Trends and Disparities in 2020 Overdose Deaths[*]

Among Michigan Residents, January through August

Executive Summary

Background

Michigan has experienced a large increase in overdose deaths over the past decade, the majority of which involved opioids such as heroin, fentanyl, or prescription opioid painkillers. Timely surveillance of overdose deaths plays a critical role in understanding new or evolving risks and evaluating the impact of overdose prevention strategies. This report highlights trends in overdose deaths among Michigan residents from January through August 2020 in relation to the onset of the COVID-19 epidemic in Michigan, using death certificate data received by the Michigan Department of Health and Human Services (MDHHS) Division of Vital Records and Health Statistics. Due to delays in reporting cause(s) of death, this report only includes data on deaths that occurred five or more months prior to February 2021. An analysis of historic data indicates that approximately 92 percent of overdose death records are received by MDHHS within five months of the death. Information about the types of drugs involved in an overdose often take much longer to receive; therefore, this report does not evaluate specific types of overdoses (e.g., opioid overdoses). The 2019 through 2020 data presented in this report are provisional and expected to marginally increase over time as more complete data are received.

Key Findings

- There was a 12.7 percent increase in the number of overdose deaths from January through August 2020 compared to the same period in 2019.

- A substantial increase in the number of overdose deaths among Michigan residents occurred during May 2020, and to a lesser extent in June 2020. Monthly overdose deaths returned to the expected range in July 2020.

- Racial disparities in overdose mortality rates between Black and White Michigan residents persisted throughout 2020 with the disparity most distinct during May and June 2020.

- Black males in large and mid-sized urban areas and White males in rural areas experienced the largest increases in overdose mortality rates during May 2020 compared to the previous four months.
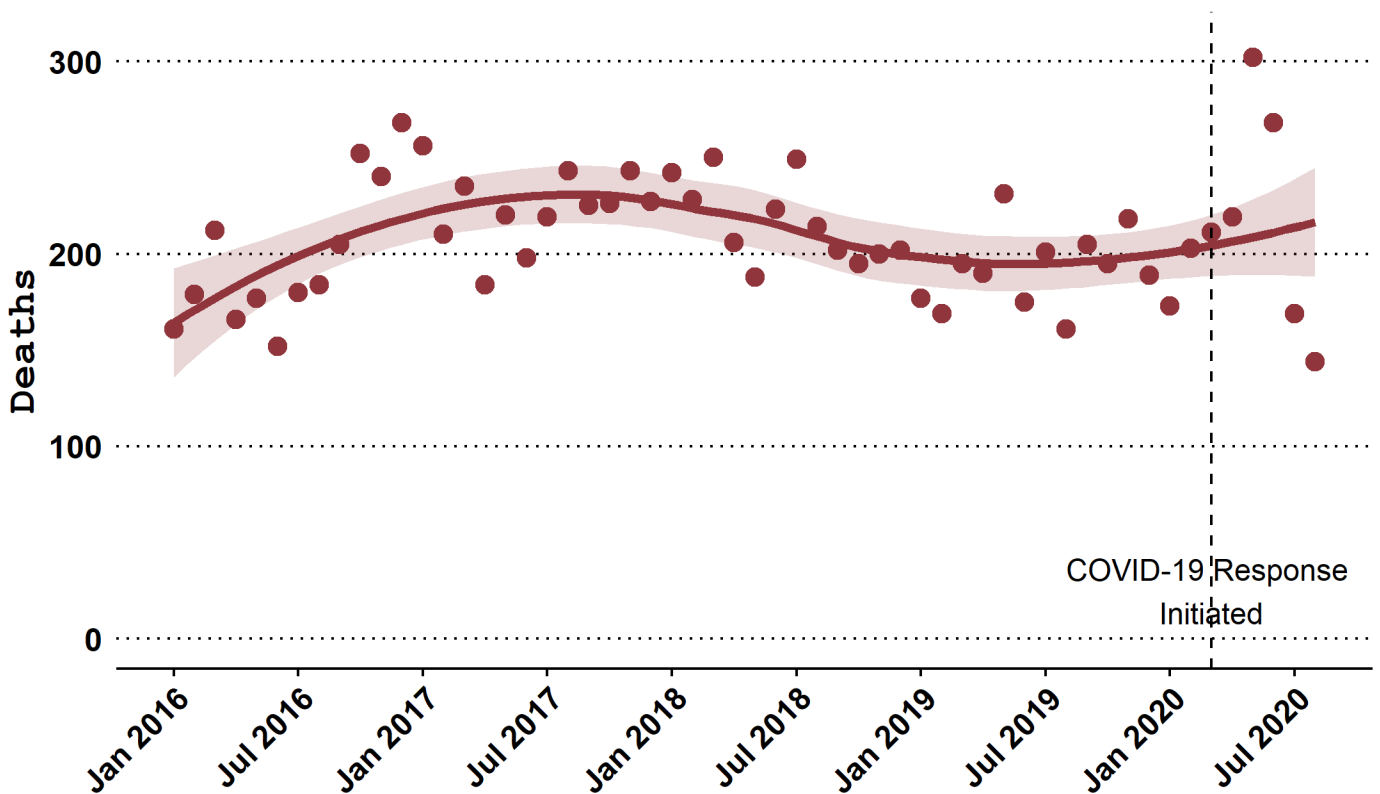
Recommendations

The data presented in this report underscore the importance of supporting strategies that address the increased risk of overdose during the COVID-19 pandemic, particularly for Black communities. Prevention strategies should be tailored, accessible, and relevant to Black males living in urbanized areas in Michigan and should incorporate a racial equity lens to address the unique risks and barriers faced by marginalized communities. Additional information about resources that can prevent drug overdoses and connect at-risk individuals to care are included in the **Prevention Resources** section of this document.

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[*]2019 and 2020 data are provisional as of February 23, 2021.

Long Term Trends

The monthly number of overdose deaths from January through April 2020 were below or within the expected range of monthly overdose deaths based on historical data from 2016 through 2019. A significant increase was observed during May 2020 and continued into June of 2020 (see Figure 1 below). From January 2016 through August 2020, there was an average of 208.1 overdose deaths per month among Michigan residents (95 percent confidence interval: 199.5 – 216.8). In May 2020, there were 302 overdose deaths (2.9. standard deviations above the average) and in June 2020, there were 268 overdose deaths (1.9 standard deviations above the average). The dashed line on the graph indicates when COVID-19-related response was initiated in Michigan.

Figure 1: Number of Overdose Deaths by Month among Michigan Residents
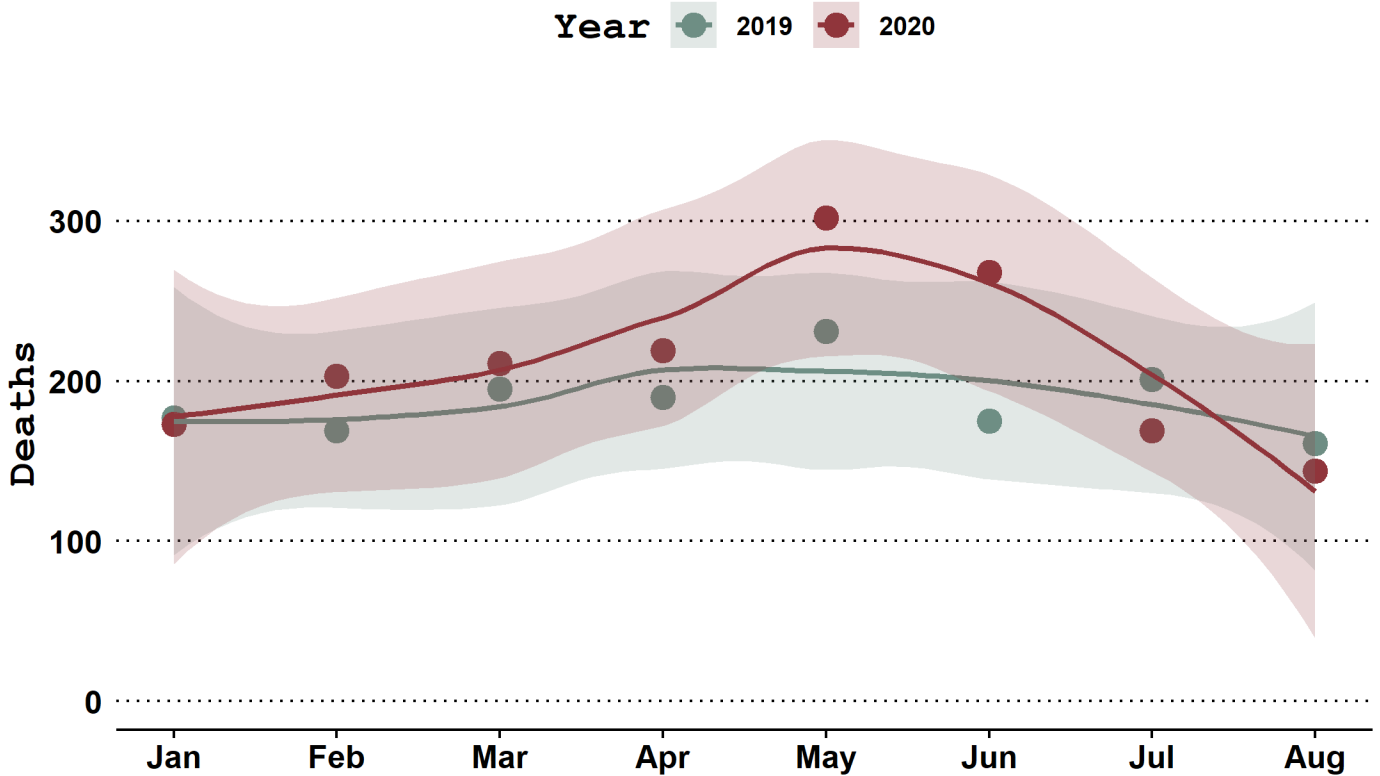

Notes: the trend line (dark red) in the figure above represent the locally estimated scatterplot smoothing (LOESS) curve. The shaded region represents the 95 percent confidence interval associated with the LOESS curve.

Short Term Trends

Provisional mortality data for 2020 show an estimated 1,689 Michigan residents died from an overdose from January through August, an increase of 190 deaths compared to the same period during the prior year (2019), representing a 12.7 percent increase (Figure 2).

Figure 2: Total Overdose Deaths by Month among Michigan Residents, 2020 Compared to Prior Year
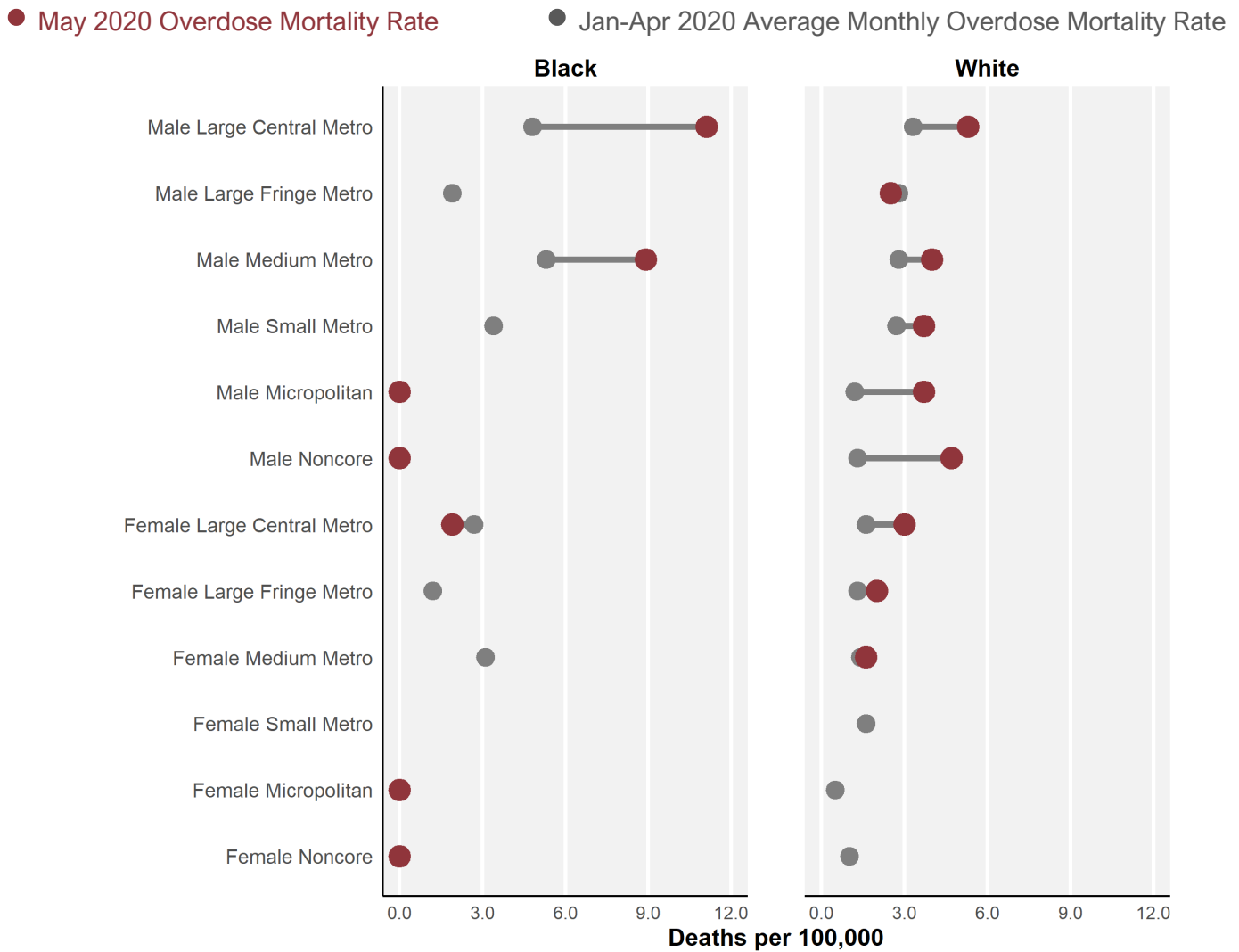

Notes: the trend lines in the figure above represent the locally estimated scatterplot smoothing (LOESS) curve. The shaded region represents the 95 percent confidence interval associated with the LOESS curve.

Demographic Characteristics of May 2020 Spike in Overdose Deaths

Overdose mortality rates by race, sex, and urbanicity during May 2020 were compared to the average monthly rate during the four prior months to determine if the observed spike in overdose deaths disproportionately impacted specific demographic groups. Urbanicity was classified by linking the decedent's county of residence to the 2013 National Center for Health Statistics Urban-Rural Classification Scheme for Counties, which classifies counties into six levels based on population size and proximity to metropolitan areas, ranging from the most urban (large central metropolitan counties) to the most rural counties (noncore counties).[2] For Black residents, the largest increase in overdose mortality rates were observed among males living in large metro counties (Figure 3). For White residents, the largest increase in overdose mortality was observed among males in noncore counties. There was no increased risk of overdose during May 2020 compared to the prior four months for female Michigan residents in any urbanicity category.

Figure 3: Overdose Mortality Rate among Michigan Residents in May 2020 Compared to Prior Four Month Average Rate by Race, Sex, and Urbanicity[2]

● May 2020 Overdose Mortality Rate   ● Jan-Apr 2020 Average Monthly Overdose Mortality Rate
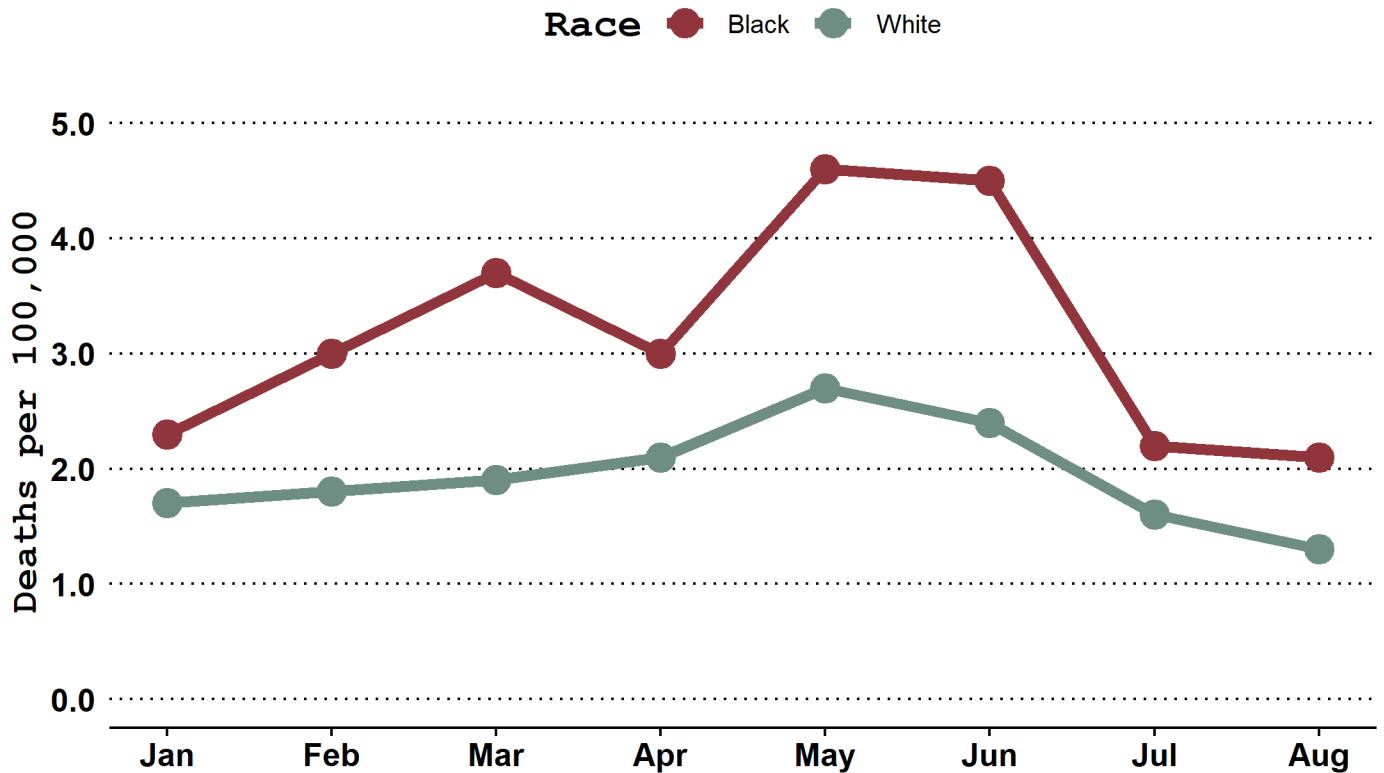
Notes: overdose deaths with an unknown county of residence (n=1) or unknown or other race (n=39) are not shown in the figure above. Rates are suppressed when the number of deaths was between one and five due to statistical unreliability. Urbanicity categories are presented in order of most urban to most rural.

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[2] Ingram DD, Franco SJ. 2013 NCHS urban–rural classification scheme for counties. National Center for Health Statistics. Vital Health Stat 2(166). 2014.See Definitions for a description of the NCHS urban-rural classification system.

Racial Disparities in 2020 Monthly Overdose Mortality Rates

Overdose deaths disproportionately affected Black Michigan residents in 2020 compared to White Michigan residents, with a consistently higher monthly overdose mortality rate in all of the first eight months (Figure 4). From January through August 2020, there was a monthly average of 3.2 overdose deaths per 100,000 Black residents compared to a monthly average of 1.9 overdose deaths per 100,000 White residents. The disparity was greatest in May and was 70 percent higher than the rate among White Michigan residents (4.6 per 100,000 vs. 2.7 per 100,000).

Figure 4: Overdose Deaths per 100,000 Michigan Residents by Month and Race, 2020

Prevention Resources

Listed below are resources that can help connect individuals struggling with substance use disorder or otherwise at risk for overdose to programs that can help.

If you or someone you know uses drugs:

- Practicing safer drug use (safety practices that prevent overdose deaths) can help save a life. More information is available in Safer Drug Use during the COVID-19 Outbreak.
- Individuals and organizations can request free naloxone, a medication that can reverse opioid overdoses, online at nextdistro.org/michigan. Naloxone will be mailed discretely to the requestor at no cost.
- Individuals can also receive naloxone without a prior prescription at pharmacies participating in the MDHHHS Naloxone Standing Order. Find a participating pharmacy near you.
- Find a Syringe Service Program near you that can provide sterile needles, naloxone, testing for HIV and Hepatitis C, and other life-saving resources.
- Access resources to support the mental and physical health of those with substance use disorder during the COVID-19 pandemic.
- Contact your primary care provider before you run low on necessary medications. If you need access to a medical provider, contact your nearest Federally Qualified Health Center for support.

If you or someone you know would like to seek substance use disorder treatment:

- Treatment centers continue to operate during COVID-19. Find a center near you.

If you are a healthcare professional and would like more information about how you can help prevent overdoses:

- Access the Michigan Safer Opioid Prescribing Toolkit to learn more about managing acute and chronic pain and current opioid prescribing guidelines.
- Buprenorphine is one of several medications used to treat opioid use disorder. Learn more about how eligible providers can become approved to prescribe buprenorphine.

Data Sources

- 2016-2018 Michigan Resident Death files, Division of Vital Records and Health Statistics, Michigan Department of Health and Human Services.

- 2019-2020 deaths were obtained using death records provided by the Division of Vital Records and Health Statistics for Michigan Violent Death Reporting System (MiVDRS) and Michigan State Unintentional Drug Overdose Reporting System (MiSUDORS).

- National Center for Health Statistics. Vintage 2019 postcensal estimates of the resident population of the United States (April 1, 2010, July 1, 2010-July 1, 2019), by year, county, single-year of age, bridged race, Hispanic origin, and sex. Prepared under a collaborative arrangement with the U.S. Census Bureau.

Definitions

Overdose Deaths

This analysis used finalized data for 2016 to 2018; however only provisional data were available for 2019 and 2020. Provisional death data are less likely to have a cause of death classification assigned by an International Classification of Disease, 10th Modification (ICD-10) code. To account for potential underestimation of drug overdose deaths occurring in 2019 and 2020, both the ICD-10 code and the medical examiner-provided free text cause of death information were used to classify overdose deaths for these two years.

- 2016-2018 overdose deaths include deaths of Michigan residents if any of the following ICD-10 codes were present in the underlying cause of death field: X40-X44, X60-X64, X85, Y10-Y14.

- 2019-2020 overdose deaths include deaths of Michigan residents if: 1) any of the following ICD-10 codes were present in the underlying cause of death field: X40-X44, X60-X64, X85, Y10-Y14; or 2) the underlying cause of death was missing or was assigned R99 and text in the cause of death fields included overdose-related words (e.g., "drug intoxication," "combined toxic effects," "heroin," "fentanyl").

Urbanicity

- Large central metro: counties in metropolitan statistical areas (MSAs) of one million or more population that 1) contain the entire population of the largest principal city of the MSA, or 2) have their entire population contained in the largest principal city of the MSA, or 3) contain at least 250,000 inhabitants of any principal city of the MSA.

- Large fringe metro: counties in MSAs of 1 million or more population that did not qualify as large central metro counties.

- Medium metro: counties in MSAs of populations of 250,000 to 999,999.

- Small metro: counties in MSAs of populations less than 250,000.

- Micropolitan: nonmetropolitan counties centered on an urban cluster with a population of at least 10,000 but fewer than 50,000.

- Noncore: nonmetropolitan counties that did not qualify as micropolitan.

Statistical Notes

Population estimates for 2020 were not available at the time of this report, therefore all rates were calculated using 2019 population estimates as the denominator. Locally estimated scatterplot smoothing (LOESS) curves and the associated 95 percent confidence intervals were fit for short- and long-term trends. LOESS is a non-parametric statistical smoothing technique that fits many regressions on subsets of the dataset. LOESS is used to capture general patterns while reducing the influence of random fluctuations on an overall trend. All statistical analyses were performed using R, Version 3.6.1.

Limitations

At the time of this analysis, 25.9 percent of provisional 2019-2020 records had an underlying cause of death code of R99 or missing. Some of these deaths may be later classified as non-overdoses. Additionally, more than 25 percent of 2019-2020 drug overdose death records were not assigned a finalized ICD-10 code for the specific drug type(s) involved in the overdose. For this reason, overdoses were not analyzed by specific type (e.g., opioid-involved).