



# ANNUAL REPORT

# 2023

**Allegan  
Barry  
Berrien  
Calhoun**

**Cass  
Grand Traverse  
Kalamazoo  
Leelanau**

**Mason  
Muskegon  
St. Joseph  
Van Buren**

Office of the Medical Examiner  
Western Michigan University  
Homer Stryker M.D. School of Medicine



WESTERN MICHIGAN UNIVERSITY

— Homer Stryker M.D. —

SCHOOL OF MEDICINE

MEDICAL EXAMINER AND  
FORENSIC SERVICES

# Contents

- 1 Which Deaths Do We Investigate?
- 1 Identification of Decedent
- 2 Indications for Complete Autopsy
- 2 What is the difference between Cause of Death and Manner of Death?
- 3 The Death Investigation Process
- 4 Cremation Permit Authorizations
- 4 Public Health and Safety
- 5 Unclaimed Investigations
- 5 Terms
- 5 Important note regarding the data in this report

## **6 Allegan County**

- 6 Summary of All Allegan County Cases
- 6 Cremation Permit Authorizations
- 7 Manners of Death Reported
- 7 Deaths Reported by Age (in years)
- 8 Pediatric Deaths
- 8 Accidental Deaths by Mechanism
- 8 Drug-Related Deaths by Manner
- 9 Suicides by Sex & Age
- 9 Deaths by Suicide
- 10 Suicides by Mechanism

## **11 Barry County**

- 11 Summary of All Barry County Cases
- 11 Cremation Permit Authorizations
- 12 Manners of Death Reported
- 12 Deaths Reported by Age (in years)
- 12 Pediatric Deaths
- 13 Accidental Deaths by Mechanism
- 13 Drug-Related Deaths by Manner
- 14 Suicides by Sex & Age
- 14 Deaths by Suicide
- 15 Suicides by Mechanism

## **16 Berrien County**

- 16 Summary of All Berrien County Cases
- 16 Cremation Permit Authorizations
- 17 Manners of Death Reported
- 17 Deaths Reported by Age (in years)
- 18 Pediatric Deaths
- 18 Accidental Deaths by Mechanism
- 19 Drug-Related Deaths by Manner
- 19 Suicides by Sex & Age
- 19 Deaths by Suicide
- 19 Suicides by Mechanism

# Contents

## **21 Calhoun County**

- 21 Summary of All Calhoun County Cases
- 21 Cremation Permit Authorizations
- 22 Manners of Death Reported
- 22 Deaths Reported by Age (in years)
- 23 Pediatric Deaths
- 23 Accidental Deaths by Mechanism
- 24 Drug-Related Deaths by Manner
- 24 Suicides by Sex & Age
- 25 Deaths by Suicide
- 25 Suicides by Mechanism

## **26 Cass County**

- 26 Summary of All Cass County Cases
- 26 Cremation Permit Authorizations
- 27 Manners of Death Reported
- 27 Deaths Reported by Age (in years)
- 27 Pediatric Deaths
- 28 Accidental Deaths by Mechanism
- 28 Drug-Related Deaths by Manner
- 29 Suicides by Sex & Age
- 29 Deaths by Suicide
- 29 Suicides by Mechanism

## **30 Grand Traverse County**

- 30 Summary of All Grand Traverse County Cases
- 30 Cremation Permit Authorizations
- 31 Manners of Death Reported
- 31 Deaths Reported by Age (in years)
- 32 Pediatric Deaths
- 32 Accidental Deaths by Mechanism
- 33 Drug-Related Deaths by Manner
- 33 Suicides by Sex & Age
- 34 Deaths by Suicide
- 34 Suicides by Mechanism

## **35 Kalamazoo County**

- 35 Summary of All Kalamazoo County Cases
- 35 Cremation Permit Authorizations
- 36 Manners of Death Reported
- 36 Deaths Reported by Age (in years)
- 37 Pediatric Deaths
- 38 Accidental Deaths by Mechanism
- 38 Drug-Related Deaths by Manner
- 39 Suicides by Sex & Age
- 39 Deaths by Suicide
- 40 Suicides by Mechanism

# Contents

<b>41</b>	<b>Leelanau County</b>
41	Summary of All Leelanau County Cases
41	Cremation Permit Authorizations
42	Manners of Death Reported
42	Deaths Reported by Age (in years)
43	Accidental Deaths by Mechanism
43	Drug-Related Deaths by Manner
44	Suicides by Sex & Age
44	Deaths by Suicide
45	Suicides by Mechanism
<b>46</b>	<b>Mason County</b>
46	Summary of All Mason County Cases
46	Cremation Permit Authorizations
47	Manners of Death Reported
47	Deaths Reported by Age (in years)
47	Pediatric Deaths
48	Accidental Deaths by Mechanism
48	Drug-Related Deaths by Manner
49	Suicides by Sex & Age
49	Deaths by Suicide
50	Suicides by Mechanism
<b>51</b>	<b>Muskegon County</b>
51	Summary of All Muskegon County Cases
51	Cremation Permit Authorizations
52	Manners of Death Reported
52	Deaths Reported by Age (in years)
53	Pediatric Deaths
53	Accidental Deaths by Mechanism
54	Drug-Related Deaths by Manner
54	Suicides by Sex & Age
55	Deaths by Suicide
55	Suicides by Mechanism
<b>56</b>	<b>St. Joseph County</b>
56	Summary of All St. Joseph County Cases
56	Cremation Permit Authorizations
57	Manners of Death Reported
57	Deaths Reported by Age (in years)
57	Pediatric Deaths
58	Accidental Deaths by Mechanism
58	Drug-Related Deaths by Manner
59	Suicides by Sex & Age
59	Deaths by Suicide
60	Suicides by Mechanism

# Contents

## **61 Van Buren County**

- 61 Summary of All Van Buren County Cases
- 61 Cremation Permit Authorizations
- 62 Manners of Death Reported
- 62 Deaths Reported by Age (in years)
- 62 Pediatric Deaths
- 63 Accidental Deaths by Mechanism
- 63 Drug-Related Deaths by Manner
- 64 Suicides by Sex & Age
- 64 Deaths by Suicide
- 65 Suicides by Mechanism

## **66 Additional Services and Statistics**

- 66 Division of Neuropathology
- 67 Forensic Anthropology
- 68 Hospital/Private/Consultant Postmortem Examinations
- 69 Referrals to organ procurement organization (Gift of Life Michigan), 2023
- 70 Comparison of All Medical Examiner Counties, 2023
- 71 Forensic Postmortem Examinations, 2023
- 72 Manners of Death, All Medical Examiner Counties, 2023
- 73 Significant Death Statistics, 2023

Editor's note: Every effort has been made to provide the most accurate data in this report by the Senior Manager of Research and Autopsy Operations, Abigail Grande, MPH, and the Drug Fatality and Surveillance Analyst, Gemma Harkin, MPH. If you have any questions or would like to schedule a meeting, please contact us at [Pathology@wmed.edu](mailto:Pathology@wmed.edu).

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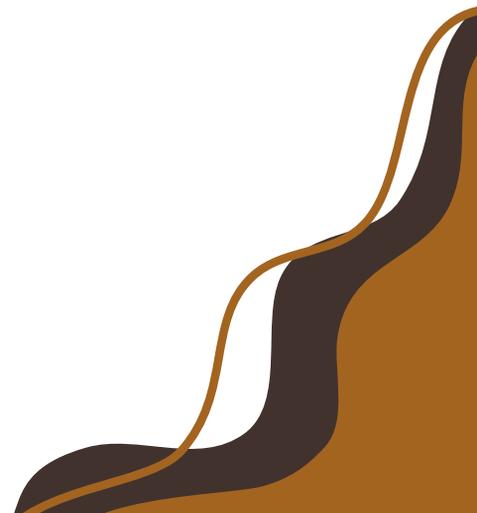
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# What Deaths Do We Investigate?

**The Michigan Compiled Laws (MCL) 52.202 require the County Medical Examiner or Deputy County Medical Examiner to investigate the cause and manner of death of an individual under each of the following circumstances:**

- The individual dies by violence.
- The individual's death is unexpected.
- The individual dies without medical attendance by a physician, or the individual dies while under home hospice care without medical attendance by a physician or a registered nurse during the 48 hours immediately preceding the time of death, unless the attending physician, if any, is able to accurately determine the cause of death.
- The individual dies as the result of an abortion, whether self-induced or otherwise.
- If a prisoner in a county or city jail dies while imprisoned, the County Medical Examiner or the Deputy County Medical Examiner, upon notification of the death of the prisoner, shall examine the body of the deceased prisoner.

**We also consider the National Association of Medical Examiners (NAME) standards in deciding which deaths to investigate, which include:**

- Deaths due to violence.
- Known or suspected non-natural deaths.
- Unexpected or unexplained deaths when in apparent good health.
- Unexpected or unexplained deaths of infants and children.
- Deaths occurring under unusual or suspicious circumstances.
- Deaths of persons in custody.
- Deaths known or suspected to be caused by diseases constituting a threat to public health.
- Deaths of persons not under the care of a physician.



## **Identification of Decedent**

In Michigan, MCL 52.205 requires a scientific identification in cases where visual identification of a decedent is impossible as a result of burns, decomposition, or other disfiguring injuries or the death is the result of an accident that involved two or more individuals who were approximately the same age, sex, height, weight, eye color, hair color, and race. In these cases, the County Medical Examiner is required to verify the identity of the decedent through fingerprints, dental records, DNA, or another definitive identification procedure.



## Indications for Complete Autopsy

The decision regarding whether a complete autopsy should be performed is based on the NAME autopsy performance standards. Consequently, an autopsy is performed when the:

- Death is known or suspected to have been caused by apparent criminal violence.
- Death is unexpected and unexplained in an infant or child.
- Death is associated with police action.
- Death is apparently non-natural and in custody of a local, state, or federal institution.
- Death is due to acute workplace injury.
- Death is caused by apparent electrocution.
- Death is by apparent intoxication by alcohol, drugs, or poison, unless a significant interval has passed, and the medical findings and absence of trauma are well documented.
- Death is caused by an unwitnessed or suspected drowning.
- Body is unidentified and the autopsy may aid in identification.
- Body is skeletonized.
- Body is charred.
- Forensic Pathologist deems a forensic autopsy is necessary to determine cause and/or manner of death, or document injuries/disease, or collect evidence.
- Deceased is involved in a motor vehicle incident and an autopsy is necessary to document injuries and/or determine the cause of death.

## What is the difference between Cause of Death & Manner of Death?

The **cause of death** is (a) the disease or injury that initiated the train of morbid events leading directly to death, or (b) the circumstances of the accident or violence that produced fatal injury.

**Manner of death** determination is something that originated in the United States. Unlike the cause of death, with thousands of possibilities, in Michigan, manner of death is limited to: Natural, Suicide, Accident, Homicide, and Indeterminate. The fundamental purpose for determining the manner of death is for public health surveillance and vital statistics.

- **Natural** deaths are due solely or nearly totally to disease an/or the aging process.
- **Accident** applies when an injury or poisoning (such as a drug overdose) causes death and there is little or no evidence that the injury or poisoning occurred with intent to harm or cause death. In essence, the fatal outcome was unintentional.
- **Suicide** results from an injury or poisoning as a result of an intentional, self-inflicted act.
- **Homicide** occurs when the death results from a volitional act committed by another person to cause harm, fear, or death. Intent to cause death is a common element but is not required for the classification as a homicide. It has to be emphasized that the classification of homicide for the purpose of death certification is a “neutral” term and neither indicates nor implies criminal intent, which remains a determination within the province of legal processes.

- **Indeterminate** is a classification used when the information pointing to one manner of death is no more compelling than one or more other competing manners of death, in thorough consideration of all available information.

In general, when death involves a combination of natural processes and external factors, such as injury or poisoning, preference is given to the non-natural manner of death.

## The Death Investigation Process

A Medical Examiner Investigator (MEI) responds to nearly all death scenes. The MEI is trained to recognize the vast majority of the deaths requiring postmortem examinations and, in those cases, immediately arranges for transport to WMed for a postmortem examination. Homicides, infant deaths, and drug overdoses are examples of the deaths that are immediately sent.

If the death does not appear to meet the requirements for a postmortem examination, the MEI contacts the on-call Medical Examiner to discuss the case before releasing the body to a funeral home. The MEI writes a report documenting their findings and uploads images obtained at the investigation site. These reports and photos are reviewed by the Medical Examiner or Deputy Medical Examiner.

The Medical Examiner or a Deputy Medical Examiner is assigned to each case and generally uses one of the following approaches in each of the deaths for which our office is responsible:

- **Declined Jurisdiction:** A reported death classified as an attended natural death should be documented as a Declined Jurisdiction case. Jurisdiction is declined when the death does not meet the required reporting criteria per Michigan statutes.
- **Direct release:** The body is released directly from the scene to the funeral home. The MEI at the scene views the body and collects information on the scene, such as medical history, and social history. This information is provided to the on-call Medical Examiner who may decide to release a body directly to the funeral home chosen by the family.
- **Storage:** The body will be taken to WMed for temporary storage until a funeral home has been chosen. If family cannot be found or if the family does not take responsibility for the disposition of the remains, an unclaimed remains process ensues.
- **External Examination:** An external examination includes a careful evaluation of the circumstances of the death and an examination of the external surfaces of the body, with possible laboratory/toxicology testing.
- **Limited Examination:** A limited examination generally is with an anatomic boundary (such as a brain only examination) to recover a foreign body or to answer specific questions. This type of examination may also include toxicology testing. This type of exam is rare and only used in special circumstances.
- **Complete Autopsy:** A complete examination includes external and internal examination, with toxicology.

## **Cremation Permit Authorizations**

MCL 52.210 requires funeral directors and embalmers to obtain a signed permit from the Medical Examiner for the county in which the death occurred. Our office reviews thousands of cremation permit requests each year. The requests for authorization to cremate involve reviewing the death certificate provided by the funeral director to ascertain that deaths that should have been reported to our office were, in fact, reported. Deaths that were not properly reported are investigated before cremation is authorized. We provide monthly detailed reports to the counties that charge for cremation permits to allow them to send invoices, as needed.

## **Public Health and Safety**

The major purpose of the Medical Examiner's Office is to conduct death investigations. The information obtained from individual death investigations may also be studied collectively to gather information that may be used to address public health and safety issues. Our office participates with the Child Death Review Team in all counties, providing significant information regarding how children died with the goal of preventing future deaths.

With funding from the Michigan Department of Health and Human Services (MDHHS), our team grew in 2020 to include a Drug Fatality and Surveillance Analyst specifically to assist with tackling the evolving opioid epidemic. This has involved increased surveillance of all drug-related deaths and more detailed death certification in these types of cases across each county we serve. Our team worked with MDHHS, the Michigan Public Health Institute (MPHI), and multiple counties to progress legislation for the creation and confidentiality protections for Overdose Fatality Review Teams across the state. This bill was signed by the Governor and went into effect in early 2024.

With funding from the Council of State and Territorial Epidemiologists and the Centers for Disease Control and Prevention (CDC), our team grew to include a Public Health Project Coordinator that has been working to better assess respiratory infections in the communities we serve, specifically that of deceased individuals. This surveillance has been crucial throughout the COVID-19 pandemic and has helped to inform public health agencies across the state and the U.S. This project began in late 2020 and has been re-funded multiple times.

With continued funding from MDHHS, our office has established multiple Elder Death Review Teams throughout the counties that we serve. This team coordinates with outside agencies, including the Michigan Department of Licensing and Regulatory Affairs (LARA), to systematically review elder and vulnerable adult deaths to identify gaps in reporting, communication, and improve death investigations in this population. These teams also identify trends and opportunities for the prevention of premature death. Currently, these teams exist in eight of the counties we serve, with plans for continued expansion.

## **Unclaimed Investigations**

When a death occurs, there is not always someone available who is willing and able to claim the decedent and arrange for final disposition with a funeral director. The process varies with whether the decedent had resources to cover the cost of final disposition. If not, our staff members work with MDHHS and area funeral directors to have the decedent cremated. As the process results in an accumulation of unclaimed cremains, we began collaborating with St. Martin of Tours Episcopal Church in Kalamazoo, Michigan in 2019 to bury the cremains. The names of each of the decedents buried in small coffins on the grounds of the church are located on plaques on the outside of the church. This collaboration includes an annual memorial event, which briefly paused due to the COVID-19 pandemic, but has resumed to provide a peaceful, respectful disposition of remains.

## **Terms**

- “MEI Scene Investigations” are those reported deaths for which an MEI went to the death scene.
- “Deaths Investigated” include MEI Scene Investigations as well as reported deaths that, while may not allow for a scene investigation, involved an investigation beyond the initial report of the death, usually in the form of a records review in response to information provided as part of a cremation request.
- The category “Referrals to Gift of Life” does not include in-hospital deaths reported to the Medical Examiner’s Office, which are referred to Gift of Life by hospital staff rather than the Medical Examiner’s Office.
- For “Accidental Deaths,” the subcategory “Vehicle” consists of deaths that were classified as transportation-related fatalities and includes all forms of transport; drivers/operators, passengers and pedestrians; and types of death that might otherwise fall into a different sub-classification, such as vehicle fires and traumatic asphyxia.
- “Drug-related Deaths” specifically refer to deaths that are directly caused by an acute or mixed drug intoxication or in situations where drug intoxications directly impact or exacerbate existing medical conditions causing death.

## **Important Note**

The data reflects the county where the individual was pronounced dead rather than the county of residence or the county in which the incident leading to death might have occurred. If a motor vehicle collision occurs in County A, and an individual injured in the collision is transported to and eventually reported death in County B, the death is reported to the Medical Examiner of County B. Consequently, counties with major medical centers typically have a much higher number of deaths with injuries that may have occurred in another county.

Additionally, there are limitations to the data presented in this report. For example, the sex provided is what is reported to our office at the time of the death. At times, this is not accurate or representative of what the decedent may have identified as. Our office continues to work diligently to provide the most accurate information about and to the communities that we serve.

# Allegan County

## Summary of All Allegan County Cases

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Deaths in the County	705	753	745	788	772	819	974	958	987 <sup>[1]</sup>	865 <sup>[2]</sup>
Deaths Reported to the ME	193	176	203	188	197	219	291	279	279	225
Deaths Investigated	189	170	192	164	191	199	278	264	272	217
MEI Scene Investigations	177	152	174	158	185	179	250	228	240	194
Death Certificates by ME	97	77	85	76	88	88	120	208	122	107
Bodies Transported to WMed	74	66	62	69	72	69	90	80	100	95
Complete Autopsy	63	32	36	45	41	37	54	51	54	37
Limited Autopsy	2	2	5	2	2	3	6	3	3	8
External Examinations	7	18	17	13	24	21	23	19	24	38
Storage Only at WMed	2	14	4	9	5	8	7	7	19	12
Total Cases with Toxicology	70	47	52	54	59	55	79	69	75	60
Unidentified Remains After Exam	2	1	0	0	1	2	0	0	0	1 <sup>[3]</sup>
Referrals to Gift of Life	62	64	63	73	61	55	97	103	138	98
Tissue Donations	5	8	5	6	4	11	9	8	12	9
Cornea Donations	6	7	4	7	4	5	5	2	5	4
Unclaimed Investigations	2	3	1	2	2	8	9	10	10	11
Exhumations	0	0	0	0	0	0	0	0	0	0

## Cremation Permit Authorizations

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cremation Permits	409	404	442	469	487	519	650	644	665	618
% of Total Deaths with Cremation	58%	54%	60%	60%	63%	63%	67%	67%	67%	71%

[1] Updated total number of deaths occurring in the county

[2] Provisional total number of deaths occurring in the county

[3] (1) Partially skeletonized remains, likely portion of anatomical specimen, non-forensic

## Manners of Death Reported

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Natural</b>	132	127	149	143	141	156	205	207	203	<b>151</b>
<b>Accident</b>	39	25	36	28	35	46	54	51	52	<b>41</b>
<b>Suicide</b>	16	17	15	8	16	14	25	16	16	<b>27</b>
<b>Homicide</b>	2	5	1	2	1	0	3	2	4	<b>3</b>
<b>Indeterminate</b>	4	2	2	7	3	1	3	3	4	<b>2</b> <sup>[1]</sup>
<b>Total</b>	193	176	203	188	196	217	290	279	279	<b>224</b> <sup>[2]</sup>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2014</b>	3	0	0	1	6	16	73	92
<b>2015</b>	0	1	1	5	7	15	59	87
<b>2016</b>	0	1	0	0	5	26	58	112
<b>2017</b>	3	1	0	2	3	17	54	106
<b>2018</b>	1	3	0	2	4	29	55	102
<b>2019</b>	1	0	0	0	6	22	57	131
<b>2020</b>	0	0	0	4	7	33	99	147
<b>2021</b>	0	0	0	1	3	30	89	156
<b>2022</b>	1	0	0	0	7	28	78	165
<b>2023</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>8</b>	<b>28</b>	<b>64</b>	<b>119</b>

[1] (1) Found deceased at home in advanced stage of decomposition, cause and manner of death could not be determined; (1) Found deceased outdoors in advanced stage of decomposition, cause and manner of death could not be determined

[2] Does not include (1) partially skeletonized remains, likely portion of anatomical specimen

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

## Pediatric Deaths

The five deaths of individuals under 18 years of age include:

1. 6-10 years old
  - a. (1) Blunt force injuries, bicyclist struck by tractor; accident
  - b. (1) Shotgun wound of abdomen; homicide
2. 11-17 years old
  - a. (1) Multiple blunt force injuries, driver of motor vehicle that struck a tree; suicide
  - b. (1) Shotgun wound of head; suicide
  - c. (1) Multiple shotgun wounds; homicide

## Accidental Deaths by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Vehicle</b>	11	10	9	12	12	9	18	8	18	<b>13</b>
<b>Drug-Related</b>	20	7	11	10	9	17	14	13	15	<b>11</b>
<b>Drowning</b>	1	0	1	3	3	1	3	6	0	<b>0</b>
<b>Fall</b>	5	5	10	3	10	12	15	21	16	<b>15</b>
<b>Fire</b>	0	0	0	0	0	1	2	0	0	<b>1</b>
<b>Environmental Exposure</b>	0	2	1	0	0	1	2	0	0	<b>0</b>
<b>Asphyxia</b>	0	0	2	0	2	3	2	0	1	<b>1</b> <sup>[1]</sup>
<b>Other</b>	2	1	2	0	0	2	0	1	1	<b>0</b>
<b>Total</b>	39	25	36	28	35	46	54	51	52	<b>41</b>

## Drug-Related Deaths by Manner

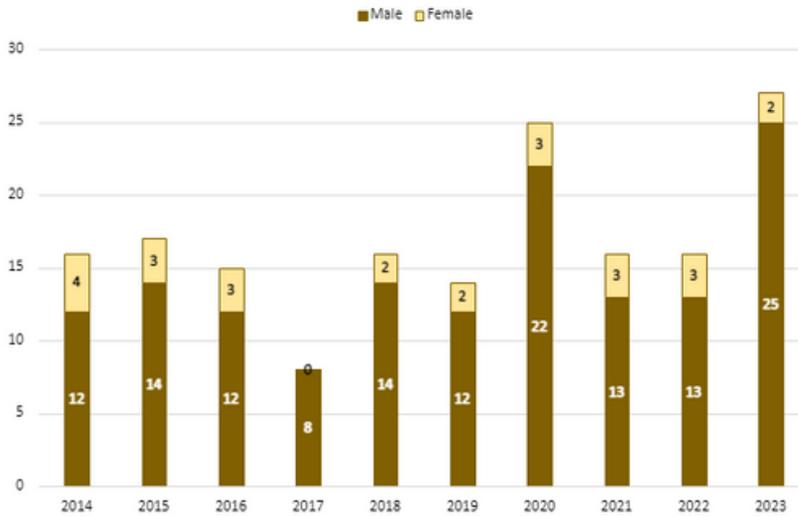
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Accident</b>	20	7	11	10	9	17	14	13	15	<b>9</b>
<b>Suicide</b>	4	0	0	0	2	0	0	0	1	<b>2</b>
<b>Indeterminate</b>	0	0	1	2	0	0	2	0	0	<b>0</b>
<b>Total</b>	24	7	12	12	11	17	16	13	16	<b>11</b>
<b>Total involving opioids(s)</b>	N/A	6	8	6	8	13	11	9	9	<b>6</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	N/A	86%	67%	50%	78%	76%	69%	69%	60%	<b>67%</b>

[1] Asphyxia, trapped under commercial lawn mower

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
2014	16	12	4	0	1	4	8	3
2015	17	14	3	2	4	1	5	5
2016	15	12	3	0	3	6	3	3
2017	8	8	0	0	2	0	3	3
2018	16	14	2	0	0	7	7	2
2019	14	12	2	0	3	4	3	4
2020	25	22	3	2	1	5	14	3
2021	16	13	3	0	1	5	7	3
2022	16	13	3	0	2	6	5	3
2023	27	25	2	2	2	11	9	3

## Deaths by Suicide





## Suicides by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	11	11	10	7	8	6	15	12	8	<b>14</b>
<b>Hanging</b>	1	4	4	0	5	6	7	3	5	<b>10</b>
<b>Carbon Monoxide</b>	0	0	1	1	0	0	1	0	2	<b>0</b>
<b>Drug Intoxication</b>	4	0	0	0	1	0	0	0	1	<b>2</b>
<b>Motor Vehicle</b>	0	0	0	0	1	0	1	0	0	<b>1</b>
<b>Sharp Force Trauma</b>	0	0	0	0	0	1	0	1	0	<b>0</b>
<b>Asphyxia/Suffocation</b>	0	2	0	0	0	0	0	0	0	<b>0</b>
<b>Other</b>	0	0	0	0	1	1	1	0	0	<b>0</b>
<b>Total</b>	16	17	15	8	16	14	25	16	16	<b>27</b>

## Summary of All Barry County Cases <sup>[1]</sup>

	2015	2016	2018	2019	2020	2021	2022	2023
Total Deaths in the County	416	399	390	399	453	530	442 <sup>[2]</sup>	440 <sup>[3]</sup>
Deaths Reported to the ME	125	130	146	121	161	155	135	132
Deaths Investigated	118	124	131	108	147	143	123	120
MEI Scene Investigations	112	120	128	103	132	135	116	112
Death Certificates by ME	53	57	52	54	52	53	64	57
Bodies Transported to WMed	43	47	41	38	35	41	55	42
Complete Autopsy	35	37	25	28	22	23	32	23
Limited Autopsy	1	0	1	2	2	1	1	1
External Examinations	6	8	12	8	7	13	19	15
Storage Only at WMed	1	2	3	0	4	4	3	3
Total Cases with Toxicology	N/A	N/A	35	37	28	35	44	32
Unidentified Remains After Exam	N/A	N/A	0	0	0	0	0	0
Referrals to Gift of Life	40	48	44	22	44	54	72	53
Tissue Donations <sup>[4]</sup>	6	17	3	3	2	6	9	2
Cornea Donations	N/A	N/A	0	1	1	4	5	3
Unclaimed Investigations	1	0	1	0	4	2	4	1
Exhumations	N/A	N/A	0	0	0	0	0	0

## Cremation Permit Authorizations

	2018	2019	2020	2021	2022	2023
Cremation Permits	262	251	303	354	293	313
% of Total Deaths with Cremation	67%	63%	67%	67%	66%	71%

[1] Data from 2015-16 obtained from University of Michigan-Sparrow; data from 2017 not available at the time this report is authored

[2] Updated total number of deaths occurring in the county

[3] Provisional total number of deaths occurring in the county

[4] Cornea and tissue donations are combined for 2015-16 data

## Manners of Death Reported

	2015	2016	2018	2019	2020	2021	2022	2023
<b>Natural</b>	93	99	113	84	122	120	87	<b>99</b>
<b>Accident</b>	18	18	21	27	30	18	36	<b>28</b>
<b>Suicide</b>	12	9	9	7	7	10	11	<b>5</b>
<b>Homicide</b>	1	2	2	2	0	4	0	<b>0</b>
<b>Indeterminate</b>	1	2	1	1	1	2	1	<b>0</b>
<b>Total</b>	125	130	146	121	160	154	135	<b>132</b>

## Deaths Reported by Age (in years) <sup>[1]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2018</b>	0	0	0	1	0	8	46	89
<b>2019</b>	1	0	0	2	5	12	30	71
<b>2020</b>	3	0	0	0	4	13	42	98
<b>2021</b>	0	0	0	2	3	13	33	103
<b>2022</b>	0	0	1	2	3	17	30	82
<b>2023</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>10</b>	<b>36</b>	<b>83</b>

## Pediatric Deaths

The one death of individuals under 18 years of age include:

1. 11-17 years old
  - a. (1) Multiple blunt force injuries, passenger of buggy struck by motor vehicle; accident

[1] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

## Accidental Deaths by Mechanism

	2018	2019	2020	2021	2022	2023
<b>Vehicle</b>	7	11	6	4	13	7
<b>Drug-Related</b>	4	5	10	4	8	9
<b>Drowning</b>	0	3	1	2	1	0
<b>Fall</b>	8	4	10	7	3	10
<b>Fire</b>	0	1	0	0	1	0
<b>Environmental Exposure</b>	0	1	0	0	3	0
<b>Asphyxia</b>	1	2	1	0	3	0
<b>Other</b>	1	0	2	1	4	2 <sup>[1]</sup>
<b>Total</b>	21	27	30	18	36	28

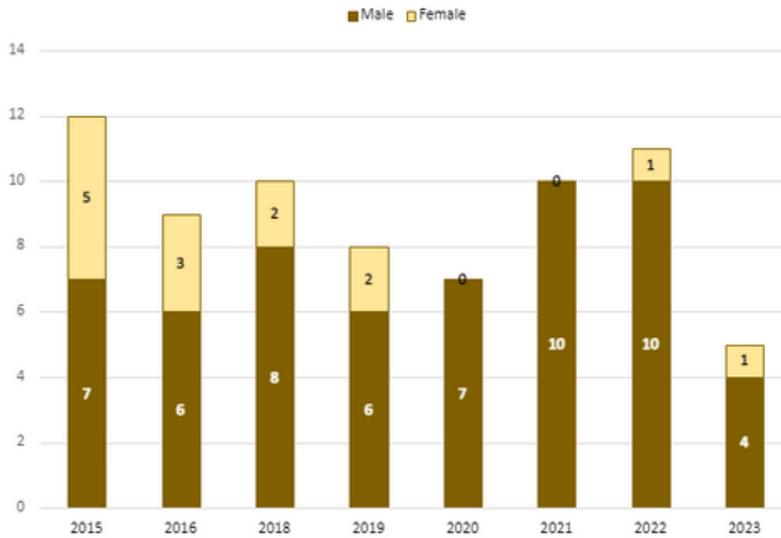
## Drug-Related Deaths by Manner

	2018	2019	2020	2021	2022	2023
<b>Accident</b>	4	5	10	4	8	9
<b>Suicide</b>	0	0	0	0	0	0
<b>Indeterminate</b>	1	1	0	0	0	0
<b>Total</b>	5	6	10	4	8	9
<b>Total involving opioids(s)</b>	2	4	8	4	7	7
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	40%	67%	80%	100%	88%	77%

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
2015	12	7	5	1	0	7	4	0
2016	9	6	3	1	0	1	5	2
2018	9	8	1	1	0	1	4	3
2019	7	6	1	1	1	0	3	2
2020	7	7	0	0	1	2	3	1
2021	10	10	0	1	1	1	3	4
2022	11	10	1	0	0	6	2	3
2023	5	4	1	0	2	1	2	0

## Deaths by Suicide



## Suicides by Mechanism

	2015	2016	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	7	7	7	4	4	9	5	3
<b>Hanging</b>	3	1	1	3	2	1	3	1
<b>Carbon Monoxide</b>	0	0	0	0	1	0	2	1
<b>Drug Intoxication</b>	2	1	0	0	0	0	0	0
<b>Motor Vehicle</b>	0	0	0	0	0	0	0	0
<b>Sharp Force Trauma</b>	0	0	0	0	0	0	1	0
<b>Asphyxia/Suffocation</b>	0	0	0	0	0	0	0	0
<b>Other</b>	0	0	1	0	0	0	0	0
<b>Total</b>	12	9	8	7	7	10	11	5

## Summary of All Berrien County Cases

	2019	2020	2021	2022	2023
Total Deaths in the County	1,622	1,873	1,916	1,899 <sup>[1]</sup>	1,695 <sup>[2]</sup>
Deaths Reported to the ME	430	596	604	631	626
Deaths Investigated	399	540	548	563	520
MEI Scene Investigations	353	461	484	498	466
Death Certificates by ME	152	207	215	271	271
Bodies Transported to WMed	132	152	159	191	202
Complete Autopsy	90	103	116	138	130
Limited Autopsy	5	4	3	5	6
External Examinations	26	25	26	32	49
Storage Only at WMed	11	20	14	16	17
Total Cases with Toxicology	110	126	134	156	165
Unidentified Remains After Exam	1	3	1	1	0
Referrals to Gift of Life	80	137	156	182	216
Tissue Donations	7	8	7	8	24
Cornea Donations	4	7	4	4	12
Unclaimed Investigations	10	19	17	18	15
Exhumations	1	0	2	0	0

## Cremation Permit Authorizations

	2019	2020	2021	2022	2023
Cremation Permits	1,045	1,218	1,219	1,263	1,193
% of Total Deaths with Cremation	64%	65%	64%	67%	70%

[1] Updated total number of deaths occurring in the county  
 [2] Provisional total number of deaths occurring in the county

## Manners of Death Reported

	2019	2020	2021	2022	2023
<b>Natural</b>	321	470	458	473	<b>449</b>
<b>Accident</b>	71	87	105	113	<b>120</b>
<b>Suicide</b>	21	21	10	21	<b>29</b>
<b>Homicide</b>	8	8	13	18	<b>13</b>
<b>Indeterminate</b>	9	6	12	4	<b>14</b> <sup>[1]</sup>
<b>Total</b>	430	592	598	629	<b>625</b> <sup>[2]</sup>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2019</b>	6	1	1	2	6	58	108	246
<b>2020</b>	2	2	0	5	16	55	172	340
<b>2021</b>	5	0	0	4	12	60	152	367
<b>2022</b>	1	2	2	7	14	66	181	356
<b>2023</b>	<b>9</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>10</b>	<b>66</b>	<b>165</b>	<b>367</b>

[1] (1) Cardiovascular disease, found partially submerged, could not rule out a component of drowning; (1) Acute drug intoxication associated with natural disease and a recent collapse following use of conducted energy device; (1) Acute drug intoxication; (2) Mixed drug intoxication associated with significant natural disease and possible assault; (3) Thermal injuries and inhalation of products of combustion, structure fire; (4) Unexplained sudden death associated with unsafe sleep; (1) Unexplained sudden death associated with unsafe sleep and infection; (1) Found deceased at home in advanced stage of decomposition, cause and manner of death could not be determined

[2] Does not include (1) stillbirth investigation

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year



## Pediatric Deaths

The 17 deaths of individuals under 18 years of age include:

1. <1 year old
  - a. (4) Unexplained sudden death associated with unsafe sleep; indeterminate
  - b. (3) Extreme prematurity; natural (no postmortem exam performed)
  - c. (1) Unexplained sudden death associated with unsafe sleep and infection; indeterminate
  - d. (1) Positional asphyxia, wedged between bed and fixed object; accident
2. 1-5 years old
  - a. (2) Thermal injuries and inhalation of products of combustion, structure fire; indeterminate
3. 6-10 years old
  - a. (1) Asthma exacerbation; natural
4. 11-17 years old
  - a. (1) Hanging; suicide
  - b. (1) Acute drug intoxication; suicide
  - c. (1) Gunshot wound of head; suicide
  - d. (1) Gunshot wound of face; homicide
  - e. (1) Gunshot wound of arm and axilla; homicide

Infant Deaths (Live Birth to 1 Year)			
	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	6	0	6

## Accidental Deaths by Mechanism

	2019	2020	2021	2022	2023
Vehicle	21	15	24	9	16
Drug-Related	23	37	36	50	50
Drowning	4	9	3	5	6
Fall	12	15	34	39	38
Fire	2	2	1	0	4
Environmental Exposure	3	4	2	4	1 <sup>[1]</sup>
Asphyxia	3	4	3	2	3 <sup>[2]</sup>
Other	3	1	2	4	2
<b>Total</b>	<b>71</b>	<b>87</b>	<b>105</b>	<b>113</b>	<b>120</b>

[1] (1) Asphyxia due to choking on food; (1) Positional asphyxia due to wedging between bed and fixed object; (1) Positional asphyxia associated with acute alcohol intoxication

[2] (1) Gunshot wound of face; (1) Multiple injuries resulting in excessive blood loss associated with significant natural disease

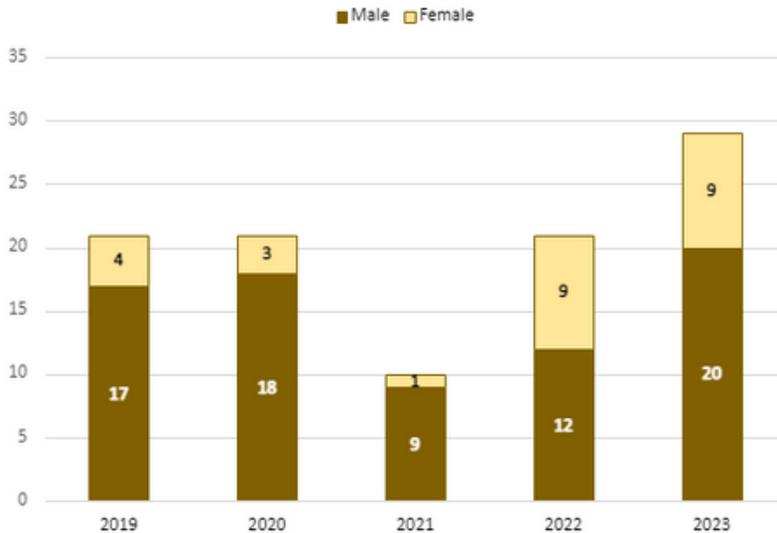
## Drug-Related Deaths by Manner

	2019	2020	2021	2022	2023
<b>Accident</b>	23	37	36	50	<b>50</b>
<b>Suicide</b>	2	1	0	6	<b>3</b>
<b>Indeterminate</b>	1	0	1	1	<b>4</b>
<b>Total</b>	26	38	37	57	<b>57</b>
<b>Total involving opioids(s)</b>	22	29	28	46	<b>38</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	92%	78%	76%	86%	<b>67%</b>

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2019</b>	21	17	4	1	0	9	4	7
<b>2020</b>	21	18	3	1	2	4	8	6
<b>2021</b>	10	9	1	1	2	3	0	4
<b>2022</b>	21	12	9	1	1	6	10	3
<b>2023</b>	<b>29</b>	<b>20</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>12</b>	<b>6</b>	<b>3</b>

## Deaths by Suicide



## Suicides by Mechanism

	2019	2020	2021	2022	2023
<b>Firearm</b>	16	14	7	7	19
<b>Hanging</b>	3	5	3	4	6
<b>Carbon Monoxide</b>	0	0	0	0	0
<b>Drug Intoxication</b>	2	1	0	6	3
<b>Motor Vehicle</b>	0	0	0	1	1
<b>Sharp Force Trauma</b>	0	0	0	1	0
<b>Asphyxia/Suffocation</b>	0	0	0	0	0
<b>Other</b>	0	1	0	2	0
<b>Total</b>	21	21	10	21	29

## Summary of All Calhoun County Cases

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Deaths in the County	1,390	1,378	1,427	1,396	1,495	1,521	1,786	1,799	1,714 <sup>[1]</sup>	<b>1,444<sup>[2]</sup></b>
Deaths Reported to the ME	377	429	411	443	475	508	585	582	544	<b>509</b>
Deaths Investigated	335	392	361	400	415	442	518	534	473	<b>459</b>
MEI Scene Investigations	296	311	307	352	387	381	450	444	408	<b>407</b>
Death Certificates by ME	178	180	186	191	200	176	194	244	225	<b>209</b>
Bodies Transported to WMed	138	164	165	176	170	146	172	188	193	<b>190</b>
Complete Autopsy	103	109	103	102	103	81	112	112	121	<b>106</b>
Limited Autopsy	1	5	4	3	8	8	6	3	3	<b>7</b>
External Examinations	20	28	36	46	38	32	27	45	41	<b>38</b>
Storage Only at WMed	14	20	22	25	21	25	27	45	41	<b>39</b>
Total Cases with Toxicology	122	131	113	141	139	112	136	156	145	<b>126</b>
Unidentified Remains After Exam	0	0	0	0	0	0	0	0	0	<b>1<sup>[3]</sup></b>
Referrals to Gift of Life	119	115	118	146	107	72	102	135	186	<b>200</b>
Tissue Donations	8	3	11	10	11	6	11	9	13	<b>24</b>
Cornea Donations	8	8	11	8	9	3	5	10	9	<b>15</b>
Unclaimed Investigations	13	8	11	23	24	29	40	32	32	<b>32</b>
Exhumations	1	0	0	0	0	0	0	0	0	<b>0</b>

## Cremation Permit Authorizations

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cremation Permits	721	742	811	857	901	997	1,176	1,224	1,171	<b>1,074</b>
% of Total Deaths with Cremation	52%	54%	57%	61%	60%	66%	66%	68%	68%	<b>74%</b>

[1] Updated total number of deaths occurring in the county  
 [2] Provisional total number of deaths occurring in the county  
 [3] (1) Unidentified fetal remains

## Manners of Death Reported

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Natural</b>	278	313	288	313	347	383	437	443	404	<b>375</b>
<b>Accident</b>	61	80	79	86	89	88	101	112	97	<b>84</b>
<b>Suicide</b>	21	25	28	30	30	26	18	18	19	<b>26</b>
<b>Homicide</b>	5	2	5	4	6	4	16	7	9	<b>15</b>
<b>Indeterminate</b>	12	9	11	10	3	5	9	3	13	<b>8</b> <sup>[1]</sup>
<b>Total</b>	377	429	411	443	475	506	581	582	542	<b>508</b> <sup>[2]</sup>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2014</b>	6	4	0	3	8	34	148	171
<b>2015</b>	4	0	1	6	11	59	128	215
<b>2016</b>	4	0	2	2	9	53	122	208
<b>2017</b>	3	1	1	1	14	65	140	206
<b>2018</b>	1	0	2	2	9	45	164	241
<b>2019</b>	0	0	1	0	12	53	157	283
<b>2020</b>	6	2	0	0	12	63	184	314
<b>2021</b>	3	0	0	0	10	67	173	329
<b>2022</b>	4	2	1	3	11	50	147	324
<b>2023</b>	3	1	2	1	15	55	135	296

[1] (1) Inhalation of products of combustion, structure fire; (2) Thermal injuries and inhalation of products of combustion, structure fire; (1) Unexplained sudden death associated with unsafe sleep; (1) Found deceased at home, cause and manner of death could not be determined; (1) Found deceased in bassinet, cause and manner of death could not be determined; (1) Found deceased in abandoned building in advanced stage of decomposition, cause and manner of death could not be determined; (1) Found deceased in advanced stage of decomposition, suspicious circumstances, cause and manner of death could not be determined

[2] Does not include (1) unidentified fetal remains

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

## Pediatric Deaths

The seven deaths of individuals under 18 years of age include:

1. <1 year old
  - a. (1) Unexplained sudden death associated with unsafe sleep; indeterminate
  - b. (1) Acute hemorrhage and acute drug intoxication; homicide
  - c. (1) Found deceased in bassinet, cause and manner of death could not be determined; indeterminate
2. 1-5 years
  - a. (1) Multiple injuries, unrestrained passenger in motor vehicle collision; accident
3. 6-10 years
  - a. (1) Complications of congenital disorder; natural (no postmortem exam performed)
  - b. (1) Drowning in swimming pool; accident
4. 11-17 years
  - a. (1) Multiple gunshot wounds; homicide

Infant Deaths (Live Birth to 1 Year)			
	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	3	0	3

## Accidental Deaths by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Vehicle	11	21	20	14	15	15	20	17	23	19
Drug-Related	26	44	38	44	49	40	50	59	42	37
Drowning	0	2	2	3	1	4	2	1	1	1
Fall	15	11	14	19	19	20	19	28	27	18
Fire	2	0	1	0	1	1	0	0	1	1 <sup>[1]</sup>
Environmental Exposure	2	0	0	0	0	3	5	2	1	2
Asphyxia	4	2	2	5	3	2	4	1	2	0
Other	1	1	2	1	1	3	1	4	0	6 <sup>[2]</sup>
<b>Total</b>	61	81	79	86	89	88	101	112	97	84

[1] Includes (1) fall into glass causing multiple sharp force injuries

[2] (2) Carbon monoxide poisoning; (1) Complications of transplant following farming accident; (1) Multiple injuries, struck by falling tree; (1) Blunt force injuries, struck by tree log; (1) Multiple blunt force injuries, bicyclist versus pole associated with acute drug intoxication

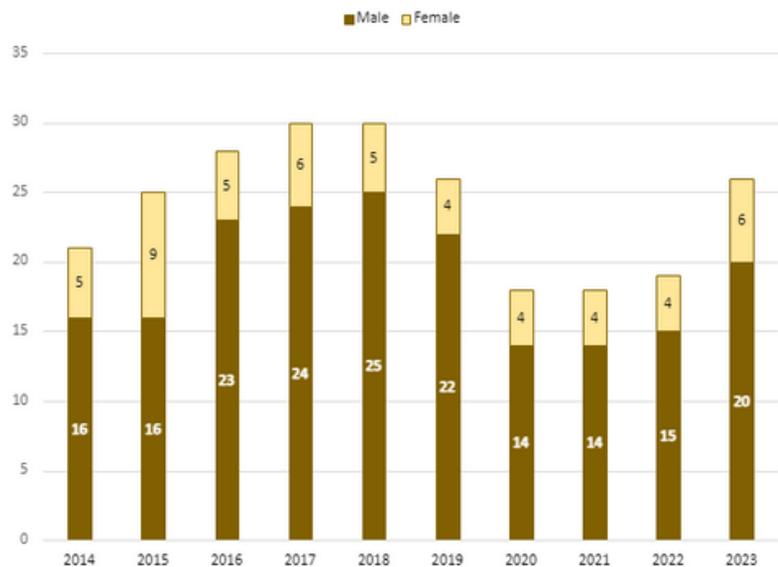
## Drug-Related Deaths by Manner

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Accident</b>	26	44	37	44	49	40	50	59	43	<b>37</b>
<b>Suicide</b>	3	2	5	3	3	3	2	1	3	<b>3</b>
<b>Homicide</b>	0	0	0	0	0	0	0	0	0	<b>1</b>
<b>Indeterminate</b>	2	2	4	5	2	0	2	0	2	<b>0</b>
<b>Total</b>	31	48	46	52	54	43	54	60	47	<b>41</b>
<b>Total involving opioids(s)</b>	N/A	42	40	48	48	36	46	49	38	<b>30</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	N/A	91%	88%	94%	92%	88%	87%	84%	74%	<b>76%</b>

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2014</b>	21	16	5	1	4	7	8	1
<b>2015</b>	25	16	9	2	2	7	7	7
<b>2016</b>	28	23	5	1	2	8	12	5
<b>2017</b>	30	24	6	0	4	12	7	7
<b>2018</b>	30	25	5	1	2	5	5	7
<b>2019</b>	26	22	4	0	4	9	9	4
<b>2020</b>	18	14	4	0	2	9	7	0
<b>2021</b>	18	14	4	0	1	6	5	6
<b>2022</b>	19	15	4	1	0	5	7	6
<b>2023</b>	<b>26</b>	<b>20</b>	<b>6</b>	<b>0</b>	<b>5</b>	<b>11</b>	<b>3</b>	<b>7</b>

## Deaths by Suicide



## Suicides by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	11	14	14	12	17	16	11	11	11	15
<b>Hanging</b>	7	5	6	10	10	5	4	6	5	6
<b>Carbon Monoxide</b>	0	0	2	0	0	0	0	0	0	2
<b>Drug Intoxication</b>	3	2	5	3	3	2	3	1	3	3
<b>Motor Vehicle</b>	0	0	1	2	0	1	1	0	0	0
<b>Sharp Force Trauma</b>	0	0	0	1	0	0	0	0	0	0
<b>Asphyxia/Suffocation</b>	0	2	0	1	0	0	0	0	0	0
<b>Other</b>	0	2	0	1	0	1	0	0	0	0
<b>Total</b>	21	25	28	30	30	26	18	18	19	26



## Summary of All Cass County Cases

	2021	2022	2023
Total Deaths in the County	420	399	372
Deaths Reported to the ME	147	157 <sup>[1]</sup>	157 <sup>[2]</sup>
Deaths Investigated	143	149	150
MEI Scene Investigations	140	140	145
Death Certificates by ME	66	75	70
Bodies Transported to WMed	46	56	59
Complete Autopsy	28	39	35
Limited Autopsy	1	2	1
External Examinations	13	13	16
Storage Only at WMed	4	2	7
Total Cases with Toxicology	42	50	46
Unidentified Remains After Exam	0	0	2 <sup>[3]</sup>
Referrals to Gift of Life	56	66	69
Tissue Donations	4	7	12
Cornea Donations	2	2	6
Unclaimed Investigations	4	4	5
Exhumations	0	0	0

## Cremation Permit Authorizations

	2021	2022	2023
Cremation Permits	262	266	285
% of Total Deaths with Cremation	63%	67%	77%

[1] Updated total number of deaths occurring in the county

[2] Provisional total number of deaths occurring in the county

[3] (2) Historical skeletal remains (one adult, one infant)

## Manners of Death Reported

	2021	2022	2023
Natural	105	112	114
Accident	30	35	24
Suicide	7	7	10
Homicide	3	2	1
Indeterminate	1	1	6 <sup>[1]</sup>
<b>Total</b>	<b>146</b>	<b>157</b>	<b>155 <sup>[2]</sup></b>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
2021	0	1	0	1	8	20	43	73
2022	1	0	0	2	4	24	44	82
2023	2	2	0	1	4	17	45	84

## Pediatric Deaths

The four deaths of individuals under 18 years of age include:

1. <1 year old
  - a. (2) Unexplained sudden death associated with unsafe sleep; indeterminate
2. 1-5 years old
  - a. (1) Drowning in lake; accident
  - b. (1) Multiple blunt force injuries, pedestrian versus trailer (hitched to motor vehicle); accident

### Infant Deaths (Live Birth to 1 Year)

	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	2	0	2

[1] Includes (2) Unexplained sudden death associated with unsafe sleep; (1) Partially skeletonized remains, cause and manner of death could not be determined; (1) Inhalation and thermal injuries sustained in residential fire of unknown etiology; (1) Complications of pelvic injury of unknown etiology; (1) Hanging

[2] Does not include (2) historical skeletal remains

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

## Accidental Deaths by Mechanism

	2021	2022	2023
<b>Vehicle</b>	17	13	8 <sup>[1]</sup>
<b>Drug-Related</b>	7	8	9
<b>Drowning</b>	0	2	1
<b>Fall</b>	1	6	3
<b>Fire</b>	3	0	1
<b>Environmental Exposure</b>	1	0	1
<b>Asphyxia</b>	0	1	1 <sup>[2]</sup>
<b>Other</b>	1	5	0
<b>Total</b>	30	35	24

## Drug-Related Deaths by Manner

	2021	2022	2023
<b>Accident</b>	7	8	9
<b>Suicide</b>	1	0	1
<b>Indeterminate</b>	1	0	0
<b>Total</b>	9	8	10
<b>Total involving opioids(s)</b>	8	6	8
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	88%	75%	89%

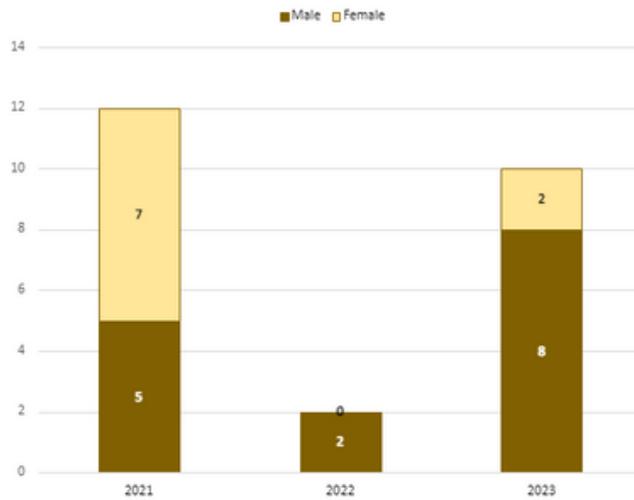
[1] Includes (1) Blunt force injuries sustained in aircraft crash

[2] Includes (1) Positional asphyxia due to seizure disorder

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2021</b>	7	5	2	0	0	3	2	2
<b>2022</b>	7	7	0	1	0	2	2	3
<b>2023</b>	10	8	2	0	1	2	6	1

## Deaths by Suicide



## Suicides by Mechanism

	2021	2022	2023
<b>Firearm</b>	4	6	5
<b>Hanging</b>	1	1	1
<b>Carbon Monoxide</b>	0	0	0
<b>Drug Intoxication</b>	1	0	1
<b>Motor Vehicle</b>	0	0	1
<b>Sharp Force Trauma</b>	1	0	0
<b>Asphyxia/Suffocation</b>	0	0	0
<b>Other</b>	0	0	2 <sup>[1]</sup>
<b>Total</b>	7	7	10

# Grand Traverse County

## Summary of All Grand Traverse County Cases

	2017	2018	2019	2020	2021	2022	2023
Total Deaths in the County	1,306	1,413	1,345	1,575	1,782	1,669 <sup>[1]</sup>	<b>1,618</b> <sup>[2]</sup>
Deaths Reported to the ME	380	350	384	495	579	532	<b>515</b>
Deaths Investigated	249	252	278	375	396	397	<b>411</b>
MEI Scene Investigations	122	206	212	211	246	247	<b>308</b>
Death Certificates by ME	153	126	131	158	159	179	<b>228</b>
Bodies Transported to WMed	77	58	65	69	80	80	<b>114</b>
Complete Autopsy	56	45	52	53	60	54	<b>75</b>
Limited Autopsy	2	0	2	3	2	6	<b>7</b>
External Examinations	19	13	12	13	17	20	<b>31</b>
Storage Only at WMed	0	0	0	0	1	0	<b>1</b>
Total Cases with Toxicology	73	53	61	64	75	77	<b>93</b>
Unidentified Remains After Exam	1	2	0	1	0	0	<b>0</b>
Referrals to Gift of Life	44	37	43	49	75	99	<b>92</b>
Tissue Donations	4	3	1	7	4	2	<b>5</b>
Cornea Donations	4	2	0	2	0	2	<b>0</b>
Unclaimed Investigations	5	7	10	12	13	9	<b>11</b>
Exhumations	0	0	0	0	0	0	<b>0</b>

## Cremation Permit Authorizations

	2017	2018	2019	2020	2021	2022	2023
Cremation Permits	1,005	1,108	1,077	1,283	1,426	1,370	<b>1,379</b>
% of Total Deaths with Cremation	76%	78%	80%	82%	80%	82%	<b>85%</b>

[1] Updated total number of deaths occurring in the county  
 [2] Provisional total number of deaths occurring in the county

# Grand Traverse County

## Manners of Death Reported

	2017	2018	2019	2020	2021	2022	2023
<b>Natural</b>	260	260	275	368	450	394	<b>331</b>
<b>Accident</b>	93	69	75	100	98	114	<b>152</b>
<b>Suicide</b>	21	14	17	19	19	17	<b>16</b>
<b>Homicide</b>	3	1	6	2	2	0	<b>1</b>
<b>Indeterminate</b>	3	4	4	2	2	2	<b>9</b> <sup>[1]</sup>
<b>Total</b>	380	348	377	491	571	528	<b>509</b> <sup>[2]</sup>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2017</b>	0	0	0	0	7	32	94	229
<b>2018</b>	5	0	0	2	7	22	85	216
<b>2019</b>	4	0	0	4	3	34	94	238
<b>2020</b>	7	0	0	1	10	37	112	314
<b>2021</b>	0	2	0	3	6	45	115	400
<b>2022</b>	7	0	0	0	8	42	115	355
<b>2023</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>52</b>	<b>126</b>	<b>318</b>

[1] (1) Complications of blunt force injuries of unknown etiology in association with extensive natural disease; (1) Cardiovascular disease associated with deep pressure ulcer, could not rule out neglect/abuse; (1) Complications of cardiovascular disease, circumstances surrounding death unknown; (1) Multiple blunt force injuries, driver in motor vehicle collision with fixed object; (1) Unexplained sudden death associated with unsafe sleep; (1) Found unresponsive in park and play, cause and manner could not be determined; (1) Found deceased at home in advanced stage of decomposition, cause and manner of death could not be determined; (1) Metastatic cancer associated with elevated drug levels of uncertain etiology; (1) Encephalopathy due to hypoglycemia of unknown etiology

[2] Does not include (6) stillbirth investigations

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

# Grand Traverse County

## Pediatric Deaths

The six deaths of individuals under 18 years of age include:

1. <1 year old
  - a. (2) Extreme prematurity; natural (no postmortem exam performed)
  - b. (1) Unexplained sudden death associated with unsafe sleep; indeterminate
2. 1-5 years
  - a. Found unresponsive in pack and play, cause of death could not be determined; indeterminate
3. 6-10 years
  - a. Sudden cardiac death due to congenital disorder; natural
4. 11-17 years
  - a. Multiple blunt force injuries, helmeted dirt bike rider involved in collision with another dirt bike; accident

Infant Deaths (Live Birth to 1 Year)			
	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	1	0	1

## Accidental Deaths by Mechanism

	2017	2018	2019	2020	2021	2022	2023
Vehicle	23	15	22	18	23	24	43
Drug-Related	19	9	10	19	16	22	32
Drowning	2	2	2	6	3	2	3
Fall	44	35	34	47	46	52	65
Fire	2	1	1	1	1	1	0
Environmental Exposure	0	1	0	4	2	4	1
Asphyxia	1	3	4	3	3	4	5 <sup>[1]</sup>
Other	2	3	2	2	4	5	3 <sup>[2]</sup>
<b>Total</b>	93	69	75	100	98	114	152

[1] (1) Asphyxia due to choking on food; (1) Positional asphyxia associated with chronic alcoholism; (1) Positional asphyxia associated with cardiovascular disease due to airway compromise with soft bedding

[2] (1) Complications of multiple injuries, crushed beneath vehicle; (1) Anaphylaxis due to wasp sting; (1) Craniocerebral trauma, struck by falling tree limb

# Grand Traverse County

## Drug-Related Deaths by Manner

	2017	2018	2019	2020	2021	2022	2023
<b>Accident</b>	19	9	10	19	16	22	<b>32</b>
<b>Suicide</b>	4	1	2	3	3	0	<b>2</b>
<b>Indeterminate</b>	0	0	0	0	0	0	<b>1</b>
<b>Total</b>	23	10	12	22	19	22	<b>35</b>
<b>Total involving opioids(s)</b>	18	8	8	15	16	20	<b>22</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	84%	89%	70%	68%	100%	91%	<b>67%</b>

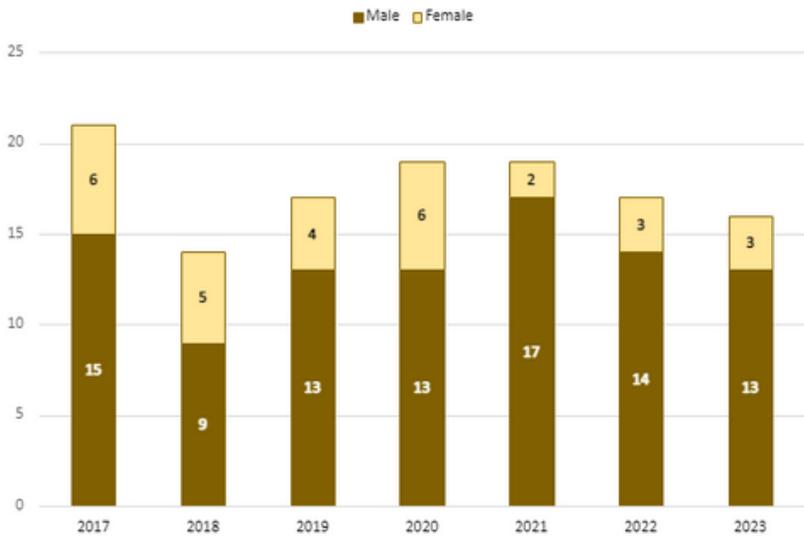
## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2017</b>	21	15	6	0	3	3	9	6
<b>2018</b>	14	9	5	2	1	6	5	0
<b>2019</b>	17	13	4	3	0	9	3	2
<b>2020</b>	19	13	6	0	3	8	7	1
<b>2021</b>	19	17	2	2	1	5	4	7
<b>2022</b>	17	13	4	0	2	8	3	4
<b>2023</b>	<b>16</b>	<b>13</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>4</b>



# Grand Traverse County

## Deaths by Suicide



## Suicides by Mechanism

	2017	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	11	5	9	7	7	9	<b>6</b>
<b>Hanging</b>	4	5	4	5	6	6	<b>6</b>
<b>Carbon Monoxide</b>	0	0	1	0	2	0	<b>1</b>
<b>Drug Intoxication</b>	4	1	2	3	3	0	<b>2</b>
<b>Motor Vehicle</b>	1	1	0	1	0	0	<b>0</b>
<b>Sharp Force Trauma</b>	1	1	0	3	0	1	<b>0</b>
<b>Asphyxia/Suffocation</b>	0	0	0	0	0	0	<b>0</b>
<b>Other</b>	0	1	1	0	1	1	<b>1</b> <sup>[1]</sup>
<b>Total</b>	21	14	17	19	19	17	<b>16</b>

[1] (1) Multiple blunt force injuries due to jump from height

# Kalamazoo County

## Summary of All Kalamazoo County Cases

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Deaths in the County	2,684	2,733	2,879	2,840	2,977	2,921	3,446	3,587	3,261 <sup>[1]</sup>	<b>3,250</b> <sup>[2]</sup>
Deaths Reported to the ME	750	810	975	991	1,068	1,060	1,242	1,283	1,132	<b>1,083</b>
Deaths Investigated	560	646	745	733	782	781	931	1,002	893	<b>850</b>
MEI Scene Investigations	411	434	560	627	677	650	745	821	780	<b>751</b>
Death Certificates by ME	355	306	390	406	405	401	449	496	499	<b>475</b>
Bodies Transported to WMed	253	247	318	307	330	290	302	366	347	<b>361</b>
Complete Autopsy	174	142	192	189	189	180	188	222	201	<b>193</b>
Limited Autopsy	6	7	7	4	9	7	6	5	15	<b>14</b>
External Examinations	37	52	60	64	68	62	60	82	82	<b>100</b>
Storage Only at WMed	36	46	59	50	62	41	44	55	49	<b>54</b>
Total Cases with Toxicology	198	174	222	238	238	224	236	292	265	<b>261</b>
Unidentified Remains After Exam	0	0	0	0	1	0	1	0	0	<b>0</b>
Referrals to Gift of Life	95	113	161	156	129	136	161	226	311	<b>267</b>
Tissue Donations	6	9	22	16	16	17	17	19	20	<b>23</b>
Cornea Donations	9	9	20	10	7	7	10	12	9	<b>15</b>
Unclaimed Investigations	10	10	10	13	41	40	48	51	67	<b>39</b>
Exhumations	0	0	1	0	0	0	0	0	0	<b>0</b>

## Cremations Permit Authorizations

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cremation Permits	1,782	1,672	1,856	1,920	2,101	2,028	2,492	2,594	2,436	<b>2,458</b>
% of Total Deaths with Cremation	66%	61%	64%	68%	71%	70%	72%	72%	75%	<b>76%</b>

# Kalamazoo County

## Manners of Death Reported

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Natural</b>	530	588	680	666	750	771	895	906	795	<b>732</b>
<b>Accident</b>	158	151	222	252	238	207	257	267	239	<b>273</b>
<b>Suicide</b>	36	38	40	40	46	49	47	50	55	<b>35</b>
<b>Homicide</b>	14	14	18	14	15	19	27	35	30	<b>28</b>
<b>Indeterminate</b>	12	19	11	18	17	12	12	12	11	<b>10</b> <sup>[1]</sup>
<b>Total</b>	750	810	971	990	1,066	1,058	1,238	1,270	1,130	<b>1,078</b> <sup>[2]</sup>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2014</b>	7	3	5	5	29	61	239	399
<b>2015</b>	14	5	3	7	21	82	220	441
<b>2016</b>	5	5	3	12	37	95	269	494
<b>2017</b>	15	6	3	10	35	103	256	513
<b>2018</b>	13	5	1	9	23	97	297	571
<b>2019</b>	6	6	3	5	37	98	293	610
<b>2020</b>	11	4	4	9	28	130	343	709
<b>2021</b>	5	5	1	5	36	153	371	696
<b>2022</b>	8	4	4	8	25	130	279	672
<b>2023</b>	4	9	3	8	32	121	274	628

[1] Complications of dislocated hip, neglect could not be excluded; (1) Mixed drug intoxication; (1) Blunt force injuries, pedestrian versus motor vehicle; (1) Complications of cancer and chronic alcoholism, neglect could not be excluded; (1) Found unresponsive at home, cause and manner of death could not be determined; (1) Unexplained sudden death associated with complications of spina bifida and unsafe sleep; (1) Found partially submerged in water, cause and manner of death could not be determined; (1) Found deceased outdoors in advanced stage of decomposition, cause and manner of death could not be determined; (1) Found unresponsive in vehicle, cause and manner of death could not be determined; (1) Status epilepticus, unknown etiology

[2] Does not include (3) stillbirth investigations; (2) Non-human remains

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

# Kalamazoo County

## Pediatric Deaths

The 24 deaths of individuals under 18 years of age include:

1. <1 year old
  - a. (1) Extreme prematurity; natural (no postmortem exam performed)
  - b. (1) Mechanical asphyxia, wedged between couch and adult; homicide
  - c. (1) Pneumonia due to coronavirus KHKU1 infection; natural
  - d. (1) Unexplained sudden death associated with complications of spina bifida and unsafe sleep; indeterminate
2. 1-5 years
  - a. (1) Acute myeloid leukemia; natural (no postmortem exam performed)
  - b. (1) Complications of ulcerative colitis; natural (no postmortem exam performed)
  - c. (1) Asphyxia due to neck ligature, slipped in car seat securing strap around neck; accident (no postmortem exam performed)
  - d. (1) Drowning, swimming pool; accident
  - e. (1) Blunt force injuries; homicide
  - f. (1) Thermal injuries and inhalation of products of combustion, structure fire; accident
  - g. (1) Blunt head injury, restrained rear seat passenger in motor vehicle collision; accident
  - h. (1) Complications of hydranencephaly; natural
  - i. (1) Found unresponsive at home, cause and manner of death could not be determined
3. 6-10 years
  - a. (1) Blunt force trauma of head/neck, struck by softball; accident
  - b. (1) Thermal injuries and inhalation of products of combustion, structure fire; accident
4. 11-17 years
  - a. (1) Complications of traumatic asphyxia, pinned beneath vehicle; accident
  - b. (1) Complications of congenital heart disease; natural
  - c. (1) Malrotation with volvulus of small intestine; natural
  - d. (1) Multiple gunshot wounds; homicide
  - e. (1) Gunshot wound of neck; homicide
  - f. (1) Multiple blunt force injuries, passenger in motor vehicle collision with fixed objects; accident
  - g. (1) Multiple injuries, unrestrained passenger in motor vehicle collision with another vehicle; accident
  - h. (1) Blunt force injuries, pedestrian versus motor vehicle; accident

<b>Infant Deaths (Live Birth to 1 Year)</b>			
	<b>ME-Certified with Autopsy</b>	<b>ME-Certified without Autopsy</b>	<b>Total Certified by ME</b>
<b>2023</b>	<b>3</b>	<b>0</b>	<b>3</b>

# Kalamazoo County

## Accidental Deaths by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Vehicle</b>	35	46	58	72	51	45	40	74	52	<b>62</b>
<b>Drug-Related</b>	35	33	72	61	63	47	69	84	62	<b>86</b>
<b>Drowning</b>	3	1	4	7	9	5	5	0	2	<b>4</b>
<b>Fall</b>	77	57	80	92	100	85	123	86	106	<b>102</b>
<b>Fire</b>	3	3	4	5	4	5	6	4	1	<b>6</b>
<b>Environmental Exposure</b>	1	1	1	2	3	5	5	2	5	<b>1</b>
<b>Asphyxia</b>	2	7	3	6	6	12	6	7	3	<b>9</b> <sup>[1]</sup>
<b>Other</b>	4	3	1	7	3	3	3	10	8	<b>3</b> <sup>[2]</sup>
<b>Total</b>	160	151	223	252	238	207	257	267	239	<b>273</b>

## Drug-Related Deaths by Manner

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Accident</b>	35	33	72	61	63	47	69	84	62	<b>86</b>
<b>Suicide</b>	12	8	3	12	5	11	4	6	8	<b>3</b>
<b>Homicide</b>	0	0	0	1	0	0	0	0	0	<b>0</b>
<b>Indeterminate</b>	4	3	5	5	7	3	1	2	3	<b>1</b>
<b>Total</b>	51	44	80	79	75	61	74	92	73	<b>90</b>
<b>Total involving opioids(s)</b>	N/A	30	64	59	51	32	56	63	43	<b>67</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	N/A	83%	82%	74%	73%	60%	80%	69%	60%	<b>77%</b>

[1] (1) Positional asphyxia due to fall associated with acute alcohol intoxication; (2) Traumatic asphyxia, pinned beneath vehicle; (1) Mechanical asphyxia due to entrapment in beans within silo; (1) Asphyxia due to choking on foreign body; (2) Asphyxia due to choking on food; (1) Asphyxia due to choking on multiple foreign objects associated with acute drug intoxication; (1) Asphyxia due to neck ligature, slipped in car seat securing strap around neck

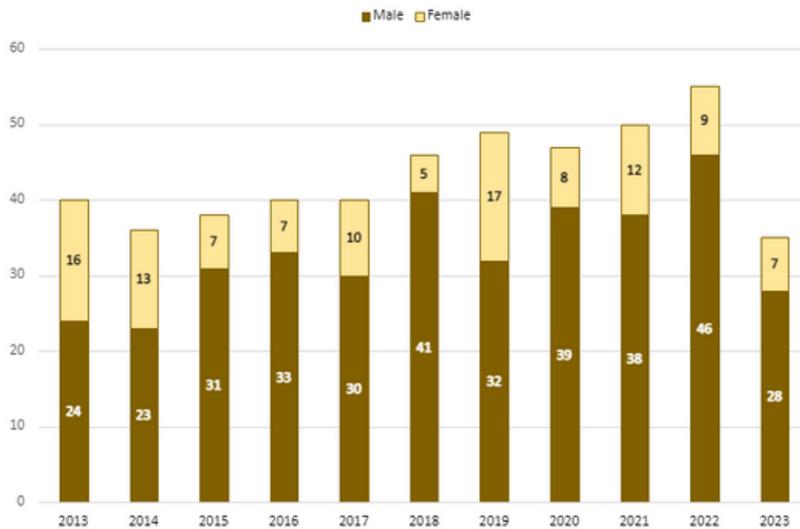
[2] (1) Electrocution; (1) Blunt force injuries of head/neck, struck by softball; (1) Complications of blunt force injuries, struck by tree limb

# Kalamazoo County

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2014</b>	36	23	13	0	7	12	10	7
<b>2015</b>	38	31	7	3	6	8	14	7
<b>2016</b>	40	33	7	3	7	13	12	5
<b>2017</b>	40	30	10	1	3	14	14	8
<b>2018</b>	46	41	5	2	9	11	11	13
<b>2019</b>	49	32	17	3	13	14	13	6
<b>2020</b>	47	39	8	3	5	15	19	5
<b>2021</b>	50	38	12	1	8	20	17	4
<b>2022</b>	55	46	9	2	5	17	21	10
<b>2023</b>	35	28	7	0	4	13	13	5

## Death by Suicide



## Suicides by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	14	19	19	14	26	22	21	22	30	<b>16</b>
<b>Hanging</b>	7	9	13	12	13	12	21	17	12	<b>13</b>
<b>Carbon Monoxide</b>	0	1	2	0	0	0	1	0	0	<b>0</b>
<b>Drug Intoxication</b>	12	8	3	12	5	11	4	6	8	<b>3</b>
<b>Motor Vehicle</b>	1	1	0	0	0	2	0	2	1	<b>1</b>
<b>Sharp Force Trauma</b>	0	0	2	2	0	0	0	1	2	<b>0</b>
<b>Asphyxia/Suffocation</b>	1	0	0	0	1	1	0	0	1	<b>0</b>
<b>Other</b>	1	0	1	0	1	1	0	2	1	<b>2</b> <sup>[1]</sup>
<b>Total</b>	36	38	40	40	46	49	47	50	55	<b>35</b>

[1] (1) Inhalation of products of combustion and thermal injuries, self-immolation; (1) Multiple blunt force injuries, fall from height

# Leelanau County

## Summary of All Leelanau County Cases

	2017	2018	2019	2020	2021	2022	2023
Total Deaths in the County	148	175	145	187	213	204 <sup>[1]</sup>	187 <sup>[2]</sup>
Deaths Reported to the ME	39	46	33	45	64	56	38
Deaths Investigated	36	45	33	44	60	55	38
MEI Scene Investigations	24	41	28	31	43	37	28
Death Certificates by ME	21	15	13	11	24	25	12
Bodies Transported to WMed	10	9	8	7	12	16	9
Complete Autopsy	9	7	6	1	9	11	1
Limited Autopsy	1	0	0	0	0	0	1
External Examinations	0	2	2	6	3	5	7
Storage Only at WMed	0	0	0	0	0	0	0
Total Cases with Toxicology	10	8	8	6	11	15	6
Unidentified Remains After Exam	0	0	0	0	0	0	0
Referrals to Gift of Life	6	8	6	7	14	21	13
Tissue Donations	0	1	1	1	1	2	0
Cornea Donations	0	0	0	0	0	1	0
Unclaimed Investigations	0	0	0	0	0	0	2
Exhumations	0	0	0	0	0	0	0

## Cremation Permit Authorizations

	2017	2018	2019	2020	2021	2022	2023
Cremation Permits	105	130	102	132	164	141	163
% of Total Deaths with Cremation	71%	74%	70%	71%	77%	69%	87%



## Manners of Death Reported

	2017	2018	2019	2020	2021	2022	2023
<b>Natural</b>	25	36	24	37	46	42	29
<b>Accident</b>	8	6	6	3	13	10	4
<b>Suicide</b>	4	2	2	5	2	4	5
<b>Homicide</b>	0	0	1	0	0	0	0
<b>Indeterminate</b>	2	2	0	0	0	0	0
<b>Total</b>	39	46	33	45	61	56	38

## Deaths Reported by Age (in years)

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2017</b>	0	0	0	1	3	3	7	25
<b>2018</b>	0	0	1	0	1	3	7	34
<b>2019</b>	0	0	0	0	1	2	5	25
<b>2020</b>	0	0	0	0	0	2	10	33
<b>2021</b>	0	1	0	1	1	7	11	40
<b>2022</b>	0	0	0	0	0	5	12	39
<b>2023</b>	0	0	0	0	0	2	11	25

# Leelanau County

## Accidental Deaths by Mechanism

	2017	2018	2019	2020	2021	2022	2023
<b>Vehicle</b>	2	1	3	1	1	4	<b>0</b>
<b>Drug-Related</b>	1	1	0	1	4	1	<b>1</b>
<b>Drowning</b>	0	2	2	0	1	1	<b>2</b>
<b>Fall</b>	0	1	1	0	5	2	<b>0</b>
<b>Fire</b>	0	0	0	0	0	0	<b>0</b>
<b>Environmental Exposure</b>	0	0	0	0	1	2	<b>0</b>
<b>Asphyxia</b>	0	1	0	1	0	0	<b>1</b> <sup>[1]</sup>
<b>Other</b>	1	0	0	0	1	0	<b>0</b>
<b>Total</b>	4	6	6	3	13	10	<b>4</b>

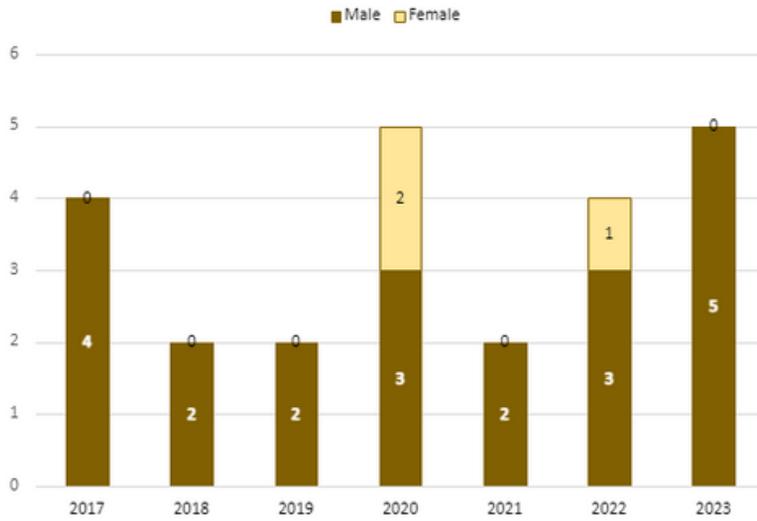
## Drug-Related Deaths by Manner

	2017	2018	2019	2020	2021	2022	2023
<b>Accident</b>	1	1	0	1	4	1	<b>1</b>
<b>Suicide</b>	0	0	0	0	0	1	<b>0</b>
<b>Indeterminate</b>	0	0	0	0	0	0	<b>0</b>
<b>Total</b>	1	1	0	1	4	2	<b>1</b>
<b>Total involving opioids(s)</b>	1	0	0	1	3	2	<b>0</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	100%	0%	0%	100%	75%	100%	<b>0%</b>

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2017</b>	4	4	0	1	0	0	1	2
<b>2018</b>	2	2	0	0	0	0	0	2
<b>2019</b>	2	2	0	0	0	1	1	0
<b>2020</b>	5	3	2	0	0	1	1	3
<b>2021</b>	2	2	0	1	0	1	0	0
<b>2022</b>	4	3	1	0	0	1	2	1
<b>2023</b>	5	5	0	0	0	1	1	3

## Deaths by Suicide



## Suicides by Mechanism

	2017	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	2	2	2	3	0	1	3
<b>Hanging</b>	1	0	0	2	2	1	2
<b>Carbon Monoxide</b>	0	0	0	0	0	0	0
<b>Drug Intoxication</b>	0	0	0	0	0	1	0
<b>Motor Vehicle</b>	0	0	0	0	0	0	0
<b>Sharp Force Trauma</b>	0	0	0	0	0	0	0
<b>Asphyxia/Suffocation</b>	0	0	0	0	0	0	0
<b>Other</b>	1	0	0	0	0	1	0
<b>Total</b>	4	2	2	5	2	4	5

## Summary of All Mason County Cases

	2018	2019	2020	2021	2022	2023
Total Deaths in the County	311	287	344	373	345 <sup>[1]</sup>	308 <sup>[2]</sup>
Deaths Reported to the ME	107	110	111	139	115	105
Deaths Investigated	92	93	97	124	98	96
MEI Scene Investigations	88	84	83	111	88	93
Death Certificates by ME	53	52	34	44	39	46
Bodies Transported to WMed	37	34	22	32	25	35
Complete Autopsy	29	25	12	20	15	22
Limited Autopsy	0	0	3	1	0	2
External Examinations	6	7	7	7	10	11
Storage Only at WMed	2	2	0	4	0	0
Total Cases with Toxicology	32	31	21	28	22	32
Unidentified Remains After Exam	0	0	1	0	0	0
Referrals to Gift of Life	16	10	19	26	26	50
Tissue Donations	3	2	0	2	2	3
Cornea Donations	0	1	0	1	1	1
Unclaimed Investigations	1	0	0	6	1	0
Exhumations	0	0	0	0	0	0

## Cremation Permit Authorizations

	2018	2019	2020	2021	2022	2023
Cremation Permits	231	224	288	300	255	264
% of Total Deaths with Cremation	74%	78%	84%	80%	74%	86%

[1] Updated total number of deaths occurring in the county  
 [2] Provisional total number of deaths occurring in the county

## Manners of Death Reported

	2018	2019	2020	2021	2022	2023
Natural	84	82	85	109	95	77
Accident	16	24	17	19	15	16
Suicide	7	2	8	8	2	10
Homicide	0	1	0	0	1	1
Indeterminate	0	1	0	1	0	0
<b>Total</b>	107	110	110	137	113	104 <sup>[1]</sup>

## Deaths Reported by Age (in years) <sup>[2]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
2018	0	0	0	3	2	13	25	63
2019	0	0	0	1	5	7	30	67
2020	0	0	0	0	1	10	28	71
2021	0	0	0	1	2	15	31	88
2022	0	0	0	0	0	12	23	78
2023	1	0	0	0	2	12	26	63

## Pediatric Deaths

The one death of individuals under 18 years of age include:

1. <1 year old

a. (1) Extreme prematurity; natural (no postmortem exam performed)

### Infant Deaths (Live Birth to 1 Year)

	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	0	0	0

[1] Does not include (1) stillbirth or spontaneous abortion (miscarriage) investigation

[2] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

## Accidental Deaths by Mechanism

	2018	2019	2020	2021	2022	2023
Vehicle	5	6	4	5	8	3
Drug-Related	7	2	5	7	6	6
Drowning	1	7	2	2	0	1
Fall	3	6	4	4	1	2
Fire	0	0	0	0	0	0
Environmental Exposure	0	3	0	0	0	0
Asphyxia	0	0	1	1	0	0
Other	0	0	1	0	0	4 <sup>[1]</sup>
<b>Total</b>	<b>16</b>	<b>24</b>	<b>17</b>	<b>19</b>	<b>15</b>	<b>16</b>

## Drug-Related Deaths by Manner

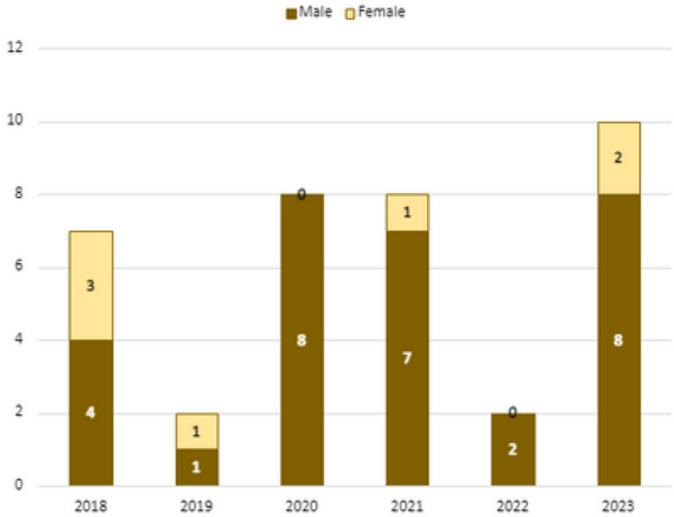
	2018	2019	2020	2021	2022	2023
Accident	7	2	5	7	6	6
Suicide	1	0	0	1	0	2
Indeterminate	0	1	0	0	0	0
<b>Total</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>6</b>	<b>8</b>
<b>Total involving opioids(s)</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>7</b>	<b>4</b>	<b>7</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	<b>57%</b>	<b>33%</b>	<b>100%</b>	<b>100%</b>	<b>67%</b>	<b>100%</b>

[1] (2) Multiple injuries, single-engine plane crash; (1) Bowel obstruction due to fruit pit impaction; (1) Carbon monoxide poisoning

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2018</b>	7	4	3	1	0	3	3	0
<b>2019</b>	2	1	1	0	1	1	0	0
<b>2020</b>	8	8	0	0	0	2	4	2
<b>2021</b>	8	7	1	1	0	3	4	0
<b>2022</b>	2	2	0	0	0	2	0	0
<b>2023</b>	10	8	2	0	2	3	2	3

## Deaths by Suicide





## Suicides by Mechanism

	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	2	2	6	4	0	4
<b>Hanging</b>	4	0	2	2	2	4
<b>Carbon Monoxide</b>	0	0	0	0	0	0
<b>Drug Intoxication</b>	1	0	0	1	0	2
<b>Motor Vehicle</b>	0	0	0	0	0	0
<b>Sharp Force Trauma</b>	0	0	0	1	0	0
<b>Asphyxia/Suffocation</b>	0	0	0	0	0	0
<b>Other</b>	0	0	0	0	0	0
<b>Total</b>	7	2	8	8	2	10

# Muskegon County

## Summary of All Muskegon County Cases

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Deaths in the County	1,707	1,784	1,479	1,784	1,841	1,846	2,222	2,176	2,078 <sup>[1]</sup>	<b>1,988</b> <sup>[2]</sup>
Deaths Reported to the ME	524	605	585	629	662	670	804	842	786	<b>724</b>
Deaths Investigated	453	530	504	468	504	523	628	642	620	<b>549</b>
MEI Scene Investigations	444	501	469	425	463	467	538	537	532	<b>503</b>
Death Certificates by ME	228	251	231	234	235	248	255	292	317	<b>310</b>
Bodies Transported to WMed	178	159	167	159	161	177	167	191	222	<b>225</b>
Complete Autopsy	144	120	114	108	117	134	125	137	162	<b>147</b>
Limited Autopsy	2	4	2	4	4	5	4	4	11	<b>8</b>
External Examinations	18	35	41	43	35	30	34	39	45	<b>51</b>
Storage Only at WMed	4	0	10	4	4	8	4	11	4	<b>19</b>
Total Cases with Toxicology	152	160	136	140	147	160	158	179	213	<b>186</b>
Unidentified Remains After Exam	0	0	0	0	0	0	0	1	0	<b>0</b>
Referrals to Gift of Life	156	139	109	122	128	104	137	155	176	<b>182</b>
Tissue Donations	14	17	12	9	15	12	9	12	15	<b>9</b>
Cornea Donations	16	20	11	7	8	6	4	8	1	<b>4</b>
Unclaimed Investigations	6	5	7	12	15	14	19	20	21	<b>21</b>
Exhumations	0	0	0	0	0	0	0	2	0	<b>0</b>

## Cremation Permit Authorizations

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cremation Permits	1,007	1,116	1,138	1,188	1,264	1,383	1,600	1,637	1,582	<b>1,561</b>
% of Total Deaths with Cremation	59%	63%	65%	67%	68%	75%	72%	75%	76%	<b>79%</b>

# Muskegon County

## Manners of Death Reported

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Natural</b>	377	440	429	456	500	480	617	628	565	<b>504</b>
<b>Accident</b>	102	103	107	116	107	137	138	158	150	<b>157</b>
<b>Suicide</b>	21	36	25	37	33	23	25	31	46	<b>39</b>
<b>Homicide</b>	14	10	11	12	16	17	14	13	19	<b>13</b>
<b>Indeterminate</b>	10	15	13	8	6	12	9	9	5	<b>10</b> <sup>[1]</sup>
<b>Total</b>	524	604	585	629	662	669	803	839	785	<b>723</b> <sup>[2]</sup>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2014</b>	4	0	0	8	15	66	155	273
<b>2015</b>	9	1	2	2	24	61	199	304
<b>2016</b>	4	2	1	5	18	55	184	303
<b>2017</b>	3	1	0	8	14	81	168	344
<b>2018</b>	1	2	3	1	16	88	190	344
<b>2019</b>	2	0	0	1	22	74	177	393
<b>2020</b>	6	0	1	6	16	89	199	488
<b>2021</b>	5	0	0	1	20	92	236	485
<b>2022</b>	4	1	0	4	20	98	203	455
<b>2023</b>	4	1	1	5	12	89	193	418

[1] (3) Acute drug intoxication; (1) Thermal injuries and inhalation of products of combustion, structure fire; (1) Multiple blunt force injuries, motor vehicle collision; (1) Status epilepticus of unknown etiology; (1) Unexplained sudden death associated with unsafe sleep; (1) Unexplained sudden death possibly associated with hypertension and neurofibromatosis mutation; (1) Death in hospital, cause and manner could not be determined; (1) Multisystem failure of uncertain etiology

[2] Does not include (1) fetal remains

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

# Muskegon County

## Pediatric Deaths

The eleven deaths of individuals under 18 years of age include:

1. <1 year old
  - a. (1) Unexplained sudden death associated with unsafe sleep; indeterminate
  - b. (1) Complications of renal hypoplasia; natural (no postmortem exam performed)
  - c. (1) Unexplained sudden death possibly associated with hypertension and neurofibromatosis mutation; indeterminate
  - d. (1) Gunshot wound of head; homicide
2. 1-5 years
  - a. (1) Acute drug intoxication; indeterminate
3. 6-10 years
  - a. (1) Multiple gunshot wounds of head; homicide
4. 11-17 years
  - a. (2) Hanging; suicide
  - b. (1) Complications of calf muscle injury sustained during athletic activity, complicated by genetic mutation; accident
  - c. (1) Acute drug intoxication; accident
  - d. (1) Gunshot wound of chest; homicide

Infant Deaths (Live Birth to 1 Year)			
	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	3	0	3

## Accidental Deaths by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Vehicle	18	22	22	22	21	33	27	28	21	24
Drug-Related	47	39	40	47	40	46	57	59	71	75
Drowning	4	4	2	4	2	5	4	6	5	1
Fall	29	29	32	38	37	43	38	51	42	40
Fire	1	3	1	0	0	1	3	1	1	0
Environmental Exposure	1	1	4	0	1	2	4	7	4	5
Asphyxia	2	3	4	2	5	4	4	3	2	6
Other	1	2	2	3	2	3	1	3	4	5 <sup>[1]</sup>
<b>Total</b>	<b>103</b>	<b>103</b>	<b>107</b>	<b>116</b>	<b>107</b>	<b>137</b>	<b>138</b>	<b>158</b>	<b>150</b>	<b>157</b>

[1] (1) Carbon monoxide poisoning; (1) Gunshot wound of chest; (1) Multiple injuries, crushed by crane; (1) Multiple blunt force injuries, struck by tree limb; (1) Complications of calf muscle injury sustained during athletic activity

# Muskegon County

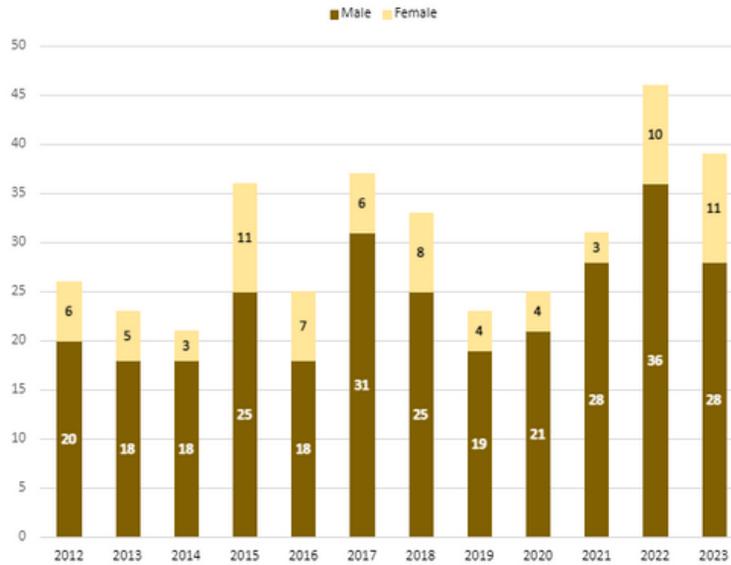
## Drug-Related Deaths by Manner

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Accident</b>	47	39	39	47	40	46	57	59	71	<b>75</b>
<b>Suicide</b>	2	7	3	4	10	4	3	5	6	<b>8</b>
<b>Indeterminate</b>	5	4	6	3	1	5	0	0	1	<b>3</b>
<b>Total</b>	54	50	48	54	51	55	60	64	78	<b>86</b>
<b>Total involving opioids(s)</b>	N/A	43	41	43	39	43	50	54	64	<b>67</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	N/A	95%	87%	84%	85%	84%	88%	88%	83%	<b>87%</b>

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2014</b>	21	18	3	3	4	3	9	2
<b>2015</b>	36	25	11	0	7	10	8	11
<b>2016</b>	25	18	7	0	2	6	11	6
<b>2017</b>	37	31	6	3	4	10	15	5
<b>2018</b>	33	25	8	0	6	12	9	6
<b>2019</b>	23	19	4	0	3	8	8	4
<b>2020</b>	25	21	4	0	3	9	6	7
<b>2021</b>	31	28	3	0	3	12	10	6
<b>2022</b>	46	36	10	1	7	20	12	6
<b>2023</b>	<b>39</b>	<b>28</b>	<b>11</b>	<b>2</b>	<b>6</b>	<b>12</b>	<b>10</b>	<b>9</b>

## Deaths by Suicide



## Suicides by Mechanism

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	10	11	15	19	14	13	8	10	23	<b>20</b>
<b>Hanging</b>	7	15	5	10	9	5	9	9	13	<b>8</b>
<b>Carbon Monoxide</b>	0	1	1	1	0	0	1	2	2	<b>0</b>
<b>Drug Intoxication</b>	3	7	2	4	7	4	3	05	6	<b>8</b> <sup>[1]</sup>
<b>Motor Vehicle</b>	1	0	0	0	0	0	0	0	1	<b>0</b>
<b>Sharp Force Trauma</b>	0	2	1	0	0	1	0	1	0	<b>1</b>
<b>Asphyxia/Suffocation</b>	0	0	1	1	0	0	2	1	1	<b>0</b>
<b>Other</b>	0	0	0	2	3	0	2	3	0	<b>2</b> <sup>[2]</sup>
<b>Total</b>	21	36	25	37	33	23	25	31	46	<b>39</b>

[1] Includes (1) chemical ingestion (Lysol)

[2] (1) Drowning in river; (1) Multiple blunt force injuries due to fall from height

# St. Joseph County

## Summary of All St. Joseph County Cases

	2017	2018	2019	2020	2021	2022	2023
Total Deaths in the County	508	530	507	541	604	562 <sup>[1]</sup>	<b>508</b> <sup>[2]</sup>
Deaths Reported to the ME	164	157	150	200	220	198	<b>171</b>
Deaths Investigated	155	150	145	196	191	184	<b>165</b>
MEI Scene Investigations	147	141	134	172	173	161	<b>152</b>
Death Certificates by ME	66	69	70	74	73	80	<b>76</b>
Bodies Transported to WMed	56	67	61	64	54	64	<b>57</b>
Complete Autopsy	34	39	34	42	30	39	<b>28</b>
Limited Autopsy	1	2	3	4	1	4	<b>4</b>
External Examinations	14	20	17	11	16	11	<b>21</b>
Storage Only at WMed	7	5	7	7	7	10	<b>4</b>
Total Cases with Toxicology	43	55	1	54	45	50	<b>49</b>
Unidentified Remains After Exam	2	0	1	0	0	0	<b>0</b>
Referrals to Gift of Life	53	45	41	71	70	102	<b>69</b>
Tissue Donations	7	6	6	4	7	5	<b>5</b>
Cornea Donations	2	3	4	1	5	5	<b>4</b>
Unclaimed Investigations	1	4	8	6	4	6	<b>6</b>
Exhumations	0	0	0	0	0	0	<b>0</b>

## Cremation Permit Authorizations

	2017	2018	2019	2020	2021	2022	2023
Cremation Permits	309	306	327	386	424	408	<b>370</b>
% of Total Deaths with Cremation	61%	58%	65%	71%	71%	73%	<b>73%</b>

[1] Updated total number of deaths occurring in the county  
 [2] Provisional total number of deaths occurring in the county

## Manners of Death Reported

	2017	2018	2019	2020	2021	2022	2023
<b>Natural</b>	126	107	103	153	181	148	<b>124</b>
<b>Accident</b>	19	27	29	32	23	37	<b>28</b>
<b>Suicide</b>	12	16	11	10	12	9	<b>15</b>
<b>Homicide</b>	2	1	6	2	1	0	<b>1</b>
<b>Indeterminate</b>	5	4	0	1	3	4	<b>2</b> <sup>[1]</sup>
<b>Total</b>	164	155	149	198	220	198	<b>170</b> <sup>[2]</sup>

## Deaths Reported by Age (in years) <sup>[3]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2017</b>	1	0	0	1	2	19	60	78
<b>2018</b>	3	2	1	3	9	17	46	70
<b>2019</b>	0	1	0	2	3	23	49	71
<b>2020</b>	2	1	0	1	6	38	66	94
<b>2021</b>	1	0	0	1	3	18	71	126
<b>2022</b>	2	2	0	2	5	15	58	114
<b>2023</b>	1	0	0	3	7	20	46	93

## Pediatric Deaths

The one death of individuals under 18 years of age include:

1. <1 year old

a. (1) Unexplained sudden death associated with unsafe sleep; indeterminate

<b>Infant Deaths (Live Birth to 1 Year)</b>			
	<b>ME-Certified with Autopsy</b>	<b>ME-Certified without Autopsy</b>	<b>Total Certified by ME</b>
<b>2023</b>	1	0	<b>1</b>

[1] (1) Hanging, circumstances unclear; (1) Unexplained sudden death associated with unsafe sleep

[2] Does not include (1) stillbirth investigation

[3] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year



## Accidental Deaths by Mechanism

	2017	2018	2019	2020	2021	2022	2023
<b>Vehicle</b>	8	15	11	13	6	10	<b>10</b>
<b>Drug-Related</b>	6	4	10	11	6	11	<b>8</b>
<b>Drowning</b>	2	1	3	2	3	3	<b>1</b>
<b>Fall</b>	1	3	4	3	5	7	<b>5</b>
<b>Fire</b>	1	4	0	2	0	4	<b>3</b>
<b>Environmental Exposure</b>	0	0	1	0	0	1	<b>0</b>
<b>Asphyxia</b>	1	1	0	1	1	0	<b>0</b>
<b>Other</b>	0	0	0	0	2	1	<b>1</b> <sup>[1]</sup>
<b>Total</b>	19	27	29	32	23	37	<b>28</b>

## Drug-Related Deaths by Manner

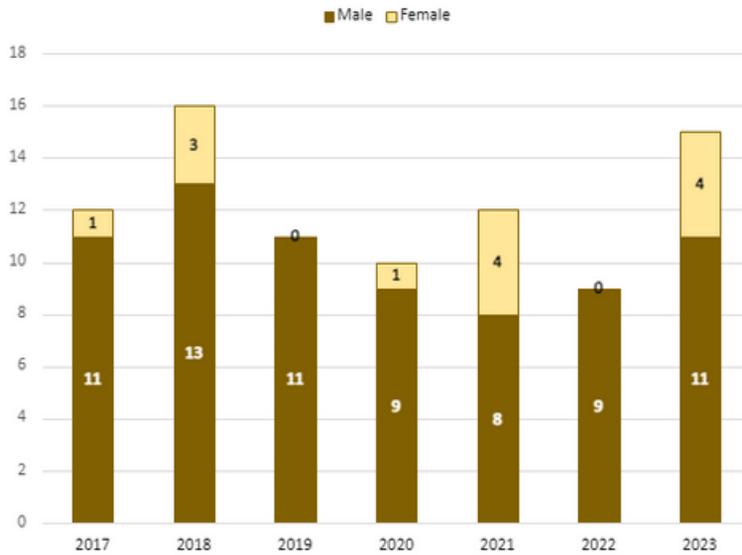
	2017	2018	2019	2020	2021	2022	2023
<b>Accident</b>	6	4	10	11	6	11	<b>8</b>
<b>Suicide</b>	0	2	1	1	2	1	<b>1</b>
<b>Indeterminate</b>	1	0	0	0	2	0	<b>0</b>
<b>Total</b>	7	6	11	12	10	12	<b>9</b>
<b>Total involving opioids(s)</b>	6	4	4	11	7	5	<b>6</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	86%	75%	40%	91%	88%	45%	<b>75%</b>

[1] (1) Anaphylaxis due to insect sting

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2017</b>	12	11	1	0	1	6	3	2
<b>2018</b>	16	13	3	3	3	4	4	2
<b>2019</b>	11	11	0	1	1	5	2	2
<b>2020</b>	10	9	1	0	1	3	3	3
<b>2021</b>	12	8	4	1	1	4	5	1
<b>2022</b>	9	9	0	0	2	0	3	4
<b>2023</b>	15	11	4	1	1	6	4	3

## Deaths by Suicide



## Suicides by Mechanism

	2017	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	4	7	8	7	2	7	7
<b>Hanging</b>	5	6	1	0	6	1	6
<b>Carbon Monoxide</b>	3	0	1	0	0	0	0
<b>Drug Intoxication</b>	0	2	1	1	2	1	1
<b>Motor Vehicle</b>	0	0	0	0	0	0	1
<b>Sharp Force Trauma</b>	0	0	0	1	1	0	0
<b>Asphyxia/Suffocation</b>	0	1	0	1	1	0	0
<b>Other</b>	0	0	0	0	0	0	0
<b>Total</b>	12	16	11	10	12	9	15

# Van Buren County

## Summary of All Van Buren County Cases

	2018	2019	2020	2021	2022	2023
Total Deaths in the County	514	496	605	612	606 <sup>[1]</sup>	543 <sup>[2]</sup>
Deaths Reported to the ME	162	180	220	241	250	206
Deaths Investigated	146	164	203	229	238	202
MEI Scene Investigations	142	158	188	217	229	195
Death Certificates by ME	61	74	89	96	95	81
Bodies Transported to WMed	56	62	62	86	82	71
Complete Autopsy	31	40	37	54	48	39
Limited Autopsy	2	2	1	0	1	2
External Examinations	20	15	17	18	22	21
Storage Only at WMed	3	5	6	14	11	9
Total Cases with Toxicology	44	53	52	69	63	55
Unidentified Remains After Exam	0	0	0	1	0	0
Referrals to Gift of Life	55	45	39	95	109	113
Tissue Donations	8	1	2	7	7	9
Cornea Donations	3	1	2	1	4	6
Unclaimed Investigations	2	3	4	9	11	8
Exhumations	1	0	0	0	0	0

## Cremation Permit Authorizations

	2018	2019	2020	2021	2022	2023
Cremation Permits	322	327	420	439	440	384
% of Total Deaths with Cremation	63%	67%	70%	72%	73%	71%

## Manners of Death Reported

	2018	2019	2020	2021	2022	2023
<b>Natural</b>	116	127	163	176	200	<b>151</b>
<b>Accident</b>	25	35	44	45	39	<b>33</b>
<b>Suicide</b>	16	9	8	6	6	<b>16</b>
<b>Homicide</b>	5	2	1	7	0	<b>3</b>
<b>Indeterminate</b>	0	6	3	4	5	<b>3</b> <sup>[1]</sup>
<b>Total</b>	162	179	219	238	250	<b>206</b>

## Deaths Reported by Age (in years) <sup>[2]</sup>

	<1	1-5	6-10	11-17	18-25	26-44	45-64	65+
<b>2018</b>	0	2	1	0	4	13	47	95
<b>2019</b>	0	1	0	1	6	20	52	99
<b>2020</b>	0	0	1	1	7	28	55	127
<b>2021</b>	0	0	0	0	3	30	83	122
<b>2022</b>	3	0	1	0	6	22	70	148
<b>2023</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>8</b>	<b>16</b>	<b>63</b>	<b>116</b>

## Pediatric Deaths

The three deaths of individuals under 18 years of age include:

1. 11-17 years
  - a. (2) Gunshot wound of head; suicide
  - b. (1) Intraoral shotgun wound; suicide

[1] (3) Inhalation of products of combustion, structure fire

[2] All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

## Accidental Deaths by Mechanism

	2018	2019	2020	2021	2022	2023
Vehicle	8	9	11	14	11	3
Drug-Related	10	15	17	19	13	14
Drowning	1	2	4	2	5	1
Fall	4	5	11	7	9	8
Fire	0	0	0	1	1	0
Environmental Exposure	1	2	0	1	0	0
Asphyxia	1	1	1	1	0	0
Other	0	1	0	0	0	2 <sup>[1]</sup>
<b>Total</b>	<b>25</b>	<b>35</b>	<b>44</b>	<b>45</b>	<b>39</b>	<b>33</b>

## Drug-Related Deaths by Manner

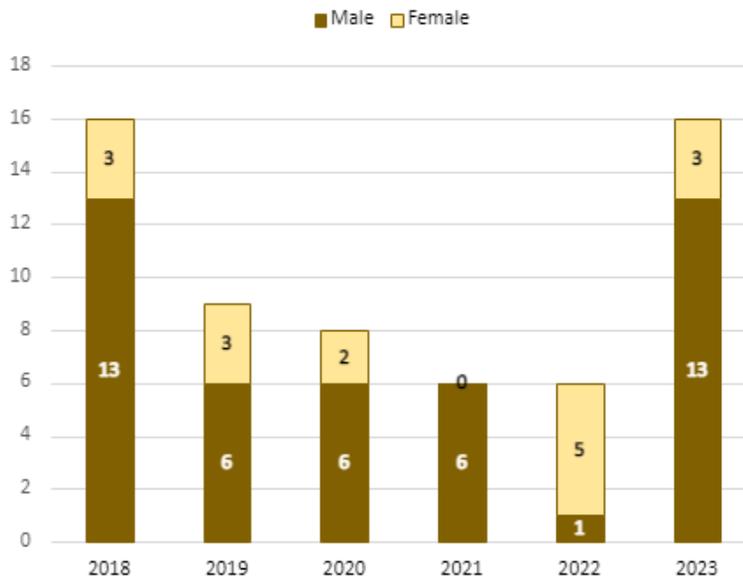
	2018	2019	2020	2021	2022	2023
Accident	10	15	17	19	13	14
Suicide	1	1	1	1	3	0
Indeterminate	0	0	0	1	0	0
Homicide	0	0	0	1	0	0
<b>Total</b>	<b>11</b>	<b>16</b>	<b>18</b>	<b>22</b>	<b>16</b>	<b>14</b>
<b>Total involving opioids(s)</b>	<b>9</b>	<b>12</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>9</b>
<b>% of Accidental and Indeterminate Deaths Involving Opioids</b>	<b>90%</b>	<b>80%</b>	<b>59%</b>	<b>70%</b>	<b>69%</b>	<b>64%</b>

# Van Buren County

## Suicides by Sex & Age

	Total	Male	Female	0-17	18-25	26-44	45-64	65+
<b>2018</b>	16	13	3	0	1	2	7	6
<b>2019</b>	9	6	3	0	0	4	1	4
<b>2020</b>	8	6	2	0	1	2	1	4
<b>2021</b>	6	6	0	0	1	1	4	0
<b>2022</b>	6	1	5	0	0	1	3	2
<b>2023</b>	16	13	3	3	1	5	3	4

## Deaths by Suicide



## Suicides by Mechanism

	2018	2019	2020	2021	2022	2023
<b>Firearm</b>	11	5	4	2	1	14
<b>Hanging</b>	3	2	2	3	1	2
<b>Carbon Monoxide</b>	0	0	1	0	0	0
<b>Drug Intoxication</b>	1	1	1	1	3	0
<b>Motor Vehicle</b>	0	0	0	0	0	0
<b>Sharp Force Trauma</b>	0	1	0	0	0	0
<b>Asphyxia/Suffocation</b>	1	0	0	0	0	0
<b>Other</b>	0	0	0	0	1	0
<b>Total</b>	16	9	8	6	6	16



# Additional Services & Statistics

## Division of Neuropathology

The Division of Neuropathology, led by Division Chief, Dr. Amanda Fisher-Hubbard, performs a wide range of examinations, including those of forensic cases from WMed and outside institutions/medical examiner offices, private examinations for inquiring families, hospital consultations, and is involved in several research projects. Since 2016, the Division of Neuropathology at WMed has partnered with the Lieber Institute for Brain Development located in Baltimore, Maryland.

	WMed Forensic Cases	Consulting Forensic Cases	Hospital Specimens	Research Specimens	Private Neuropathological Examinations	Total
<b>2016</b>	43	84	11	276	4	418
<b>2017</b>	79	83	3	404	9	578
<b>2018</b>	63	99	2	492	3	659
<b>2019</b>	41	59	2	530	2	634
<b>2020</b>	53	73	2	380	3	511
<b>2021</b>	57	99	1	460	2	619
<b>2022</b>	51	91	0	697	3	842
<b>2023</b>	<b>29</b>	<b>108</b>	<b>0</b>	<b>607</b>	<b>1</b>	<b>745</b>

# Additional Services & Statistics

## Forensic Anthropology

Forensic Anthropology services are provided to all WMed Medical Examiner counties led by board-certified forensic anthropologists, Drs. Jered Cornelison and Christine Pink. These services include human versus non-human bone identification; search and recovery of remains; comparative medical and dental radiography for the positive identification of remains; complete skeletal analyses, including trauma reconstruction and analysis and determination of biological sex, age, ancestry, stature; and input and case management of unidentified individuals in the National Missing and Unidentified Persons System (NamUs). The team of forensic anthropologists at WMed also assists in the coordination of all scientific identification via multiple corresponding factors. In 2022, our team grew with the addition of a two-year post-doctoral fellowship program, which was filled by Dr. Jessica Juarez.

	Comparative Medical Radiography	Comparative Dental Radiography	Fingerprint Analysis	Multiple Corresponding Factors	DNA Analysis	Recoveries	Non-Human	Skeletal Analysis
<b>2016</b>	38	12	24	2	0	2	6	14
<b>2017</b>	65	16	29	2	4	11	8	11
<b>2018</b>	55	27	48	5	4	9	17	18
<b>2019</b>	60	18	49	3	4	8	20	14
<b>2020</b>	83	10	52	5	4	7	17	15
<b>2021</b>	116	9	42	4	5	13	7	22
<b>2022</b>	135	16	27	7	4	3	14	15
<b>2023</b>	125	13	20	10	3	3	10	13

# Other Postmortem Examinations

## Hospital, Private, and Consultant Postmortem Examinations

Our office provides autopsy services to multiple area hospitals, private examinations to families searching for answers, and forensic autopsies to various counties in Michigan and Northern Indiana at their request.

	<b>Hospital</b>	<b>Private</b>	<b>Consultant (Forensic)</b>	<b>Total</b>
2016	10	4	257	271
2017	7	16	201	224
2018	8	9	161	178
2019	10	3	104	117
2020	9	15	198	222
2021	11	12	310	333
2022	10	17	316	343
<b>2023</b>	<b>14</b>	<b>11</b>	<b>300</b>	<b>325</b>

# Referrals to Organ Procurement Organization

	<b>Referrals to Gift of Life</b>	<b>Tissue Donations</b>	<b>Cornea Donations</b>
<b>Allegan</b>	98	9	4
<b>Barry</b>	53	2	3
<b>Berrien</b>	216	24	12
<b>Calhoun</b>	200	24	15
<b>Cass</b>	69	12	6
<b>Grand Traverse</b>	92	5	0
<b>Kalamazoo</b>	267	23	15
<b>Leelanau</b>	13	0	0
<b>Mason</b>	50	3	1
<b>Muskegon</b>	182	9	4
<b>St. Joseph</b>	69	5	4
<b>Van Buren</b>	113	9	6
<b>2023 Total</b>	<b>1422</b>	<b>125</b>	<b>70</b>

# Comparison of All Medical Examiner Counties

	Total <sup>[1]</sup> Population	Total Sq. Miles	Deaths in the County	Deaths Reported	Deaths Investigated	MEI Scene Investigations	DCs by ME	Cremation Permits	Unclaimed Investigations
Allegan	121,939	1,833	865	225	217	194	107	618	11
Barry	63,808	577	440	132	120	112	57	313	1
Berrien	152,261	1,581	1,695	626	520	466	271	1,193	15
Calhoun	133,366	718	1,444	509	459	407	209	1,074	32
Cass	51,642	508	372	157	150	145	70	285	5
Grand Traverse	96,421	601	1,618	515	411	308	228	1,379	11
Kalamazoo	262,215	580	3,250	1,083	850	751	475	2,458	39
Leelanau	23,019	2,532	187	38	38	28	12	163	2
Mason	29,159	1,242	308	105	96	93	46	264	0
Muskegon	176,564	1,459	1,988	724	549	503	310	1,561	21
St. Joseph	60,878	521	508	171	165	152	76	370	6
Van Buren	75,798	1,090	543	206	202	195	81	384	8
<b>2023 Total</b>	<b>1,247,070</b>	<b>13,242</b>	<b>13,218</b>	<b>4,491</b>	<b>3,777</b>	<b>3,354</b>	<b>1,942</b>	<b>10,062</b>	<b>151</b>
2022 Total	1,243,805	13,815	14,364	4,884	3,770	3,536	2,021	10,428	187

[1] Total county populations based on 2023 estimates by the US Census Bureau

# Forensic Postmortem Examinations

	Complete Autopsies	% Complete Autopsies [1]	Limited Exams	External Exams	Total Postmortem Exams	% Postmortem Exams [2]	Cardiovascular Consults
<b>Allegan</b>	37	4.3%	8	38	83	9.6%	0
<b>Barry</b>	23	5.2%	1	15	39	8.9%	0
<b>Berrien</b>	130	7.7%	6	49	185	10.9%	1
<b>Calhoun</b>	106	7.3%	7	38	151	10.5%	0
<b>Cass</b>	35	9.4%	1	16	52	14.0%	0
<b>Grand Traverse</b>	75	4.6%	7	31	113	7.0%	1
<b>Kalamazoo</b>	193	5.9%	14	100	307	9.4%	0
<b>Leelanau</b>	1	0.5%	1	7	9	4.8%	0
<b>Mason</b>	22	7.1%	2	11	35	11.4%	0
<b>Muskegon</b>	147	7.4%	8	51	206	10.4%	0
<b>St. Joseph</b>	28	5.5%	4	21	53	10.4%	0
<b>Van Buren</b>	39	7.2%	2	21	62	11.4%	0
<b>Consultant Counties</b>	299	---	0	1	300	---	0
<b>2023 Total</b>	<b>1,135</b>	<b>8.6%</b> [3]	<b>62</b>	<b>399</b>	<b>1,596</b>	<b>12.1%</b> [4]	<b>2</b>
<b>2022 Total</b>	1,245	6.5% [3]	52	328	1,626	9.1% [4]	6 [5]

[1] Percent of all deaths in county with a complete autopsy

[2] Percent of all deaths in county with a postmortem examination

[3] Average percentage of all deaths in county with a complete autopsy

[4] Average percentage of all deaths in county with a postmortem examination

[5] This number was updated from 12 to 6 to reflect the accurate total of cardiovascular consults in 2022.

# Manners of Death, All Medical Examiner Counties

	Natural	Accident	Suicide	Homicide	Indeterminate	2023 Total
<b>Allegan</b>	151	41	27	3	2	<b>224</b>
<b>Barry</b>	99	28	5	0	0	<b>132</b>
<b>Berrien</b>	449	120	29	13	14	<b>625</b>
<b>Calhoun</b>	375	84	26	15	8	<b>508</b>
<b>Cass</b>	114	24	10	1	6	<b>155</b>
<b>Grand Traverse</b>	331	152	16	1	9	<b>509</b>
<b>Kalamazoo</b>	732	273	35	28	10	<b>1,078</b>
<b>Leelanau</b>	29	4	5	0	0	<b>38</b>
<b>Mason</b>	77	16	10	1	0	<b>104</b>
<b>Muskegon</b>	504	157	39	13	10	<b>723</b>
<b>St. Joseph</b>	124	28	15	1	2	<b>170</b>
<b>Van Buren</b>	151	33	16	3	3	<b>206</b>
<b>2023 Total</b>	<b>3,136</b>	<b>960</b>	<b>233</b>	<b>79</b>	<b>64</b>	<b>4,472</b>
<b>% of 2023 <sup>[1]</sup> Total</b>	<b>70%</b>	<b>21%</b>	<b>5%</b>	<b>2%</b>	<b>2%</b>	<b>100%</b>
<b>2022 Total</b>	3,569	944	219	85	53	4,870

[1] Percent of all deaths reported to our office

# Significant Death Statistics

	2023 Accidental Drug-Related Deaths	2023 Indeterminate Drug-Related Deaths	2023 Opioid- Related Deaths	Accidental Motor Vehicle-Related Deaths	Accidental Fall- Related Deaths
<b>Allegan</b>	9	0	6	13	15
<b>Barry</b>	9	0	7	7	10
<b>Berrien</b>	50	4	38	16	38
<b>Calhoun</b>	37	0	30	19	18
<b>Cass</b>	9	0	8	8	3
<b>Grand Traverse</b>	32	1	22	43	65
<b>Kalamazoo</b>	86	1	67	62	102
<b>Leelanau</b>	1	0	0	0	0
<b>Mason</b>	6	0	7	3	2
<b>Muskegon</b>	75	3	67	24	40
<b>St. Joseph</b>	8	0	6	10	5
<b>Van Buren</b>	14	0	9	3	8
<b>2023 Total</b>	<b>336</b>	<b>9</b>	<b>267</b>	<b>208</b>	<b>306</b>
<b>2022 Total</b>	311	7	255	208	312



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