

Methamphetamine Use and Overdose Trends

Michigan 2019-2022

This is a special report; released once.

KEY FINDINGS

- **Increased methamphetamine use in recent years.**
 - Emergency Medical Services (EMS) data show rises in methamphetamine-related responses from 2019-2021.
 - Postmortem toxicology testing data show high methamphetamine presence in 2021 and the first half of 2022.
- **Fentanyl was present in over 60%** of methamphetamine-positive decedents in the first half of 2022.
- **All regions** of the state experienced increasing methamphetamine-related EMS responses in 2020.

RECOMMENDATIONS



- Programs and policies should scale up **evidence-based stimulant use disorder (StUD) treatments**, such as: Motivational Interviewing (MI), Cognitive Behavioral Therapy (CBT), Contingency Management (CM) and Community Reinforcement Approach (CRA).
- **Opioid harm reduction** should continue to be emphasized due to polysubstance use, in particular naloxone and fentanyl test strips.

Background

Psychostimulant use is a growing problem. Between 2010 and 2021 in Michigan, deaths involving psychostimulants with abuse potential (excluding cocaine) increased 3,345% (11 to 537) annually, with 92% of these deaths in 2021 being related to methamphetamine.¹ The rest of these deaths include drugs like caffeine, amphetamines, methylphenidate and ecstasy. Stimulant polysubstance use is additionally concerning. In 2018, Substance Abuse and Mental Health Services Administration (SAMHSA) estimated that more than half of stimulant-related deaths additionally involved an opioid in the U.S.²

The quick rise in methamphetamine use is a concerning public health problem as methamphetamine is a potent stimulant that can have significant effects on both physical and mental health.² Research shows permanent brain structure changes can be caused by long-term stimulant use.² Mixing a stimulant with an additional drug, such as a depressant, can lead to complications such as increased risk of brain injury and death.³ This report focuses on trends in methamphetamine-related morbidity and mortality from 2019 to the first half of 2022.

The trends described in this report illustrate the need for StUD-focused interventions. Programs and policies should scale up evidence-based StUD treatments, such as MI, CBT, CM and CRA.² Support for harm reduction strategies should continue, particularly naloxone and fentanyl test strip distribution, given the widespread prevalence of polysubstance use. More information on treating StUD can be found here:

[SAMHSA.Gov/Treatment-of-Stimulant-Use-Disorder](https://www.samhsa.gov/treatment-of-stimulant-use-disorder).

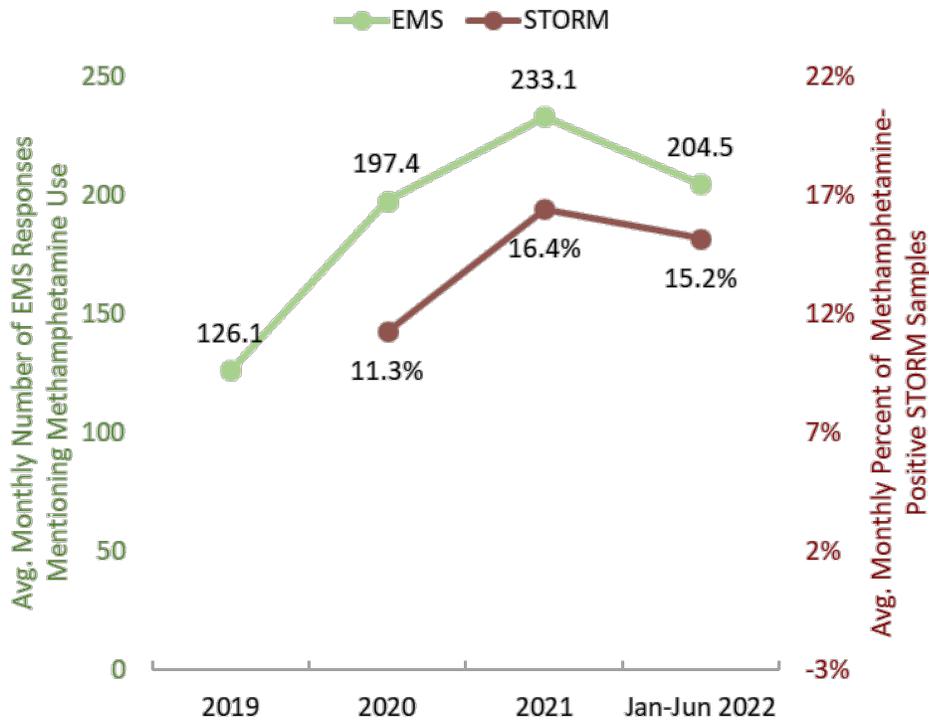
¹Michigan Resident Death Files, 2010-2021. Michigan Department of Health and Human Services.

² *Treatment of Stimulant Use Disorders*. Substance Abuse and Mental Health Services Administration (SAMHSA). SAMHSA Publication No. PEP20-06-01-001. [SAMHSA.Gov/Treatment-of-Stimulant-Use-Disorder](https://www.samhsa.gov/treatment-of-stimulant-use-disorder)

³ Polysubstance Use Facts. Centers for Disease Control and Prevention (CDC). [www.CDC.Gov/StopOverdose/Polysubstance-Use/index](https://www.cdc.gov/stopoverdose/polysubstance-use/index).

Short-Term Trends

Figure 1: Average Monthly Number of EMS responses Mentioning Methamphetamine Use and Percent of Methamphetamine-Positive WMed Swift Toxicology of Opioid Related Mortalities (STORM) Program Samples* by Year, January 2019-June 2022



The average monthly **methamphetamine-related EMS responses** increased **85%** from 2019 to 2021. Responses decreased in the first half of 2022 but remained elevated.

The average monthly percent of **decedents testing positive for methamphetamine** in the STORM Program **increased from 11% to 16%** from 2020-2021 (35% relative increase) and remained elevated in Jan-Jun 2022.

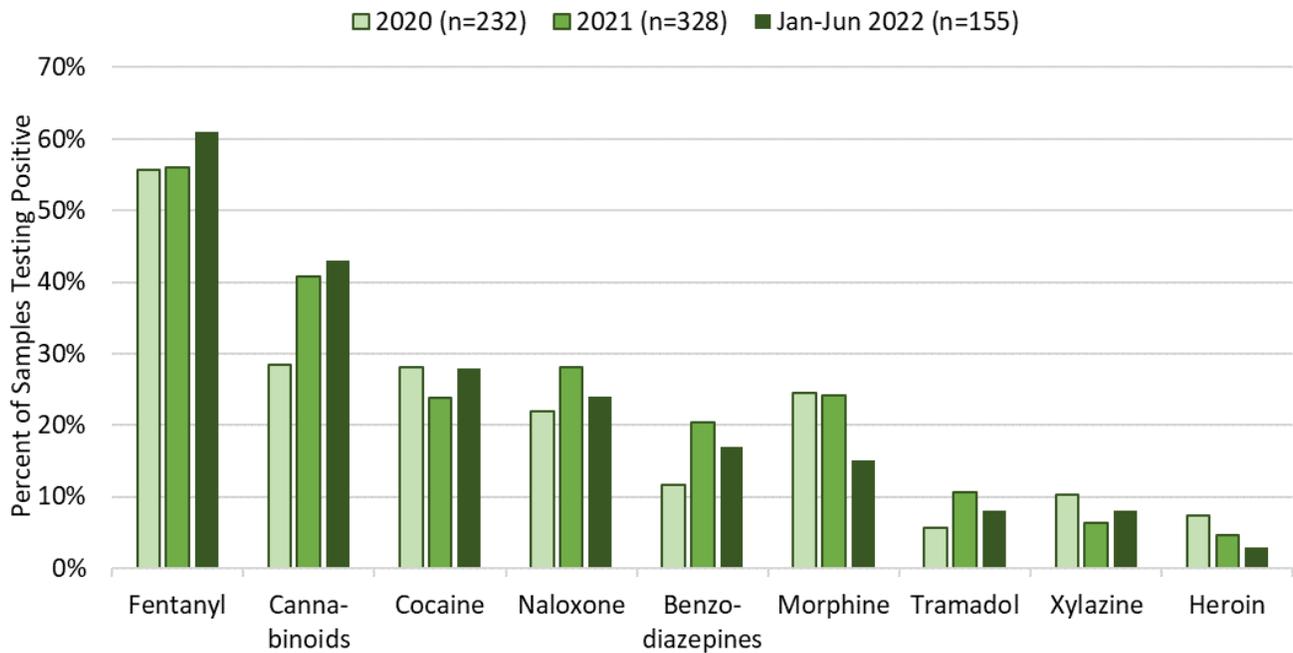
Sources: Michigan Emergency Medical Services Information System (MiEMSIS), Bureau of Bureau of Emergency Preparedness, EMS and Systems of Care (BEPESOC). WMed Swift Toxicology of Opioid Related Mortalities (STORM) Program.

Abbreviations: EMS = Emergency Medical Services

* STORM receives post-mortem blood specimens from a subset of Michigan counties, primarily in the western lower peninsula, for laboratory analysis to identify opioids and several non-opioid substances. STORM began testing samples for methamphetamine in January 2020. See Technical Documentation below for more details.

Other Drugs Identified in Methamphetamine-Involved Deaths

Figure 2: Percent of Methamphetamine-Positive STORM Samples Positive for Additional Drugs of Interest by Year, January 2020*-June 2022



Sources: Wmed STORM Program.

*STORM began testing samples for methamphetamine in January 2020.

More than half of **methamphetamine-positive decedents** also tested positive for other drugs in 2020, 2021 and the first half of 2022.

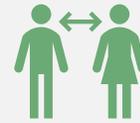
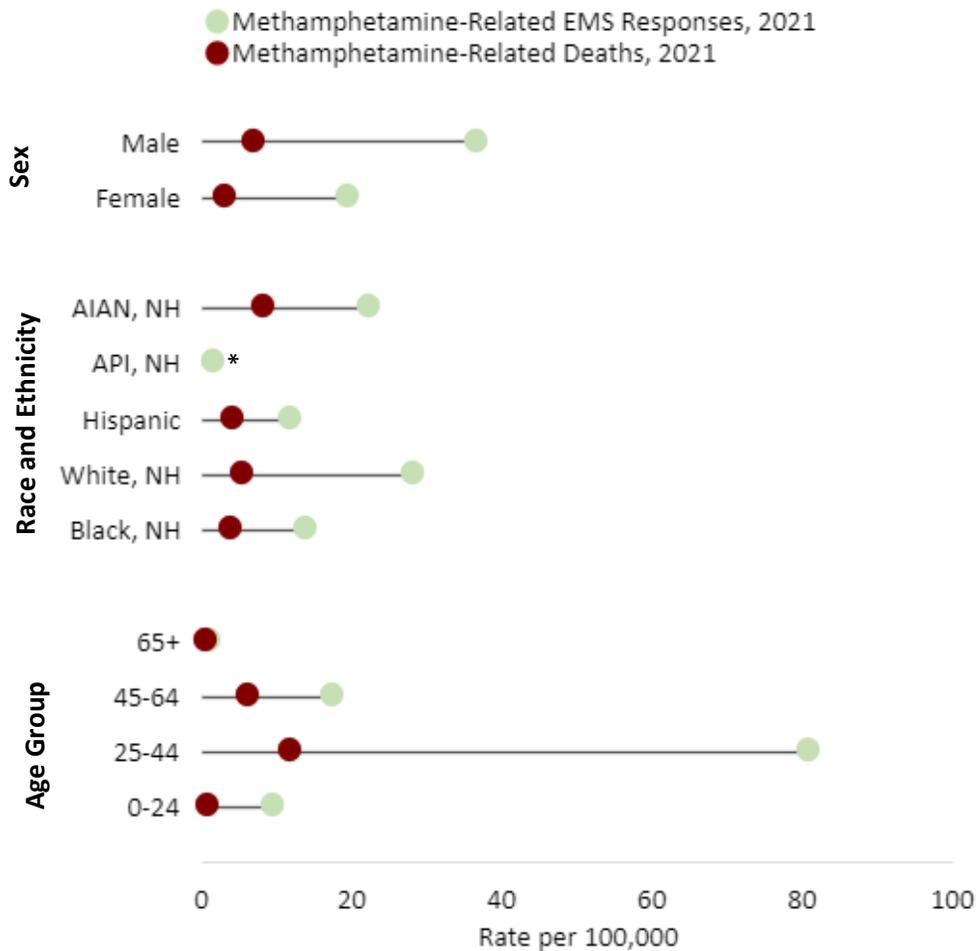
The **most common substance** additionally found among **methamphetamine-positive decedents** was **fentanyl** (2020: 56% of samples, 2021: 56%, 2022 first half: 61%).

Cannabinoid presence had the **largest increase** among **methamphetamine-positive decedents** from 2020 to the first half of 2022, increasing by 15% (28% to 43%).



Demographic Patterns

Figure 3: Crude Rate of EMS Responses Mentioning Methamphetamine Use and Drug Overdose Deaths Involving Methamphetamine per 100,000 Residents by Demographics, 2021



By age and sex, **males and residents ages 25-44** had the highest rates of **methamphetamine-related EMS responses** and **deaths** in 2021.

By race, **white non-Hispanic residents** had the highest rate of **methamphetamine-related EMS responses** in 2021.

By race, **American Indian and Alaska Native non-Hispanic residents** had the highest rate of **methamphetamine-related deaths** in 2021.

Sources: MiEMIS. 2021 Michigan Resident Death File.

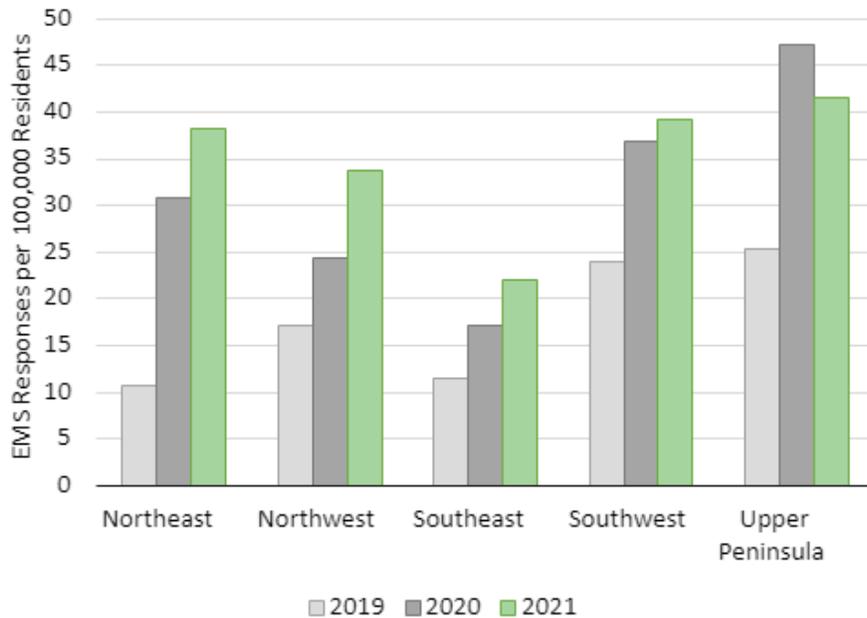
Abbreviations: EMS = Emergency Medical Services, AIAN=American Indian/Alaska Native, API=Asian and Pacific Islander, NH = Non-Hispanic

*Death rate for Asian and Pacific Islander non-Hispanic population is suppressed as the number of deaths in this group was between 1-5. Numerator counts between 1-5 are suppressed to preserve statistical stability.

Statistical Note: Rate denominators based on 2020 National Center for Health Statistics (NCHS) bridged-race population estimates.

Geographic Patterns

Figure 4: Crude Rate per 100,000 of EMS Responses Mentioning Methamphetamine Use by Region among Michigan Residents, 2019-2021



Methamphetamine-related EMS responses increased in all regions of the state from 2019-2020, and all regions except the Upper Peninsula (UP) from 2020-2021.

From 2019 to 2021, the **UP had the highest rate of methamphetamine-related EMS responses.**

Sources: MiEMIS.

Abbreviations: EMS = Emergency Medical Services

Statistical Note: Rate denominators based on 2019/2020 NCHS bridged-race population estimates.

Public Health Implications

The overdose epidemic cannot be addressed by focusing on opioid use alone as harm reduction and treatment strategies for StUD differ from those for opioid use disorder. With the rise in stimulant and polysubstance use, investments should be made in MI, CM, CRA and CBT to address StUD in Michigan, particularly among the populations and geographies of concern highlighted in this report. Emphasis on opioid use harm reduction techniques (such as naloxone and fentanyl test strip distribution) alongside these measures should be continued, given the high incidence of polysubstance use seen among Michigan residents in recent years.

Technical Documentation

Data Sources

- 2010-2021 Michigan Resident Death Files, Division for Vital Records & Health Statistics, Michigan Department of Health & Human Services (MDHHS).
- 2019-2022 Michigan Emergency Medical Services Information System, BEPESOC, MDHHS.
- 2020-2022 Swift Toxicology of Opioid Related Mortalities Program, WMed.
- 2020 NCHS bridged-race population estimates, Centers for Disease Control and Prevention.

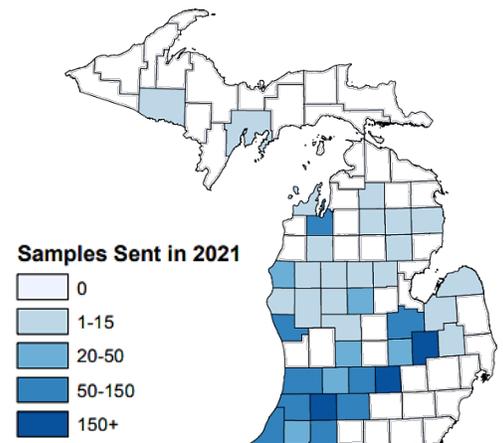
Case Definitions

EMS Data: MiEMIS captures data on all EMS responses in Michigan. An EMS response is marked as methamphetamine-related if the text “meth” (followed by a space or punctuation) or “methamp” (or potential misspellings) appears in the narrative. Cases are excluded if the narrative mentions meth withdrawal or detox,

an injury or explosion related to meth, or negative language about meth (e.g., “no signs of meth”). Cases in which a patient is noted as having a history of methamphetamine use but is not currently experiencing a methamphetamine-related health emergency may be captured.

STORM Data: [STORM](#) operates out of the Homer Stryker School of Medicine at Western Michigan University (WMed) and runs toxicology tests on postmortem blood specimens. Samples are submitted by Michigan medical examiner offices. Results are typically available within 48-72 hours after receipt of the sample at WMed. The map at the right displays STORM participation in 2021; white counties did not participate in STORM in 2021. Methamphetamine-positive STORM cases are fatalities in which a postmortem sample tested positive for methamphetamine.

Michigan Resident Death Files: All deaths with drug poisoning as the underlying cause of death (ICD-10 codes of X40-X44, X60-X64, X85, Y10-14). Psychostimulants with potential for abuse-related deaths were identified by the ICD-10 code T43.6 found in the related cause of death fields. Methamphetamine-related deaths in 2021 were identified if the text “methamphetamine” appeared in a text cause of death fields in the death record.



STORM Participation and Samples Submitted by County, Michigan

Limitations

- **MI Resident Death Files:** Fatal overdoses may be underestimated for a specific drug if the medical examiner investigating the death does not list which drug(s) were responsible for the death on the death certificate.
- **STORM Data:** STORM data come from a subset of Michigan counties that participate in the program; data are not reflective of the entire state of Michigan.
- **Population Estimates:** 2020 population estimates were used as denominators in 2021 rates; 2021 population estimates are unavailable. It is not expected that large population changes occurred in Michigan from 2020 to 2021.

Statistical Notes

Crude rates are used in this document and are calculated by dividing the total number of events (e.g., EMS responses mentioning methamphetamine use) by the total number of Michigan residents in the corresponding population group and multiplying the result by 100,000. Race information was missing in 2.2 percent of 2021 resident death file data and an average of 11.9 percent of EMS data from 2019-2021. Rates are suppressed where the numerator is between 1 and 5 to preserve statistical stability.

Regional Grouping

For geographic data, counties were grouped into five regions, based on the map at the right.



Regional Grouping of MI

The Michigan Department of Health and Human Services (MDHHS) does not discriminate against any individual or group on the basis of race, national origin, color, sex, disability, religion, age, height, weight, familial status, partisan considerations, or genetic information. Sex-based discrimination includes, but is not limited to, discrimination based on sexual orientation, gender identity, gender expression, sex characteristics, and pregnancy.

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MORE DATA AVAILABLE:

For more data and information on substance use disorder and overdose, go to Michigan.gov/OpioidsData