

**Michigan Department of Health and Human Services
Bureau of Specialty Behavioral Health Services**

Opioid Overdose Deaths in Michigan, 2000-2020

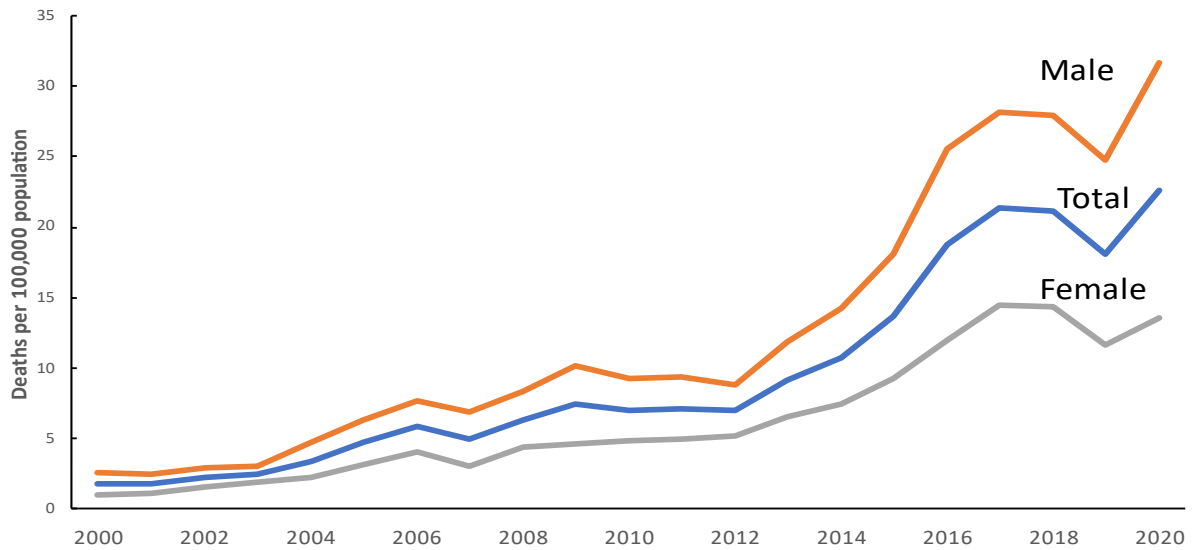
Deaths from opioid overdose contribute to a substantial amount of overall drug overdose mortality for the past decades in Michigan. In 2020, 2,171 opioid overdose deaths occurred in Michigan, which were accounted for over 79% of all drug overdose deaths. This report uses the recent data from the Michigan Department of Health and Human Services (MDHHS), Division for Vital Records and Health Statistics, to update statistics on deaths involving opioids, with a focus on changes from 2019 to 2020.

In 2020, the age-adjusted opioid overdose death rate in Michigan was 25% higher than the rate in 2019, increasing from 18.1 per 100,000 in 2019 to 22.6 in 2020. Overall, the rate increased 13.9% on average each year between 2000 and 2020. There were two periods with rapid increases of opioid overdose deaths. From 2000 to 2006, there was a significant, year-over-year increase in the rate of deaths by 23.3%. Although the death rate remained stable from 2006 to 2012, there was another rapid increase (23.1% annually) of the death rate between 2012 and 2017.

Trends by Sex

- From 2000 to 2020, the rate for males was higher than for females.
- From 2019 to 2020, the rate of opioid overdose deaths for males increased from 24.8 to 31.7 and the rate for females increased from 11.6 to 13.6.
- From 2000 to 2020, the rate for males increased 13.7% on average each year. The rates increased significantly from 2000 to 2009 by 18.4% per year and from 2012 to 2016 by 30.5% per year. For females, the rates increased significantly from 2000 to 2006 by 25.0% per year and increased 22.1% per year from 2012 to 2017, with an annual average percent of change of 13.8% for the entire period.

Figure 1. Age-adjusted opioid overdose death rates, by sex: Michigan, 2000-2020



Source: Michigan Death Certificates, Division for Vital Records and Health Statistics, MDHHS

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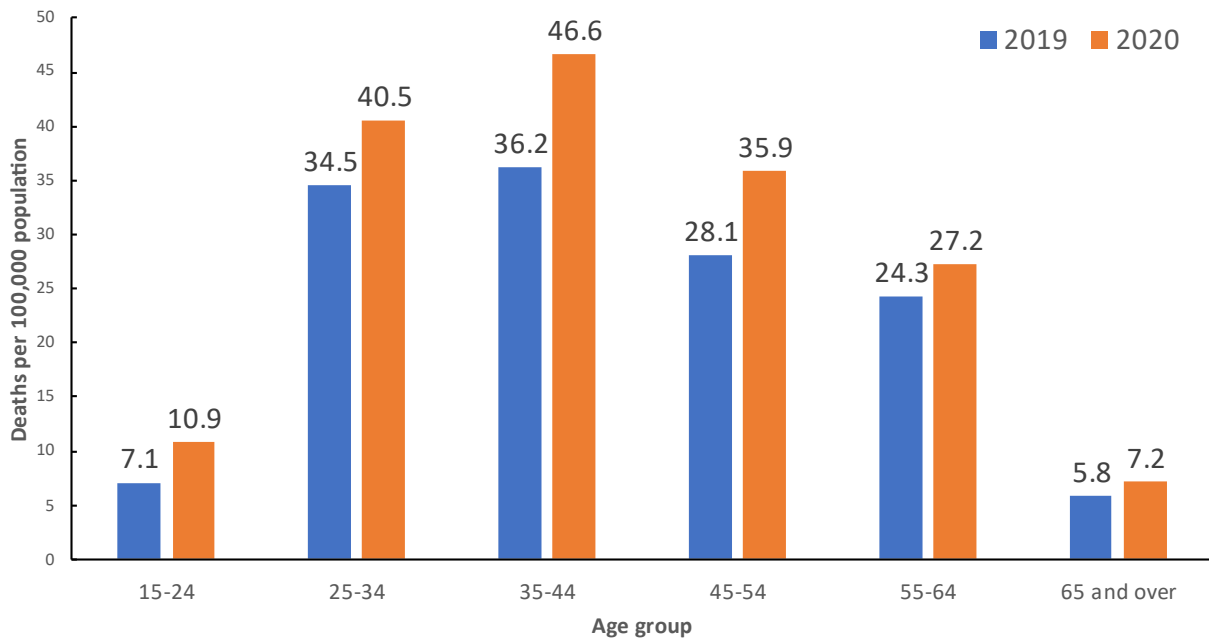
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Trends by Age Group

Opioid overdose death rates were higher in 2020 than in 2019 for those age 15 and older.

- Among people age 15 and over, the rate of opioid overdose deaths increased from 2019 to 2020 for all age groups (Figure 2).
- In both 2019 and 2020, rates were highest for people age 35 to 44 (36.2 and 46.6 per 100,000, respectively) and lowest for people aged 65 and over (5.8 and 7.2) in comparison to other age groups. Although people age 15 to 24 experienced the largest percentage increase in opioid overdose death rates from 2019 to 2020 (53.5%), they had the second lowest rates in both years (7.1 and 10.9).
- Rates increased 29% among people age 35 to 44 (from 36.2 to 46.6), 28% among people age 45 to 54 (from 28.1 to 35.9) and 24% among people age 65 and over (from 5.8 to 7.2) between 2019 and 2020 (Figure 2).

Figure 2. Opioid overdose death rates among those age 15 and over, by selected age group: MI, 2019-2020



Source: Michigan Death Certificates, Division for Vital Records and Health Statistics, MDHHS

Trends by Race and Ethnicity

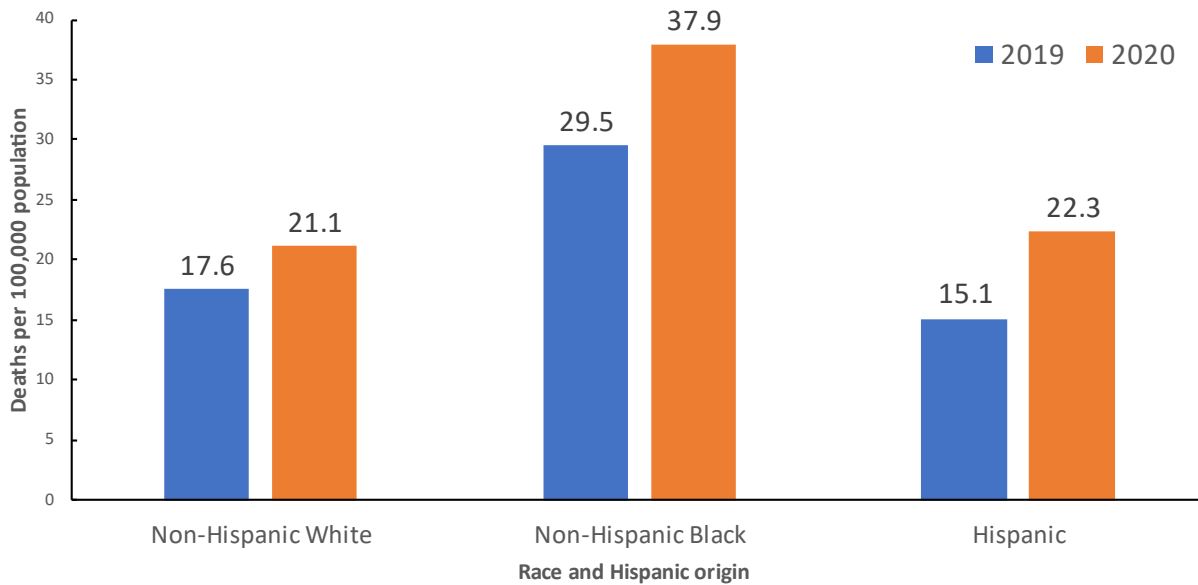
Opioid overdose death rates were higher in 2020 than in 2019 for non-Hispanic Black, non-Hispanic white and Hispanic-origin groups.

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- For non-Hispanic white, non-Hispanic Black, and Hispanic residents, opioid overdose death rates were higher in 2020 than in 2019 (Figure 3).
- In both 2019 and 2020, rates were highest for non-Hispanic Black residents (29.5 and 37.9 per 100,000, respectively) in comparison to other race and ethnicity groups.
- From 2019 to 2020, the largest percentage increase in opioid overdose death rates were seen in Hispanic-origin group (47.7%).
- Due to a small number of deaths in 2019, the rate for non-Hispanic American Indian or Alaska Native (AIAN) residents was not calculated. However, the opioid overdose death rate in 2020 for non-Hispanic AIAN was 30.0 per 100,000 people.

Figure 3. Age-adjusted opioid overdose death rates, by race and Hispanic origin: MI, 2019-2020



Source: Michigan Death Certificates, Division for Vital Records and Health Statistics, MDHHS

Drug-Specific Trends

Since 2016, rates of overdose deaths involving synthetic opioids other than methadone have been higher than those from any other type of opioid.

Synthetic opioids other than methadone (please see definitions for examples of synthetic opioids):

- The rate of drug overdose deaths involving synthetic opioids other than methadone increased from 2000 to 2020, with the greatest increases seen after 2014 (Figure 4).

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- The rate of drug overdose deaths involving synthetic opioids other than methadone increased 34%, from 15.0 in 2019 to 20.1 in 2020.
- Overall, the rate of drug overdose death involving synthetic opioids other than methadone increased by 30.1% per year from 2000 to 2020. The rates significantly increased between 2000 and 2006 (47.5% per year) and from 2013 to 2016 (155.8% per year).

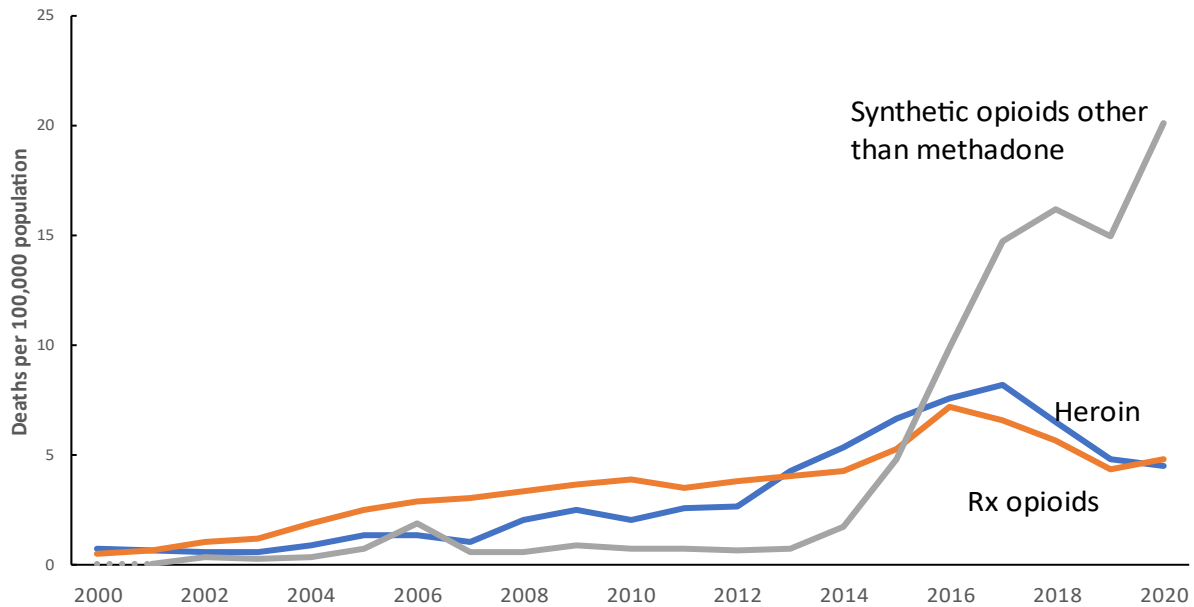
Heroin:

- The rate of overdose deaths involving heroin increased from 2000 (0.8) to 2017 (8.2), then decreased from 2017 through 2020 (4.5).
- For heroin, the only period with significant changes in rates occurred from 2002 to 2017 (19.0% per year). On average, the rate of overdose deaths involving heroin increased 8.6% each year between 2000 and 2020.

Prescription opioids:

- The rate of overdose deaths involving prescription opioids increased from 0.5 in 2000 to 7.2 in 2016, and then decreased from 2016 through 2019 (4.4) and increased in 2020 (4.8).
- The rates of overdose deaths involving prescription opioids significantly increased from 2000 to 2006 (34.9% per year) and significant decreases in rates were seen from 2016 to 2020 (-10.1% per year). From 2000 to 2020, the rate increased 11.3% on average each year.

Figure 4. Age-adjusted rates of drug overdose deaths involving opioids, by type of opioid: MI, 2000-2020



For synthetic opioids other than methadone, 2000 and 2001 rates did not meet standards of reliability.

Drug categories are not mutually exclusive.

Source: Michigan Death Certificates, Division for Vital Records and Health Statistics, MDHHS

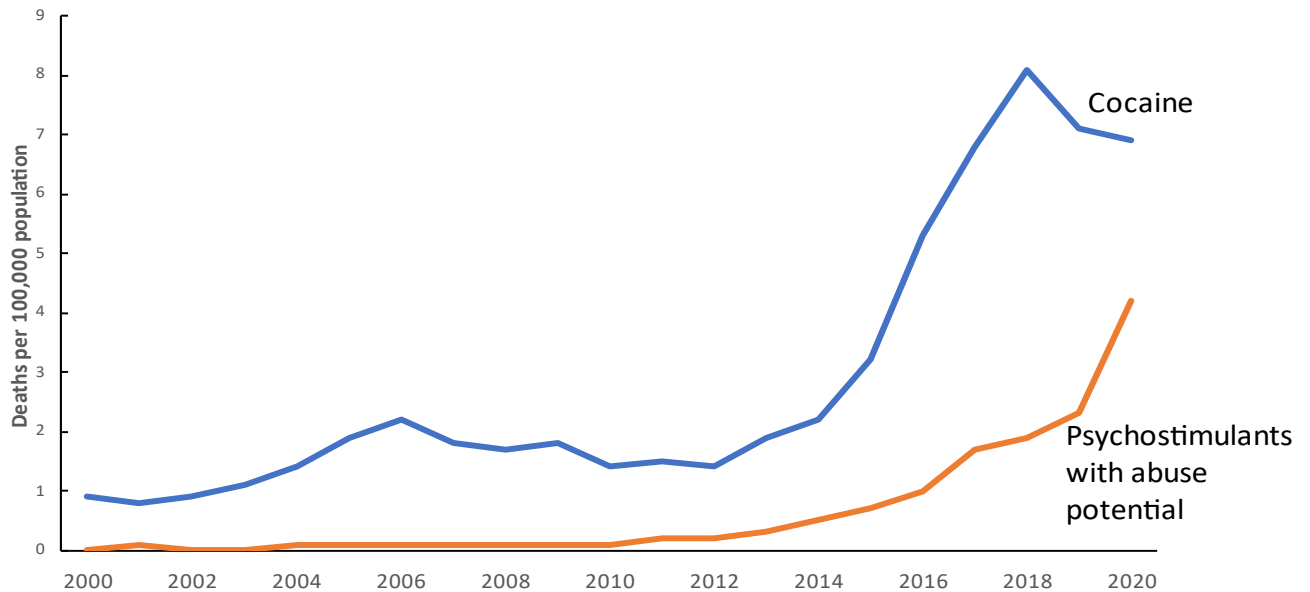
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The increase in the age-adjusted rates of drug overdose death involving psychostimulants with abuse potential began in 2012 and continued through 2020.

- The rates of drug overdose deaths involving psychostimulants with abuse potential increased slowly from 2001 to 2016 (0.1 to 1.0 per 100,000), then rapidly increased from 2016 (1.0) to 2020 (4.2) (Figure 5).
 - The rate in 2020 was 83% higher than in 2019 (2.3).
- After several years of small fluctuations, the rate of drug overdose deaths involving cocaine increased steeply from 2012 to 2018 (1.4 to 8.1 per 100,000) followed by a decrease that has been sustained through 2020.
- For psychostimulants with abuse potential, the rates remained near zero until 2010 and increased significantly by 44.0% per year from 2010 to 2020. From 2000 to 2020, the rate of drug overdose deaths involving psychostimulants increased 20.6% on average each year.
- For cocaine, the rates increased significantly from 2000 to 2006 (18.3% per year) and 2012 to 2018 (36.1% per year). During the entire period, the rate of drug overdose deaths involving cocaine increased 11.7% on average each year.

Figure 5. Age-adjusted rates of drug overdose deaths involving stimulants, by type of stimulant: MI, 2000-2020



Drug categories are not mutually exclusive.

Source: Michigan Death Certificates, Division for Vital Records and Health Statistics, MDHHS

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Summary of 2019 and 2020 opioid overdose deaths

From 2019 to 2020, the opioid overdose death rates increased for all sex, age, race and Hispanic-origin groups. The age-adjusted rate of opioid overdose deaths increased 25%, from 18.1 per 100,000 in 2019 to 22.6 in 2020. From 2019 to 2020, the rate for males increased from 24.8 to 31.7, and the rate for females increased from 11.6 to 13.6. In both 2019 and 2020, adults aged 35 to 44 had the highest age-adjusted rate among people age 15 and older. The greatest percentage increase in rates occurred among younger individuals age 15 to 24 (7.1 to 10.9, a 53.5% increase). In both 2019 and 2020, rates were highest for non-Hispanic Black residents, however, the greatest percentage increase in rates occurred among Hispanic-origin groups (15.1 to 21.3, a 47.7% increase).

Overall, the rate of drug overdose deaths involving different types of opioids and stimulants increased from 2019 to 2020. The greatest percentage increase in rates occurred for drug overdose deaths involving synthetic opioids other than methadone (15.0 to 20.1, a 34% increase) and psychostimulants with abuse potential (2.3 to 4.3, an 83% increase). Of the type of drugs examined, rates of drug overdose deaths involving cocaine, and deaths involving heroin, slightly decreased from 2019 to 2020.

Technical Notes

Definitions

Opioid overdose deaths: Includes deaths identified using the International Classification of Diseases, 10th Revision (ICD-10) underlying cause of death codes X40-X44 (unintentional), X60-X64 (intentional), X85 (homicide), and Y10-Y14 (undetermined intent) with involving any opioid, T40.0-T40.4 and T40.6.

Prescription opioids: Includes drugs such as morphine, codeine, hydrocodone, oxycodone, and methadone. In ICD-10, they are natural and semisynthetic opioids, T40.2 and methadone, T40.3.

Synthetic opioids other than methadone (T40.4): Includes drugs such as fentanyl, fentanyl analogs, and tramadol.

Psychostimulants with abuse potential (T43.6): Includes drugs such as methamphetamine, amphetamine, and methylphenidate.

Data Source

The number of overdose deaths are based on the Michigan Death Certificates file. Of the opioid overdose deaths in 2020, 92.0% were unintentional, 1.6% were intentional, 6.3% were of undetermined intent, and less than 1% were homicides. The percentage of drug overdose deaths that identified the specific drug involved varied by year, ranging from 51.9%-70.4% from 2000 through 2014 and increasing from 77.5% in 2015 to 92.0% in 2020. In addition, drug overdose deaths may involve multiple drugs: therefore, a death might be included in more than one category when describing the rate of drug overdose deaths involving specific drugs.

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Methods

Overdose death trends reported in this report were analyzed using the Joinpoint Regression Program, Version 4.9.1.0 by Statistical Methodology and Applications Branch, Surveillance Research Program, National Cancer Institute. The program allows the researcher to test whether an apparent change in trend is statistically significant or not. Analyses were set to allow a maximum of three joinpoints across the period, a minimum of two observed time points from any given joinpoint to either end of the data, and a minimum number of two overserved time points between any two joinpoints. The differences of annual percent change in each segment are presented with statistical significance at an alpha level of 0.05. Similarly, average annual percent change across the entire period (i.e., 2000 to 2020) were evaluated with an alpha level of 0.05.

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