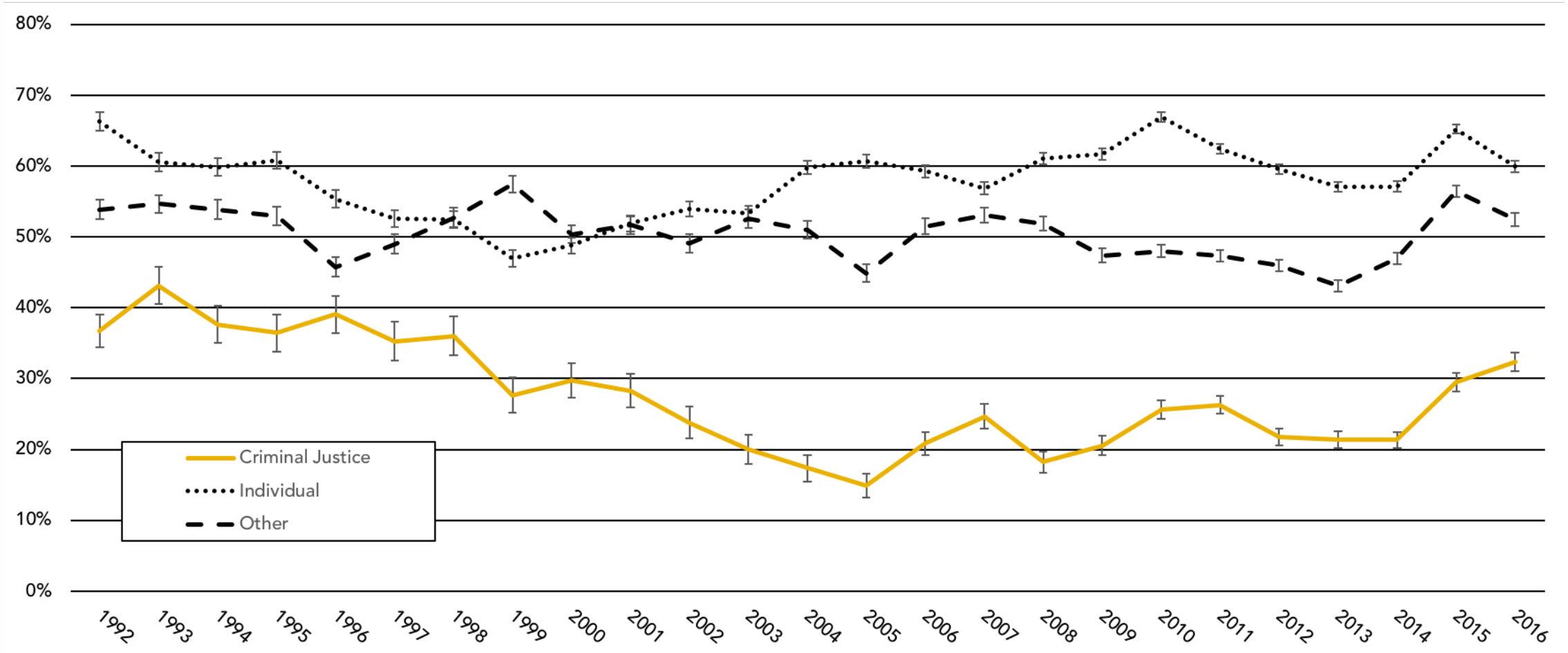


Figure 1. Mortality Rates among Former Inmates of the Washington State Department of Corrections during the Study Follow-up (Overall) and According to 2-Week Periods after Release from Prison.

The dashed line represents the adjusted mortality rate for residents of the State of Washington (223 deaths per 100,000 person-years), and the solid line represents the crude mortality rate among inmates of the state prison system during incarceration (201 deaths per 100,000 inmate person-years).

Binswanger I, et al. NEJM. 2007. Slide Credit: Tyler Winkleman, MD

Pregnant Women Referred for Treatment from the Criminal Justice System Are Not Receiving Medications



*Adjusted for age, race/ethnicity, educational attainment, employment, census region, and service setting

Winkelman TNA, Ford BR, Shlafer R, McWilliams A, Admon L, Patrick SW. Medicaid expansion and receipt of medication for opioid use disorder among pregnant women involved in the criminal justice system. *Under review.*