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Opioid Epidemic Report

William Nettleton, MD, MPH
Kim Kutzko, MPH

For more information or questions about this report, contact hcsdata@kalcounty.com.



KALAMAZOO COUNTY GOVERNMENT

In the Pursuit of Extraordinary Governance

Health and Community Services Department

3299 Gull Road | Kalamazoo, MI 49048

Phone: 269.373.5200 | www.kalcounty.com/hcs

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Drug overdose is a serious public health problem that now constitutes the leading cause of unintentional injury death in the United States¹. Opioid abuse and misuse continues to drive the overdose epidemic. Kalamazoo County, like other communities in the United States, is affected by the epidemic. This document provides a snapshot of the opioid epidemic in Kalamazoo County and briefly outlines a framework to address it from a public health perspective.

An opioid is a drug that eases pain and may also cause feelings of extreme pleasure. Opioids act on the brain and nerves and include both prescription medications and illegal drugs like heroin. Opioids can be addictive with regular use or misuse. An opioid overdose occurs when excess opioids act on the brain to decrease or stop a person's breathing. Opioid dependence occurs when the brain adapts and only functions normally when opioids are present; when opioids are not present, a reaction known as withdrawal occurs. Opioid addiction is a long-term, relapsing disease of the brain characterized by compulsive drug seeking and use despite harmful consequences². Opioid addiction affects not only the lives of addicted individuals but families and communities as well. It is possible to be opioid dependent without being addicted since dependence and addiction occur at different parts of the brain².

Like most public health challenges, the opioid epidemic's origins are multifactorial. First, an increase in supply of both prescription opioids and illicit opioids increased the risk for overdose in the population. Long term consumption of prescription opioids, often for chronic pain, led to people spending more time at risk for overdose. In other words, both increased exposure and increased exposure duration to prescription opioids contributed to increased risk of overdose. The perception of opioids being low risk medications for developing dependence or addiction also contributed to the rationalization of increased prescription opioid supply and the outcome of overdose. It is now well established that prescription opioids can be addictive with regular use or misuse². With respect to illicit opioids, increased potency of heroin and fentanyl analogs made it much easier for a person to overdose as well¹. For those who then develop opioid dependence or addiction, fragmented systems of care between substance use treatment providers, healthcare systems, behavioral and mental health services, and social services continues to hinder access and coordination of treatment. Finally, the perception of addiction as a moral defect continues to be counterproductive³, because research, resources, interventions and treatment are then not aligned to address addiction for what it really is—a long term, relapsing disease of the brain that has profound implications for families and communities.

The opioid epidemic can be quantified in several ways, including unintentional fatal and nonfatal overdoses, the frequency of opioid overdose reversals with naloxone administration, substance abuse service utilization, law enforcement records, opioid prescription rates, behavioral risk factor surveys, rates of newborn opioid withdrawal, the incidence of drug-related infectious diseases, and personal testimony from community members. This report highlights the burden of opioid prescriptions and unintentional fatal and nonfatal opioid-related overdoses in Kalamazoo County.

¹ Centers for Disease Control and Prevention

² The National Institute on Drug Abuse

³ The United States Surgeon General

Opioid Prescriptions

Although the number of retail opioid prescriptions in Kalamazoo County peaked in 2011 and has decreased every year since, a substantial burden remains both in the quantity and strength of opioids prescribed.

Unintentional Opioid Related Overdoses

In 2016, an average of 24 Kalamazoo County residents were treated each month for unintentional opioid overdoses (13 for heroin, 11 for other opioids) at local emergency departments. The opioid related overdose rate was twice as high for males as females. The three zip codes with the highest rates of unintentional opioid overdose were 49007, 49034, and 49001.

Opioid Related Mortality

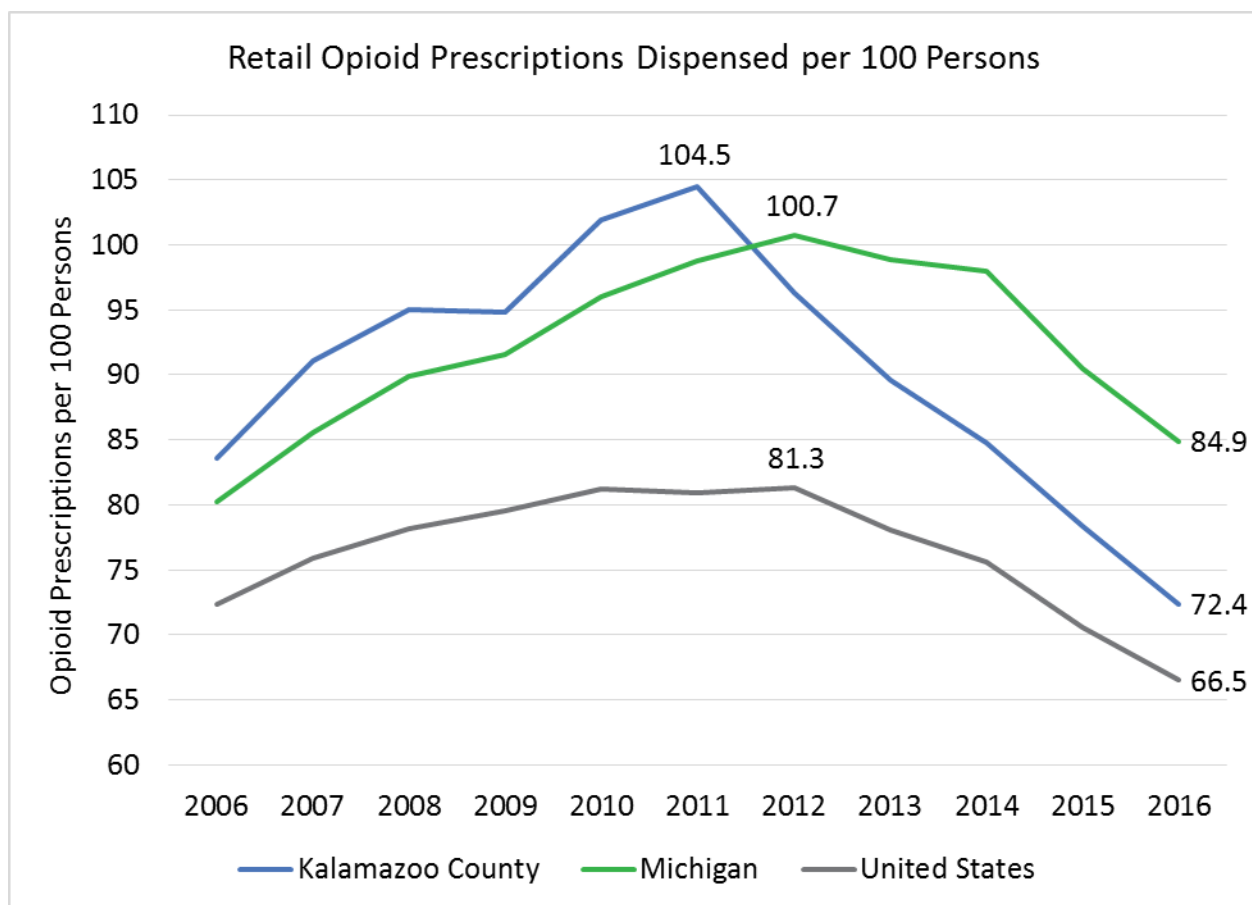
From 2015 to 2016 the number of drug-related deaths more than doubled from 33 to 72. During 2016, more people died of an accidental drug-related overdose in Kalamazoo County than of motor vehicle accidents. Despite the decrease in retail opioid prescriptions, the number of accidental opioid-related deaths also doubled from 29 to 59 between 2015-2016, to an average of five per month. The locations of accidental opioid related deaths were spread throughout Kalamazoo County. The average age at death for those who died of opioid-related causes was 39.4 years. An estimated 2,102 years of additional life would have been lived if those who died of an opioid drug-related death had not died prematurely. In 2016, fentanyl accounted for 20 synthetic opioid-related deaths, more than three times as many as the six fentanyl-related deaths in 2015.

Future Steps

Confronting the opioid epidemic requires multisector collaboration between public health, law enforcement, healthcare institutions, behavioral and mental health providers, substance use treatment providers, nongovernmental organizations, nonprofits, and other community partners. The following key strategy buckets can be utilized to coordinate and integrate action: prevention and education, supply and control of opioids, treatment access across a continuum of care, and the reduction of overdoses and the spread of infectious disease through harm reduction efforts.

Please refer to the data sources, limitations, and definitions in this report for a more complete interpretation of these key points.

The correlation between opioid prescribing practices and the current opioid epidemic has been well established. The graph below describes the number of opioid prescriptions dispensed at a retail pharmacy per 100 persons in Kalamazoo County, the State of Michigan, and the United States from 2006 to 2016. Kalamazoo County opioid prescriptions peaked at 104.5 per 100 persons in 2011 and has decreased annually. Michigan and United States opioid prescriptions peaked in 2012, at 100.7 and 81.3 per 100 persons respectively. While opioid prescriptions in Kalamazoo County remain below the rate in Michigan, it is above the national rate at 72.4 retail opioid prescriptions per 100 persons. Of note, these data only report the number of prescriptions, but do not capture the strength or amount of opioids dispensed.



Data Definitions:

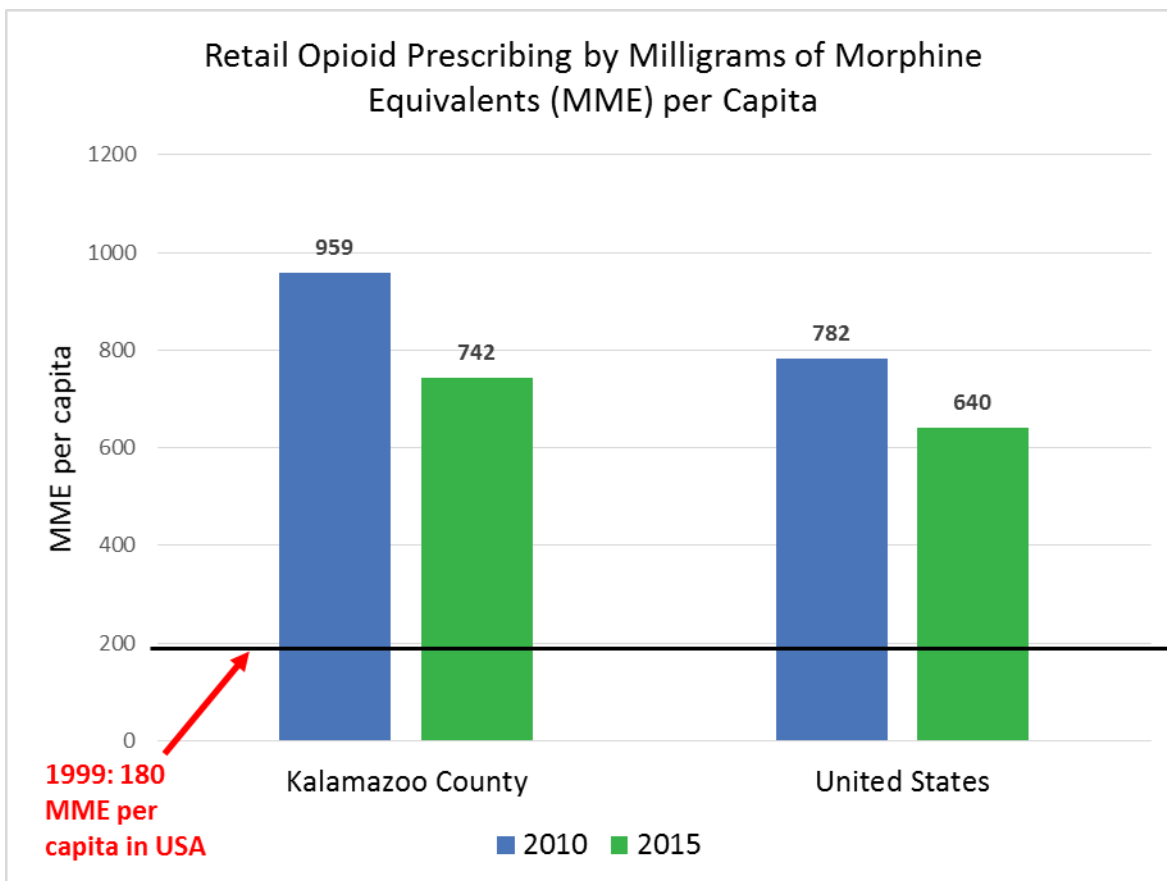
Retail outlets include commercial pharmacies but do not include locations like emergency departments or substance abuse treatment clinics. It does not include mail order pharmacy data.

Opioid prescriptions do not include cough/cold medications, buprenorphine or methadone dispensed through a methadone treatment program in this data set.

Resident population annual denominator estimates were obtained from the Population Estimates Program, U.S. Census Bureau.

Source: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Division of Unintentional Injury Prevention. <https://www.cdc.gov/drugoverdose/maps/rxrate-maps.html>.

Another way to examine the burden of opioid prescriptions is to account for the strengths and dosages of the opioids dispensed. **Milligrams of morphine equivalents (MME)** are a way to standardize and compare opioids of different strengths and dosages. MMEs add specificity to opioid prescription supply descriptions in addition to pill count or number of prescriptions alone. The graph below describes these MMEs per capita, or per person, residing in Kalamazoo County or the United States. Nationally, from 2010 to 2015, the amount of opioids prescribed decreased 18% from 782 milligrams of morphine equivalents (MME) per capita to 640 MME per capita. In Kalamazoo County, retail prescriptions fell 23% from 959 to 742 MME per capita. Despite this decrease, the Kalamazoo County retail MME per capita remains higher than the current national average, and is 3.5 times higher than the 1999 national average of 180 MME per capita—a time near the beginning of the opioid overdose epidemic.

**Data Definitions:**

Retail outlets include commercial pharmacies but do not include locations like emergency departments or substance abuse treatment clinics.

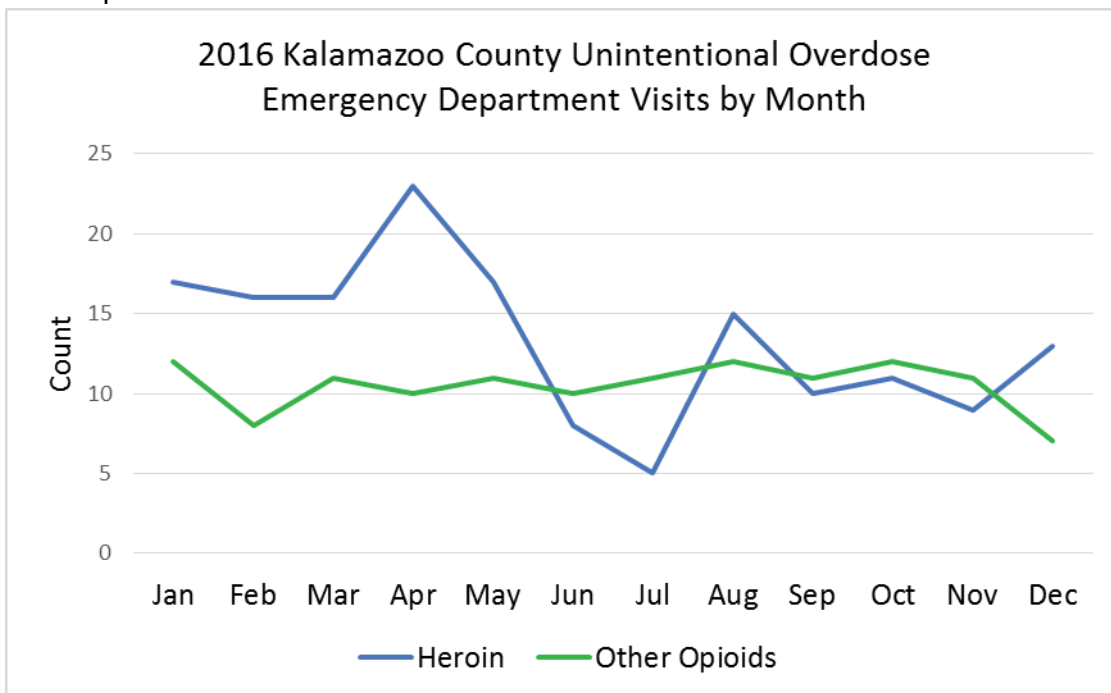
Source: Guy GP Jr., Zhang K, Bohm MK, et al. Vital Signs: Changes in Opioid Prescribing in the United States, 2006–2015. *MMWR Morb Mortal Wkly Rep* 2017;66:697–704.

In 2016, there were a total of 286 unintentional opioid-related overdose emergency department visits for Kalamazoo County residents at two local emergency departments. Fifty-six percent of these visits involved heroin and seven percent involved methadone. The remainder of the visits were for other/nonspecific opioids.

The majority of the visits were in the 25-34 year age group (30%) followed by the 35-44 year old age group (17%); the average age was 40 years. Persons with visits involving heroin tended to be younger (33 years). Overall, males accounted for more visits (58%) compared to females (42%). This gender distribution differed according to opioid group: 70% of methadone-related visits were in females, while 70% of heroin visits were in males.

The number of unintentional opioid emergency department visits remained relatively stable over the year. However, visits coded as heroin-related showed more variability across the year, peaking in April and declining over the summer months. On average, 24 (13 heroin and 11 other opioid-related) unintentional overdoses occurred each month.

The rate for unintentional opioid-related overdoses by zip code of patient residence was highest for the 49007, 49034, and 49001 zip codes. The same trend was seen for heroin-related overdoses. Please see pages 10 and 11 of this report for additional information.

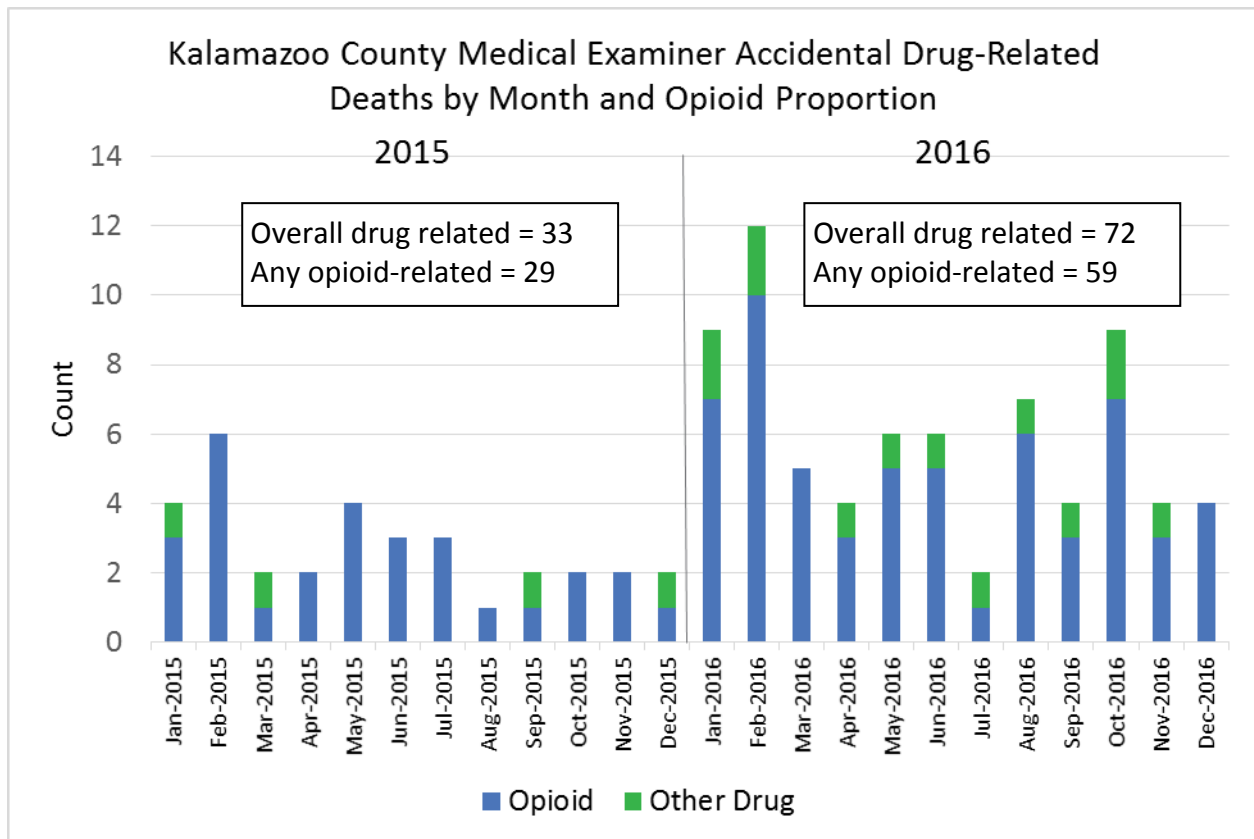


Data Limitations/Definitions: Not all unintentional opioid overdoses present at emergency department. To be counted, a case must arrive at an emergency department in Kalamazoo County and be coded by a physician/provider or biller as an opioid-related overdose. These data encompass ICD-10 poisoning codes selected by KCHCS to best capture an opioid overdose. Overdoses coded as heroin-related in the emergency department may undercount fentanyl-related overdoses.

Source: Bronson Methodist Hospital and Borgess Medical Center

The Office of the Medical Examiner determines the cause of death and whether a death is accidental. KCHCS counted an accidental opioid-related death as any accidental drug-related death certified by the Kalamazoo County Office of the Medical Examiner with an opioid listed in the toxicology report in accordance to recommendations by the National Association of Medical Examiners. These accidental, opioid-related deaths are colored blue; drug-related deaths that do not include an opioid are colored green.

From 2015 to 2016, the number of accidental drug-related deaths more than doubled from 33 to 72. Opioid-related deaths increased from 29 to 59 during the same time period, though the proportion of drug-related deaths attributable to opioids decreased (87.9% to 81.9%). In 2016, both drug-related and opioid-related deaths peaked in January/February and October.



Data Limitations/Definitions:

Medical examiner data are by location of death (within Kalamazoo County), not county of residence of the decedent. Vital statistics will therefore differ from these figures. In 2016, 14/72 drug-related deaths were likely residents of other counties; six of these deaths included incidents that likely occurred within Kalamazoo County. Undetermined opioid-related deaths are not included. 3/4 indeterminate drug-related deaths involved an opioid in 2016. Classification methods used by the Office of the Medical Examiner did not change during the time period reported.

Source: Kalamazoo County Office of the Medical Examiner

Drug-related deaths often impact a younger population than other causes of death; the average age of decedents was 41 years of age. Average age at death differed according to race, the average age for white residents was 40.4 years compared to 47.5 years for black residents.

In order to examine the quantitative impact of these early deaths, a measurement called years of potential life lost is used. It assumes an average age of death of 75 years and estimates the number of years lost due to premature death. In Kalamazoo County in 2016, an estimated 2,462 years of potential life were lost due to drug-related deaths.

Kalamazoo County Drug-Related Deaths, 2016

	n	%	Average Age (years)
Total	72	100.0%	41
Sex			
Male	49	68.1%	40.8
Female	23	31.9%	40.9
Race			
White	62	86.1%	40.4
Black	8	11.1%	47.5
Age			
Range	19-65		
15-24 years	5	6.9%	
25-34 years	19	26.4%	
35-44 years	20	27.8%	
45-54 years	18	25.0%	
55-64 years	9	12.5%	
65+ years	1	1.4%	
Drug involved			
Any opioid	59	81.9%	
Any cocaine	9	12.5%	
Any methamphetamine	13	18.1%	
Any alcohol	13	18.1%	
Any benzodiazepine	26	36.1%	
Polysubstance	56	77.8%	

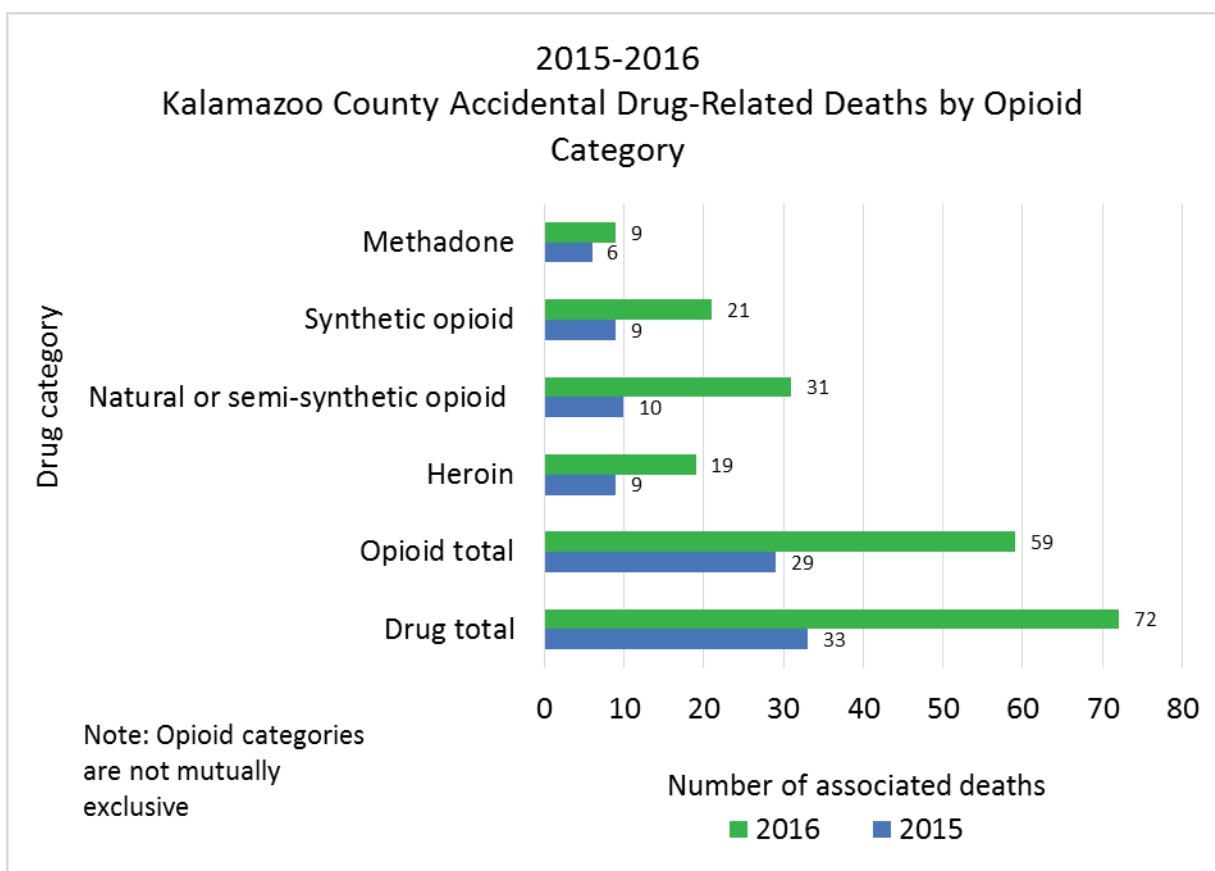
Data Limitations/Definitions:

Medical examiner data are by location of death (within Kalamazoo County), not county of residence of the decedent. Vital statistics will therefore differ from these figures. Undetermined opioid-related deaths are not included. Classification methods used by the Office of the Medical Examiner did not change during the time period reported.

Source: Kalamazoo County Office of the Medical Examiner

The Centers for Disease Control and Prevention (CDC) categorizes opioids into four groups: natural or semi-synthetic opioids, synthetic opioids, methadone and heroin. Natural or semi-synthetic opioids include morphine, codeine, oxycodone (e.g. Oxycontin®), hydrocodone (e.g. Vicodin®), hydromorphone (e.g. Dilaudid®), and oxymorphone (e.g. Opana®). Synthetic opioids include fentanyl, fentanyl analogs, tramadol, and buprenorphine. Methadone is a separate synthetic opioid that can be prescribed for both pain and opioid dependence. Heroin is an illicit opioid that can be injected, snorted or smoked.

Accidental deaths in all categories of opioid increased from 2015 to 2016, with accidental opioid-related deaths doubling from 29 to 59 for a crude rate of 23 deaths per 100,000 population. The largest increase was seen in natural or semisynthetic opioids, which tripled from 10 to 31. The number of deaths from synthetic opioids and heroin more than doubled, from 9 to 21 and 9 to 19, respectively. In 2016, fentanyl accounted for 20 of the 21 synthetic opioid-related deaths, more than three times an increase from 6 fentanyl-related deaths in 2015.



Data Limitations/Definitions:

Most drug-related deaths involve more than one drug or opioid. Therefore, the listed opioid categories are not mutually exclusive and do not sum to 59 or 72. Medical examiner data is by location of death, not county of residence. Vital statistics will therefore differ from these figures.

Source: Kalamazoo County Office of the Medical Examiner

In Kalamazoo County in 2016, the sex-specific death rate for males was twice that of females, 31.8 per 100,000 compared to 14.5 per 100,000. The rates between white residents and black residents were similar (24.3 and 21.3 per 100,000). The average age did differ between the white and black residents with the average age among white residents at 38.9 years and the average age among black residents at 47.2 years.

Kalamazoo County Opioid-Related Deaths, 2016

	n	Rate per 100,000	Average Age (years)
Total	59	23.0	39.4
Sex			
Male	40	31.8	41.3
Female	19	14.5	38.5
Race			
White	51	24.3	38.9
Black	6	21.3	47.2
Age		*age-specific rate	
Range	19-65		
15-24 years	5	9.9	
25-34 years	17	50.7	
35-44 years	17	57.6	
45-54 years	14	44.8	
55-64 years	5	16.3	
65+ years	1	-	
Drug involved			
Natural or Semi-synthetic	31	12.1	41.1
Methadone	9	3.5	39.6
Synthetic	22	8.6	38.8
Heroin	19	7.4	39.5

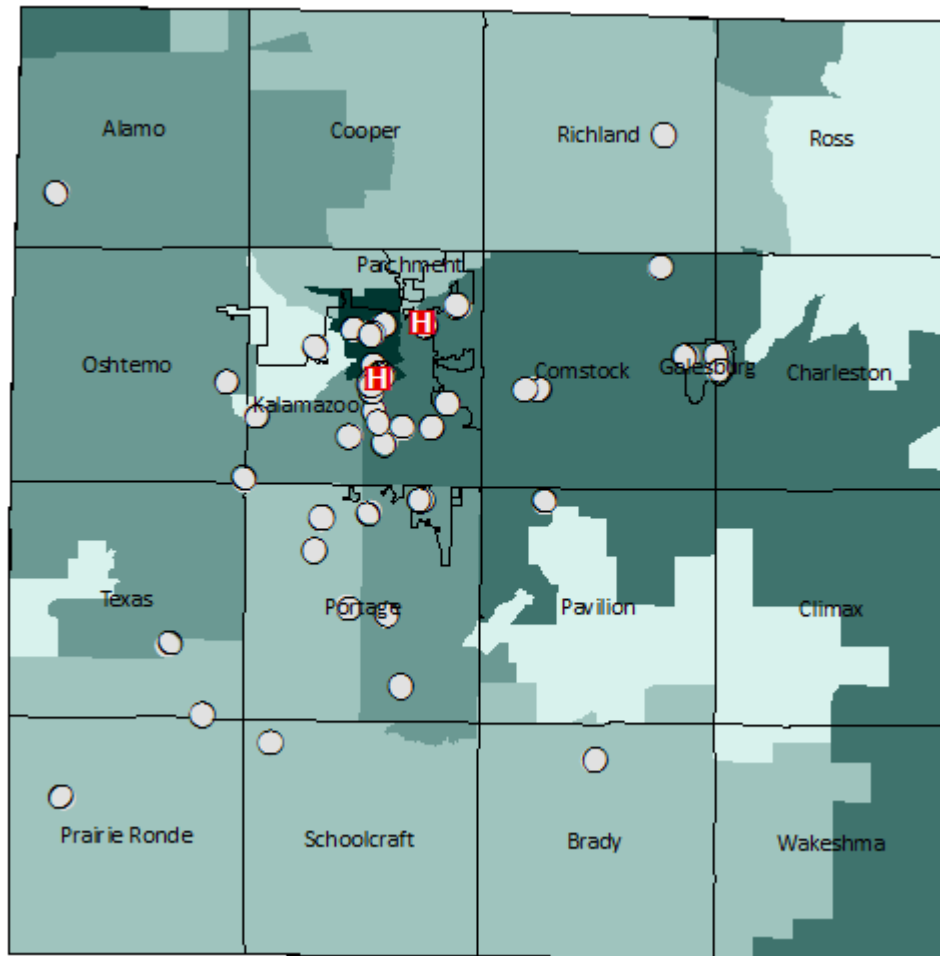
Data Limitations/Definitions:

Most drug-related deaths involve more than one drug or opioid. Therefore, the listed opioid categories are not mutually exclusive and do not sum to 59 or 72. Medical examiner data is by location of death, not county of residence. Vital statistics will therefore differ from these figures.

Source: Kalamazoo County Office of the Medical Examiner

The top three zip codes with the highest rate of unintentional opioid overdose were 49007, 49034, and 49001. Thirteen accidental opioid-related deaths occurred at an area hospital marked by an “H” on the map.

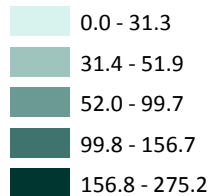
2016 Accidental Opioid-Related Deaths and Rate of Unintentional Opioid Overdose Emergency Department Visits



Kalamazoo County, 2016

○ Accidental Opioid Deaths

Unintentional Opioid Overdose Emergency Department Visits (Rate per 100,000 population)

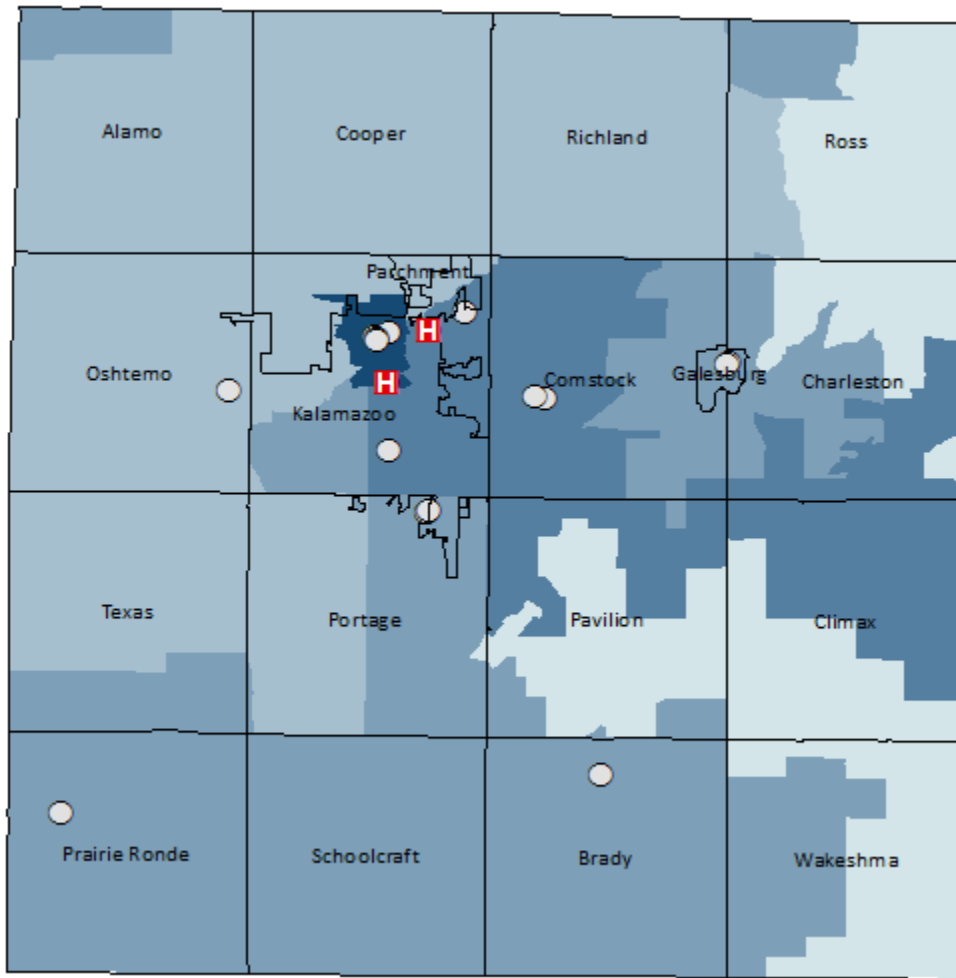


*Indicated locations are address of death, not necessarily the residence of decedents

Source: Kalamazoo County Office of the Medical Examiner and Area Hospitals

The top three zip codes with the highest rate of unintentional heroin overdose were 49007, 49034, and 49001. Four accidental opioid-related deaths occurred at an area hospital marked by an “H” on the map.

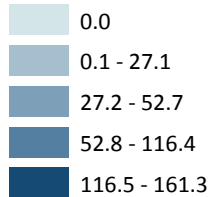
2016 Accidental Heroin-Related Deaths and Rate of Unintentional Heroin Overdose Emergency Department Visits



Kalamazoo County, 2016

○ Accidental Heroin Deaths

Unintentional Heroin Overdose Emergency Department Visits (Rate per 100,000 population)



*Indicated locations are address of death, not necessarily the residence of decedents

Source: Kalamazoo County Office of the Medical Examiner and Area Hospitals

A strategic framework for how Kalamazoo County can address the opioid epidemic is shown by the figure below. The four strategic buckets include prevention and education, supply and control of opioids, treatment, and harm reduction. The newly formed Kalamazoo County Opioid Coalition aims to and integrate existing and new efforts within these strategic buckets across Kalamazoo County.

Prevention and education efforts could include community and professional education on addiction as a long-term, relapsing disease of the brain, increased knowledge about opioids, and increased risk perception. Prevention efforts may also focus on the upstream risk factors that influence the development of opioid addiction in community members.

Supply and control efforts involve law enforcement and improving opioid prescribing practices. New partnerships to reduce the supply of illicit drugs or the unlawful distribution of legal drugs are emerging in some communities. Improving prescribing practices of opioids requires both professional education and systems-level changes within healthcare institutions.

The treatment bucket focuses on access and improvement of referrals across a continuum of care for opioid addiction. Access to medication-assisted therapies such as buprenorphine, methadone and naltrexone, and improved coordination with behavioral and mental health services and recovery services are needed. Professional education on chronic pain management as well as screening, diagnosis and early intervention for those at risk for opioid use disorder are needed to complement efforts focused on treatment and recovery.

Finally, harm reduction involves preventing overdose deaths and the spread of infectious disease associated with drug use. Overdose education and naloxone distribution includes efforts to prevent overdoses through education and administration of a drug called naloxone which reverses an opioid overdose. Public health agencies can partner with healthcare institutions and social services to detect and prevent the spread of infectious diseases such as HIV, and Hepatitis A, B, and C, in addition to reducing blood stream and heart valve infections associated with drug use. The newly formed Kalamazoo County Opioid Coalition will employ Heathy People 2020's MAP-IT (Mobilize, Assess, Plan, Implement and Track) strategy as its model for improvement to address the opioid epidemic through the coordination and integration of these four strategic priorities.

