

Opioid prescriptions and overdose deaths in the U.S.

“The Opioid Epidemic”



Alyssa Ma, Keturah Bardouille, Brandon McDermott, Ece Kalay, Linda Pikulin

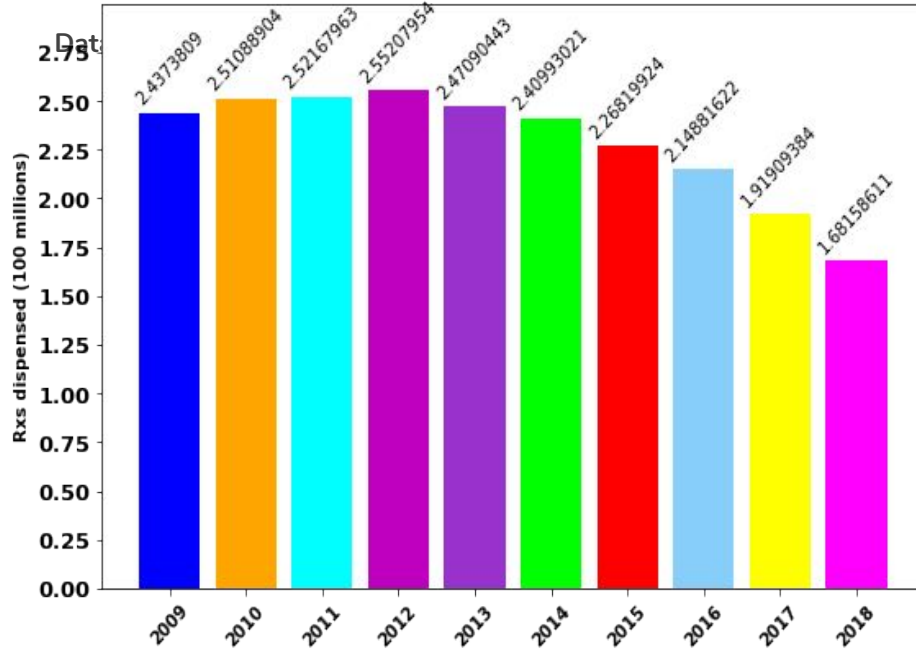
Opioids: a nationwide public health crisis

— — —

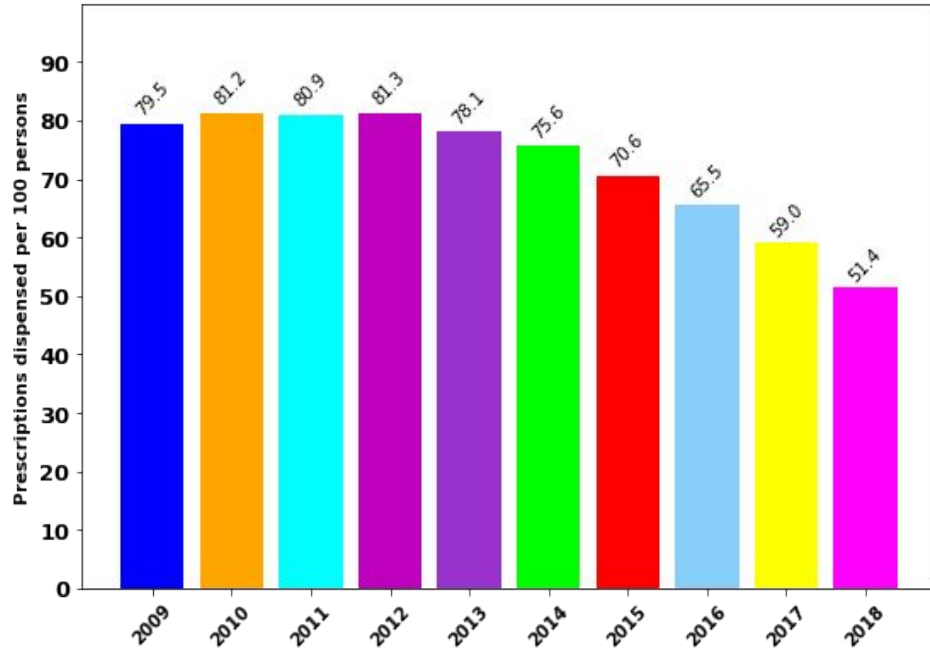
- **Research question:**
 - Are there **demographic groups or locations** where **fatal opioid overdoses are more prevalent**?
 - If so, is there a relationship between prescribing practices and opioid related mortalities in these demographics/locations?
- Analysis of current high quality surveillance data can lead to increased programmatic response and identify changing trends in these demographics/localities
- Data sources/tools:
 - [CDC Wonder](#)
 - [Kaiser Family Foundation](#)
 - [CMS Medicare Part D](#)
 - Utilization of **Google APIs**

Nationwide trend in number of opioid prescriptions

Opioid Rx's dispensed yearly



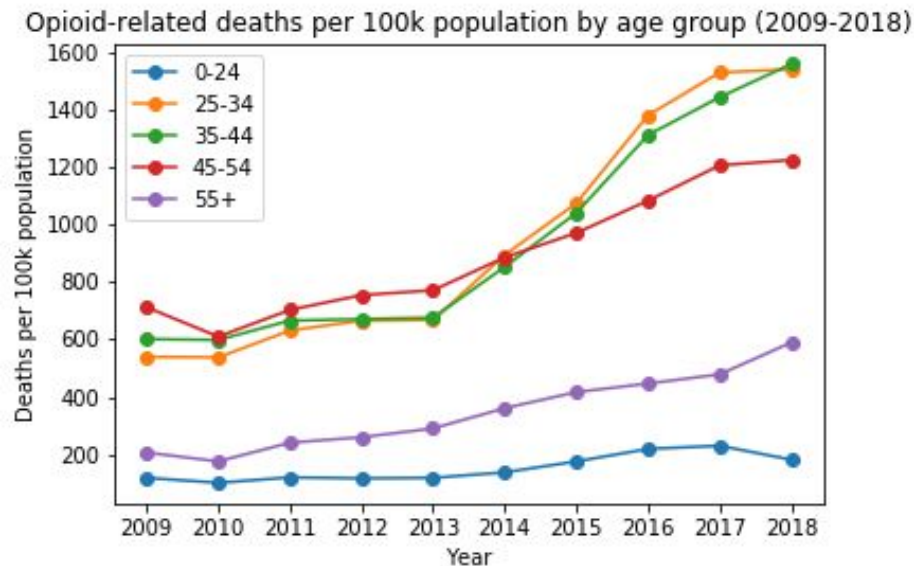
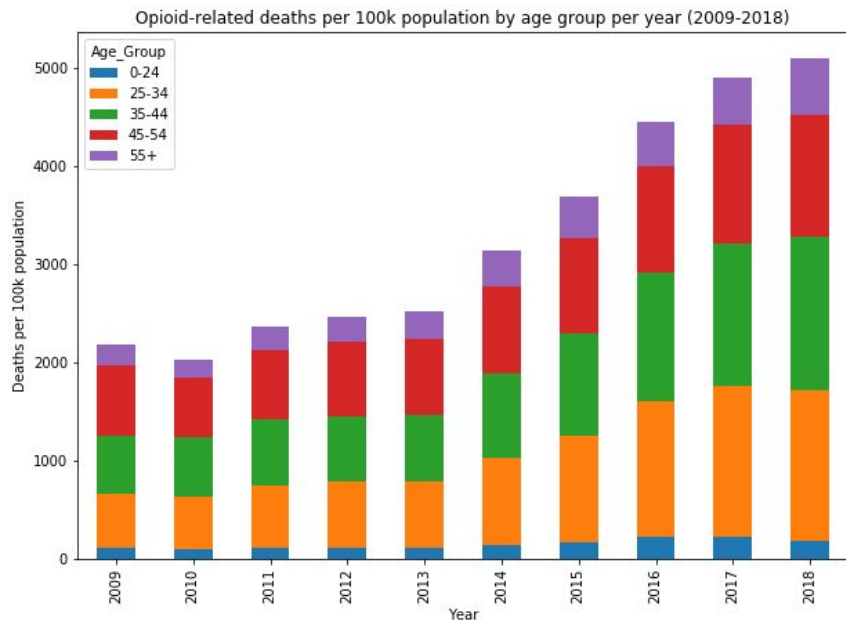
Opioid prescriptions dispensed yearly per 100 persons



Visualization by age group

— — —

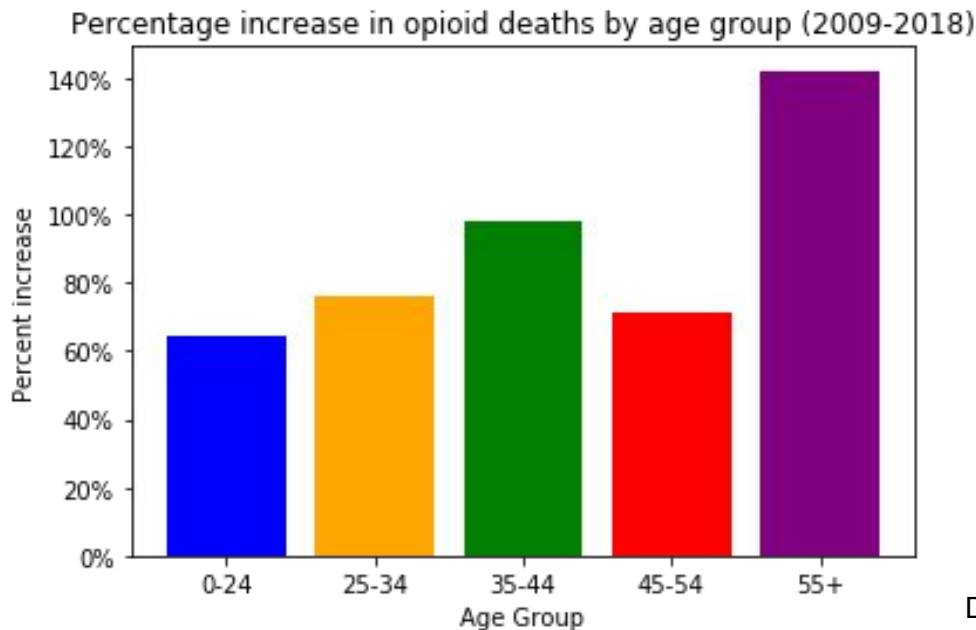
An overall increase in opioid-related deaths per 100K population across all age groups from 2009 to 2018



Data sources: CDC, Kaiser Family Foundation

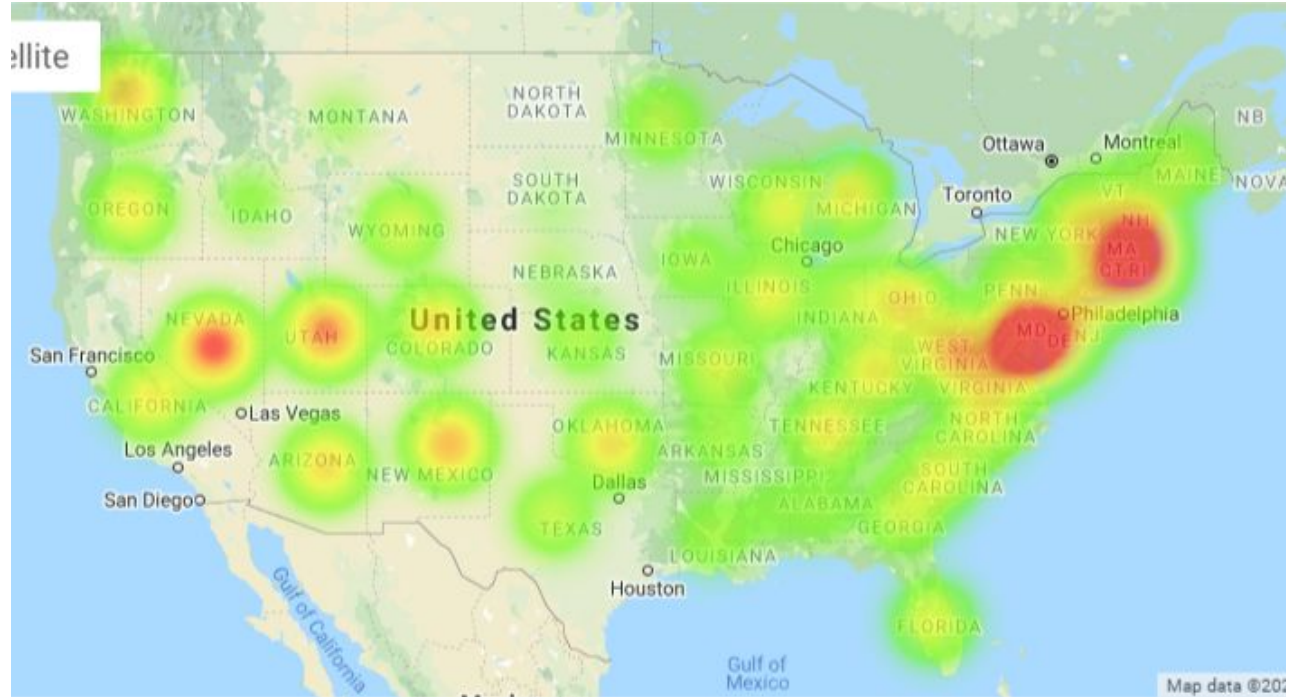
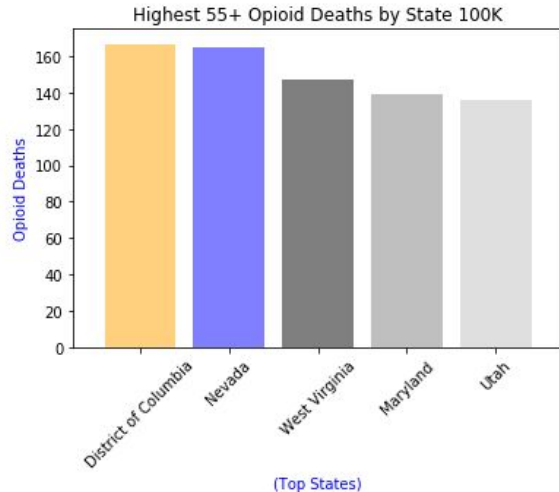
Percent change in opioid deaths by age group (2009-2018)

While the overall contribution of deaths from the 55+ age group is small, the change in percentage of opioid deaths for this age group has shown the greatest increase



Data source: Kaiser Family Foundation

% of deaths for 55+ years old that are opioid related by state, 2009-2018



Data sources: CDC, Kaiser Family Foundation

Examining prescribing practices of Medicare Part D providers of opioids

— — —

One in three Medicare Part D beneficiaries received a prescription opioid.



In total, 1,162,898 providers wrote prescriptions for opioids.



*HHS OIG Data Brief • July 2017 • OEI-02-17-00250

<https://oig.hhs.gov/oei/reports/oei-02-17-00250.pdf#:~:text=In%20addition%20to%20the%20risk,likelihood%20of%20falls%20and%20fractures>

Number of top providers for Part D population (2017)

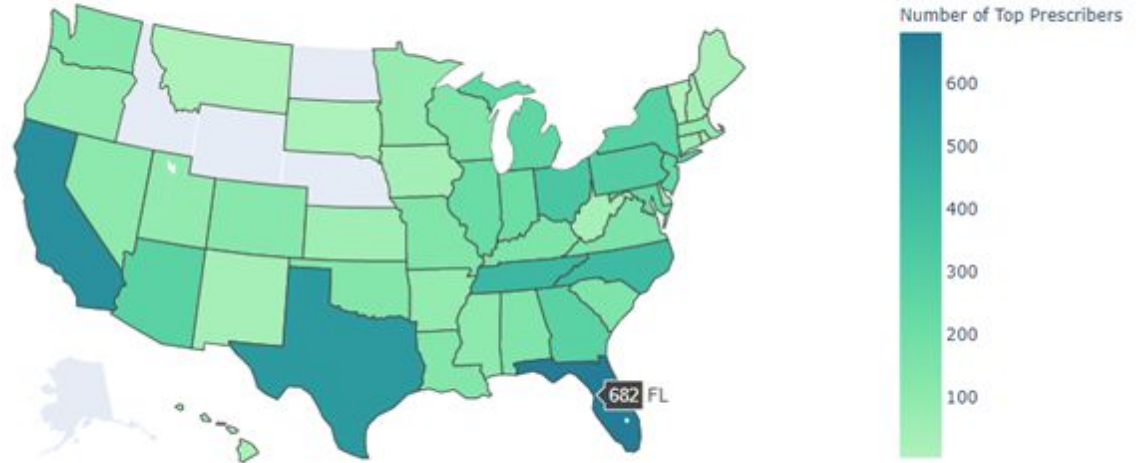
Top Opioid Prescribers

Top opioid prescribers:

Top 5th percentile for opioid
claim count

&

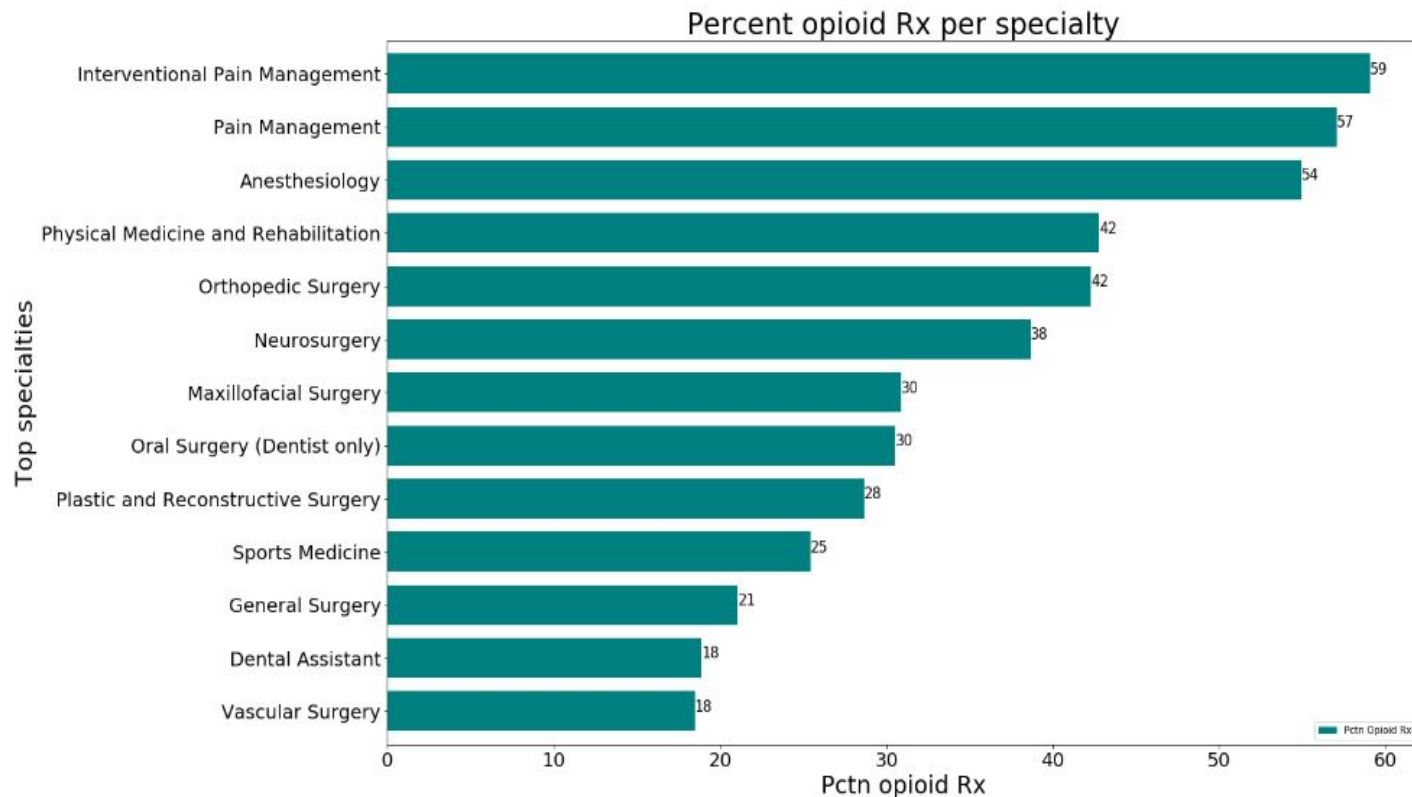
Top 5th percentile for opioid
prescribing rate



Prescriptions by top medical specialties

Top opioid prescribing specialties:

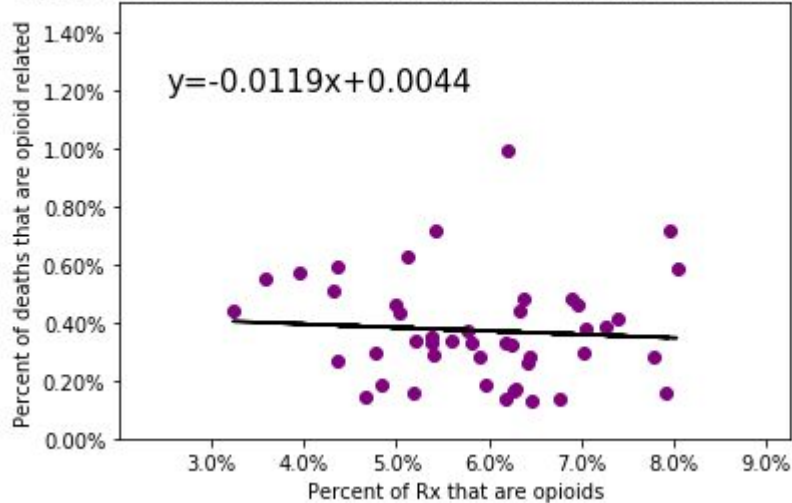
Top 25th percentile for
opioid claim count
&
Top 25th percentile for
opioid prescribing rate



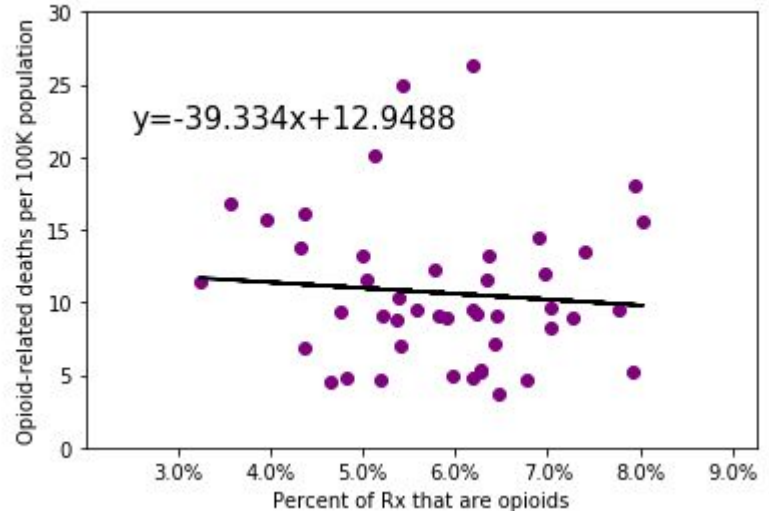
Data source: CMS Medicare Part D Opioid Prescriber Summary File 2017

Relationship between opioid scripts and opioid deaths

Linear regression between % of opioid-related deaths and % of opioid Rx



Linear regression between opioid-related deaths per 100K and % of opioid Rx



Conclusion

— — —

- **Findings**

- The number of opioid prescriptions are decreasing, but opioid deaths are increasing
 - National Center for Health Statistics: drug overdose deaths involving synthetic opioids other than methadone (drugs such as) increased by 10%, from 9.0 in 2017 to 9.9 in 2018.
- Greatest increase in percentage of opioid deaths found in the 55+ population
- States with high levels of prescribing do not correspond to those with the highest death rates

- **Limitation of our analyses**

- Age group for death and prescriptions not directly aligned (55/65)
- CMS data does not include prescriptions filled through private insurance or illegally obtained opioids
- Data is delayed 3 years, limiting functionality for surveillance