

# Geographic Variation in Opioid Mortality by Race/Ethnicity, 1999–2016

## Identifying epidemic hotspots

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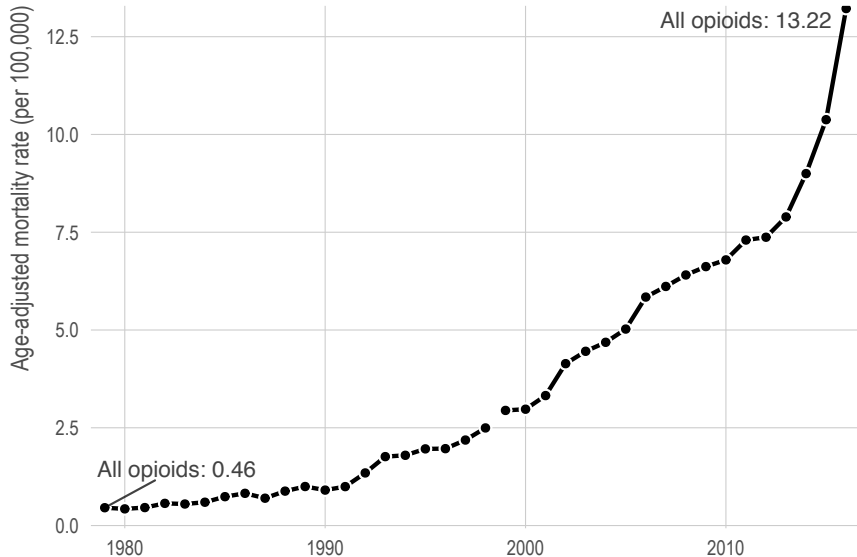
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Harvard TH Chan School of Public Health

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University of California, Berkeley

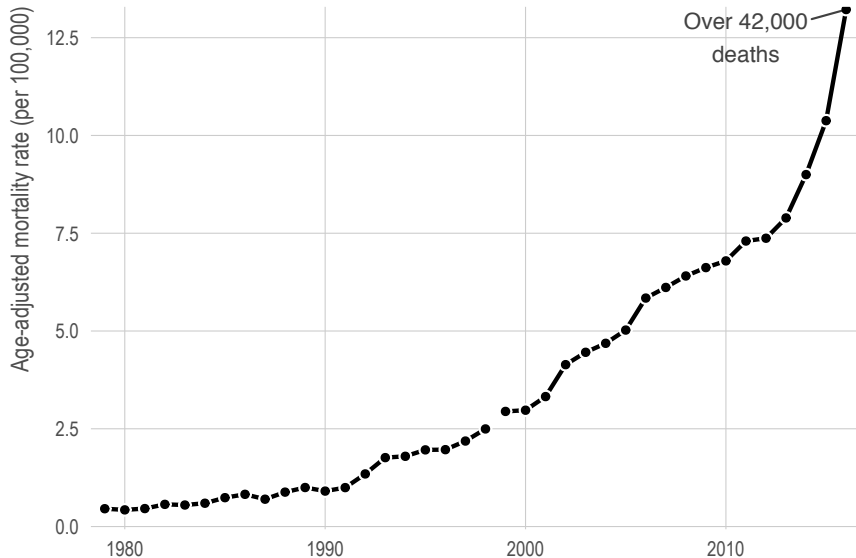
<sup>3</sup>Heinz College  
Carnegie Mellon University

PAA 2018: Denver, CO

# Almost 30x increase since 1980

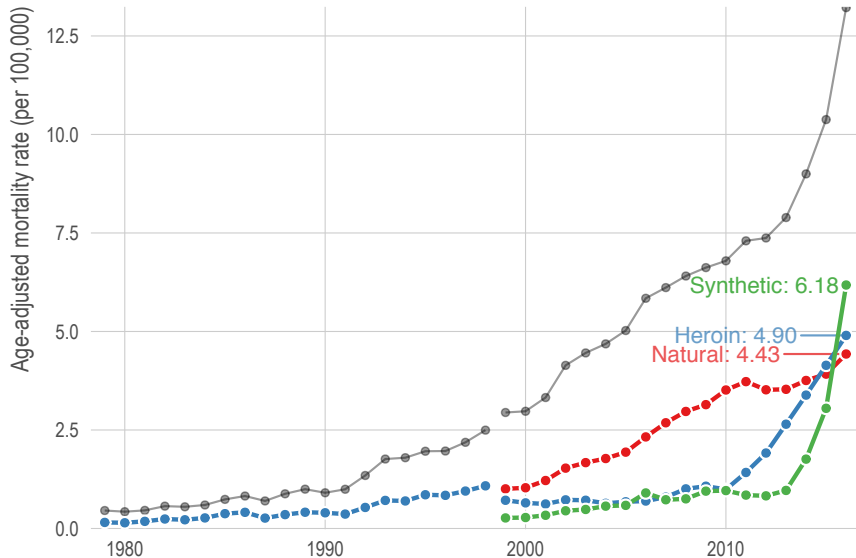


# More than deaths by car accidents or guns

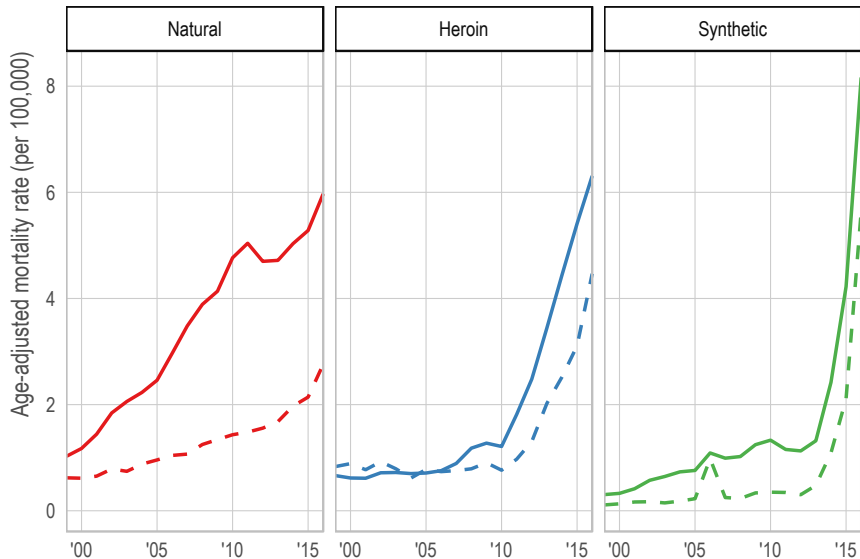


## Variation in the opioid epidemic

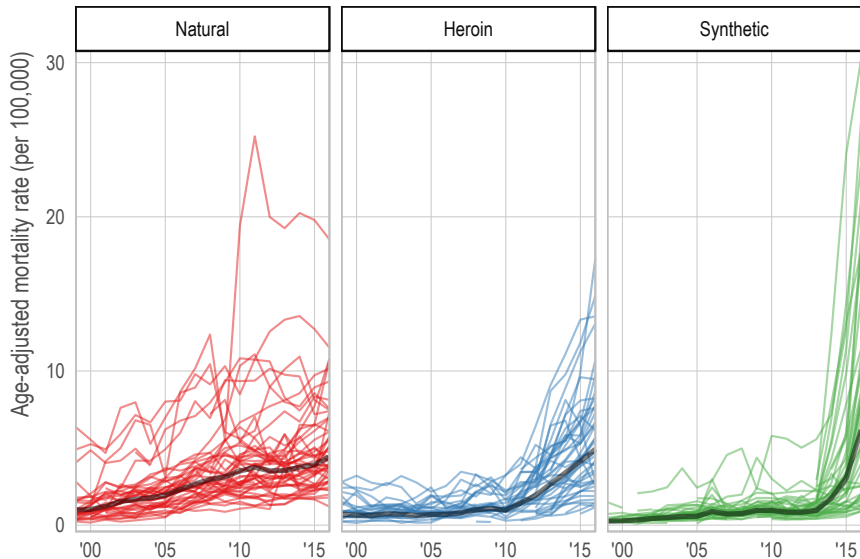
# Variation by opioid type



# 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 both mortality rate and rate of increase



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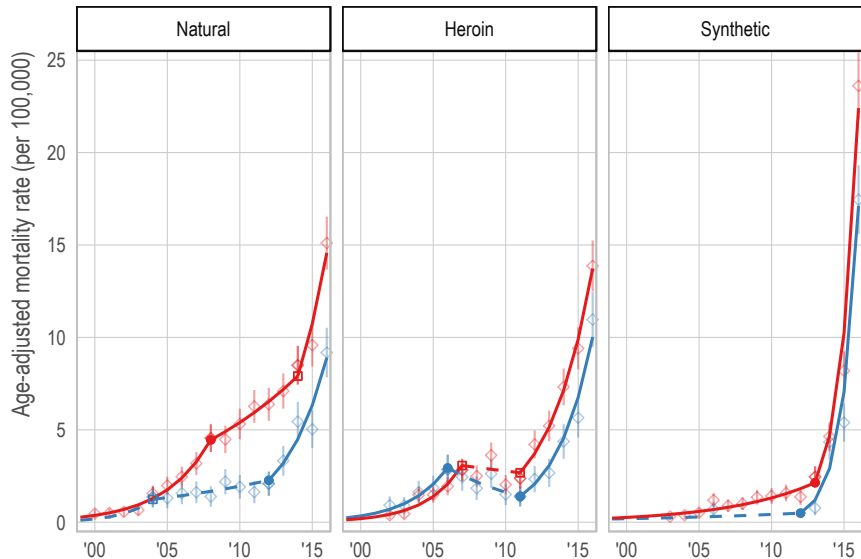
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  - The epidemic over time (1999–2016)
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- ② Identify “epidemic hotspots” — areas with high mortality and rapid increases

- 1 Multiple cause of death data from NCHS

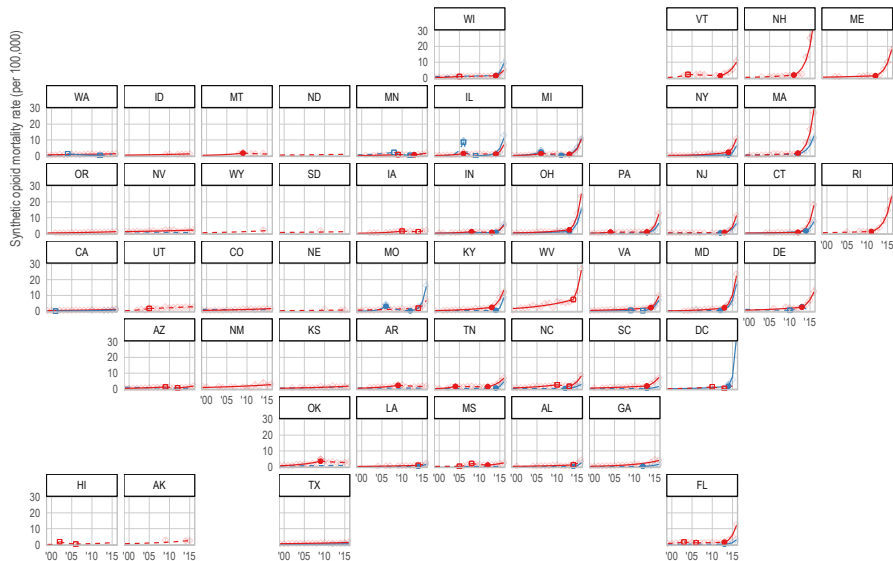
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- ③ Joinpoint regression

# Example Results: Maryland

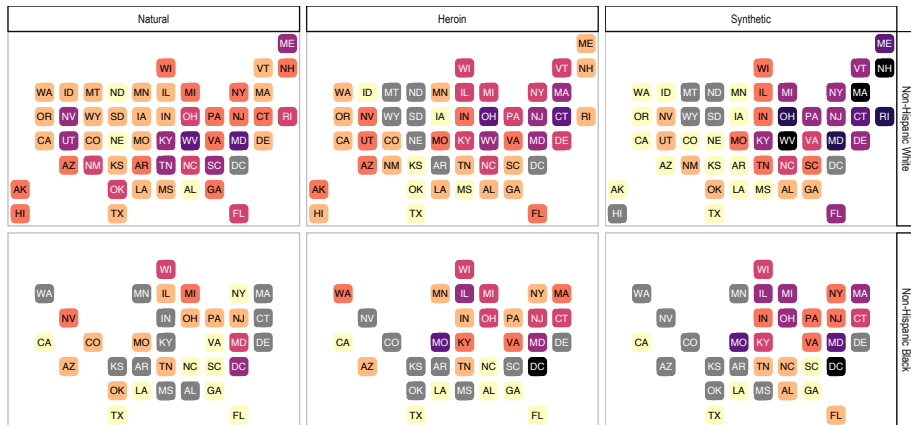


# Example Results: Synthetic Opioids



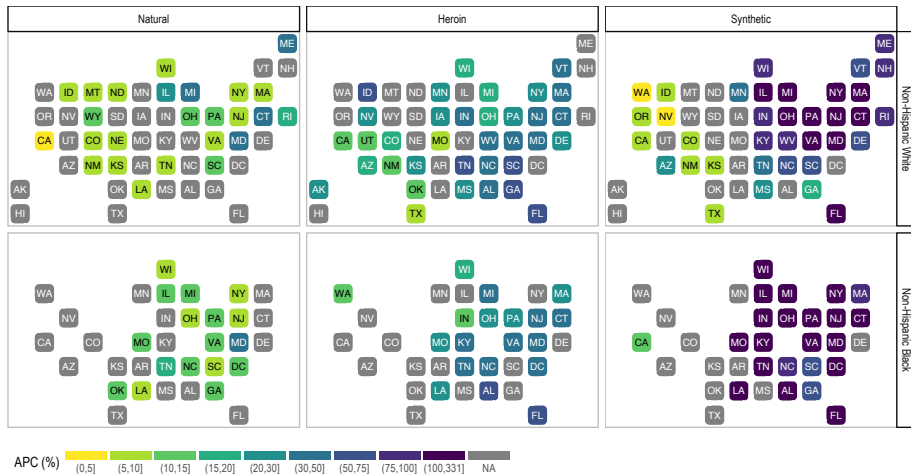
## Results: Current Epidemic

# Current Mortality

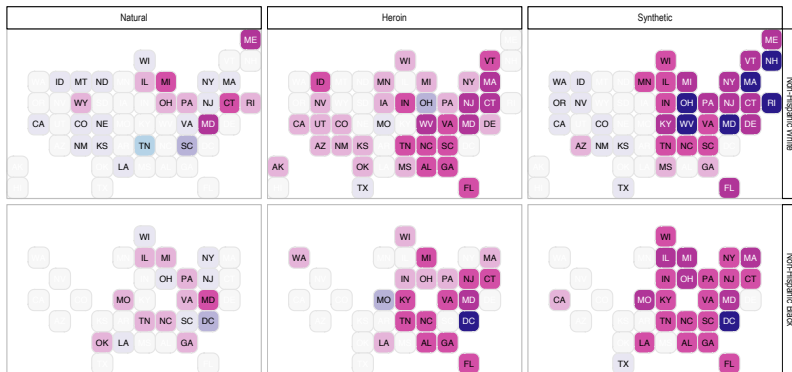




# Current Trajectory



# Epidemic Hotspots



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- Strong geographical clustering of epidemic hotspots

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  - Medication assisted treatment
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  - Drug testing on-site and point-of-site
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  - Supervised consumption sites
- Surveillance of illicit markets needs to be dramatically improved
  - Better measurement of potency of drugs
  - Types of drugs
  - Cost and availability

# Thank you

**Code and interactive results explorer:**

`https://tiny.cc/paa2018`

mathewkiang.com | : mkiang | : @mathewkiang

# Epidemic Hotspots



## Average Annual Percent Change

