Can Educational Outreach Improve Experts' Decision Making? Evidence from a National Opioid Academic Detailing Program

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Evolving guidelines in the opioid crisis

- Opioid crisis has been rapidly evolving in the past few decades
  - Different waves; changing evidence, guidelines, medical technologies (e.g., Narcan, Suboxone)
  - Clinicians are at the forefront, but many graduated from medical school decades ago and may have outdated knowledge
- Policies aimed to curb the opioid crisis have been generally blunt and ineffective (Meara et al. 2016)
- In contrast, strong evidence that pharmaceutical promotion caused greater opioid prescribing (Alpert et al. 2022, Arteaga and Barone 2024)
- **Can targeted education outreach change physician behavior and curtail the crisis?**

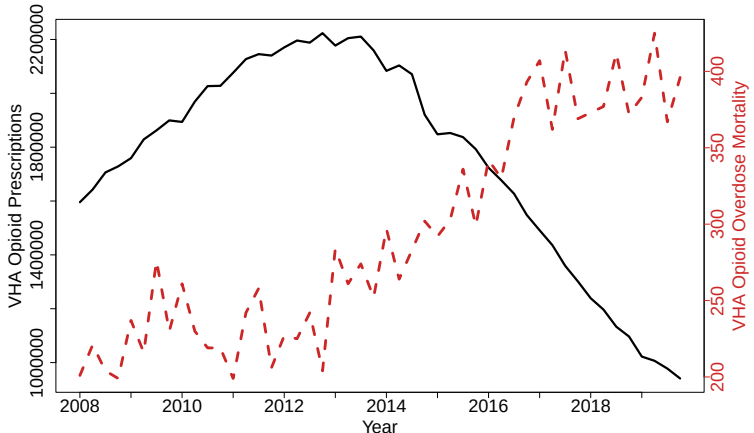
What this paper does

- Studies largest national physician educational outreach—also known as **academic detailing**—program in the VA aimed at altering opioid-related behaviors to reduce opioid mortality

- Use a **staggered treatment** (generalized difference-in-differences) design to study the causal impacts of academic detailing on:
  - i) physician behavior ii) downstream patient outcomes

- Link **highly granular individual-level** data on physicians, their behaviors, and their patients' outcomes
  - Previous studies generally study changes in state policy with state-level outcomes

VA was experiencing a more pronounced opioid crisis in 2010s



- VA was prescribing more opioids than rest of the US (high rates of chronic pain; emphasis on pain as "fifth vital sign", etc.)
- Veterans are 50% higher risk of opioid overdose mortality and overdose rates rising rapidly

VA's Response

In response to the opioid crisis at the VA, in 2015, the White House mandated the VA implement a national academic detailing program:

1. Create knowledge: gather evidence and resources, implement guidelines
2. Hire staff and disseminate the knowledge

What is Academic Detailing?

- **Academic detailing**: educational outreach provided by clinical experts to clinicians by synthesizing and disseminating new clinical evidence, promoting new guidelines, and providing additional resources
- Academic detailing at the VA:
  - Conducted by VA-employed clinical pharmacists
  - 20-60 minute face-to-face sessions at clinician's clinic
  - Largely detailed primary care providers (salaried, no financial incentives)
  - Largest nationwide detailing program: 2.75 million patients had their PCP detailed
- Academic detailing is not new, but studies on its impacts on providers is mixed, with scant evidence on patient outcomes (Hoof et al. 2015)

Opioid Education

VA Academic Detailing focused mainly on four opioid-related pillars:

1. **Pain management**: effective and appropriate ways to treat pain
   - Opioid prescribing guidelines, refer to alternate pain treatment
2. **Risk evaluation**: tools to help evaluate opioid risk
   - Perform urine drug screens and check prescription drug monitoring programs
3. **Treatment**: identify, manage, and treat opioid use disorder (OUD)
   - Reduce physician stigma around medication assisted treatment and refer to treatment
4. **Harm reduction**: overdose recognition, naloxone distribution
   - Prescribe naloxone

Educational Resources

Acute Pain Management

Meeting the Challenges

VA | U.S. Department of Veterans Affairs
Veterans Health Administration
PBM Academic Detailing Service

Identifying and Managing Opioid Use Disorder (OUD)

A VA Clinician's Guide

VA | U.S. Department of Veterans Affairs
Veterans Health Administration
PBM Academic Detailing Service

PATIENT GUIDE

VA | U.S. Department of Veterans Affairs
Veterans Health Administration
PBM Academic Detailing Service

Opioid Overdose Prevention and Reversing an Overdose with Naloxone

What are opioids?

Opioids are a type of medicine used to treat pain, cough, and addiction. Opioids can also be non-prescribed substances like heroin.

Common opioid medicines:

- codeine (Tylenol #3®)
- fentanyl (Actiq®)
- hydrocodone (Vicodin®)
- hydromorphone (Dilaudid®)
- methadone (Methadose®)
- morphine (MS Contin®)
- oxycodone (Percocet®)

SAFER USE OF OPIOIDS

ANY OPIOID

- There is no safe dose of opioids.
- Naturally found opioids have the same risks as those made in a lab.
- Go slow! If you have not used opioids in a few days, your usual dose may cause an overdose.
- Wait! If you use an opioid, wait long enough to feel the effects before taking more.
- Many who overdose do so when using opioids alone. Tell someone so they can check on you.
- **Mixing opioids with alcohol and other substances can cause an overdose.**
- **Naloxone is a medicine that can reverse the effects of an opioid overdose.**

PRESCRIBED OPIOIDS

- Know the name of the opioid, strength, and amount taken each day.
- Take prescribed medicines exactly as instructed by your healthcare provider. Do not stop opioids abruptly since this can cause withdrawal.
- Review the booklet *Safe and Responsible Use of Opioids* with your healthcare provider. Download using the QR code at the right.

NON-PRESCRIBED OPIOIDS

- If you choose to use, go slow!
- Even a few days off opioids could make you more sensitive to them.
- Reduce your dose to half or less after any period of not using (even a couple of days).

WATCH OUT!

Some opioids, like fentanyl and carfentanil, are very powerful. **Even a very small amount can be deadly.** Opioid tablets purchased online or from non-healthcare sources are commonly mixed with fentanyl. Cocaine and methamphetamine can also contain deadly amounts of fentanyl or carfentanil.

Download a handout on fentanyl and carfentanil using this QR code.

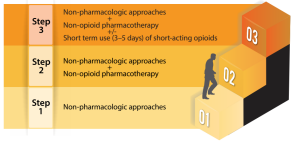
Lethal opioid doses

Opioid	Strength compared to morphine	Lethal dose
morphine	1x	1 pea
heroin	2x	1 sunflower seed
fentanyl	100x	1 sesame seed
carfentanil	10,000x	< ½ grain of salt

Source: https://www.clearyuehealth.com/sufentanil

Training Modules

Stepwise Approach to Acute Pain Management[1–2]



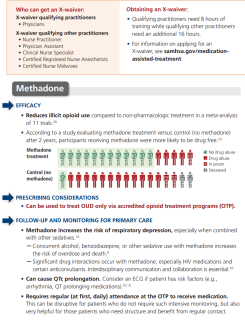
Tips for Treating Acute Pain

- Reserve opioids for pain that is not expected or does not respond to Step 1 and Step 2 treatments
- Prescribe for less than 3 to 5 days then evaluate the need to continue therapy
- Use short acting opioids only

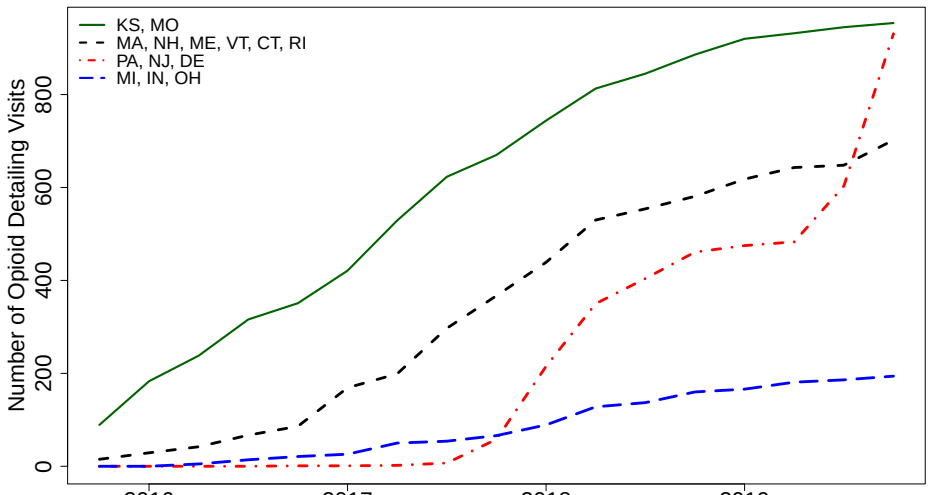
Urine Drug Testing Methods[3,13–15]

Type of Test	Logistics	Pearls
Initial Screening Test		
Immunoassay*	• Inexpensive • Fast • Widely available	• High sensitivity, low specificity (higher potential for false positives) • Opiate screen not sensitive for semisynthetic (e.g., oxycodone) or synthe opioids (e.g., fentanyl)
Confirmatory Test		
Gas Chromatography-Mass Spectrometry (GCMS)**	• Expensive • Time consuming	• High sensitivity, high specificity • Detects medication even if concentration low • Allows detection of a specific drug/metabolite
Liquid Chromatography-Mass Spectrometry (LCMS)	• Less expensive than GCMS • Faster than GCMS	

*Immunoassay tests have high predictive values for tetrahydrocannabinol (THC), the testing component of marijuana, and also for cocaine, b lower predictive values for opioids and amphetamines. **GMCS is considered the criterion standard for confirmatory testing.



Staggered Treatment



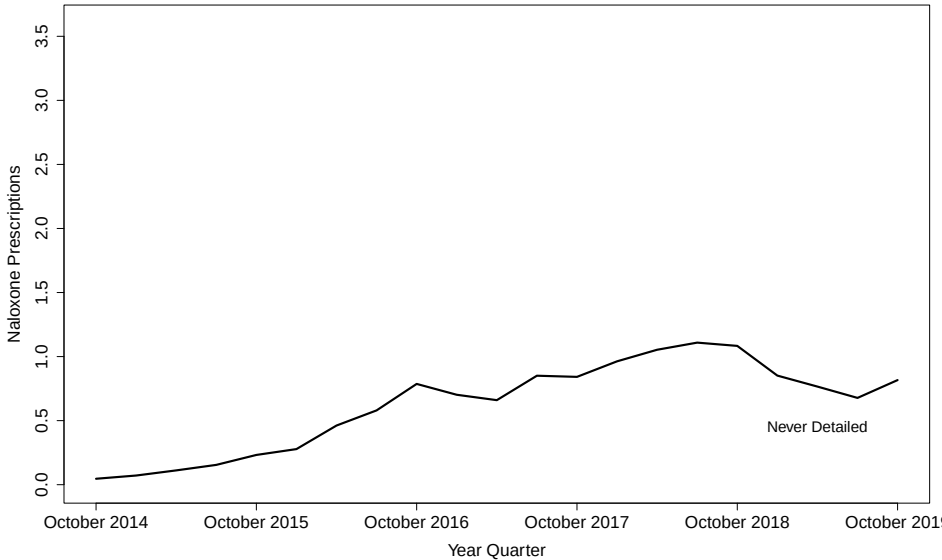
Data

- **Academic detailing visits**: administrative workflow data with detailer, time and date, physician ID, clinic, etc.
- **Electronic health records**:
  - Physician response: universe of prescribing, referral, treatment
  - Patient outcomes: universe of prescriptions, medical encounters, mortality
- **Sample**: Universe of primary care (6,416 PCPs treating 5.1M patients in 2014)
  - Construct fixed patient patient one year prior to academic detailing policy $\rightarrow$ intent-to-treat
  - Treatment: 53% of teams—and thus patients—were detailed between October 2015 and December 2019

Empirical Strategy: Staggered Difference-in-Differences

- DiD: Compare treated (detailed) PCP teams before and after detailing, compared to those who are never treated
  - Callaway and Sant'Anna (2021) estimator
  - Standard parallel trends assumption

Staggered Treatment Intuition: Raw Data



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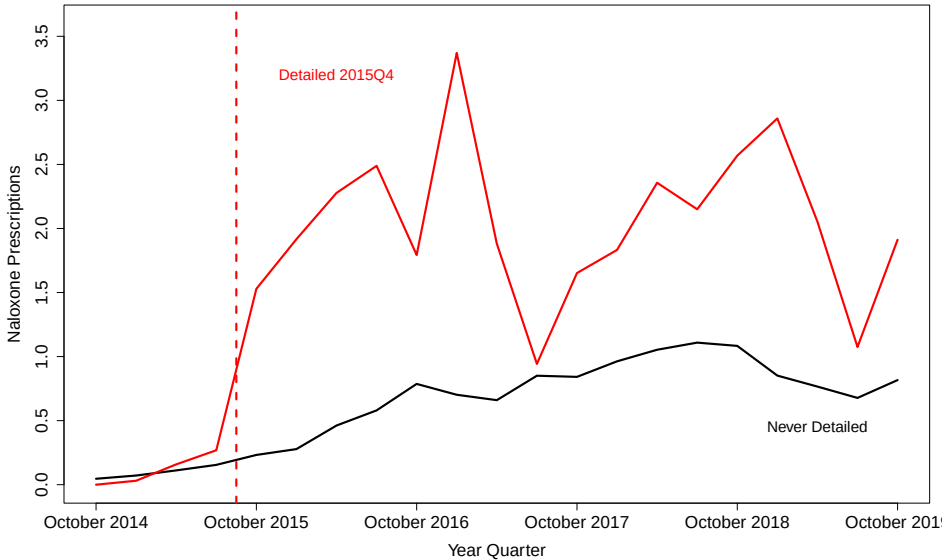

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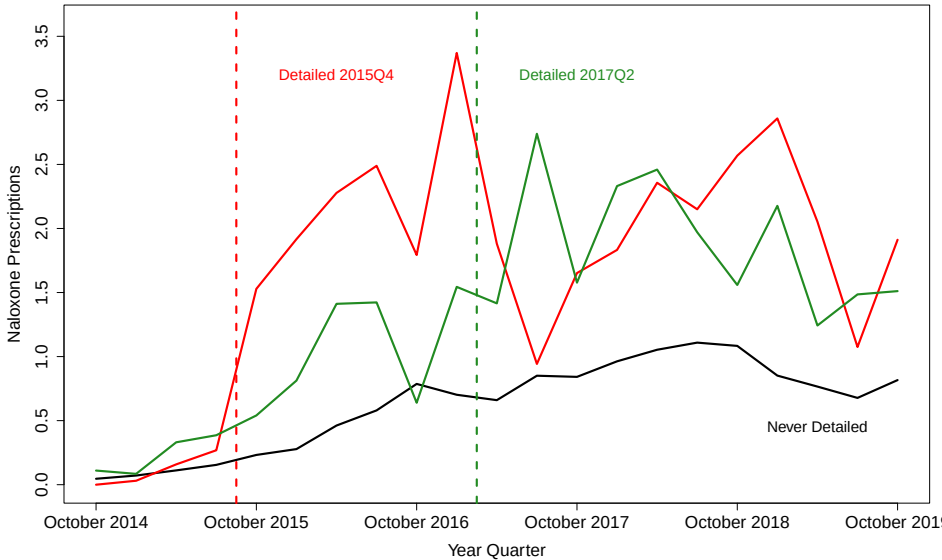

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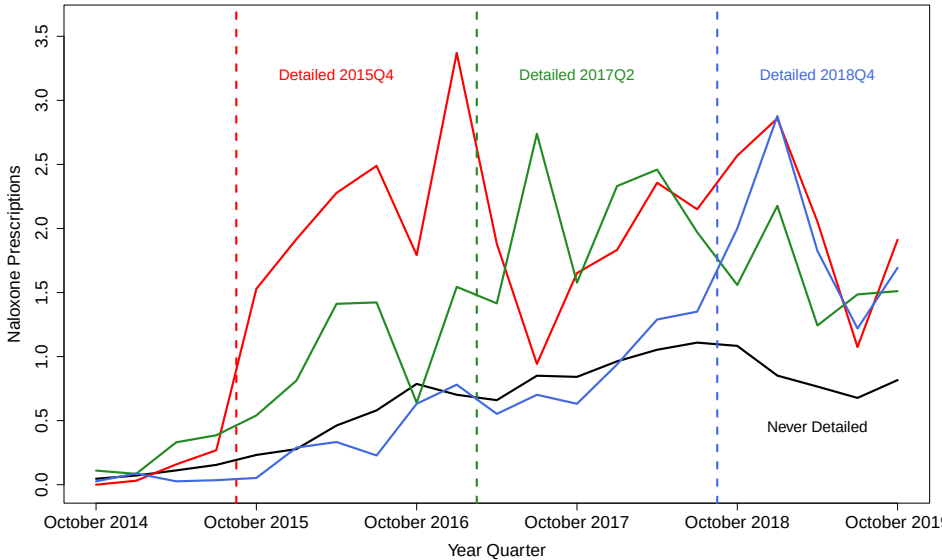
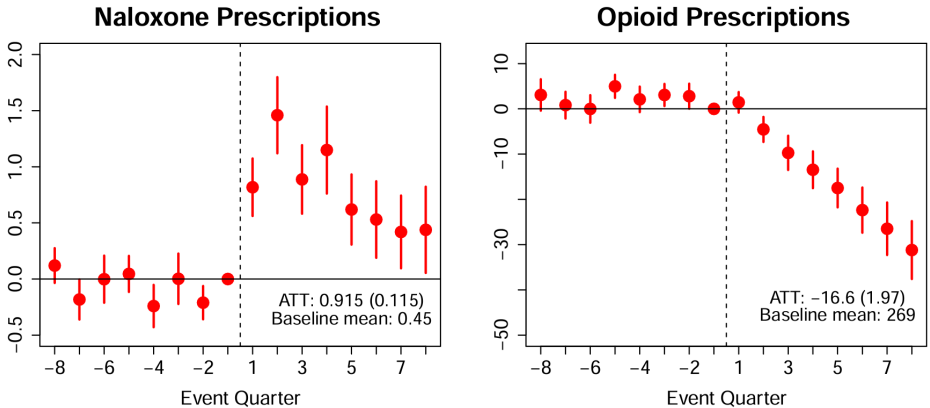


Naloxone prescribing increases, opioids decrease



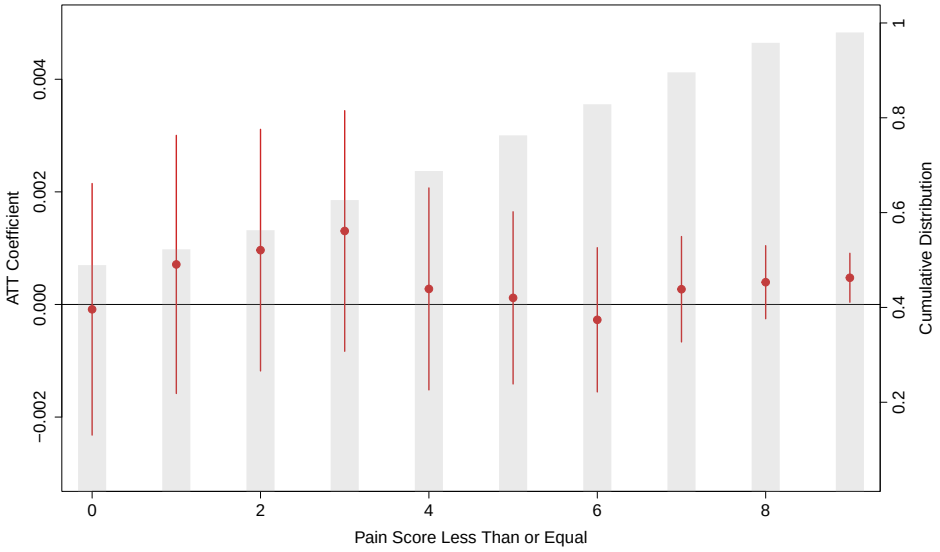
Naloxone increases 200%, opioid decrease 6.2%

Academic detailing is responsible for 25% of the increase in naloxone and 18% of decline in opioids between 2015-2019

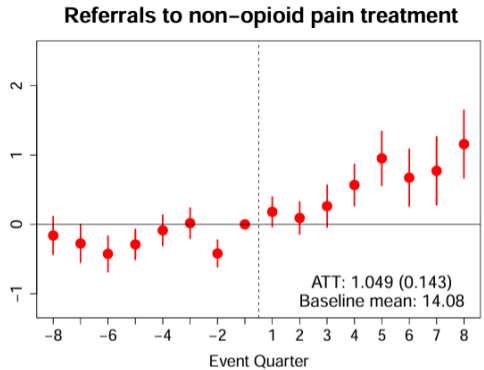
Risky prescribing also declines

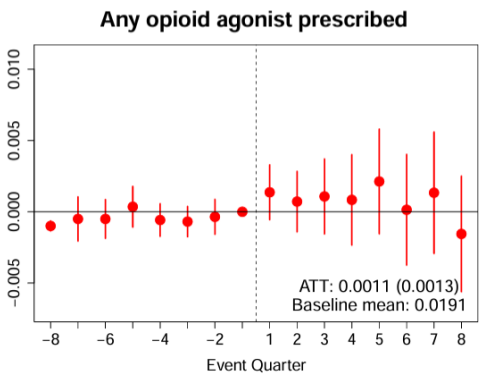
1. Prescribing to prior opioid users declined more than opioid-naïve By prior use
2. $>$ 90 and 50 MME prescriptions declined the most By MME
3. Opioid and benzodiazepine combination declined Co-prescribing
4. Overdose risk score declined Risk score

No changes to patient pain



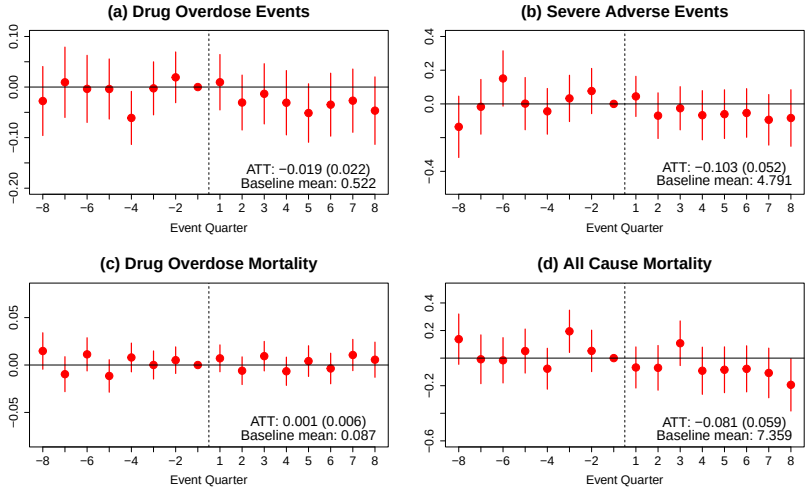
Other Physician Behaviors





Not shown: increases in PDMP checks

Patient Outcomes



0.10 fewer (a 2.1% reduction; significant at the 10% level) ED and hospitalizations for severe adverse events, per 1,000 patients

Discussion and Mechanisms

- Program was successful in altering physician behavior
- Outperformed many supply-side opioid policies (e.g., blanket prescribing limits, PDMP programs, naloxone access laws), many of which had unintended consequences
- Larger and longer-lived impacts than pharmaceutical promotion and other nudges (Shapiro 2018, Agha & Zeltzer 2021; Carey, Lieber, & Miller 2021, Sacarny et al. 2016, 2022)

- Why?
- Detailing changes knowledge/beliefs, complemented with institutional support (e.g., salaried employees, integrated system, VA-wide efforts to reduce opioid overdose)

Future avenues of research

1. Better understanding of when interventions (e.g., detailing, letters) work and why
   - In this VA program, detailing was done by clinician peers; is it trust? Concordance and closeness of peers?
   - Other setting/institution specific factors: are there reasonable alternatives? are there supports implemented to encourage the prescribing of alternatives or are there barriers and hassle costs?

2. Policies and technologies that improve patient opioid outcomes
   - Patient outcomes were relatively unchanged (small noisy reductions)
   - Medication for opioid use disorder (e.g., buprenorphine, Suboxone) is effective in clinical trials, but what about in real life?
   - Research on impact of MOUD treatment on health and economic outcomes

Thank you!

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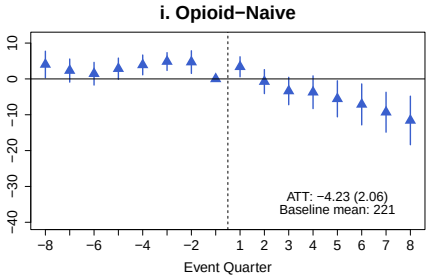
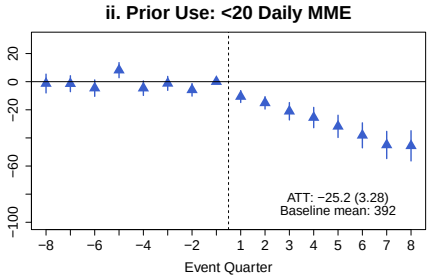
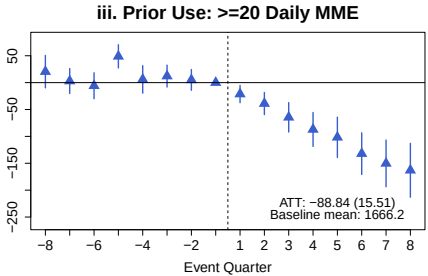
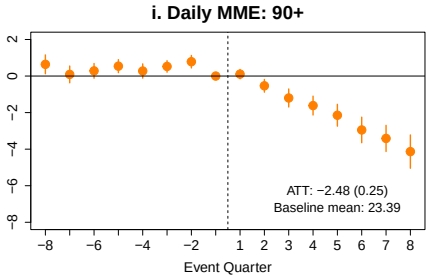
By Prior Use

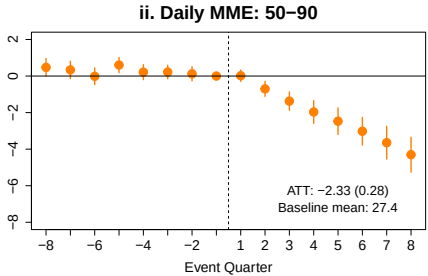

i. Opioid−Naive
10
0
−10
−20
−30
−40
ATT: −4.23 (2.06)
Baseline mean: 221
−8
−6
−4
−2
1
2
3
4
5
6
7
8
Event Quarter

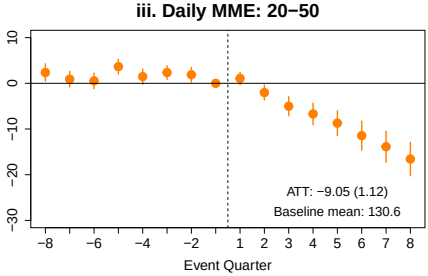

ii. Prior Use: <20 Daily MME
20
0
−20
−60
−100
ATT: −25.2 (3.28)
Baseline mean: 392
−8
−6
−4
−2
1
2
3
4
5
6
7
8
Event Quarter

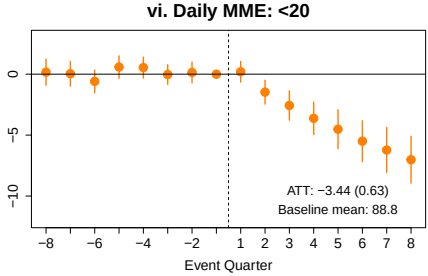

iii. Prior Use: >=20 Daily MME
50
−50
−150
−250
ATT: −88.84 (15.51)
Baseline mean: 1666.2
−8
−6
−4
−2
1
2
3
4
5
6
7
8
Event Quarter

By milligrams of morphine equivalents

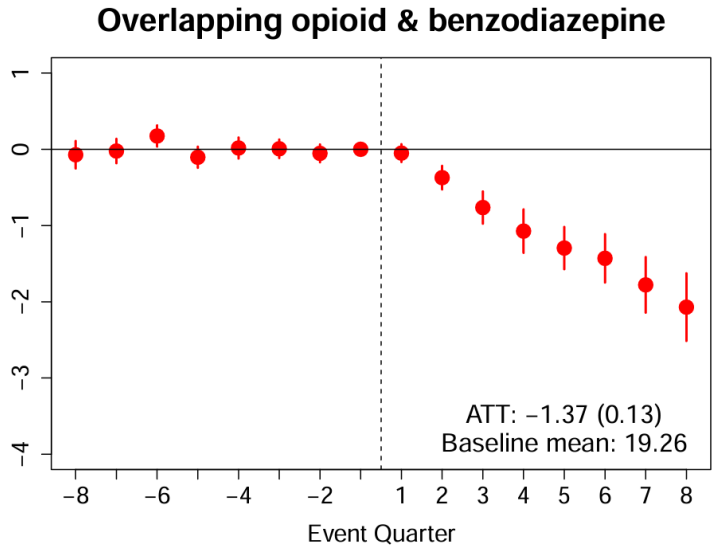




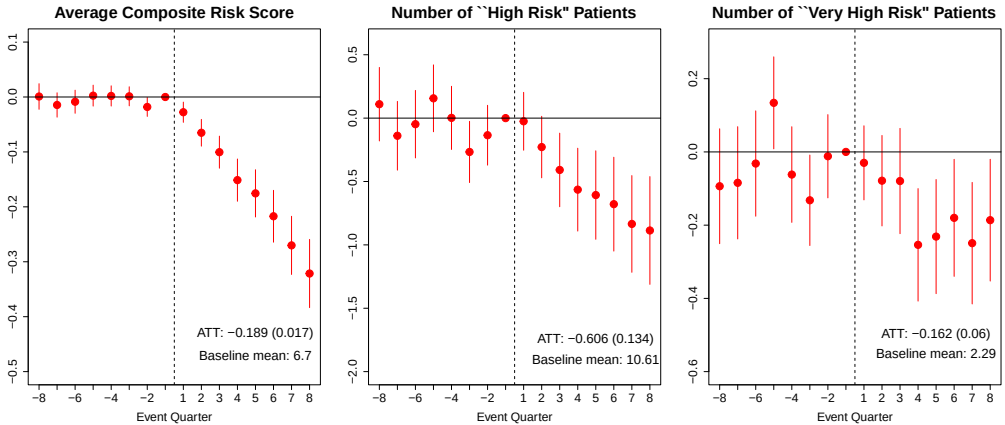




Opioid-benzodiazepine combination



Composite overdose risk score



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