Rx Drug Abuse & Heroin Summit

AN NCAD MEETING

PDMP-Informed Responses to the Opioid Addiction Epidemic: Lessons from Massachusetts, New York, and New Jersey

Andrew Kolodny, MD

Brandeis University & Physicians for Responsible Opioid Prescribing

Cindy Parks Thomas, PhD

Brandeis University

Meelee L. Kim, PhD

Brandeis University

Gail K. Strickler, PhD

Brandeis University

Faculty Disclosures

- Conference organizers will drop onto this slide relevant speaker disclosures which were provided during the abstract submission process.
- **Please do not delete this slide.**

Disclosure

- The faculty have been informed of their responsibility to disclose to the audience if they will be discussing off-label or investigational use(s) of drugs, products, and/or devices (any use not approved by the US Food and Drug Administration)
- NACCME staff have no relationships to disclose relating to the subject matter of this activity
- This activity has been independently reviewed for balance

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Learning Objectives

- Describe evidence-based interventions and policies aimed to address the opioid addiction and overdoses epidemic.
- Describe PDMPs strengths and limitations as a data source.
- Identify outcome measures to assess prescribing patterns and other risk measures.

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AN NCAD MEETING

Why Opioid Prescribing Still Matters

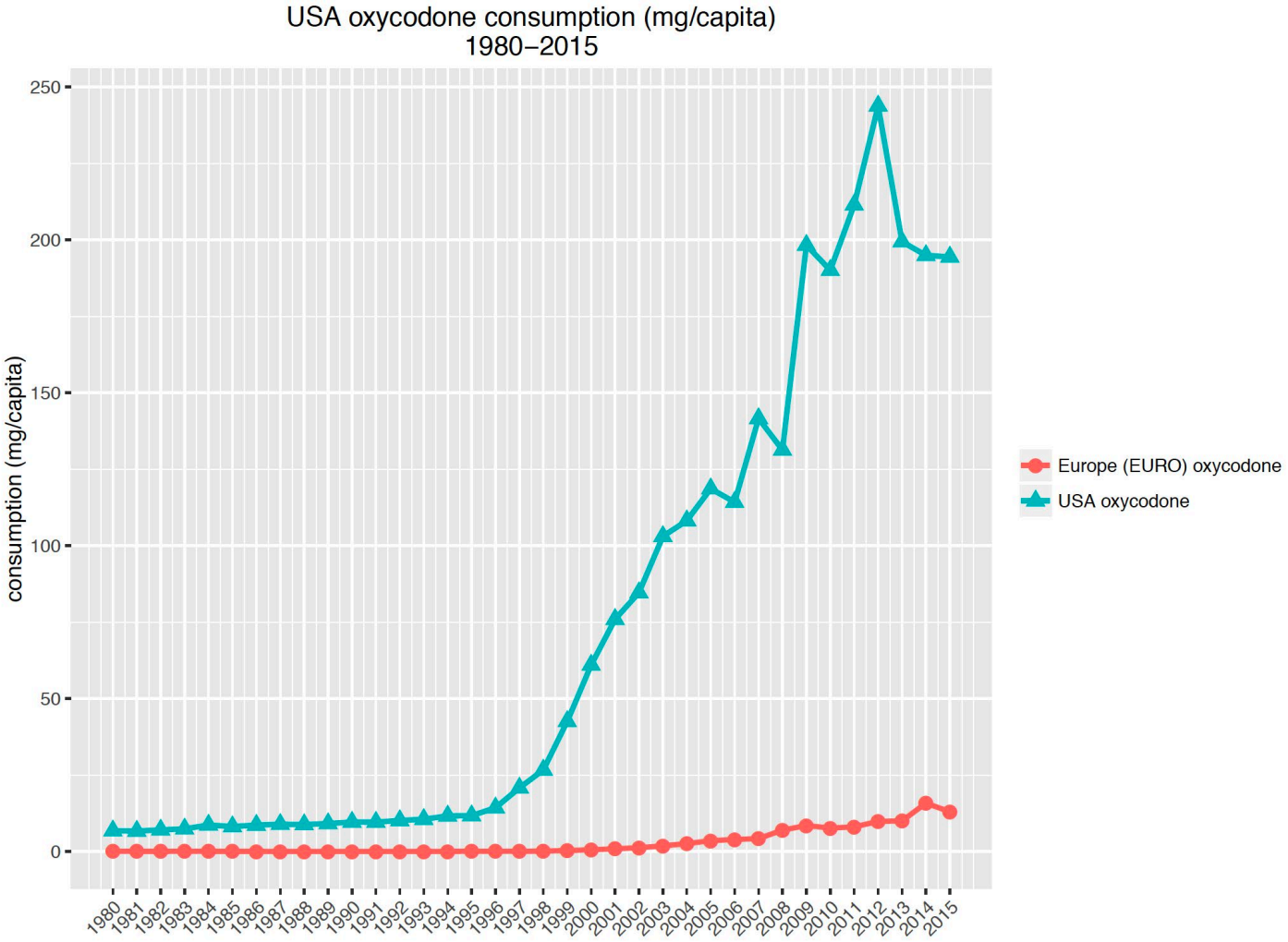
Andrew Kolodny, MD

Medical Director, Opioid Policy Research Collaborative, Brandeis University

Executive Director, Physicians for Responsible Opioid Prescribing

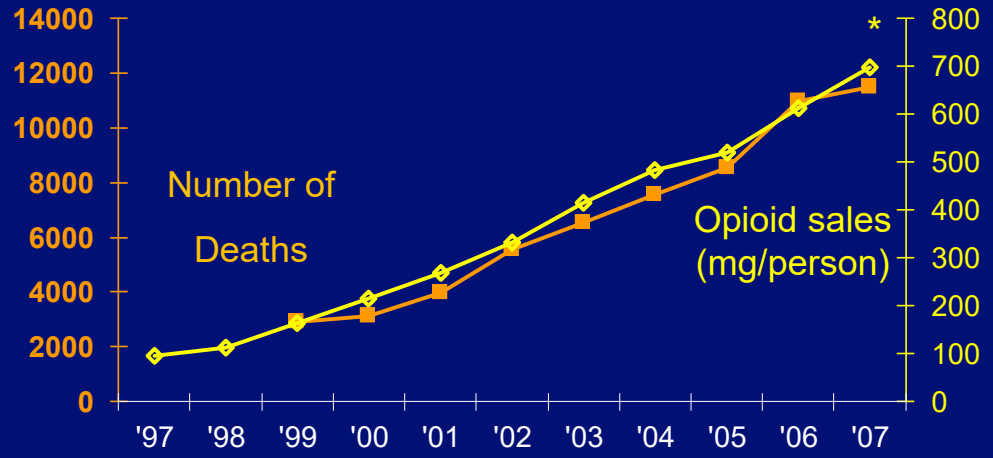
Faculty Disclosures

- I, Andrew Kolodny, have served as an expert witness for government plaintiffs in litigation against opioid manufacturers and distributers.



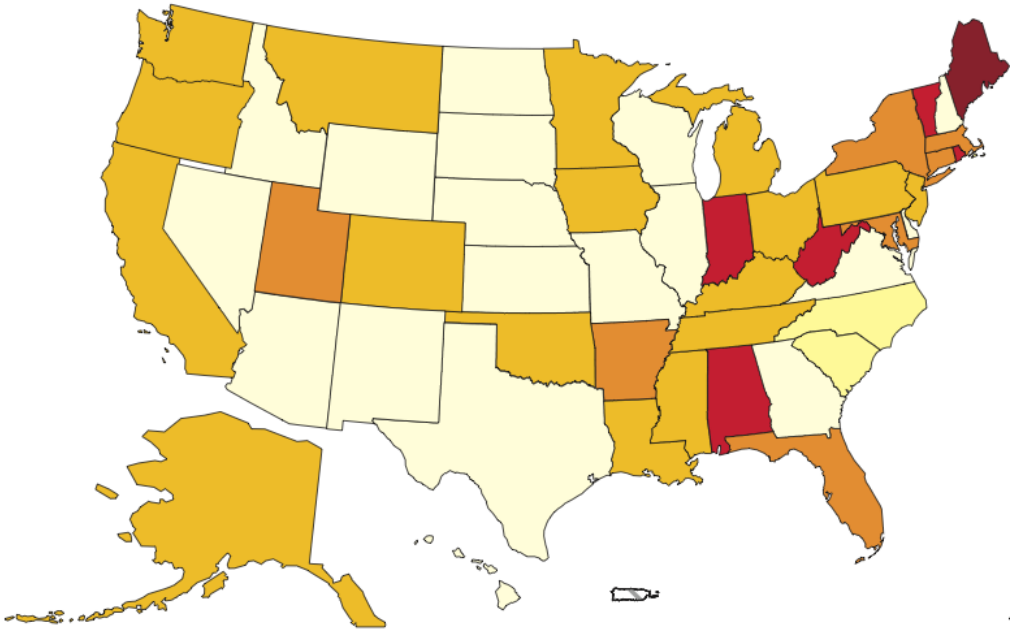
Sources: International Narcotics Control Board; World Health Organization population data

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.

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



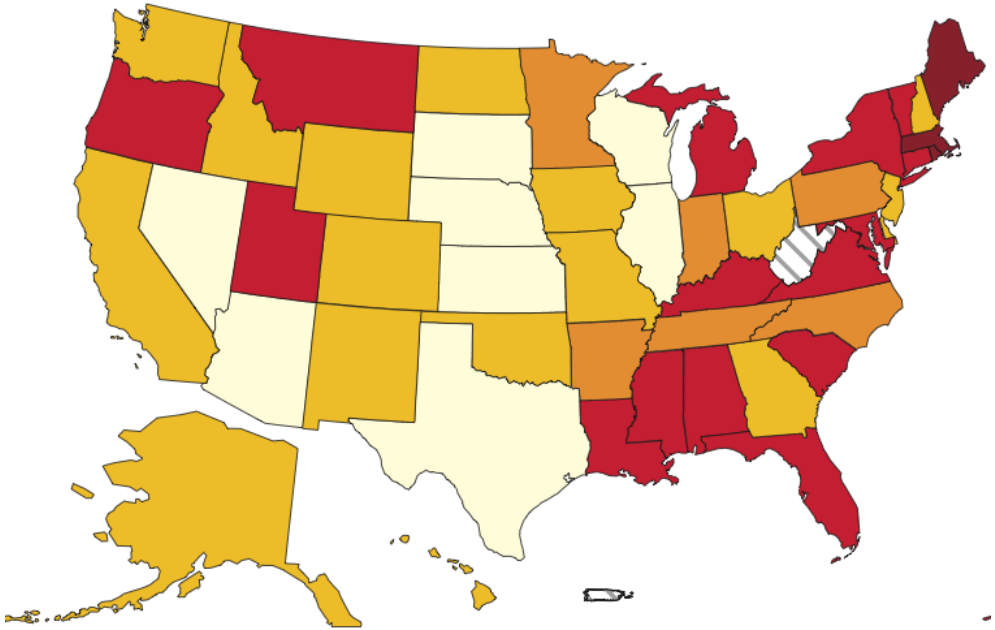
1999

(range 1 - 50)

< 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)



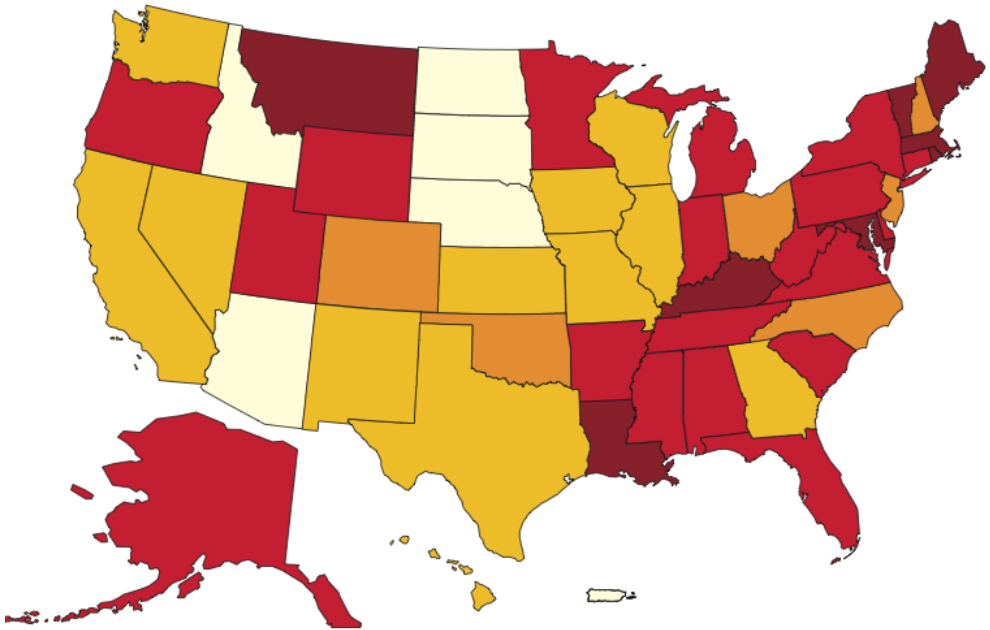
2001

(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.

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



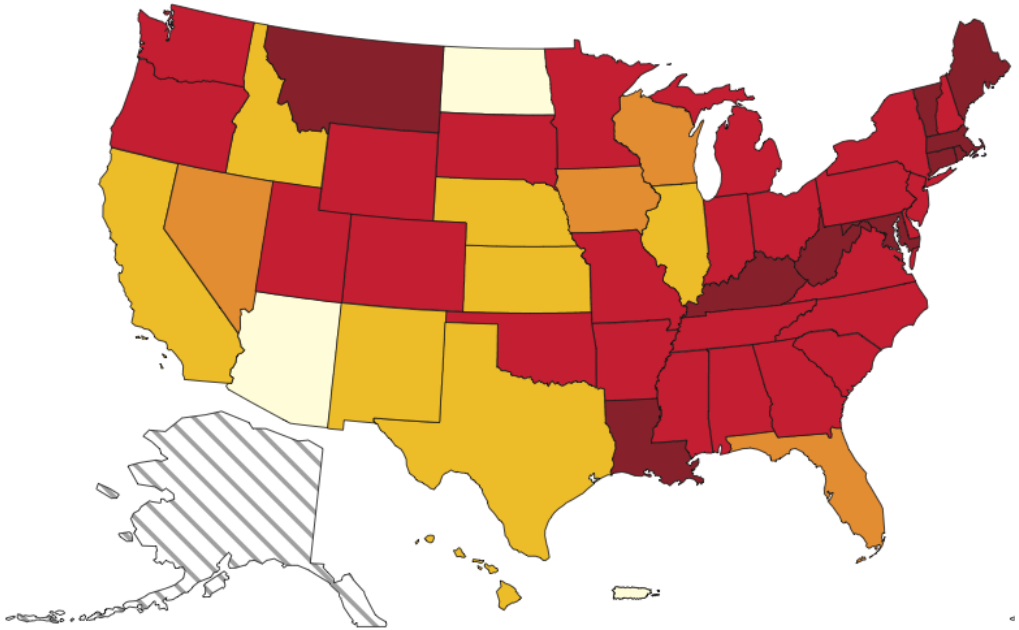
2003

(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.

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



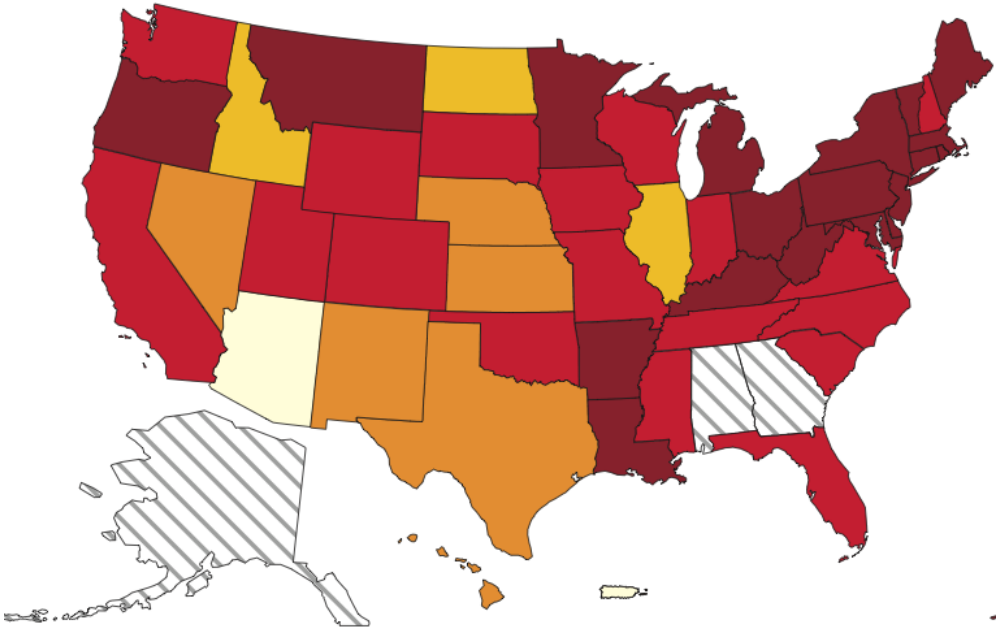
2005

(range 0 – 214)

< 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)



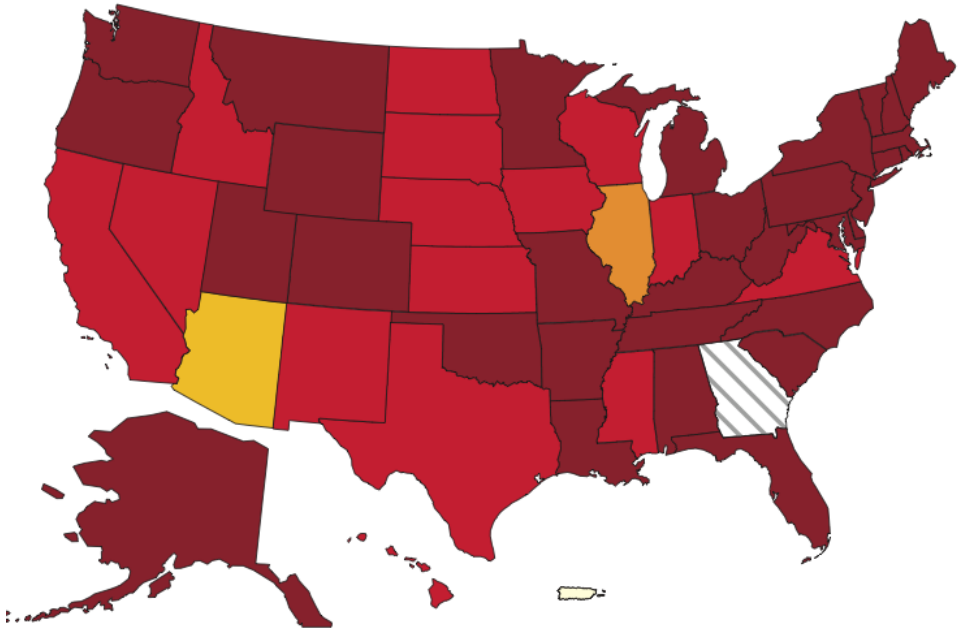
2007

(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)



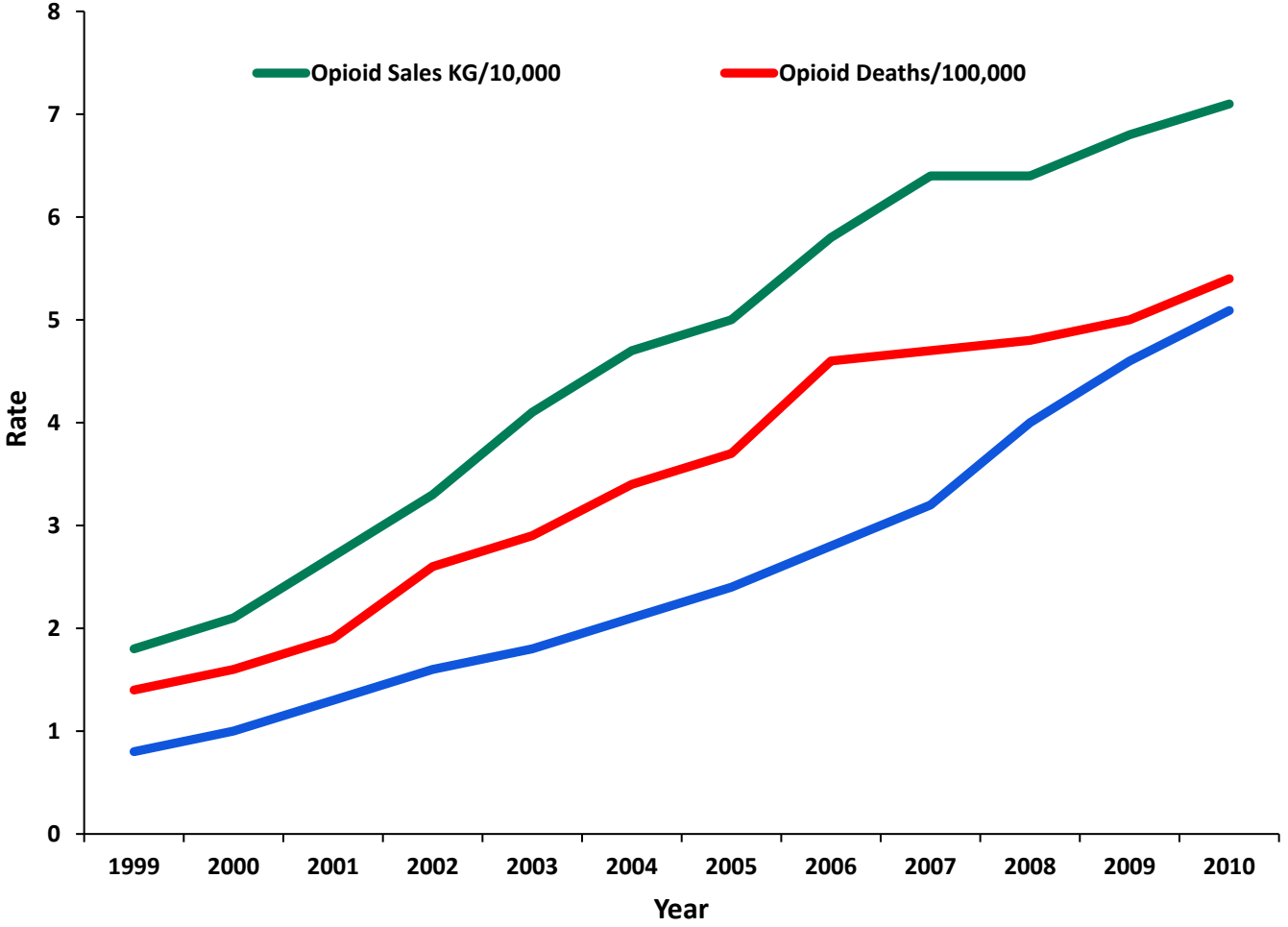
2009

(range 1 – 379)

< 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.

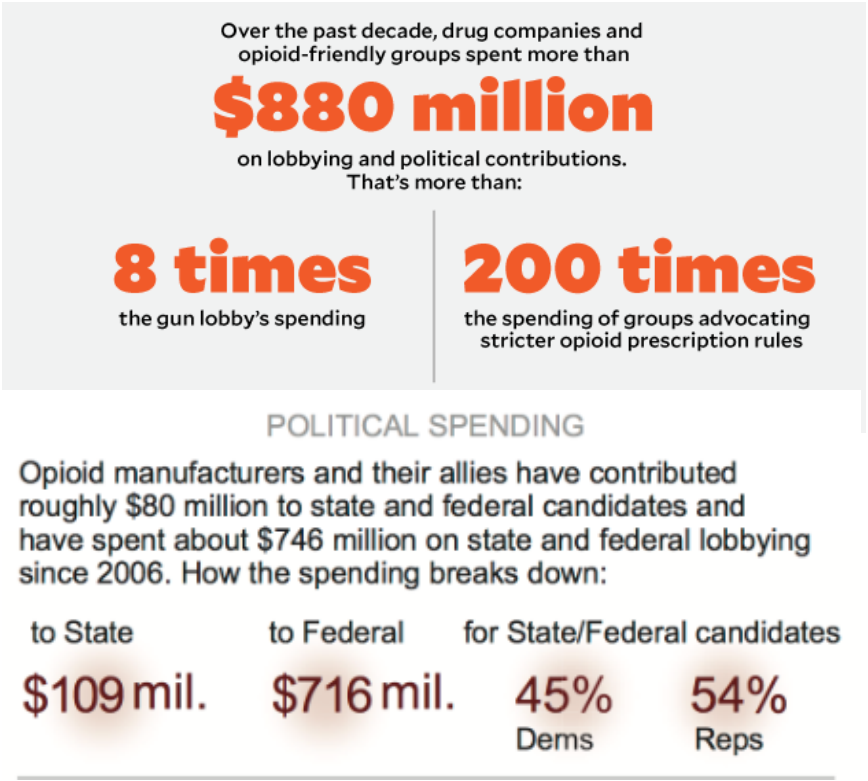
Rates of Opioid Sales, OD Deaths, and Treatment, 1999–2010



CDC. *MMWR* 2011

Pro-painkiller lobby shapes policy amid drug epidemic

Matthew Perrone and Ben Wieder, Associated Press and Center for Public Integrity



JAMA Network Open

Original Investigation | Substance Use and Addiction

Association of Pharmaceutical Industry Marketing of Opioid Products With Mortality From Opioid-Related Overdoses

Scott E. Hadland, MD, MPH, MS; Ariadne Rivera-Aguirre, MPP; Brandon D. L. Marshall, PhD; Magdalena Cerdá, DrPH, MPH

Abstract

IMPORTANCE Prescription opioids are involved in 40% of all deaths from opioid overdose in the United States and are commonly the first opioids encountered by individuals with opioid use disorder. It is unclear whether the pharmaceutical industry marketing of opioids to physicians is associated with mortality from overdoses.

OBJECTIVE To identify the association between direct-to-physician marketing of opioid products by pharmaceutical companies and mortality from prescription opioid overdoses across US counties.

DESIGN, SETTING, AND PARTICIPANTS This population-based, county-level analysis of industry marketing information used data from the Centers for Medicare & Medicaid Services Open Payments database linked with data from the Centers for Disease Control and Prevention on opioid prescribing and mortality from overdoses. All US counties were included, with data on overdoses from August 1, 2014, to December 31, 2016, linked to marketing data from August 1, 2013, to December 31, 2015, using a 1-year lag. Statistical analyses were conducted between February 1 and June 1, 2018.

MAIN OUTCOMES AND MEASURES County-level mortality from prescription opioid overdoses, total cost of marketing of opioid products to physicians, number of marketing interactions, opioid prescribing rates, and sociodemographic factors.

RESULTS Between August 1, 2013, and December 31, 2015, there were 434 754 payments totaling $39.7 million in nonresearch-based opioid marketing distributed to 67 507 physicians across 2208 US counties. After adjustment for county-level sociodemographic factors, mortality from opioid overdoses increased with each 1-SD increase in marketing value in dollars per capita (adjusted relative risk, 1.09; 95% CI, 1.05-1.12), number of payments to physicians per capita (adjusted relative risk, 1.18; 95% CI, 1.14-1.21, and number of physicians receiving marketing per capita (adjusted relative risk, 1.12; 95% CI, 1.08-1.16). Opioid prescribing rates also increased with marketing and partially mediated the association between marketing and mortality.

CONCLUSIONS AND RELEVANCE In this study, across US counties, marketing of opioid products to physicians was associated with increased opioid prescribing and, subsequently, with elevated mortality from overdoses. Amid a national opioid overdose crisis, reexamining the influence of the pharmaceutical industry may be warranted.

JAMA Network Open. 2019;2(1):e186007.
Corrected on March 22, 2019. doi:10.1001/jamanetworkopen.2018.6007

Key Points

Question To what extent is pharmaceutical industry marketing of opioids to physicians associated with subsequent mortality from prescription opioid overdoses?

Findings In this population-based, cross-sectional study, $39.7 million in opioid marketing was targeted to 67 507 physicians across 2208 US counties between August 1, 2013, and December 31, 2015. Increased county-level opioid marketing was associated with elevated overdose mortality 1 year later, an association mediated by opioid prescribing rates; per capita, the number of marketing interactions with physicians demonstrated a stronger association with mortality than the dollar value of marketing.

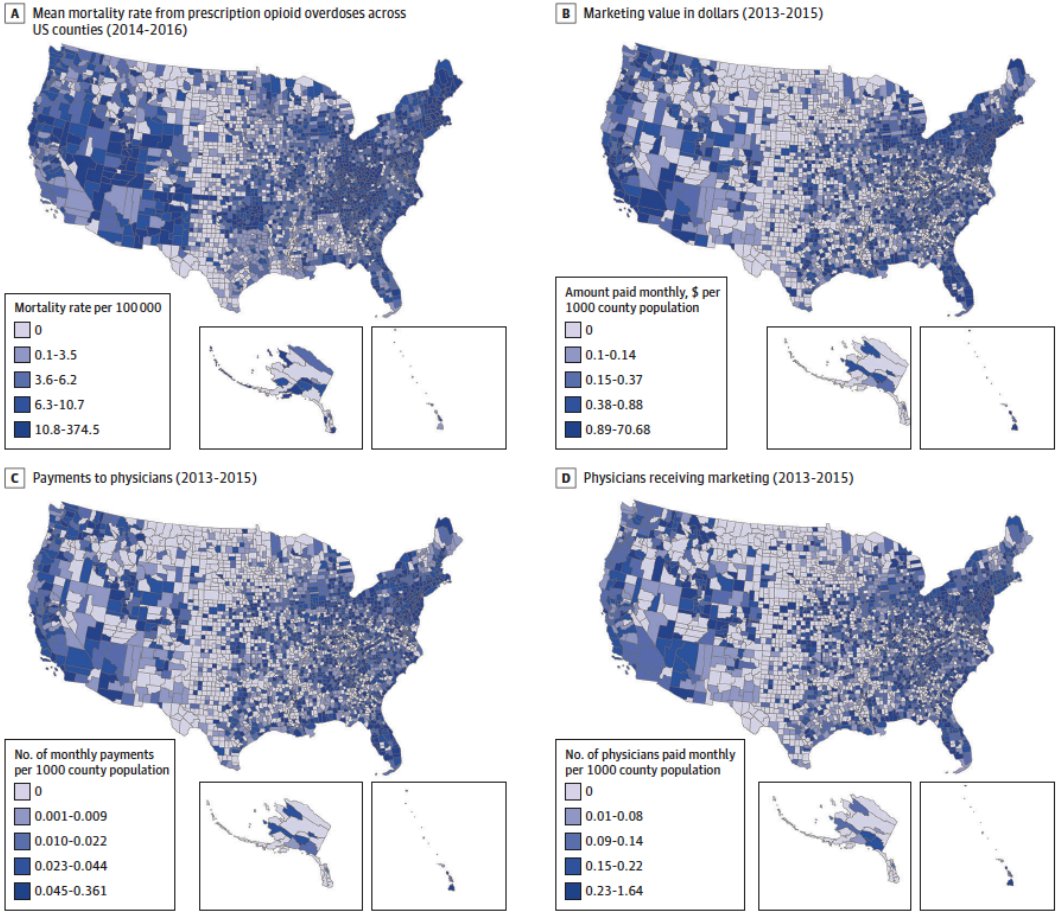
Meaning The potential role of pharmaceutical industry marketing in contributing to opioid prescribing and mortality from overdoses merits ongoing examination.

+ Invited Commentary

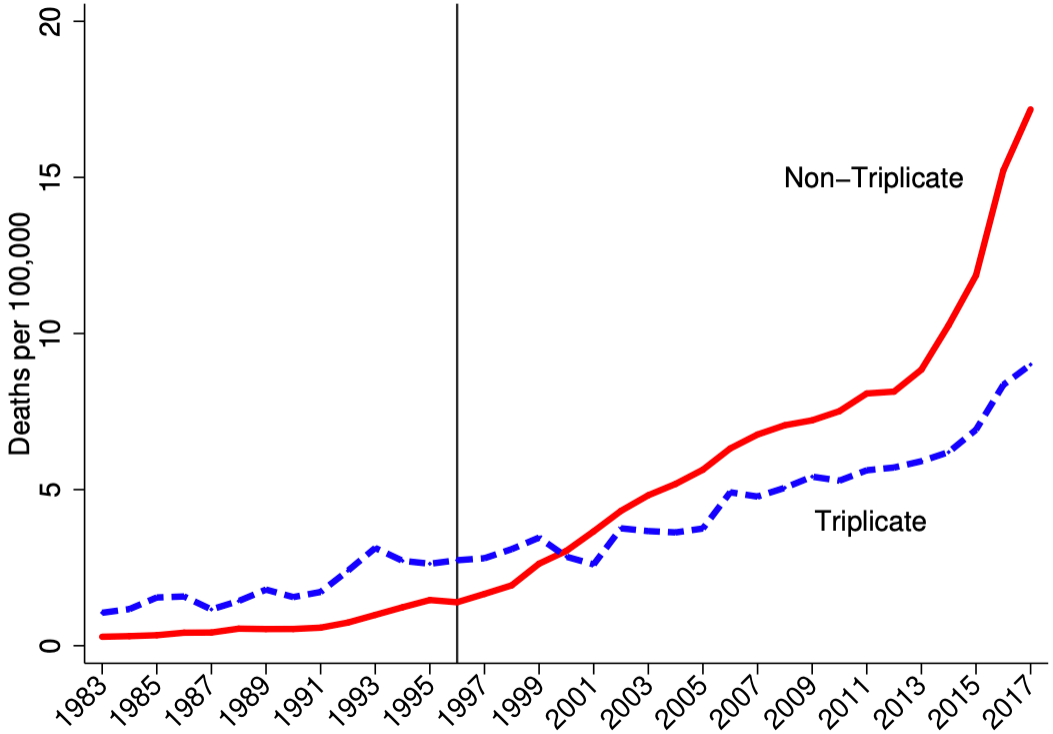
+ Supplemental content and Audio

Author affiliations and article information are listed at the end of this article.

Figure. Mortality Rates From Prescription Opioid Overdoses in 2014-2016 and Marketing of Opioids by Pharmaceutical Companies to Physicians in 2013-2015



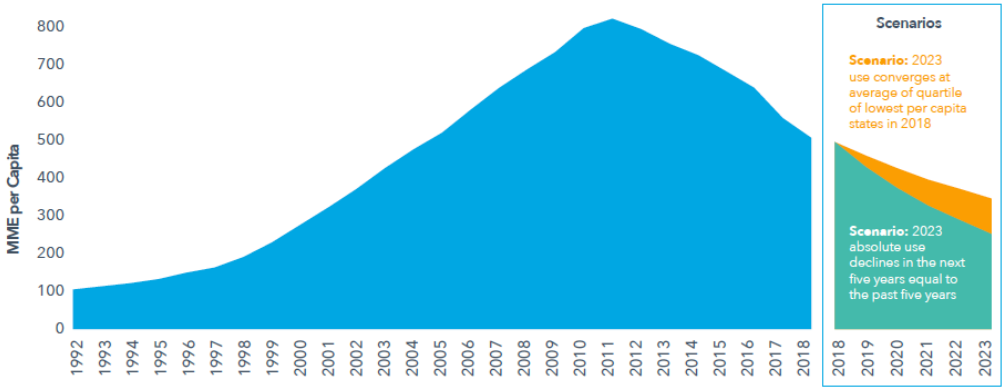
Opioid Overdose Death Rates By Triplicate State Status



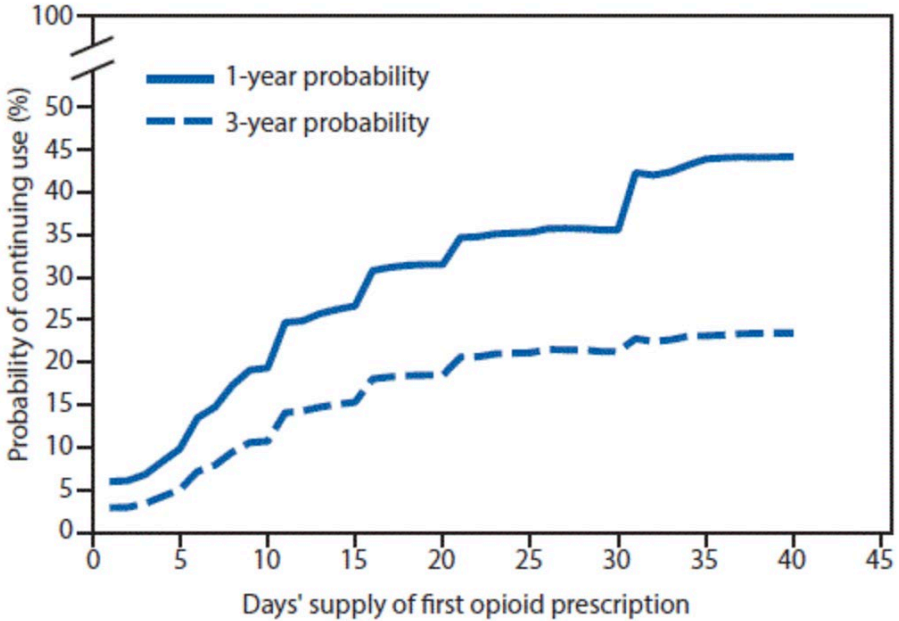
Alpert AE, et al. ORIGINS OF THE OPIOID CRISIS AND ITS ENDURING IMPACTS. NBER WORKING PAPER SERIES. November 2019. URL https://www.nber.org/papers/w26500.pdf

Should We Curb Opioid Prescribing?

Exhibit 28: Scenarios for Prescription Opioid Volumes in the United States per Capita in Morphine Milligram Equivalents (MME)



Source: IQVIA "SMART – Launch Edition", Sep 2018; IQVIA Institute, Dec 2018
Notes: States with MME per capita below the average of the lowest quartile do not change in the convergence scenario.



*** Days' supply of the first prescription is expressed in days (1–40) in 1-day increments.**

Source: Shah A, Hayes CJ, Martin BC. Characteristics of Initial Prescription Episodes and Likelihood of Long-Term Opioid Use — United States, 2006–2015. MMWR Morb Mortal Wkly Rep 2017;66:265–269.

JAMA Internal Medicine | Original Investigation

Association of Opioid Prescriptions From Dental Clinicians for US Adolescents and Young Adults With Subsequent Opioid Use and Abuse

Alan R. Schroeder, MD; Melody Dehghan, BA; Thomas B. Newman, MD, MPH; Jason P. Bentley, PhD; K. T. Park, MD, MS

IMPORTANCE Through prescription writing, dental clinicians are a potential source of initial opioid exposure and subsequent abuse for adolescents and young adults.

OBJECTIVE To examine the association between index dental opioid prescriptions from dental clinicians for opioid-naive adolescents and young adults in 2015 and new persistent use and subsequent diagnoses of abuse in this population.

DESIGN, SETTING, AND PARTICIPANTS This retrospective cohort study examined outpatient opioid prescriptions for patients aged 16 to 25 years in the Optum Research Database in 2015. Prescriptions were linked by National Provider Identifier number to a clinician category.

EXPOSURES Individuals were included in the index dental opioid (opioid-exposed) cohort if they filled an opioid prescription from a dental clinician in 2015, had continuous health plan coverage and no record of opioid prescriptions for 12 months before receiving the prescription, and had 12 months of health plan coverage after receiving the prescription. Two age- and sex-matched opioid-nonexposed control individuals were selected for each opioid-exposed individual and were assigned a corresponding phantom prescription date.

MAIN OUTCOMES AND MEASURES Receipt of an opioid prescription within 90 to 365 days, a health care encounter diagnosis associated with opioid abuse within 365 days, and all-cause mortality within 365 days of the index opioid or phantom prescription date.

RESULTS Among 754 002 individuals with continuous enrollment in 2015, 97 462 patients (12.9%) received 1 or more opioid prescriptions, of whom 29 791 (30.6%) received prescriptions supplied by a dental clinician. The opioid-exposed cohort included 14 888 participants (7882 women [52.9%], 11 273 white [75.7%], with mean [SD] age, 21.8 [2.4] years), and the randomly selected opioid-nonexposed cohort included 29 776 participants (15 764 women [52.9%], 20 078 [67.4%] white, with mean [SD] age, 21.8 [2.4] years). Among the 14 888 individuals in the index dental opioid cohort, 1021 (6.9%) received another opioid prescription 90 to 365 days later compared with 30 of 29 776 (0.1%) opioid-nonexposed controls (adjusted absolute risk difference, 6.8%; 95% CI, 6.3%-7.2%), and 866 opioid-exposed individuals (5.8%) experienced 1 or more subsequent health care encounters with an opioid abuse–related diagnosis compared with 115 opioid-nonexposed controls (0.4%) (adjusted absolute risk difference, 5.3%; 95% CI, 5.0%-5.7%). There was only 1 death in each cohort.

CONCLUSIONS AND RELEVANCE The findings suggest that a substantial proportion of adolescents and young adults are exposed to opioids through dental clinicians. Use of these prescriptions may be associated with an increased risk of subsequent opioid use and abuse.

Supplemental content

JAMA Intern Med. doi:10.1001/jamainternmed.2018.5419
Published online December 3, 2018.

PEDIATRICS®
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Prescription Opioids in Adolescence and Future Opioid Misuse

Richard Miech, Lloyd Johnston, Patrick M. O'Malley, Katherine M. Keyes and Kennon Heard

Pediatrics; originally published online October 26, 2015;

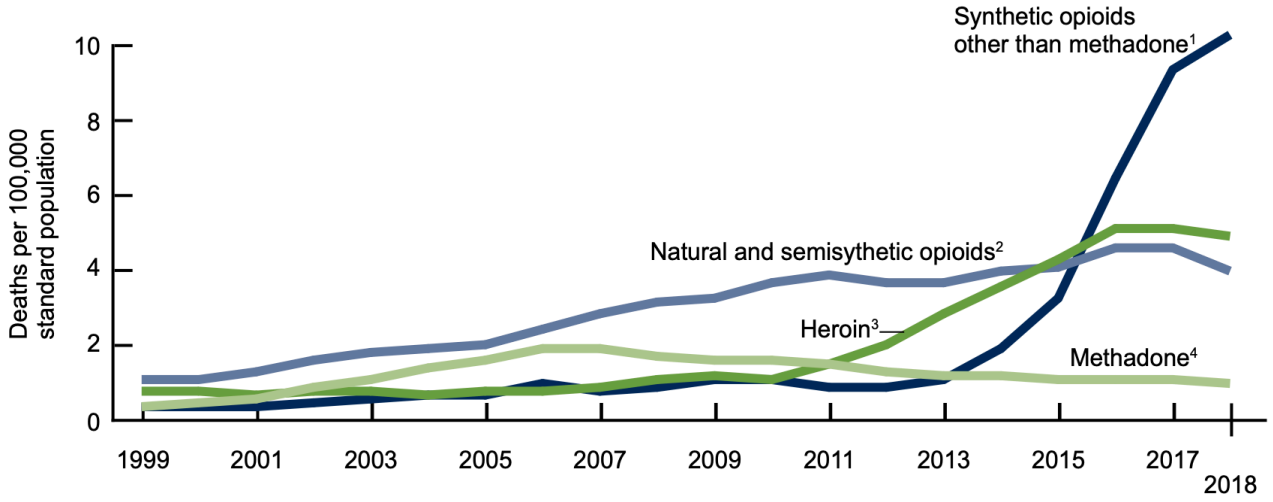
BACKGROUND AND OBJECTIVE: Legitimate opioid use is associated with an increased risk of long-term opioid use and possibly misuse in adults. The objective of this study was to estimate the risk of future opioid misuse among adolescents who have not yet graduated from high school.

METHODS: Prospective, panel data come from the Monitoring the Future study. The analysis uses a nationally representative sample of 6220 individuals surveyed in school in 12th grade and then followed up through age 23. Analyses are stratified by predicted future opioid misuse as measured in 12th grade on the basis of known risk factors. The main outcome is nonmedical use of a prescription opioid at ages 19 to 23. Predictors include use of a legitimate prescription by 12th grade, as well as baseline history of drug use and baseline attitudes toward illegal drug use.

RESULTS: Legitimate opioid use before high school graduation is independently associated with a 33% increase in the risk of future opioid misuse after high school. This association is concentrated among individuals who have little to no history of drug use and, as well, strong disapproval of illegal drug use at baseline.

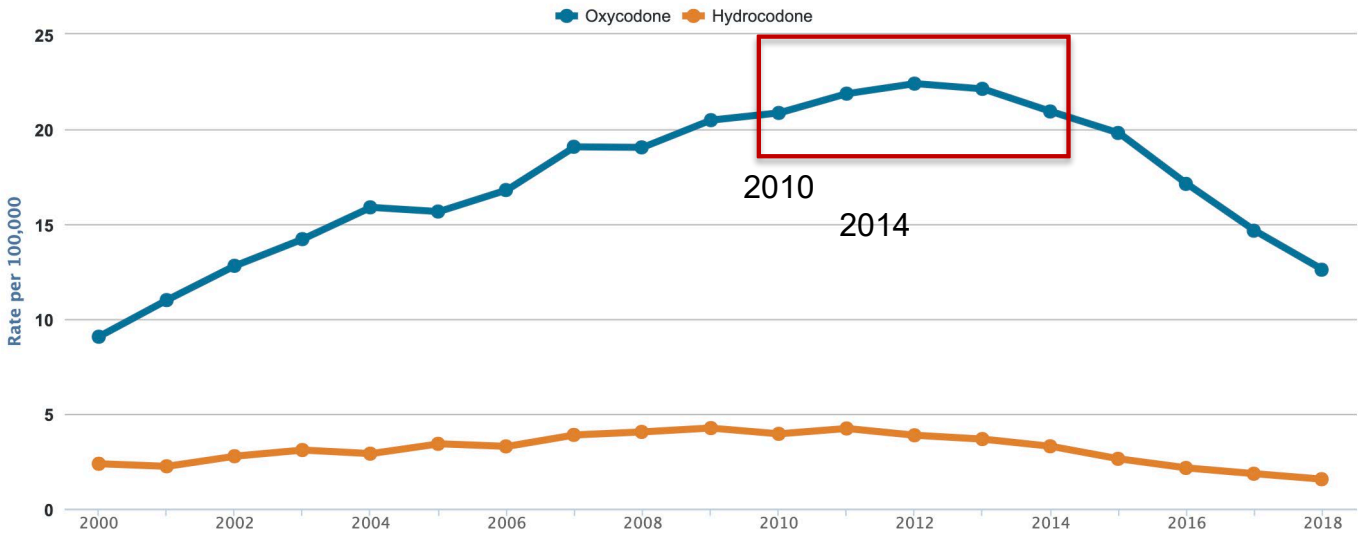
CONCLUSIONS: Use of prescribed opioids before the 12th grade is independently associated with future opioid misuse among patients with little drug experience and who disapprove of illegal drug use. Clinic-based education and prevention efforts have substantial potential to reduce future opioid misuse among these individuals, who begin opioid use with strong attitudes against illegal drug use.

Age-adjusted opioid overdose death rates 1999–2018



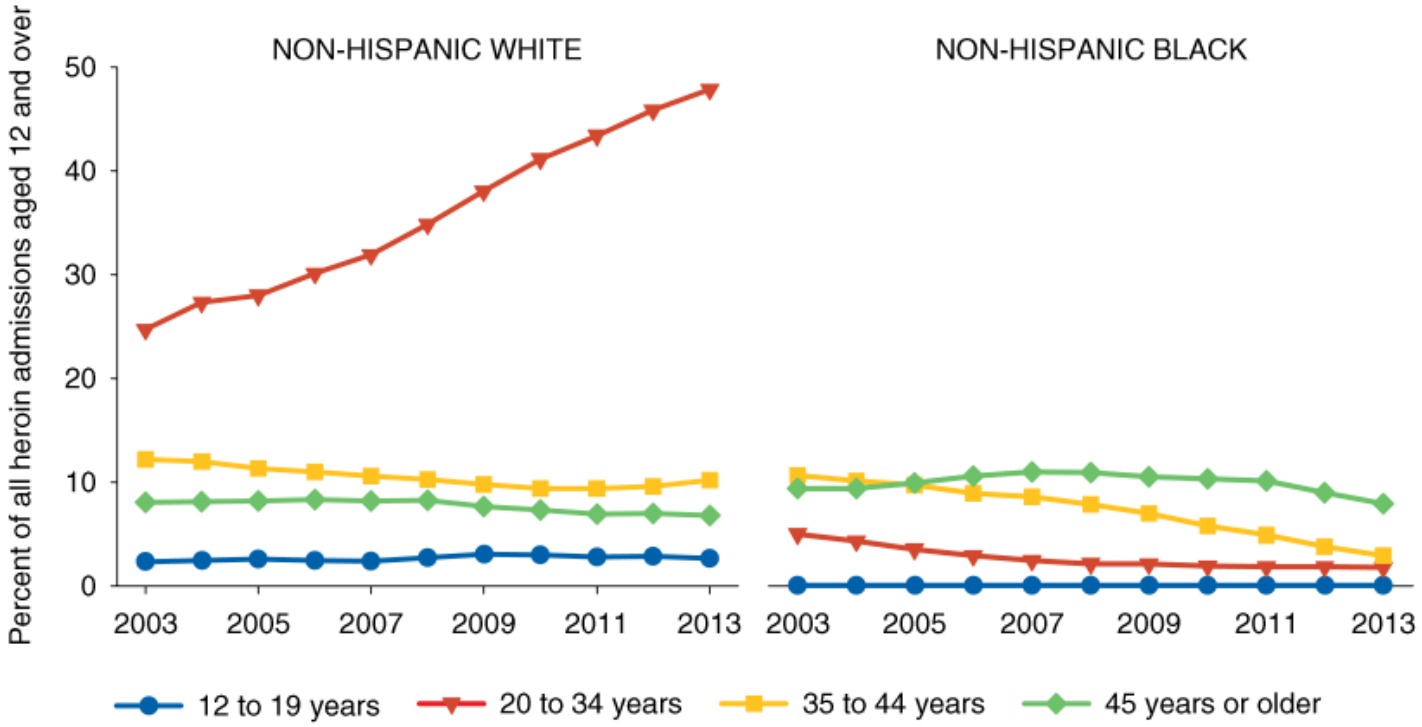
Hedegaard H, Miniño AM, Warner M. Drug overdose deaths in the United States, 1999–2018. NCHS Data Brief, no 356. Hyattsville, MD: National Center for Health Statistics. 2020.

Sales in kilograms per 100,000 people, oxycodone and hydrocodone
Massachusetts, 2000 to 2018



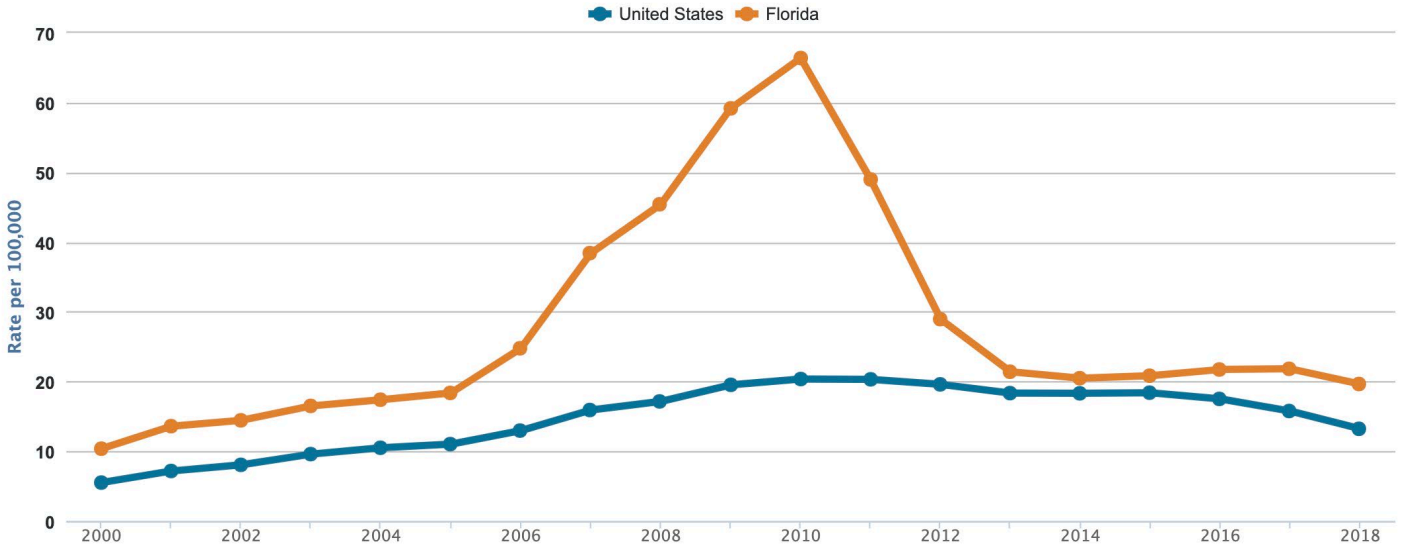
Source: U.S. Drug Enforcement Agency's Automated Reports and Consolidated Ordering System (ARCOS) Retail Drug Summary Reports via SHADAQ

Heroin treatment admissions : 2003-2013



SOURCE: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, Treatment Episode Data Set (TEDS). Data received through 01.23.15.

Oxycodone sales Kg/100,000 people
U.S. vs Florida, 2000 to 2018



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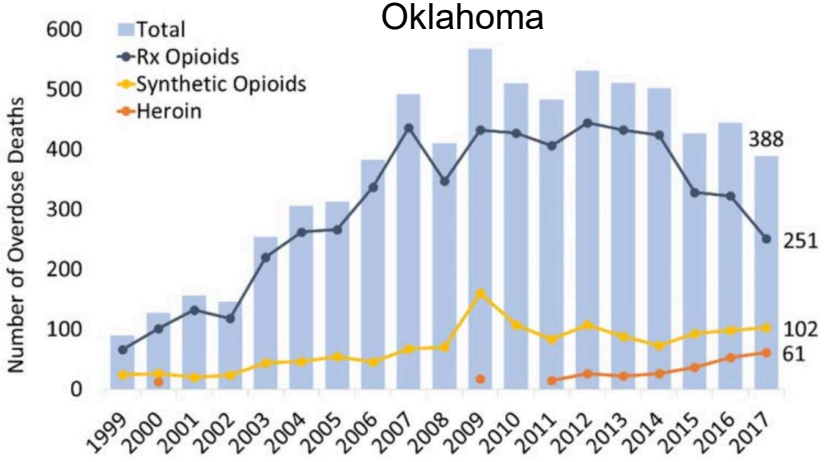
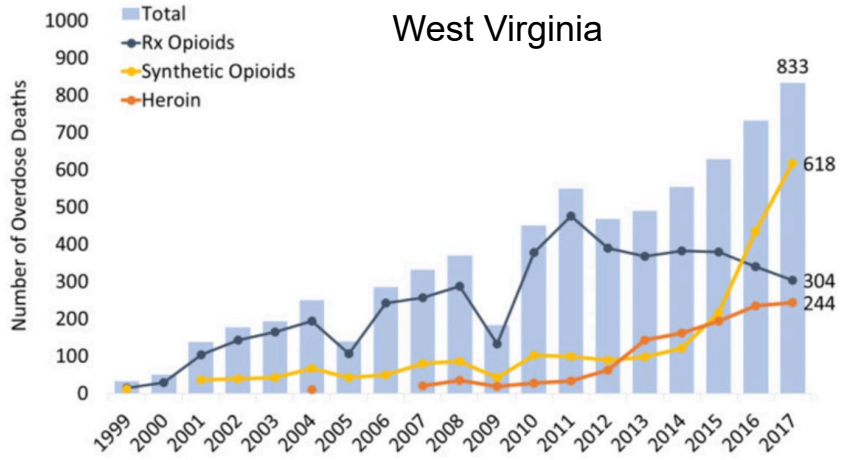
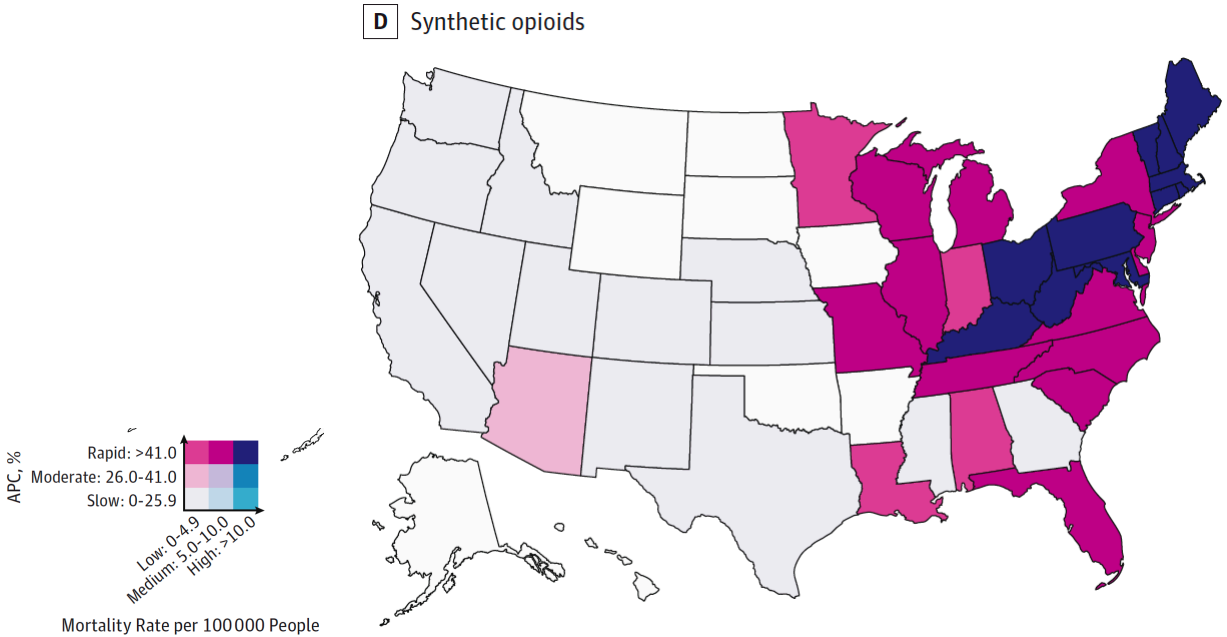


Rx opioid deaths exceed heroin + fentanyl.



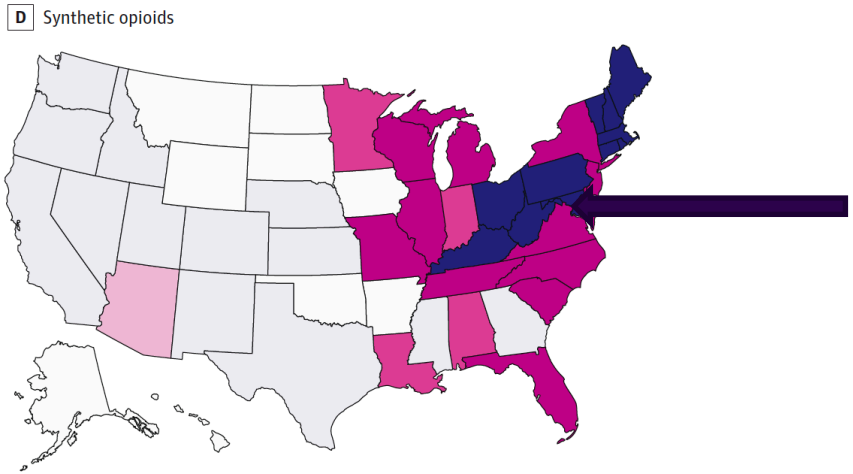
Fentanyl deaths exceed Rx opioid + heroin

Growth and Level of the Synthetic Opioid OD Deaths, 2016



Source: JAMA Network Open. 2019;2(2):e190040. doi:10.1001/jamanetworkopen.2019.0040

Growth and Level of the Synthetic Opioid OD Deaths, 2016



The District of Columbia had the fastest rate of increase in mortality from opioids in the country, more than tripling every year since 2013

Source: JAMA Network Open. 2019;2(2):e190040. doi:10.1001/jamanetworkopen.2019.0040

Three Opioid-Addicted

1. 20-40 y/o, disproportionately white, significant heroin use, opioid addiction began with Rx use (addicted after 1995)

2. 40 y/o & up, disproportionately white, mostly Rx opioids, opioid addiction began with Rx use (addicted after 1995)

3. 50 y/o & up, disproportionately non-white, mostly heroin users, opioid addiction began in teen years with heroin use (addicted before 1995)

Reference.

Summary

- We continue to prescribe more opioids per capita than any other country.

- More cautious prescribing is needed:
  - To reduce the incidence rate of OUD
  - To reduce morbidity/mortality in COT patients
  - To improve treatment of pain

Reference.

Racial disparities and the role of prescriber networks in buprenorphine prescribing in Massachusetts communities

Cindy Parks Thomas, PhD
Professor and Associate Dean for Research
The Heller School for Social Policy and Management
Brandeis University

Acknowledgements

- RIZE Foundation of Massachusetts
- Massachusetts Department of Public Health
- Brandeis University:
  - Peter Kreiner, PhD
  - Robert Dunigan, PhD
  - Lee Panas, MS

Reference.

Background

- Treatment for opioid use disorder (OUD) has so far failed to meet demand
- Buprenorphine (Suboxone) prescribing is a leading evidence-based effective approach to OUD treatment
- However, racial/ethnic disparities have been reported in access to medications for opioid disorder (MOUD)

Background

- Lack of access/under utilized OUD medications (Wua, et at. 2016; Krawczyk et al., 2017)
- SUD disparities (Alegria, et al. 2004,2011; Guerrero et al. 2013)
- Geographical differences (Abraham, A. et al. 2018) including Massachusetts
- Medication disparities (Lagisetty, P. A., et al. 2019):
  - Black individuals are less likely to receive buprenorphine
  - White individuals with more financial and healthcare resources have better access
- Buprenorphine vs. Methadone influenced by neighborhood income, race and ethnicity(Hansen et al., 2016)

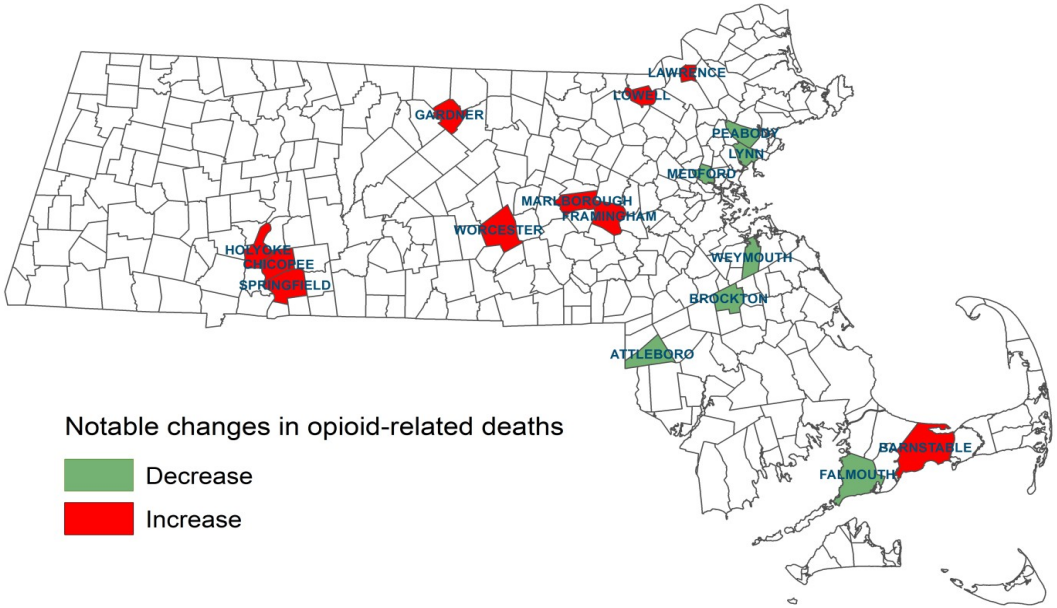
Role of physician networks can affect access to treatment

- Physician patient-sharing networks have been found to reflect sharing of information and resources among physicians (e.g., Barnett et al., 2011)
- Waivered physicians can influence other physicians to become waivered.
- Networks provide information, support, and resources about their peers' activities, current practice standards, the latest developments
- Networks can facilitate referrals of OUD treatment patients for ancillary care

Overview of study goals

1. Document racial/ethnic disparities in MOUD in Massachusetts communities
   - Measure access to treatment
   - Measure need/demand for treatment
   - Unit of analysis – county, town/city, zip code
2. Examine the role of waivered prescriber networks in developing and maintaining disparities in access to treatment
   - Analyze properties of waivered prescriber patient-sharing networks in relation to community demographics and other factors
   - Analyze role of network links in facilitating a prescriber's initially becoming waivered and in increasing patient limit

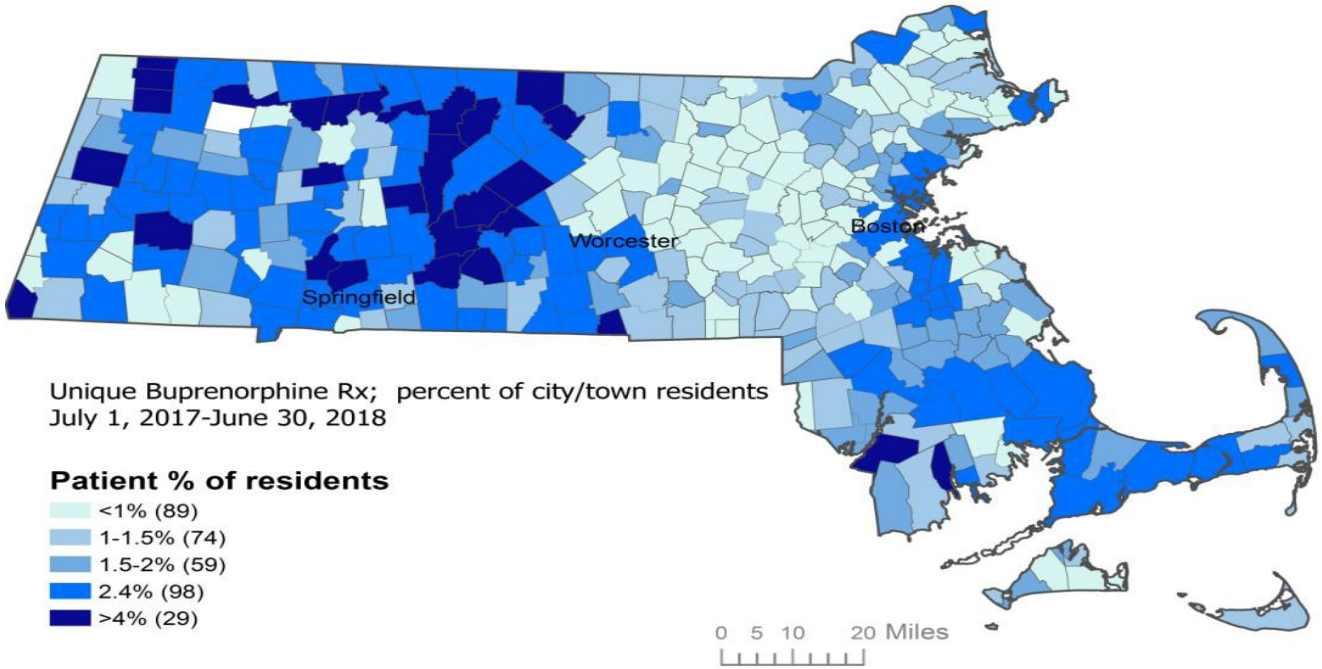
Variation in cities and towns experiencing notable increases or decreases in opioid-related overdose deaths between 2017 and 2018



NOTE: A notable change was defined as having an absolute difference of 10 or more occurrence or resident opioid-related overdose deaths between 2017 and 2018 **and** at least a 20% change during that period.

Source: Massachusetts Health Policy Commission: https://www.mass.gov/doc/medication-assisted-treatment-commission-report-10119/download

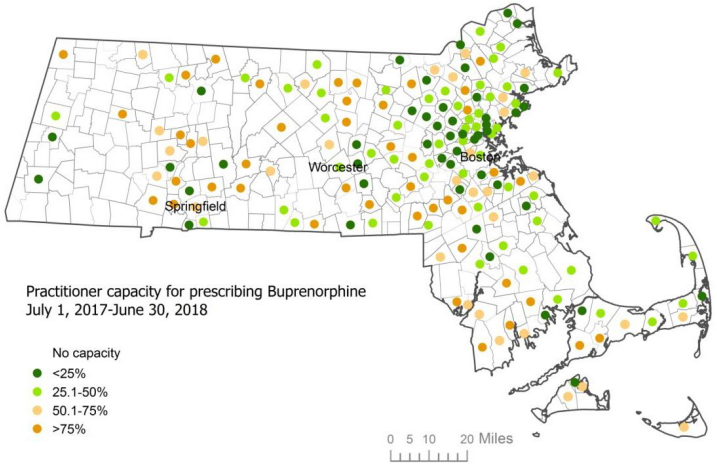
Variation in access to buprenorphine in Massachusetts



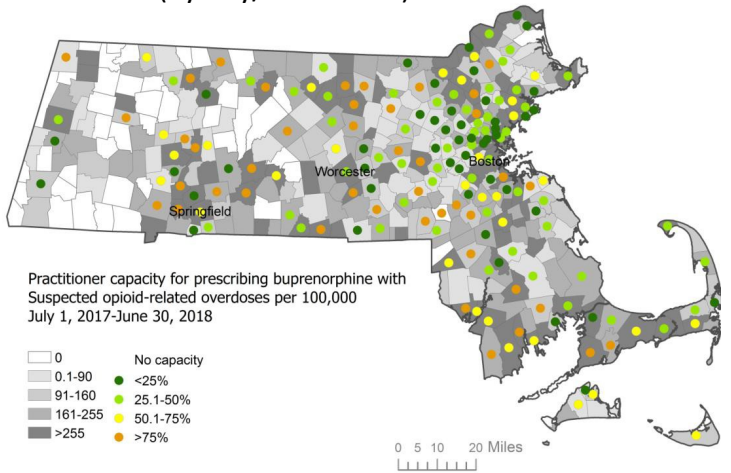
Source: Massachusetts Health Policy Commission: https://www.mass.gov/doc/medication-assisted-treatment-commission-report-10119/download

Buprenorphine treatment waiver capacity variation

DATA Waiver Capacity[1]
(by City/Town FY18)



DATA Waiver Capacity and Suspected Overdose Rates in MA[2]
(by City/Town FY18)



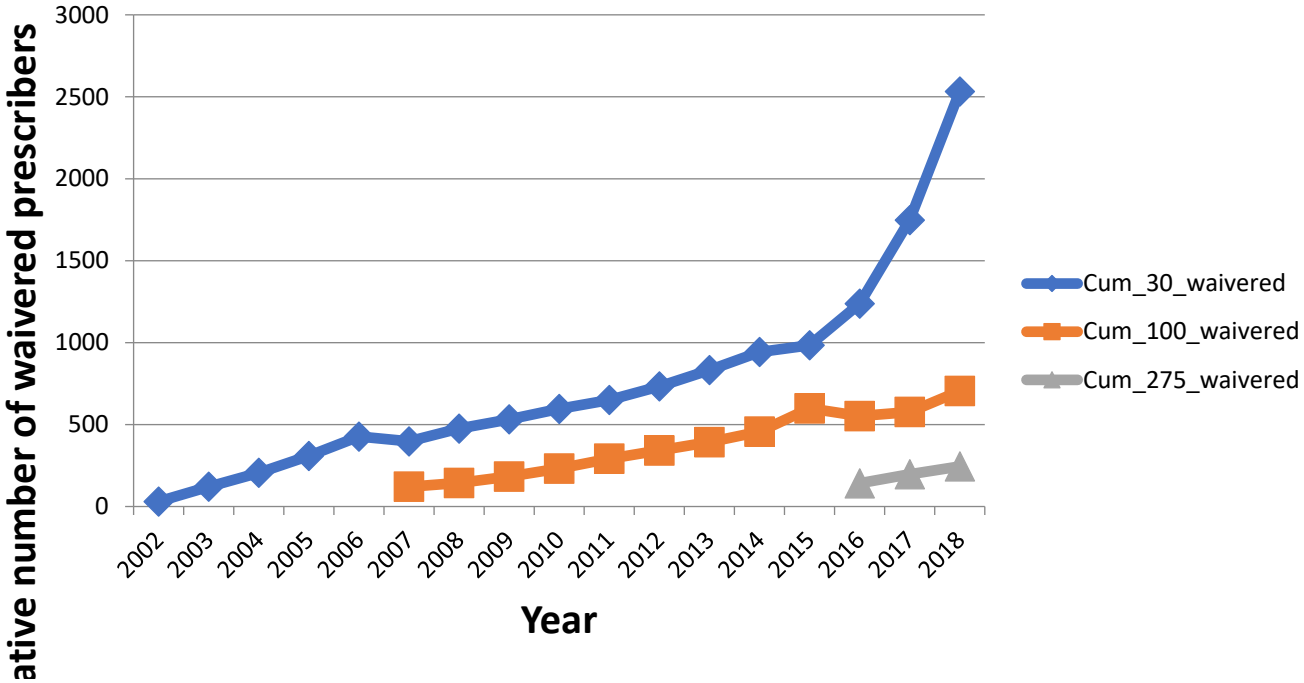
1) Practitioner capacity = Number of unique patients receiving buprenorphine /sum of individual patient limits
2) Suspected opioid-related overdoses from MATRIS 7.1.2017-6.30.2018

Source: Massachusetts Health Policy Commission: https://www.mass.gov/doc/medication-assisted-treatment-commission-report-10119/download

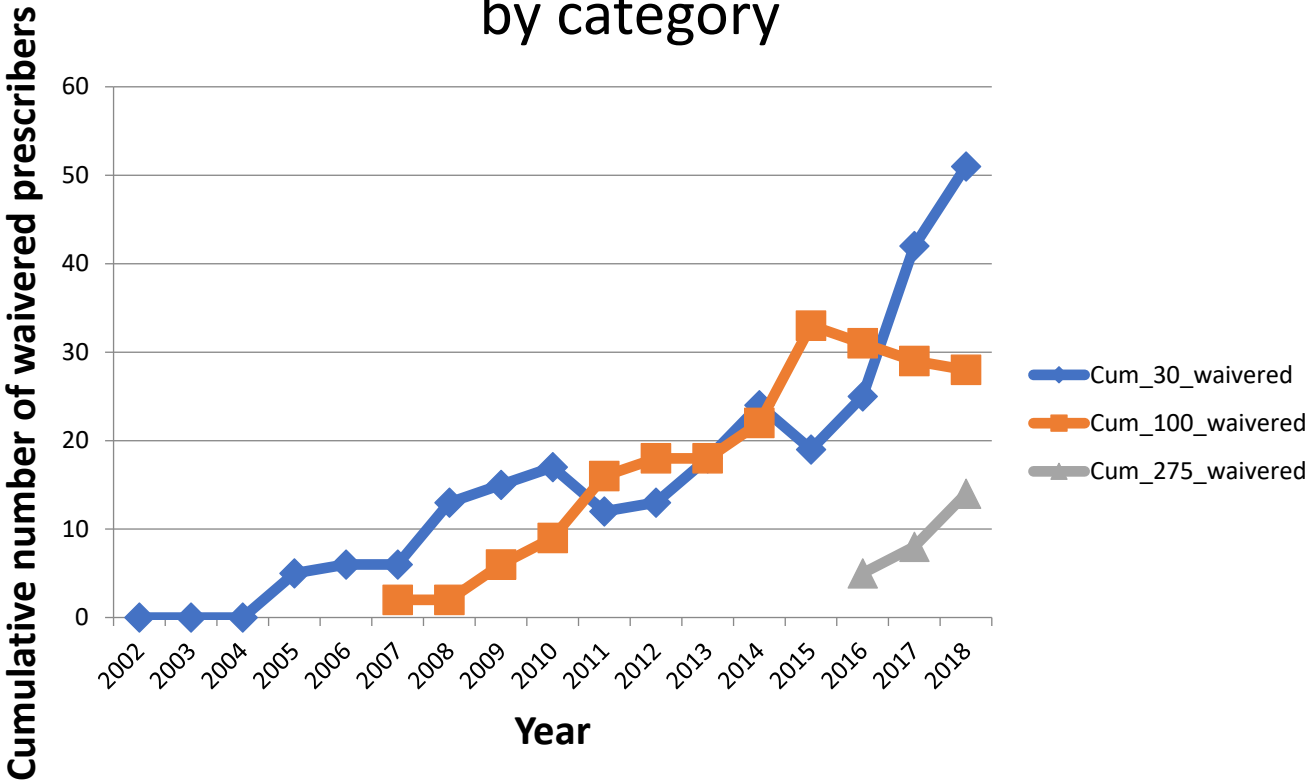
Working hypotheses

- Prescribers waivered for 100 or 275 patient limits will be more active in providing treatment than 30 patient prescribers (Thomas et al., 2017)
- More racially diverse communities will have a lower proportion of waivered prescribers waivered for 100 or 275 patients (vs 30)
- Waivered prescriber networks in more racially diverse communities associated with less prescriber access to resources, peer support, and information for providing MOUD

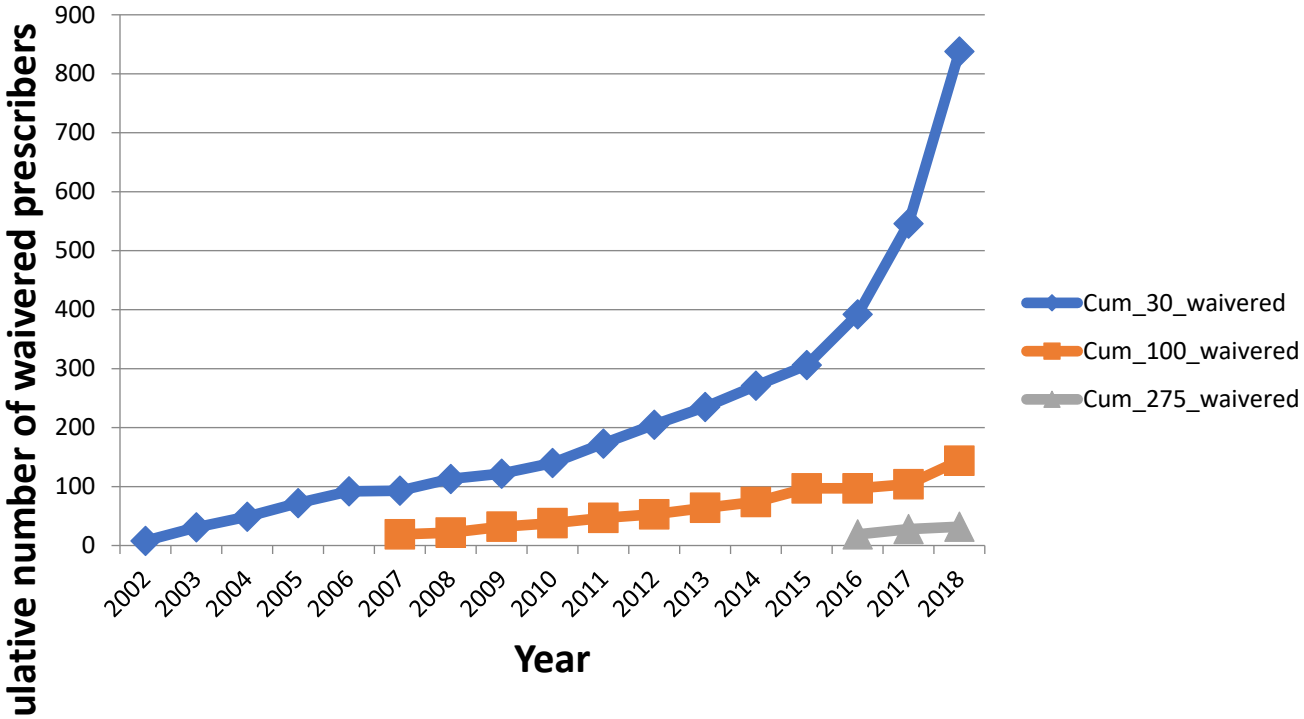
Growth in Massachusetts waivered prescribers by waiver category



Growth in Hampshire County, MA waivered prescribers by category

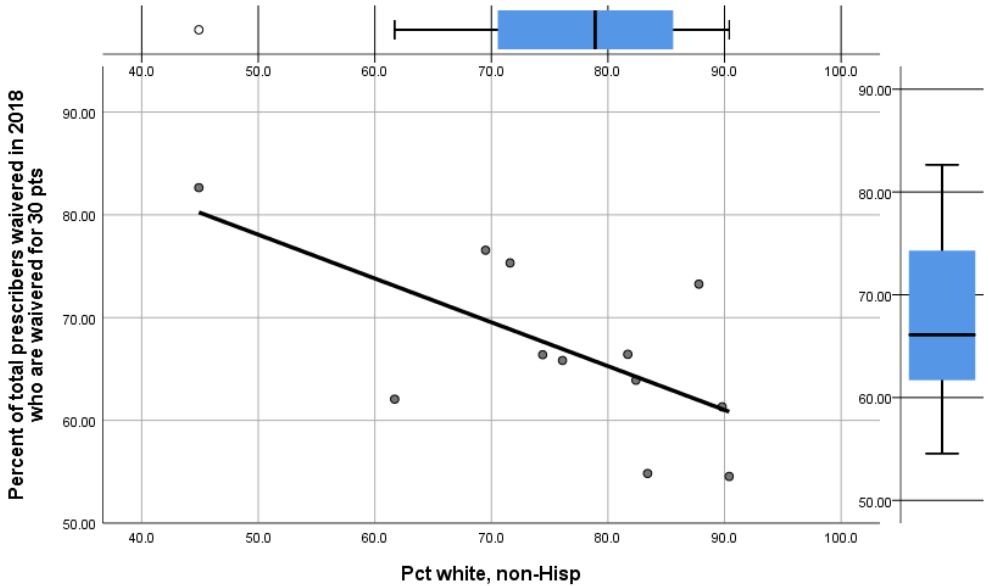


Growth in Suffolk County, MA waivered prescribers by category



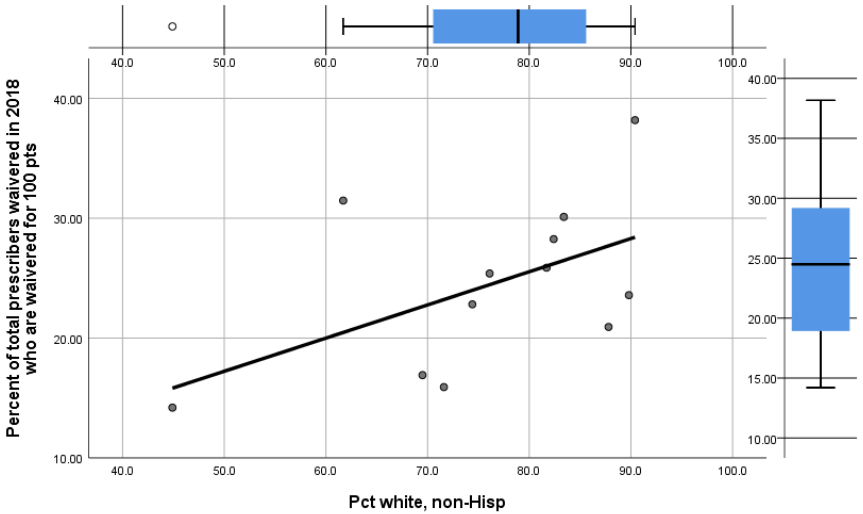
Higher proportion of low number waiver prescribers in more diverse communities

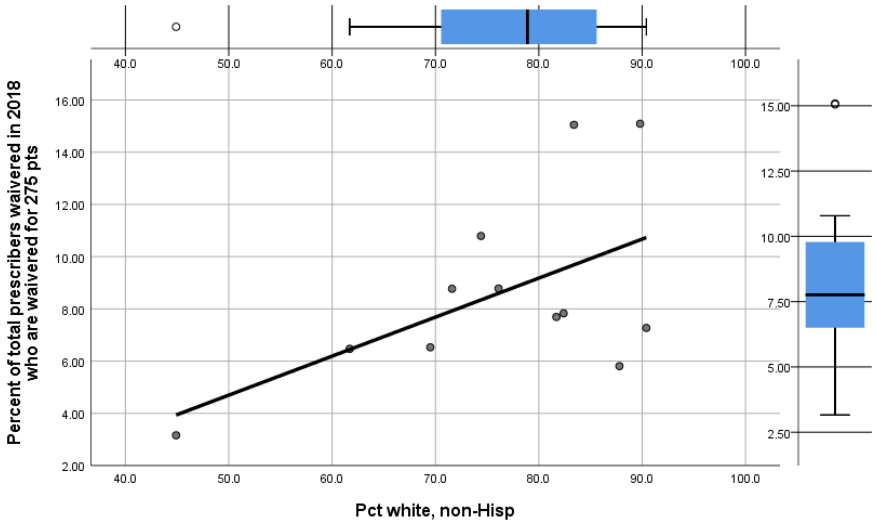
County proportion of total waivered prescribers in 2018 waivered for 30 patients, in relation to proportion of residents who are non-Hispanic white



Prescribers with higher patient waiver (100, 275) increase with the proportion of white residents

County proportion of total waivered prescribers in 2018 waivered for 100 and 275 patients, in relation to proportion of residents who are Nnon-Hispanic white



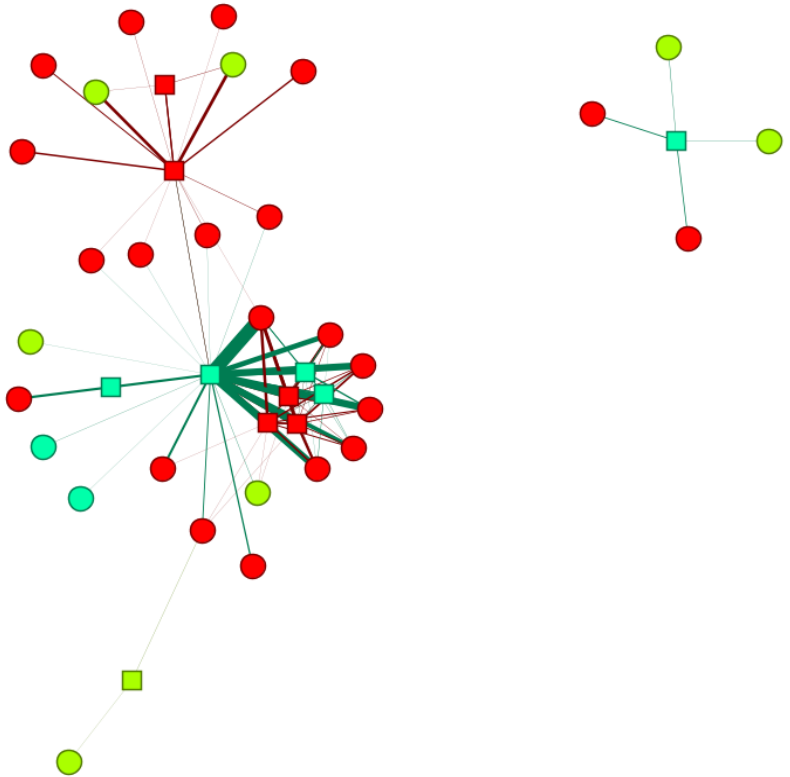


Waivered prescriber patient-sharing networks

Properties reflecting prescriber access to information, resources, and peer support (Hollingsworth et al., 2015)

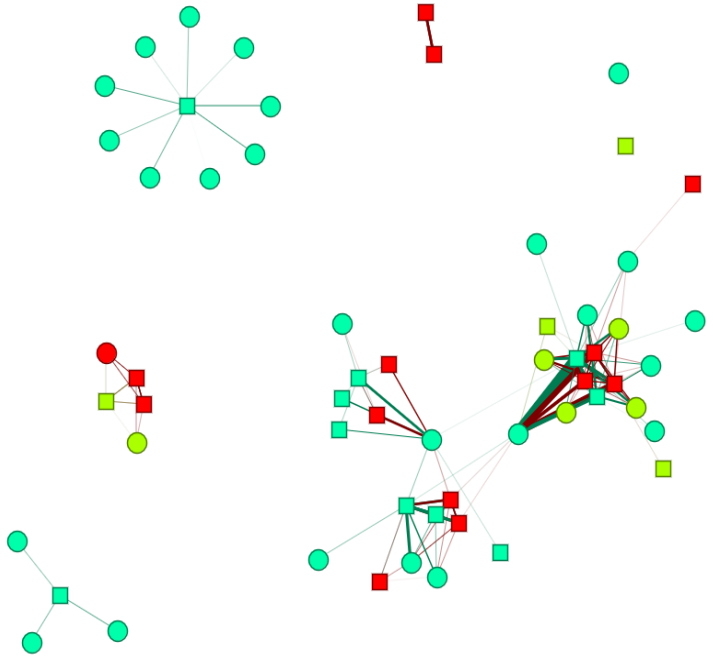
1. Higher clustering/fragmentation = less access to peer information and support
   – *Hypothesis: higher clustering/fragmentation in counties with more racially diverse populations*
2. More patient sharing out of community = greater access to peer information and support
   – *Hypothesis: Fewer external links to waivered prescribers in more racially diverse counties*
3. Higher proportion of links with multiple patients = greater access to peer support
   – *Hypothesis: Higher proportion of links with multiple patients more racially diverse counties*

Preliminary results: Buprenorphine prescriber patient-sharing network: Hampshire County, 2011



Square nodes are suboxone prescribers within Hampshire County
Circles are suboxone prescribers outside the county
Red = waivered for 100 patients
Light green = waivered for 30 patients
Aqua = not waivered by end of 2011
Line width reflects number of shared patients in 2011

Preliminary results: Buprenorphine prescriber patient-sharing network: Hampden County, 2011 (more diverse)



Square nodes are suboxone prescribers within Hampden County
Circles are suboxone prescribers outside the county
Red = waivered for 100 patients
Light green = waivered for 30 patients
Aqua = not waivered by end of 2011
Line width reflects number of shared patients in 2011

Next steps

- Examine waivered prescriber activity over time in relation to county demographics and need for MOUD
- Compare waivered prescriber patient-sharing networks in relation to demographics for each county, 2011 – 2018
- Conduct network diffusion study of waivered status (initial waiver, later increases in patient limit)
  - *Hypothesis: network links to previously waivered prescribers increases likelihood a focal prescriber becomes waivered/increases patient limit*
  - Examine the importance of network links in relation to demographics
- Explore town/city and zip code levels of analysis

Implications for policy and practice

- Prescriber network properties may be amenable to interventions
  - Increase communication links among waivered prescribers within a community
  - Increase communication links with prominent waivered prescribers outside of community
  - Enhance information, resources, and support for prescribers to become waivered, and to actively provide MOUD treatment once waivered
  - Involvement of community organizations in supporting waivered prescribers to provide treatment
  - Identify influential prescribers to facilitate prescriber behavior-change efforts

Thank you!

Please visit the
Brandeis Opioid Resource Connector at:
opioid-resource-connector.org

Assessing the Impact of a State Intervention on High Risk Prescribers

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The Heller School for Social Policy and Management
Brandeis University

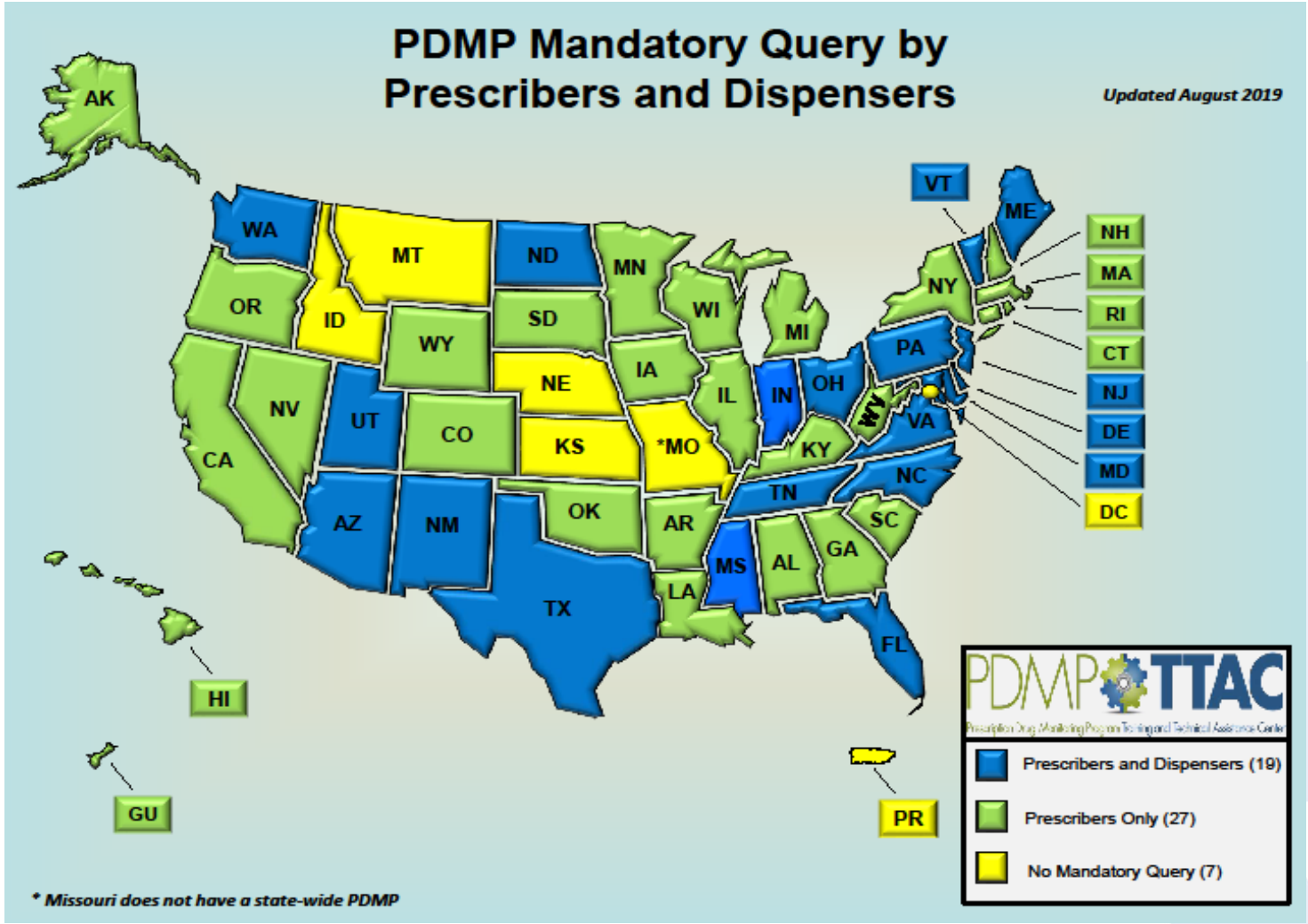
Acknowlegements

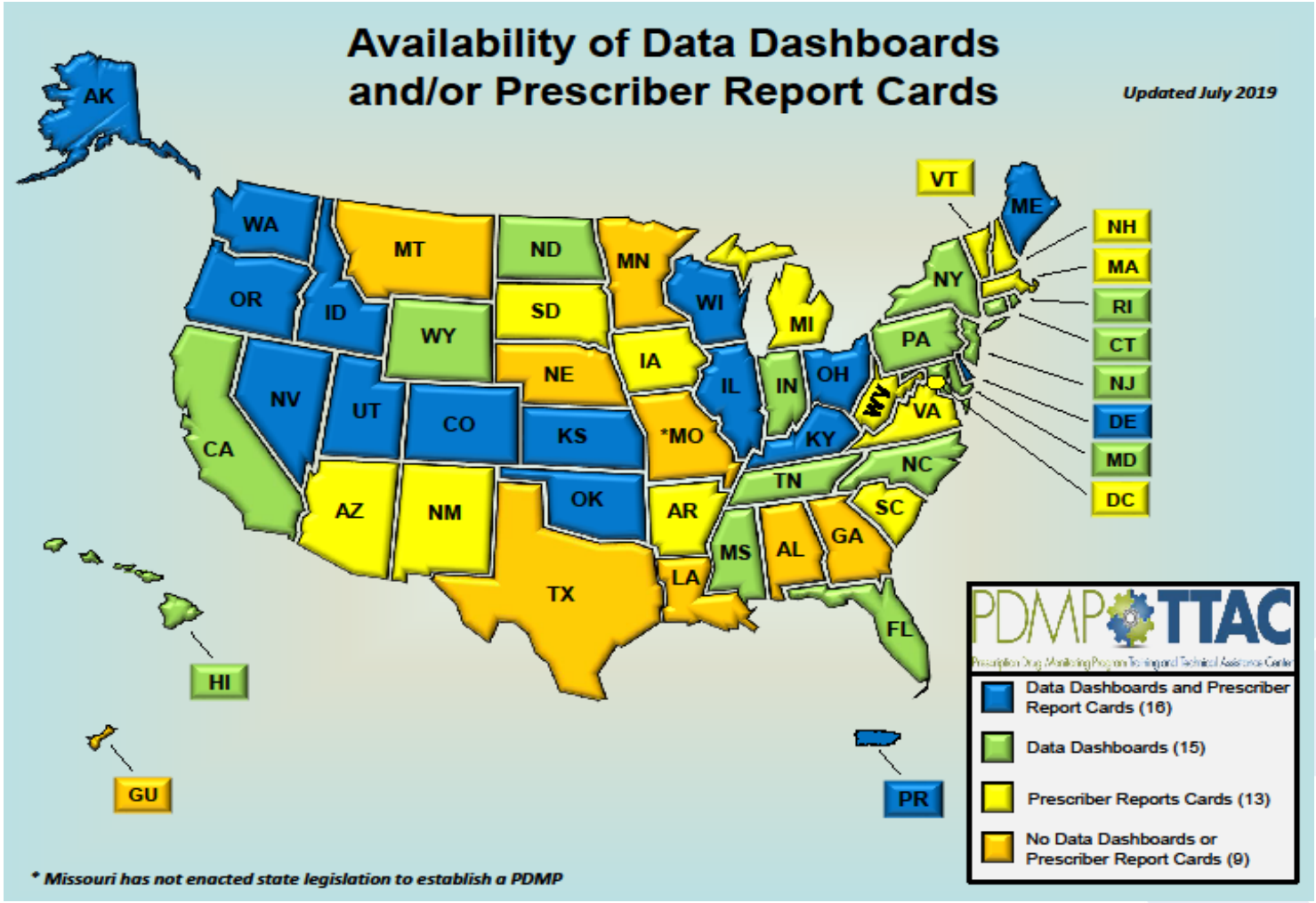
- New York State Department of Health:
  - Howard A. Zucker, MD, JD, Commissioner
  - Joshua S. Vinciguerra, JD, Director, Bureau of Narcotic Enforcement
  - Alexandra Bontempo, MS, Epidemiologist, Bureau of Narcotic Enforcement

- Brandeis University:
  - Andrew Kolodny, MD, Principal Investigator
  - Peter Kreiner, PhD, Co-Principal Investigator
  - Lee Panas, MS, Senior Statistician/Programmer/Lecturer

- Food and Drug Adminstration:
  - Mary P. Ghods, RPh (Project Officer)
  - David Boggs, MSJ (Project Officer)

Reference.


PDMP Mandatory Query by Prescribers and Dispensers
Updated August 2019
AK
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
*MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
VT
ME
NH
MA
RI
CT
NJ
DE
MD
DC
HI
GU
PR
PDMP TTAC
Prescribers and Dispensers (19)
Prescribers Only (27)
No Mandatory Query (7)
* Missouri does not have a state-wide PDMP


Availability of Data Dashboards and/or Prescriber Report Cards
Updated July 2019
AK
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
*MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
VT
ME
NH
MA
RI
CT
NJ
DE
MD
DC
HI
GU
PR
PDMP TTAC
Data Dashboards and Prescriber Report Cards (16)
Data Dashboards (15)
Prescriber Reports Cards (13)
No Data Dashboards or Prescriber Report Cards (9)
* Missouri has not enacted state legislation to establish a PDMP

Background of Study

Why?

- Few studies have evaluated the effects of policies and interventions targeted at prescriber level in order to address the opioid misuse/abuse crisis.

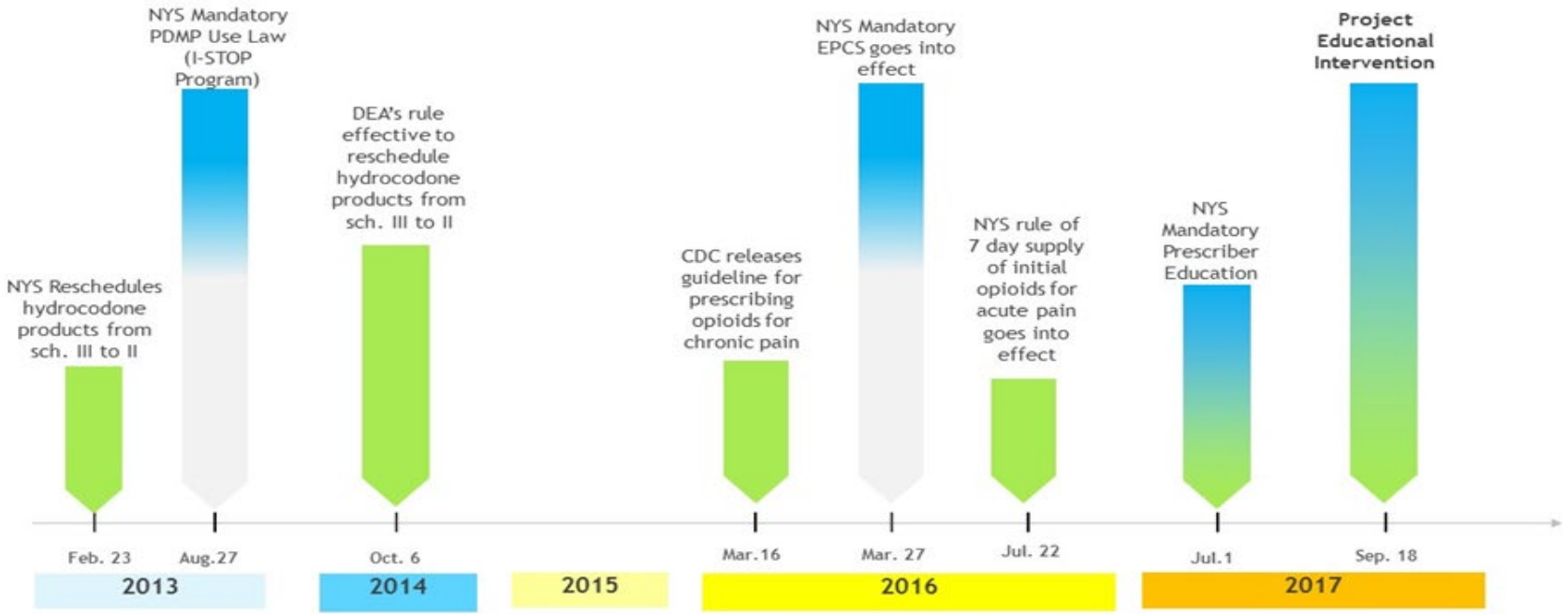
What?

- Collaborate with NYS DOH BNE (PDMP) to identify prescribers providing relatively high doses of opioid and concurrent opioids and benzodiazepines to the same patient.
- Implement and assess the impact of a low-cost educational intervention aimed to reduce risky opioid prescribing practices.

Reference.

NYS: Interventions Aimed at Prescribers

Figure 1. Prescriber Policies & Interventions



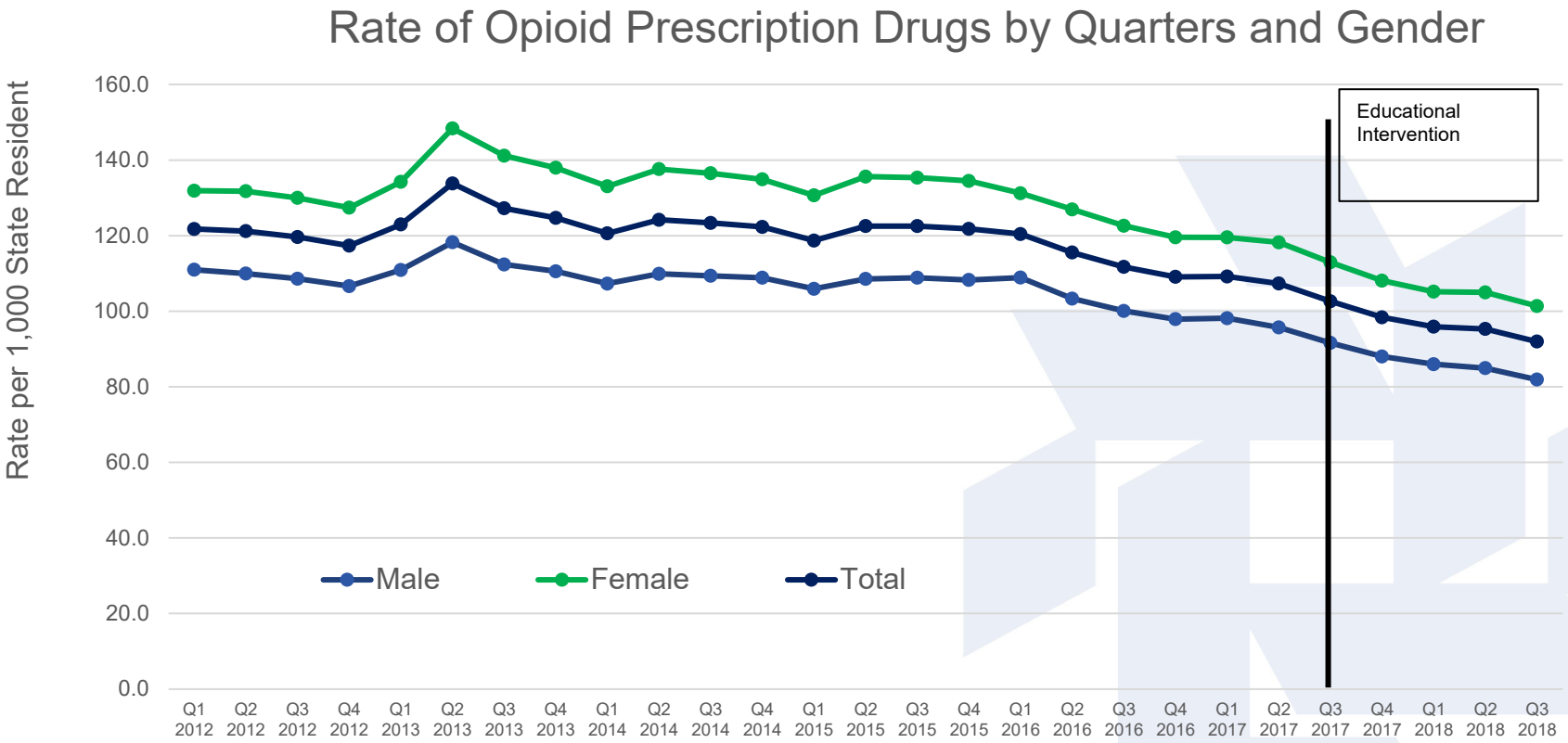
Intervention Method

- Review of PDMP data for prescribers who within a 6-month period had at least 1 patient who received:
  - more than 90 milligram morphine equivalents per day to one or more patients;
  - an opioid and a benzodiazepine to the same patient during the same month and also had opioids for at least three consecutive months; or
  - opioids for at least three consecutive months to one or more patients.
- Clinicians received an ***educational*** letter from the NYS DOH BNE along with the CDC's *Tapering Opioids for Chronic Pain* pocket guide.
- Call-in center staff and an automated email response were set up for concerned prescribers.

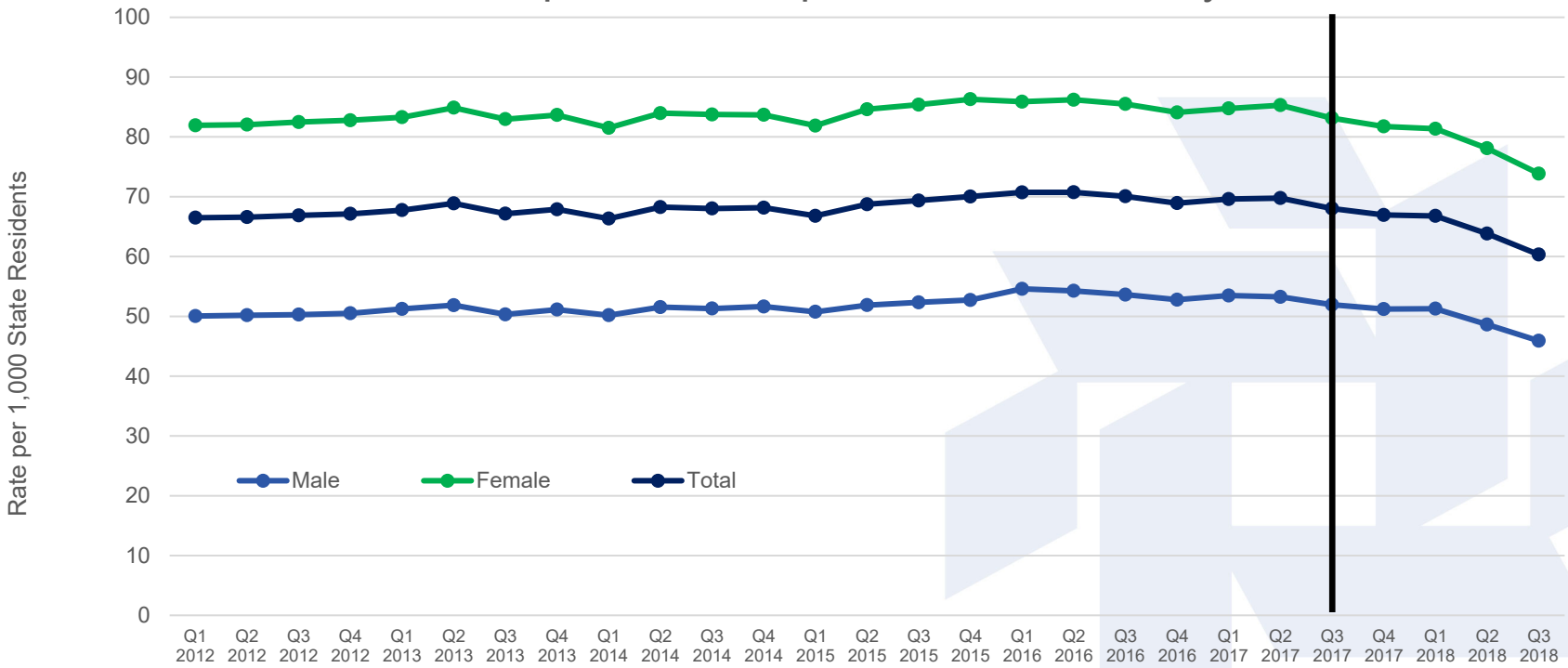
Study Method

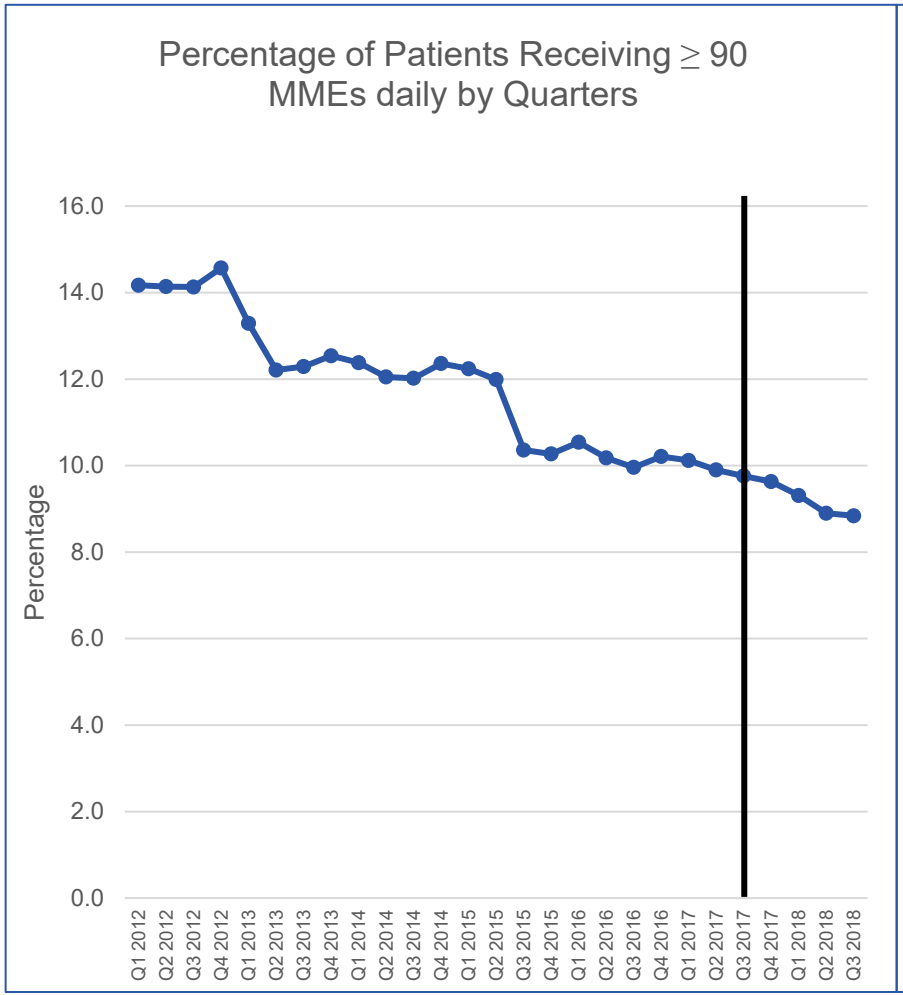
- Prescription level analysis:
  - PBSS measures* to explore trends of all opioid and benzodiazepine prescription drugs dispensed from January 2012 to the third quarter of 2018.
- Prescriber level analysis:
  - Interrupted time-series method for the quasi-experimental design (regression analyses with Newey-West estimates to adjust for autocorrelation and heteroscedasticity in the error terms).
  - Three outcomes of interest:
    - chronic opioid therapy
    - co-prescribing
    - high MME

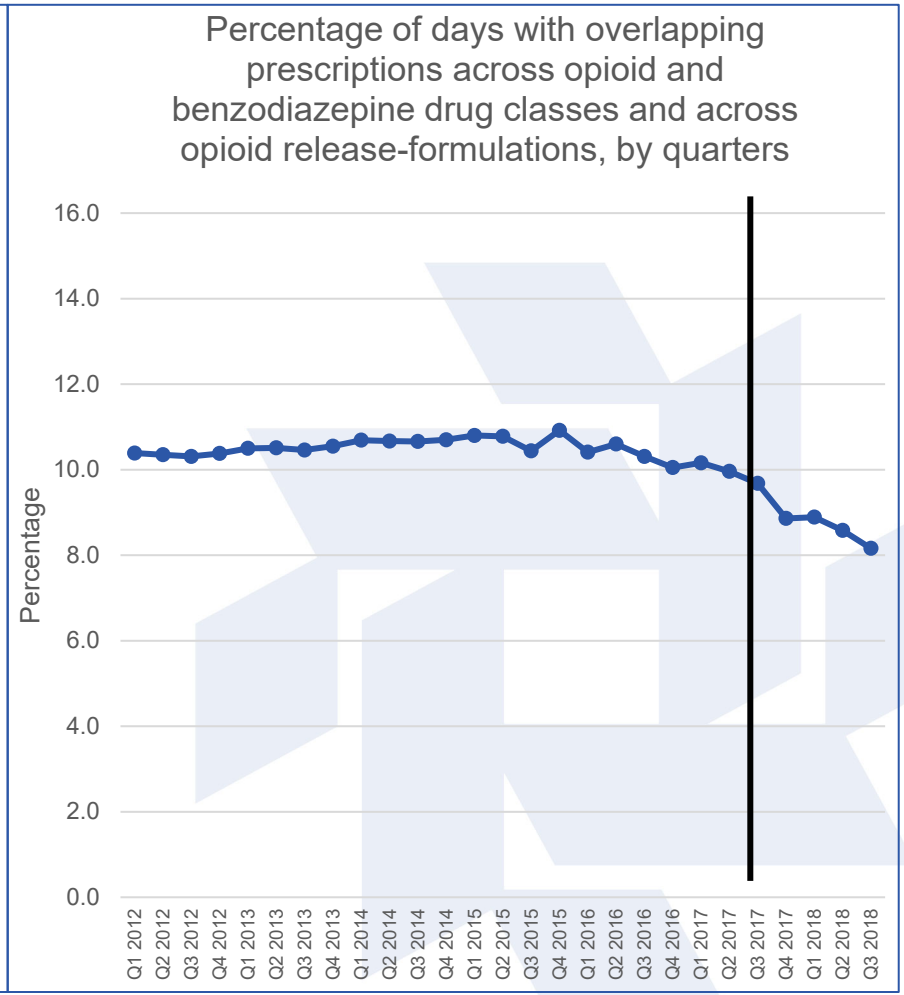
***For more information on PBSS, please visit: https://www.pdmpassist.org/content/prescription-behavior-surveillance-system.**


Rate of Opioid Prescription Drugs by Quarters and Gender
Rate per 1,000 State Resident
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Educational Intervention
Male
Female
Total
Q1 2012
Q2 2012
Q3 2012
Q4 2012
Q1 2013
Q2 2013
Q3 2013
Q4 2013
Q1 2014
Q2 2014
Q3 2014
Q4 2014
Q1 2015
Q2 2015
Q3 2015
Q4 2015
Q1 2016
Q2 2016
Q3 2016
Q4 2016
Q1 2017
Q2 2017
Q3 2017
Q4 2017
Q1 2018
Q2 2018
Q3 2018

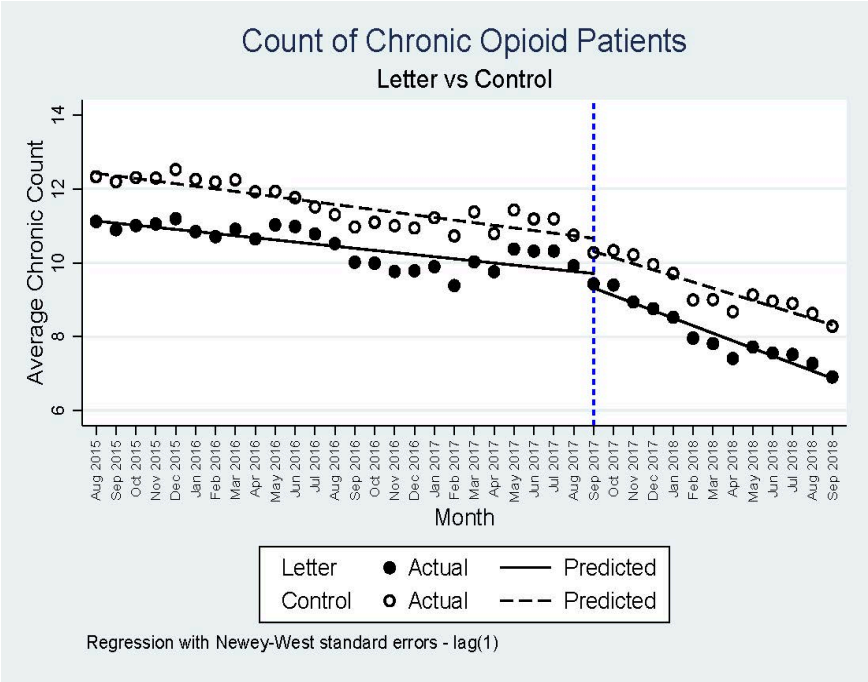
Rate of Benzodiazepines Prescriptions Per Quarter by Gender

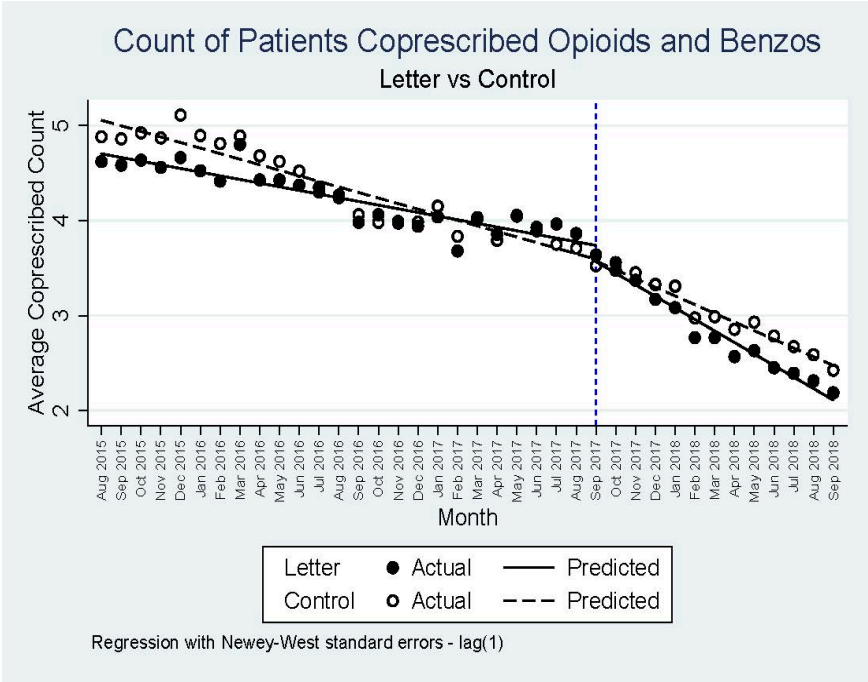



Percentage of Patients Receiving ≥ 90 MMEs daily by Quarters
Percentage
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Q1 2012
Q2 2012
Q3 2012
Q4 2012
Q1 2013
Q2 2013
Q3 2013
Q4 2013
Q1 2014
Q2 2014
Q3 2014
Q4 2014
Q1 2015
Q2 2015
Q3 2015
Q4 2015
Q1 2016
Q2 2016
Q3 2016
Q4 2016
Q1 2017
Q2 2017
Q3 2017
Q4 2017
Q1 2018
Q2 2018
Q3 2018

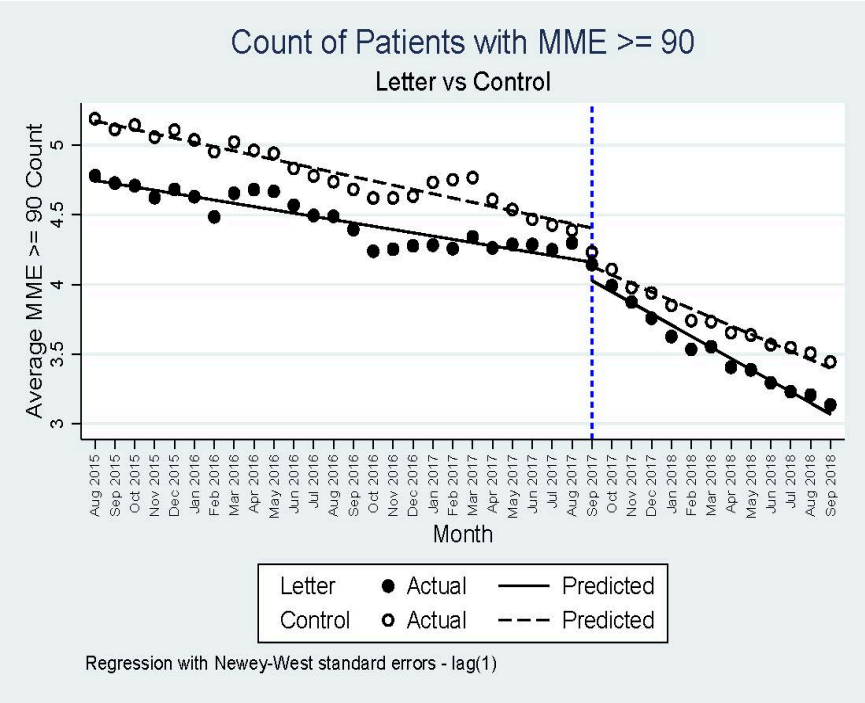

Percentage of days with overlapping prescriptions across opioid and benzodiazepine drug classes and across opioid release-formulations, by quarters
Percentage
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Q1 2012
Q2 2012
Q3 2012
Q4 2012
Q1 2013
Q2 2013
Q3 2013
Q4 2013
Q1 2014
Q2 2014
Q3 2014
Q4 2014
Q1 2015
Q2 2015
Q3 2015
Q4 2015
Q1 2016
Q2 2016
Q3 2016
Q4 2016
Q1 2017
Q2 2017
Q3 2017
Q4 2017
Q1 2018
Q2 2018
Q3 2018

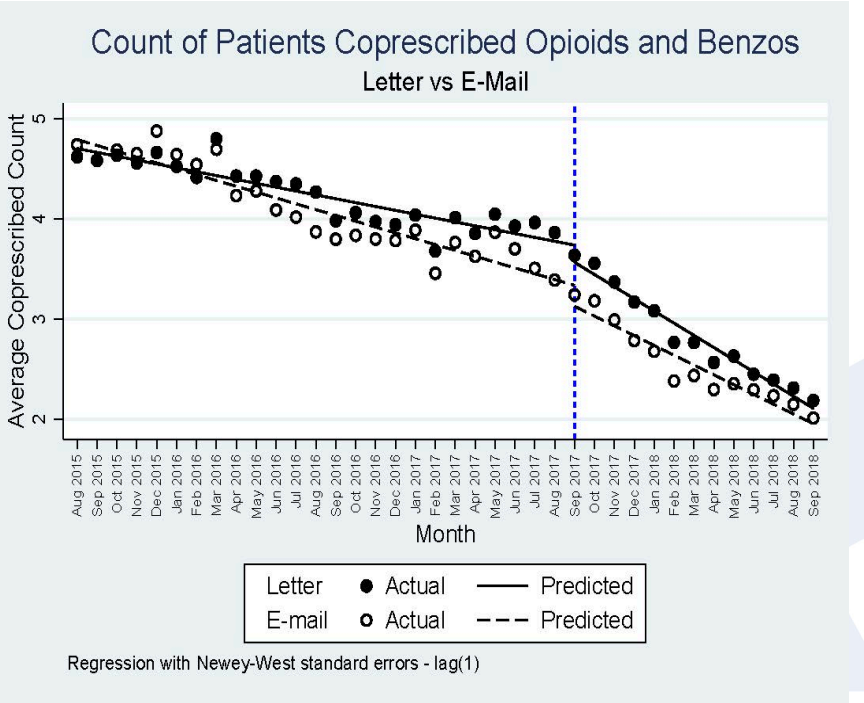
Study Results: Prescriber Level





Study Results: Prescriber Level





Study Results: Prescriber Level

Measure (square root)	Threshold (# of patients)	Letter vs Control	Email vs Control	Letter vs Email
Mean Chronic Opioid Count	Any	**letter>control**	email=control	letter=email
Mean Chronic Opioid Count	4 or more	**letter>control**	email=control	letter=email
Mean Co-prescribed count	Any	**letter>control**	email=control	**letter>email**
Mean Co-prescribed count	4 or more	**letter>control**	email=control	**letter>email**
Mean MME >= 90 count	Any	**letter>control**	email>control	letter=email
Mean MME >= 90 count	4 or more	**letter>control**	email=control	letter=email

Note: > indicates a statistically significant effect (e.g., letter group had a significant reduction in the trends post-intervention compared to control group).

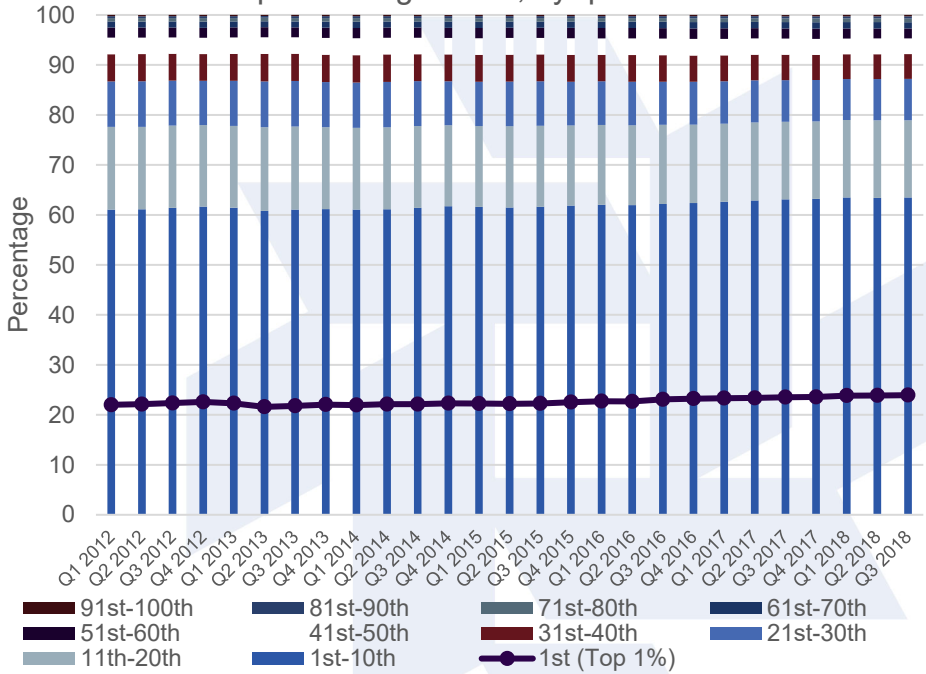
Qualitative Findings

- The pharmacy submitted incorrect data to the PDMP because the prescriber had not prescribed an opioid or benzodiazepine prescription.
- Discovery that the prescriber's DEA number was stolen.
- Request for more information about methadone conversion factor.
- CDC's pocket guide, *Tapering Opioids for Chronic Pain,* was perceived to be helpful.
- Prescribers sent "thank you" notes for the educational letter and material.

Conclusions/Discussion

- Multiple confounding factors to consider.
- Mailed letters were effective; email dissemination had no effect compared to the control group.
- Utilizing PDMP data to target certain groups of clinicians may be a useful method to avoid or minimize alert fatigue.

Chart 8. Percentage of opioid prescriptions by prescriber percentile ranking, based on daily prescribing counts, by quarter



Food for Thought: Need for Cultural Change

Evaluating the 2017 New Jersey Opioid Prescribing Law

Gail K. Strickler, PhD
Deputy Director, Opioid Policy Research Collaborative
Schneider Institutes for Health Policy
Brandeis University

Acknowledgements

- The Pozycki Family
- Angelo Valente, Executive Director, Partnership for a Drug-Free New Jersey
- Jeffrey D. Laszczyk, Program Administrator, New Jersey Division of Consumer Affairs
- Andrew Kolodny, M.D., Senior Scientist, Brandeis University
- Lee Panas, M.S., Senior Programmer, Brandeis University

Summary of the 2017 New Jersey Opioid Prescribing Law

- Effective Date: March 17, 2017
- Three components
  - PDMP Use Mandate
  - Prescribing Limit for Acute Pain
  - Mandated Discussion

Research Question/What Does Our Study Add?

- What is the effect of the 2017 New Jersey Opioid Law on prescribing for acute pain?
- Analysis of a range of usage and prescription measures
- Uses interrupted time series analysis

Methods

- Data:
  - De-identified New Jersey PDMP Data from January 2015 to April 2019

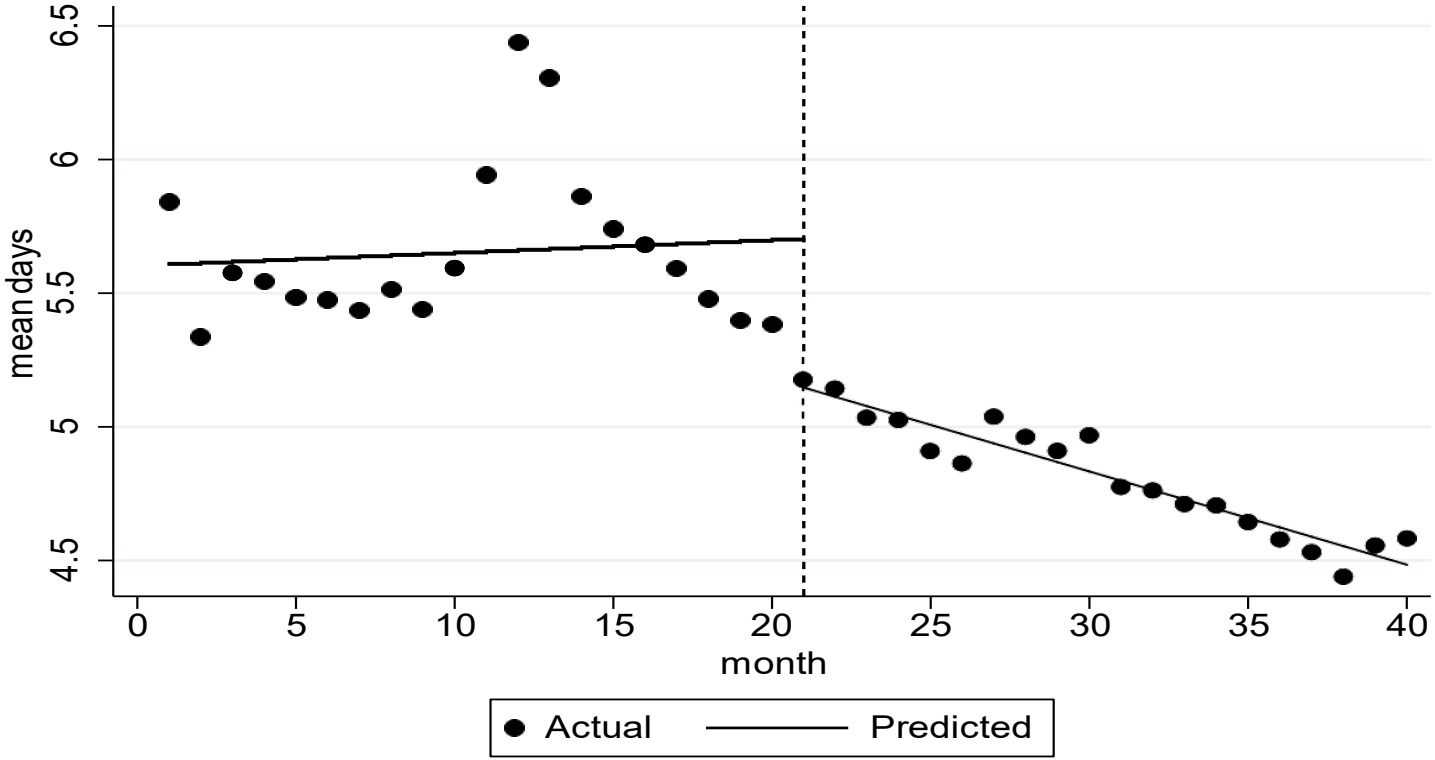
- 6 Patient Risk Indicators Examined

  - Mean days supply per first-time opioid prescription
  - Percent of patients with 8 or more days supply for a first-time opioid prescription
  - Mean quantity per first-time opioid prescription
  - Mean dosage for a first-time opioid prescription (in MMEs)
  - Count of first-time prescribed opioid patients
  - Count of prescribers who issued a first-time opioid prescription

Methods (Continued)

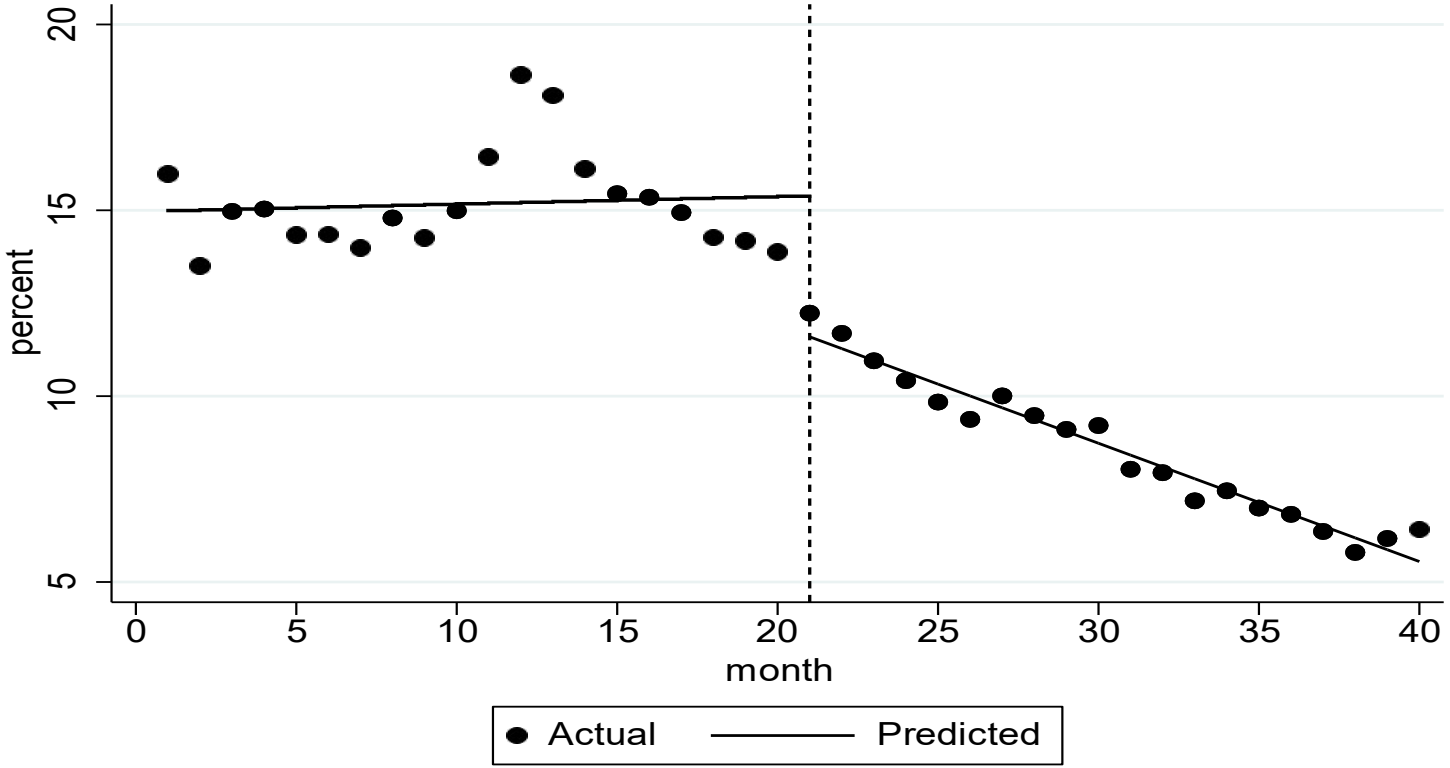
- Cohort
  - First-time acetaminophen/oxycodone or acetaminophen/hydrocodone-prescribed patients with no opioid prescriptions in the prior six months or post six months.
  - We used acetaminophen combinations because those are the most commonly prescribed Schedule II opioids prescribed to patients for acute pain on a first-time prescription.
- Analytic Approach
  - For each risk indicator, we compiled monthly measures
  - We conducted interrupted time series analysis of effects
  - All ages included in main analysis

Figure 1 - Mean Days Supply



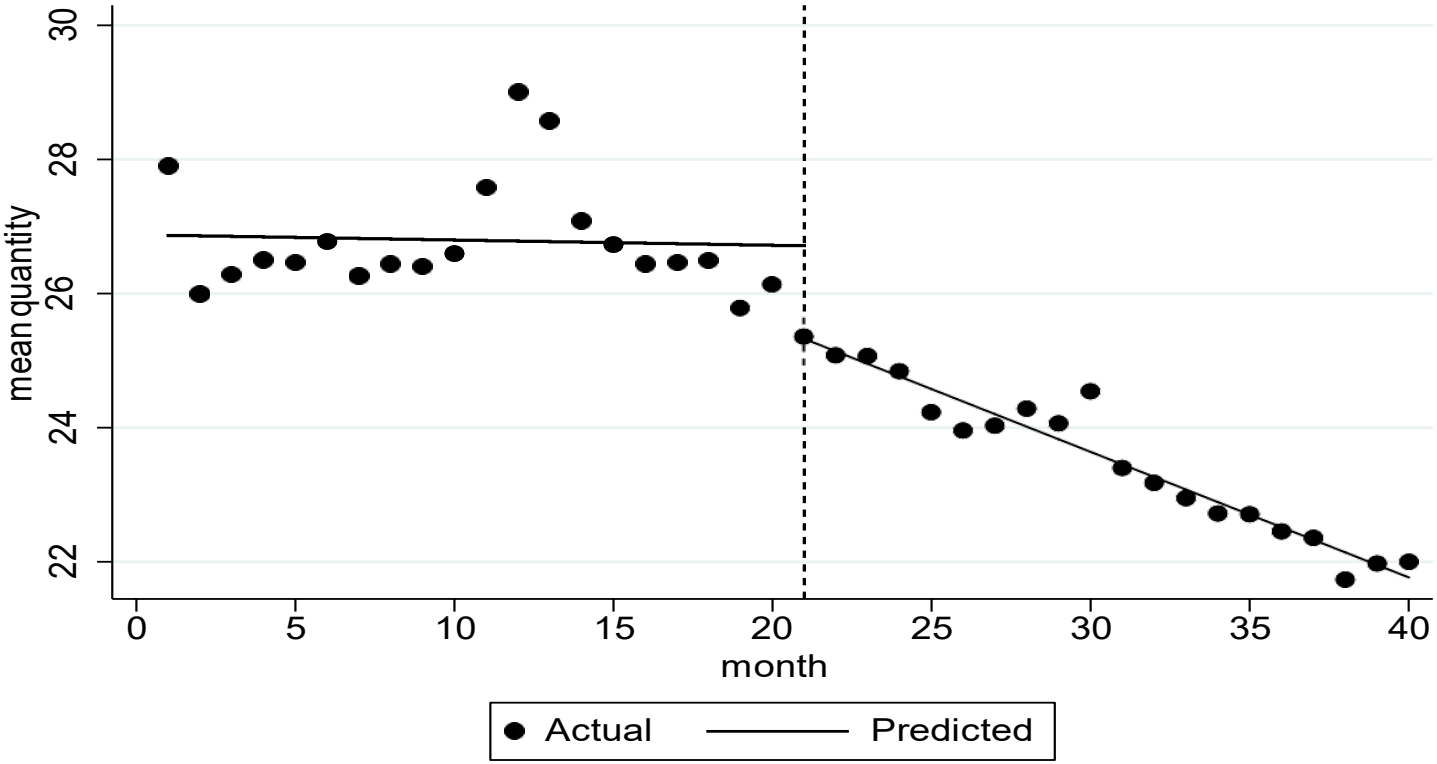
Regression with Newey-West standard errors - lag(1)

Figure 2 - Percent of Patients with Days Supply >= 8



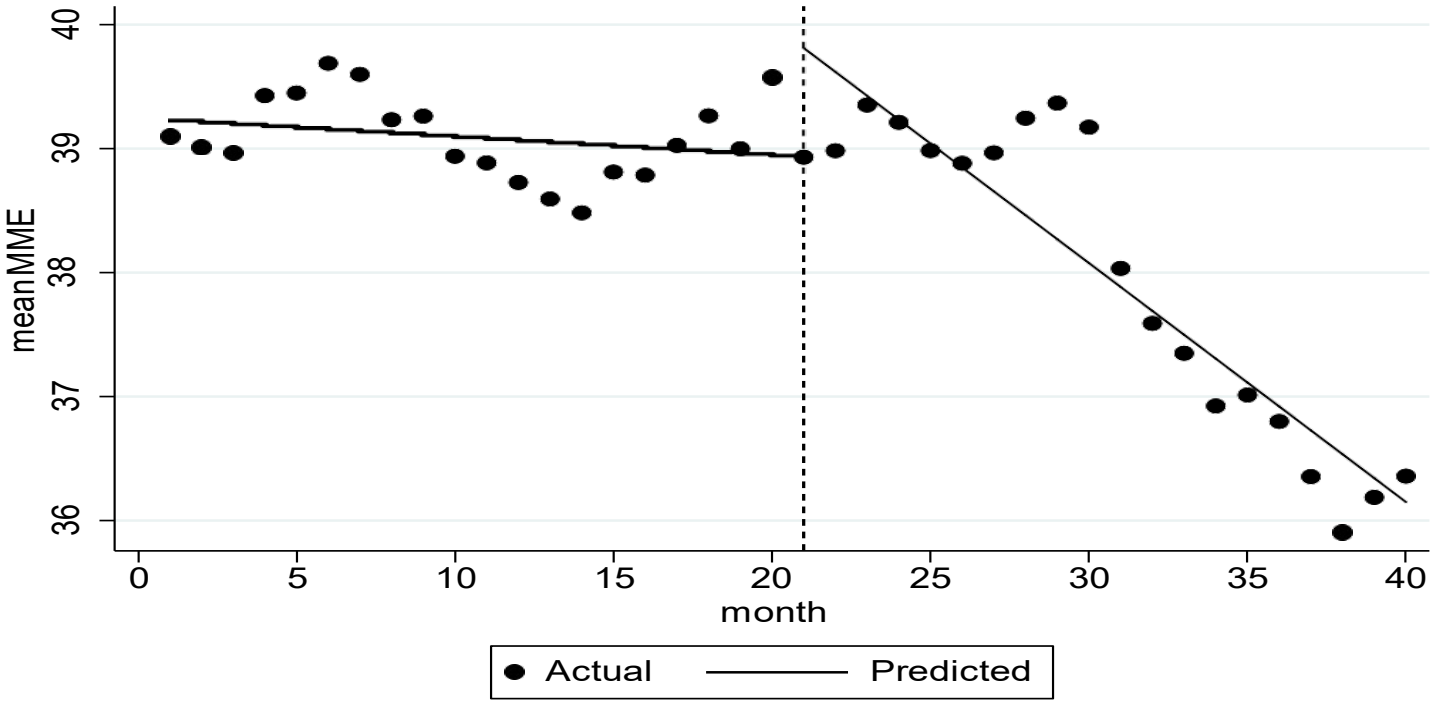
Regression with Newey-West standard errors - lag(1)

Figure3 - Mean Quantity of Opioids



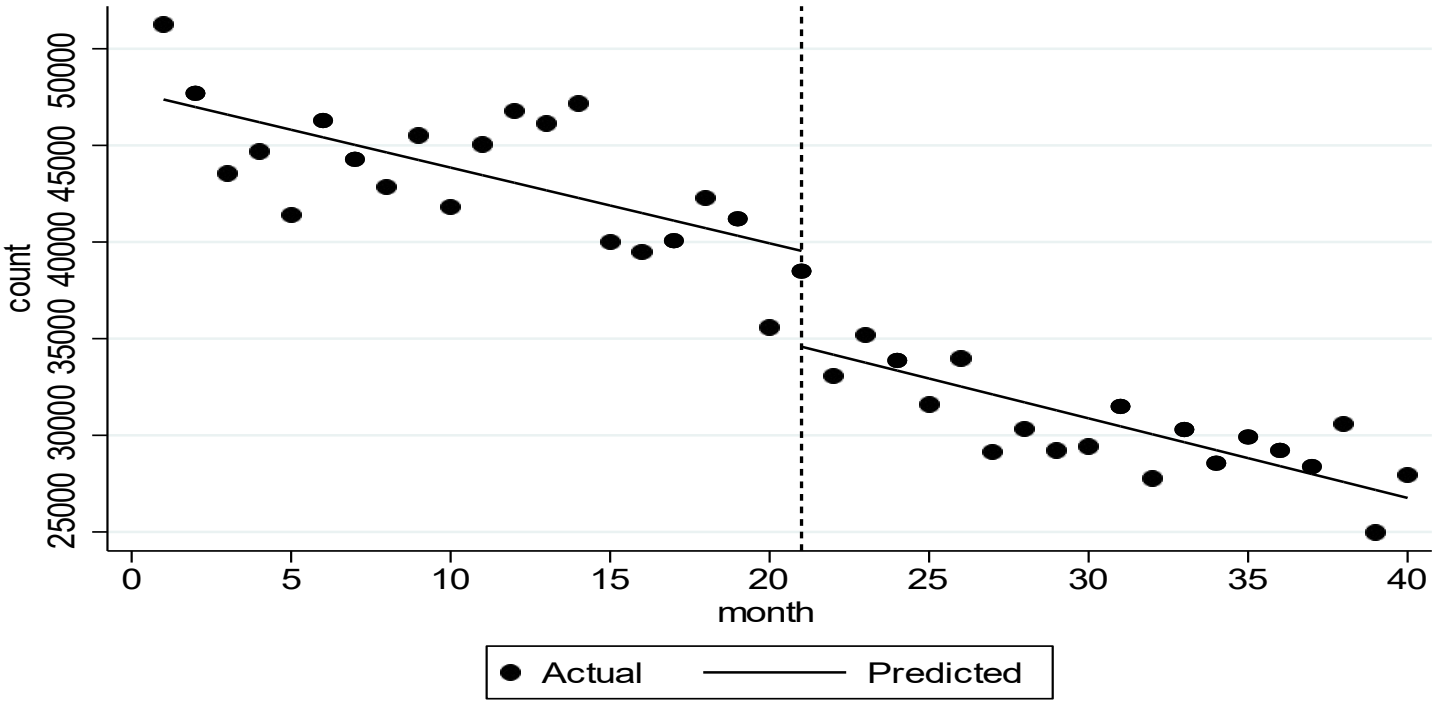
Regression with Newey-West standard errors - lag(1)

Figure 4 - Mean Opioid Dosage in MME



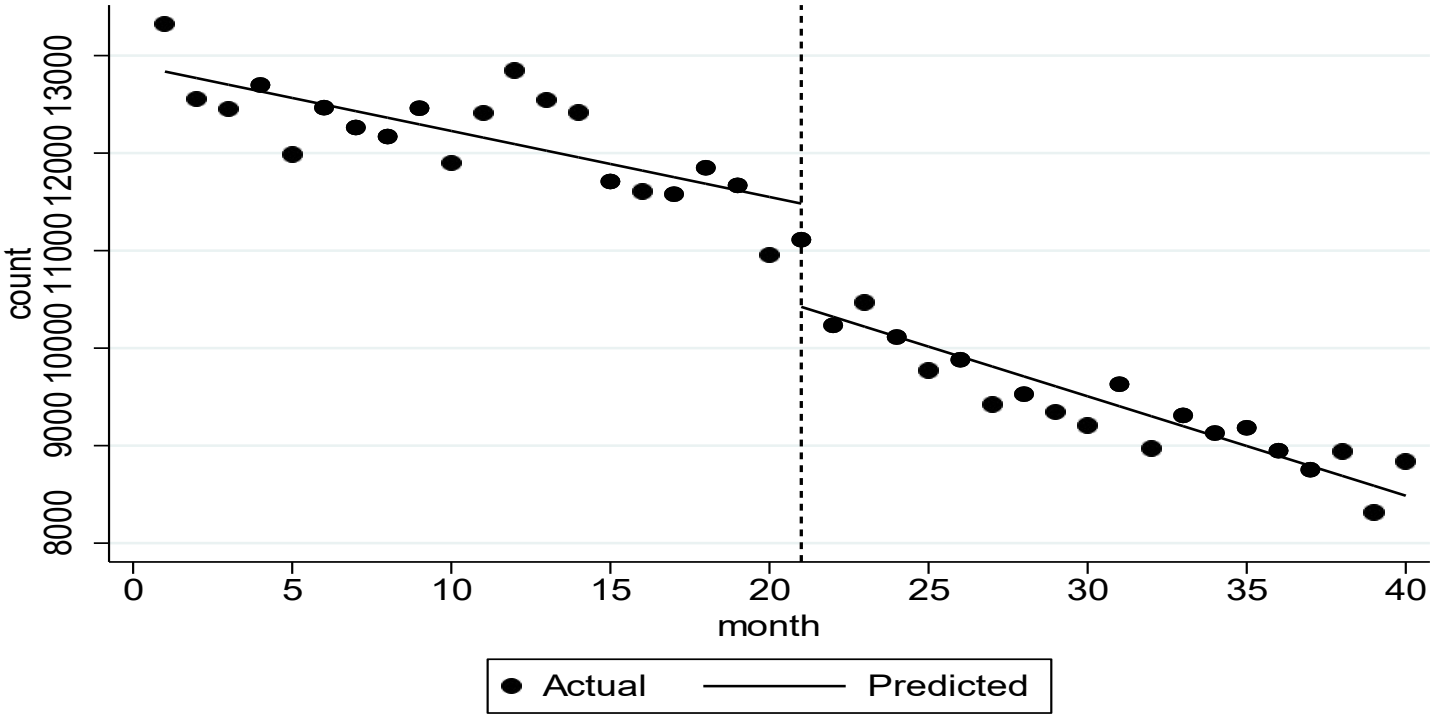
Regression with Newey-West standard errors - lag(1)

Figure 5 - Count of First-time Prescribed Patients



Regression with Newey-West standard errors - lag(1)

Figure 6 - Counts of Prescribers Issuing First-time Opioid Prescription



Regression with Newey-West standard errors - lag(1)

Conclusions (to date)

Effects of New Jersey's Opioid Prescribing Law on Measure Trends

- **Significant drop in the post trend relative to the pre trend for all six measures except for the count of first-time prescribed opioid patients.**
  - Mean days supply per first-time opioid prescription (p=.001)
  - % of patients with 8+ days supply for 1st-time opioid prescription (p=.000)
  - Mean quantity per 1st-time opioid prescription (p=.000)
  - Mean dosage for a 1st-time opioid prescription (in MMEs) (p=.000)
  - Count of first-time prescribed opioid patients (N.S.)
  - Count of prescribers who issued a 1st-time opioid prescription (p=.033)

Study Strengths and Limitations

Strengths:

- Use of a range of usage and prescription measures
- Interrupted time series analysis

Limitations:

- Difficult to disentangle the separate effects of the law's 3 provisions
- No comparison states, to date

Questions?

Contact:

- Gail Strickler at strickler@brandeis.edu
- Andrew Kolodny at kolodny@brandeis.edu