

Trends in Mississippi's Drug Overdose Deaths, 2011-2020

03/03/2022

Epidemiological Report

Key Findings: In Mississippi, the *total* number of drug overdose deaths increased sharply, rising 49%, from 2019 (393) to 2020 (586). During the same period, the number of deaths involving synthetic opioids (e.g., fentanyl) spiked by 125%. Furthermore, multidrug overdose deaths increased six fold between 2011 and 2020. Our analysis also revealed two new and concerning trends in the demographics of overdose fatalities. The proportion of fatal drug overdoses increased among people younger than 35 years of age and among African Americans. This report calls for urgent statewide actions to curb the growing use of deadly synthetic opioids and multiple drugs. In addition, public health structures need to develop and implement new strategies for addressing the changing demographic patterns of overdose fatalities.

Distribution of Deaths by Drug Type: During 2020, there were more overdose deaths involving opioids than any other substance (69%). Alarming, deaths involving synthetic opioids such as fentanyl accounted for 53% of all overdose deaths. This finding is in contrast to the previous year when synthetic opioids were involved in 35% of the cases. In 2020, amphetamines were also recorded frequently and were noted in 39% of overdose deaths. Heroin and cocaine were involved less often: heroin was documented in 12% and cocaine was recorded in 11% of all drug overdose deaths. In 2020, cannabis was involved in 4% of all overdose deaths; during the ten-year period studied, however, all fatalities involving cannabis also had a diagnosis for coexisting opioid use.

Change by Type of Drugs, 2019 and 2020: In one year, deaths due to synthetic opioids skyrocketed by 125% — claiming 174 lives. Deaths involving any opioid climbed by 66% and deaths involving amphetamines increased by 77%. Compared to 2019, one substance (heroin) was less frequently recorded on overdose death certificates in 2020. Deaths involving cannabis spiked by 118% in one year (Table 1).

Polysubstance Use: The use of more than one substance has been a growing concern for the past several years. For example, multidrug overdose deaths soared between 2011 and 2020. During 2011, polysubstance use was recorded in 17.9% of all overdose fatalities. In 2020, this percentage was 53% — over half of all overdose fatalities had documented multiple drug use (Figure 1).

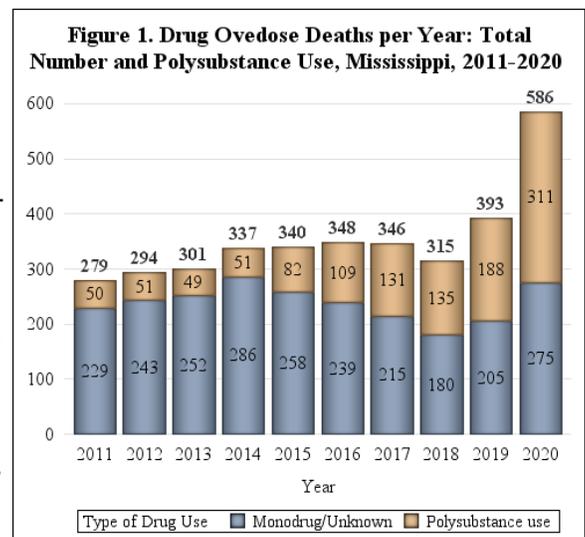


Table 1. Drug Overdose Deaths by Types of Drugs Involved, Mississippi, 2011-2020

Type of drug involved These groups are not mutually exclusive since overdose deaths may be due to multiple drug use.	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Absolute Change 2019- 2020	Percent Change 2019- 2020
Opioids	76	107	99	115	146	172	180	177	244	404	+160	+66%
Natural and semisynthetic opioids (Rx opioids)	49	66	55	63	73	98	85	86	91	113	+22	+24%
Synthetic opioids (Fentanyl)	16	21	24	24	36	41	75	76	139	313	+174	+125%
Heroin	1	4	9	23	35	28	33	39	77	70	-7	-9%
Methadone	11	21	12	7	12	8	9	12	7	12	+5	+71%
Other and unspecified narcotics (i.e., opioids)	6	9	10	13	11	20	20	12	7	13	+6	+86%
Psychostimulants	2	5	14	23	46	57	63	99	129	228	+99	+77%
Benzodiazepines	42	33	30	22	43	66	70	57	76	82	+6	+8%
Cocaine	15	9	13	18	23	32	35	30	45	66	+21	+47%
Cannabis	2	1	3	3	8	12	7	8	11	24	+13	+118%
Polysubstance use	50	51	49	51	82	109	131	135	188	311	+123	+65%
Unspecified	150	158	160	168	127	80	66	43	23	25	+2	+9%

Distribution and Trends by Age Group: In 2020, 33% of all drug overdose deaths were among people younger than 35 years of age. In absolute numbers, there were 96 more young persons suffering fatal overdoses in 2020 than in 2019. This demographic group showed the biggest percentage increase among all age groups—this number nearly doubled in one year (Figures 2 and 3).

Figure 2. Number of Drug Overdose Deaths by Age Group, Mississippi, 2011-2020

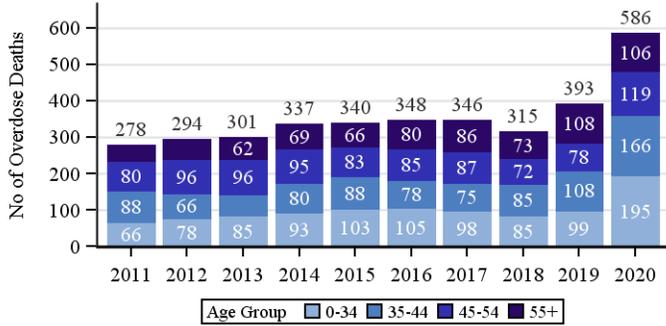
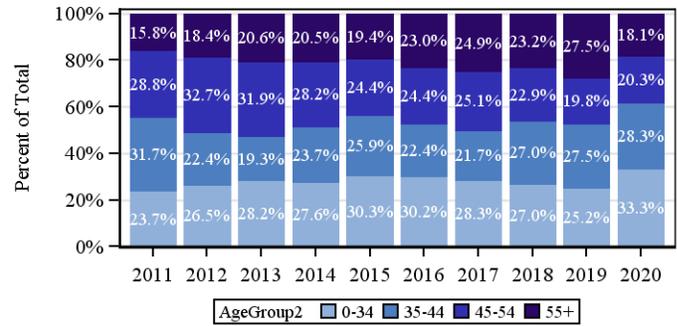
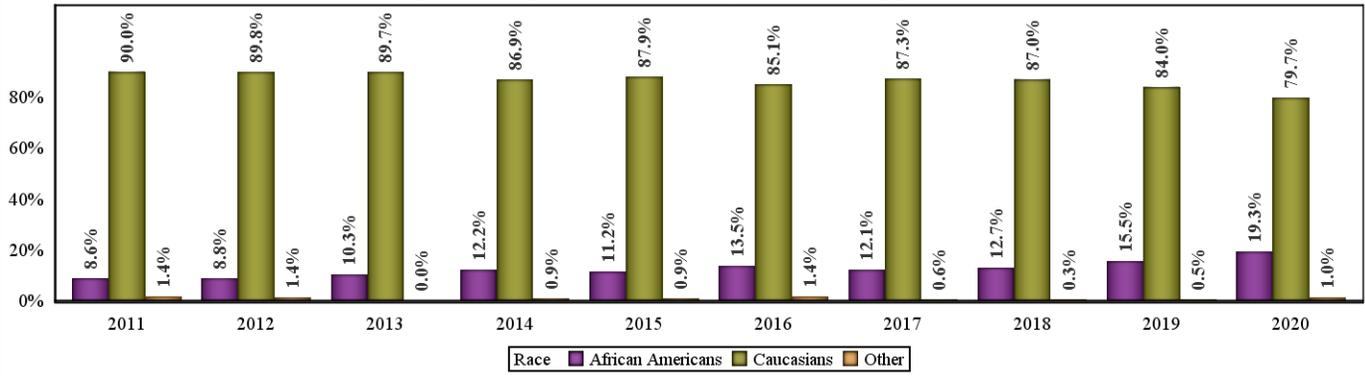


Figure 3. Drug Overdose Deaths by Age Group - Percent of Total by Year, Mississippi, 2011-2020



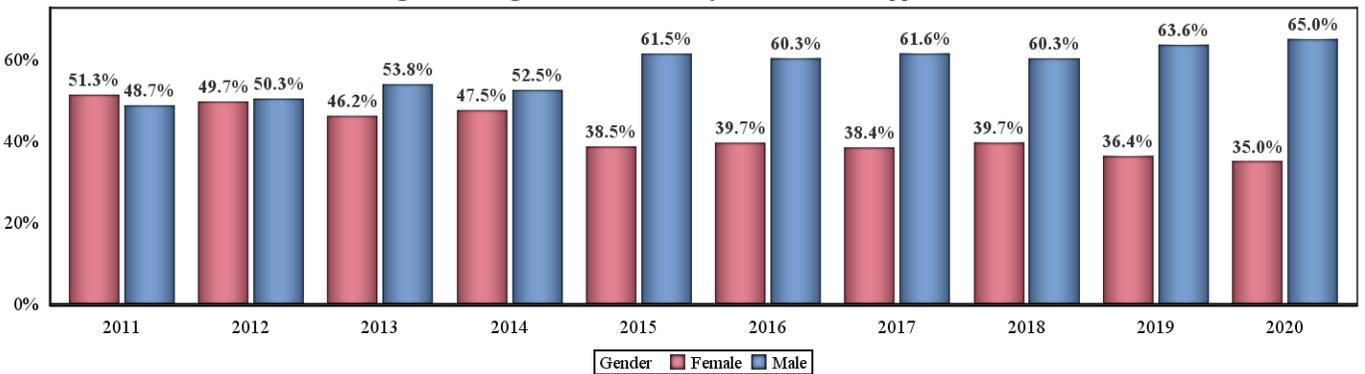
Distribution and Trends by Race: In 2020, 19% of all drug overdose deaths were among African Americans (Figure 4). By comparison, only 9% of all drug overdoses were among African Americans in 2011. Synthetic opioids were responsible for slightly over half (58 of 113) of all drug overdose deaths among African Americans. Between 2019 and 2020, the number of overdose deaths involving synthetic opioids among this racial group rose by 36 cases.

Figure 4. Drug Overdose Deaths by Race, Mississippi, 2011-2020



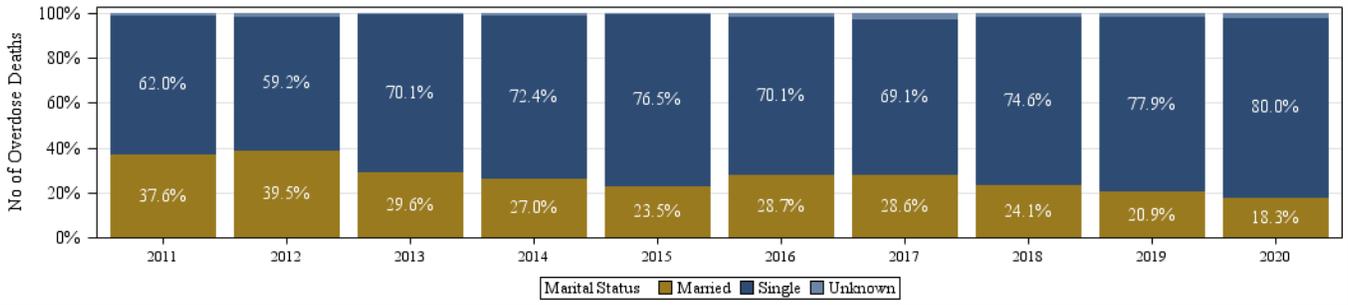
Distribution and Trends by Gender: The gender distribution also revealed some interesting dynamics. At the beginning of the ten-year study period, overdose deaths were more prevalent among females. This trend started to reverse in 2013. Since then, the proportion of male overdose deaths has been increasing. In 2020, nearly two-third of such deaths were among males (Figure 5).

Figure 5. Drug Overdose Deaths by Gender, Mississippi, 2011-2020



Distribution and Trends by Marital Status: Education and family relations are some of the most important social determinants of health. To illustrate how these factors are implicated in Mississippi's overdose deaths, we stratified the data by educational levels and marital status. The percent of single people who suffered fatal overdoses increased dramatically over the ten-year period. In 2020, for example, less than one-fifth (18%) of all decedents were married or not separated at the time of their death. Public health structures should increase awareness of this risk factor among people suffering from substance use disorder and seek community support for such patients. Researching and implementing strategies to combat social isolation may help to provide essential social support to persons with substance use disorder.

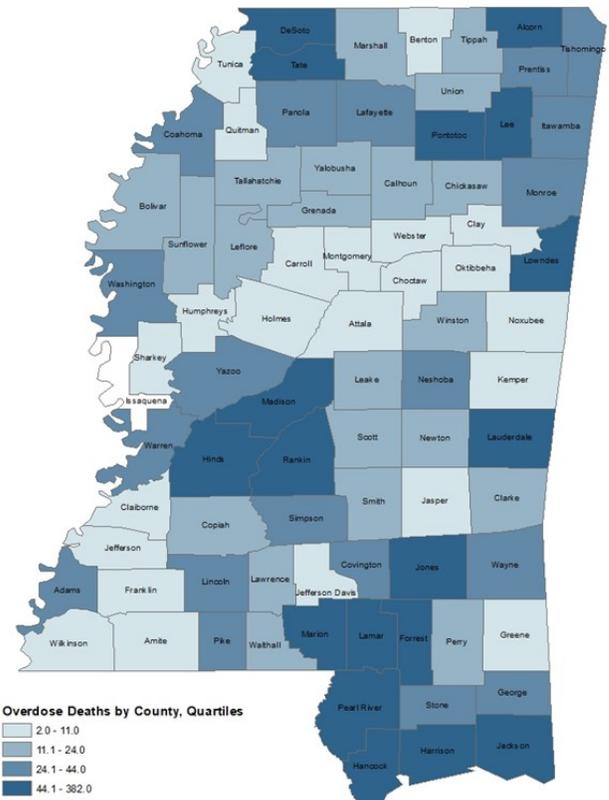
Figure 6. Drug Overdose Deaths by Marital Status- Percent of Total by Year, Mississippi, 2011-2020



Education: Only 8.4% of all decedents from opioid overdoses had a bachelor's degree or higher level of education in 2020. This finding may reflect Mississippi's poor educational rankings. In 2019, only 22% of the state population ≥ 25 years had a college education, which was 14 percentage points below the national average of 36%.¹ Investing in Mississippi's system of higher education and improving educational performance, therefore, may be important steps for increasing the well-being of state residents and preventing drug addiction and deaths.

Geographic distribution: Although all counties are at risk for drug overdoses, the vast majority of Mississippi's 82 counties are sparsely populated. As a result of their small population size, many of these counties have reported a correspondingly small number of overdose-related death events. Therefore, rates were calculated by collapsing counties into three groups: metropolitan, micropolitan and rural areas.² Based on this analysis, both numbers and rates of overdose deaths were highest in metropolitan areas (Figures 7 and 8).

Drug Overdose Deaths by County, Mississippi, 2011-2020



Source: Mississippi State Department of Health

Figure 7. Number of Drug Overdose Deaths by Area of Residence, Mississippi, 2011-2020

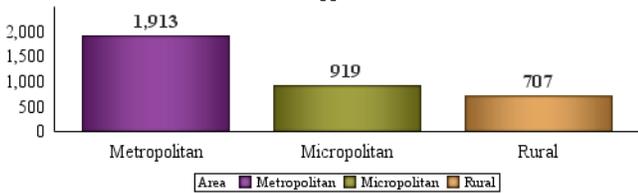
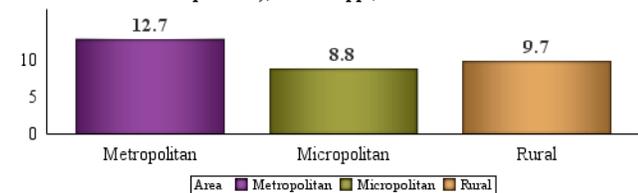


Figure 8. Rates of Drug Overdose Deaths by Area of Residence (per 100K Population), Mississippi, 2011-2020



SUCCESSFUL PREVENTION STRATEGIES

In Mississippi, multiple steps have been taken to address the epidemic of drug use, such as establishing a comprehensive drug abuse surveillance system, expanding access to naloxone, regulating the prescription for opioids and benzodiazepines, and educating medical professionals on the scope of the drug epidemic. Public health efforts also have led to a significant improvement in drug categorization and accurate reporting on drug categories. For instance, fatalities with no drug recorded on the death certificate decreased from 150 (53.8% of all cases) in 2011 to 25 (4.3% of all cases) in 2020. It is important to note that most of these measures target prescription opioid use specifically. While these successful approaches should be continued, changing patterns of overdose fatalities in Mississippi call for adapting new prevention strategies for illicit synthetic opioids and polysubstance abuse.

FUTURE DIRECTIONS

Addressing Polysubstance Overdoses: One of the most alarming finding in our report is the relentless increase in overdose deaths due to polysubstance use. Polysubstance overdose may occur after the intentional use of more than one substance or, unintentionally, through the consumption of drugs contaminated with potent substances such as synthetic opioids or heroin. Polysubstance drug use is a public health challenge for several reasons. First, the use of multiple drugs increases the risk for fatal overdose³. Second, overdoses resulting from multiple drug use are more difficult to treat. Third, the recovery path can be complicated for patients with polysubstance addiction since effective medications (i.e., methadone, buprenorphine, and injectable naltrexone) exists for opioid use disorder, but not for other types of drug addiction. Due to all of these reasons, polysubstance use will continue to fuel overdose fatalities in Mississippi and presents a problematic treatment challenge. Prevention of substance abuse, therefore, is the best approach to limit the negative impact of polysubstance use. Mississippi's medical professionals can help reduce polysubstance use by limiting the prescription of controlled substances and avoiding their co-prescription.

Enhancing Collaboration: The campaign against substance abuse should include measures aimed at reducing the two sides of the drug epidemic: supply and demand. This will entail collaboration and data sharing between different state agencies, community stakeholders, and the local medical community. It will also involve measures such as addiction treatment and prevention efforts designed to reduce drug demand as well as police measures designed to interdict drug supplies.

Emphasizing Prevention and Treatment: Outrunning the ever-evolving drug supply and controlling the illicit drug market are difficult. From an epidemiological perspective, therefore, decreasing the demand for illicit drugs is the most successful public health strategy. Such a decrease can be achieved by both primary prevention efforts (e.g., reducing the number of prescriptions for controlled substances and increasing antidrug educational campaigns) and secondary prevention programs (e.g., the treatment of patients suffering from substance use disorder).

Investing in Research and Surveillance: To limit substance abuse, we need to understand the underlying causes of this chronic relapsing disease. Since the etiology of this disease is complex, future research should study a variety of risk factors for addiction, including mental and physical comorbidities such as depression and chronic pain, socioeconomic factors, educational level, and social isolation. To provide data and expertise for such in-depth epidemiological analyses, the state should scale up its investment in public health research and promote the development of a strong epidemiological workforce in Mississippi.

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Data Analysis: The data for this report were obtained from the Office of Vital Records at the Mississippi State Department of Health. Only Mississippi residents were included in the analyses. Drug overdose deaths were identified by International Classification of Diseases, Tenth Revision (ICD-10) underlying cause-of-death codes: X40-44 (accidental drug poisoning), X60-X64 (intentional self-drug poisoning), X85 (assault by drug poisoning), Y10-Y14 (drug poisoning by undetermined intent). Specific drug categories and multidrug use was identified by: T40.0-T40.4, and T40.6 (opioids), cocaine (T40.5), T40.7 (cannabis), T40.8 (lysergide), T40.9 (other and unspecified psychodysleptics), T43.6 (psychostimulants with abuse potential), T42.2-42.8 (antiepileptic, sedative-hypnotic and antiparkinsonism), and T50.9 (unspecified).

References:

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3. Gjersing L., Bretteville-Jensen A. L. Patterns of substance use and mortality risk in a cohort of 'hard-to-reach' polysubstance users. *Addiction* 2017; 113: 729– 7