

# The Rise and Decline of Racial Stratification in Prescribing and Overdose Mortality

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# Prescription Drug Misuse and Adverse Health Consequences

- ▶ Major increases both in prescribing and prescription misuse occurred within the U.S. from the mid-1990s to early-2010s.
- ▶ This occurred for a wide-range of medications, not simply opioids, but opioids have the greatest impact on morbidity and mortality.
- ▶ Beyond their own impact, prescription opioid misuse fueled a resurgence in heroin use within the U.S.

# Rapidly Changing Drug Policy Context

- ▶ U.S. states responded to the crisis by rapidly implementing numerous policies, many targeting opioids, and shifted away from criminal justice oriented approaches.
- ▶ Many policies were passed in rapid succession across states, complicating assessments of their effects.
- ▶ Yet, some may hold more promise for impacting morbidity and mortality than others.
- ▶ These impacts extend to how policies may diminish health inequalities.

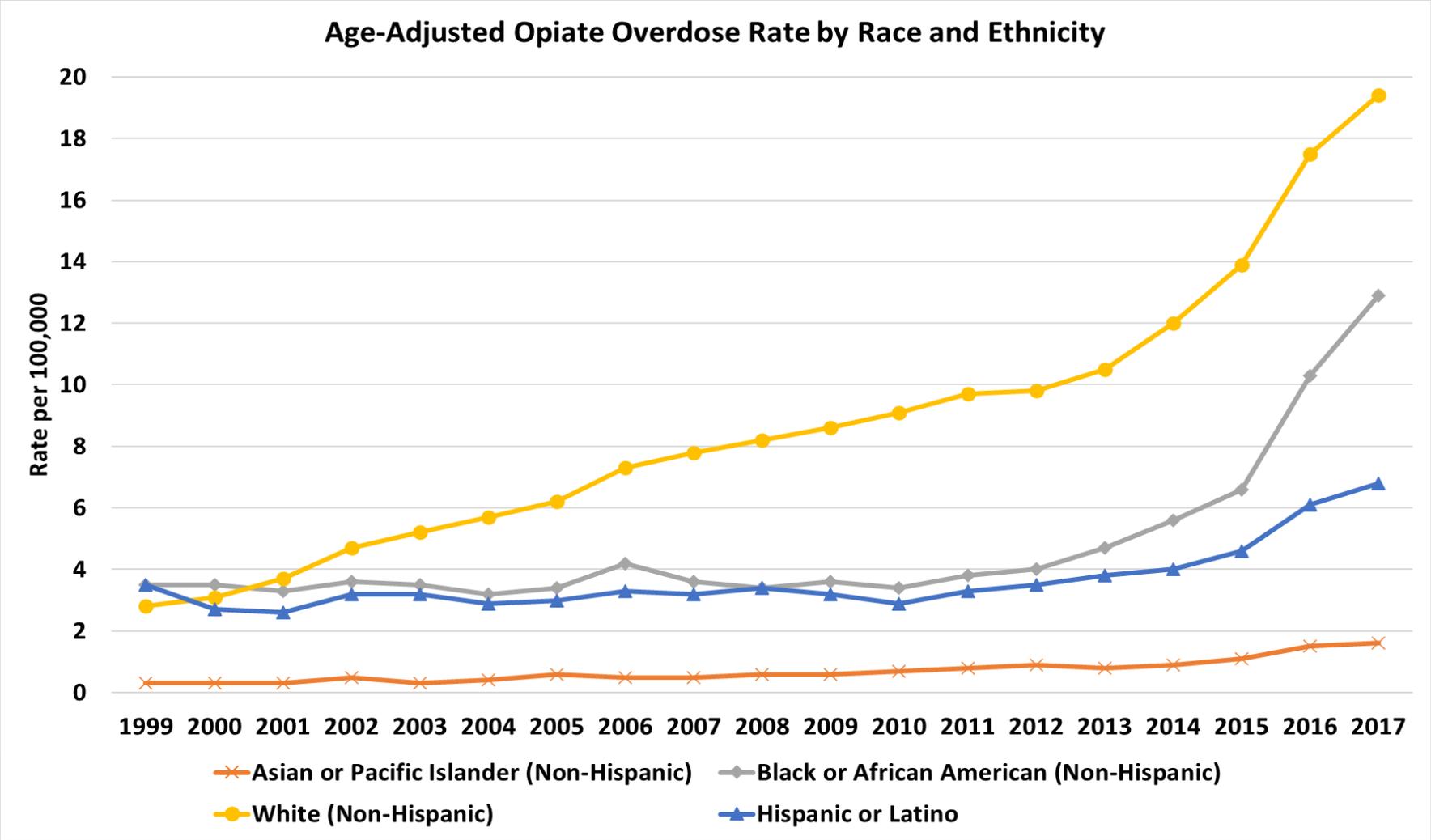
# Fundamental Causes of Overdose

- ▶ The role of social inequalities in shaping health outcomes is durable and persistent. (Link and Phelan, 1995)
- ▶ Although patterns of morbidity and mortality change over time, stratification leads disadvantaged populations - i.e. lower socioeconomic status and racial minorities - to have a higher probability of experiencing poor health and dying sooner.
- ▶ These “fundamental causes” of disease are rooted in core social structures that pattern daily life.

# Social Class, Flexible Resources, and Health

- ▶ A wide range of factors influence health across the social strata.
- ▶ Access to “flexible resources” that impact health:
  - Education
  - Social Capital (network-based resources)
  - Social norms
  - Differing workplace restraints

# So how do we explain surges in White overdoses?



Note:  
Includes Rx  
opioids,  
heroin, &  
synthetic  
opioids

Data: Restricted Access Mortality Files, U.S. Centers for Disease Control and Prevention

# Paying for Privilege

- ▶ What happens when the *privileges* afforded to some in the context of the healthcare system are the very thing that *drives adverse health*?
- ▶ Such processes in the dispensing of prescription drugs during clinical encounters may have contributed to the growth in White overdose mortality.
- ▶ White Americans are more likely to receive opioids for the same conditions as Black patients, and to receive higher doses.

# Race, Clinical Encounters, and Effects on Prescribing

- ▶ What drives gaps in prescribing controlled substances during clinical encounters?
- ▶ Implicit Bias and Stereotypes of Minority Drug Use
- ▶ False Beliefs of Biological Differences in Race
- ▶ Disparities in Cultural Health Capital

# Policy, Healthcare Inequality, and the Overdose Crisis

- ▶ Can policy intervene to correct gaps in mortality driven by privilege in access to the healthcare system?
- ▶ Laws implementing systems of surveillance for the prescribing of controlled substances may be especially useful to curtail *unnecessary* prescriptions to privileged groups.
- ▶ Surveillance may lead to more intentional prescribing, thus reducing privileged access that previously went unquestioned.

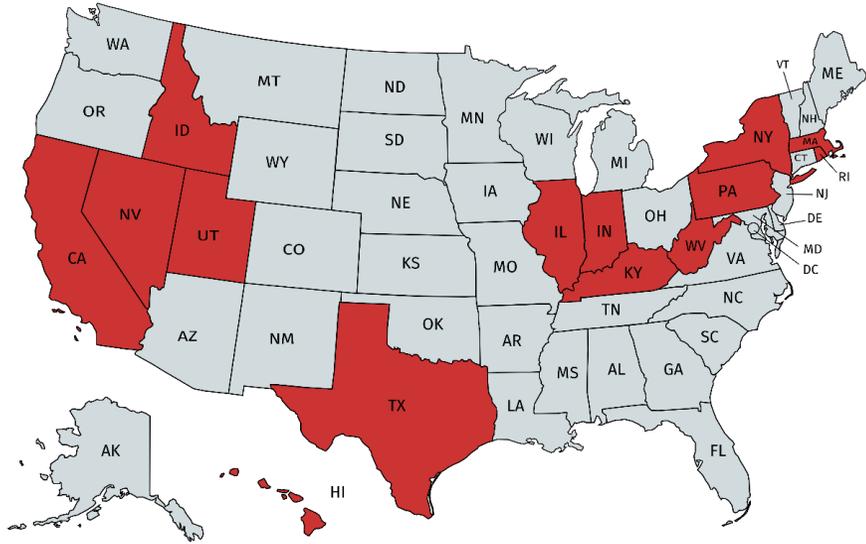
# Prescription Drug Monitoring Programs' (PDMP) Effects on Racial Gaps in Overdose Mortality

- ▶ PDMPs are state policies to create systems of surveillance for controlled substance prescriptions, which may intervene on dispensing processes by requiring clinicians to reconsider prescribing practices that left overprescribing to Whites unquestioned.
- ▶ These laws should reduce unnecessary prescribing, which is more likely to occur among Whites.
- ▶ Does the impact of PDMP laws extend specifically to the reduction of White overdose mortality?

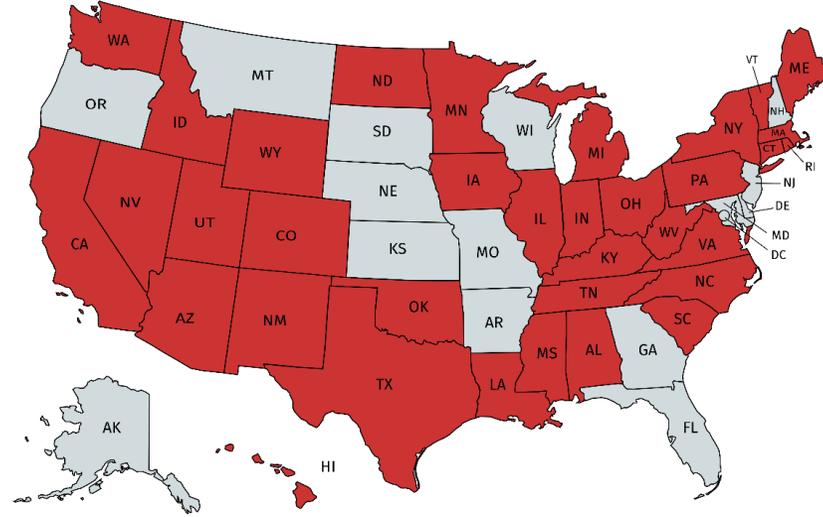
# Data Sources

- ▶ Prescription Drug Abuse Policy System - PDMPs and other policies (e.g. naloxone access, “Good Samaritan” laws, medical cannabis)
- ▶ U.S. Census - (e.g. county levels of education, poverty, unemployment, & racial/ethnic diversity)
- ▶ CDC restricted access mortality files - (which include data on mortality related to opioids and other drugs using ICD-10 codes)

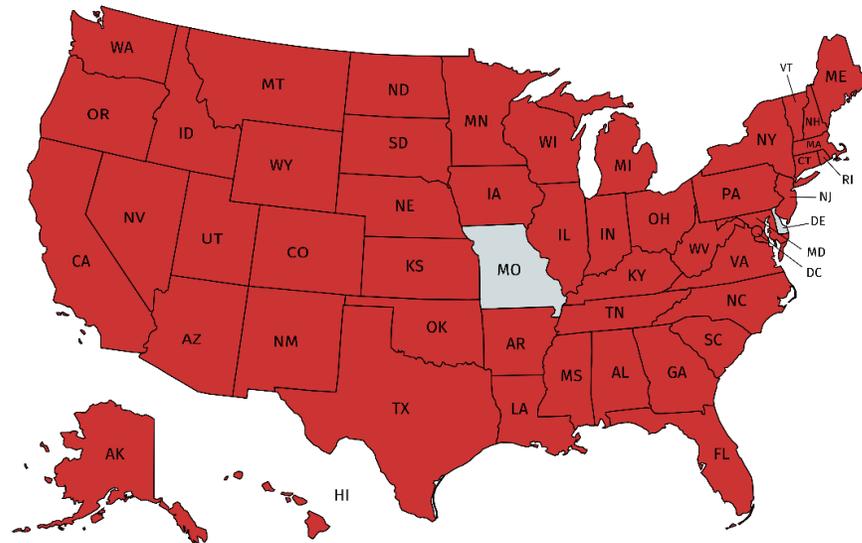
2000 - PDMP



2007 - PDMP



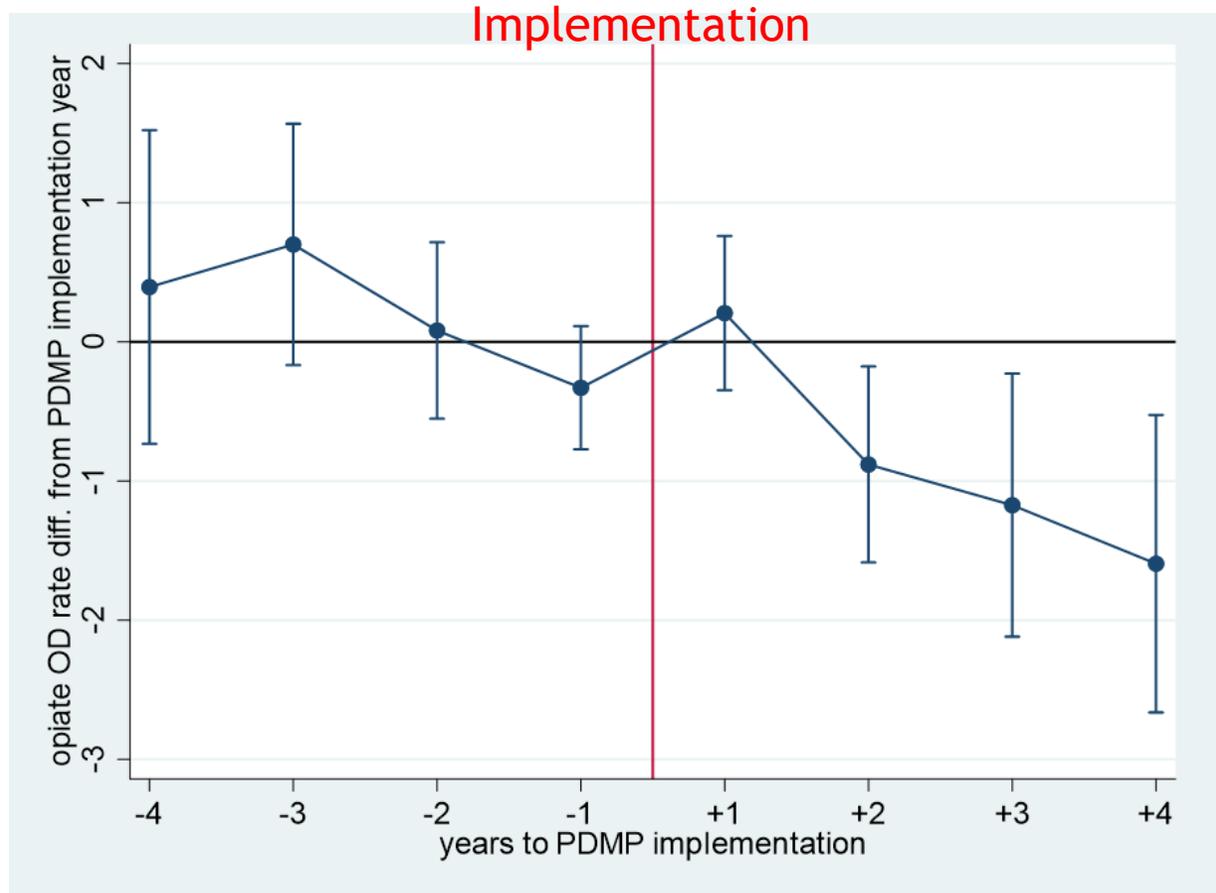
2015 - PDMP



# Analyses

- ▶ Lead-lag modeling approach to account for longitudinal trends in policy implementation and overdose.
- ▶ Analysis at the county-level to more precisely attend to distinctions within states.
- ▶ We use two-way fixed effects models (state & year) to determine the effect of PDMPs on unintentional fatal overdose stratified by race/ethnicity.

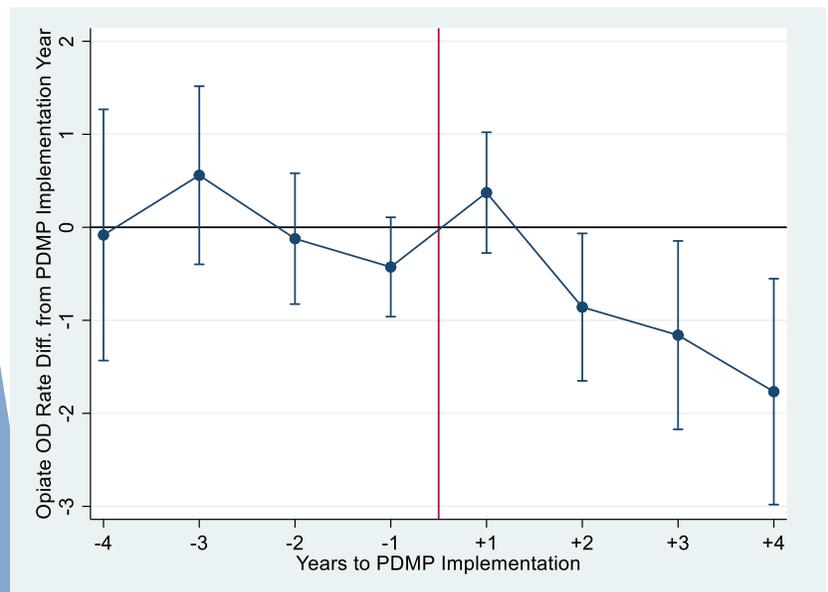
# PDMP effect on county-level opioid overdose rate across the population



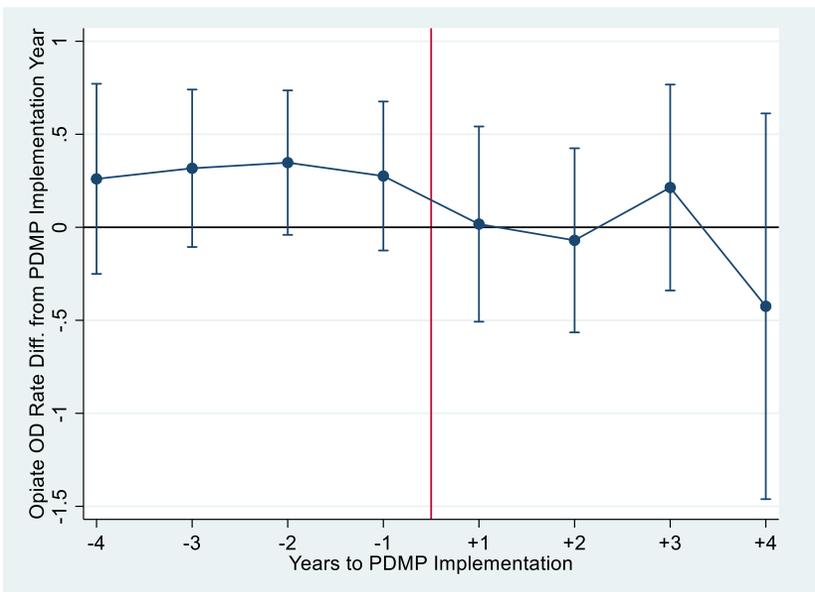
Depicted from Vuolo, Frizzell, & Kelly 2022. Surveillance, Self-Governance, and Mortality: The Impact of Prescription Drug Monitoring Programs on U.S. Overdose Mortality, 2000-2016. *Journal of Health and Social Behavior*, 337-356.

# PDMP effect on county-level opioid overdose rate by race/ethnicity

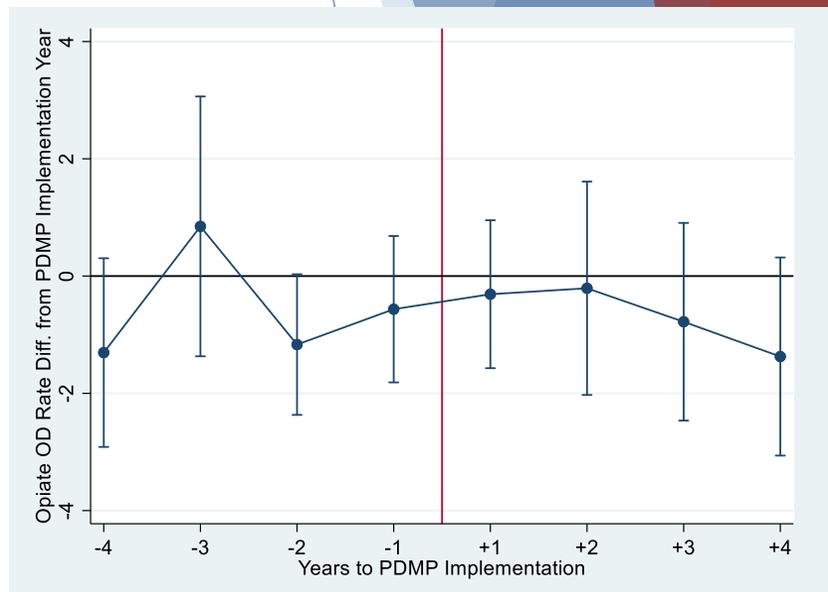
White



Black



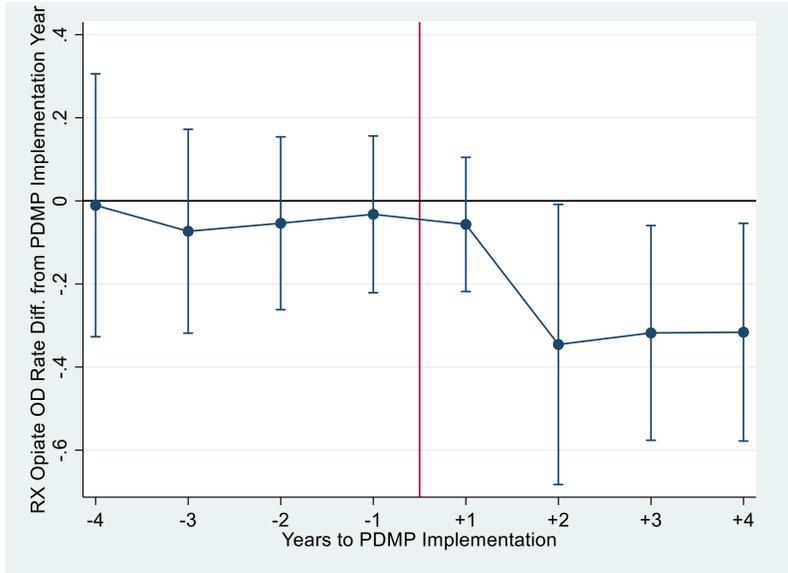
Latinx



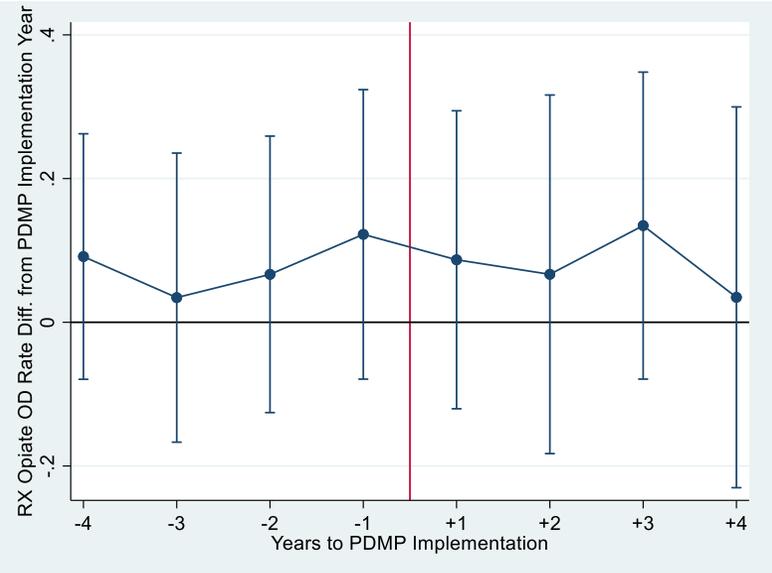
Note: Models includes all policy and contextual controls, as well as year and county fixed effects. Differences from the horizontal 0 line represent effect sizes, with non-overlapping confidence intervals indicating statistical significance at  $p < .05$ .

# PDMP effect on county-level overdose rate for prescription opioid w/ another opioid by race/ethnicity

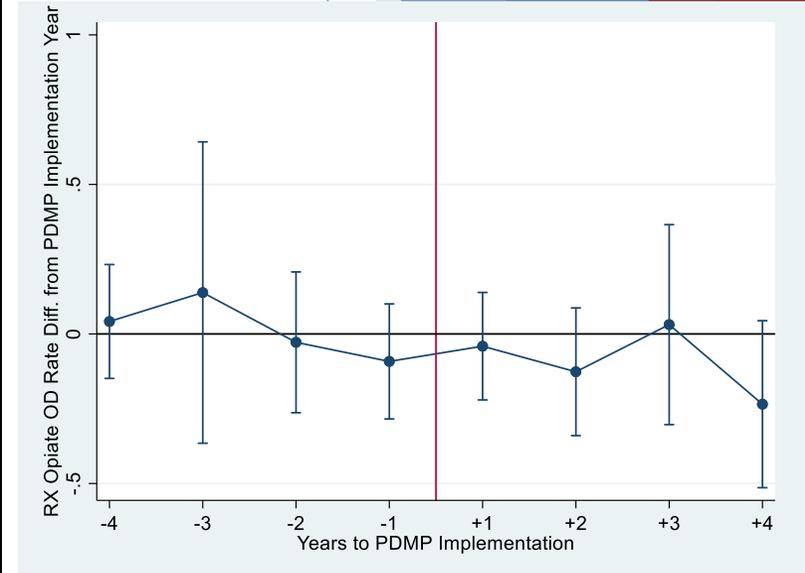
White



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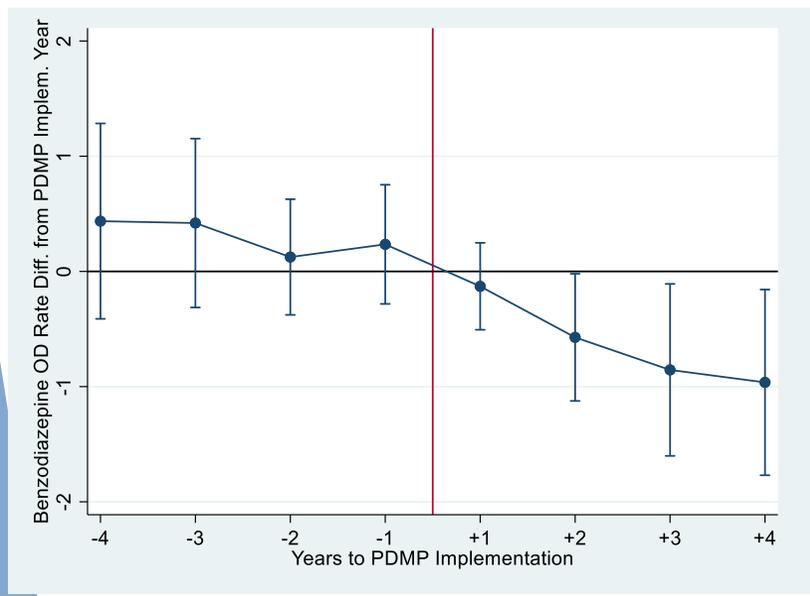
Latinx



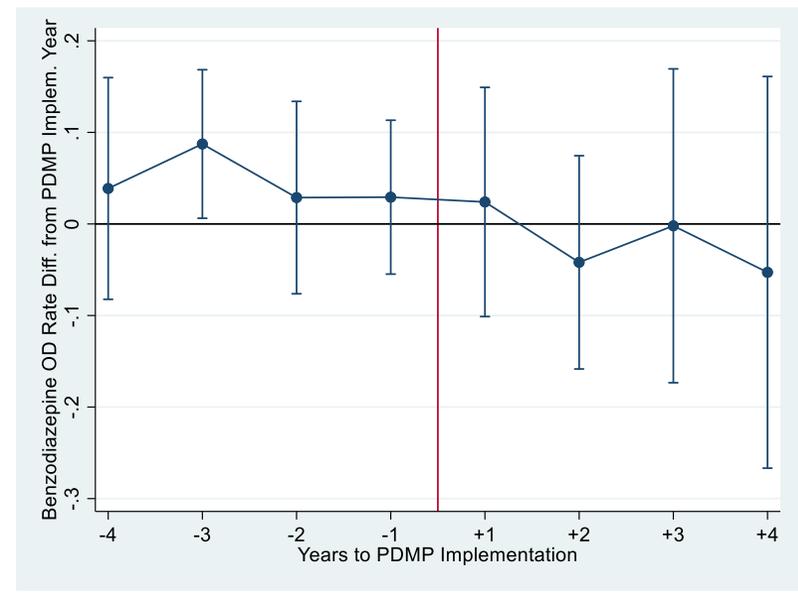
Note: Models includes all policy and contextual controls, as well as year and county fixed effects. Differences from the horizontal 0 line represent effect sizes, with non-overlapping confidence intervals indicating statistical significance at  $p < .05$ .

# PDMP effect on county-level benzodiazepine overdose rate by race/ethnicity

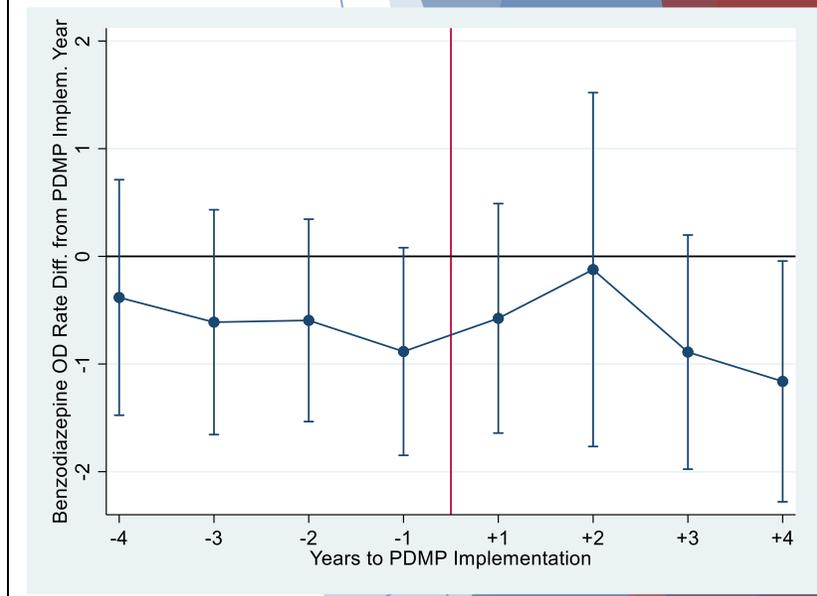
## White



## Black



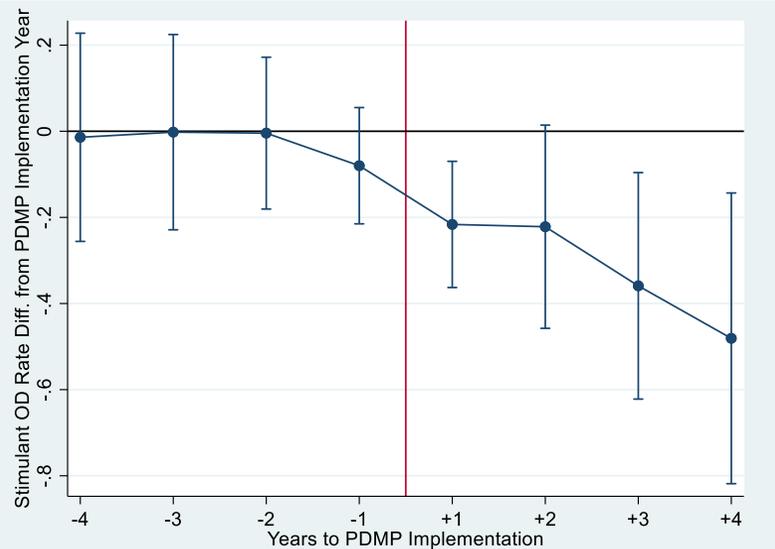
## Latinx



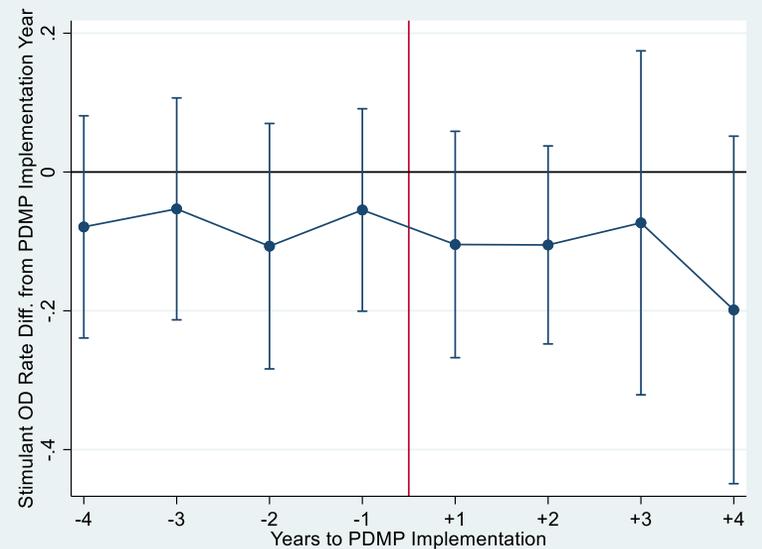
Note: Models includes all policy and contextual controls, as well as year and county fixed effects. Differences from the horizontal 0 line represent effect sizes, with non-overlapping confidence intervals indicating statistical significance at  $p < .05$ .

# PDMP effect on county-level stimulant overdose rate by race/ethnicity

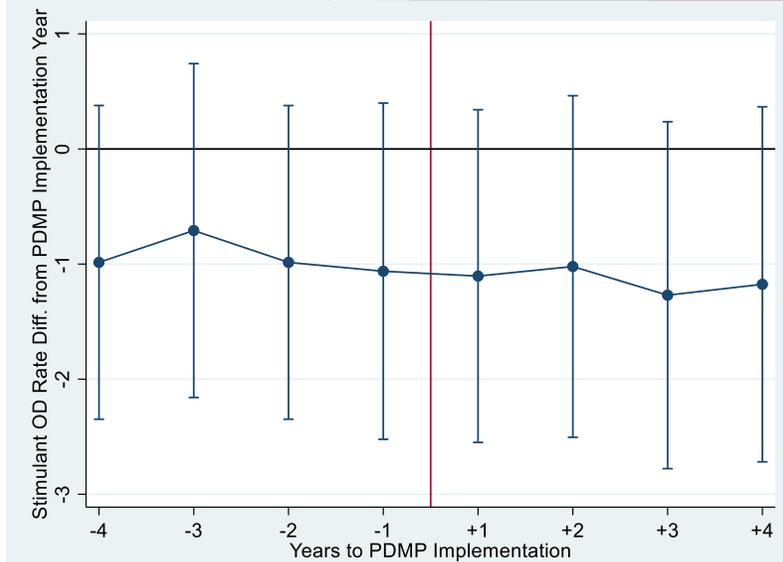
White



Black



Latinx



Note: Models includes all policy and contextual controls, as well as year and county fixed effects. Differences from the horizontal 0 line represent effect sizes, with non-overlapping confidence intervals indicating statistical significance at  $p < .05$ .

# Conclusions

- ▶ Analyses stratified by race/ethnicity indicate that the effect of PDMPs on overdose mortality within the population is primarily driven by a reduction in White deaths.
- ▶ We contend that emerges from the effect of surveillance reducing the number of “unquestioned” prescriptions made to White patients during clinical encounters.

# Conclusions

- ▶ When gaps in health emerge with a “reverse inequity,” it is worth questioning whether that gap may be driven by adverse spillover effects of social advantages.
- ▶ These results are not merely indicative of processes specific to patients, but point towards the wider distribution of controlled substances within homophilous White networks.

# Conclusions

- ▶ The implementation of public policies may be useful for population health when they consider the amelioration of adverse spillover effects of privilege.
- ▶ Although PDMP laws reduce mortality among the group with the largest number of fatal overdoses, more recent escalations in overdose mortality among Black and Latinx populations cohere with adulteration in black markets.
- ▶ Does this portend a reversal in overdose mortality inequities in the future and possibly reintroduce criminal justice approaches?

# Thank You!

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