CAUSE AND EFFECT: THE ORIGINS OF, AND A RESPONSE TO, THE OPIOID CRISIS

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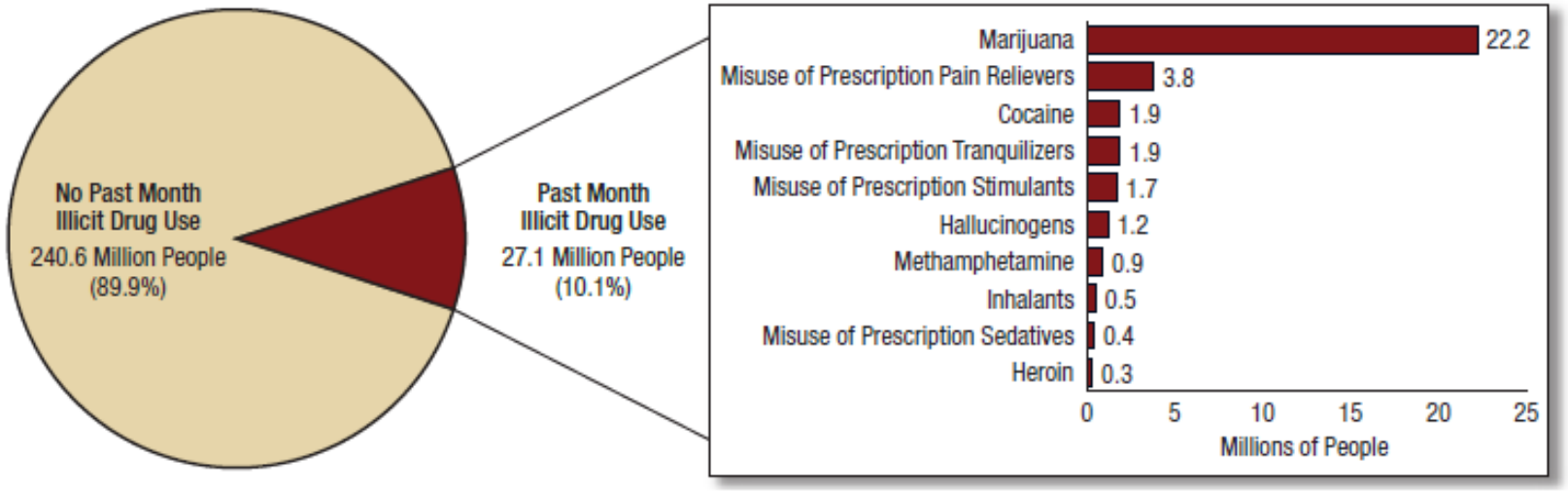
Phoenix House

LEARNING OBJECTIVES

- 1) Understand the forces that helped generate the opioid crisis
- 2) Understand how buprenorphine and methadone are pharmacologically and administratively distinct
- 3) Describe how learning collaboratives can work to reduce practice variation

NSDUH (2016)

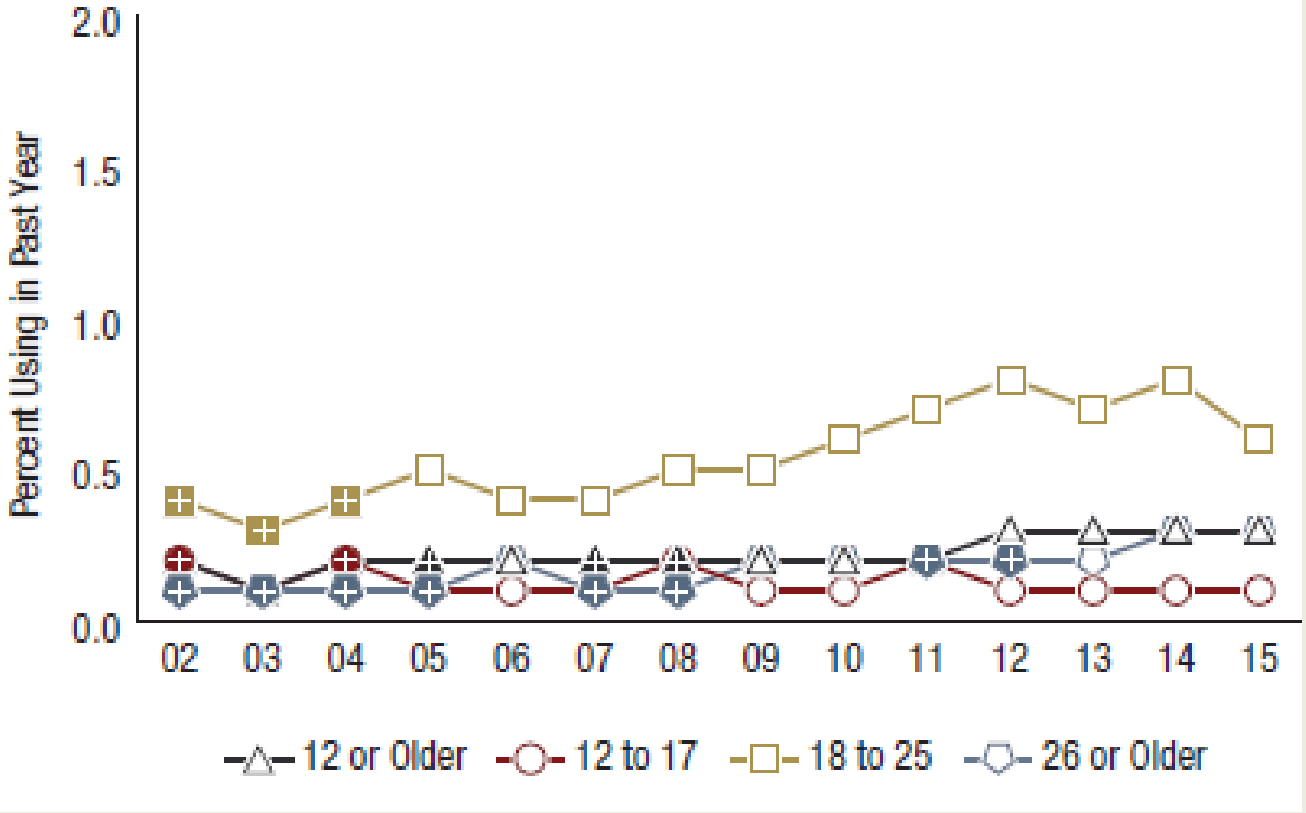
Figure 1. Numbers of Past Month Illicit Drug Users among People Aged 12 or Older: 2015




Study
Description
SAMSUNG

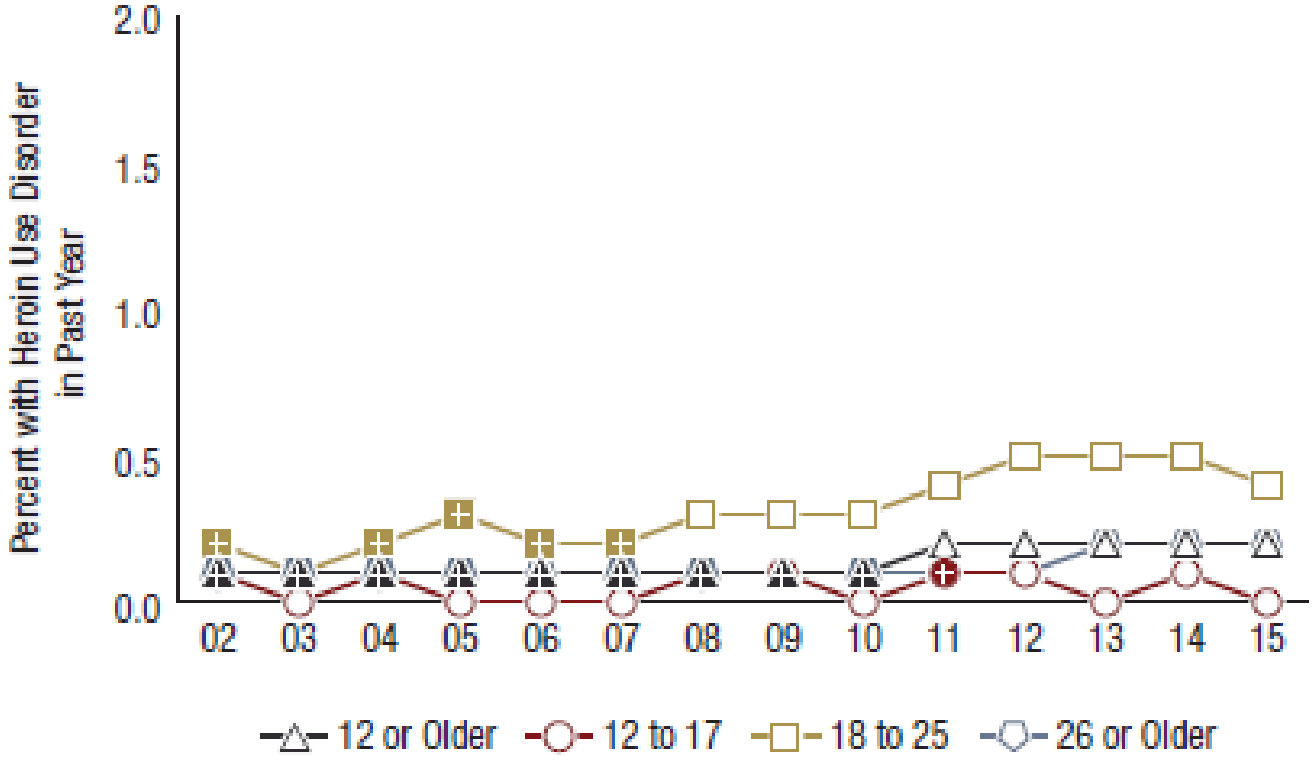
NSDUH (2016)

Figure 9. Past Year Heroin Use among People Aged 12 or Older, by Age Group: Percentages, 2002-2015



NSDUH (2016)

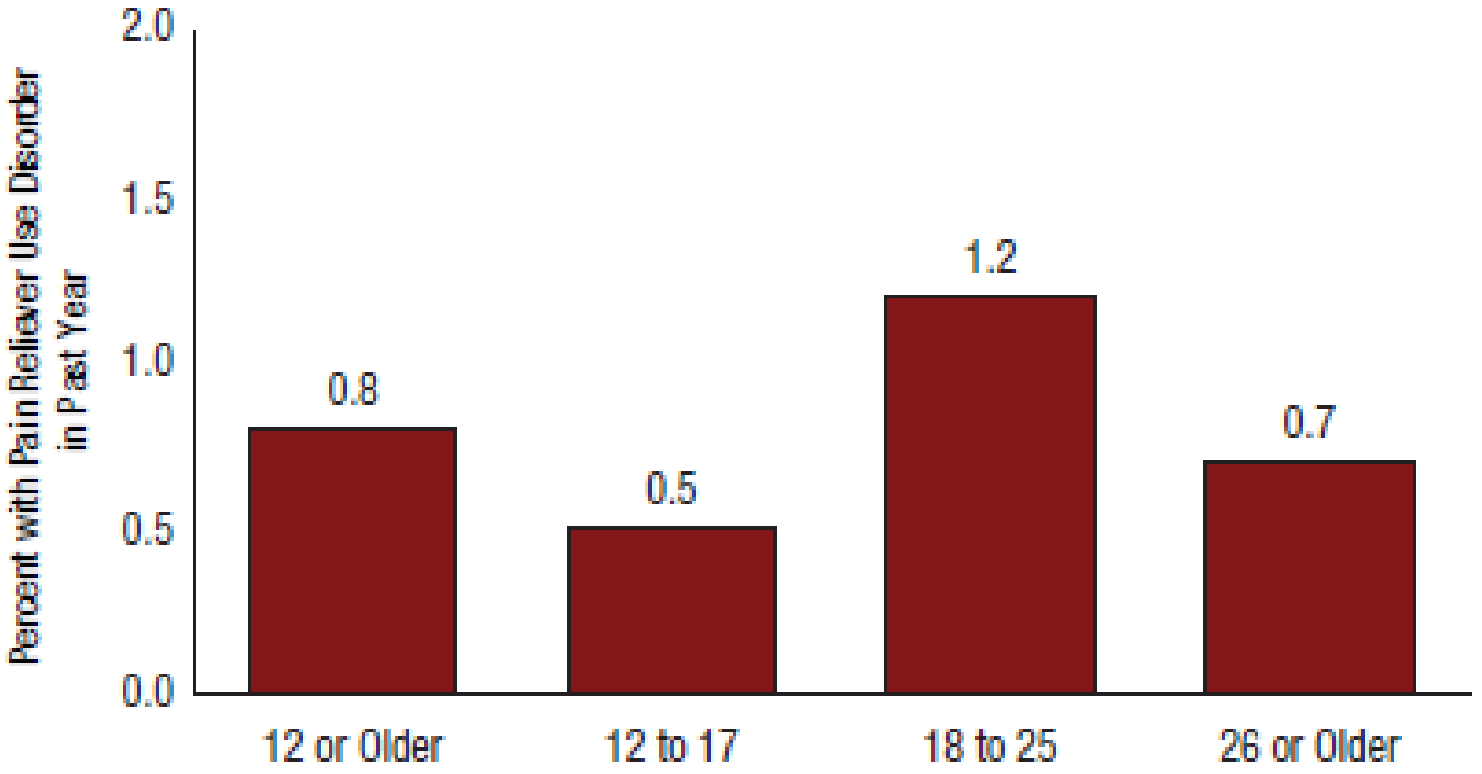
Figure 34. Heroin Use Disorder in the Past Year among People Aged 12 or Older, by Age Group: Percentages, 2002-2015



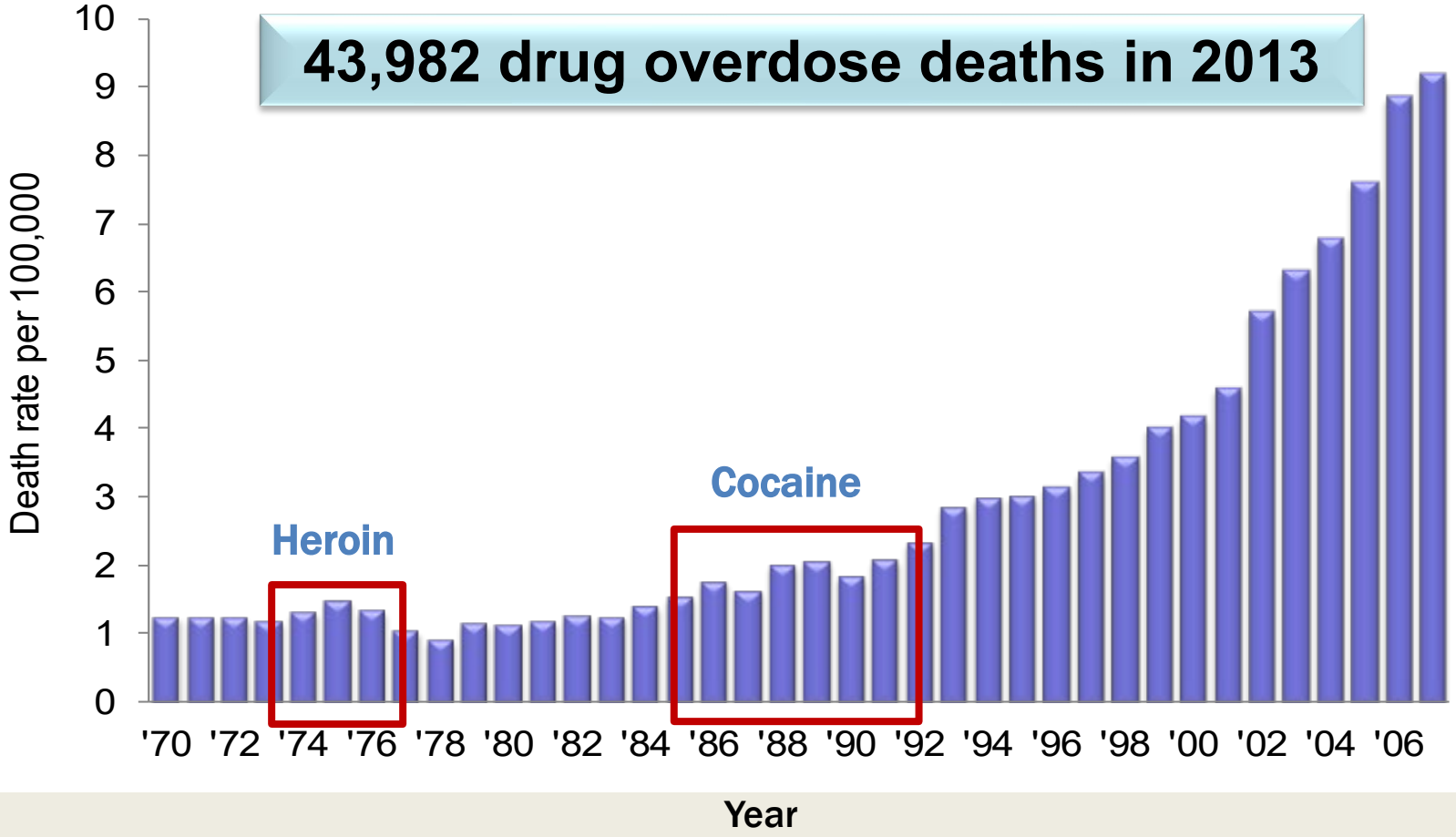
+ Difference between this estimate and the 2015 estimate is statistically significant at the .05 level.

NSDUH (2016)

Figure 35. Pain Reliever Use Disorder in the Past Year among People Aged 12 or Older, by Age Group: Percentages, 2015

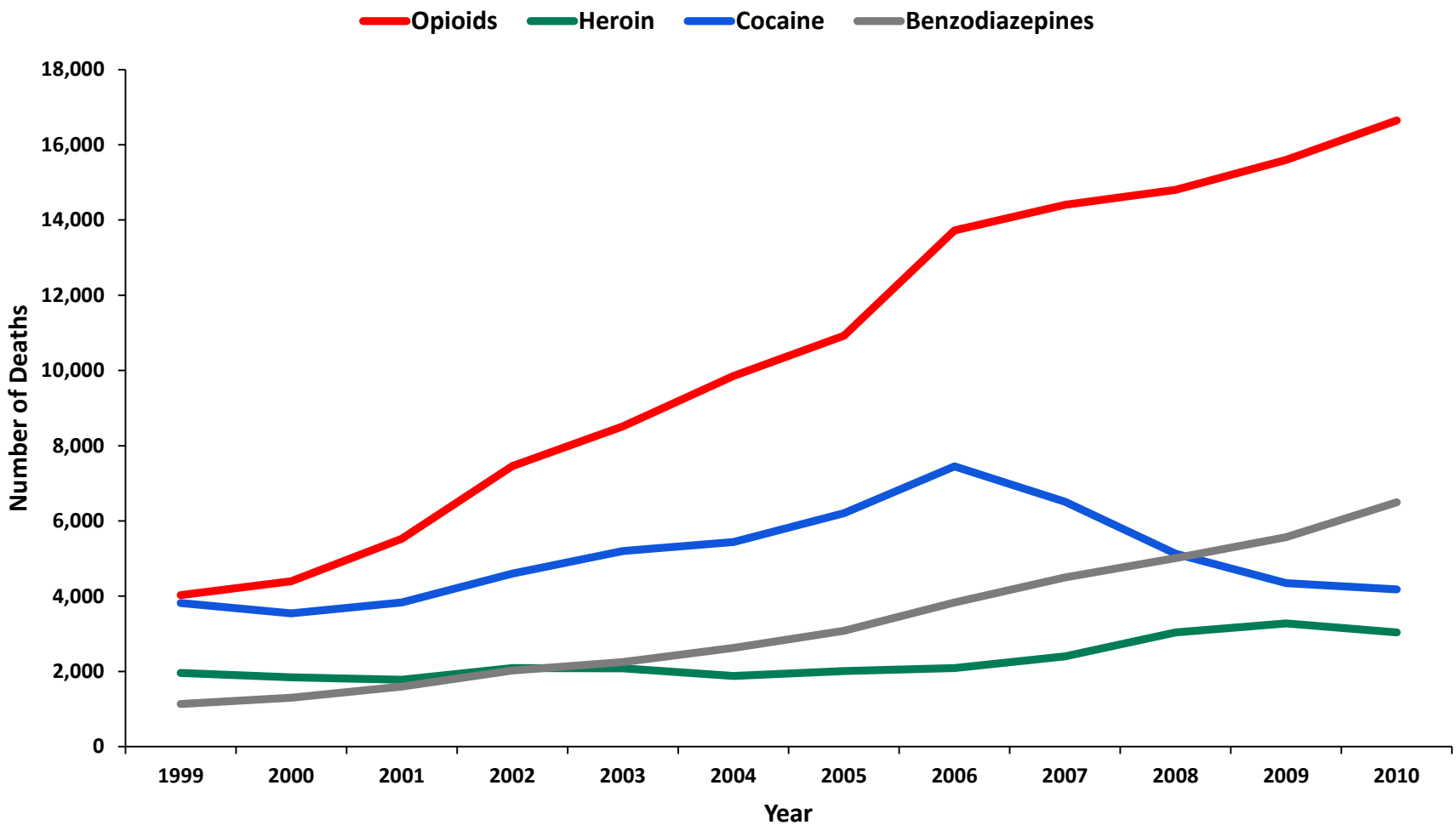


Unintentional Drug Overdose Deaths
United States, 1970–2007

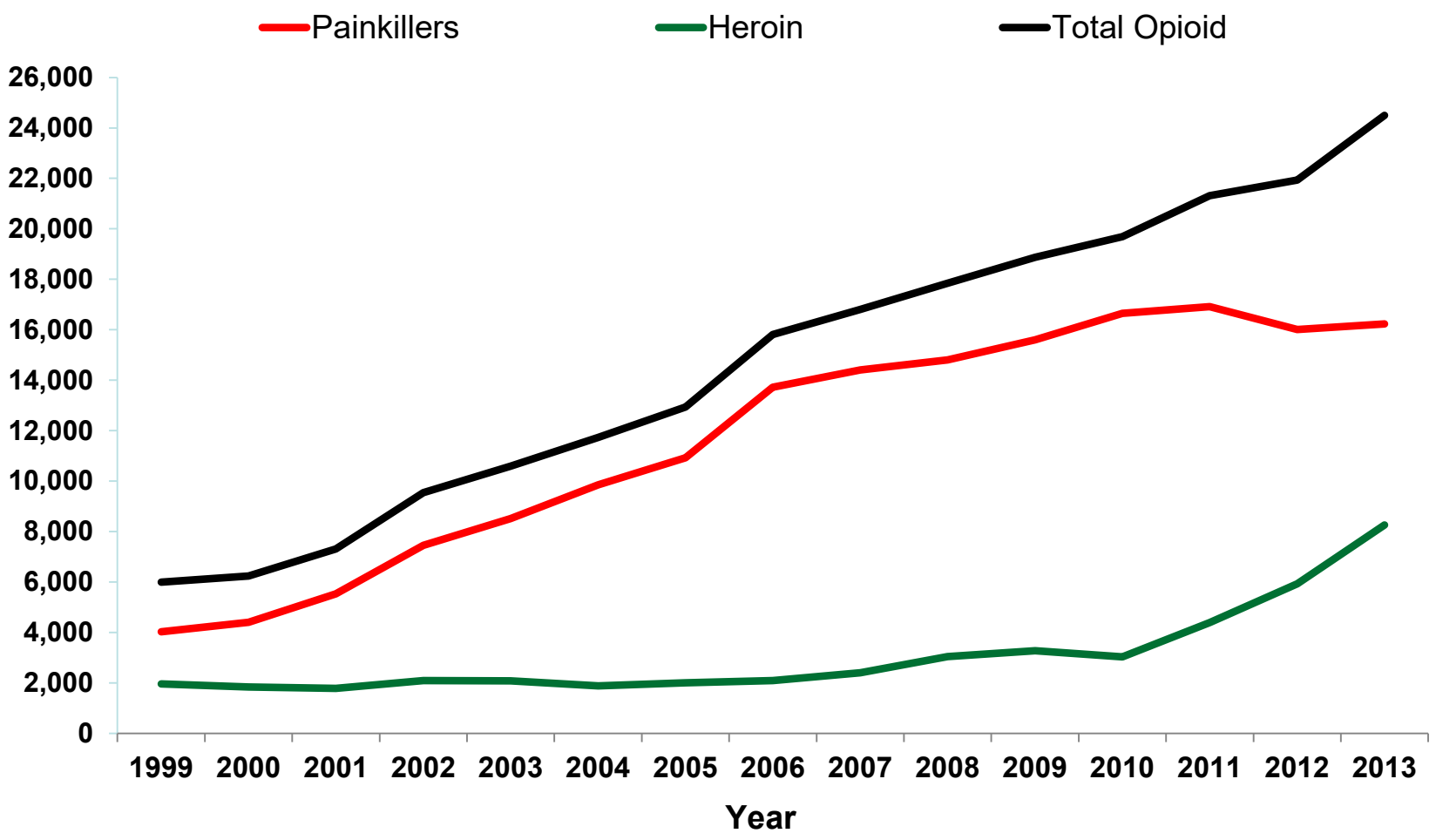


National Vital Statistics System, http://wonder.cdc.gov

DRUG OVERDOSE DEATHS BY MAJOR DRUG TYPE, UNITED STATES, 1999–2010

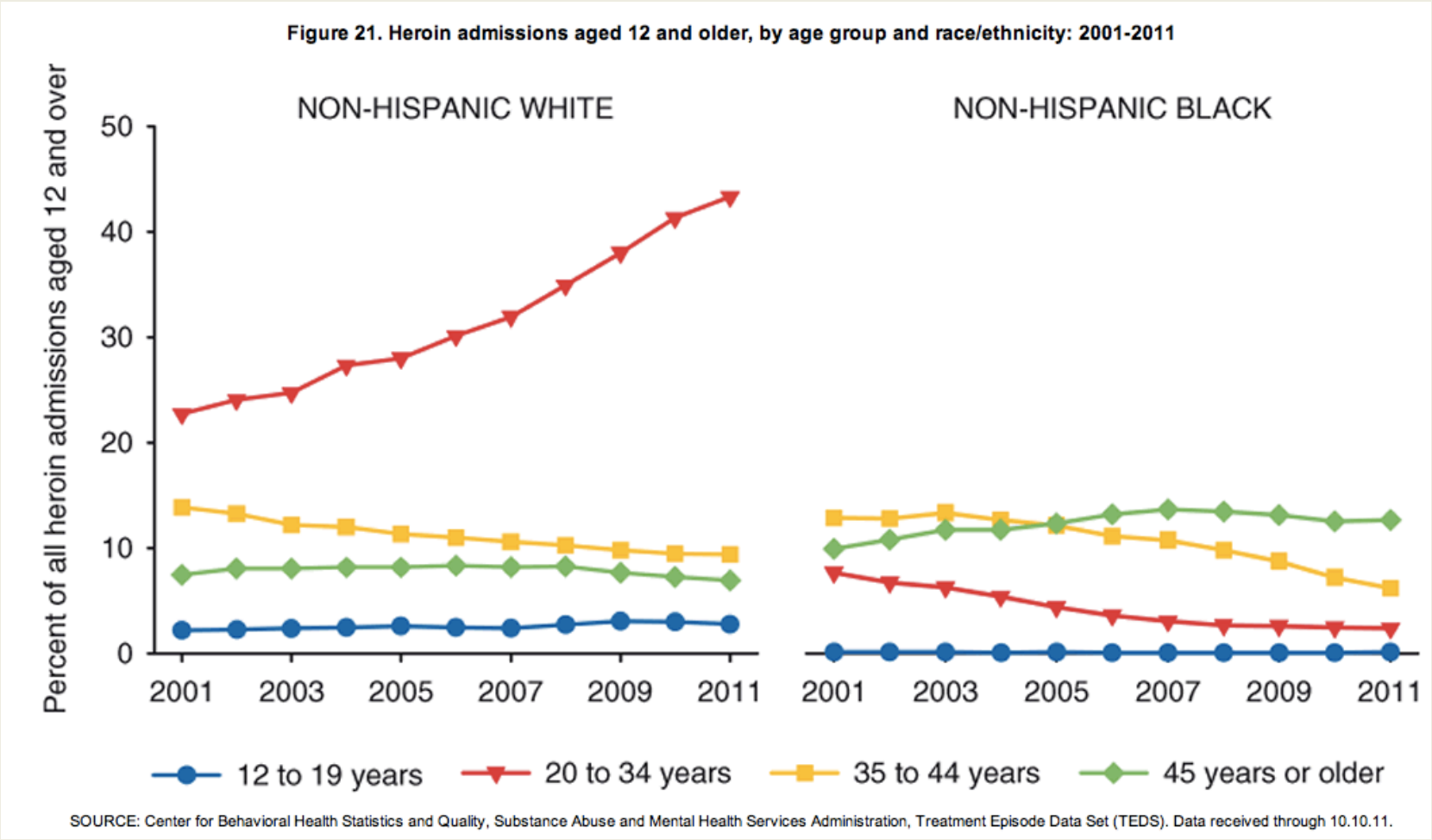


Opioid Related Overdose Deaths
United States, 1999-2013

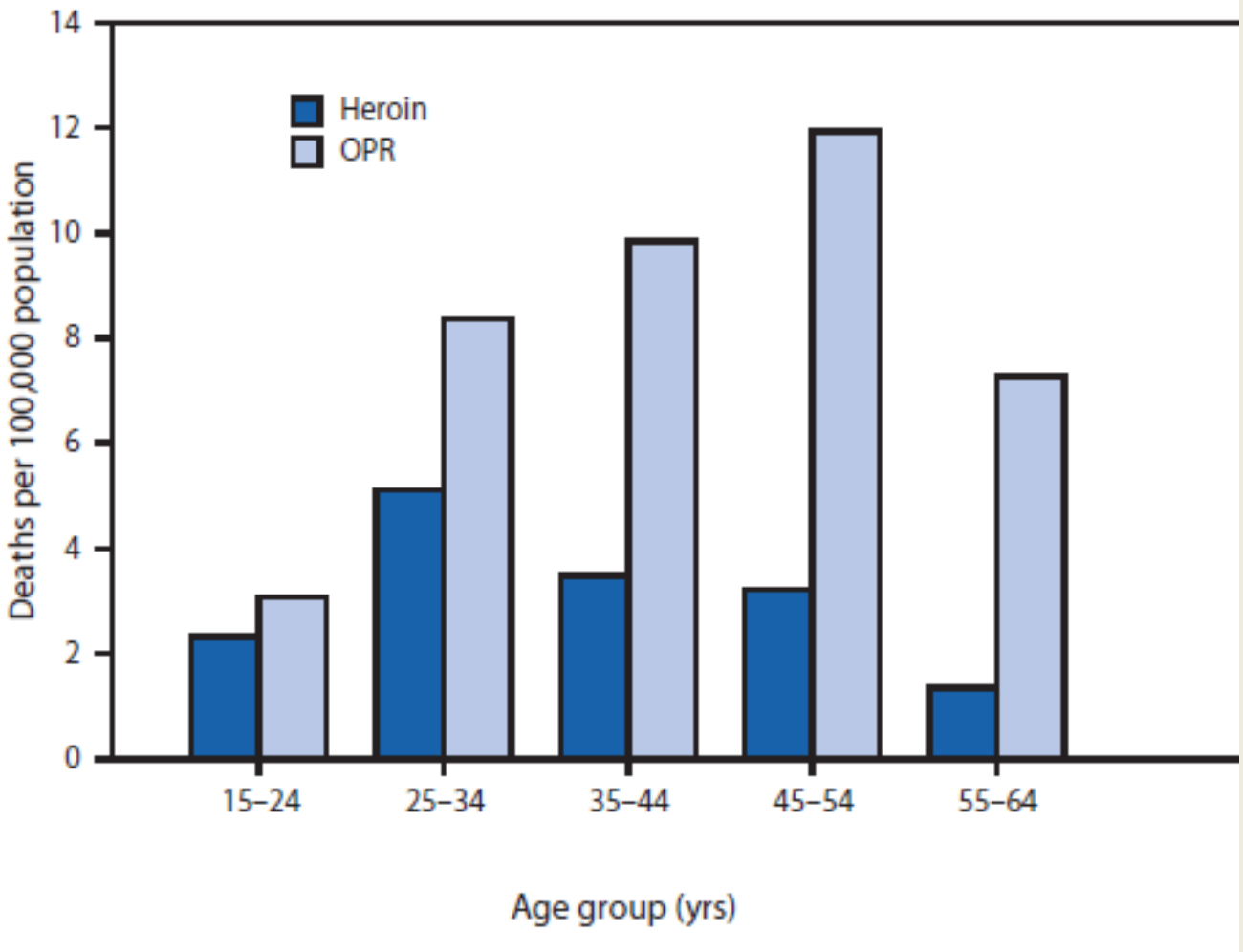


CDC, National Center for Health Statistics, National Vital Statistics System, CDC Wonder. Updated with 2010 mortality data.

Heroin admissions, by age group & race/ethnicity: 2001- 2011

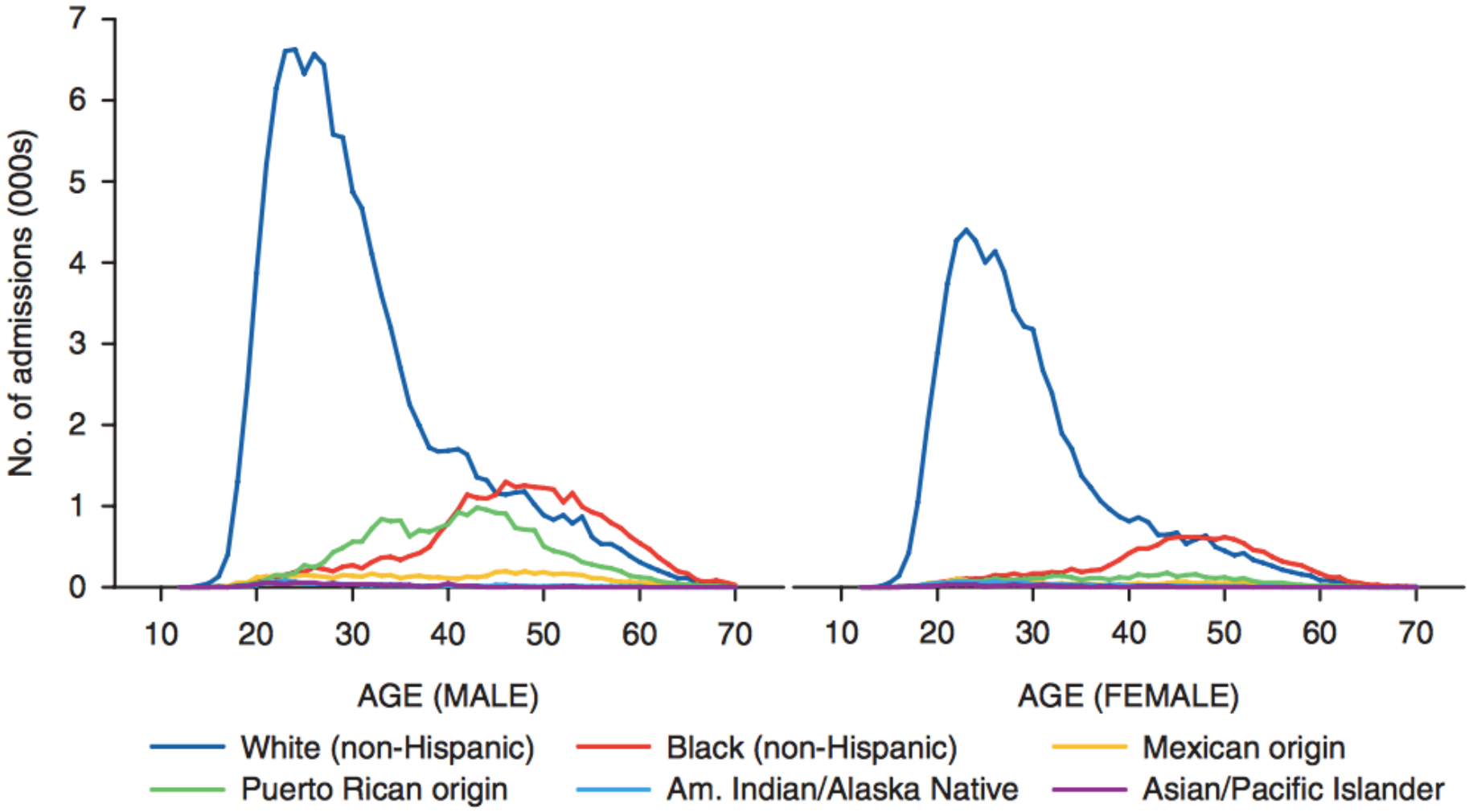


Death rates from overdoses of heroin or prescription opioid pain relievers (OPRs), by age group



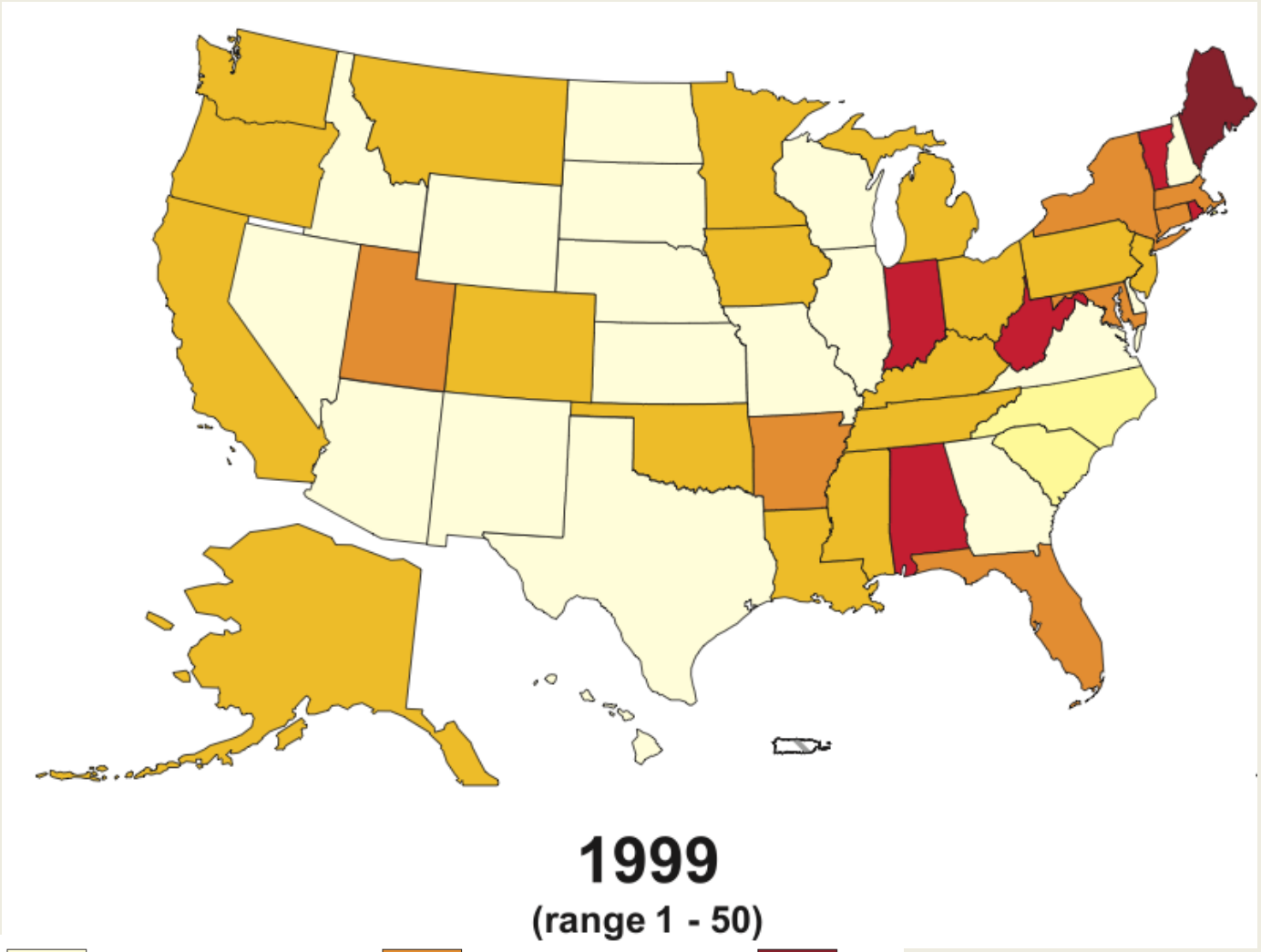
SOURCE: CDC. *Increases in Heroin Overdose Deaths — 28 States, 2010 to 2012* MMWR. 2014, 63:849-854

Figure 8. Heroin admissions, by gender, age, and race/ethnicity: 2012



SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 10.17.13.

Primary non-heroin opiates/synthetics admission rates, by State (per 100,000 population aged 12 and over)



SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

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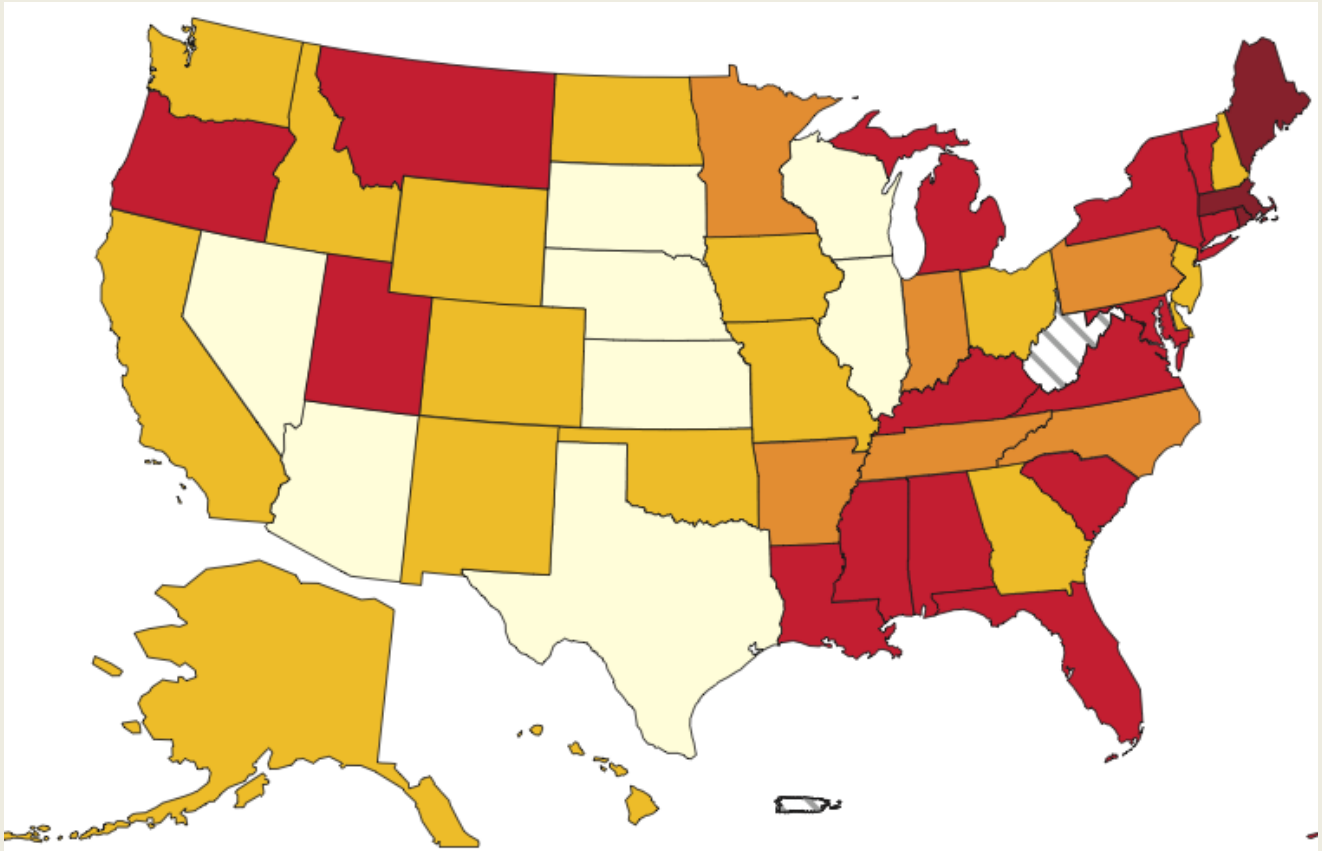

2001

(range 1 – 71)

< 8	15 - 18	45 or more
8 - 14	19 - 44	Incomplete data

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

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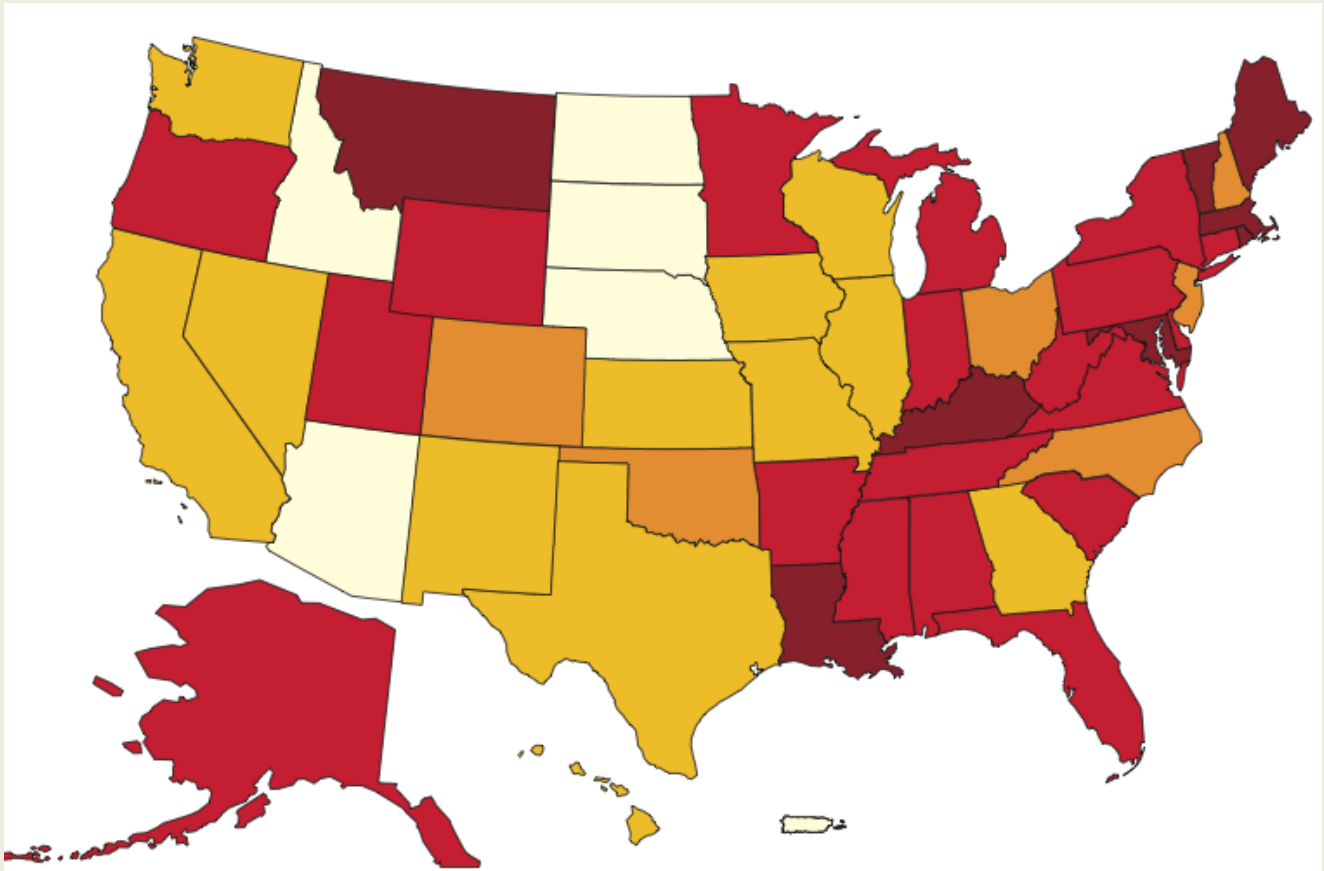

2003

(range 2 – 139)

< 8	15 - 18	45 or more
8 - 14	19 - 44	Incomplete data

SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

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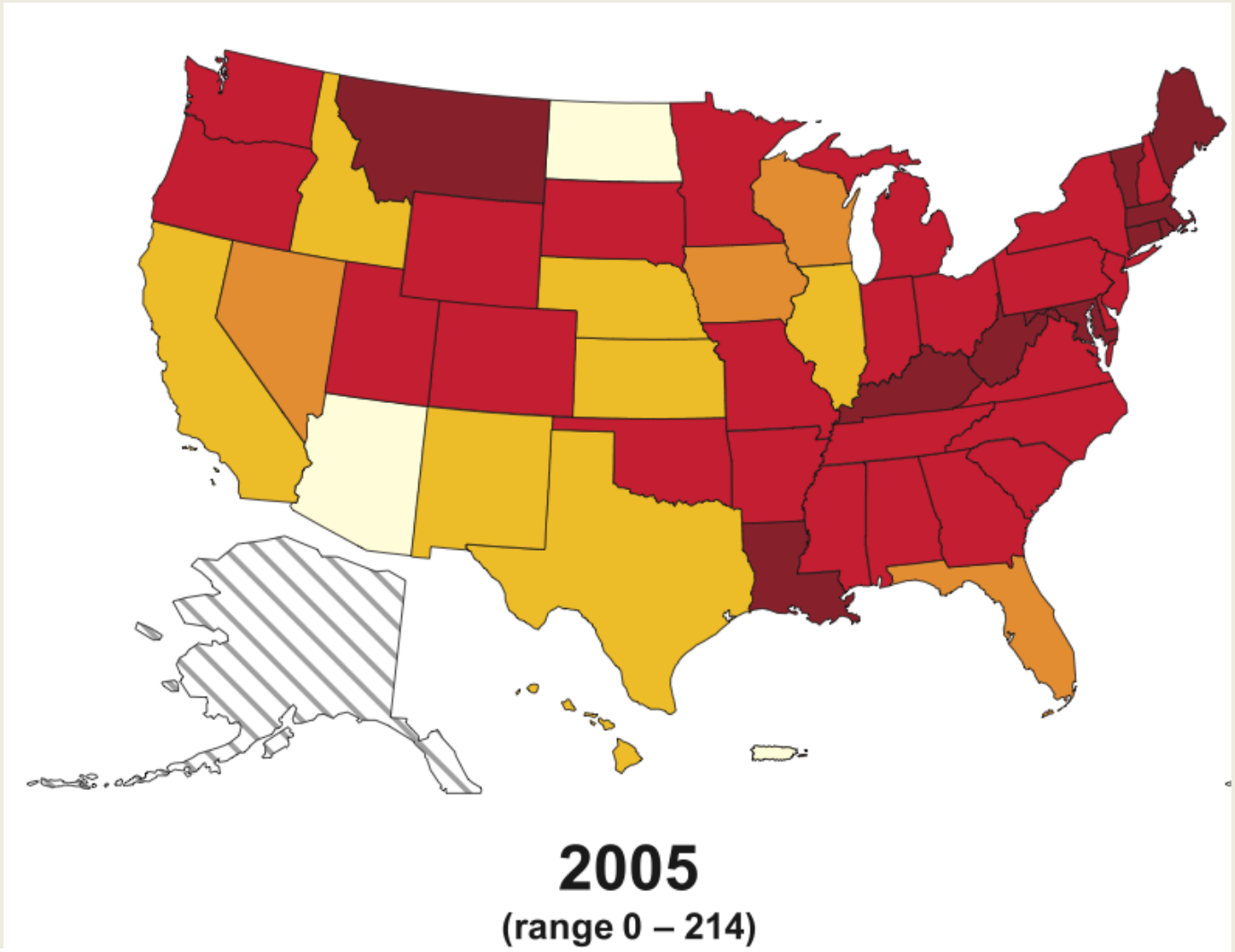

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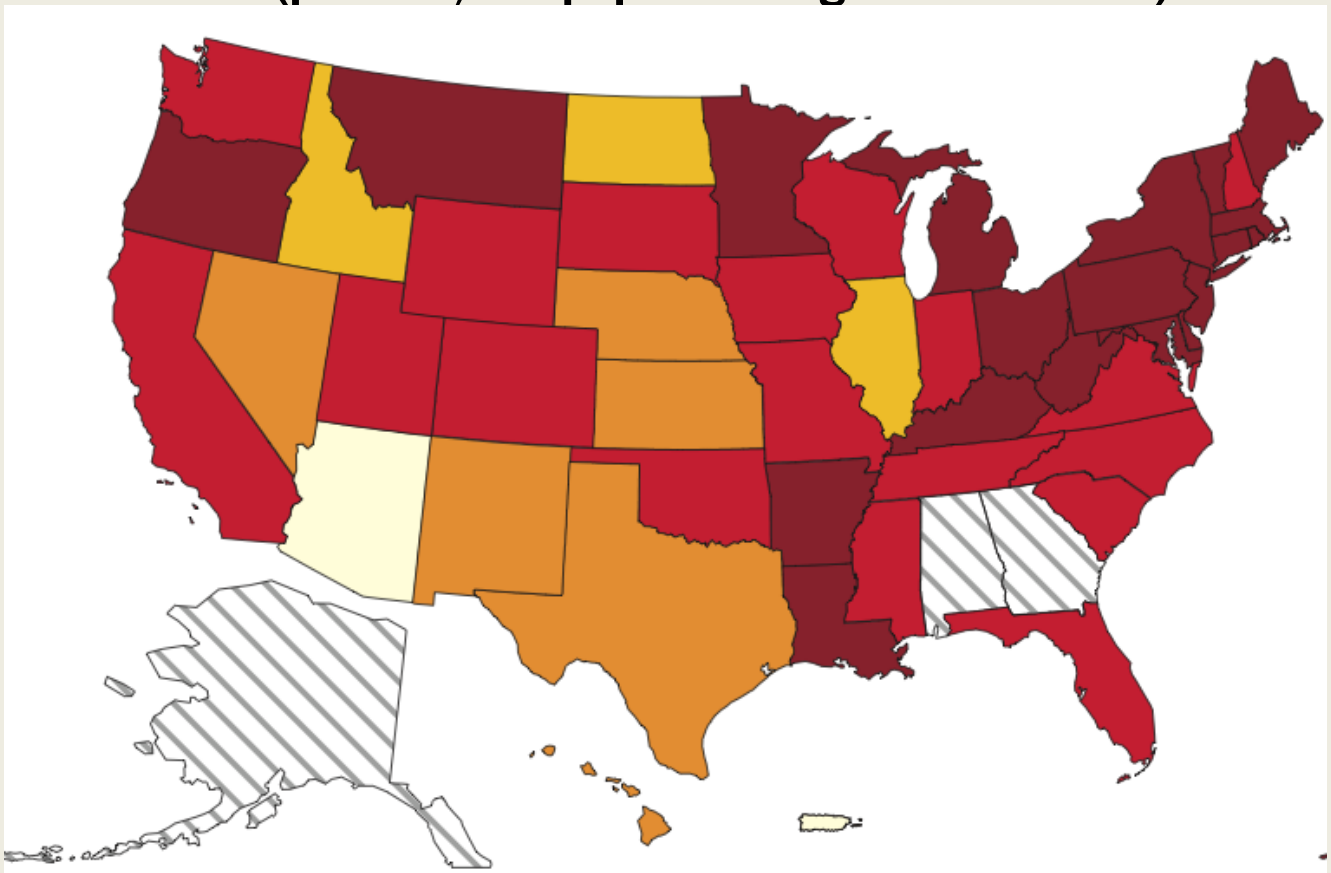


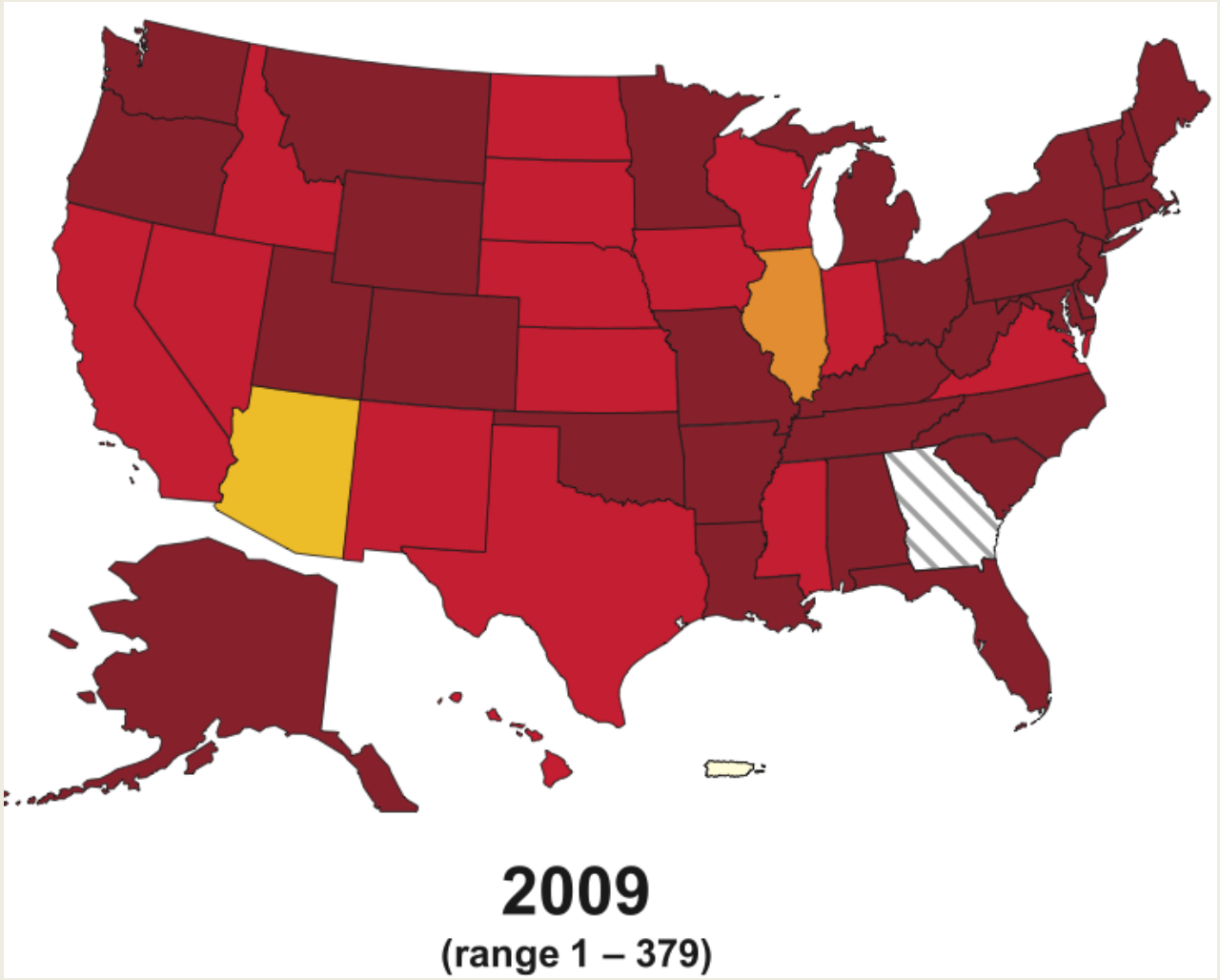
2007

(range 1 – 340)

< 8	15 - 18	45 or more
8 - 14	19 - 44	Incomplete data

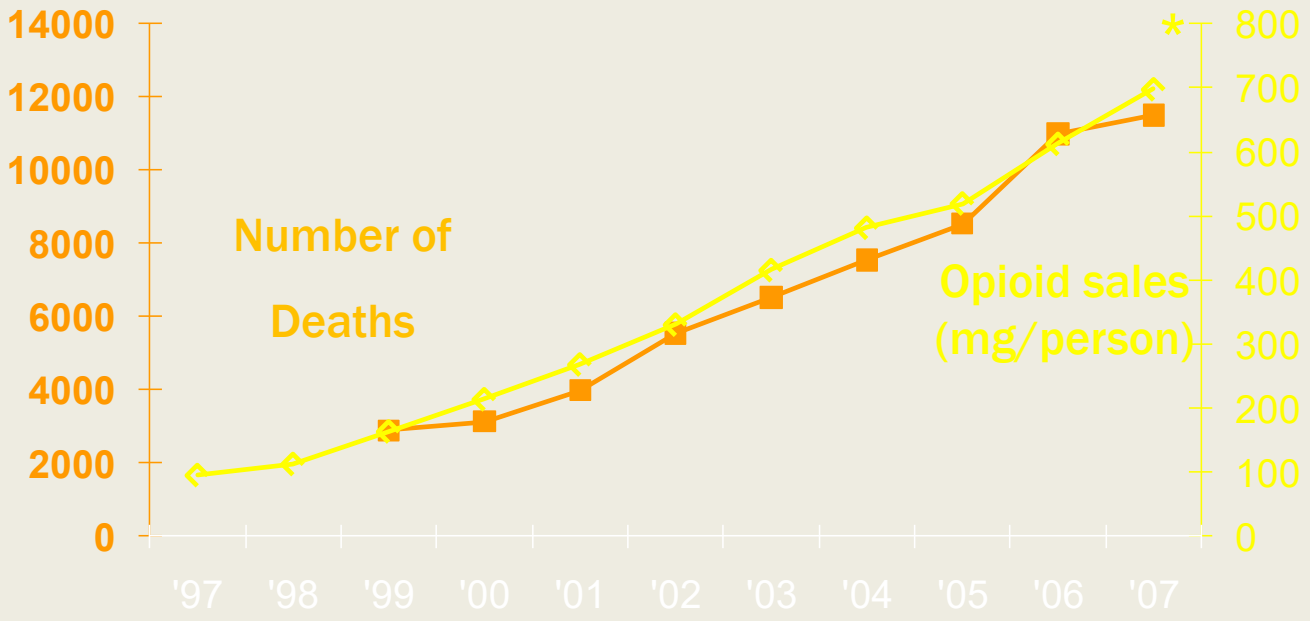
SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

Primary non-heroin opiates/synthetics admission rates, by State (per 100,000 population aged 12 and over)



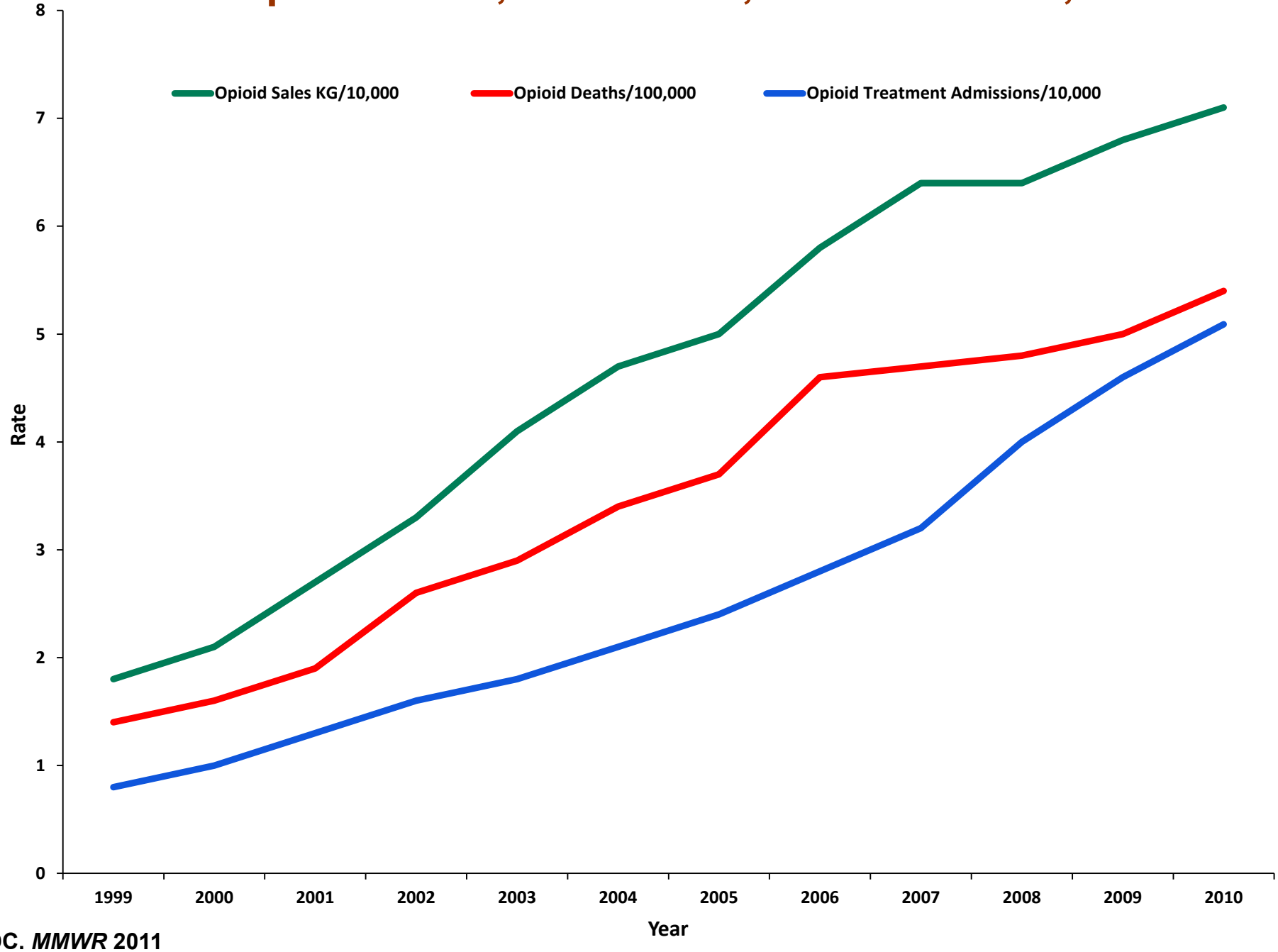
SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 11.03.10.

UNINTENTIONAL OVERDOSE DEATHS INVOLVING OPIOID ANALGESICS PARALLEL PER CAPITA SALES OF OPIOID ANALGESICS IN MORPHINE EQUIVALENTS BY YEAR, U.S., 1997-2007



Source: National Vital Statistics System, multiple cause of death dataset, and DEA ARCOS
* 2007 opioid sales figure is preliminary.

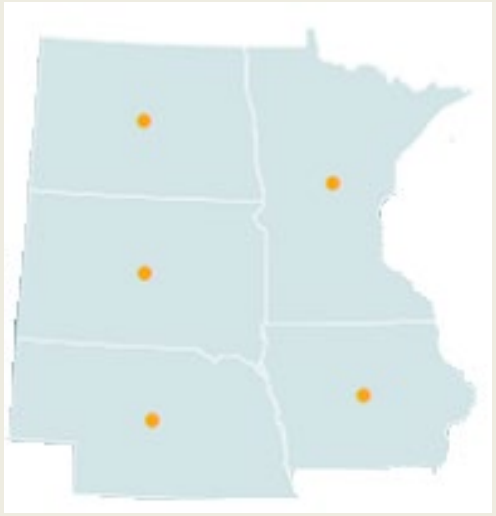
Rates of Opioid Sales, OD Deaths, and Treatment, 1999–2010



CDC. *MMWR* 2011

The Role of Opioid Prescribing

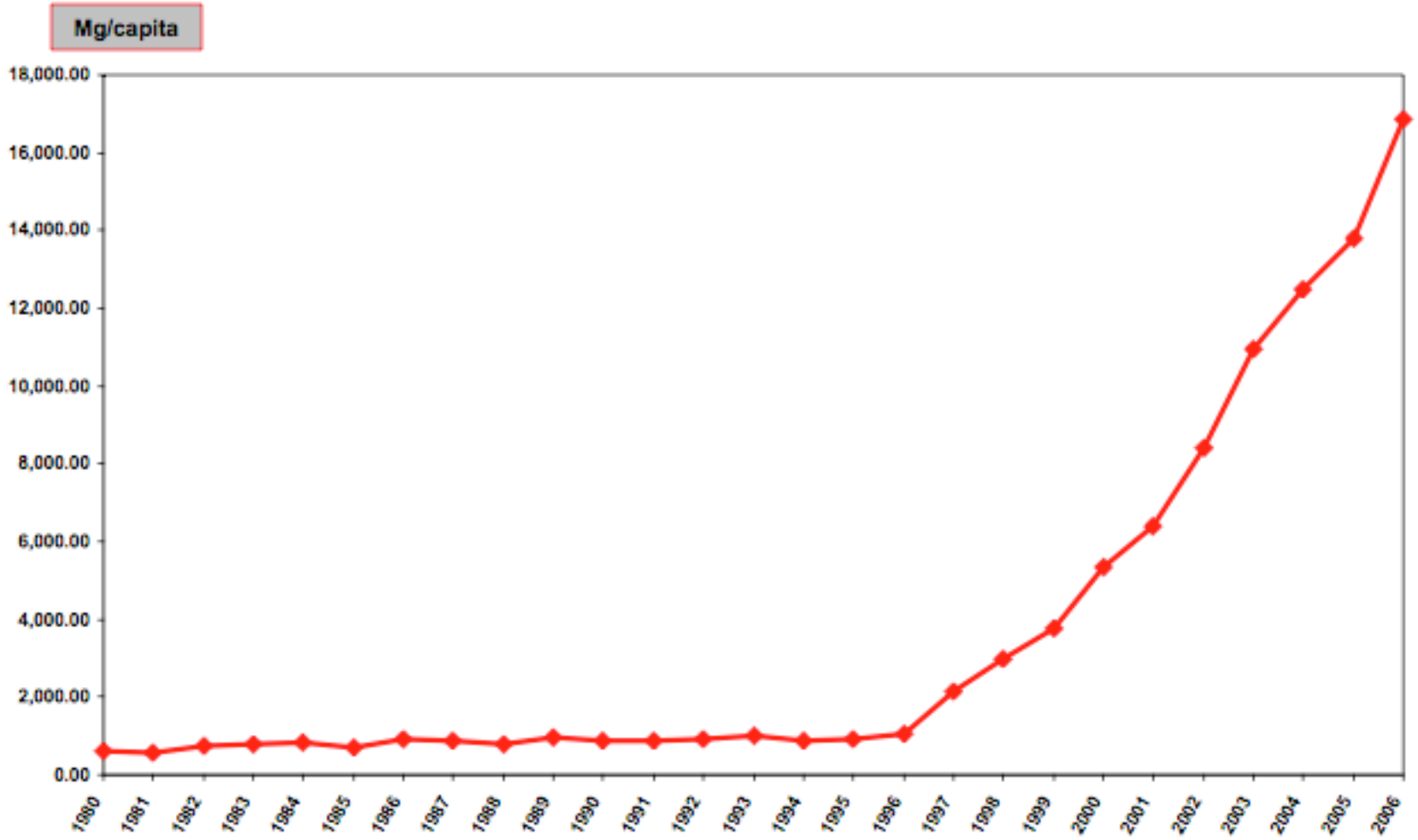
Upper Midwest



Appalachia

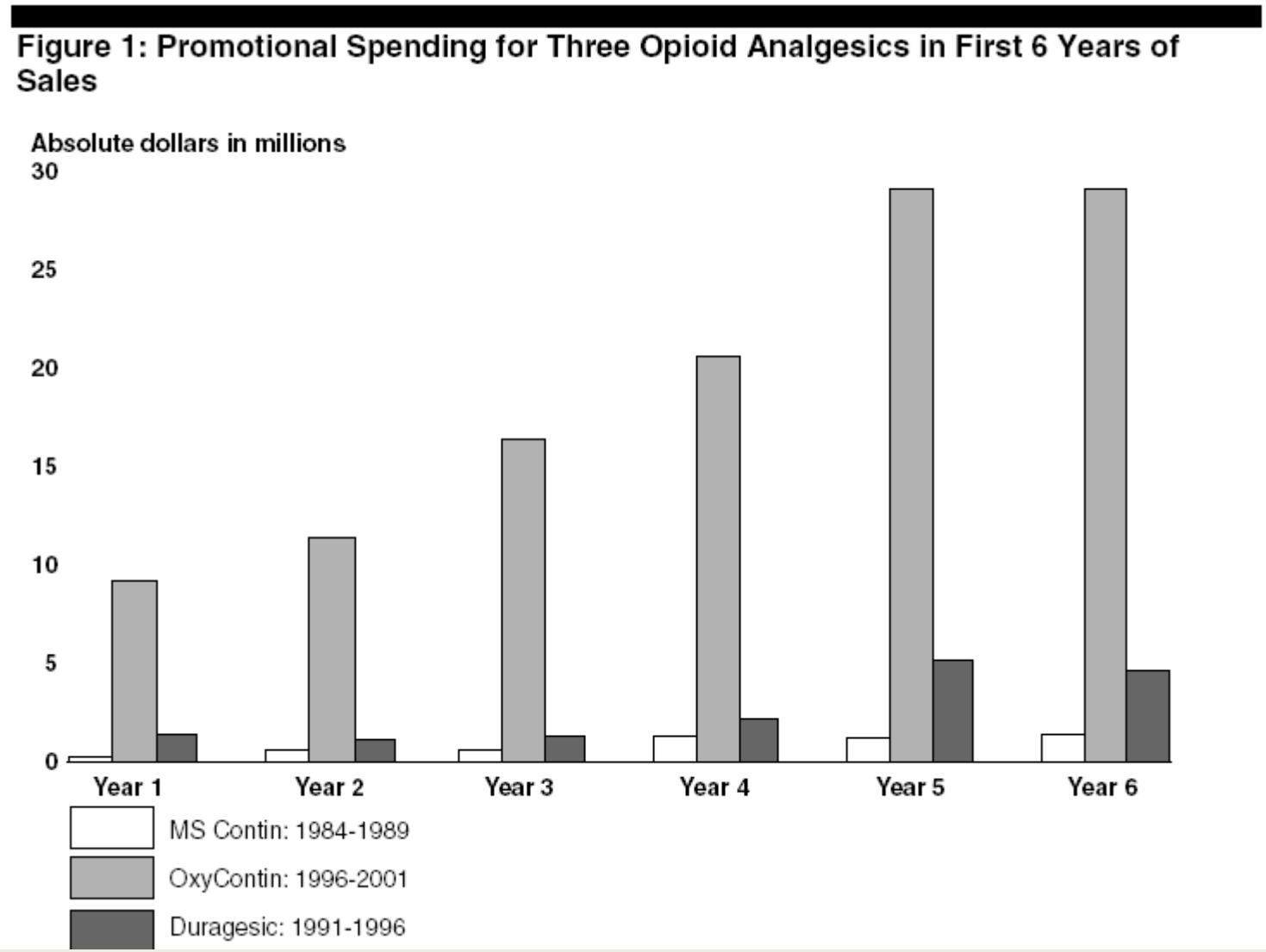
Death rate, 2013, National Vital Statistics System. Opioid pain reliever sales rate, 2013, DEA's Automation of Reports and Consolidated Orders System

New York Consumption of Oxycodone 1980 - 2006



Sources: U.S. Dept of Justice, Drug Enforcement Administration, Office of Diversion Control

Dollars Spent Marketing OxyContin (1996-2001)



Source: United States General Accounting Office: Dec. 2003, “OxyContin Abuse and Diversion and Efforts to Address the Problem.”

INDUSTRY-FUNDED "EDUCATIONAL" MESSAGES

- Physicians are needlessly allowing patients to suffer because of "opiophobia."
- Opioid addiction is rare in pain patients.
- Opioids can be easily discontinued.
- Opioids are safe and effective for chronic pain.

INDUSTRY-FUNDED ORGANIZATIONS CAMPAIGNED FOR GREATER USE OF OPIOIDS

- Pain Patient Groups
- Professional Societies
- The Joint Commission
- The Federation of State Medical Boar

This is a **false dichotomy**
Opioid harms are not limited to so-called "drug abusers"

35% met DSM V criteria for an opioid use disorder[1]

Pain Patients

"Drug Abusers"

92% of opioid OD decedents were prescribed opioids for chronic pain.[2]

1. Boscarino JA, Rukstalis MR, Hoffman SN, et al. Prevalence of prescription opioid-use disorder among chronic pain patients: comparison of the DSM-5 vs. DSM-4 diagnostic criteria. J Addict Dis. 2011;30:185-194.

2. Johnson EM, Lanier WA, Merrill RM, et al. Unintentional Prescription Opioid-Related Overdose Deaths: Description of Decedents by Next of Kin or Best Contact, Utah, 2008-2009. J Gen Intern Med. 2012 Oct 16.


MANZIN'S
LAUDANUM
46.5 GRAINS
OPIUM PER

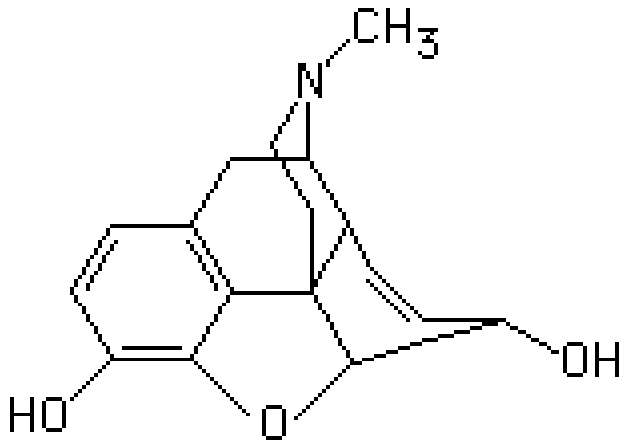
HISTORY REPEATS….

- “[T]he constant prescription of opiates by certain physicians…has rendered the habitual use of that drug in that region very prevalent…A frightful endemic betrays itself in the frequency with which the haggard features and drooping shoulders of the opium drunkards are met with in the street.”
- -Oliver Wendell Holmes, M.D.- dean of Harvard Medical School (and formerly of Dartmouth!)

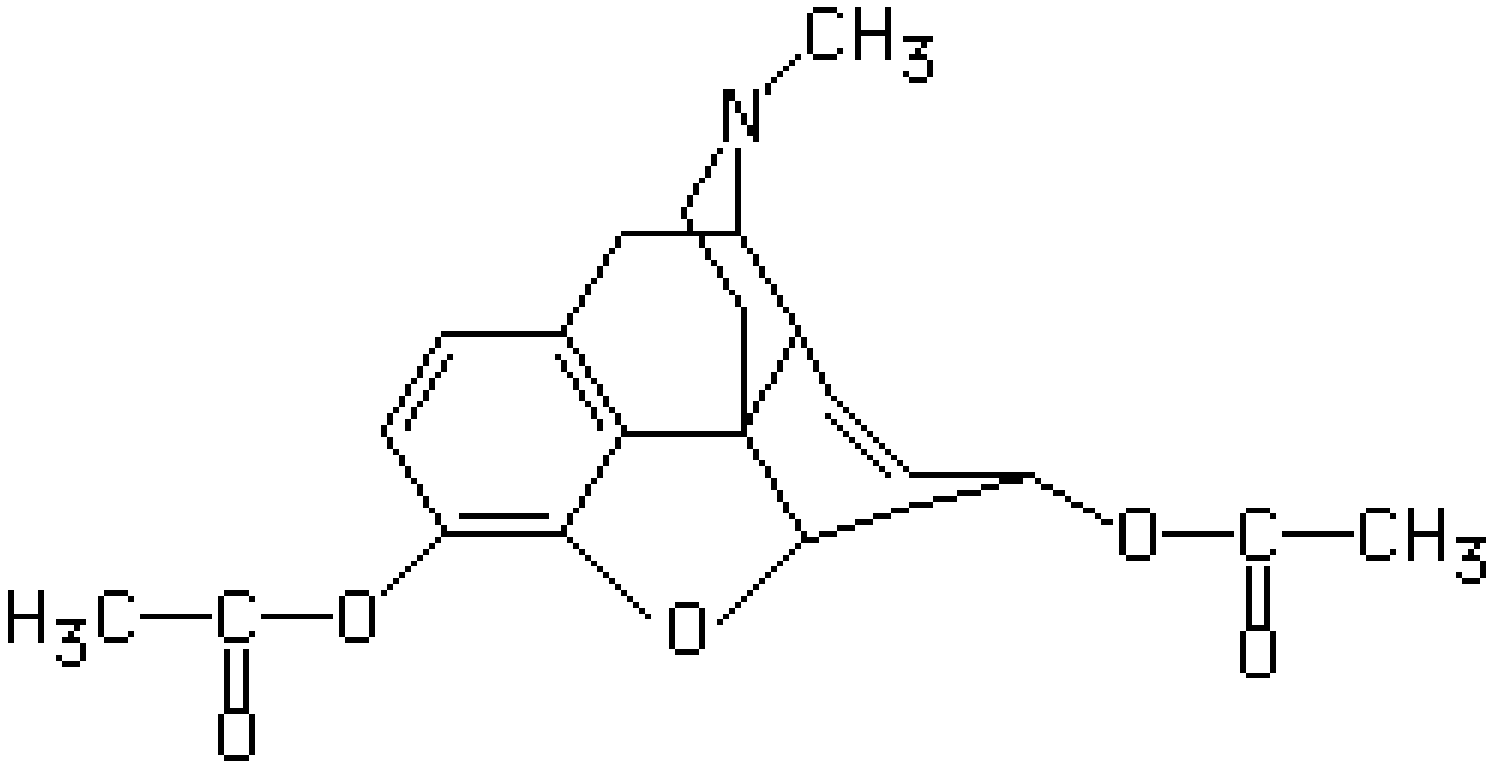
SERTURNER 1805

morphine

$C_{17}H_{19}O_3N$



DIACETYL MORPHINE



OPIOID ADDICTION

- Tolerance develops quickly
- Use gets perpetuated by….
- Positive reinforcement
  - Get euphoria (high)
- Negative reinforcement
  - Get withdrawal when wears off
  - Withdrawal is pretty unpleasant

GENERAL OPIOID PHARMACOLOGY

- Full agonists
  - Bind to the receptor and activate the receptor
  - Increasing doses of the drug produce increasing effects until a maximum effect is achieved (receptor is fully activated)
  - Most abused opioids are full agonists


www.auto-types.com

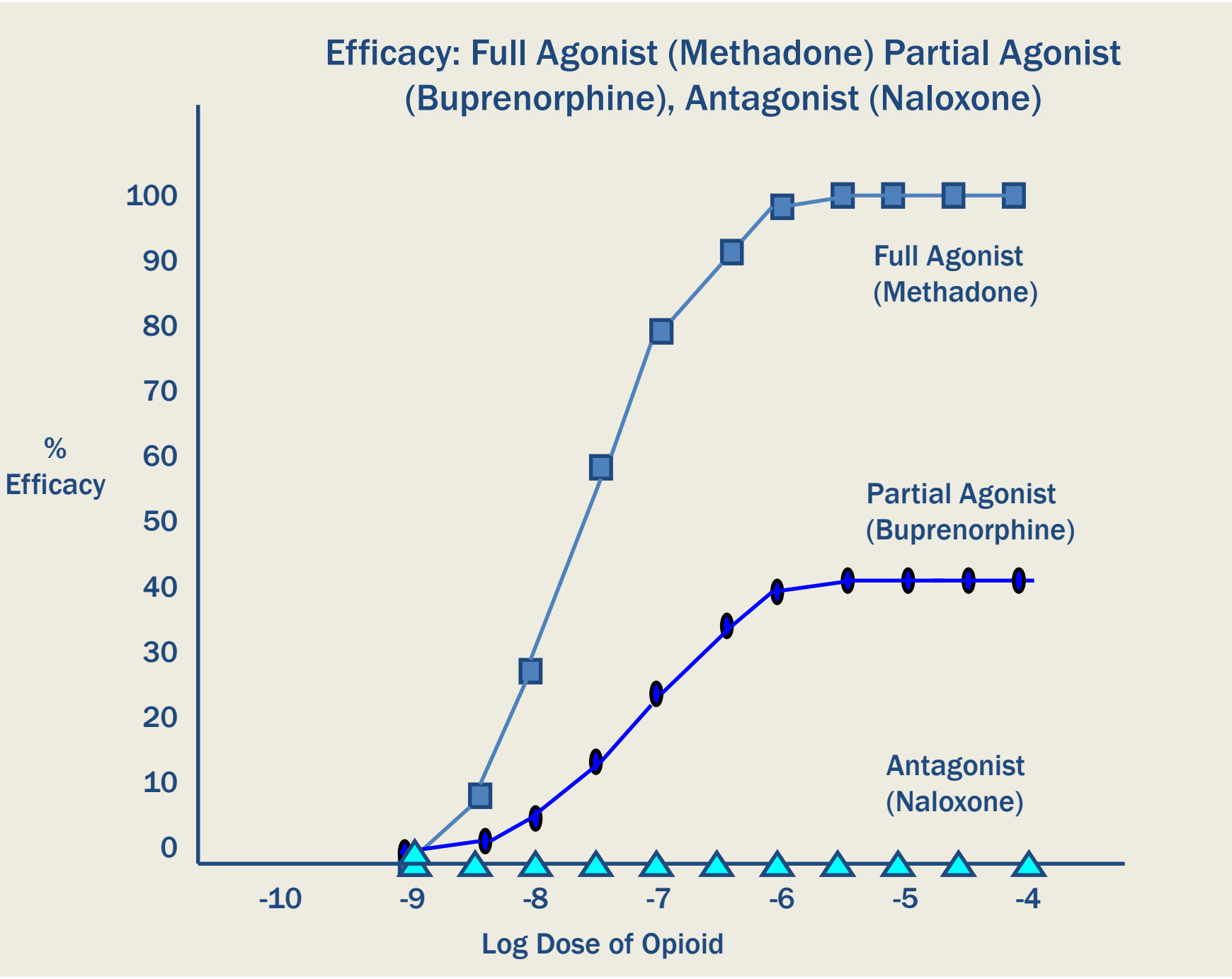
GENERAL OPIOID PHARMACOLOGY

- Partial agonists
  - Bind to the receptor and activate the receptor
  - Increasing the dose does not lead to as great an effect as does increasing the dose of a full agonist- less of a maximal effect is achieved


U-HAUL
ONE-WAY & IN-TOWN MOVES
Mom's Attic
U-HAUL
RIGHT EQUIPMENT / LOWEST COST
America's
Moving Adventure
UTAH
Dinosaur
National
Monument
Gentle-Ride Van
CLOTH SEAT - A/C - AUTOMATIC
UNDER 11,000 GROSS
DC 7823 A

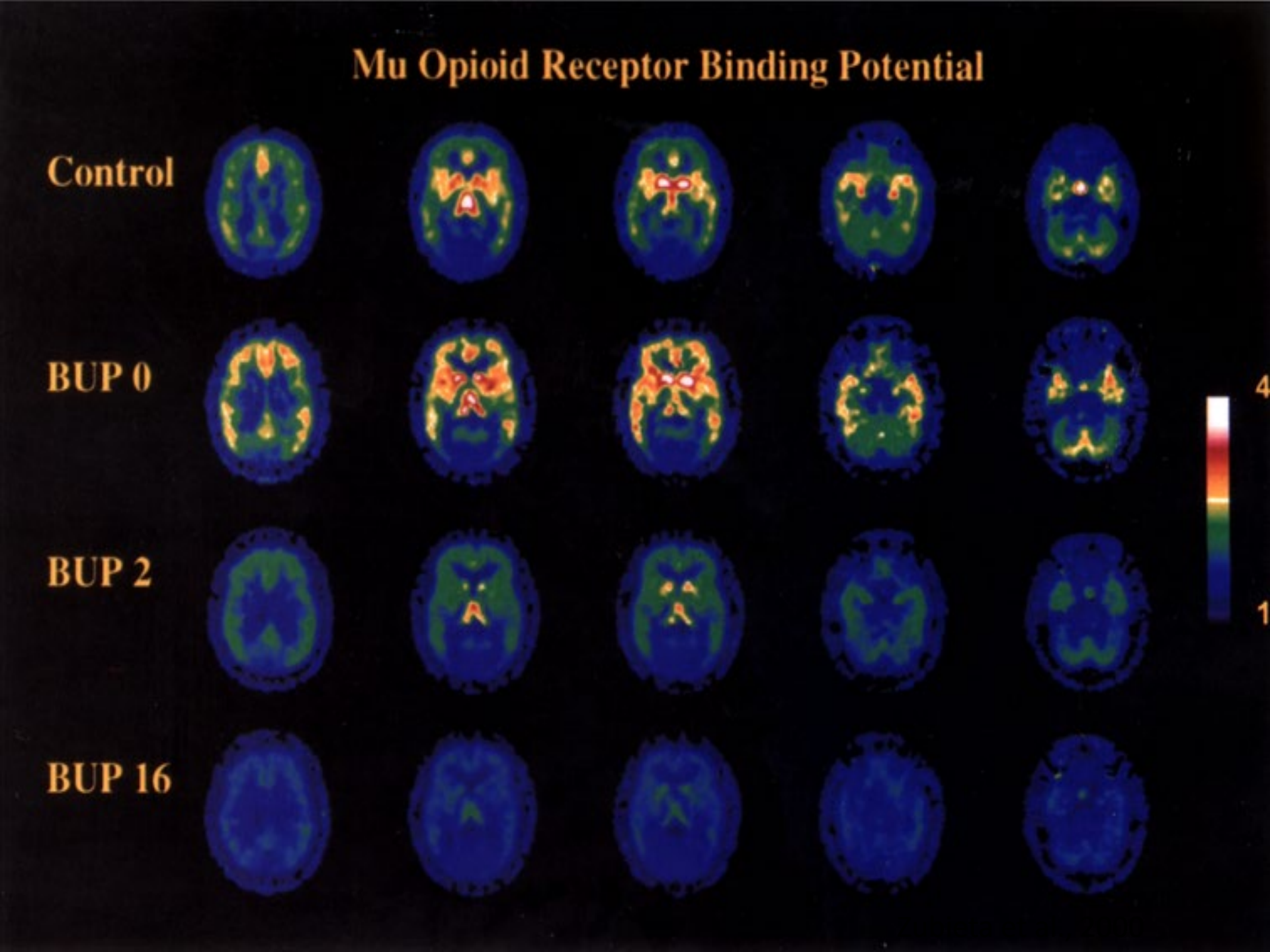
GENERAL OPIOID PHARMACOLOGY

- Antagonists
  - Bind to the receptor, but don't activate the receptor
  - Block the receptor from being bound by a full agonist or partial agonist
  - Like putting gum in a lock, or…

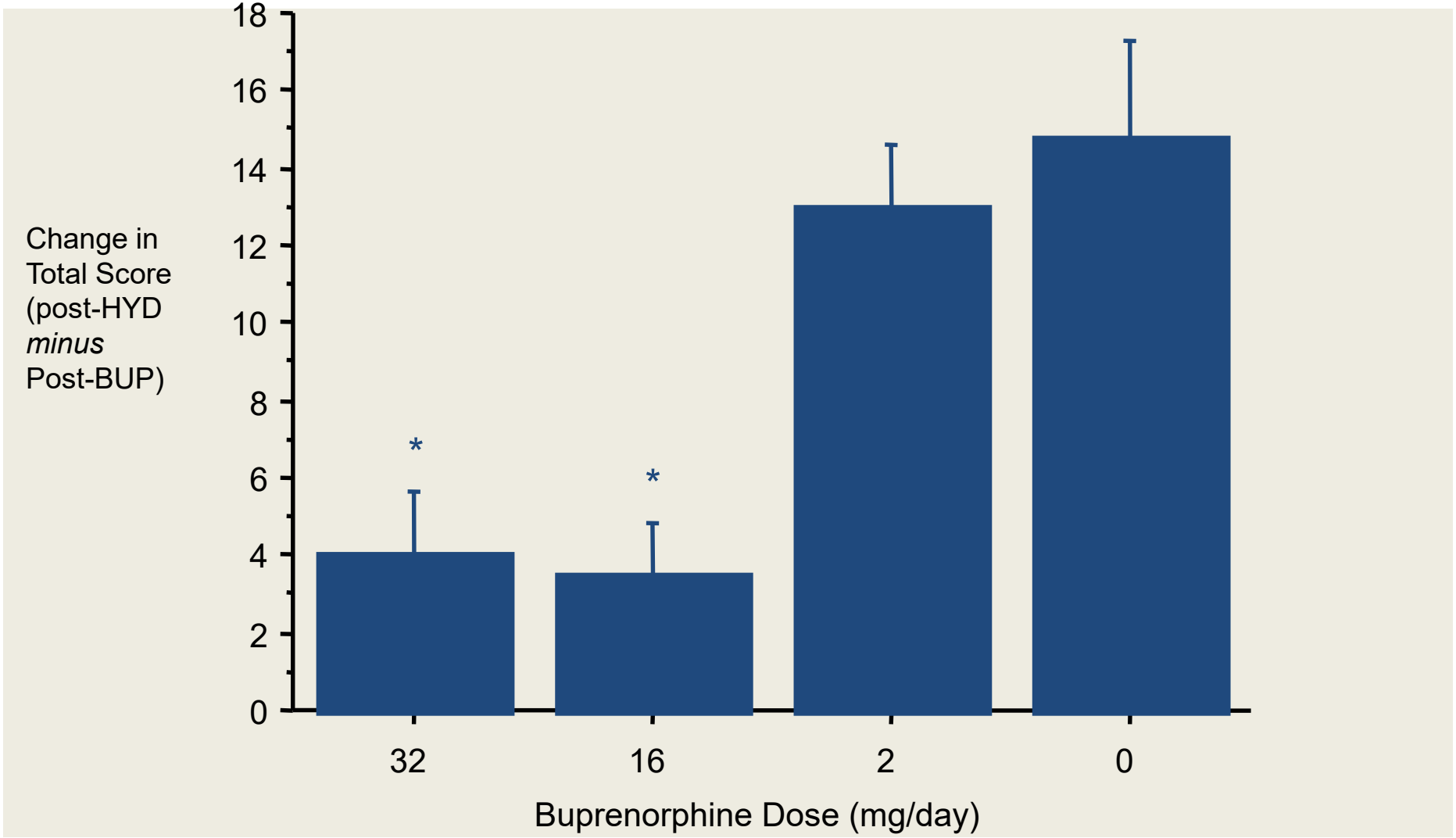

Efficacy: Full Agonist (Methadone) Partial Agonist (Buprenorphine), Antagonist (Naloxone)
% Efficacy
100
90
80
70
60
50
40
30
20
10
0
-10
-9
-8
-7
-6
-5
-4
Log Dose of Opioid
Full Agonist (Methadone)
Partial Agonist (Buprenorphine)
Antagonist (Naloxone)

BUPRENORPHINE

- High affinity for the mu opioid receptor
  - Competes with other opioids and blocks their effects
  - Prevents positive reinforcement
- Slow dissociation from the mu opioid receptor
  - Prolonged therapeutic effect for opioid dependence treatment
  - Long half life (20-44 hours)
  - Prevents negative reinforcement


Mu Opioid Receptor Binding Potential
Control
BUP 0
BUP 2
BUP 16
4
1

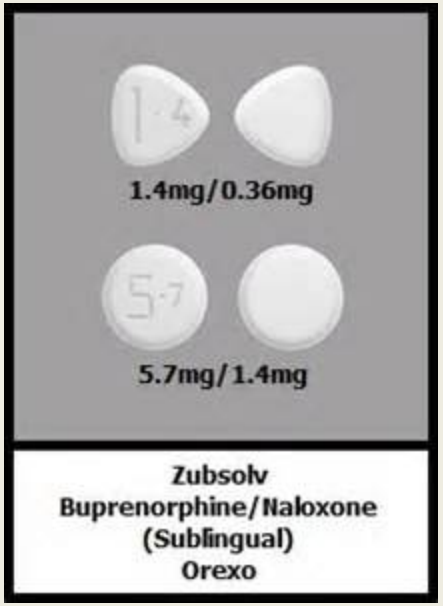
BUPRENORPHINE BLOCKADE OF HYDROMORPHONE OPIATE EFFECTS

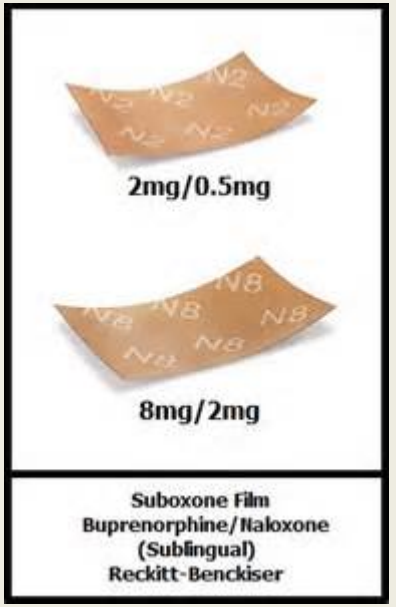


DOSE VS. OUTCOME…

- Buprenorphine 16 mg = methadone 60 mg
- Fareed et al, J. Addict. Dis. 2012, 31(1)
- Meta-analysis of 21 studies
- Found that doses of at least 16 mg predicted better retention in treatment, and that retention in treatment predicted less opioid use

EFFECTIVE TREATMENT





BUPRENORPHINE

- Schedule III
- Office-Based Opioid Treatment (OBOT) or OTP
- DATA 2000
  - Addiction specialist (3 kinds)
  - 8 hour course
- Compared to psychosocial interventions alone
  - Improve treatment retention
  - Reduce opioid use

OBOT PROVISION

- The availability of buprenorphine has increased treatment capacity for opioid dependent patients. Arfken, Johanson, diMenza, & Schuster, 2010)
- Gap exists between the development of effective therapies and their implementation in clinical practice. (Saxon & McCarty, 2005; Sloboda & Schildhaus, 2002)
- Buprenorphine is an example of just such an evidenced-based, yet underutilized, treatment. (Gordon et al., 2008; Knudsen, Ducharme, & Roman, 2006, 2007)

ROUTINE CARE SETTINGS

- Median # being treated per MD = 10 (Walley et al., 2008)
- Perceived barriers = ↓ Rx buprenorphine. (Walley, et al., 2008)
- Barriers =
  - Lack of expertise in treating addictions,
  - Concerns re: logistics (Barry et al., 2009)
- ↑ familiarity with buprenorphine → ↓ barriers (Netherland et al., 2009)

LEARNING COLLABORATIVES

- Learning collaboratives = proven method for disseminating information about improving healthcare practices is the use of (IHI, 2003)
- Evidence-based intervention
- Learning collaboratives
  - Bring together experts and practitioners
  - mix of face-to-face and remote encounters
  - share information about improving treatment of a specific clinical problem. Mold & Peterson, 2005

The explosion of drugs like OxyContin has given way to a heroin epidemic ravaging the least likely corners of America – like bucolic Vermont, which has just woken up to a full-blown crisis
By DAVID AMSDEN

The New Face of Heroin

PHOTOGRAPH BY FREDRIK BRODEN

EVE RIVAIT RODE HER FIRST HORSE WHEN SHE WAS FIVE, too small to get her feet through the stirrups, let alone give the animal a kick that registered. Yet even then, bouncing in the saddle, she was aware that being on the back of a horse provided relief from the boredom and isolation that, for her, were a more dominant part of growing up in Vermont than the snowcapped mountains and autumn foliage that draw millions of tourists to the state each year. As Eve got older, she began spending afternoons exercising the herd at Misty Ann Stables, not far from her home in Milton, a working-class town of about 10,000 located along Lake Champlain, some 30 minutes north of Burlington. Before she could drive a car, Eve was training horses at various barns in the area.

PRE-IMPLEMENTATION GOALS

- Improve buprenorphine care
- Reduce practice variation
- Increase fidelity to guidelines
- Increase # buprenorphine patients

BARRIERS AND FACILITATORS

- Characteristics of the Intervention
  - Barriers: Need for waiver, DEA interest
  - Facilitators: Strong State interest
- Outer Setting
  - Barriers: Poor, rural population; opioid epidemic
  - Facilitators: Expanded Medicaid coverage
- Inner Setting
  - Barriers: Staff attitudes/ beliefs
  - Facilitators: Strong team ethic
- Characteristics of Providers
  - Barriers: Lack of “back up”, emotional sustainability
  - Facilitators: Strong commitment to patients, town

IMPLEMENTATION STRATEGY: LEARNING COLLABORATIVE

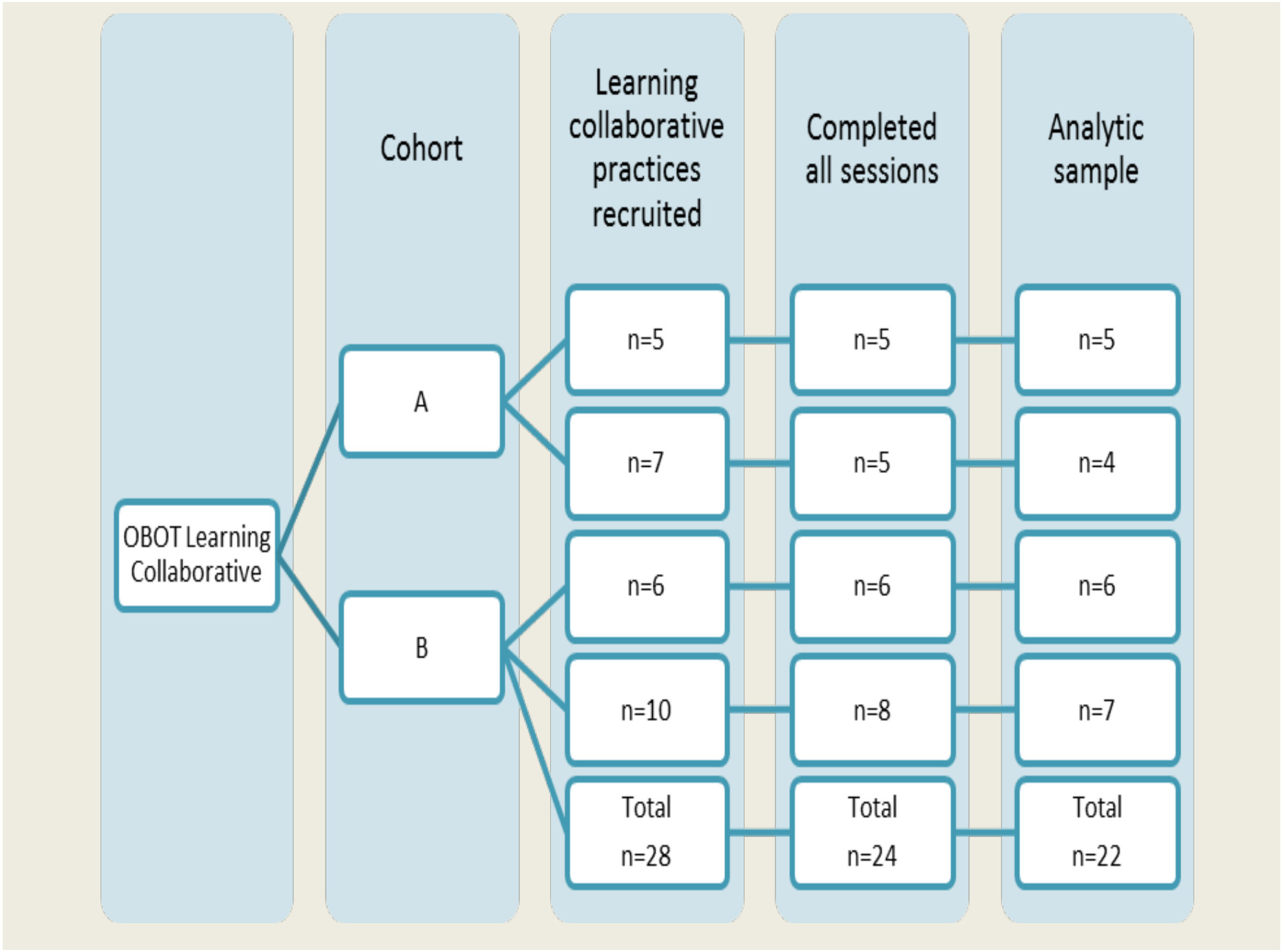
- Proven method for improving healthcare practices (IHI, 2003)
- Evidence-based
- Method
  - Bring together experts and practitioners
  - Mix of face-to-face and remote encounters
  - Share information about improving treatment of a specific clinical problem. Mold & Peterson, 2005

VERMONT MAT LEARNING COLLABORATIVE

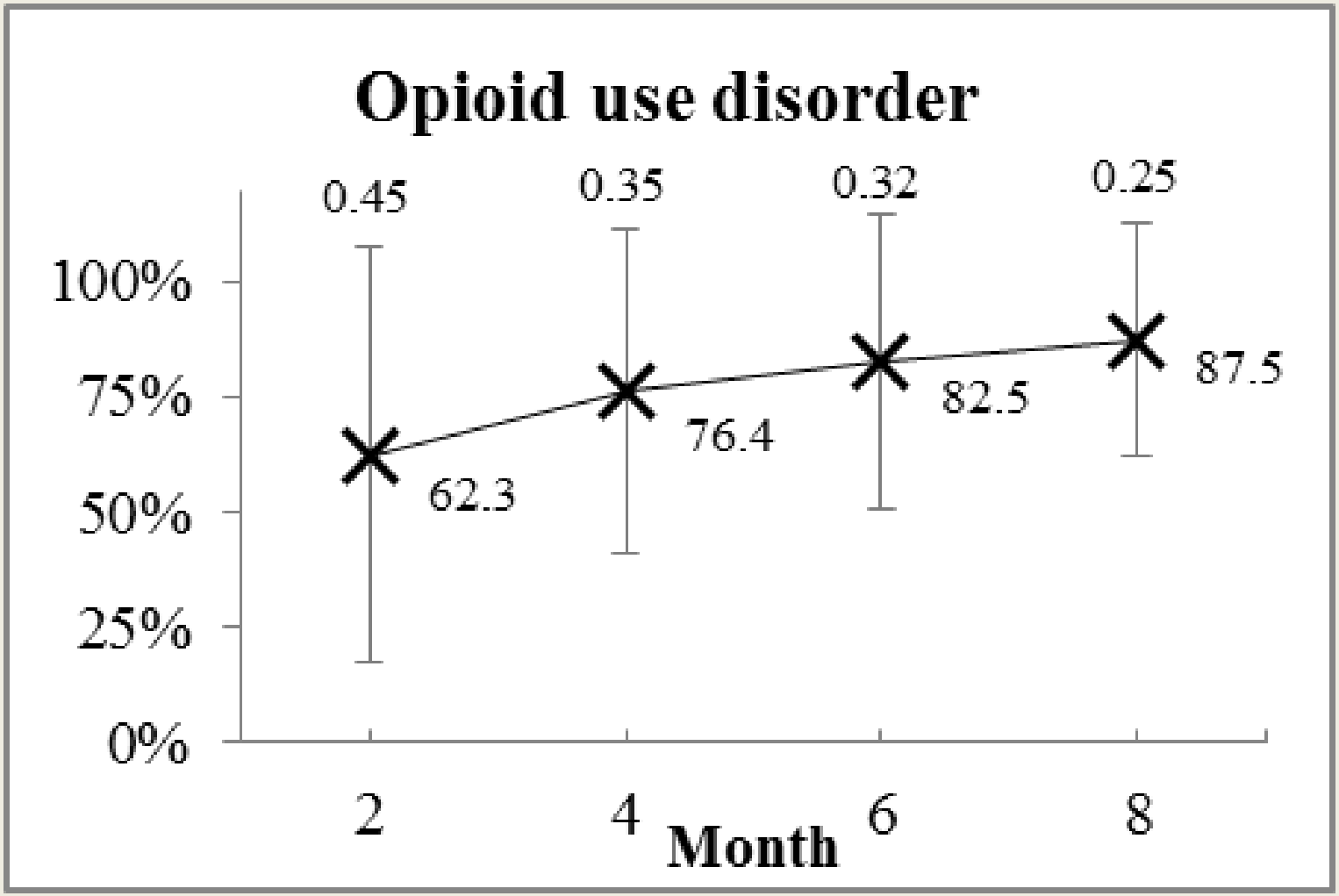
- Department of Vermont Health Access
- Blueprint for Health
- Interested in improving MAT throughout VT
- Learning Collaboratives
  - Asthma
  - Diabetes

PRE-IMPLEMENTATION MEASURES

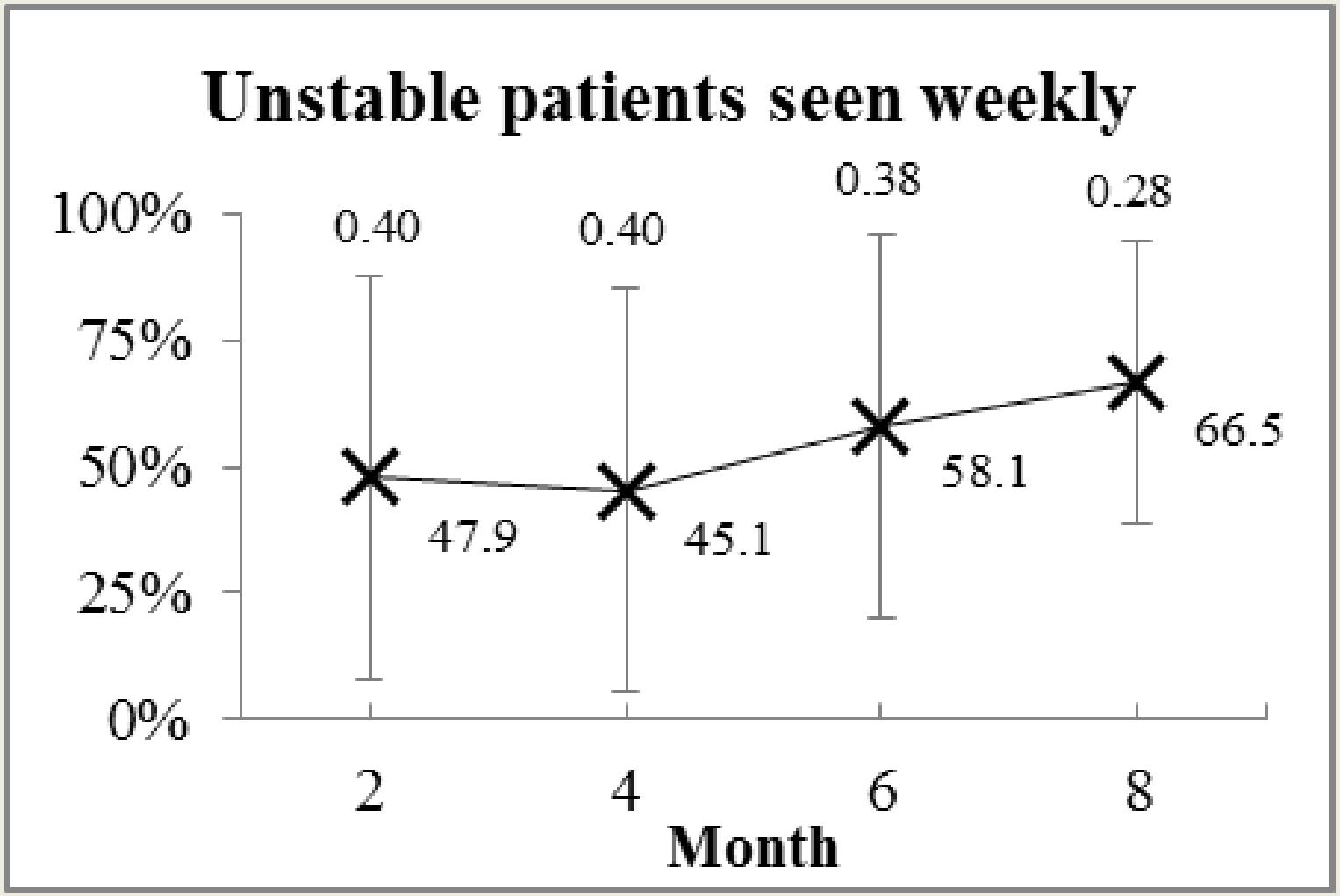
- Improve OBOT/ reduce practice variation
- Create a standard of care
- Convened focus group of local experts
  - Diagnosis
  - Urine drug screens
  - Dose
  - See unstable patients more frequently
  - VPMS
  - Retention in treatment
  - Co-occurring treatment follow-up


OBOT Learning Collaborative
Cohort
A
B
Learning collaborative practices recruited
n=5
n=7
n=6
n=10
Total n=28
Completed all sessions
n=5
n=5
n=6
n=8
Total n=24
Analytic sample
n=5
n=4
n=6
n=7
Total n=22

IMPLEMENTATION OUTCOMES



IMPLEMENTATION OUTCOMES



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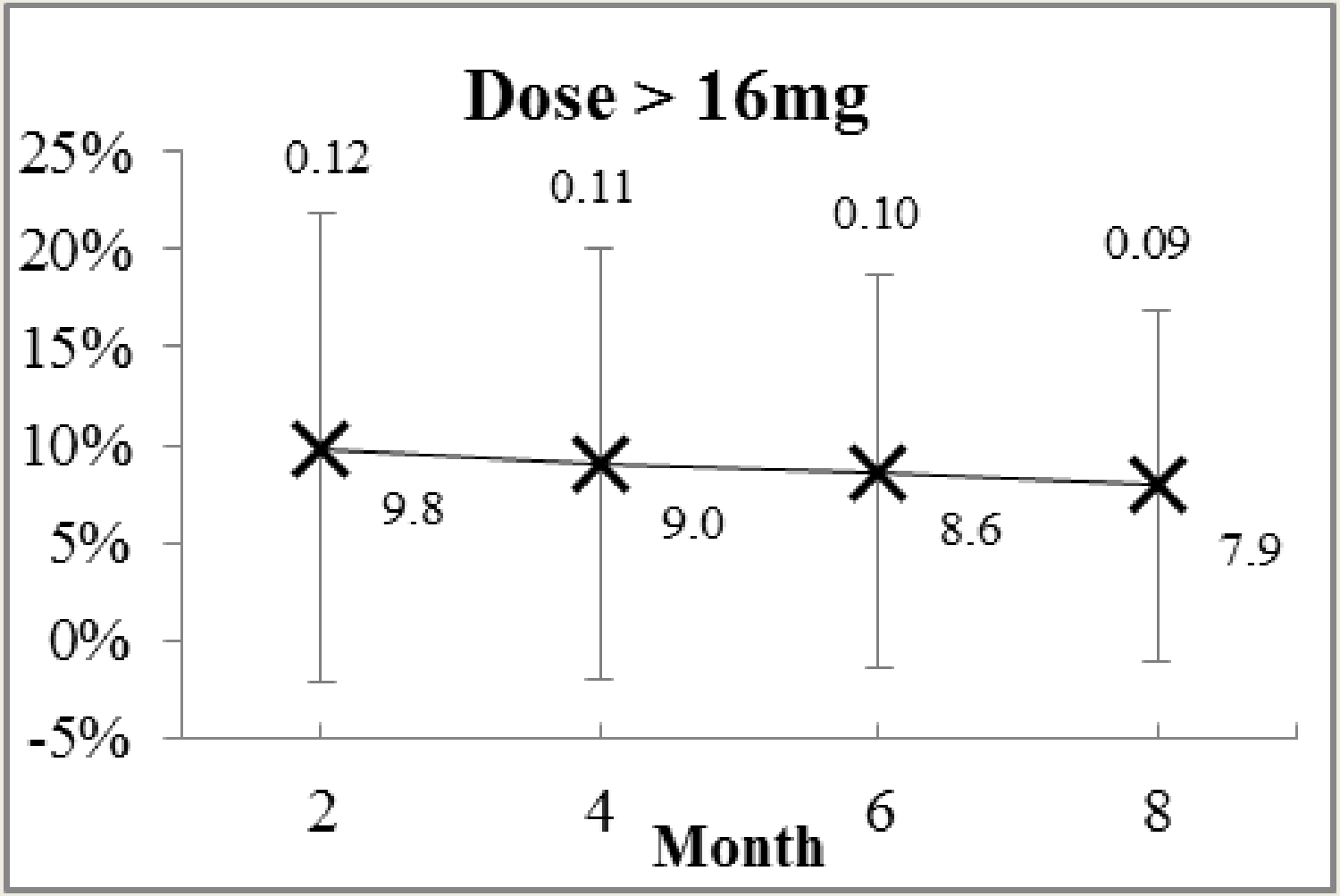
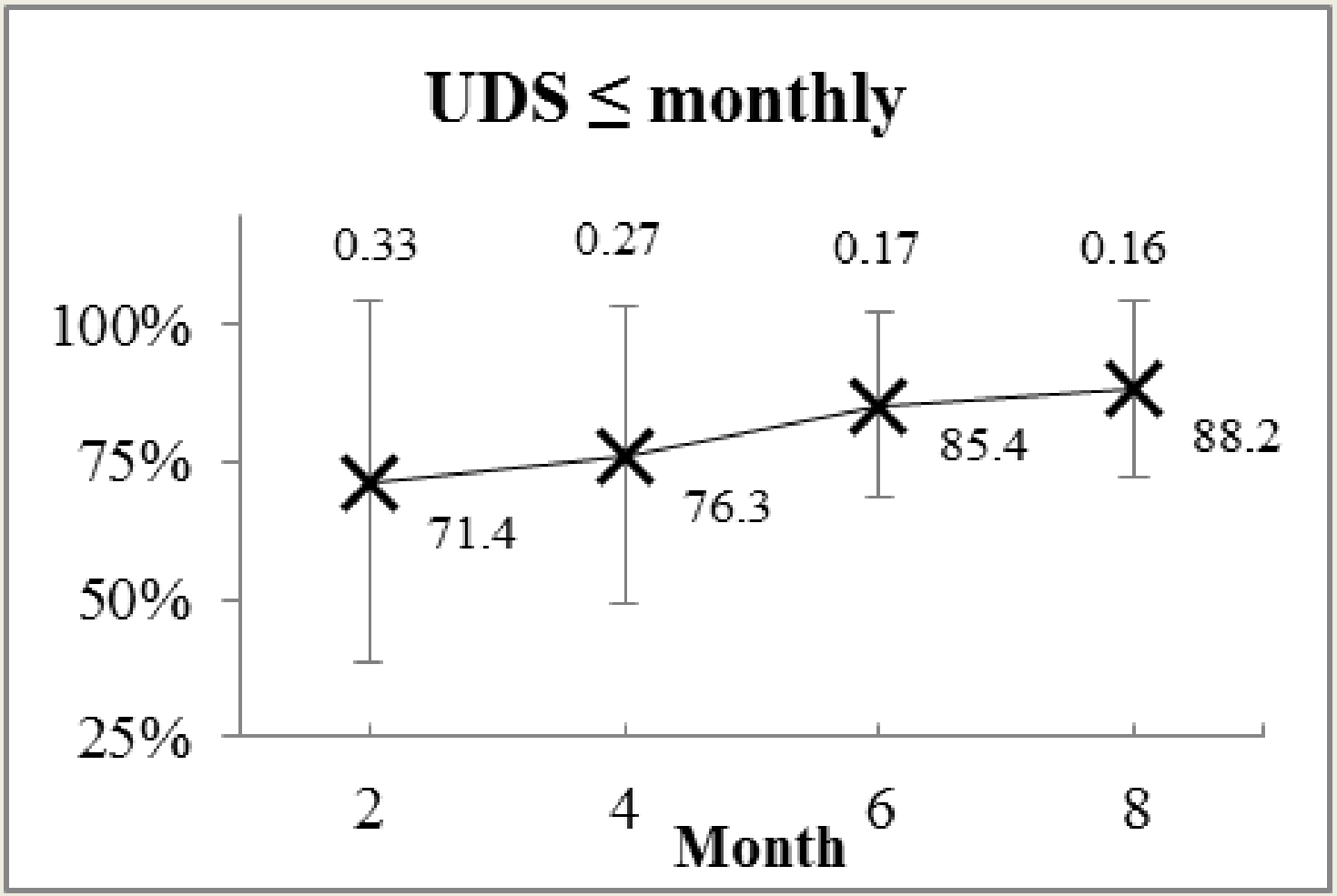
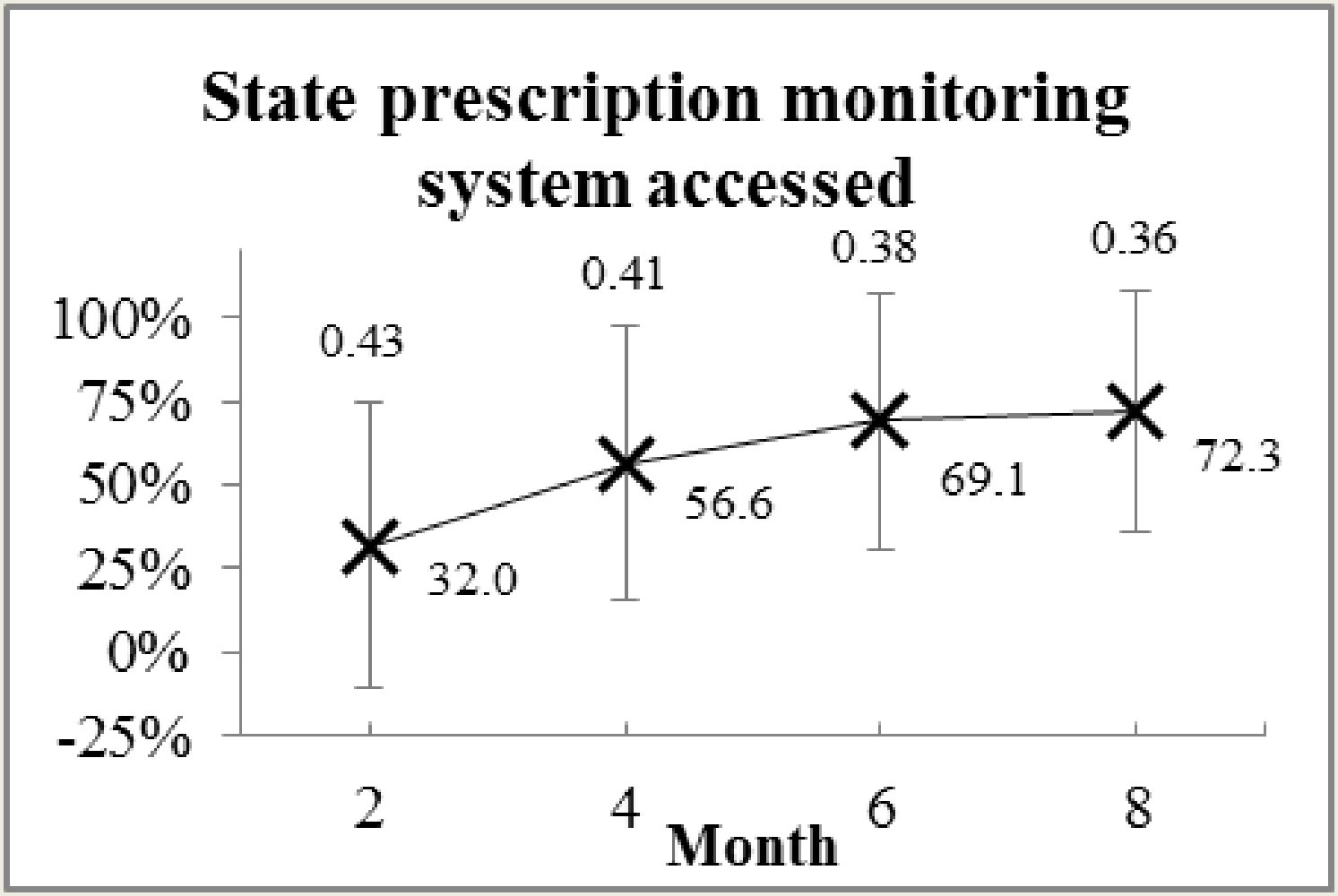


IMPLEMENTATION OUTCOMES



IMPLEMENTATION OUTCOMES



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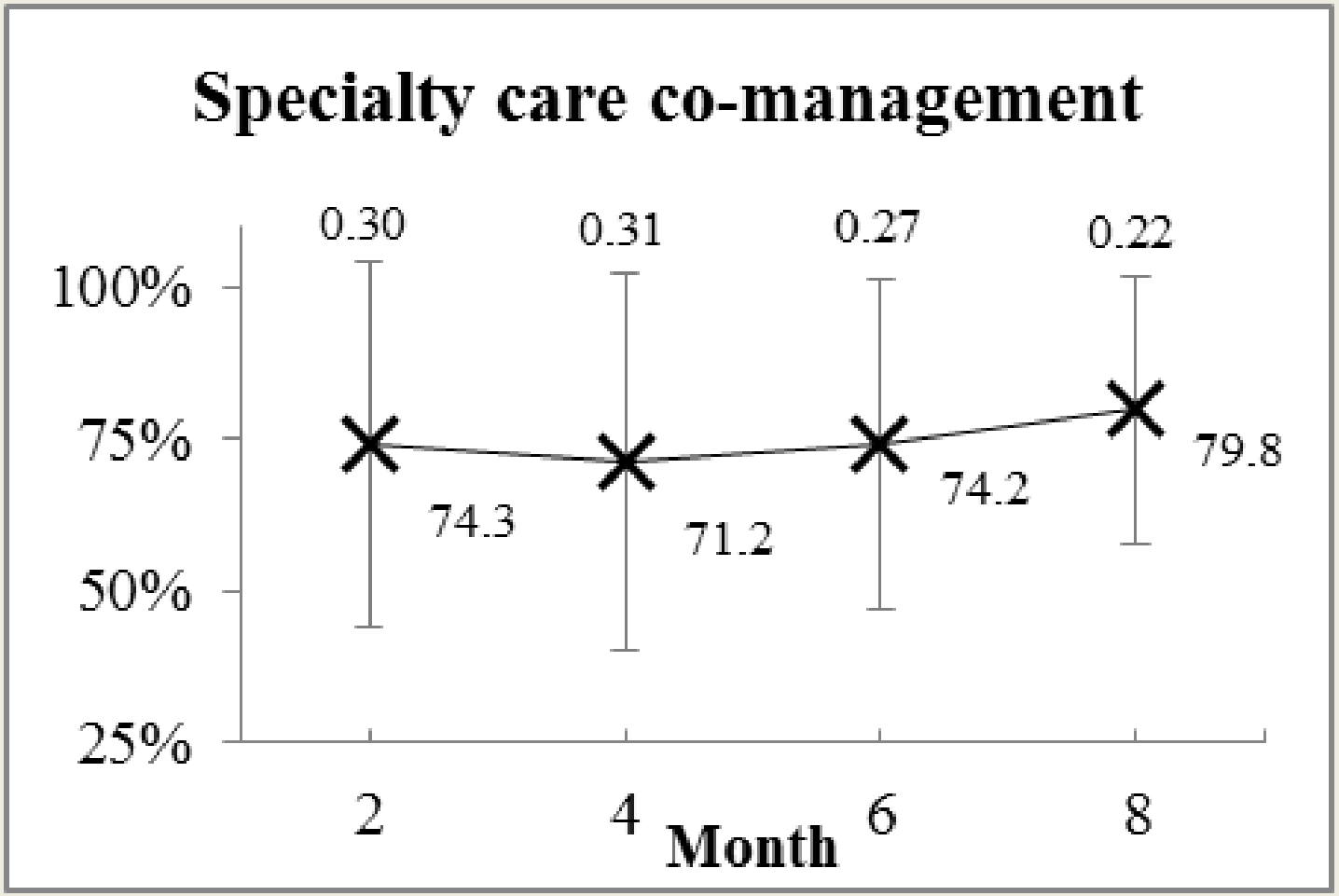

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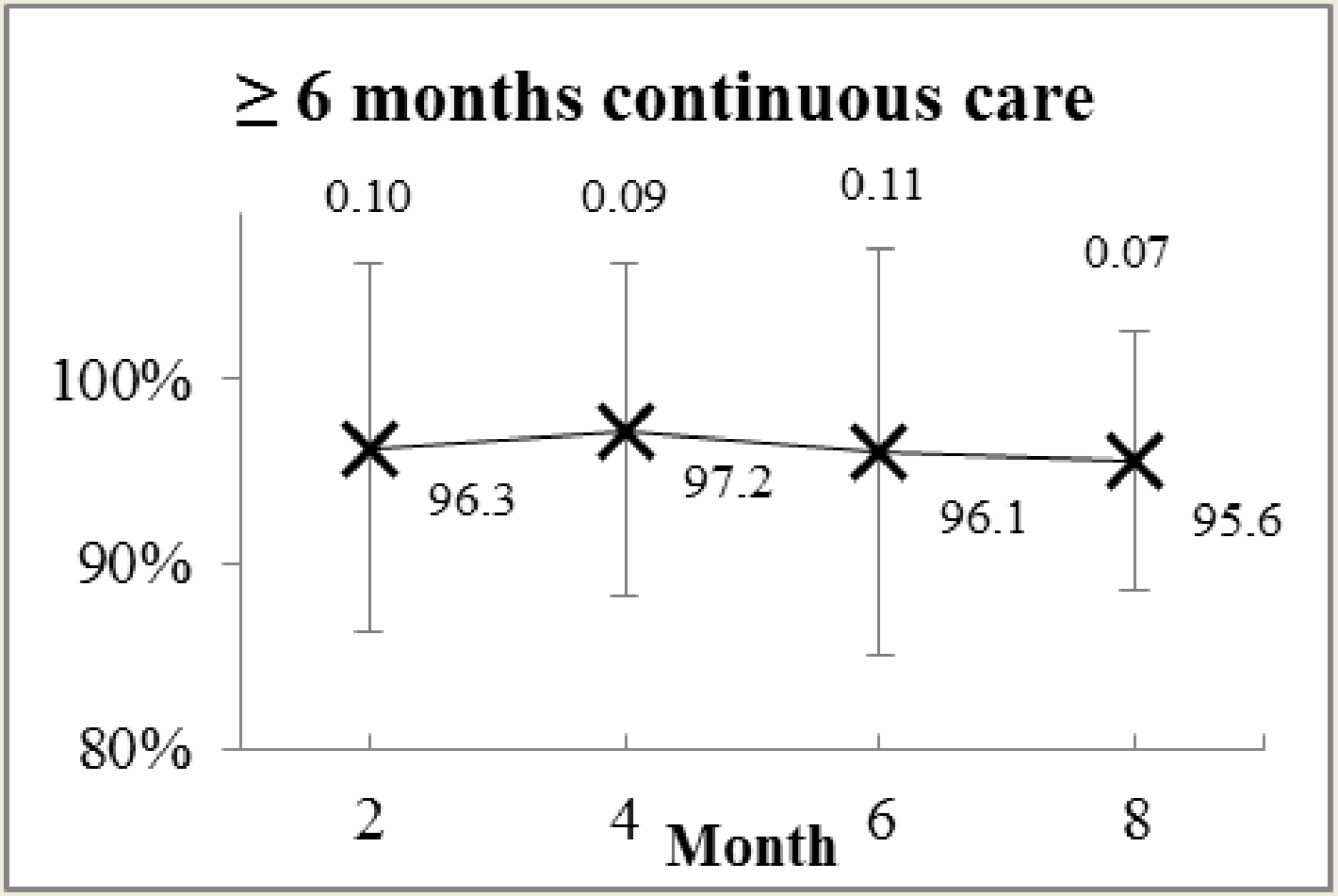

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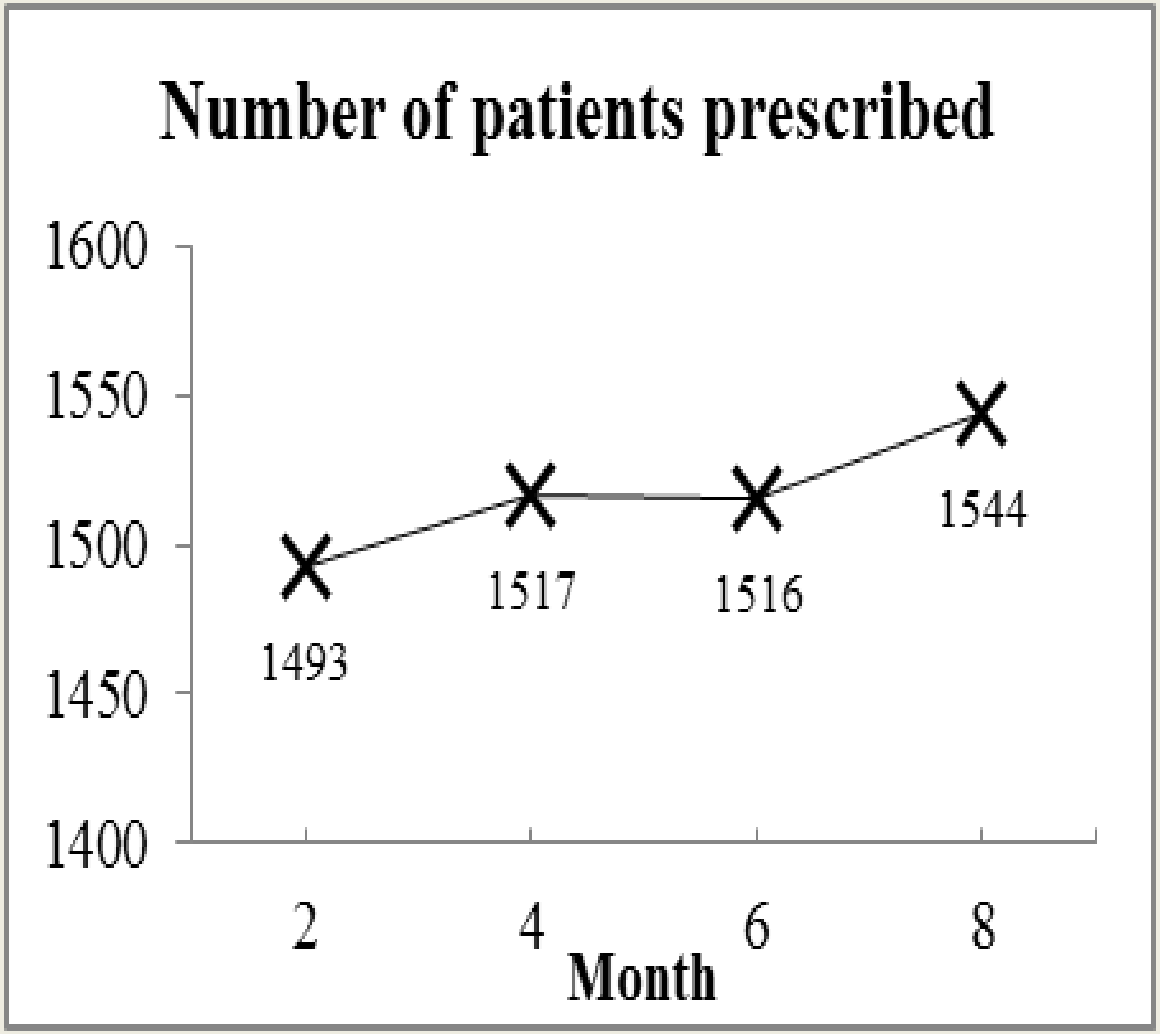

MAINTENANCE STRATEGIES

- Continue with Learning Collaboratives
- Currently in 5th year
- Will continue to gather data
- Sustain outcomes

ACKNOWLEDGEMENTS

- Beth Tanzman, Blueprint for Health, Department of Vermont Health Access
- Jenney Samuelson, Blueprint for Health, Department of Vermont Health Access
- The following practices: Babies And Mothers Beginning In-sync (Rutland, VT), Berlin Family Health (Berlin, VT), Brattleboro Retreat (Brattleboro, VT), Community Health Centers of Burlington (Burlington, VT), Community Health Center of the Rutland Region (Rutland, VT), Cold Hollow Family Practice (Enosburg, VT), Community Health Services of Lamoille Valley (Stowe, VT), Central Vermont Addiction Medicine (Berlin, VT), Central Vermont Medical Center (Berlin, VT), Central Vermont Primary Care (Barre, VT), Central Vermont Substance Abuse Services (Barre, VT), Deerfield Valley Health Care (Wilmington, VT), Gifford Medical Center (Randolph, VT), Howard Center (Burlington, VT), Mousetrap Pediatrics (St. Albans, VT), Private psychiatry practice (Brattleboro, VT), Private psychiatry practice (Brattleboro, VT), Mt. Ascutney and Connecticut Valley Recovery (Windsor, VT), Mt. Anthony Primary Care (Bennington, VT), Northwestern Georgia Health Center (St. Albans, VT), Northern Tier Center for Health (Swanton, VT), Rockingham Medical Group (Springfield, VT), Green Mountain Family Medicine (White River Junction, VT), Grace Cottage Family Health (Townshend, VT), Treatment Associates (Montpelier, VT), Waterbury Medical Associates (Waterbury, VT)