

Drug Overdose Deaths in Michigan

2017-2018



Drug Overdose Deaths in Michigan, 2017-2018

Key Findings: Data from the Michigan Death Certificates File

- In 2018, there were 2,599 drug overdose deaths in Michigan; 3.3 percent fewer than in 2017.
- The age-adjusted rate of drug overdose deaths in 2018 (26.8 per 100,000) was 3.2 percent lower than the rate in 2017 (27.7 per 100,000).
- Drug overdose death rates were higher for males than for females in 2018 (34.2 vs 19.4 per 100,000). From 2017 to 2018, overdose rate for men decreased by 2.8 percent (from 35.2 to 34.2 per 100,000), while the rate for females decreased by 4.0 percent (from 20.2 to 19.4 per 100,000).
- Adults aged 25-34, 35-44, and 45-54 had higher rates of drug overdose deaths in 2018 than those aged 15-24, 55-64, and 65 and over.
- From 2017 to 2018, the death rate involving opioids for blacks rose by more than 21 percent, while the death rate for whites declined by 5 percent.
- The age-adjusted rate of drug overdose deaths involving synthetic opioids (drugs such as fentanyl, fentanyl analogs, and tramadol) increased by 10.9 percent from 2017 to 2018 (from 9.9 to 14.7 per 100,000) and the rate for deaths involving cocaine increased by 20.6 percent (from 6.8 to 8.2 per 100,000).

Michigan Department of Health and Human Services
Behavioral Health and Developmental Disabilities Administration
Bureau of Community Based Services
Office of Recovery Oriented Systems of Care

Summary

In 2018, 2,599 drug overdose deaths occurred in Michigan. The age-adjusted rate of overdose deaths in 2017 and 2018 were not statistically different. From 2017 to 2018, overdose death rates remained stable in most subgroups. There was a significant decrease in the rate for whites and a significant increase in blacks (from 28.2 in 2017 to 26.4 in 2018 for whites, and from 30.9 in 2017 to 35.6 in 2018 for blacks) (Table 1).

By specific drug, opioids were involved in 2,036 (78.3 percent) drug overdose deaths (21.2 per 100,000 population) in 2018, the rates in 2017 and 2018 were not statistically different. Significant rate increases occurred among blacks (Table 2). Compared with 2017, the rate of drug overdose deaths involving heroin declined in 2018, from 8.2 per 100,000 population to 6.6. There was a decrease in the rate for males in general; males among aged 25 to 44 and 45 to 64, adults aged 25 to 34 and among whites (Table 3). From 2017 to 2018, the synthetic opioids-involved death rate continued to increase (from 14.7 in 2017 to 16.3 in 2018). Deaths involving synthetic opioids increased significantly in two subgroups, females and blacks (Table 4). The rate of prescription opioids was lower in 2018 than in 2017, most notably for females and whites (from 6.0 in 2017 to 4.8 in 2018 for females, from 7.3 in 2017 to 6.0 in 2018 for whites) (Table 5). Cocaine-involved overdose death rates continued to increase by 20.6 percent (from 6.8 in 2017 to 8.2 per 100,000 in 2018). The rates of drug overdose deaths involving cocaine increased for both males (15.4 percent) and females (28.3 percent), and for both whites (14.5 percent) and blacks (27.4 percent) (Table 6).

Among counties included in this report, Macomb County had a lower age-adjusted rate of drug overdose deaths in 2018 compared with 2017 and Genesee County had a higher rate in 2018 than in 2017. Other selected counties, the rates in 2017 and 2018 were not statistically different (Table 1). All opioid-involved overdose death rates increased significantly in Genesee County (Table 2). Genesee County also experienced significant increases in deaths involving synthetic opioids (Table 4). The rates of drug overdose deaths involving synthetic opioids and involving cocaine were higher in 2018 than in 2017 for Wayne County. Other county rate changes from 2017 and 2018 were not significant.

Table 1. Annual number and age-adjusted rate of drug overdose deaths¹, by sex, age, race, and selected counties – Michigan, 2017-2018

Decedent Characteristics	2017		2018		Change from 2017 to 2018 ¹	
	Number	Rate	Number	Rate	Difference of rates	% change in rate
All	2,686	27.7	2,599	26.8	-0.9	-3.2
Sex						
Male	1,693	35.2	1,646	34.2	-1.0	-2.8
Female	993	20.2	953	19.4	-0.8	-4.0
Age group (years)						
15-24	202	14.8	156	11.6	-3.2	-21.6
25-34	695	54.8	636	49.0	-5.8	-10.6
35-44	575	49.7	596	51.2	1.5	3.0
45-54	605	45.7	577	44.7	-1.0	-2.2
55-64	464	33.1	448	31.9	-1.2	-3.6
65 and older	140	8.4	182	10.6	2.2	26.2
Sex and age group (years)						
Male						
15-24	126	18.1	110	16.0	-2.1	-11.6
25-44	834	68.5	811	65.5	-3.0	-4.4
45-64	645	48.4	614	46.6	-1.8	-3.7
Female						
15-24	76	11.4	46	7.0	-4.4	-38.6
25-44	436	36.1	421	34.5	-1.6	-4.4
45-64	424	30.5	411	29.9	-0.6	-2.0
Race						
White	2,150	28.2	1,984	26.4	-1.8	-6.4*
Black	457	30.9	534	35.6	4.7	15.2*
American Indian	38	42.4	35	39.1	-3.3	-7.8
Selected counties						
Wayne	749	42.3	775	44.2	1.9	4.5
Macomb	394	45.5	333	39.1	-6.4	-14.1*
Oakland	180	14.4	183	14.3	-0.1	-0.7
Genesee	161	43.4	221	55.4	12.0	27.6*
Kent	130	20.2	91	13.9	-6.3	-31.2
Ingham	73	25.6	93	34.4	8.8	34.4
St. Clair	67	44.8	57	36.9	-7.9	-17.6
Washtenaw	73	19.8	85	24.4	4.6	23.2
Monroe	59	42.6	48	34.4	-8.2	-19.2
Calhoun	46	38.6	51	42.0	3.4	8.8
Kalamazoo	54	21.2	52	20.7	-0.5	-2.4
Muskegon	40	26.5	50	31.0	4.5	17.0

See notes on page 10.

Table 2. Annual number and age-adjusted rate of drug overdose deaths involving all opioids^{2†}, by sex, age, race, and selected counties – Michigan, 2017-2018

Decedent Characteristics	2017		2018		Change from 2017 to 2018 [¶]	
	Number	Rate	Number	Rate	Difference of rates	% change in rate
All	2,053	21.4	2,036	21.2	-0.2	-0.9
Sex						
Male	1,349	28.3	1,341	28.0	-0.3	-1.1
Female	704	14.5	695	14.4	-0.1	-0.7
Age group (years)						
15-24	160	11.7	130	9.6	-2.1	-18.2
25-34	579	45.6	537	41.4	-4.2	-9.3
35-44	458	39.6	477	41.0	1.4	3.5
45-54	437	33.0	440	34.1	1.1	3.2
55-64	335	23.9	340	24.2	0.3	1.2
65 and older	82	4.9	110	6.4	1.5	30.1
Sex and age group (years)						
Male						
15-24	100	14.3	94	13.6	-0.7	-5.1
25-44	704	57.8	678	54.8	-3.0	-5.3
45-64	493	37.0	489	37.1	0.1	0.3
Female						
15-24	60	9.0	36	5.5	-3.5	-38.9
25-44	333	27.6	336	27.5	-0.1	-0.3
45-64	279	20.1	291	21.2	1.1	5.6
Race						
White	1,640	21.9	1,537	20.8	-1.1	-5.0
Black	353	23.7	434	28.8	5.1	21.5*
American Indian	26	29.8	25	28.2	-1.6	-5.4
Selected counties						
Wayne	636	36.1	678	38.8	2.7	7.5
Macomb	320	37.5	281	33.2	-4.3	-11.5
Oakland	§		§			
Genesee	131	35.3	184	47.3	12.0	34.0*
Kent	102	15.9	73	11.2	-4.7	-29.6
Ingham	63	21.9	74	26.5	4.6	21.0
St. Clair	50	35.9	43	29.1	-6.8	-18.9
Washtenaw	62	16.8	76	21.4	4.6	27.4
Monroe	48	35.0	39	28.6	-6.4	-18.3
Calhoun	44	36.8	49	40.4	3.6	9.8
Kalamazoo	44	17.0	43	17.2	0.2	1.2
Muskegon	34	23.0	38	24.2	1.2	5.2

See notes on page 10.

Table 3. Annual number and age-adjusted rate of drug overdose deaths involving heroin[†], by sex, age, race, and selected counties – Michigan, 2017-2018

Decedent Characteristics	2017		2018		Change from 2017 to 2018 [¶]	
	Number	Rate	Number	Rate	Difference of rates	% change in rate
All	786	8.2	639	6.6	-1.6	-19.5*
Male	559	11.6	427	8.9	-2.7	-23.3*
Female	227	4.9	212	4.3	-0.6	-12.2
Age group (years)						
15-24	47	3.4	35	2.6	-0.8	-24.5
25-34	251	19.8	180	13.9	-5.9	-29.7*
35-44	176	15.2	145	12.5	-2.7	-17.9
45-54	164	12.4	130	10.1	-2.3	-18.6
55-64	123	8.8	113	8.1	-0.7	-7.8
65 and older	25	1.5	36	2.1	0.6	40.0
Sex and age group (years)						
Male						
15-24	28	4.0	27	3.9	-0.1	-2.9
25-44	299	24.6	220	17.8	-6.8	-27.5*
45-64	212	15.9	155	11.8	-4.1	-25.8*
Female						
15-24	19	2.9	§§			
25-44	128	10.6	105	8.6	-2.0	-18.9
45-64	75	5.4	88	6.4	1.0	18.6
Race						
White	607	8.3	471	6.4	-1.9	-22.9*
Black	161	10.7	153	10.0	-0.7	-6.5
American Indian	§§		§§			
Selected counties						
Wayne	288	16.3	261	14.6	-1.7	-10.4
Macomb	113	13.1	94	11.2	-1.9	-14.5
Oakland	§		§			
Genesee	53	14.9	51	13.6	-1.3	-8.7
Kent	49	7.8	22	3.4	-4.4	-56.4*
Ingham	19		22	7.9		
St. Clair	28	20.3	§§			
Washtenaw	32	9.0	23	6.7	-2.3	-25.6
Monroe	18		16		0.0	
Calhoun	18		12		0.0	
Kalamazoo	§§		§§		0.0	
Muskegon	§§		12		0.0	

See notes on page 10.

Table 4. Annual number and age-adjusted rate of drug overdose deaths involving synthetic opioids other than methadone[†], by sex, age, race, and selected counties – Michigan, 2017-2018

Decedent Characteristics	2017		2018		Change from 2017 to 2018 [‡]	
	Number	Rate	Number	Rate	Difference of rates	% change in rate
All	1,399	14.7	1,556	16.3	1.6	10.9*
Sex						
Male	973	20.6	1,057	22.1	1.5	7.3
Female	426	8.9	499	10.6	1.7	19.1*
Age group (years)						
15-24	114	8.4	107	7.9	-0.5	-5.5
25-34	432	34.0	450	34.7	0.7	1.9
35-44	316	27.3	367	31.6	4.3	15.6
45-54	287	21.7	329	25.5	3.8	17.5
55-64	203	14.5	233	16.6	2.1	14.5
65 and older	46	2.8	69	4.0	1.2	45.0
Sex and age group (years)						
Male						
15-24	70	10.0	74	10.7	0.7	6.6
25-44	533	43.8	548	44.3	0.5	1.2
45-64	336	25.2	377	28.6	3.4	13.5
Female						
15-24	44	6.6	33	5.0	-1.6	-24.3
25-44	215	17.8	269	22.0	4.2	23.6
45-64	154	11.1	185	13.5	2.4	21.8
Race						
White	1,084	14.8	1,145	15.8	1.0	6.8
Black	272	18.2	363	24.0	5.8	31.9*
American Indian	18		16			
Selected counties						
Wayne	469	26.6	564	32.2	5.6	21.1*
Macomb	232	27.8	227	26.9	-0.9	-3.2
Oakland	§		§			
Genesee	93	25.6	138	35.9	10.3	40.2
Kent	58	9.2	44	6.7	-2.5	-27.2
Ingham	33	12.1	55	20.0	7.9	65.3
St. Clair	31	21.9	34	23.9	2.0	9.1
Washtenaw	44	12.0	66	18.0	6.0	50.0
Monroe	33	25.3	30	23.3	-2.0	-7.9
Calhoun	36	29.6	38	32.2	2.6	
Kalamazoo	28	10.8	25	10.4	-0.4	-3.7
Muskegon	17		20	13.2		

See notes on page 10.

Table 5. Annual number and age-adjusted rate of drug overdose deaths involving prescription opioids^{3†}, by sex, age, race, and selected counties – Michigan, 2017-2018

Decedent Characteristics	2017		2018		Change from 2017 to 2018 ¹	
	Number	Rate	Number	Rate	Difference of rates	% change in rate
All	647	6.6	572	5.8	-0.8	-12.1*
Sex						
Male	350	7.3	335	6.8	-0.5	-6.8
Female	297	6.0	237	4.8	-1.2	-20.0*
Age group (years)						
15-24	36	2.6	30	2.2	-0.4	-16.6
25-34	152	12.0	113	8.7	-3.3	-27.4
35-44	147	12.7	127	10.9	-1.8	-14.3
45-54	144	10.9	134	10.4	-0.5	-4.5
55-64	130	9.3	122	8.7	-0.6	-6.3
65 and older	37	2.2	45	2.6	0.4	17.2
Sex and age group (years)						
Male						
15-24	21	3.0	25	3.6	0.6	19.6
25-44	169	13.9	147	11.9	-2.0	-14.3
45-64	143	10.7	134	10.2	-0.5	-4.9
Female						
15-24	15	2.3	§§			
25-44	130	10.8	93	7.6	-3.2	-29.4
45-64	131	9.4	122	8.9	-0.5	-5.6
Race						
White	566	7.3	467	6.0	-1.3	-17.8*
Black	69	4.6	91	5.8	1.2	26.1
American Indian	§§		§§			
Selected counties						
Wayne	153	8.7	125	7.0	-1.7	-19.5
Macomb	94	10.5	74	8.4	-2.1	-20.0
Oakland	§		§			
Genesee	52	13.1	62	15.4	2.3	17.6
Kent	27	4.0	31	4.8	0.8	20.0
Ingham	20	6.4	23	8.3	1.9	29.7
St. Clair	13		12			
Washtenaw	12		11			
Monroe	12		§§			
Calhoun	16		22	17.0		
Kalamazoo	20	7.3	22	8.6	1.3	17.8
Muskegon	18		15			

See notes on page 10.

Table 6. Annual number and age-adjusted rate of drug overdose deaths involving cocaine[†], by sex, age, race, and selected counties – Michigan, 2017-2018

Decedent Characteristics	2017		2018		Change from 2017 to 2018 [¶]	
	Number	Rate	Number	Rate	Difference of rates	% change in rate
All	651	6.8	783	8.2	1.4	20.6*
Sex						
Male	439	9.1	506	10.5	1.4	15.4*
Female	212	4.6	277	5.9	1.3	28.3*
Age group (years)						
15-24	36	2.6	46	3.4	0.8	28.8
25-34	162	12.8	195	15.0	2.2	17.5
35-44	155	13.4	181	15.6	2.2	16.3
45-54	178	13.5	196	15.2	1.7	12.9
55-64	101	7.2	138	9.8	2.6	35.9
65 and older	19	1.1	27	1.6	0.5	40.4
Sex and age group (years)						
Male						
15-24	20	2.9	33	4.8	1.9	67.4
25-44	208	17.1	234	18.9	1.8	10.6
45-64	195	14.6	217	16.5	1.9	12.8
Female						
15-24	16	2.4	13	2.0	-0.4	-16.7
25-44	109	9.0	142	11.6	2.6	28.5
45-64	84	6.0	117	8.5	2.5	40.6
Race						
White	458	6.2	521	7.1	0.9	14.5*
Black	176	12.4	233	15.8	3.4	27.4*
American Indian	§§		11			
Selected counties						
Wayne	234	13.4	305	18.0	4.6	34.3*
Macomb	77	8.7	91	10.9	2.2	25.3
Oakland	§		§			
Genesee	60	16.6	84	19.7	3.1	18.7
Kent	41	6.5	27	4.1	-2.4	-36.9
Ingham	19		28	10.1		
St. Clair	11		12			
Washtenaw	20	5.5	36	9.5	4.0	72.7
Monroe	11		13			
Calhoun	14		12			
Kalamazoo	§§		§§			
Muskegon	§§		12			

See notes on page 10.

Notes on Data

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

1. Deaths are classified using the International Classification of Diseases, Tenth Revision (ICD-10). Drug overdose deaths are identified using underlying cause-of-death codes X40-X44 (unintentional), X60-X64 (suicide), X85 (homicide), and Y10-Y14 (undetermined intent). Of the drug overdose deaths in 2018, 84.1 percent were unintentional, 5.7 percent were suicides, 10.1 percent were of undetermined intent, and less than 1 percent were homicides. Rates are age-adjusted using the direct method and the 2000 U.S. standard population, except age-specific crude rates. All rates are per 100,000 population. Cells with less than 9 deaths are not reported. Rates based on <20 are not considered reliable and not reported.
 2. Drug overdose deaths, as defined, that have opium (T40.0), heroin (T40.1), natural and semisynthetic opioids (T40.2), methadone (T40.3), synthetic opioids other than methadone (T40.4), or other and unspecified narcotics (T40.6) as a contributing cause.
 3. Drug overdose deaths, as defined, that have natural and semisynthetic opioids (T40.2) or methadone (T40.3) as a contributing cause.
- † Drug categories are not exclusive because deaths may involve more than one drug. Summing of categories will result in greater than the total number of deaths in a year.
- § Not reported due to higher percentage of drug overdose deaths with no drug specificity (62.2 percent in 2017 and 53.6 percent in 2018).
- §§ Cells with ≤ 9 deaths
- ¶ Percent change is the difference between 2017 and 2018 rates divided by the 2017 rate, multiplied by 100. Nonoverlapping confidence intervals were used if the number of deaths was <100 in 2017 or 2018, and z-tests were used if the number of deaths was ≥ 100 in both 2017 and 2018. Note that the method of comparing confidence intervals is a conservative method for statistical significance.
- * Statistically significant at 0.05 level.

Definitions

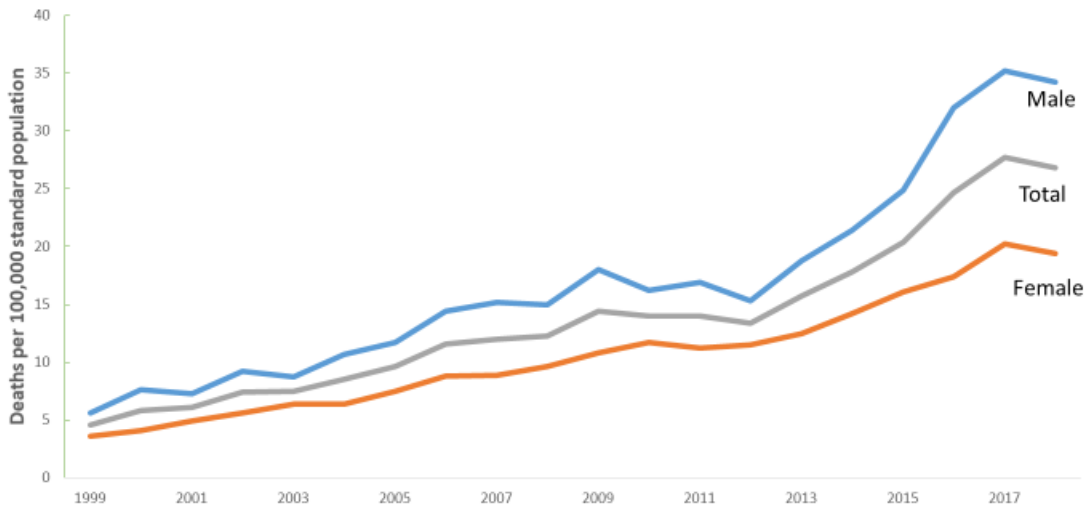
Drug overdose deaths: Includes deaths resulting from unintentional or intentional overdose of a drug, being given the wrong drug, taking a drug in error, or taking a drug inadvertently.

Natural and semisynthetic opioids: Includes such drugs as morphine, codeine, hydrocodone, and oxycodone.

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

Appendix. Drug overdose deaths in Michigan, 1999-2018

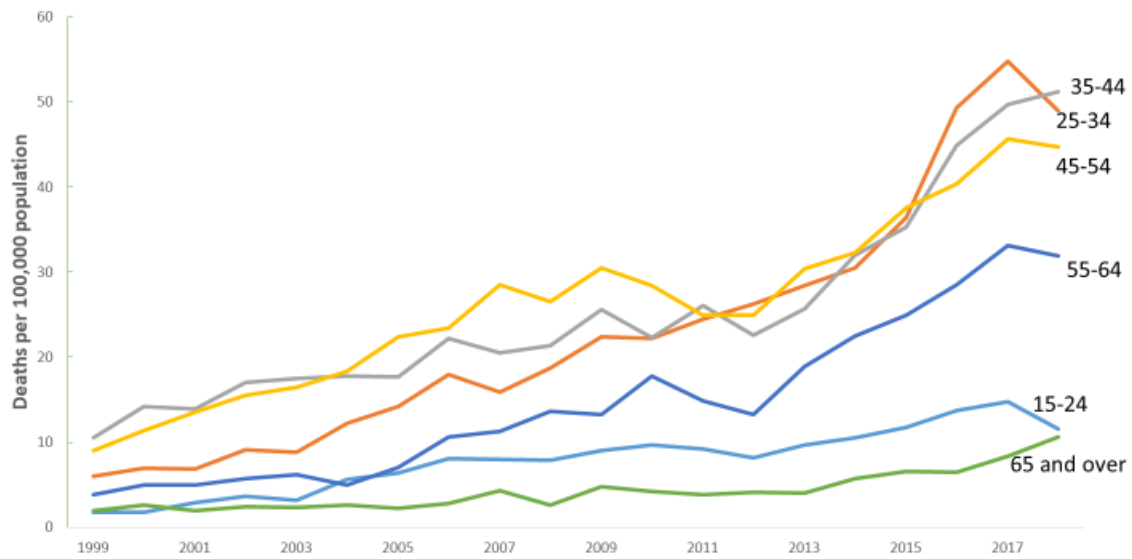
Figure 1. Age-adjusted drug overdose death rates - Michigan, 1999-2018



Source: Michigan Death Certificates, Division for Vital Records and Health Statistics/Michigan Department of Health and Human Services

- The age-adjusted rate of drug overdose deaths increased six-fold from 4.6 per 100,000 population in 1999 to 27.7 in 2017, then decreased to 26.8 in 2018.
- The rate in 2018 was 3.2 percent lower than the rate in 2017.
- For each year, rates were higher for males than females. For males, the rate increased from 5.6 in 1999 to 35.2 in 2017, then decreased to 34.2 in 2018. For females, the rate increased from 3.6 in 1999 to 20.2 in 2017, then decreased to 19.4 in 2018.

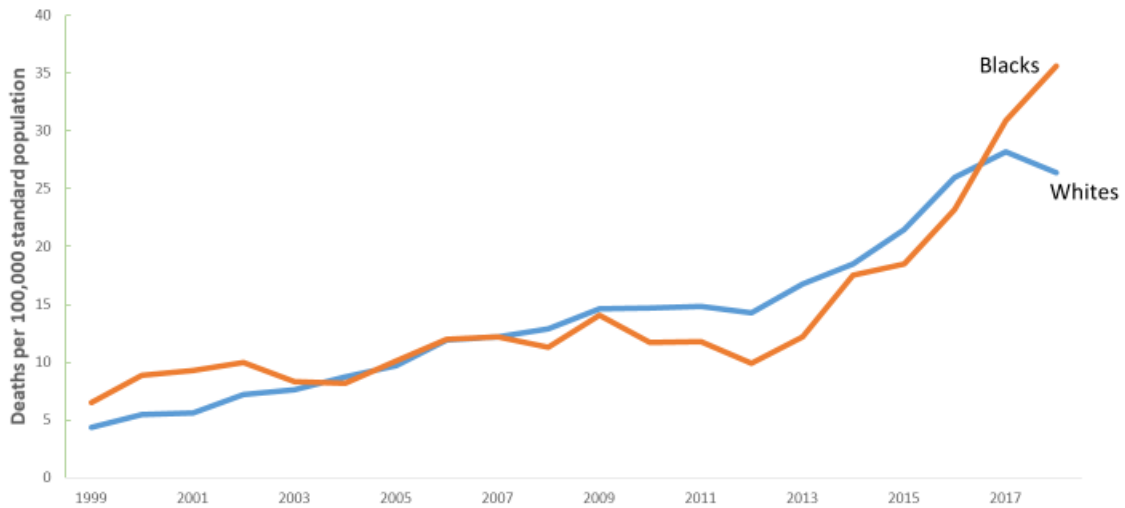
Figure 2. Drug overdose death rates by selected age group - Michigan, 1999-2018



Source: Michigan Death Certificates, Division for Vital Records and Health Statistics/Michigan Department of Health and Human Services

- The rates of drug overdose deaths increased from 1999 to 2017 for all age groups (Figure 2). The rates decreased for most age groups except adults aged 35-44 and adults aged 65 and older in 2018.
- From 1999 to 2018, the greatest percentage change in drug overdose rates occurred among adults aged 25-34, increasing from 6.0 per 100,000 in 1999 to 54.8 in 2017, a more than nine-fold increase, then decreased to 49.0 in 2018.

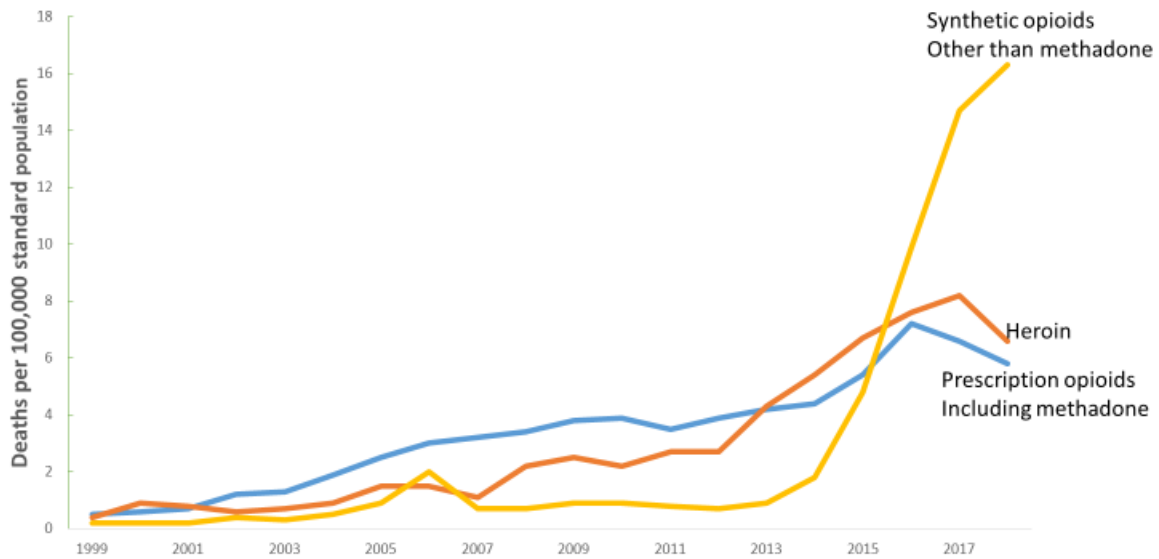
Figure 3. Age-adjusted drug overdose death rates by race – Michigan, 1999-2018



Source: Michigan Death Certificates, Division for Vital Records and Health Statistics/Michigan Department of Health and Human Services

- From 1999 through 2003, rates were higher for blacks than whites, between 2004 and 2009, the rates were similar for both, and from 2010 through 2016, rates were higher for white than blacks. For whites, the rate decreased from 28.2 in 2017 to 26.4 in 2018. For blacks, the rate increased from 30.9 in 2017 to 35.6 in 2018.

Figure 4. Age-adjusted drug overdose death rates by opioid category - Michigan, 1999-2018

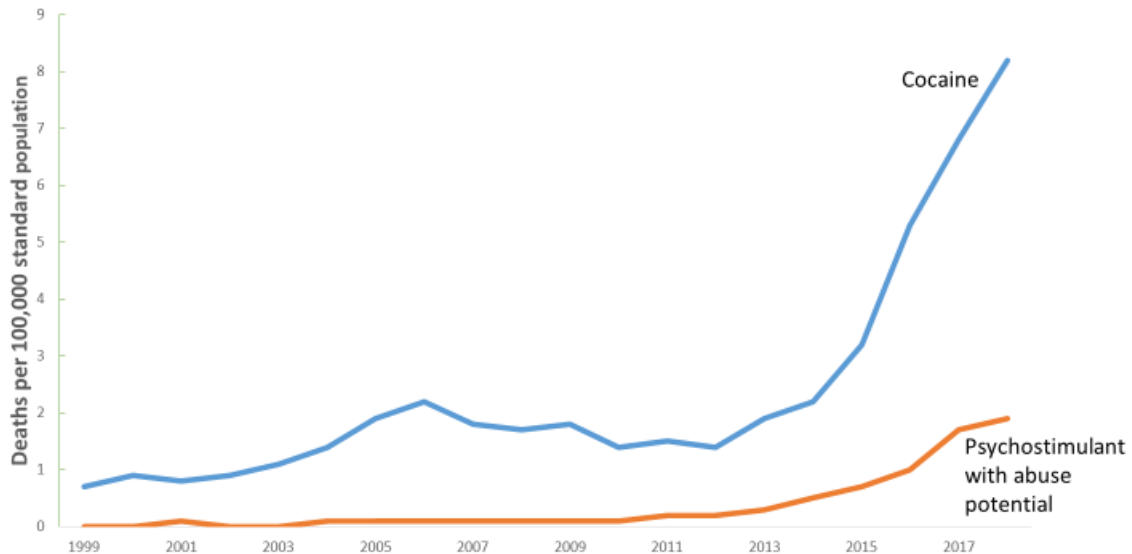


Drug categories are not mutually exclusive.

Source: Michigan Death Certificates, Division for Vital Records and Health Statistics/Michigan Department of Health and Human Services

- The rate of drug overdose deaths involving synthetic opioids other than methadone, which include drugs such as fentanyl, fentanyl analogs, and tramadol, increased from 0.2 per 100,000 in 1999 to 0.9 in 2013, 1.8 in 2014, 4.8 in 2015, 9.9 in 2016, 14.7 in 2017, and 16.3 in 2018.
- The rate of drug overdose deaths involving heroin increased by 200 percent from 2012 through 2017, then declined by 19.5 percent from 2017 to 2018.
- The rate of drug overdose death involving prescription opioids including methadone increased from 0.5 per 100,000 in 1999 to 2.5 in 2005, 5.4 in 2015, 7.2 in 2016, then decreased to 6.6 in 2017. The rate in 2018 (5.8) was lower than in 2017.

Figure 5. Age-adjusted drug overdose death rates involving stimulants, by type of stimulant - Michigan, 1999-2018



Drug categories are not mutually exclusive.

Source: Michigan Death Certificates, Division for Vital Records and Health Statistics/Michigan Department of Health and Human Services

- The age-adjusted rate of drug overdose deaths involving cocaine increased from 0.7 in 100,000 in 1999 to 2.2 in 2006, then decreased to 1.4 in 2010. From 2012 through 2018, the rate increased on average by 34 percent per year to a rate of 8.2 in 2018.
- The age-adjusted rate of drug overdose deaths involving psychostimulants with abuse potential, which include drugs such as methamphetamine, amphetamine, and methylphenidate, increased from 0.0 in 1999 to 0.2 in 2011. From 2012 through 2018, the rate increased on average by 46 percent per year to a rate of 1.9 in 2018.

Contact Information:

Michigan Department of Health and Human Services
Behavioral Health and Developmental Disabilities Administration
Bureau of Community Based Services
Office of Recovery Oriented Systems of Care
320 S. Walnut., Lansing, MI 48913

Su Min Oh

Phone: (517) 335-2300

Mdhhs-bhdda@michigan.gov

www.michigan.gov/bhrecovery

The Michigan Department of Health and Human Services will not exclude from participation in, deny benefits of, or discriminate against any individual or group because of race, sex, religion, age, national origin, color, height, weight, marital status, gender identification or expression, sexual orientation, partisan considerations, or a disability or genetic information that is unrelated to the person's eligibility.