

# MICHIGAN OPIOID-INVOLVED DRUG POISONING (OVERDOSE) DEATHS

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## **Abstract**

The Michigan Environmental Public Health Tracking Program (MiTracking) has created a dataset that includes deaths with an underlying cause listed as drug poisoning that includes at least one opioid for Michigan residents from 2004 through the most recent year available. Drug poisoning is often referred to as drug overdose.

The data include four measures:

- (1) the number of deaths due to opioid-involved drug poisoning
- (2) the crude rate of opioid-involved drug poisoning deaths per 100,000 population
- (3) the age-adjusted rate of opioid-involved drug poisoning deaths per 100,000 population
- (4) the percent of all drug poisoning deaths that did not specify the type of drug involved in the death.

Data are aggregated by year of death, county of residence (including City of Detroit separately), sex, and age group. The drug poisoning surveillance team is looking into including data by race on MiTracking in subsequent versions based on its availability in the original database. This dataset is updated annually.

All users are recommended to read and fully comprehend the metadata prior to data use. To access these data, please visit the [MiTracking data portal](#).

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## **Purpose**

MiTracking developed this dataset to provide public health professionals, researchers, and the general public with summary information on the number, characteristics, and distribution of opioid-involved drug overdose deaths among Michigan residents. The data are used to calculate opioid-involved drug overdose death measures for

1. Percent of all drug poisoning deaths that did not specify the type of drug involved in the death
2. Number of deaths due to opioid-involved drug poisoning
3. Crude rate of opioid-involved drug poisoning deaths per 100,000 population
4. Age-adjusted rate of opioid-involved drug poisoning deaths per 100,000 population.

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## **Supplemental Information**

Records from the Michigan Resident Death File are provided under a data sharing agreement to the MiTracking program by the Michigan Department of Health and Human Services Division for Vital Records & Health Statistics. The Michigan Resident Death File includes deaths of all Michigan residents, including deaths that occur both in- and out-of-

state. The county of residence is based on the geocoded address reported on the death certificate. Addresses which could not be successfully geocoded are not assigned to any county but are still included in the total statewide count.

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### ***Keywords***

Overdose; overdose deaths; overdose mortality; drug overdose; drug overdose deaths; drug overdose mortality; drug poisoning; drug poisoning deaths; drug poisoning mortality; opioid; opioids; opioid overdose; opioid overdose mortality; opioid overdose deaths; heroin; semisynthetic; drugs

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### ***Bounding Coordinates***

Geographically, all cases in this dataset occurred for residents of the State of Michigan. This means that all cases were residents within the latitude/longitude coordinates listed below.

West Bounding Coordinate: -90.41813399999995

East Bounding Coordinate: -82.418394000000006

North Bounding Coordinate: 48.189534000000002

South Bounding Coordinate: 41.696088000000003

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### ***Other Information on Data***

**Level of Geographic Detail:** Statewide, County, and City of Detroit

**Currentness Reference (when data were last updated):** 6/15/2021

**Frequency at which the data are updated:** Annually

**Data Status:** Complete

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### ***Completeness Report***

Deaths with an unknown or missing value of county of residence, sex, or age were excluded from the corresponding category, but included in the total. Therefore, the sum of deaths within each category may be less than the total.

The MiTracking team is looking into including data by race in subsequent versions based on its availability in the original database. Primary and complementary suppression of deaths by race will be required to protect confidentiality when there are too few cases.

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### ***Data Processing Description***

**Data Source:** The dataset was created from the Michigan Resident Death Files, provided by

the Division of Vital Records and Health Statistics for years 2004 through the most recent year available.

**Inclusion Criteria:** All deaths of Michigan residents that met the following two criteria:

- An underlying cause of death ICD-10 code of X40-X44 (unintentional), X60-X64 (suicide), X85 (homicide), or Y10-Y14 (undetermined intent)
- An opioid-related ICD-10 code in any of the multiple cause-of-death fields, including T40.0 (opium), T40.1 (heroin), T40.2 (natural and semisynthetic opioids), T40.3 (methadone), T40.4 (synthetic opioids), or T40.6 (unspecified opioids)

Deaths of out-of-state residents were excluded. The data were based on the decedent's county of residence. Deaths with an unknown or missing value for county of residence, sex, or age were excluded from the corresponding category, but included in the total. Therefore, the sum of deaths within each category may be less than the total.

**Data Calculations:**

- Percent of overdose deaths with unspecified drugs by county was calculated by dividing the number of drug overdose deaths where the type of drug was not specified by the total number of drug overdose deaths and multiplying by 100.
- Counts of deaths were aggregated by year of death, county of residence, sex, and age group (Groups: 0-14, 15-24, 25-34, 35-44, 45-54, 55-64, and 65+).
- To calculate crude and age-adjusted rates, bridged-race population denominators were obtained from National Center for Health Statistics. For years 2010-2018, Vintage 2019 postcensal population estimates were used.<sup>1</sup> For years 2004-2009, July 1, 2000-July 1, 2009 revised bridged-race intercensal population estimates were used (released 10/26/2012).<sup>2</sup>
- Direct age-standardization using the 2000 Standard United States Population as the reference population was used to calculate age-adjusted rates.
- Crude and age-adjusted rates are presented per 100,000 population per year.
- Data management and all analyses were performed using SAS Version 9.4 (©2002-2012, SAS Institute Inc.).

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### **Access Constraints**

There are no access constraints for data available through the Michigan Environmental Public Health Tracking program public portal. Where applicable, restricted data will only be released to users after a written request detailing the purpose of the request, intended use for the data, and specifics on the security and privacy measures to be taken to safeguard patient privacy and prevent unauthorized access to or use of the data. For more information contact the Michigan Overdose Data to Action team at [MDHHS-MODASurveillance@michigan.gov](mailto:MDHHS-MODASurveillance@michigan.gov).

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## ***Use Constraints***

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It is recommended that all users read and fully comprehend the metadata prior to data use. Efforts have been made to ensure the accuracy of the data. These data are supplied by Michigan Department of Health and Human Services Division of Vital Records and Health Statistics for submission to the Michigan Environmental Public Health Tracking program for the purposes of compiling, integrating, and disseminating environmental hazard, exposure, and health effects data. MDHHS specifically disclaims responsibility for any analyses, interpretations, or conclusions made by those who access this information.

These data remain the property of the MDHHS, cannot be used for commercial purposes, and shall not be used to engage in any method, act, or practice which constitutes the solicitation or advertisement of goods, services, or real estate to Michigan consumers.

Data users are prohibited from attempting to learn the identity of any person included in the data and from linking these data with any other data for the purpose of matching records to identify individuals.

Differences in rates over time or by area may reflect real changes, increased reporting and classifying of overdose deaths, or a combination of factors. Rates at the state and/or county level will not show the true drug overdose burden at a more local level (e.g., neighborhood) and are not geographically resolved enough to be linked with many types of environmental data. Data aggregated at the county level are based on the decedent's county of residence, not necessarily where the death occurred. The degree to which specific drugs involved in a drug poisoning death are specified in death data varies across years and counties within each year. Counts and rates of opioid-involved drug overdose deaths may be underestimated where there is a high percent of cases for which drug type was not specified.

For violent and unexpected deaths, and deaths without medical attendance within the last 48 hours, a medical examiner must investigate the cause and manner of death. In most cases, the cause of death for overdose deaths must be certified by a medical examiner in the State of Michigan. However, differences in standards of practice between medical examiner jurisdictions may result in a differential classification of deaths due to drug overdose or other causes.

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## ***Data Suppression***

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The Michigan Environmental Public Health Tracking Program and its data partners have applied appropriate cell suppression rules imposed by the data providers and/or using guidance from the CDC. Even at the county level it can be expected that the measures generated will often be based upon numbers too small to report or present without violating state and federal privacy guidelines and regulations. Staff have adhered to the cell suppression rules by suppressing all counts greater than 0 and less than 6 (the

corresponding rates based on these small counts have also been suppressed). [Complementary \(or secondary\) suppression](#) of other counts and rates has also been completed to prevent any back calculation of primary-suppressed cells.

Additionally, counties where there was a high percent of drug overdose deaths where drug type was not specified have been suppressed. Counties were suppressed if >20% of all drug poisoning deaths were due to an unspecified drug. In reporting state-level opioid mortality data, the CDC has included only states with “good” or “very good” drug specificity ( $\geq 80\%$  and  $\geq 90\%$ , respectively).<sup>3, 4</sup> Using this as guidance, Michigan requires at least 80% specificity to be included in reporting.

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### ***Security Handling Description***

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If data are distributed, the use constraints specified in this metadata apply to all recipients of the data.

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### ***Distribution Liability***

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The Michigan Public Health Tracking Network is maintained, managed, and operated by the Division of Environmental Health (DEH) within MDHHS. In preparation of these data, every effort has been made to offer the most current, correct, complete, and clearly expressed information possible. Nevertheless, some errors in the data may exist. In particular, MDHHS disclaims any responsibility for source data, compilation and typographical errors and accuracy of the information that may be contained in these data.

These data do not represent the official legal version of source documents or data used to compile these data. MDHHS further reserves the right to make changes to these data at any time without notice.

It is strongly recommended that careful attention be paid to the contents of the metadata file associated with these data to evaluate dataset limitations, restrictions, or intended uses. MDHHS shall not be held liable for improper or incorrect use of the data described and/or contained herein.

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The sale or resale of the data, or any portions thereof, is prohibited unless with the express written permission of MDHHS and the Division for Vital Records and Health Statistics (DVRHS). All rights reserved. These data may not be used for commercial purposes without first obtaining written permission from the DVRHS.

If errors or otherwise inappropriate information is brought to our attention, a reasonable effort will be made to fix or remove it. Such concerns should be addressed to the Michigan Tracking Program via email or telephone (see Contact Information below).

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### ***Custom Order Process***

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For more information or access to unrestricted or public use Michigan-specific mortality data, please contact the Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, 333 South Grand Ave., Lansing, Michigan, 48933.

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### ***Contact Information***

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Michigan Department of Health and Human Services  
Division of Environmental Health - MiTracking  
P.O. Box 30037  
Lansing, MI 48909  
PHONE: 800-648-6942

MiTracking Email:

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Michigan Overdose Data to Action (MODA) Email:

[MDHHS-MODASurveillance@michigan.gov](mailto:MDHHS-MODASurveillance@michigan.gov)

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## References

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1. 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 (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin, and sex. Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: [https://www.cdc.gov/nchs/nvss/bridged\\_race.htm](https://www.cdc.gov/nchs/nvss/bridged_race.htm) as of July 9 2020, following release by the U.S. Census Bureau of the unbridged Vintage 2019 postcensal estimates by 5-year age group on June 25, 2020.
2. National Center for Health Statistics. Intercensal estimates of the resident population of the United States for July 1, 2000-July 1, 2009, by year, county, single-year of age (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin, and sex. Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: [https://www.cdc.gov/nchs/nvss/bridged\\_race.htm](https://www.cdc.gov/nchs/nvss/bridged_race.htm) as of October 26, 2012, following release by the U.S. Census Bureau of the revised unbridged intercensal estimates by 5-year age group on October 9, 2012.
3. Heroin Overdose Data. Centers for Disease Control and Prevention. <https://www.cdc.gov/drugoverdose/data/heroin.html>. Published March 19, 2020. Accessed October 8, 2020.
4. Wilson N, Kariisa M, Seth P, Smith H IV, Davis NL. Drug and Opioid-Involved Overdose Deaths — United States, 2017–2018. *MMWR Morb Mortal Wkly Rep* 2020;69:290–297. DOI: [http://dx.doi.org/10.15585/mmwr.mm6911a4external icon](http://dx.doi.org/10.15585/mmwr.mm6911a4external_icon). Accessed October 8, 2020.