



CALIFORNIA  
HEALTH  
POLICY  
STRATEGIES, L.L.C.

## Policy Brief

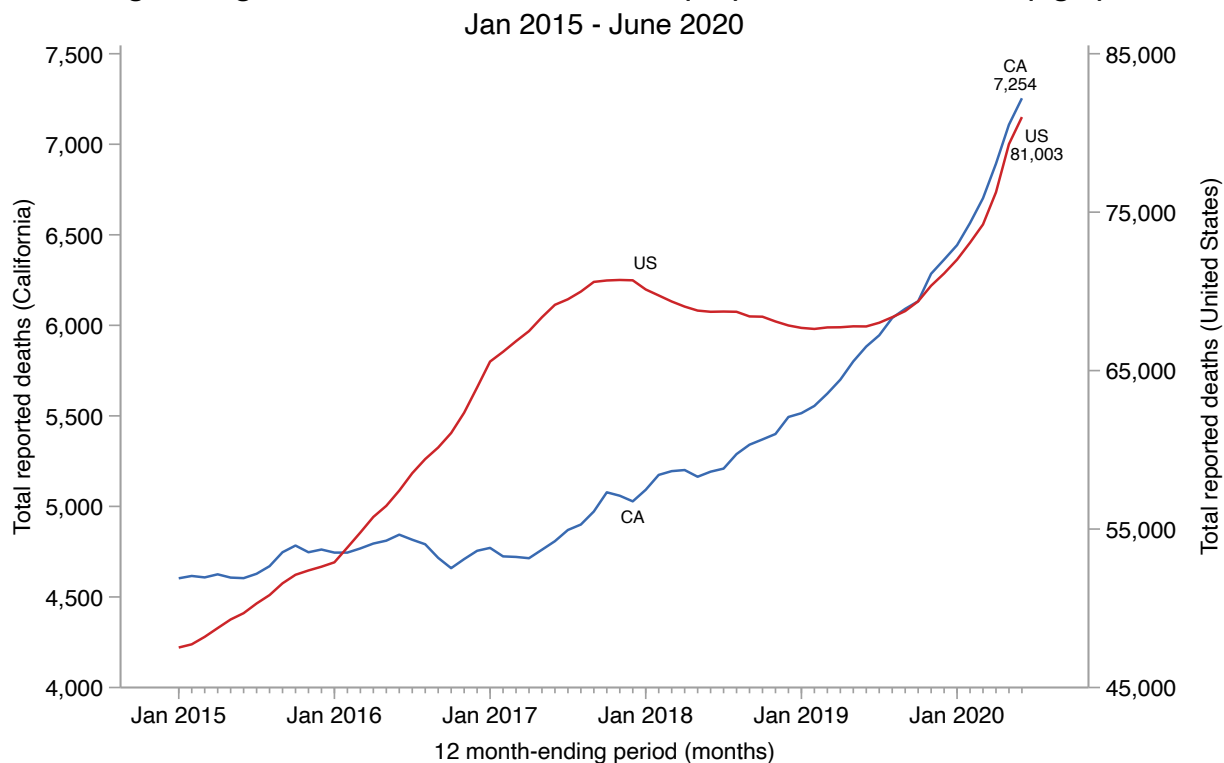
# Trends in California Drug Overdose Deaths

March 2021

### Topline Findings

- **Drug-related overdose fatalities have risen 50% since 2017.** Overdose fatalities are rising faster in California than in the United States where overdose deaths are up 15% over the last three years.
- **Drug-related overdose is now a top-ten leading cause of death.** In the 12-months between June 2019 and June 2020 there were at least 7,254 overdose deaths which equals approximately 17 overdose fatalities per 100,000 state residents. Accidental drug overdoses kill twice as many people as car accidents.
- **Fentanyl, a synthetic opioid, is primarily responsible for the increase in overdose deaths.** The rate of overdose deaths related to synthetic opioids (e.g., fentanyl) has risen by 541% over the last 3 years. Fentanyl is now the leading cause of opioid-related overdose deaths and 37% of all drug-related overdose fatalities involve fentanyl.
- **Overdose death rates vary significantly across counties and demographic groups.** The adjusted rate of overdose death is highest in Lake and Mendocino county. Additionally, the adjusted rate is highest amongst males, Native Americans, Blacks, and those 50 to 65 years old. Fentanyl deaths are especially prevalent among people 20-34 years old.

**Fig 1. Drug Overdose Deaths in California (left) & the United States (right)**

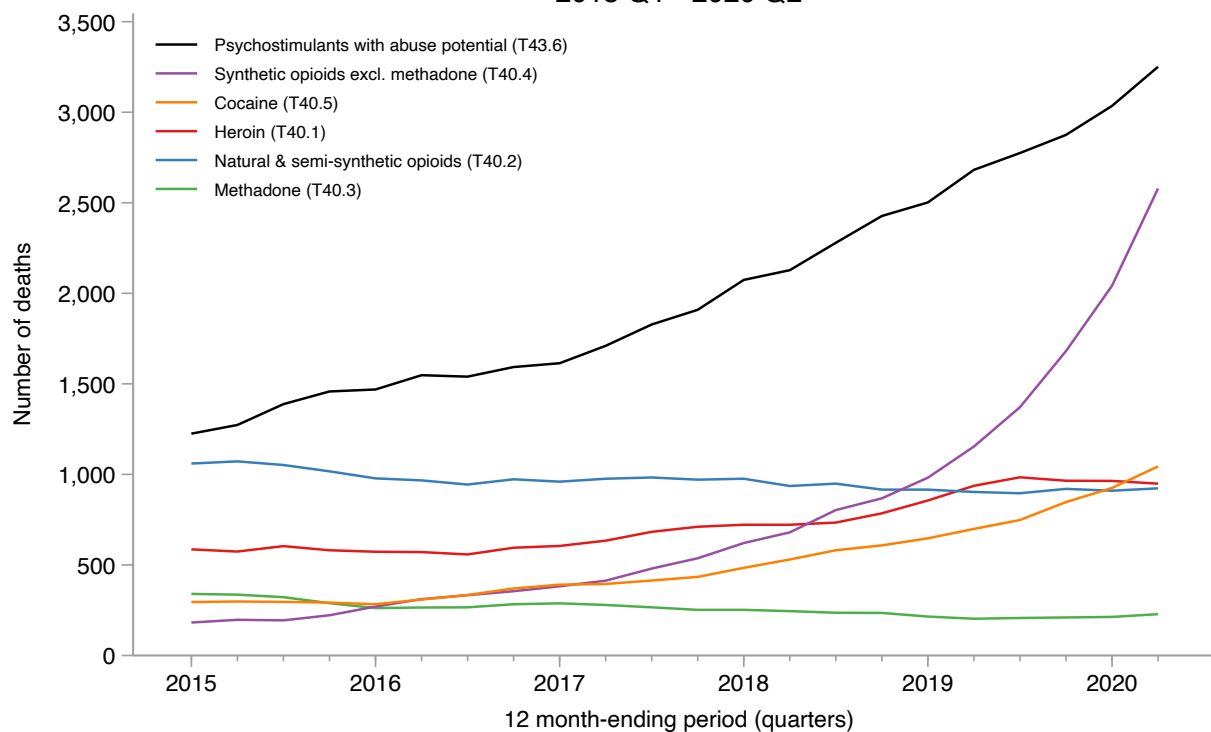


Sources and notes

The raw number of drug-related overdose deaths are rising in both California and the United States. Preliminary mortality records indicate that in the 12-month period June 2019 and June 2020 there were at least 7,254 drug overdose deaths in California and over 81,003 in the United States. The number of overdose fatalities is rising faster in California than it is in the United States. In California, overdose deaths are up 50% and in the United States overdose deaths are up 15% since the 12-month period June 2016 to June 2017. The age-adjusted rate of drug overdose death has also risen dramatically over the last three years and is at an all-time high; there are approximately 17 overdose deaths per 100,000 state residents.

**Fig 2. Overdose Deaths by Drug or Drug Class**

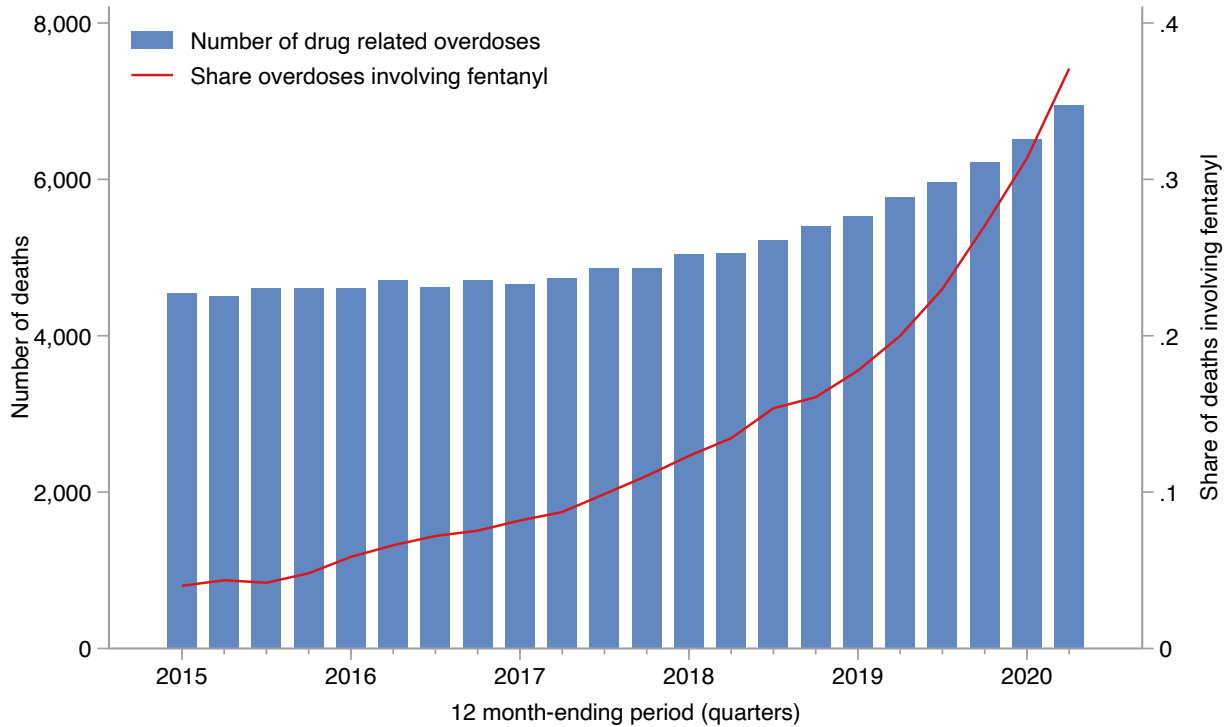
2015 Q1 - 2020 Q2



Source and notes

The number of opioid-related overdose deaths has risen sharply since 2017. The increase in opioid-related overdose deaths has been driven by the marked increase in deaths related to synthetic opioids (excluding methadone), such as fentanyl. Between the second quarter of 2016 and 2017 there were 413 deaths related to synthetic opioids, but between the second quarter of 2019 and 2020 there were 2,579 deaths, a 524% increase. The count of overdose fatalities involving psychostimulants, such as methamphetamine, has increased by 90% since the second quarter of 2017. Moreover, the number of overdose deaths related to heroin or cocaine use have also risen significantly over the last three years. Overdose deaths related to cocaine or heroin have increased by 164% and 50%, respectively, since the 12-month period ending in the second quarter of 2017. The number of overdose deaths related to methadone and natural or semi-synthetic opioids have remained mostly unchanged.

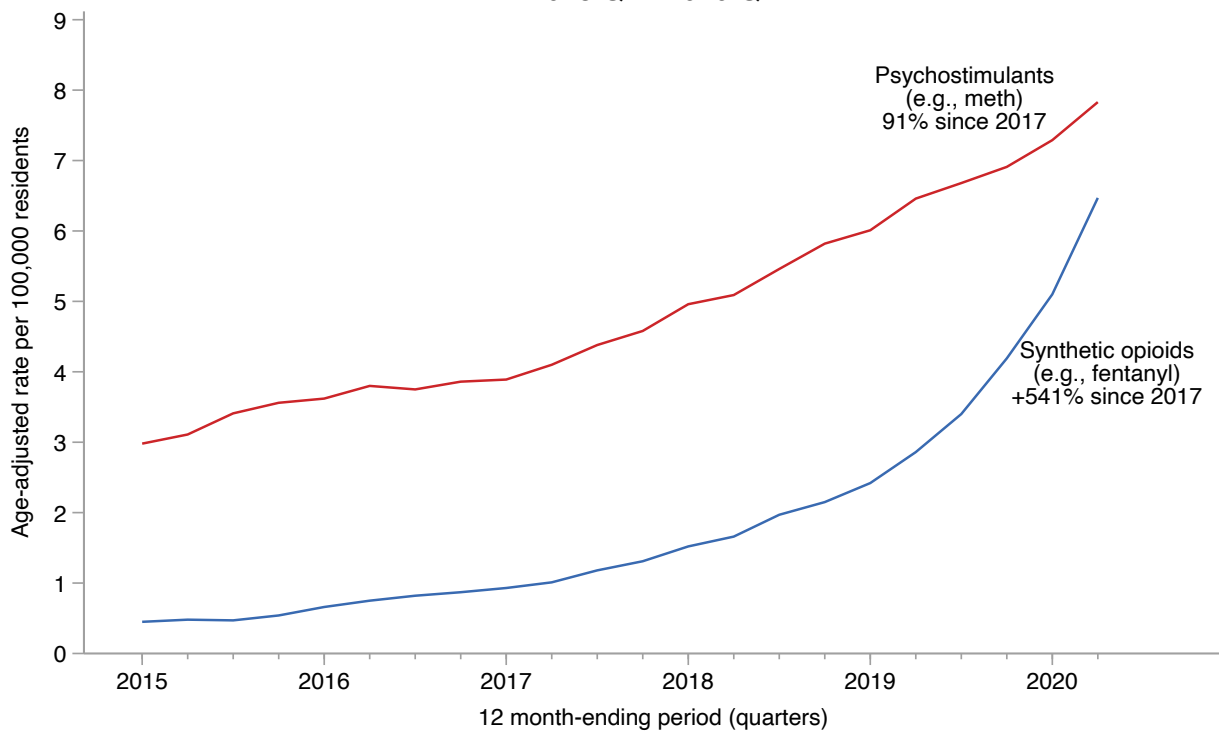
**Fig 3. Number of All Drug Related Overdose Deaths and the Share Involving Fentanyl**  
2015 Q1 - 2020 Q2



Source and notes

The percent of all overdose fatalities involving fentanyl has increased by 28 percentage points (or 311%) since 2017. During the 12-month period ending in the second quarter of 2017 there were 4,732 fatal drug overdoses and about 9% of those deaths involved fentanyl. However, during the 12-month period ending in the second quarter of 2020 there were 6,954 overdose deaths and at least 37% involved fentanyl. Fentanyl became the leading cause of opioid-related overdose deaths in early 2019.

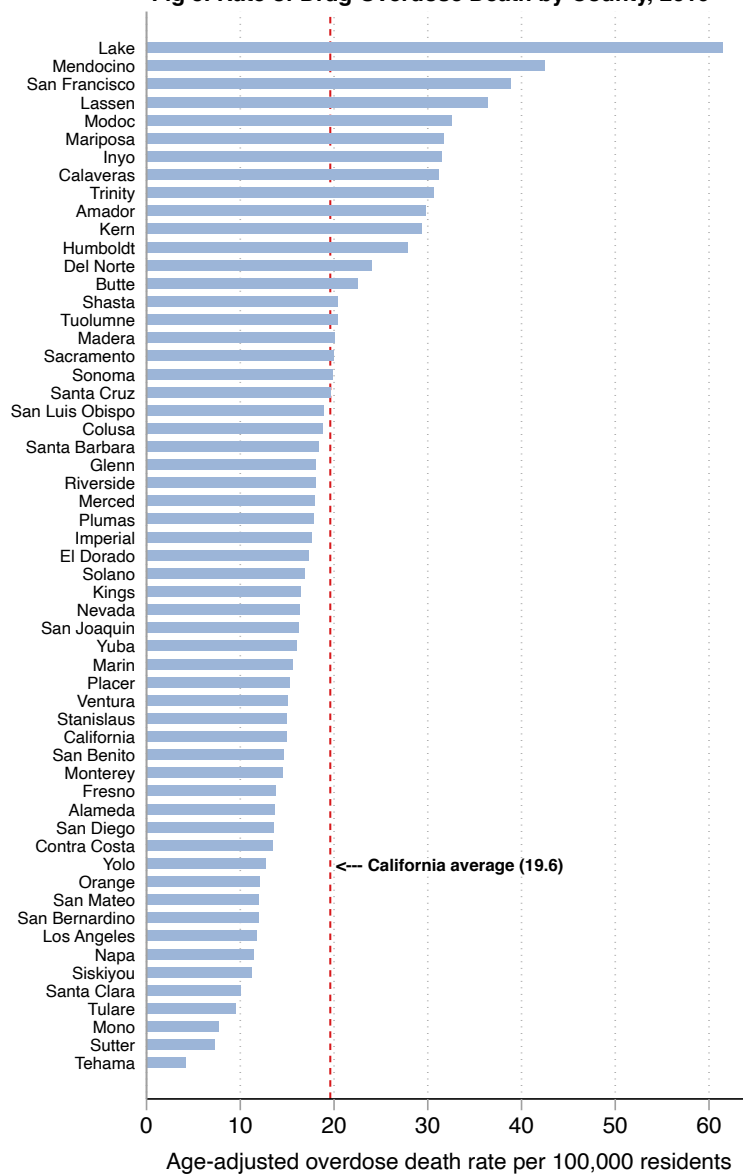
**Fig 4. Rate of Synthetic Opioid & Psychostimulant Overdose Deaths**  
2015 Q1 - 2020 Q2



Source and notes

Synthetic opioids (especially fentanyl) are largely responsible for the unprecedented growth in overdose deaths. The age-adjusted rate of overdose deaths related to synthetic opioids (e.g., fentanyl) has risen by 541% over the last three years. In the 12-month period between the second quarter of 2019 and the second quarter of 2020 there were 6.47 overdose deaths related to the use of synthetic opioids (mostly involving fentanyl) per 100,000 state residents. The age-adjusted rate of overdose deaths related to psychostimulants with abuse potential, such as methamphetamine, has increased by 91% since 2017.

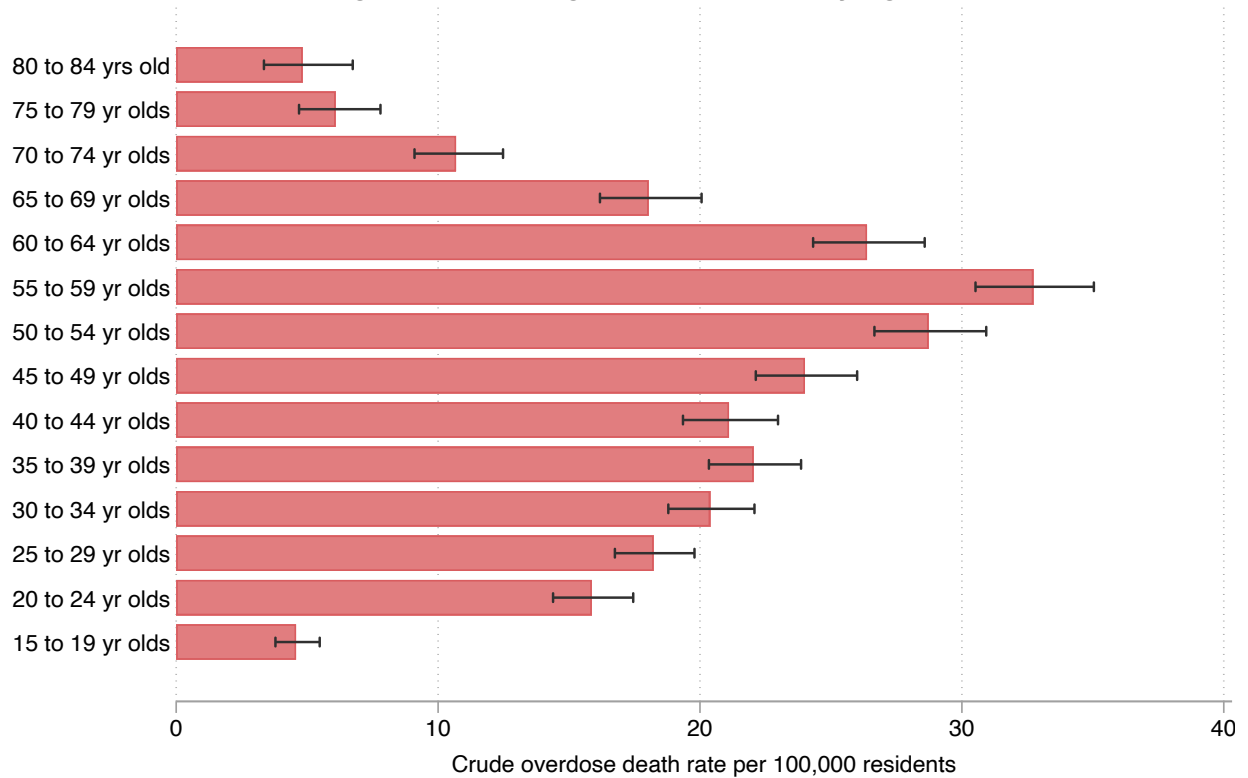
Fig 5. Rate of Drug Overdose Death by County, 2019



Source and notes

Overdose death rates are highly variable across counties in California. In 2019, the average rate of all drug-related overdose deaths across the state was 19.6 deaths per 100,000 state residents and the median was 17.3 deaths per 100,000 state residents. Lake county has the highest rate of overdose deaths by a significant margin and the rate there has been perniciously high. Mendocino, and San Francisco county have the second and third highest rates of overdose deaths, respectively. Although Los Angeles and Santa Clara are populous counties, the age-adjusted rate of overdose deaths is relatively low compared to other counties.

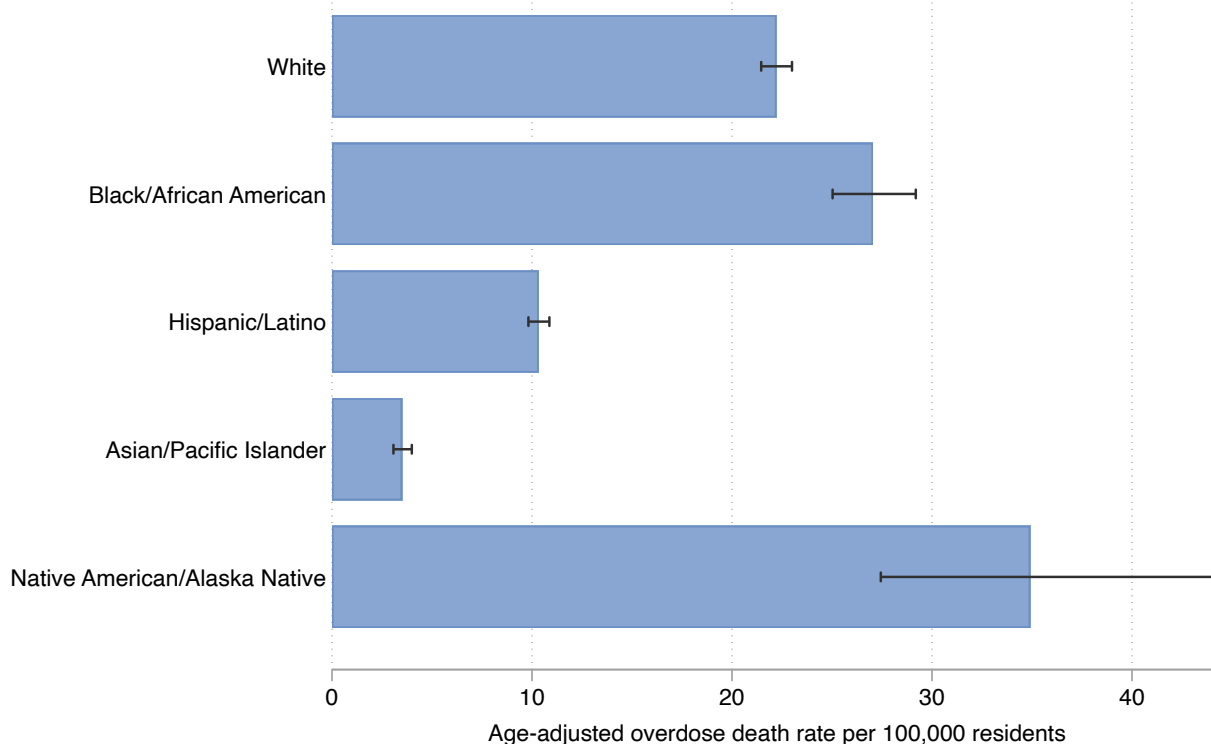
**Fig 6. Rate of Drug Overdose Death by Age Group, 2019**



[Source and notes](#)

Individuals ages 45-64 years old have the highest rate of overdose deaths. Amongst people 55-59 years old there about 32 drug overdose deaths per 100,000 people in the age cohort. There is a sharp jump in the rate of overdose deaths around 20 years of age. Specifically, there are about 4 overdose deaths per 100,000 amongst those 15-19 but nearly 16 drug overdoses per 100,000 amongst those 20-24. The age distribution of fatal overdoses that involve fentanyl skew significantly younger though. The rate of fentanyl-related deaths is especially high among people 20-34 years old.

**Fig 7. Rate of Drug Overdose Death by Race/Ethnicity, 2019**

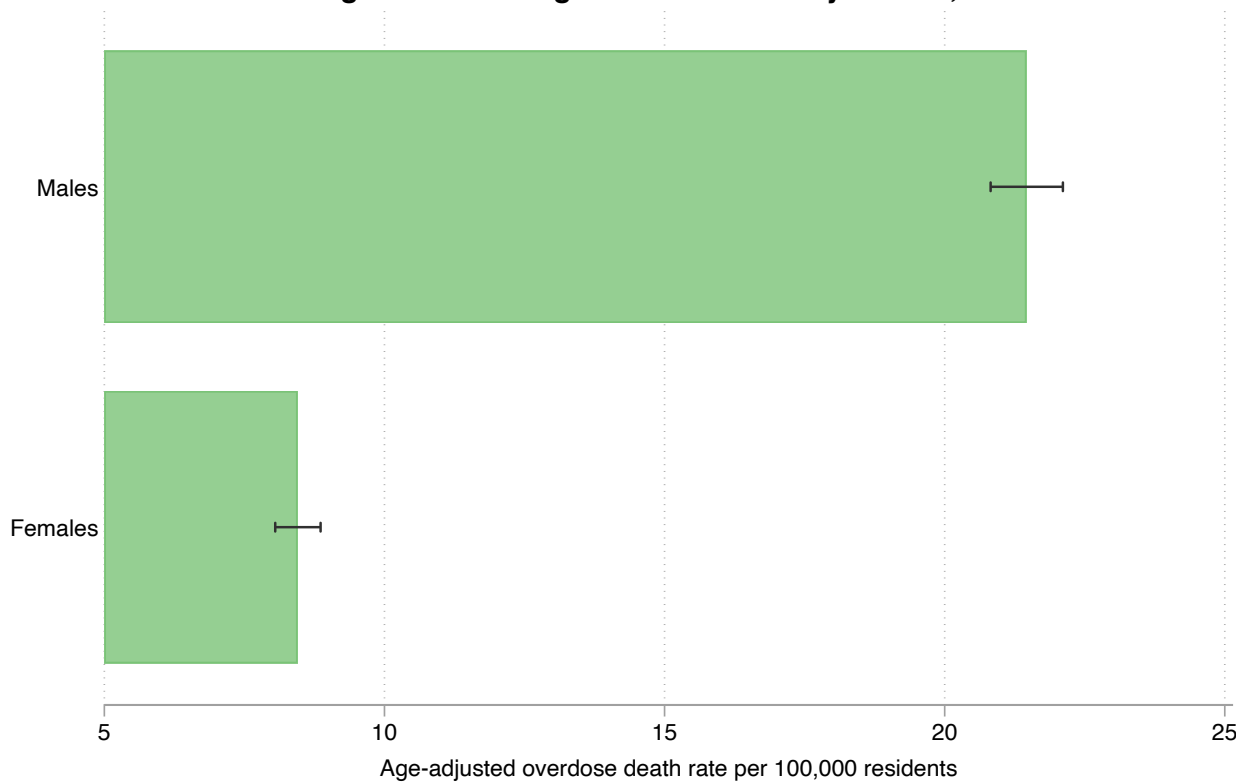


[Source and notes](#)

Compared to other races and ethnic groups, Native Americans or Alaska Natives experience the highest, estimated age-adjusted rate of overdose death rate – approximately 34 deaths per 100,000 people. Blacks or African Americans and Whites have the second and third highest adjusted rate of overdose deaths, respectively. Amongst people identified as Black or African American there were 27 deaths per 100,000 and amongst individuals identified as White there were 22 deaths per 100,000. Asians and Pacific Islanders have lowest rate of overdose deaths by a wide margin (3 overdoses per 100,000) and they are one of the least at-risk demographic groups. In terms of raw overdose counts, Whites and Hispanics experienced the most fatal overdoses with at least 3,615 and 1,586 fatalities in calendar year 2019, respectively. However, Blacks and Native Americans were the two groups most overrepresented in terms of overdose fatalities. Blacks and Natives Americans account for approximately 6% and 1% of the general California population but make up 11% and 4% of all overdose deaths, respectively.



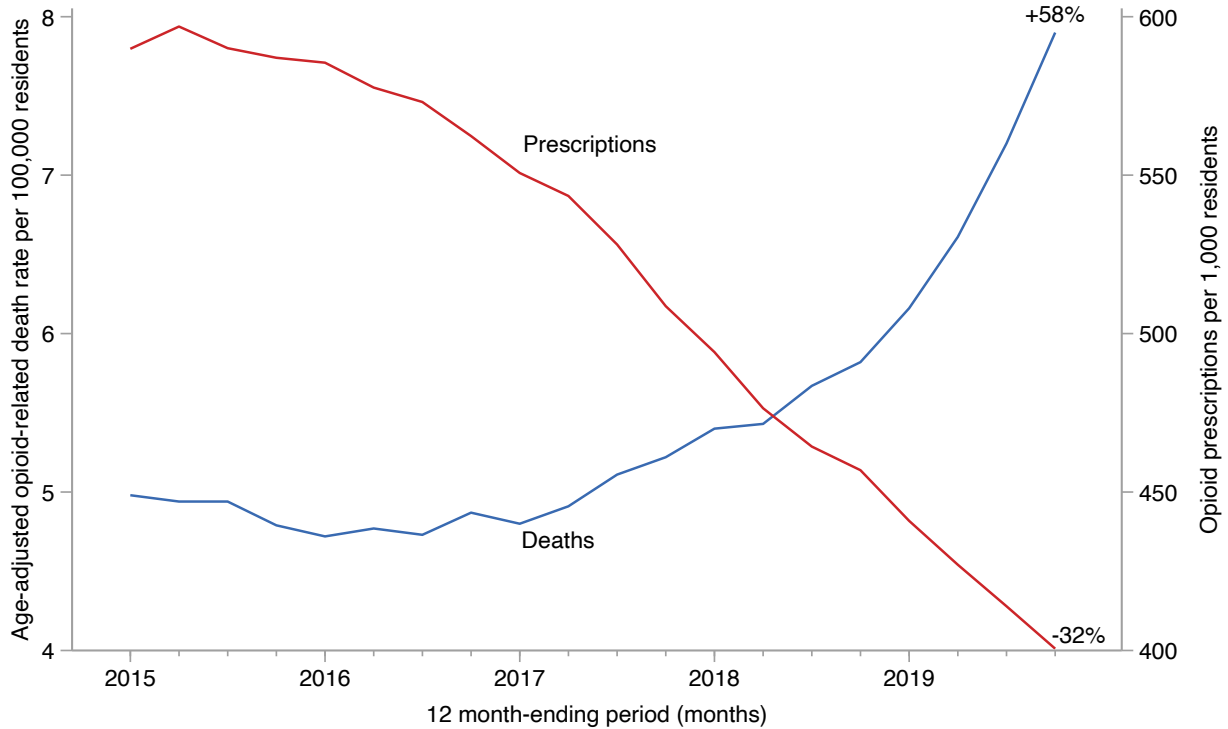
**Fig 8. Rate of Drug Overdose Death by Gender, 2019**



[Source and notes](#)

Males have significantly higher rates of overdose deaths compared to women; the rate of drug overdose deaths amongst men is over 2.5 times higher. The age-adjusted rate of drug-related overdose fatalities amongst men and women is 21 and 8 per 100,000 people, respectively.

**Fig 9. Rate of Opioid-Related Overdose Deaths (left) vs Opioid Prescriptions (right)**  
 Jan 2015 - June 2020



Sources and notes

Opioid overdose deaths and opioid prescriptions have trended in opposite directions over the last five years. Since 2015, the number of opioid-related drug overdose deaths per 100,000 people has risen by 58% while the number of opioid prescriptions per 1,000 people has fallen by 32%. There were about 5 opioid-related overdose deaths per 100,000 people in California during 2015, however as of 2019 there were over 8 of these avoidable deaths per 100,000. The rate of opioid prescriptions has fallen starkly but the reasons need to be further explored by researchers. In 2015 there were a little under 600 opioid prescriptions per 1,000 people but as of 2019 there were 400 opioid prescriptions per 1,000 residents.

## Appendix A: Sources and Notes

### Sources

Figure 1: Source 1-[CDC NCHS. Underlying Cause of Death 1999-2018 from CDC WONDER online database.](#) Source 2-[CDC NCHS, National Vital Statistics System, Provisional Drug Overdose Death Counts from NVSS Rapid Release database.](#)

Figures 2-8: [CDPH Center for Health Statistics and Informatics Vital Statistics](#) - Multiple Cause of Death and California Comprehensive Death Files.

Figure 9: Source 1- [CDPH Center for Health Statistics and Informatics Vital Statistics](#) - Multiple Cause of Death and California Comprehensive Death Files. Source 2-California Department of Justice - Controlled Substance Utilization Review and Evaluation System.

### Notes

Figure 1: The total count of drug overdose deaths include unintentional overdoses, suicide overdoses, and overdoses with undetermined intent. ICD-10 codes summed to calculate total overdose deaths: X40-44, X60-64, & Y10-14. Death counts from 2019 & 2020 are provisional and may be revised.

Figures 2 & 3: Records for 2019 are preliminary. All overdose deaths are counted, regardless of intent (e.g., unintentional, suicide, assault, or undetermined). However, the following deaths are excluded: deaths related to chronic use of drugs, deaths due to alcohol or tobacco, and deaths that occur under the influence of drugs, but that do not involve acute poisoning. Please note that these categories are not mutually exclusive. Drug overdose deaths may involve multiple drugs; therefore, a single death might be included in more than one category when describing the number of drug overdose deaths involving specific drugs or drug classes. We observe data for 56 counties since records from Alpine and Sierra counties are censored because of their small size.

Figures 4-9: Records for 2019 are preliminary. All overdose deaths are counted, regardless of intent (e.g., unintentional, suicide, assault, or undetermined). However, the following deaths are excluded: deaths related to chronic use of drugs, deaths due to alcohol or tobacco, and deaths that occur under the influence of drugs, but that do not involve acute poisoning.

Figures 6-8: Some demographic subgroups are relatively small, so it is difficult to calculate stable, reliable rates. Error bars represent uncertainty; 95% confidence intervals for the estimates are shown.

Figure 9: Opioid prescriptions exclude Buprenorphine.

## Appendix B: Data on Overdoses in the United States and California

There are three primary sources for data on overdose deaths:

- [Center for Disease Control \(CDC\) WONDER Multiple Causes of Death \(MCOB\) database](#)
  - Final data for the period 1999-2018 (monthly)
  - Provided by the CDC National Center for Health Statistics (NCHS)
- [National Vital Statistics System \(NVSS\) Rapid Release Provisional Drug Overdose Death database](#)
  - Provisional data for the period 2019-2020 (monthly)
  - Provided by the CDC NCHS
- [California Opioid Overdose Surveillance Dashboard](#)
  - Final data for the period 2006Q1-2019Q4 (quarterly)
  - Provisional data for the period 2020Q1-2020Q2 (quarterly)
  - Provided by the California Department of Public Health (CDPH) Health & Informatics Vital Statistics Center.

## Appendix C: Limitations

The findings in this report are subject to limitations:

1. Autopsies are done under variable circumstances and the substances tested for vary across time and jurisdiction. Recent improvements in toxicologic testing might account for some reported increases and differences across jurisdictions might contribute to observed differences.
2. Not all death certificates include any mention of specific drugs involved and the percent of death certificates with at least one drug specified varies widely by both state and county.
3. Potential racial or ethnic misclassification might lead to underestimates for certain groups, especially American Indians/Native Americans and Asians/Pacific Islanders.
4. Certain trend analyses are limited by the small numbers of deaths which means it is difficult to calculate stable rates.

## **Appendix D: Details on Measuring Drug-Related Overdose Fatalities**

Drug overdose deaths are identified using ICD-10 underlying cause-of-death codes: X40–X44 (unintentional), X60–X64 (suicide), X85 (homicide), and Y10–Y14 (undetermined). Drug overdose deaths involving most drug categories are identified by specific multiple cause-of-death codes.

Drug categories include: heroin (T40.1); natural opioids, including morphine and codeine, and semisynthetic opioids, including drugs such as oxycodone, hydrocodone, hydromorphone, and oxymorphone (T40.2); methadone, a synthetic opioid (T40.3); synthetic opioids other than methadone, including drugs such as fentanyl and tramadol (T40.4); cocaine (T40.5); and psychostimulants with abuse potential, which includes methamphetamine (T43.6). Opioid overdose deaths are identified by the presence of any of the following MCODE codes: T40.0; T40.1; T40.2; T40.3; T40.4; or other and unspecified narcotics (T40.6).

Drug overdose deaths may involve multiple drugs; therefore, a single death might be included in more than one category when describing the number of drug overdose deaths involving specific drugs. For example, a death that involved both heroin and fentanyl would be included in both the number of drug overdose deaths involving heroin and the number of drug overdose deaths involving synthetic opioids other than methadone.

**About the author**

*Konrad Franco* is a Researcher with CalHPS. He is currently pursuing a PhD in sociology with an emphasis in computational social science at the University of California, Davis. He studies public policy at the intersection of health care and criminal justice. He may be reached at [klfranco@ucdavis.edu](mailto:klfranco@ucdavis.edu).

**About California Health Policy Strategies (CalHPS), L.L.C.**

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