

Geographic Variation in Opioid Mortality in the United States by Race/Ethnicity, 1999–2016

Identifying epidemic hotspots

Mathew Kiang¹ Monica Alexander² Zhe Zhang³ Jarvis Chen¹

¹Department of Social and Behavioral Sciences
Harvard TH Chan School of Public Health

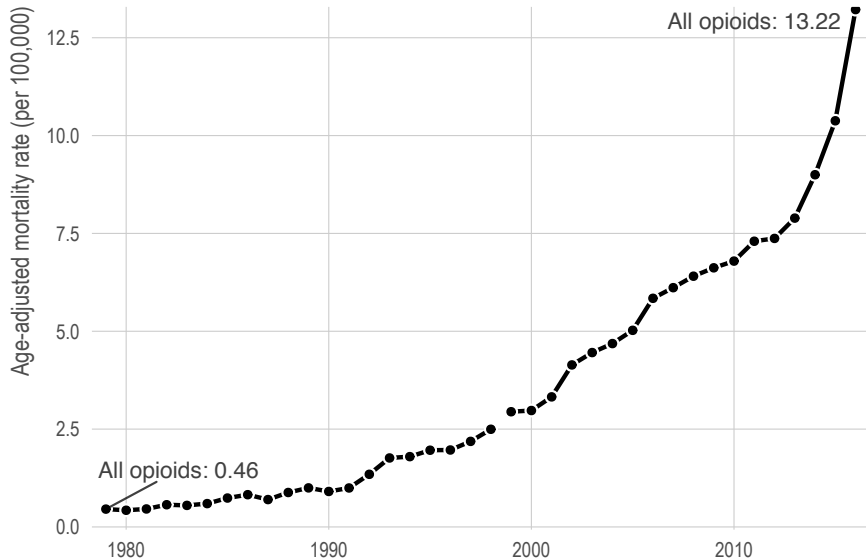
²Department of Demography
University of California, Berkeley

³Heinz College
Carnegie Mellon University

Session 57, EPC 2018

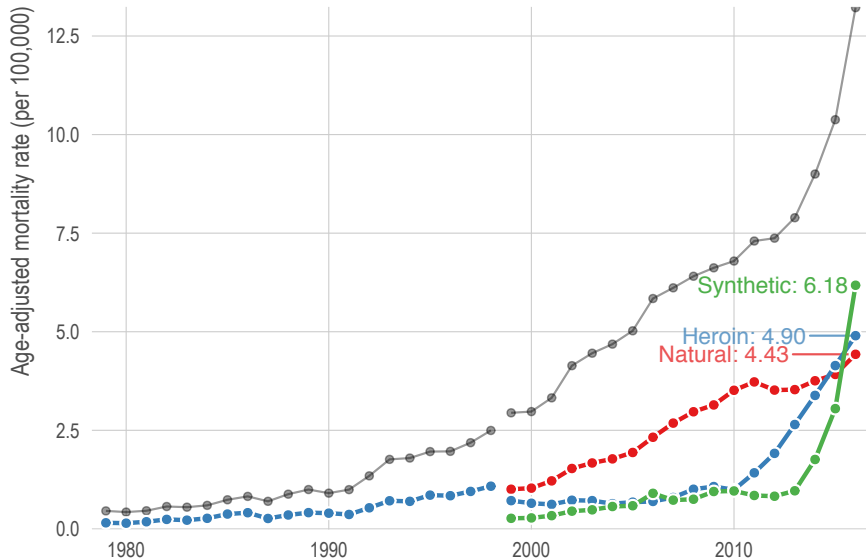
Background: the national US opioid epidemic

Almost 30x increase since 1980

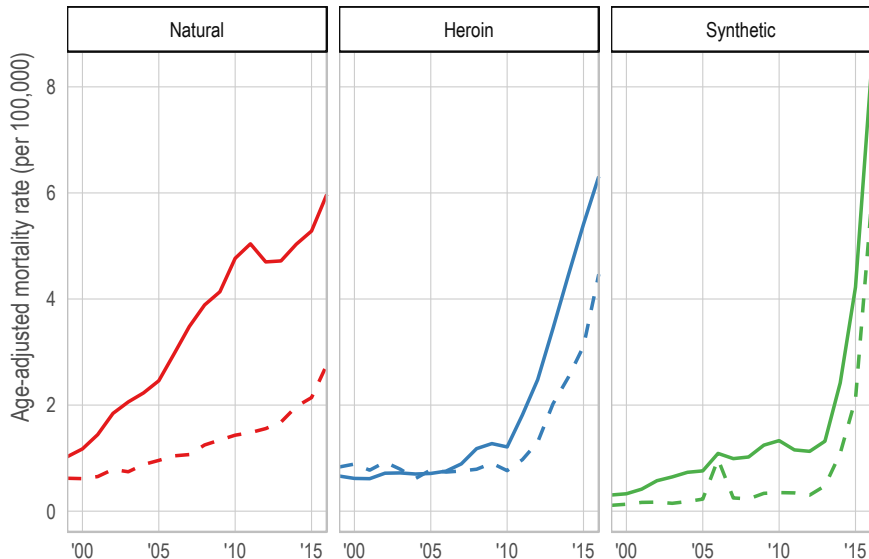


Variation in the opioid epidemic

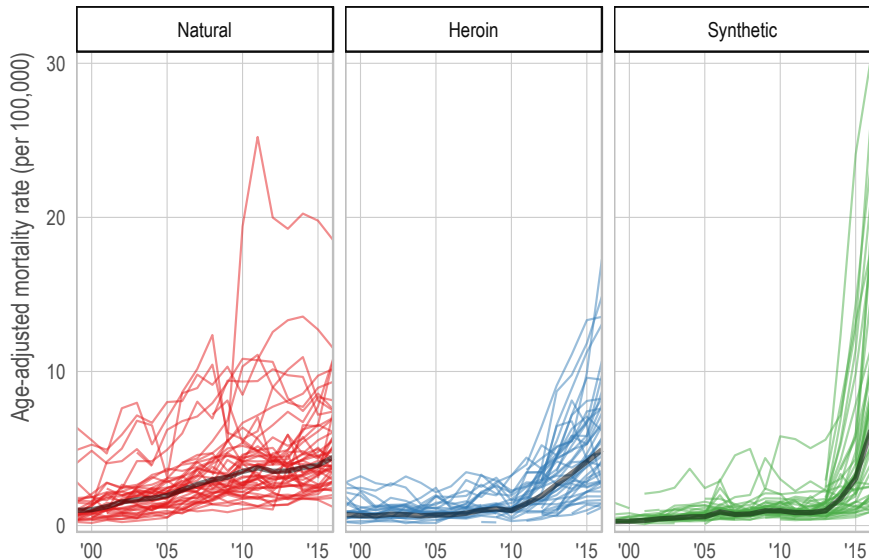
Variation by opioid type



Variation by race/ethnicity



Variation by state



Aims of the paper

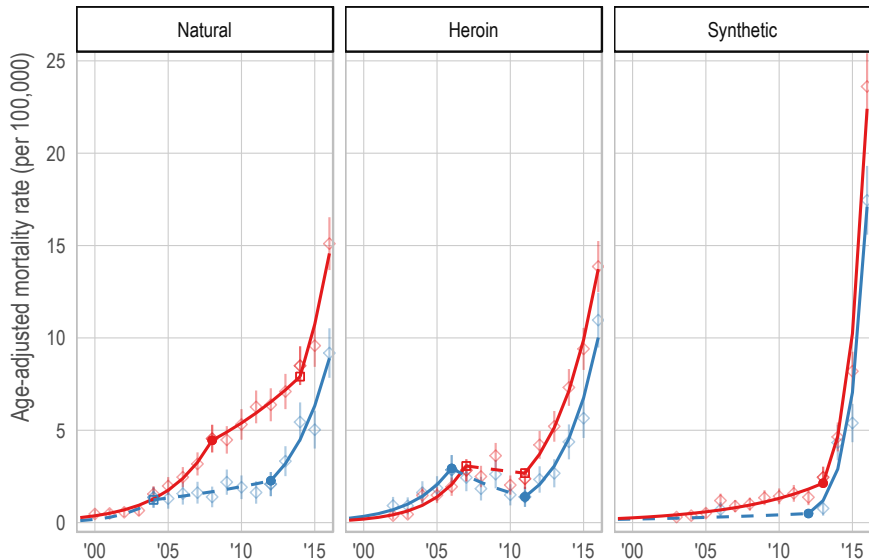
- ① Systematically describe the opioid epidemic across geography (state), race/ethnicity, and opioid type.
 - The epidemic over time (1999–2016)
 - The *current* epidemic in terms of level of mortality and current rate of increase
- ② Identify “epidemic hotspots” — areas with high mortality and current rapid increases

- ① Multiple cause of death data from NCHS
- ② Calculate age-standardized rates by state, race/ethnicity, and opioid type
 - Non-Hispanic Black and White populations
 - Natural (prescription); heroin; and synthetic (e.g. fentanyl) opioids
- ③ Joinpoint regression to identify significant changes

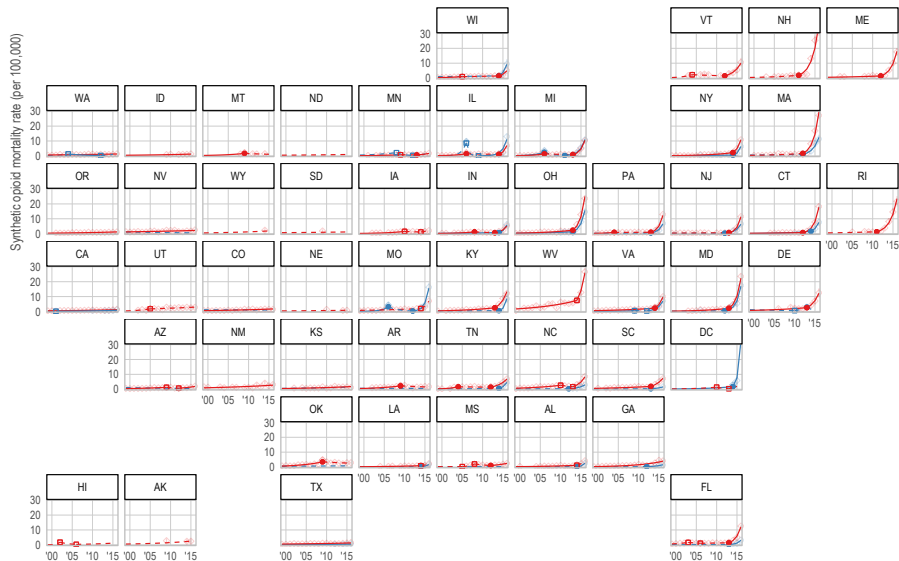
Results

Results explorer: <https://tiny.cc/epc2018>

Example Results: Maryland

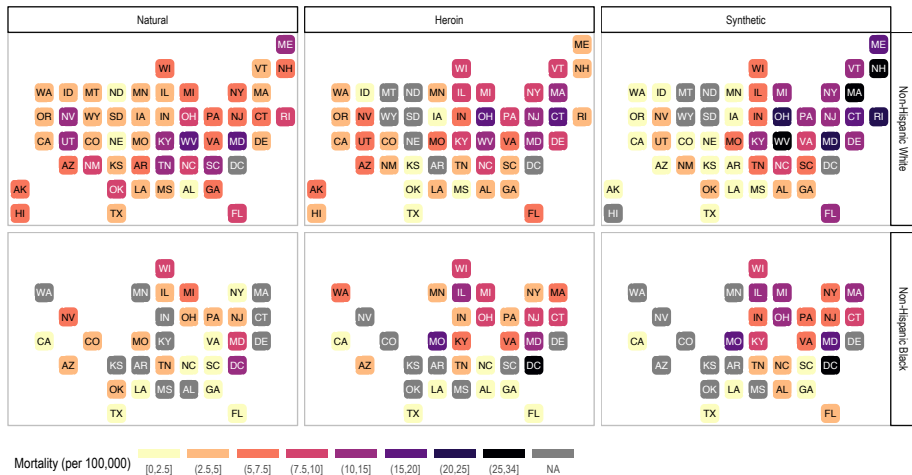


Example Results: Synthetic Opioids

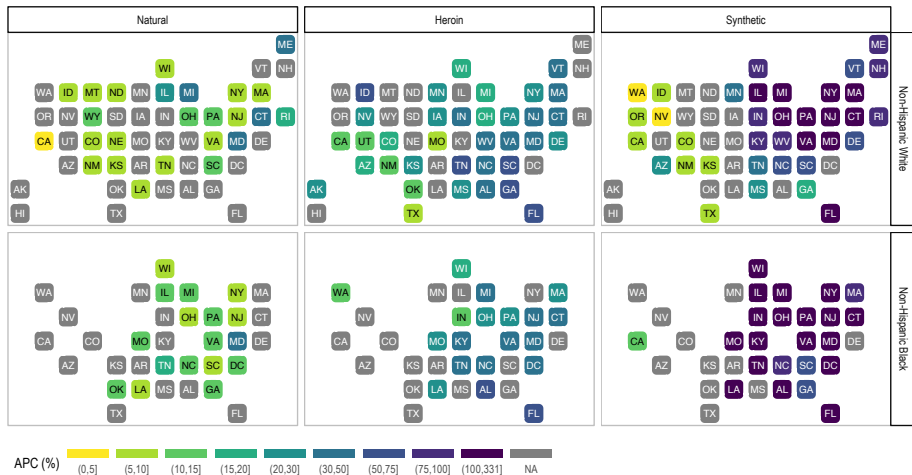


Results: Current Epidemic

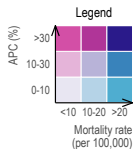
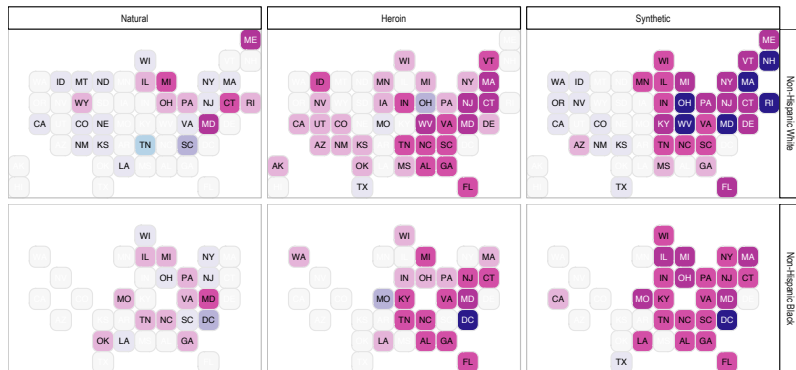
Current Level of Mortality



Current Rates of Increase



Epidemic Hotspots



Results

- No decreases in opioid mortality over whole time period
- Where there were increases, it is just as bad (or worse) for the black population
- Increases are driven by heroin and synthetic opioids in eastern states
 - Heroin deaths increased 30-34% per year for both populations
 - Synthetic opioids increased 70% per year for whites and 150% for blacks
- Synthetic opioids are doubling in 12 states for whites and 18 for blacks
- Strong geographical clustering of epidemic hotspots

Conclusions

- Not just one epidemic
- Huge variation by race and geography
- Interventions must be local and tailored to region, race/ethnicity, and opioid type
- Supply-side interventions need to be balanced with harm reduction interventions
- Surveillance of illicit markets needs to be dramatically improved

Thank you

Code and interactive results explorer:

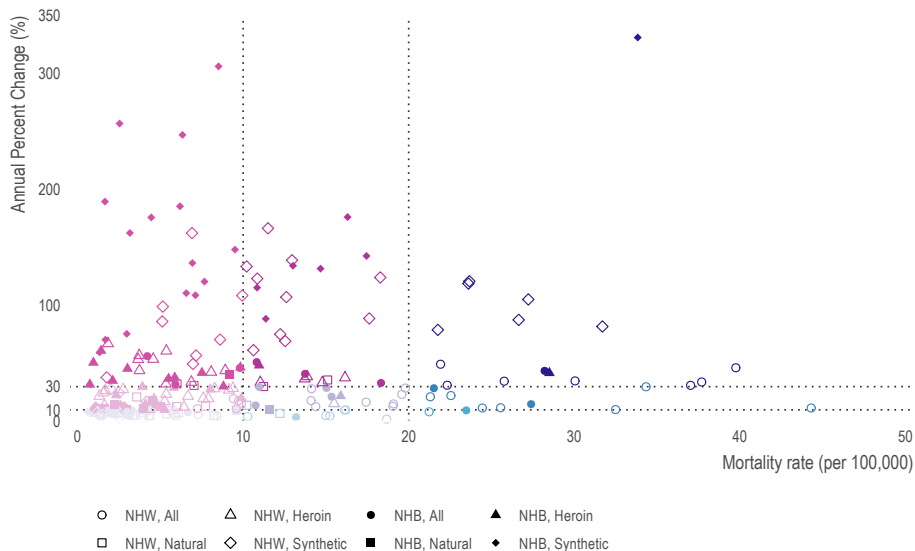
<https://tiny.cc/epc2018>

monicaalexander.com

: MJAlexander

: @monjalexander

Epidemic Hotspots



Average Annual Percent Change

