



WESTERN MICHIGAN UNIVERSITY
Homer Stryker M.D.
SCHOOL OF MEDICINE

MEDICAL EXAMINER AND
FORENSIC SERVICES



ANNUAL REPORT 2024

Office of the Medical Examiner

Allegan

Barry

Berrien

Calhoun

Cass

Grand Traverse

Kalamazoo

Leelanau

Mason

Muskegon

St. Joseph

Van Buren

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Our administrative office is open from 8:00 a.m. to 5:00 p.m. Monday through Friday, with holiday exceptions.

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LETTER FROM THE MEDICAL EXAMINER

The Medical Examiner's Office is a public health office, and the purpose of forensic pathology is preventive medicine. Though we cannot intervene for those who have already died, the numbers aggregated in this report not only represent deaths which occurred but opportunities to recognize threats to public health, and efforts to intervene at the population level within each county WMed serves.

WMed is pleased to provide these data, and hope that opportunities are not lost to enact meaningful changes which directly affect public health. We believe board certified forensic pathologists and offices accredited by the National Association of Medical Examiners are the gold standard for answering the public need for a Medical Examiner's Office. We also believe WMed is a leader within the state of Michigan in practicing forensic pathology at that gold standard. It is our pleasure and honor to serve each of our counties with the highest quality of medicolegal death investigation available. Everyone in the state deserves to be served equally at this standard, by board-certified experts at an accredited facility.

Respectfully,



Patrick Hansma, DO
Medical Examiner



Which deaths do we investigate?

The Michigan Compiled Laws (MCL) 52.202 require the county medical examiner or deputy 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 determine accurately 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 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
- Deaths of persons not under the care of a physician.



In 2024, our office underwent routine NAME site inspection and was accredited for another four-year term! To learn more about NAME standards or NAME-accredited facilities, visit: www.thename.org.

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, hair color, eye 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:

1. Death is known or suspected to have been caused by apparent criminal violence.
2. Death is unexpected and unexplained in an infant or child.
3. Death is associated with police action.
4. Death is apparently non-natural and in custody of a local, state, or federal institution.
5. Death is due to acute workplace injury.
6. Death is caused by apparent electrocution.
7. 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.
8. Death is caused by unwitnessed or suspected drowning.
9. Body is unidentified and the autopsy may aid in identification.
10. Body is skeletonized.
11. Body is charred.
12. Forensic pathologist deems a forensic autopsy is necessary to determine cause or manner of death, or document injuries/disease, or collect evidence.
13. 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 and/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 fear, harm, or death. Intent to cause death is a common element but is not required for 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 of the 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. 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.
- **Release to Funeral Home:** 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, 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 decedent, the unclaimed investigation 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 within 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 used in only special circumstances.
- **Complete Autopsy:** A complete examination includes external and internal examination, with possible 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 the 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 & 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 could be used to address public health and safety issues. Our office participates with the Child Death Review Team in all 13 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 the support of several staff and faculty members from within our team.

With continued funding from MDHHS, our office has established multiple Elder Death Review Teams (EDRTs) throughout the counties that we serve. Currently, there are nine active EDRTs that cover eleven out of the thirteen counties served by WMed. The Elder Death Review Project Coordinator 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.

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. If the decedent did not make prior arrangements to cover the cost of final disposition, our staff members work with the State of Michigan DHHS and area funeral directors to have the decedent cremated. As this process results in an accumulation of unclaimed cremains, WMed partnered with St. Martin of Tours Episcopal Church in Kalamazoo, Michigan in 2019 to honor the decedents and bury their cremains. Each year a memorial service is held, where dedicated WMed staff volunteer to read the decedents' names, dates of birth and death, and place a cross on the cremains, located in small coffins on the grounds of the church. Plaques on the outer wall of the church also display the names of each decedent.

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 cause or exacerbate existing medical conditions causing death.

Important note regarding the data in this report:

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 dead 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.

In April of 2024, the Medical Examiner's Office at WMed began providing services to Osceola County. Given that there are significant limitations to the data we have access to from 2024, this report does not include overall annual statistics for the county. Inclusion of Osceola County annual data will resume in 2025.

Additionally, there are limitations to the data presented in this report. For more specific information regarding decedent demographics and/or case circumstances, formal data inquiry requests can be made by contacting our office via phone or email. Our office continues to work diligently to provide the most accurate information about and to the communities that we serve.

Summary of All Allegan County Cases

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	753	745	788	772	819	974	958	987	867 ¹	916 ²
Deaths Reported to the ME	176	203	188	197	219	291	279	279	225	229
Deaths Investigated	170	192	164	191	199	278	264	272	217	219
MEI Scene Investigations	152	174	158	185	179	250	228	240	194	202
Death Certificates by ME	77	85	76	88	88	120	108	122	107	94
Bodies Transported to WMed	66	62	69	72	69	90	80	100	95	76
Complete Autopsy	32	36	45	41	37	54	51	54	37	32
Limited Autopsy	2	5	2	2	3	6	3	3	8	7
External Examination	18	17	13	24	21	23	19	24	38	27
Storage Only at WMed	14	4	9	5	8	7	7	19	12	10
Total Cases with Toxicology	47	52	54	59	55	79	69	75	60	61
Unidentified Remains After Exam	1	0	0	1	2	0	0	0	1	0
Referrals to Gift of Life	64	63	73	61	55	97	103	138	98	123
Tissue Donations	8	5	6	4	11	9	8	12	9	14
Cornea Donations	7	4	7	4	5	5	2	5	4	9
Unclaimed Investigations	3	1	2	2	8	9	10	10	11	6
Exhumations	0	0	0	0	0	0	0	0	0	0

Cremation Permit Authorizations, Allegan County

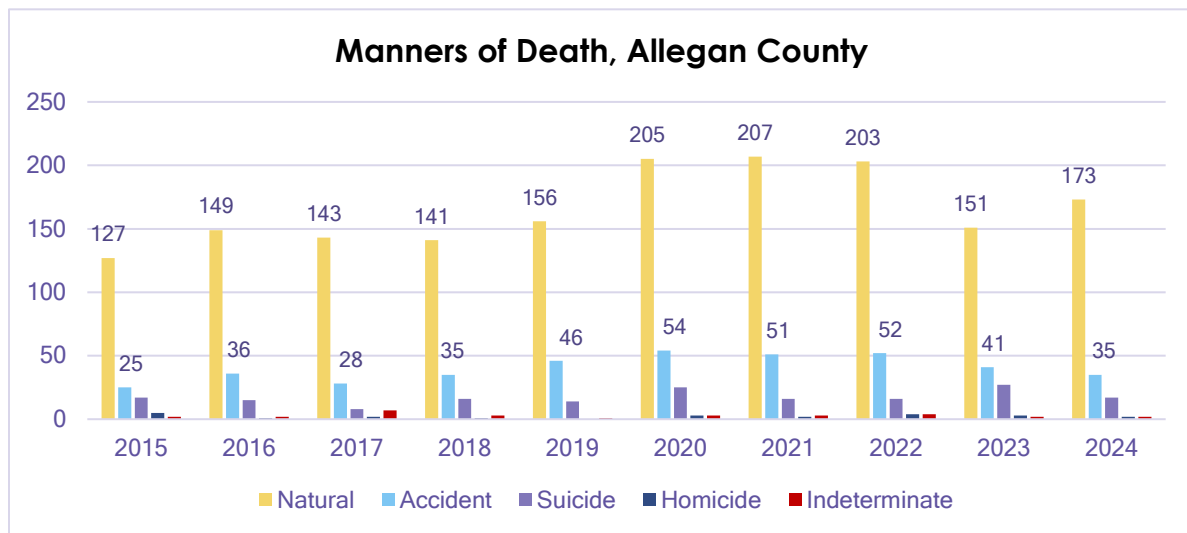
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	404	442	469	487	519	650	644	665	618	659
% of Total Deaths with Cremation	54%	60%	60%	63%	63%	67%	67%	68%	71%	72%

¹ Updated total number of deaths occurring in the county

² Provisional total number of deaths occurring in the county

Manners of Death Reported, Allegan County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Natural	127	149	143	141	156	205	207	203	151	173
Accident	25	36	28	35	46	54	51	52	41	35
Suicide	17	15	8	16	14	25	16	16	27	17
Homicide	5	1	2	1	0	3	2	4	3	2
Indeterminate	2	2	7	3	1	3	3	4	2	2 ³
Total	176	203	188	196	217	290	279	279	224	229



Deaths Reported by Age (in years), Allegan County⁴

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	0	1	1	5	7	15	59	87
2016	0	1	0	0	5	26	58	112
2017	3	1	0	2	3	17	54	106
2018	1	3	0	2	4	29	55	102
2019	1	0	0	0	6	22	57	131
2020	0	0	0	4	7	33	99	147
2021	0	0	0	1	3	30	89	156
2022	1	0	0	0	7	28	78	165
2023	0	0	2	3	8	28	64	119
2024	1	1	0	3	3	23	61	137

³ (1) Declared deceased legally, no body found; (1) Unexpected sudden death associated with unsafe sleep

⁴ 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, Allegan County

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

1. <1 year old
 - a. (1) Unexpected sudden death associated with unsafe sleep; indeterminate
2. 1 – 5 years old
 - a. (1) Influenza A associated with febrile seizures; natural
3. 11 – 17 years old
 - a. (1) Blunt force injuries due to motor vehicle crash, passenger; accident
 - b. (1) Blunt force injuries due to motor vehicle crash, driver; accident
 - c. (1) Blunt force injuries due to intentional fall from height; suicide

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	0	0	0
2024	1	0	1

Accidental Deaths by Mechanism, Allegan County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle	10	9	12	12	9	18	8	18	13	15
Drug-Related	7	11	10	8 ⁵	17	14	13	15	11	5
Drowning	0	1	3	3	1	3	6	0	0	4 ⁶
Fall	5	10	3	10	12	15	21	16	15	7
Fire	0	0	0	0	1	0	2	1	1	0
Environmental Exposure	2	1	0	0	1	2	0	0	0	1
Asphyxia	0	2	0	2	3	2	0	1	1	2 ⁷
Other	1	2	0	0	2	0	1	1	0	1
Total	25	36	28	35	46	54	51	52	41	35

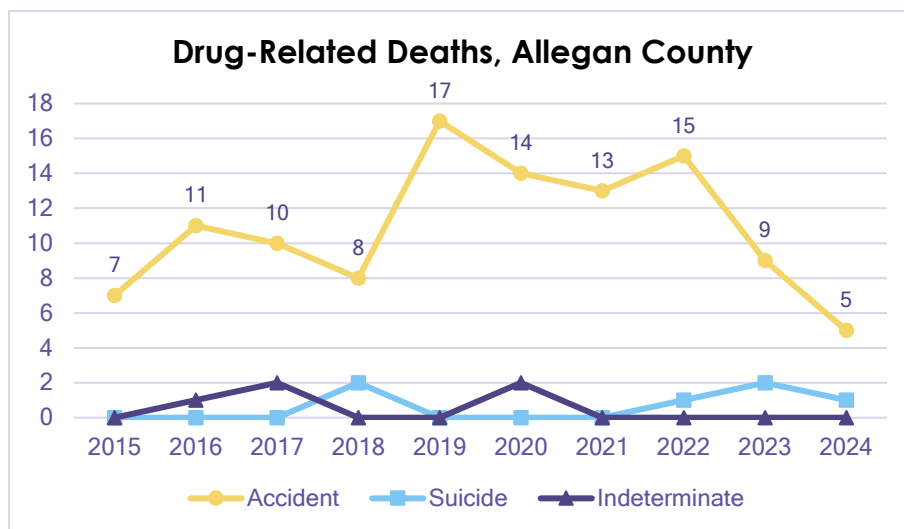
⁵ Updated to remove a previously duplicated categorization

⁶ Includes (1) Drowning associated with acute alcohol intoxication; (1) Drowning associated with mixed drug intoxication; (1) Submerged beneath overturned lawnmower

⁷ Includes (1) Hanging associated with mixed drug intoxication; (1) Positional asphyxia associated with acute alcohol intoxication

Drug-Related Deaths by Manner, Allegan County⁸

	2015	2016	2017	2018 ⁹	2019	2020	2021	2022	2023	2024
Accident	7	11	10	8	17	14	13	15	9	5
Suicide	0	0	0	2	0	0	0	1	2	1
Indeterminate	0	1	2	0	0	2	0	0	0	0
Total	7	12	12	10	17	16	13	16	11	6
Total involving opioid(s)	6	8	6	7	13	11	9	9	6	2



Suicides by Age, Allegan County

	Total	0 – 17	18 – 25	26 – 44	45 – 64	65 +
2015	17	2	4	1	5	5
2016	15	0	3	6	3	3
2017	8	0	2	0	3	3
2018	16	0	0	7	7	2
2019	14	0	3	4	3	4
2020	25	2	1	5	14	3
2021	16	0	1	5	7	3
2022	16	0	2	6	5	3
2023	27	2	2	11	9	3
2024	17	1	0	5	6	5

⁸ Acute alcohol intoxications are considered drug-related deaths and are included in this data

⁹ Data updated following recategorization of case with previously duplicated categorization

Suicides by Mechanism, Allegan County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Firearm	11	10	7	8	6	15	12	8	14	9
Hanging	4	4	0	5	6	7	3	5	10	5
Carbon Monoxide	0	1	1	0	0	1	0	2	0	0
Drug Intoxication	0	0	0	1	0	0	0	1	2	1
Motor Vehicle	0	0	0	1	0	1	0	0	1	0
Sharp Force Trauma	0	0	0	0	1	0	1	0	0	0
Asphyxia/Suffocation	2	0	0	0	0	0	0	0	0	0
Other	0	0	0	1	1	1	0	0	0	2 ¹⁰
Total	17	15	8	16	14	25	16	16	27	17

Homicides by Mechanism, Allegan County

	2024
Firearm	0
Blunt Force Trauma	0
Sharp Force Trauma	2
Motor Vehicle	0
Asphyxia/Suffocation	0
Other	0
Total	2

¹⁰ (1) Intentional drowning; (1) Blunt force injuries due to jump from height

BARRY COUNTY

Summary of All Barry County Cases¹¹

	2015	2016 ¹²	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	416	399	390	399	453	530	442	440 ¹³	465 ¹⁴
Deaths Reported to the ME	125	130	146	121	161	155	135	132	158
Deaths Investigated	118	124	131	108	147	143	123	120	140
MEI Scene Investigations	112	120	128	103	132	135	116	112	129
Death Certificates by ME	53	57	52	54	52	53	64	57	57
Bodies Transported to WMed	43	47	41	38	35	41	55	42	46
Complete Autopsy	35	37	25	28	22	23	32	23	26
Limited Autopsy	1	0	1	2	2	1	1	1	4
External Examination	6	8	12	8	7	13	19	15	14
Storage Only at WMed	1	2	3	0	4	4	3	3	2
Total cases with Toxicology	N/A	N/A	35	37	28	35	44	32	39
Unidentified Remains After Exam	N/A	N/A	0	0	0	0	0	0	0
Referrals to Gift of Life	40	48	44	22	44	54	72	53	68
Tissue Donations ¹⁵	6	17	3	3	2	6	9	2	4
Cornea Donations	N/A	N/A	0	1	1	4	5	3	7
Unclaimed Investigations	1	0	1	0	4	2	4	1	3
Exhumations	N/A	N/A	0	0	0	0	0	0	0

Cremation Permit Authorizations, Barry County

	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	262	251	303	354	293	313	325
% of Total Deaths with Cremation	67%	63%	67%	67%	66%	71%	70%

¹¹ Data for 2017 is not available at the time this report is authored

¹² Data from years 2015-2016 obtained from Sparrow Hospital

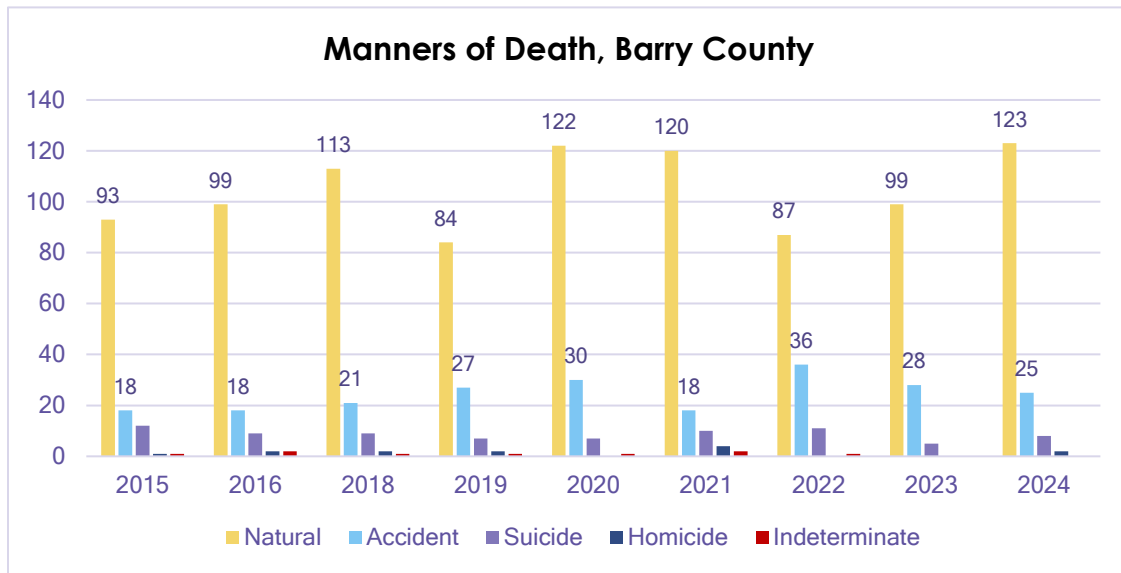
¹³ Updated total number of deaths occurring in the county

¹⁴ Provisional total number of deaths occurring in the county

¹⁵ 2015 and 2016 data include both tissue and cornea donations combined

Manners of Death Reported, Barry County¹⁶

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Natural	93	99	N/A	113	84	122	120	87	99	123
Accident	18	18	N/A	21	27	30	18	36	28	25
Suicide	12	9	N/A	9	7	7	10	11	5	8
Homicide	1	2	N/A	2	2	0	4	0	0	2
Indeterminate	1	2	N/A	1	1	1	2	1	0	0
Total	125	130	N/A	146	121	160	154	135	132	158



Deaths Reported by Age (in years), Barry County¹⁷

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2018	0	0	0	1	0	8	46	89
2019	1	0	0	2	5	12	30	71
2020	3	0	0	0	4	13	42	98
2021	0	0	0	2	3	13	33	103
2022	0	0	1	2	3	17	30	82
2023	0	0	0	1	2	10	36	83
2024	0	0	0	2	7	12	39	98

¹⁶ Data from years 2015-2016 obtained from Sparrow Hospital

¹⁷ 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, Barry County

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

1. 11-17 years old
 - a. (1) Smoke inhalation (residential fire); accident
 - b. (1) Multiple blunt force injuries due to motor vehicle collision, driver; accident

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	0	0	0
2024	0	0	0

Accidental Deaths by Mechanism, Barry County

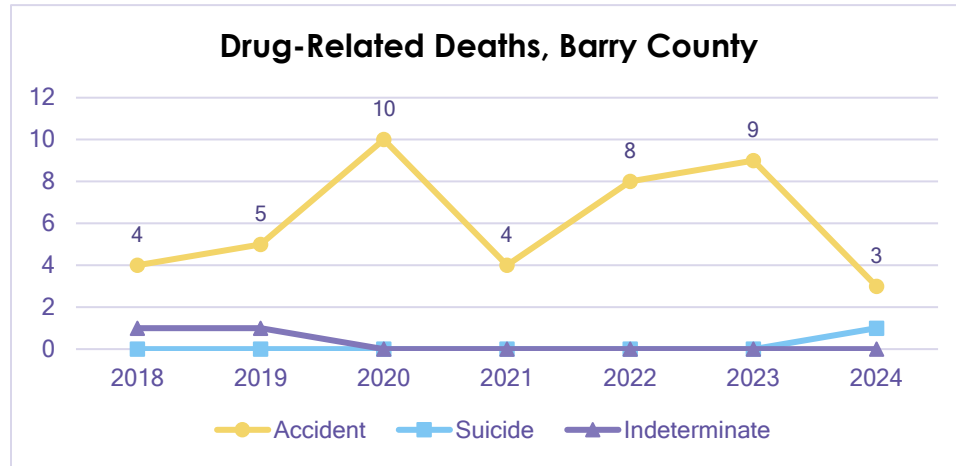
	2018	2019	2020	2021	2022	2023	2024
Vehicle	7	11	6	4	13	7	7
Drug-Related	4	5	10	4	8	9	3
Drowning	0	3	1	2	1	0	0
Fall	8	4	10	7	3	10	12
Fire	0	1	0	0	1	0	1
Environmental Exposure	0	1	0	0	3	0	2 ¹⁸
Asphyxia	1	2	1	0	3	0	0
Other	1	0	2	1	4	2	0
Total	21	27	30	18	36	28	25

Drug-Related Deaths by Manner, Barry County¹⁹

	2018	2019	2020	2021	2022	2023	2024
Accident	4	5	10	4	8	9	3
Suicide	0	0	0	0	0	0	1
Indeterminate	1	1	0	0	0	0	0
Total	5	6	10	4	8	9	4
Total involving opioid(s)	2	4	8	4	7	7	2

¹⁸ Includes (1) Cold exposure associated with acute drug intoxication

¹⁹ Acute alcohol intoxications are considered drug-related deaths and are included in this data



Suicides by Age, Barry County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	12	1	0	7	4	0
2016	9	1	0	1	5	2
2018	9	1	0	1	4	3
2019	7	1	1	0	3	2
2020	7	0	1	2	3	1
2021	10	1	1	1	3	4
2022	11	0	0	6	2	3
2023	5	0	2	1	2	0
2024	8	0	3	1	3	1

Suicides by Mechanism, Barry County

	2015	2016	2018	2019	2020	2021	2022	2023	2024
Firearm	7	7	7	4	4	9	5	3	5
Hanging	3	1	1	3	2	1	3	1	2
Carbon Monoxide	0	0	0	0	1	0	2	1	0
Drug Intoxication	2	1	0	0	0	0	0	0	1
Motor Vehicle	0	0	0	0	0	0	0	0	0
Sharp Force Trauma	0	0	0	0	0	0	1	0	0
Asphyxia/Suffocation	0	0	0	0	0	0	0	0	0
Other	0	0	1	0	0	0	0	0	0
Total	12	9	9	7	7	10	11	5	8

Homicides by Mechanism, Barry County

2024

Firearm	1
Blunt Force Trauma	0
Sharp Force Trauma	0
Motor Vehicle	1
Asphyxia/Suffocation	0
Other	0
Total	2

Summary of All Berrien County Cases

	2019	2020	2021	2022	2023	2024
Total Deaths in the County	1,622	1,873	1,916	1,899	1,700 ²⁰	1,736 ²¹
Deaths Reported to the ME	430	596	604	631	626	610
Deaths Investigated	399	540	548	563	520	525
MEI Scene Investigations	353	461	484	498	466	456
Death Certificates by ME	152	207	215	271	271	233
Bodies Transported to WMed	132	152	159	191	202	172
Complete Autopsy	90	103	116	138	130	105
Limited Autopsy	5	4	3	5	6	5
External Examination	26	25	26	32	49	43
Storage Only at WMed	11	20	14	16	17	19
Total Cases with Toxicology	110	126	134	156	165	137
Unidentified Remains After Exam	1	3	1	1	0	0
Referrals to Gift of Life	80	137	156	182	216	232
Tissue Donations	7	8	7	8	24	15
Cornea Donations	4	7	4	4	12	18
Unclaimed Investigations	10	19	17	18	15	18
Exhumations	1	0	2	0	0	0

Cremation Permit Authorizations, Berrien County

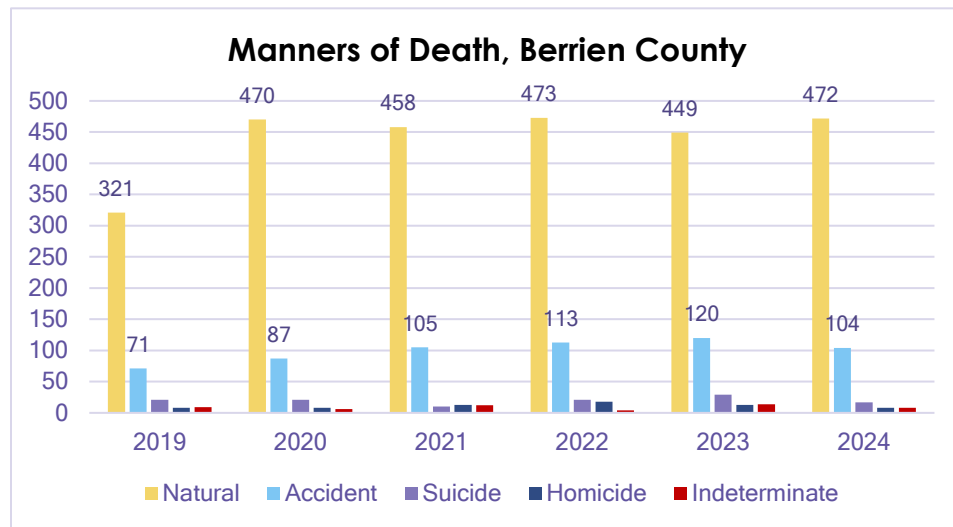
	2019	2020	2021	2022	2023	2024
Cremation Permits	1,045	1,218	1,219	1,263	1,193	1,207
% of Total Deaths with Cremation	64%	65%	64%	67%	70%	70%

²⁰ Updated total number of deaths occurring in the county

²¹ Provisional total number of deaths occurring in the county

Manners of Death Reported, Berrien County

	2019	2020	2021	2022	2023	2024
Natural	321	470	458	473	449	472
Accident	71	87	105	113	120	104
Suicide	21	21	10	21	29	17
Homicide	8	8	13	18	13	8
Indeterminate	9	6	12	4	14	8 ²²
Total	430	592	598	629	625	609²³



Deaths Reported by Age (in years), Berrien County²⁴

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2019	6	1	1	2	6	58	108	246
2020	2	2	0	5	16	55	172	340
2021	5	0	0	4	12	60	152	367
2022	1	2	2	7	14	66	181	356
2023	9	2	1	5	10	66	165	367
2024 ²⁵	6	0	0	2	7	42	154	398

²² (1) Mixed drug intoxication; (2) Sudden unexpected death associated with unsafe sleep; (1) Acute drug intoxication associated with acute infection; (1) Complications of suspected mixed drug intoxication; (1) Found decomposed in residence, cause and manner of death could not be determined; (1) Found decomposed in shed with drug paraphernalia nearby, cause and manner of death could not be determined; (1) Blunt force injuries of unknown etiology, chronic alcohol use and cardiovascular disease

²³ Does not include (1) premature death investigation (patient was expected to die, but transferred out of county prior to death)

²⁴ 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

²⁵ Does not include (1) premature death investigation (patient was expected to die, but transferred out of county prior to death)

Pediatric Deaths, Berrien County

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

1. <1 year old
 - a. (2) Unexpected sudden death associated with unsafe sleep; indeterminate
 - b. (2) Positional asphyxia (unsafe sleep); accident
 - c. (1) Probable asphyxia (unsafe sleep); accident
 - d. (1) Prematurity; natural
2. 11-17 years old
 - a. (1) Drowning; suicide
 - b. (1) Acute drug intoxication associated with acute infection; indeterminate

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	6	0	6
2024	5	0	5

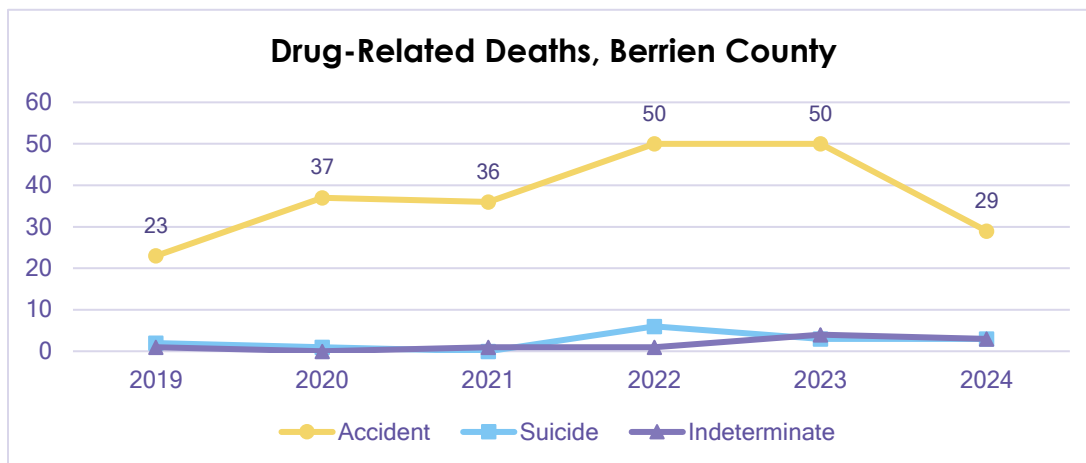
Accidental Deaths by Mechanism, Berrien County

	2019	2020	2021	2022	2023	2024
Vehicle	21	15	24	9	16	18
Drug-Related	23	37	36	50	50	29
Drowning	4	9	3	5	6	3
Fall	12	15	34	39	38	37
Fire	2	2	1	0	4	1
Environmental Exposure	3	4	2	4	1	4
Asphyxia	3	4	3	2	3	8
Other	3	1	2	4	2	4 ²⁶
Total	71	87	105	113	120	104

²⁶ (2) Blunt force trauma, struck by falling tree; (1) Anaphylactic shock, stung by insect(s); (1) Cardiovascular disease associated with obesity and acute carbon monoxide poisoning

Drug-Related Deaths by Manner, Berrien County²⁷

	2019	2020	2021	2022	2023	2024
Accident	23	37	36	50	50	29
Suicide	2	1	0	6	3	3
Indeterminate	1	0	1	1	4	3
Total	26	38	37	57	57	35
Total involving opioid(s)	22	29	28	46	38	22



Suicides by Age, Berrien County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2019	21	1	0	9	4	7
2020	21	1	2	4	8	6
2021	10	1	2	3	0	4
2022	21	1	1	6	10	3
2023	29	3	5	12	6	3
2024	17	1	2	4	6	4

²⁷ Acute alcohol intoxications are considered drug-related deaths and are included in this data

Suicides by Mechanism, Berrien County

	2019	2020	2021	2022	2023	2024
Firearm	16	14	7	7	19	7
Hanging	3	5	3	4	6	3
Carbon Monoxide	0	0	0	0	0	0
Drug Intoxication	2	1	0	6	3	3
Motor Vehicle	0	0	0	1	1	1
Sharp Force Trauma	0	0	0	1	0	1
Asphyxia/Suffocation	0	0	0	0	0	0
Other	0	1	0	2	0	2 ²⁸
Total	21	21	10	21	29	17

Homicides by Mechanism, Berrien County

	2024
Firearm	6
Blunt Force Trauma	1
Sharp Force Trauma	0
Motor Vehicle	0
Asphyxia/Suffocation	0
Other	1 ²⁹
Total	8

²⁸ (2) Drowning

²⁹ (1) Multiple chop wounds associated with blunt force trauma

Summary of All Calhoun County Cases

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	1,378	1,427	1,396	1,495	1,521	1,786	1,799	1,714	1,451 ³⁰	1,432 ³¹
Deaths Reported to the ME	429	411	443	475	508	585	582	544	509	530
Deaths Investigated	392	361	400	415	442	518	534	473	459	482
MEI Scene Investigations	311	307	352	387	381	450	444	408	407	401
Death Certificates by ME	180	186	191	200	176	194	244	225	209	204
Bodies Transported to WMed	164	165	176	170	146	172	188	193	190	173
Complete Autopsy	109	103	102	103	81	112	112	121	106	85
Limited Autopsy	5	4	3	8	8	6	3	3	7	7
External Examination	28	36	46	38	32	27	45	41	38	53
Storage Only at WMed	20	22	25	21	25	27	27	28	39	28
Total Cases with Toxicology	131	113	141	139	112	136	156	145	126	126
Unidentified Remains After Exam	0	0	0	0	0	0	0	0	1	0
Referrals to Gift of Life	115	118	146	107	72	102	135	186	200	198
Tissue Donations	3	11	10	11	6	11	9	13	24	16
Cornea Donations	8	11	8	9	3	5	10	9	15	24
Unclaimed Investigations	8	11	23	24	29	40	32	32	32	29
Exhumations	0	0	0	0	0	0	0	0	0	0

Cremation Permit Authorizations, Calhoun County

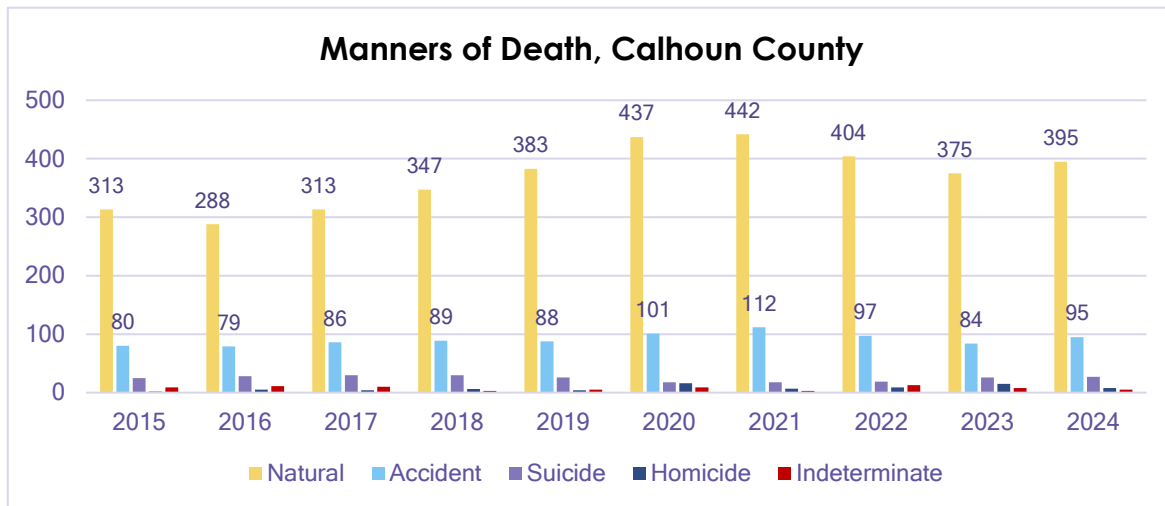
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	742	811	857	901	997	1,176	1,224	1,171	1,074	1,040
% of Total Deaths with Cremation	54%	57%	61%	60%	66%	66%	68%	68%	74%	73%

³⁰ Updated total number of deaths occurring in the county

³¹ Provisional total number of deaths occurring in the county

Manners of Death Reported, Calhoun County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Natural	313	288	313	347	383	437	442	404	375	395
Accident	80	79	86	89	88	101	112	97	84	95
Suicide	25	28	30	30	26	18	18	19	26	27
Homicide	2	5	4	6	4	16	7	9	15	8
Indeterminate	9	11	10	3	5	9	3	13	8	5 ³²
Total	429	411	443	475	506	581	582	542	508	530



Deaths Reported by Age (in years), Calhoun County³³

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	4	0	1	6	11	59	128	215
2016	4	0	2	2	9	53	122	208
2017	3	1	1	1	14	65	140	206
2018	1	0	2	2	9	45	164	241
2019	0	0	1	0	12	53	157	283
2020	6	2	0	0	12	63	184	314
2021	3	0	0	0	10	67	173	329
2022	4	2	1	3	11	50	147	324
2023	3	1	2	1	15	55	135	296
2024	4	0	1	1	13	49	163	299

³² (1) Unexpected sudden death associated with unsafe sleep and possible infection; (1) Unexpected sudden death associated with unsafe sleep; (1) Found unresponsive in possible unsafe sleep situation, cause and manner of death could not be determined; (1) Sudden cardiac death of unknown etiology; (1) Thermal injuries and inhalation of products of combustion, residential fire

³³ 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, Calhoun County

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

1. <1 year old
 - a. (1) Unexpected sudden death associated with unsafe sleep and possible infection; indeterminate
 - b. (1) Unexpected sudden death associated with unsafe sleep; indeterminate
 - c. (1) Cause of death could not be determined (Found unresponsive in possible unsafe sleep situation); indeterminate
 - d. (1) Prematurity; natural
2. 6-10 years old
 - a. (1) Complications of Alagille Syndrome, traumatic brain injury due to fall; accident
3. 11-17 years old
 - a. (1) Sudden cardiac death of unknown etiology; indeterminate

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	3	0	3
2024	3	0	3

Accidental Deaths by Mechanism, Calhoun County

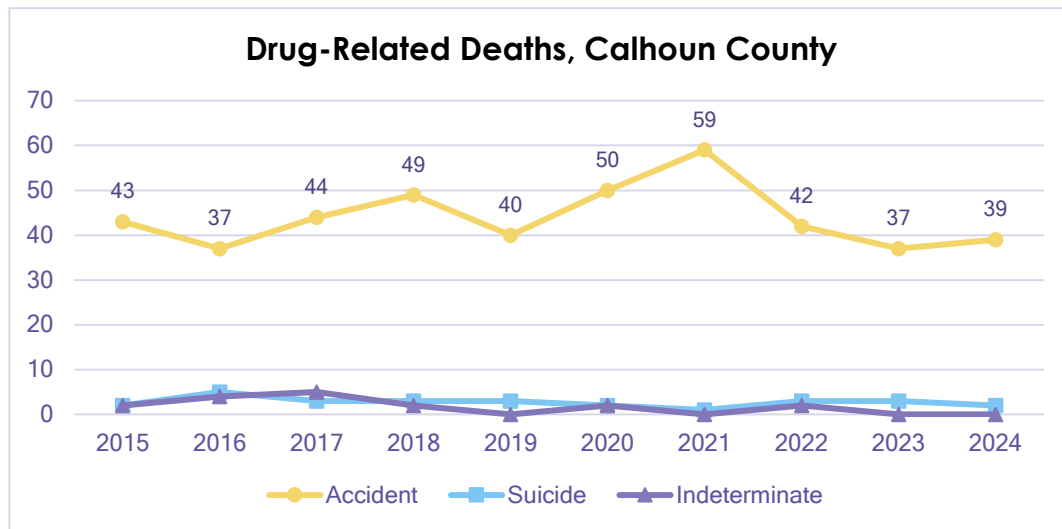
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle	21	20	14	15	15	20	17	23	19	20
Drug-Related	43 ³⁴	38	44	49	40	50	59	42	37	39
Drowning	2	2	3	1	4	2	1	1	1	2
Fall	11	14	19	19	20	19	28	27	18	26
Fire	0	1	0	1	1	0	0	1	1	0
Environmental Exposure	0	0	0	0	3	5	2	1	2	1
Asphyxia	2	2	5	3	2	4	1	2	0	4
Other	1	2	1	1	3	1	4	0	6	3 ³⁵
Total	80	79	86	89	88	101	112	97	84	95

³⁴ Data updated to remove a previously duplicated categorization

³⁵ (1) Electrocution; (1) Head trauma associated with supratherapeutic prescription medication; (1) Carbon monoxide poisoning, occupant of vehicle with exhaust leak

Drug-Related Deaths by Manner, Calhoun County³⁶

	2015 ³⁷	2016	2017	2018	2019	2020	2021	2022	2023	2024
Accident	43	37	44	49	40	50	59	42	37	39
Suicide	2	5	3	3	3	2	1	3	3	2
Homicide	0	0	0	0	0	0	0	0	1	0
Indeterminate	2	4	5	2	0	2	0	2	0	0
Total	47	46	52	54	43	54	60	47	41	41
Total involving opioid(s)	41	40	48	48	36	46	49	38	30	20



Suicides by Age, Calhoun County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	25	2	2	7	7	7
2016	28	1	2	8	12	5
2017	30	0	4	12	7	7
2018	30	1	2	5	15	7
2019	26	0	4	9	9	4
2020	18	0	2	9	7	0
2021	18	0	1	6	5	6
2022	19	1	0	5	7	6
2023	26	0	5	11	3	7
2024	27	0	2	8	11	6

³⁶ Acute alcohol intoxications are considered drug-related deaths and are included in this data

³⁷ Data updated following recategorization of case with previously duplicated categorization

Suicides by Mechanism, Calhoun County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Firearm	14	14	12	17	16	11	11	11	15	15
Hanging	5	6	10	10	5	4	6	5	6	7
Carbon Monoxide	0	2	0	0	0	0	0	0	2	0
Drug Intoxication	2	5	3	3	3	2	1	3	3	2
Motor Vehicle	0	1	2	0	1	1	0	0	0	1
Sharp Force Trauma	0	0	1	0	0	0	0	0	0	0
Asphyxia/Suffocation	2	0	1	0	0	0	0	0	0	1
Other	2	0	1	0	1	0	0	0	0	1 ³⁸
Total	25	28	30	30	26	18	18	19	26	27

Homicides by Mechanism, Calhoun County

	2024
Firearm	6
Blunt Force Trauma	1
Sharp Force Trauma	1
Motor Vehicle	0
Asphyxia/Suffocation	0
Other	0
Total	8

³⁸ (1) Drowning associated with mixed drug intoxication

Summary of All Cass County Cases

	2021 ³⁹	2022	2023	2024
Total Deaths in the County	420	399	373 ⁴⁰	359 ⁴¹
Deaths Reported to the ME	147	157	157	128
Deaths Investigated	143	149	150	124
MEI Scene Investigations	140	140	145	110
Death Certificates by ME	66	75	70	60
Bodies Transported to WMed	46	56	59	53
Complete Autopsy	28	39	35	26
Limited Autopsy	1	2	1	3
External Examination	13	13	16	18
Storage Only at WMed	4	2	7	6
Total Cases with Toxicology	42	50	46	43
Unidentified Remains After Exam	0	0	2	0
Referrals to Gift of Life	56	66	69	54
Tissue Donations	4	7	12	10
Cornea Donations	2	2	6	10
Unclaimed Investigations	4	4	5	1
Exhumations	0	0	0	0

Cremation Permit Authorizations, Cass County

	2021 ⁴²	2022	2023	2024
Cremation Permits	262	266	285	282
% of Total Deaths with Cremation	63%	67%	76%	79%

³⁹ Data provided includes January 1 to December 31, 2021, but WMed served as ME for only February 1 to December 31, 2021

⁴⁰ Updated total number of deaths occurring in the county

⁴¹ Provisional total number of deaths occurring in the county

⁴² Data provided includes February 1 to December 31, 2021

Manners of Death Reported, Cass County

	2021 ⁴³	2022	2023	2024
Natural	105	112	114	95
Accident	30	35	24	26
Suicide	7	7	10	6
Homicide	3	2	1	0
Indeterminate	1	1	6	1 ⁴⁴
Total	146	157	155	128

Deaths Reported by Age (in years), Cass County⁴⁶

	< 1	1 - 5	6 - 10	11 - 17	18 – 25	26 - 44	45 - 64	65 +
2021 ⁴⁵	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
2024	0	0	0	1	5	13	38	71

Pediatric Deaths, Cass County

The one death of an individual under 18 years of age includes:

1. 11-17 years old
 - a. (1) Hanging; suicide

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	2	0	2
2024	0	0	0

⁴³ Data provided includes January 1 to December 31, 2021, but WMed served as ME for only February 1 to December 31, 2021

⁴⁴ (1) Thermal injuries and inhalation of products of combustion, oil tank explosion and subsequent fire

⁴⁵ Data provided includes January 1 to December 31, 2021, but WMed served as ME for only February 1 to December 31, 2021

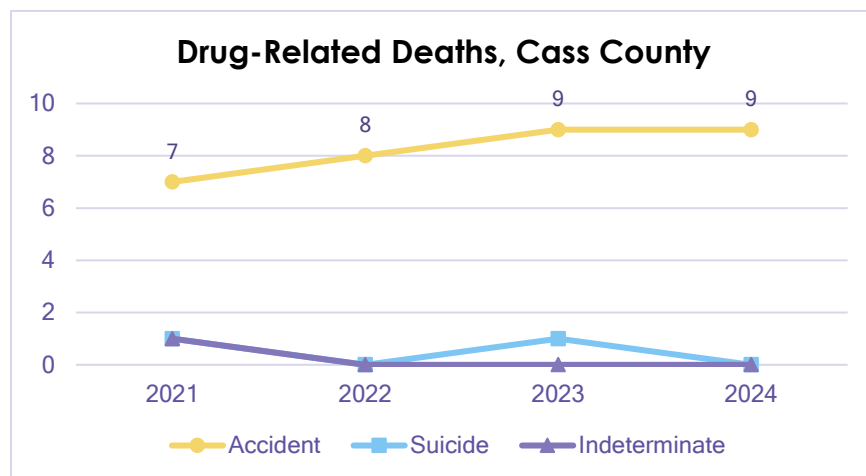
⁴⁶ All stillbirths and spontaneous abortions (miscarriages) investigated but not requiring an examination have been removed from this table for a more accurate representation of deaths reported under the age of one year

Accidental Deaths by Mechanism, Cass County

	2021 ⁴⁷	2022	2023	2024
Vehicle	17	13	8	8
Drug-Related	7	8	9	9
Drowning	0	2	1	2
Fall	1	6	3	4
Fire	3	0	1	0
Environmental Exposure	1	0	1	1
Asphyxia	0	1	1	1 ⁴⁸
Other	1	5	0	1 ⁴⁹
Total	30	35	24	26

Drug-Related Deaths by Manner, Cass County⁵⁰

	2021 ⁵¹	2022	2023	2024
Accident	7	8	9	9
Suicide	1	0	1	0
Indeterminate	1	0	0	0
Total	9	8	10	9
Total involving opioid(s)	8	6	8	2



⁴⁷ Data provided includes January 1 to December 31, 2021, but WMed served as ME for only February 1 to December 31, 2021

⁴⁸ (1) Mixed drug intoxication associated with positional asphyxia

⁴⁹ (1) Complications of remote head trauma

⁵⁰ Acute alcohol intoxications are considered drug-related deaths and are included in this data

⁵¹ Data provided includes January 1 to December 31, 2021, but WMed served as ME for only February 1 to December 31, 2021

Suicides by Age, Cass County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2021 ⁵²	7	0	0	3	2	2
2022	7	1	0	2	2	3
2023	10	0	1	2	6	1
2024	6	1	0	0	2	3

Suicides by Mechanism, Cass County

	2021 ⁵³	2022	2023	2024
Firearm	4	6	5	2
Hanging	1	1	1	4
Carbon Monoxide	0	0	0	0
Drug Intoxication	1	0	1	0
Motor Vehicle	0	0	1	0
Sharp Force Trauma	1	0	0	0
Asphyxia/Suffocation	0	0	0	0
Other	0	0	2	0
Total	7	7	10	6

⁵² Data provided includes January 1 to December 31, 2021, but WMed served as ME for only February 1 to December 31, 2021

⁵³ Data provided includes January 1 to December 31, 2021, but WMed served as ME for only February 1 to December 31, 2021

Summary of All Grand Traverse County Cases

	2017	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	1,306	1,413	1,345	1,572	1,782	1,669	1,620 ⁵⁴	1,598 ⁵⁵
Deaths Reported to the ME	380	350	384	495	579	532	515	461
Deaths Investigated	249	252	278	375	396	397	411	380
MEI Scene Investigations	122	206	212	211	246	247	308	231
Death Certificates by ME	153	126	131	158	159	179	228	182
Bodies Transported to WMed	77	58	65	69	80	80	114	89
Complete Autopsy	56	45	52	53	60	54	75	58
Limited Autopsy	2	0	2	3	2	6	7	2
External Examination	19	13	12	13	17	20	31	28
Storage Only at WMed	0	0	0	0	1	0	1	1
Total Cases with Toxicology	73	53	61	64	75	77	93	72
Unidentified Remains After Exam	1	2	0	1	0	0	0	2 ⁵⁶
Referrals to Gift of Life	44	37	43	49	75	99	92	82
Tissue Donations	4	3	1	7	4	2	5	2
Cornea Donations	4	2	0	2	0	2	0	35
Unclaimed Investigations	5	7	10	12	13	9	11	12
Exhumations	0	0	0	0	0	0	0	0

Cremation Permit Authorizations, Grand Traverse County

	2017	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	1,005	1,108	1,077	1,283	1,426	1,370	1,379	1,355
% of Total Deaths with Cremation	76%	78%	80%	82%	80%	82%	85%	85%

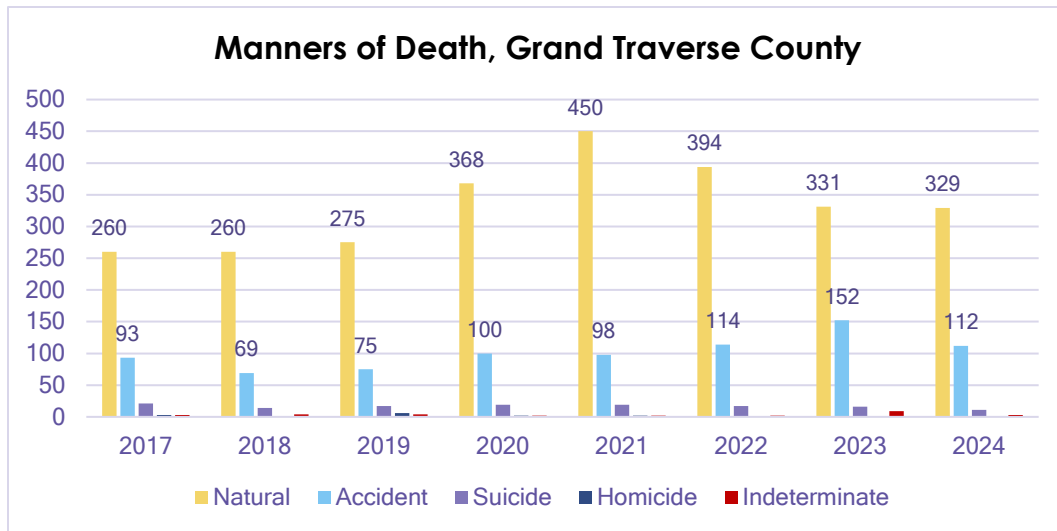
⁵⁴ Updated total number of deaths occurring in the county

⁵⁵ Provisional total number of deaths occurring in the county

⁵⁶ (2) Unidentified skeletal remains (likely historic) unearthed during road construction (same location, 2 different dates of excavation, minimum number of individuals: 3)

Manners of Death Reported, Grand Traverse County

	2017	2018	2019	2020	2021	2022	2023	2024
Natural	260	260	275	368	450	394	331	329
Accident	93	69	75	100	98	114	152	111
Suicide	21	14	17	19	19	17	16	11
Homicide	3	1	6	2	2	0	1	1
Indeterminate	3	4	4	2	2	2	9	3 ⁵⁷
Total	380	348	377	491	571	528	509	456⁵⁸



Deaths Reported by Age (in years), Grand Traverse County⁵⁹

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2017	0	0	0	0	7	32	94	229
2018	5	0	0	2	7	22	85	216
2019	4	0	0	4	3	34	94	238
2020	7	0	0	1	10	37	122	314
2021	0	2	0	3	6	45	115	400
2022	7	0	0	0	8	42	115	355
2023	3	1	1	1	7	52	126	318
2024	0	2	2	1	9	39	83	318

⁵⁷ (1) Blunt force head trauma of unknown etiology, possible fall while intoxicated; (1) Thermal injuries and inhalation of products of combustion, structural fire; (1) Blunt force injuries, fall down stairs

⁵⁸ Does not include (4) stillbirth investigations; (2) Unidentified skeletal remains (likely historic) unearthed during road construction (same location, 2 different dates of excavation, minimum number of individuals: 3)

⁵⁹ 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, Grand Traverse County

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

1. 1 – 5 years old
 - a. (1) Complications of streptococcus pneumoniae septicemia associated with hydrocephalus and cerebral palsy; natural
 - b. (1) Multiple blunt force injuries, pedestrian versus motor vehicle; accident
2. 6 – 10 years old
 - a. (1) Multiple blunt force injuries, pedestrian versus motor vehicle; accident
 - b. (1) Sudden death in epilepsy; natural
3. 11 – 17 years old
 - a. (1) Multiple blunt force injuries, restrained backseat passenger in motor vehicle collision; accident

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	1	0	1
2024	0	0	0

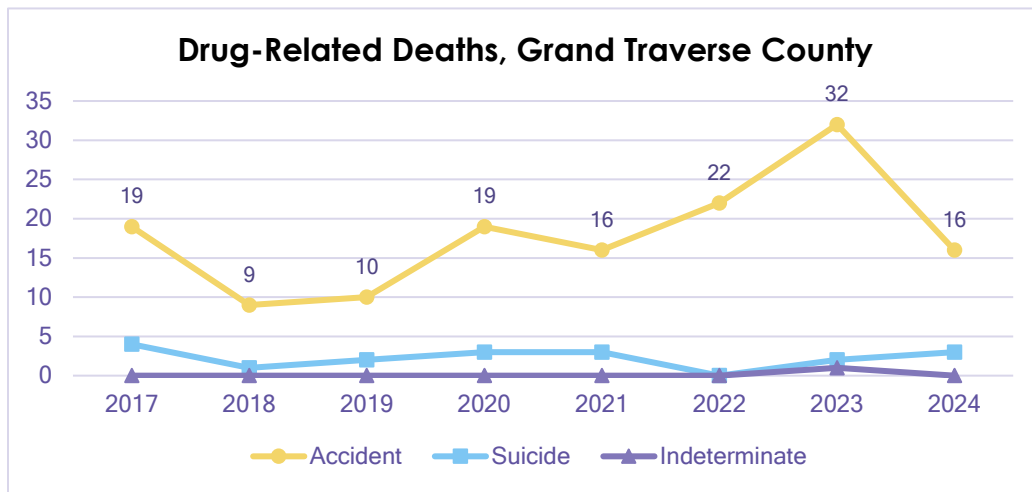
Accidental Deaths by Mechanism, Grand Traverse County

	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle	23	15	22	18	23	24	43	25
Drug-Related	19	9	10	19	16	22	32	16
Drowning	2	2	2	6	3	2	3	4
Fall	44	35	34	47	46	52	65	60
Fire	2	1	1	1	1	1	0	0
Environmental Exposure	0	1	0	4	2	4	1	0
Asphyxia	1	3	4	3	3	4	5	3
Other	2	3	2	2	4	5	3	3 ⁶⁰
Total	93	69	75	100	98	114	152	111

⁶⁰ (1) Blunt force injuries, struck by cattle; (1) Complications of insect bite; (1) Blunt force injuries, struck tree while sledding

Drug-Related Deaths by Manner, Grand Traverse County⁶¹

	2017	2018	2019	2020	2021	2022	2023	2024
Accident	19	9	10	19	16	22	32	16
Suicide	4	1	2	3	3	0	2	3
Indeterminate	0	0	0	0	0	0	1	0
Total	23	10	12	22	19	22	35	19
Total involving opioid(s)	18	8	8	15	16	20	22	8



Suicides by Age, Grand Traverse County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2017	21	0	3	3	9	6
2018	14	2	1	6	5	0
2019	17	3	0	9	3	2
2020	19	0	3	8	7	1
2021	19	2	1	5	4	7
2022	17	0	2	8	3	4
2023	16	0	1	5	6	4
2024	11	0	2	3	2	4

⁶¹ Acute alcohol intoxications are considered drug-related deaths and are included in this data

Suicides by Mechanism, Grand Traverse County

	2017	2018	2019	2020	2021	2022	2023	2024
Firearm	11	5	9	7	7	9	6	4
Hanging	4	5	4	5	6	6	6	0
Carbon Monoxide	0	0	1	0	2	0	1	1
Drug Intoxication	4	1	2	3	3	0	2	3 ⁶²
Motor Vehicle	1	1	0	1	0	0	0	0
Sharp Force Trauma	1	1	0	3	0	1	0	2
Asphyxia/Suffocation	0	0	0	0	0	0	0	0
Other	0	1	1	0	1	1	1	1 ⁶³
Total	21	14	17	19	19	17	16	11

Homicides by Mechanism, Grand Traverse County

	2024
Firearm	0
Blunt Force Trauma	1
Sharp Force Trauma	0
Motor Vehicle	0
Asphyxia/Suffocation	0
Other	0
Total	1

⁶² Includes (1) Ingestion of household cleaning solution

⁶³ (1) Multiple injuries, jump from height

Summary of All Kalamazoo County Cases

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	2,733	2,879	2,840	2,977	2,921	3,446	3,587	3,261	3,260 ⁶⁴	3,176 ⁶⁵
Deaths Reported to the ME	810	975	991	1,068	1,060	1,242	1,283	1,132	1,083	1,086
Deaths Investigated	646	745	733	782	781	931	1,002	893	850	880
MEI Scene Investigations	434	560	627	677	650	746	821	780	751	741
Death Certificates by ME	306	390	406	405	401	449	496	499	475	450
Bodies Transported to WMed	247	318	307	330	290	302	366	347	361	343
Complete Autopsy	142	192	189	187	180	188	222	201	193	173
Limited Autopsy	7	7	4	9	7	6	5	15	14	17
External Examination	52	60	64	68	62	60	82	82	100	86
Storage Only at WMed	46	59	50	62	41	44	55	49	54	67
Total Cases with Toxicology	174	222	238	238	224	236	292	265	261	241
Unidentified Remains After Exam	0	0	0	1	0	1	0	0	0	1 ⁶⁶
Referrals to Gift of Life	113	161	156	129	136	161	226	311	267	302
Tissue Donations	9	22	16	16	17	17	19	20	23	25
Cornea Donations	9	20	10	7	7	10	12	9	15	42
Unclaimed Investigations	10	10	13	41	40	48	51	67	39	63
Exhumations	0	1	0	0	0	0	0	0	0	0

Cremation Permit Authorizations, Kalamazoo County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	1,672	1,856	1,920	2,101	2,028	2,492	2,594	2,436	2,458	2,449
% of Total Deaths with Cremation	61%	64%	68%	71%	70%	72%	72%	75%	75%	77%

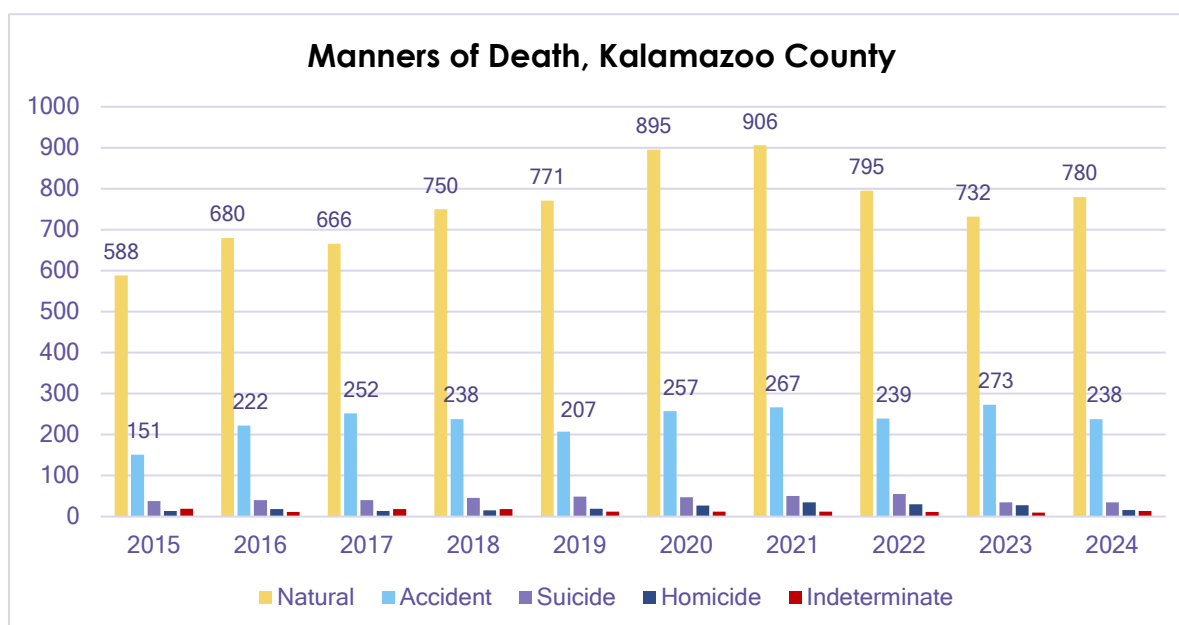
⁶⁴ Updated total number of deaths occurring in the county

⁶⁵ Provisional total number of deaths occurring in the county

⁶⁶ (1) Historic skeletal remains unearthed during construction

Manners of Death Reported, Kalamazoo County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Natural	588	680	666	750	771	895	906	795	732	780
Accident	151	222	252	238	207	257	267	239	273	238
Suicide	38	40	40	46	49	47	50	55	35	35
Homicide	14	18	14	15	19	27	35	30	28	16
Indeterminate	19	11	18	17	12	12	12	11	10	14 ⁶⁷
Total	810	971	990	1,066	1,058	1,238	1,270	1,130	1,078	1,083⁶⁸



Deaths Reported by Age (in years), Kalamazoo County⁶⁹

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	14	5	3	7	21	82	220	441
2016	5	5	3	12	37	95	269	494
2017	15	6	3	10	35	103	259	513
2018	13	5	1	9	23	97	297	571
2019	6	6	3	5	37	98	293	610

⁶⁷ (1) Sudden unexpected death associated with unsafe sleep and infection; (1) Sudden unexpected death associated with unsafe sleep; (1) Sudden unexpected death associated with unsafe sleep, prematurity, infection and congenital abnormality; (2) Found unresponsive, cause and manner of death could not be determined (infant death associated with potential unsafe sleep/infection); (1) Septicemia associated with remote anoxic brain injury; (1) Found unresponsive, cause and manner of death could not be determined; (1) Found dead in water, cause and manner of death could not be determined; (1) Smoke inhalation and thermal injuries due to structure fire; (1) Found dead in advanced state of decomposition, cause and manner of death could not be determined; (1) Bilateral pneumonia in individual with epilepsy of unknown etiology; (1) Malnutrition; (1) Multiple blunt force injuries, found in road, possibly struck by motor vehicle; (1) Failure to thrive associated with traumatic brain injury history and Parkinsonism

⁶⁸ Does not include (2) stillbirth investigations; (1) Unidentified, historical skeletal remains

⁶⁹ 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

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2020	11	4	4	9	28	130	343	709
2021	5	5	1	5	36	153	371	696
2022	8	4	4	8	25	130	279	672
2023	4	9	3	8	32	121	274	628
2024	5	3	4	12	22	99	231	707

Pediatric Deaths, Kalamazoo County

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

1. <1 year old
 - a. (1) Unexpected sudden death associated with unsafe sleep, COVID-19, rhinovirus/enterovirus; indeterminate
 - b. (1) Unexpected sudden death associated with unsafe sleep; indeterminate
 - c. (1) Unexpected sudden death associated with unsafe sleep, prematurity, rhinovirus/enterovirus, congenital cardiac abnormality; indeterminate
 - d. (1) Found unresponsive, cause and manner of death could not be terminated (unexpected sudden death associated with potential unsafe sleep, rhinovirus/enterovirus); indeterminate
 - e. (1) Acute viral hepatitis; natural
2. 1-5 years old
 - a. (1) Klebsiella pneumoniae septicemia; indeterminate
 - b. (1) Exogenous hyperthermia; accident
 - c. (1) Mechanical asphyxia; accident
3. 6-10 years old
 - a. (1) Sepsis due to Streptococcus pyogenes bronchopneumonia associated with viral upper respiratory infection; natural
 - b. (1) Complications of neurofibromatosis type 1; natural
 - c. (1) Drowning (lake); accident
 - d. (1) Blunt force injuries, bicyclist versus motor vehicle; accident
4. 11-17 years old
 - a. (1) Hanging; suicide
 - b. (1) Multiple gunshot wounds; homicide
 - c. (1) Mixed drug intoxication; accident
 - d. (1) Mixed drug intoxication; suicide
 - e. (1) Craniocerebral trauma, struck in head by foreign body; accident
 - f. (1) Drowning (lake); accident
 - g. (1) Multiple blunt force injuries, operator of all-terrain vehicle versus motor vehicle; accident
 - h. (1) Gunshot wound of head; suicide
 - i. (1) Acute hemorrhagic pancreatitis associated with T-cell acute lymphoblastic leukemia; natural
 - j. (1) Gunshot wound of torso; homicide
 - k. (1) Complications of diabetes mellitus type 1; natural
 - l. (1) Complications of neuromuscular scoliosis; natural

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	3	0	3
2024	5	0	5

Accidental Deaths by Mechanism, Kalamazoo County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle	46	58	72	51	45	40	74	52	62	41 ⁷⁰
Drug-Related	33	72	61	63	47	69	84	62	86	60
Drowning	1	4	7	8 ⁷¹	5	5	0	2	4	3
Fall	57	80	92	100	85	123	86	106	102	112
Fire	3	4	5	4	5	6	4	1	6	9
Environmental Exposure	1	1	2	3	5	5	2	5	1	4
Asphyxia	7	3	6	6	12	6	7	3	9	4 ⁷²
Other	3	1	7	3	3	3	10	8	3	5 ⁷³
Total	151	223	252	238	207	257	267	239	273	238

Drug-Related Deaths by Manner, Kalamazoo County⁷⁴

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Accident	33	72	61	63	47	69	84	62	86	60
Suicide	8	3	12	5	11	4	6	8	3	6
Homicide	0	0	1	0	0	0	0	0	0	0
Indeterminate	3	5	5	7	3	1	2	3	1	0
Total	44	80	79	75	61	74	92	73	90	66
Total involving opioid(s)	30	64	59	51	32	56	63	43	67	32

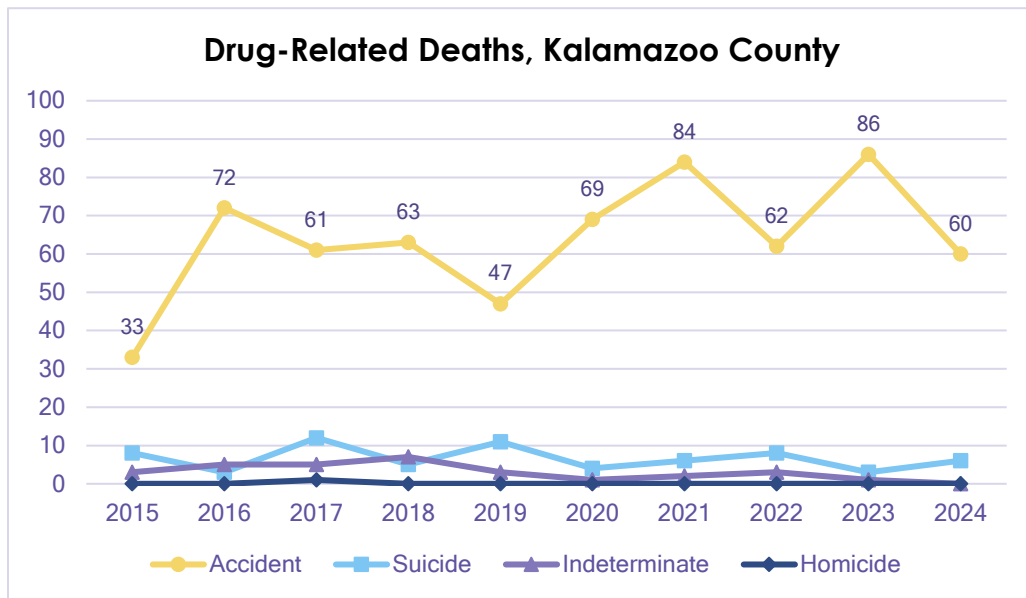
⁷⁰ Includes (1) blunt force head trauma due to fall out of the back of a moving motor vehicle; (1) Blunt force injuries due to boat collision

⁷¹ Updated to remove a previously duplicated categorization

⁷² Includes (1) Positional asphyxia associated with acute on chronic alcohol use

⁷³ (1) Anaphylaxis due to contrast dye administration; (1) Carbon monoxide poisoning associated with recent illicit drug use; (1) Craniocerebral trauma, struck by foreign body; (1) Multiple blunt force injuries associated with possible mechanical asphyxia (vehicle fell from jack onto individual); (1) Blunt force head trauma, struck by falling tree branch

⁷⁴ Acute alcohol intoxications are considered drug-related deaths and are included in this data



Suicides by Age, Kalamazoo County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	38	3	6	8	14	7
2016	40	3	7	13	12	5
2017	40	1	3	14	14	8
2018	46	2	9	11	11	13
2019	49	3	13	14	13	6
2020	47	3	5	15	19	5
2021	50	1	8	20	17	4
2022	55	2	5	17	21	10
2023	35	0	4	13	13	5
2024	35	3	5	12	6	9

Suicides by Mechanism, Kalamazoo County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Firearm	19	19	14	26	22	21	22	30	16	18
Hanging	9	13	12	13	12	21	17	12	13	7
Carbon Monoxide	1	2	0	0	0	1	0	0	0	9
Drug Intoxication	8	3	12	5	11	4	6	8	3	6 ⁷⁵
Motor Vehicle	1	0	0	0	2	0	2	1	1	1
Sharp Force Trauma	0	2	2	0	0	0	1	2	0	0
Asphyxia/Suffocation	0	0	0	1	1	0	0	1	0	0
Other	0	1	0	1	1	0	2	1	2	3 ⁷⁶
Total	38	40	40	46	49	47	50	55	35	35

Homicides by Mechanism, Kalamazoo County

	2024
Firearm	12
Blunt Force Trauma	2
Sharp Force Trauma	2
Motor Vehicle	0
Asphyxia/Suffocation	0
Other	0
Total	16

⁷⁵ Includes (1) Mixed drug intoxication associated with possible self-inflicted suffocation

⁷⁶ (1) Self-immolation; (a) Blunt force injuries sustained in fall from height; (1) Blunt force injuries sustained in fall down stairs

Summary of All Leelanau County Cases

	2017	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	148	175	145	187	213	204	187 ⁷⁷	202 ⁷⁸
Deaths Reported to the ME	39	46	33	45	61	56	38	42
Deaths Investigated	36	45	33	44	60	55	38	42
MEI Scene Investigations	24	41	28	31	43	37	28	28
Death Certificates by ME	21	15	13	11	24	25	12	13
Bodies Transported to WMed	10	9	8	7	12	16	9	7
Complete Autopsy	9	7	6	1	9	11	1	1
Limited Autopsy	1	0	0	0	0	0	1	0
External Examination	0	2	2	6	3	5	7	6
Storage Only	0	0	0	0	0	0	0	0
Total Cases with Toxicology	10	8	8	6	11	15	6	7
Unidentified Remains After Exam	0	0	0	0	0	0	0	0
Referrals to Gift of Life	6	8	6	7	14	21	13	12
Tissue Donations	0	1	1	1	1	2	0	1
Cornea Donations	0	0	0	0	0	1	0	0
Unclaimed Investigations	0	0	0	0	0	0	2	1
Exhumations	0	0	0	0	0	0	0	0

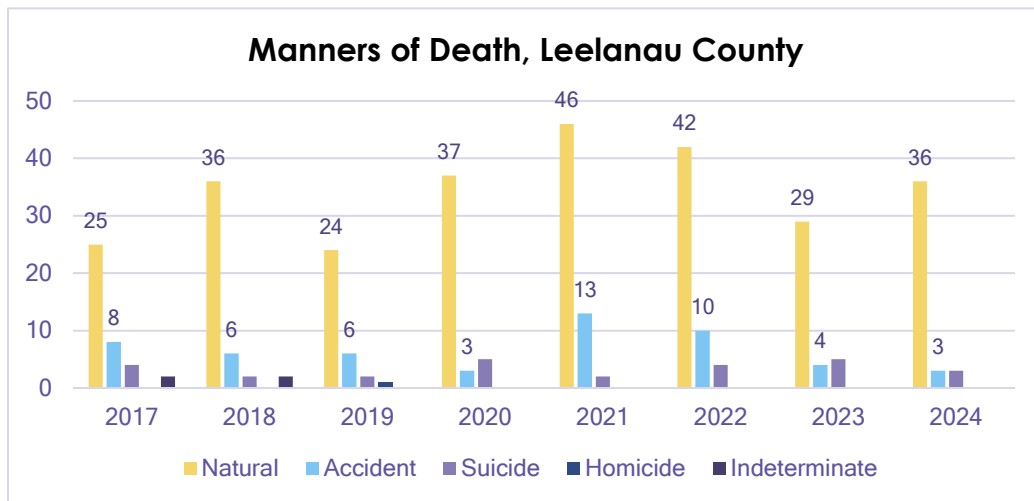
Cremation Permit Authorizations, Leelanau County

	2017	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	105	130	102	132	164	141	163	172
% of Total Deaths with Cremation	71%	74%	70%	71%	77%	69%	87%	85%

⁷⁷ Updated total number of deaths occurring in the county⁷⁸ Provisional total number of deaths occurring in the county

Manners of Death Reported, Leelanau County

	2017	2018	2019	2020	2021	2022	2023	2024
Natural	25	36	24	37	46	42	29	36
Accident	8	6	6	3	13	10	4	3
Suicide	4	2	2	5	2	4	5	3
Homicide	0	0	1	0	0	0	0	0
Indeterminate	2	2	0	0	0	0	0	0
Total	39	46	33	45	61	56	38	42



Deaths Reported by Age (in years), Leelanau County⁷⁹

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2017	0	0	0	1	3	3	7	25
2018	0	0	1	0	1	3	7	34
2019	0	0	0	0	1	2	5	25
2020	0	0	0	0	0	2	10	33
2021	0	1	0	1	1	7	11	40
2022	0	0	0	0	0	5	12	39
2023	0	0	0	0	0	2	11	25
2024	0	0	0	0	1	3	10	28

⁷⁹ 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, Leelanau County

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	0	0	0
2024	0	0	0

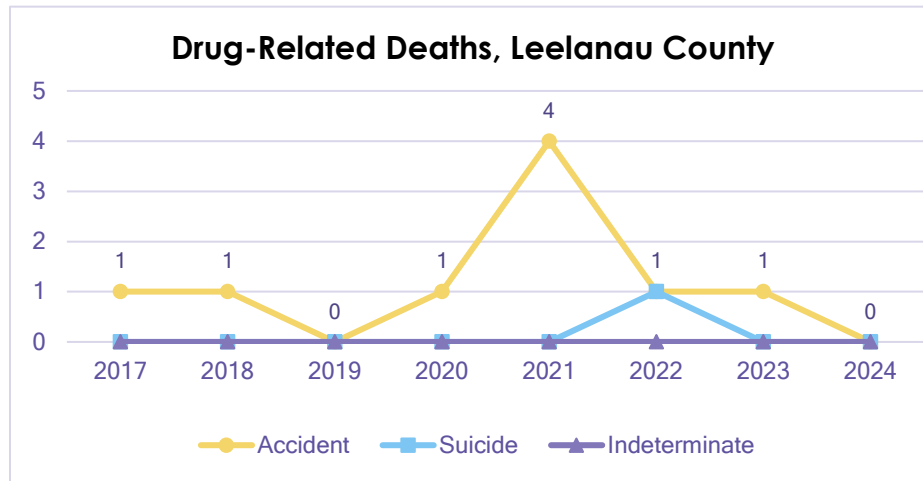
Accidental Deaths by Mechanism, Leelanau County

	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle	2	1	3	1	1	4	0	0
Drug-Related	1	1	0	1	4	1	1	0
Drowning	0	2	2	0	1	1	2	1
Fall	0	1	1	0	5	2	0	2
Fire	0	0	0	0	0	0	0	0
Environmental Exposure	0	0	0	0	1	2	0	0
Asphyxia	0	1	0	1	0	0	1	0
Other	1	0	0	0	1	0	0	0
Total	4	6	6	3	13	10	4	3

Drug-Related Deaths by Manner, Leelanau County⁸⁰

	2017	2018	2019	2020	2021	2022	2023	2024
Accident	1	1	0	1	4	1	1	0
Suicide	0	0	0	0	0	1	0	0
Indeterminate	0	0	0	0	0	0	0	0
Total	1	1	0	1	4	2	1	0
Total involving opioid(s)	1	0	0	1	3	2	0	0

⁸⁰ Acute alcohol intoxications are considered drug-related deaths and are included in this data



Suicides by Age, Leelanau County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2017	4	1	0	0	1	2
2018	2	0	0	0	0	2
2019	2	0	0	1	1	0
2020	5	0	0	1	1	3
2021	2	1	0	1	0	0
2022	4	0	0	1	2	1
2023	5	0	0	1	1	3
2024	3	0	1	1	1	0

Suicides by Mechanism, Leelanau County

	2017	2018	2019	2020	2021	2022	2023	2024
Firearm	2	2	2	3	0	1	3	0
Hanging	1	0	0	2	2	1	2	3
Carbon Monoxide	0	0	0	0	0	0	0	0
Drug Intoxication	0	0	0	0	0	1	0	0
Motor Vehicle	0	0	0	0	0	0	0	0
Sharp Force Trauma	0	0	0	0	0	0	0	0
Asphyxia/Suffocation	0	0	0	0	0	0	0	0
Other	1	0	0	0	0	1	0	0
Total	4	2	2	5	2	4	5	3

Summary of All Mason County Cases

	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	311	287	344	373	345	308 ⁸¹	293 ⁸²
Deaths Reported to the ME	107	110	111	139	115	105	90
Deaths Investigated	92	93	97	124	98	96	84
MEI Scene Investigations	88	84	83	111	88	93	71
Death Certificates by ME	53	52	34	44	39	46	40
Bodies Transported to WMed	37	34	22	32	25	35	32
Complete Autopsy	29	25	12	20	15	22	17
Limited Autopsy	0	0	3	1	0	2	2
External Examination	6	7	7	7	10	11	12
Storage Only	2	2	0	4	0	0	1
Total cases with Toxicology	32	31	21	28	22	32	29
Unidentified Remains After Exam	0	0	1	0	0	0	0
Referrals to Gift of Life	16	10	19	26	26	50	33
Tissue Donations	3	2	0	2	2	3	0
Cornea Donations	0	1	0	1	1	1	0
Unclaimed Investigations	1	0	0	6	1	0	3
Exhumations	0	0	0	0	0	0	0

Cremation Permit Authorizations, Mason County

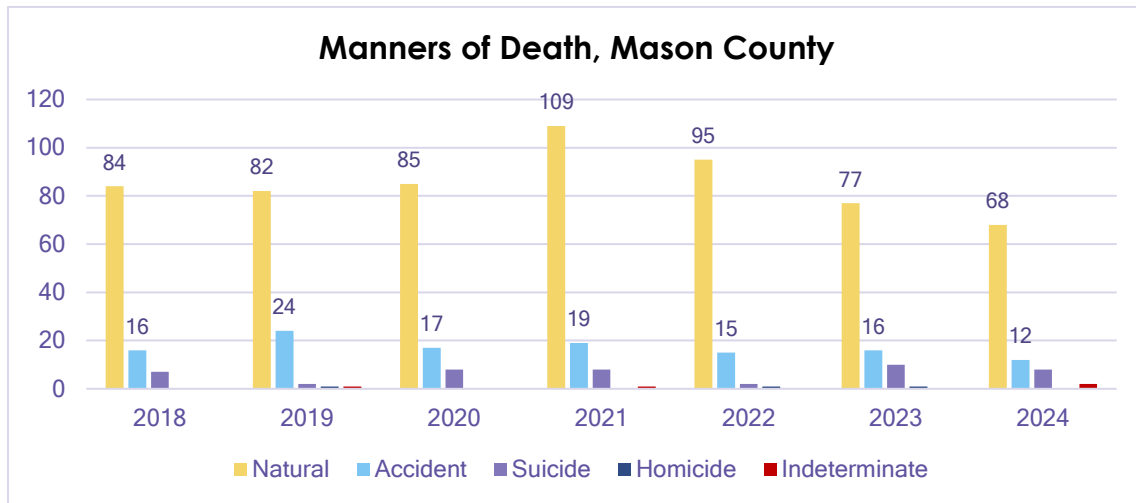
	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	231	224	288	300	255	264	244
% of Total Deaths with Cremation	74%	78%	84%	80%	74%	86%	83%

⁸¹ Updated total number of deaths occurring in the county

⁸² Provisional total number of deaths occurring in the county

Manners of Death Reported, Mason County

	2018	2019	2020	2021	2022	2023	2024
Natural	84	82	85	109	95	77	68
Accident	16	24	17	19	15	16	12
Suicide	7	2	8	8	2	10	8
Homicide	0	1	0	0	1	1	0
Indeterminate	0	1	0	1	0	0	2 ⁸³
Total	107	110	110	137	113	104	90



Deaths Reported by Age (in years), Mason County⁸⁴

	<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
2024	0	0	0	0	0	10	28	52

⁸³ (1) Found dead in bed, cause and manner of death could not be determined; (1) Cardiovascular disease, found submerged, could not rule out drowning

⁸⁴ 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, Mason County

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	0	0	0
2024	0	0	0

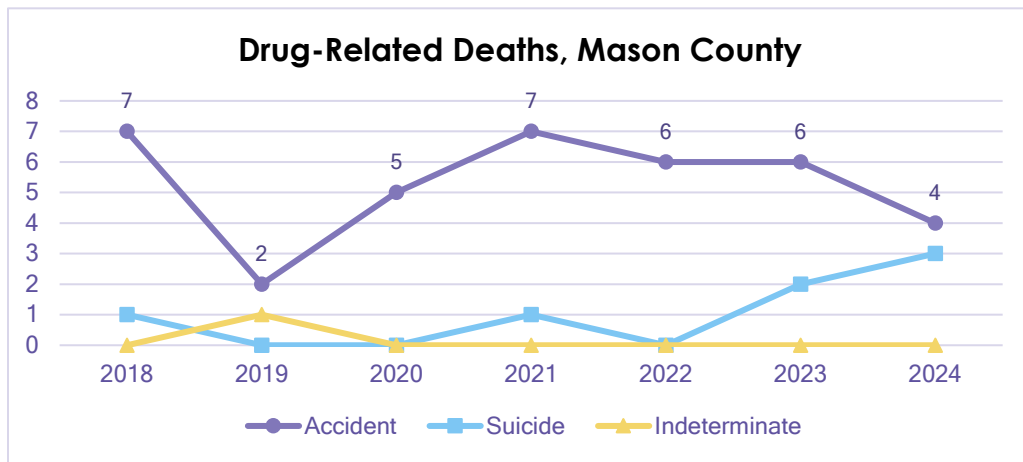
Accidental Deaths by Mechanism, Mason County

	2018	2019	2020	2021	2022	2023	2024
Vehicle	5	6	4	5	8	3	4
Drug-Related	6	2	5	7	6	6	4
Drowning	1	7	2	2	0	1	1
Fall	3	6	4	4	1	2	2
Fire	0	0	0	0	0	0	1
Environmental Exposure	0	3	0	0	0	0	0
Asphyxia	0	0	1	1	0	0	0
Other	0	0	1	0	0	4	0
Total	16	24	17	19	15	16	12

Drug-Related Deaths by Manner, Mason County⁸⁵

	2018	2019	2020	2021	2022	2023	2024
Accident	7	2	5	7	6	6	4
Suicide	1	0	0	1	0	2	3
Indeterminate	0	1	0	0	0	0	0
Total	8	3	5	8	6	8	7
Total involving opioid(s)	4	1	5	7	4	7	4

⁸⁵ Acute alcohol intoxications are considered drug-related deaths and are included in this data



Suicides by Age, Mason County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2018	7	1	0	3	3	0
2019	2	0	1	1	0	0
2020	8	0	0	2	4	2
2021	8	1	0	3	4	0
2022	2	0	0	2	0	0
2023	10	0	2	3	2	3
2024	8	0	0	3	5	0

Suicides by Mechanism, Mason County

	2018	2019	2020	2021	2022	2023	2024
Firearm	2	2	6	4	0	4	3
Hanging	4	0	2	2	2	4	2
Carbon Monoxide	0	0	0	0	0	0	0
Drug Intoxication	1	0	0	1	0	2	3
Motor Vehicle	0	0	0	0	0	0	0
Sharp Force Trauma	0	0	0	1	0	0	0
Asphyxia/Suffocation	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	7	2	8	8	2	10	8

Summary of All Muskegon County Cases

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	1,784	1,759	1,784	1,841	1,846	2,222	2,176	2,078	1,993 ⁸⁶	1,902 ⁸⁷
Deaths Reported to the ME	605	585	629	662	670	804	842	786	724	678
Deaths Investigated	530	504	468	504	523	628	642	620	549	533
MEI Scene Investigations	501	469	425	463	467	538	537	532	503	466
Death Certificates by ME	251	231	234	235	248	255	292	317	310	261
Bodies Transported to WMed	159	167	159	161	177	167	191	222	225	196
Complete Autopsy	120	114	108	117	134	125	137	162	147	121
Limited Autopsy	4	2	4	4	5	4	4	11	8	10
External Examination	35	41	43	35	30	34	39	45	51	51
Storage Only	0	10	4	4	8	4	11	4	19	14
Total Cases with Toxicology	160	136	140	147	160	158	179	213	186	164
Unidentified Remains After Exam	0	0	0	0	0	0	1	0	0	0
Referrals to Gift of Life	139	109	122	128	104	137	155	176	182	155
Tissue Donations	17	12	9	15	12	9	12	15	9	14
Cornea Donations	20	11	7	8	6	4	8	1	4	24
Unclaimed Investigations	5	7	12	15	14	19	20	21	21	63
Exhumations	0	0	0	0	0	0	2	0	0	0

Cremation Permit Authorizations, Muskegon County

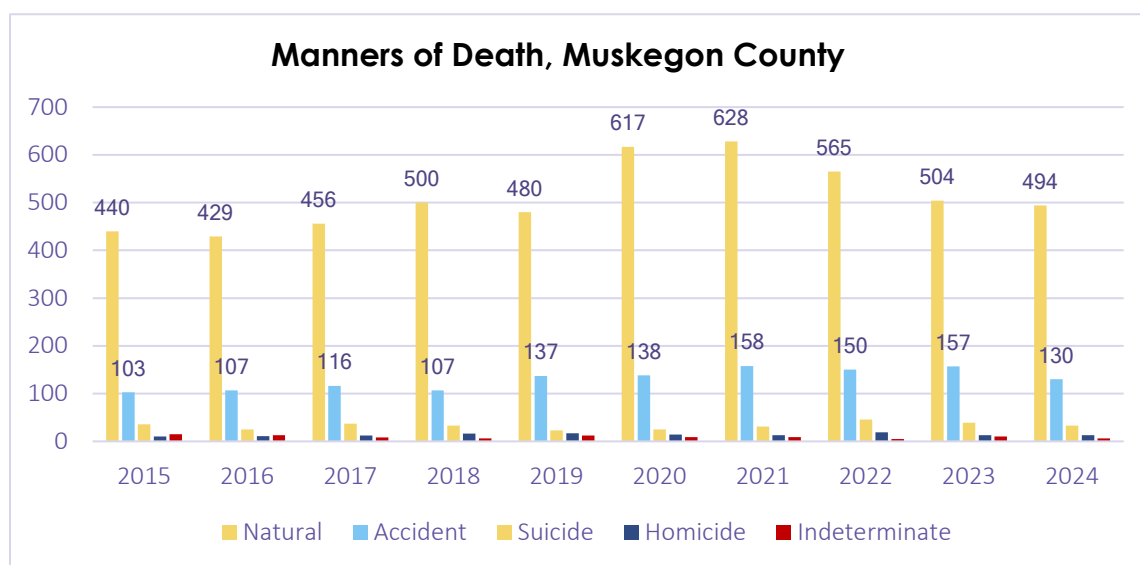
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	1,116	1,138	1,188	1,264	1,383	1,600	1,637	1,582	1,561	1,491
% of Total Deaths with Cremation	63%	65%	67%	68%	75%	72%	75%	76%	78%	78%

⁸⁶ Updated total number of deaths occurring in the county

⁸⁷ Provisional total number of deaths occurring in the county

Manners of Death Reported, Muskegon County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Natural	440	429	456	500	480	617	628	565	504	494
Accident	103	107	116	107	137	138	158	150	157	130
Suicide	36	25	37	33	23	25	31	46	39	33
Homicide	10	11	12	16	17	14	13	19	13	13
Indeterminate	15	13	8	6	12	9	9	5	10	6 ⁸⁸
Total	604	585	629	662	669	803	839	785	723	676⁸⁹



Deaths Reported by Age (in years), Muskegon County⁹⁰

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	9	1	2	2	24	61	199	304
2016	4	2	1	5	18	55	184	303
2017	3	1	0	8	14	81	168	344
2018	1	2	3	1	16	88	190	344
2019	2	0	0	1	22	74	177	393
2020	6	0	1	6	16	87	199	488
2021	5	0	0	1	20	92	236	485

⁸⁸ (1) Unexpected sudden death associated with unsafe sleep, prematurity; (1) Unexpected sudden death associated with unsafe sleep, prematurity, low body weight, cardiomegaly, rhinovirus/enterovirus, genetic variant of uncertain significance; (1) Found dead in bassinet, cause and manner of death could not be determined; (1) Multiple blunt force injuries, fall from height; (1) Found deceased in advanced state of decomposition, cause and manner of death could not be determined; (1) Deceased individual was involved in motor vehicle collision, family objected to autopsy, cause and manner of death could not be determined

⁸⁹ Does not include (1) non-human remains; (1) Partial human remains later identified to correlate with pre-existing death investigation

⁹⁰ 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

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2022	4	1	0	4	20	98	203	455
2023	4	1	1	5	12	89	193	418
2024	5	1	0	2	17	83	176	393

Pediatric Deaths, Muskegon County

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

1. <1 year old
 - a. (1) Unexpected sudden death associated with unsafe sleep, prematurity; indeterminate
 - b. (1) Unexpected sudden death associated with unsafe sleep, prematurity, low body weight, cardiomegaly, rhinovirus/enterovirus, genetic variant of uncertain significance; indeterminate
 - c. (1) Found dead in bassinet, cause of death could not be determined; indeterminate
 - d. (1) Asphyxia due to unsafe sleep (co-sleeping) associated with sickle cell disease; accident
 - e. (1) Protein deficiency associated with epilepsy and obstructive sleep apnea; natural
2. 1-5 years old
 - a. (1) Ascending pyelonephritis associated with parainfluenza 4, mycoplasma pneumonia; natural
3. 11-17 years old
 - a. (1) Sudden death due to epilepsy; natural
 - b. (1) Acute asthma exacerbation; natural

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	3	0	3
2024	4	0	4

Homicides by Mechanism, Muskegon County

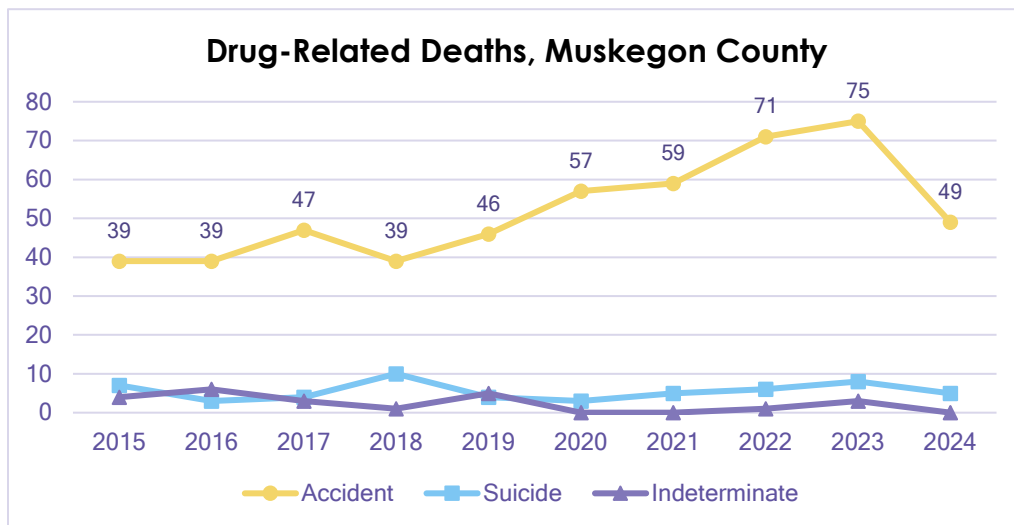
2024	
Firearm	12
Blunt Force Trauma	1
Sharp Force Trauma	0
Motor Vehicle	0
Asphyxia/Suffocation	0
Other	0
Total	13

Accidental Deaths by Mechanism, Muskegon County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle	22	22	22	21	33	27	28	21	24	21
Drug-Related	39	40	47	39 ⁹¹	46	57	59	71	75	49
Drowning	4	2	4	2	5	4	6	5	1	5
Fall	29	32	38	37	43	38	51	42	40	42
Fire	3	1	0	0	1	3	1	1	0	2
Environmental Exposure	1	4	0	1	2	4	7	4	5	3 ⁹²
Asphyxia	3	4	2	5	4	4	3	2	6	7
Other	2	2	3	2	3	1	3	4	5	1 ⁹³
Total	103	107	116	107	137	138	158	150	157	130

Drug-Related Deaths by Manner, Muskegon County⁹⁴

	2015	2016	2017	2018 ⁹⁵	2019	2020	2021	2022	2023	2024
Accident	39	39	47	39	46	57	59	71	75	49
Suicide	7	3	4	10	4	3	5	6	8	5
Indeterminate	4	6	3	1	5	0	0	1	3	0
Total	50	48	54	50	55	60	64	78	86	54
Total involving opioid(s)	43	41	43	38	43	50	54	64	67	38



⁹¹ Updated to remove a previously duplicated categorization

⁹² Includes (1) Cold exposure associated with mixed drug intoxication

⁹³ (1) Extensive natural disease associated with humerus fracture

⁹⁴ Acute alcohol intoxications are considered drug-related deaths and are included in this data

⁹⁵ Data updated following recategorization of case with previously duplicated categorization

Suicides by Age, Muskegon County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2015	36	0	7	10	8	11
2016	25	0	2	6	11	6
2017	37	3	4	10	15	5
2018	33	0	6	12	9	6
2019	23	0	3	8	8	4
2020	25	0	3	9	6	7
2021	31	0	3	12	10	6
2022	46	1	7	20	12	6
2023	39	2	6	12	10	9
2024	33	0	6	12	10	5

Suicides by Mechanism, Muskegon County

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Firearm	11	15	19	14	13	8	10	23	20	17
Hanging	15	5	10	9	5	9	9	13	8	10
Carbon Monoxide	1	1	1	0	0	1	2	2	0	0
Drug Intoxication	7	2	4	7	4	3	5	6	8	5
Motor Vehicle	0	0	0	0	0	0	0	1	0	0
Sharp Force Trauma	2	1	0	0	1	0	1	0	1	0
Asphyxia/Suffocation	0	1	1	0	0	2	1	1	0	0
Other	0	0	2	3	0	2	3	0	2	1 ⁹⁶
Total	36	25	37	33	23	25	31	46	39	33

⁹⁶ Multiple blunt force injuries due to jump from height

Summary of All St. Joseph County Cases

	2017	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	508	530	507	541	604	562	511 ⁹⁷	497 ⁹⁸
Deaths Reported to the ME	164	157	150	200	220	198	171	170
Deaths Investigated	155	150	145	196	191	184	165	161
MEI Scene Investigations	147	141	134	172	173	161	152	139
Death Certificates by ME	66	69	70	74	73	80	76	63
Bodies Transported to WMed	56	67	61	64	54	64	57	58
Complete Autopsy	34	39	34	42	30	39	28	34
Limited Autopsy	1	2	3	4	1	4	4	0
External Examination	14	20	17	11	16	11	21	20
Storage Only	7	5	7	7	7	10	4	4
Total Cases with Toxicology	43	55	51	54	45	50	49	49
Unidentified Remains After Exam	2	0	1	0	0	0	0	0
Referrals to Gift of Life	53	45	41	71	70	102	69	76
Tissue Donations	7	6	6	4	7	5	5	7
Cornea Donations	2	3	4	1	5	5	4	6
Unclaimed Investigations	1	4	8	6	4	6	6	5
Exhumations	0	0	0	0	0	0	0	0

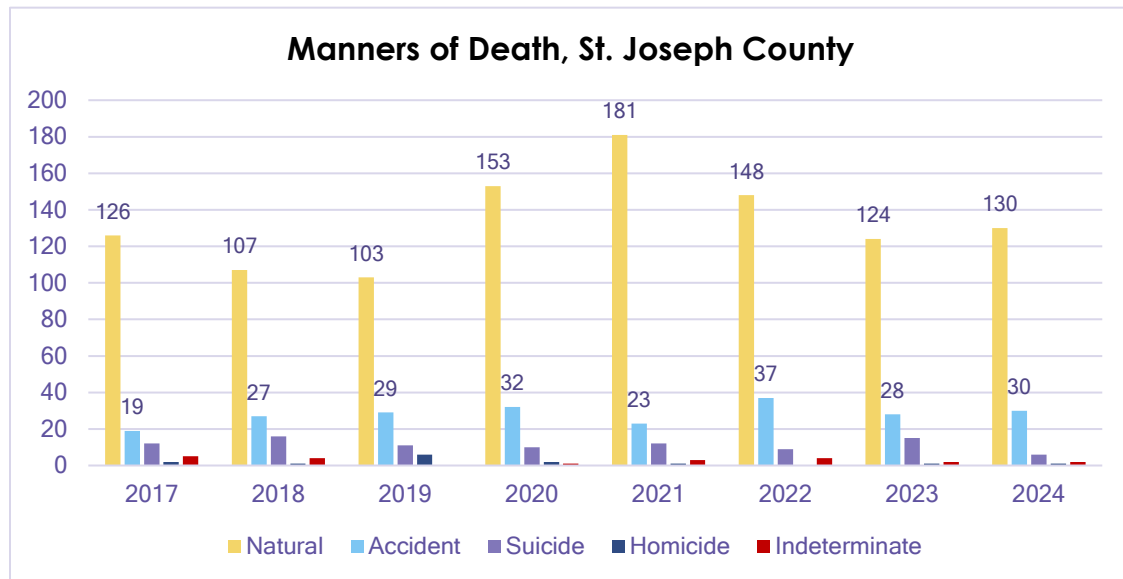
Cremation Permit Authorizations, St. Joseph County

	2017	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	309	306	327	386	424	408	370	371
% of Total Deaths with Cremation	61%	58%	65%	71%	71%	73%	72%	75%

⁹⁷ Updated total number of deaths occurring in the county⁹⁸ Provisional total number of deaths occurring in the county

Manners of Death Reported, St. Joseph County

	2017	2018	2019	2020	2021	2022	2023	2024
Natural	126	107	103	153	181	148	124	130
Accident	19	27	29	32	23	37	28	30
Suicide	12	16	11	10	12	9	15	6
Homicide	2	1	6	2	1	0	1	1
Indeterminate	5	4	0	1	3	4	2	2 ⁹⁹
Total	164	155	149	198	220	198	170	169¹⁰⁰



Deaths Reported by Age (in years), St. Joseph County¹⁰¹

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2017	1	0	0	1	2	19	60	78
2018	3	2	1	3	9	17	46	70
2019	0	1	0	2	3	23	49	71
2020	2	1	0	1	6	38	66	94
2021	1	0	0	1	3	18	71	126
2022	2	2	0	2	5	15	58	114
2023	1	0	0	3	7	20	46	93
2024	1	1	1	0	2	19	33	112

⁹⁹ (1) Unexpected sudden death associated with unsafe sleep, fetal drug/alcohol exposure; (1) Mixed drug intoxication

¹⁰⁰ Does not include (1) stillbirth investigation

¹⁰¹ 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, St. Joseph County

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

1. <1 year old
 - a. (1) Unexpected sudden death associated with unsafe sleep, prematurity, low birth weight, fetal drug and alcohol exposure; indeterminate
2. 1-5 years old
 - a. (1) Mechanical asphyxiation and Smothering; homicide
3. 6 – 10 years old
 - a. (1) Multiple blunt force injuries, bicyclist (without helmet) struck by motor vehicle; accident

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	1	0	1
2024	1	0	1

Accidental Deaths by Mechanism, St. Joseph County

	2017	2018	2019	2020	2021	2022	2023	2024
Vehicle	8	15	11	13	6	10	10	10
Drug-Related	6	4	10	11	6	11	8	15
Drowning	2	0 ¹⁰²	3	2	3	3	1	0
Fall	1	3	4	3	5	7	5	3
Fire	1	4	0	2	0	4	3	0
Environmental Exposure	0	0	1	0	0	1	0	0
Asphyxia	1	1	0	1	1	0	0	1 ¹⁰³
Other	0	0	0	0	2	1	1	1 ¹⁰⁴
Total	19	27	29	32	23	37	28	30

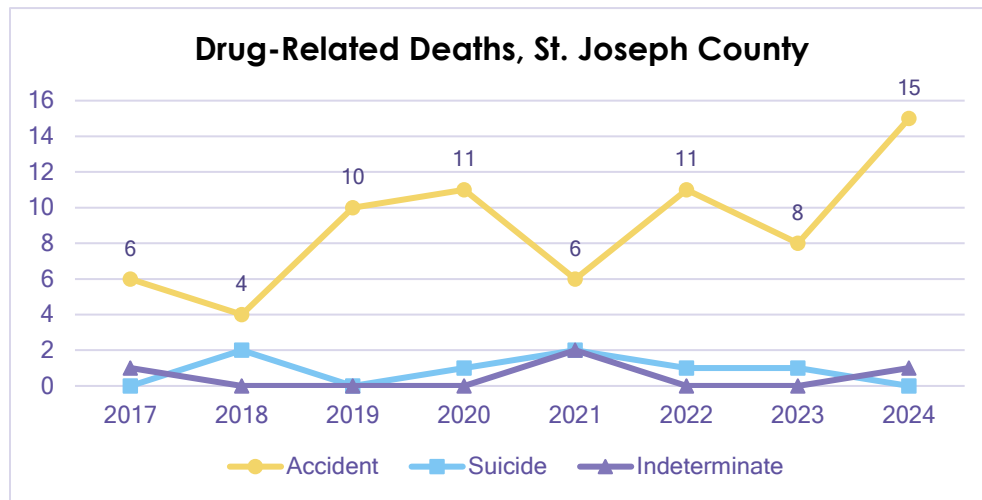
¹⁰² Updated to remove a previously duplicated categorization

¹⁰³ (1) Choking associated with acute alcohol intoxication

¹⁰⁴ (1) Electrocution

Drug-Related Deaths by Manner, St. Joseph County¹⁰⁵

	2017	2018	2019	2020	2021	2022	2023	2024
Accident	6	4	10	11	6	11	8	15
Suicide	0	2	1	1	2	1	1	0
Indeterminate	1	0	0	0	2	0	0	1
Total	7	6	11	12	10	12	9	16
Total involving opioid(s)	6	4	4	11	7	5	6	6



Suicides by Age, St. Joseph County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2017	12	0	1	6	3	2
2018	16	3	3	4	4	2
2019	11	1	1	5	2	2
2020	10	0	1	3	3	3
2021	12	1	1	4	5	1
2022	9	0	2	0	3	4
2023	15	1	1	6	4	3
2024	6	0	0	3	2	1

¹⁰⁵ Acute alcohol intoxications are considered drug-related deaths and are included in this data

Suicides by Mechanism, St. Joseph County

	2017	2018	2019	2020	2021	2022	2023	2024
Firearm	4	7	8	7	2	7	7	3
Hanging	5	6	1	0	6	1	6	1
Carbon Monoxide	3	0	1	0	0	0	0	0
Drug Intoxication	0	2	1	1	2	1	1	0
Motor Vehicle	0	0	0	0	0	0	1	0
Sharp Force Trauma	0	0	0	1	1	0	0	1
Asphyxia/Suffocation	0	1	0	1	1	0	0	0
Other	0	0	0	0	0	0	0	1 ¹⁰⁶
Total	12	16	11	10	12	9	15	6

Homicides by Mechanism, St. Joseph County

	2024
Firearm	0
Blunt Force Trauma	0
Sharp Force Trauma	0
Motor Vehicle	0
Asphyxia/Suffocation	1
Other	0
Total	1

¹⁰⁶ (1) Drowning

Summary of All Van Buren County Cases

	2018	2019	2020	2021	2022	2023	2024
Total Deaths in the County	514	496	605	612	606	545 ¹⁰⁷	503 ¹⁰⁸
Deaths Reported to the ME	162	180	220	241	250	206	206
Deaths Investigated	146	164	203	229	238	202	201
MEI Scene Investigations	142	158	188	217	229	195	192
Death Certificates by ME	61	74	89	96	95	81	79
Bodies Transported to WMed	56	62	62	86	82	71	73
Complete Autopsy	31	40	37	54	48	39	37
Limited Autopsy	2	2	1	0	1	2	4
External Examination	20	15	17	18	22	21	23
Storage Only	3	5	6	14	11	9	9
Total Cases with Toxicology	44	53	52	69	63	55	54
Unidentified Remains After Exam	0	0	0	1	0	0	0
Referrals to Gift of Life	55	45	39	95	109	113	105
Tissue Donations	8	1	2	7	7	9	10
Cornea Donations	3	1	2	1	4	6	9
Unclaimed Investigations	2	3	4	9	11	8	9
Exhumations	1	0	0	0	0	0	0

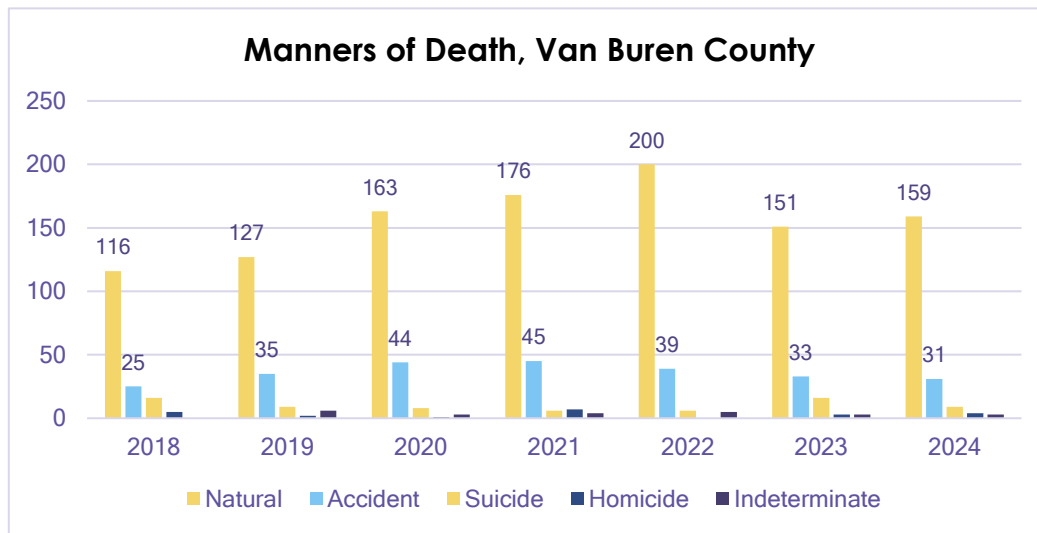
Cremation Permit Authorizations, Van Buren County

	2018	2019	2020	2021	2022	2023	2024
Cremation Permits	322	327	420	439	440	384	382
% of Total Deaths with Cremation	63%	67%	70%	72%	73%	70%	76%

¹⁰⁷ Updated total number of deaths occurring in the county¹⁰⁸ Provisional total number of deaths occurring in the county

Manners of Death Reported, Van Buren County

	2018	2019	2020	2021	2022	2023	2024
Natural	116	127	163	176	200	151	159
Accident	25	35	44	45	39	33	31
Suicide	16	9	8	6	6	16	9
Homicide	5	2	1	7	0	3	4
Indeterminate	0	6	3	4	5	3	3 ¹⁰⁹
Total	162	179	219	238	250	206	206



Deaths Reported by Age (in years), Van Buren County¹¹⁰

	< 1	1 - 5	6 - 10	11 - 17	18 - 25	26 - 44	45 - 64	65 +
2018	0	2	1	0	4	13	47	95
2019	0	1	0	1	6	20	52	99
2020	0	0	1	1	7	28	55	127
2021	0	0	0	0	3	30	83	122
2022	3	0	1	0	6	22	70	148
2023	0	0	0	3	8	16	63	116
2024	2	0	1	0	3	20	56	124

¹⁰⁹ (1) Sudden cardiac death of unknown etiology, associated with genetic mutation; (1) Thermal injuries associated with carbon monoxide poisoning and acute drug toxicity; (1) Mixed drug intoxication

¹¹⁰ 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, Van Buren County

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

1. <1 year old
 - a. (1) Tracheobronchitis due to metapneumovirus; natural
 - b. (1) Prematurity; natural
2. 6-10 years old
 - a. (1) Haemophilus influenza bronchopneumonia due to complications of cerebral palsy and congenital deletion syndrome; natural

Infant Deaths (Live Birth to 1 Year)	ME-Certified with Autopsy	ME-Certified without Autopsy	Total Certified by ME
2023	0	0	0
2024	1	0	1

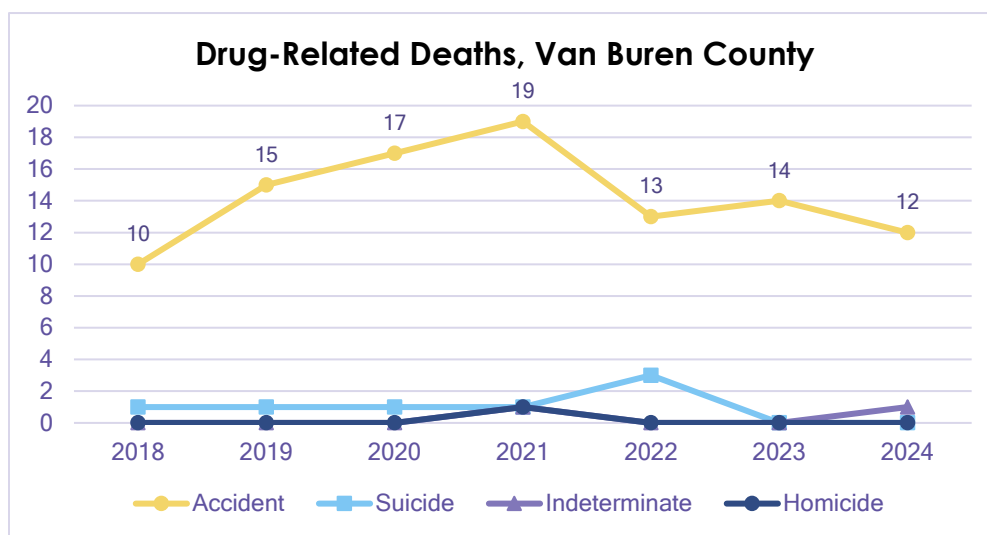
Accidental Deaths by Mechanism, Van Buren County

	2018	2019	2020	2021	2022	2023	2024
Vehicle	8	9	11	14	11	3	9
Drug-Related	10	15	17	19	13	14	12
Drowning	1	2	4	2	5	1	1
Fall	4	5	11	7	9	8	7
Fire	0	0	0	1	1	0	0
Environmental Exposure	1	2	0	1	0	0	0
Asphyxia	1	1	1	1	0	0	1
Other	0	1	0	0	0	2	1 ¹¹¹
Total	25	35	44	45	39	33	31

¹¹¹ (1) Carbon monoxide poisoning

Drug-Related Deaths by Manner, Van Buren County¹¹²

	2018	2019	2020	2021	2022	2023	2024
Accident	10	15	17	19	13	14	12
Suicide	1	1	1	1	3	0	0
Indeterminate	0	0	0	1	0	0	1
Homicide	0	0	0	1	0	0	0
Total	11	16	18	22	16	14	13
Total involving opioid(s)	9	12	11	14	10	9	5



Suicides by Age, Van Buren County

	Total	0 - 17	18 - 25	26 - 44	45 - 64	65 +
2018	16	0	1	2	7	6
2019	9	0	0	4	1	4
2020	8	0	1	2	1	4
2021	6	0	1	1	4	0
2022	6	0	0	1	3	2
2023	16	3	1	5	3	4
2024	9	0	1	3	2	3

¹¹² Acute alcohol intoxications are considered drug-related deaths and are included in this data

Suicides by Mechanism, Van Buren County

	2018	2019	2020	2021	2022	2023	2024
Firearm	11	5	4	2	1	14	7
Hanging	3	2	2	3	1	2	2
Carbon Monoxide	0	0	1	0	0	0	0
Drug Intoxication	1	1	1	1	3	0	0
Motor Vehicle	0	0	0	0	0	0	0
Sharp Force Trauma	0	1	0	0	0	0	0
Asphyxia/Suffocation	1	0	0	0	0	0	0
Other	0	0	0	0	1	0	0
Total	16	9	8	6	6	16	9

Homicides by Mechanism, Van Buren County

	2024
Firearm	3
Blunt Force Trauma	0
Sharp Force Trauma	0
Motor Vehicle	0
Asphyxia/Suffocation	0
Other	1 ¹¹³
Total	4

¹¹³ (1) Multiple blunt and sharp force injuries

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 concerned 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 in Baltimore, Maryland.

	WMed Forensic Cases	Consulting Forensic Cases	Hospital Specimens	Research Specimens	Private Neuropathological Examinations	Total
2016	43	84	11	276	4	418
2017	79	83	3	404	9	578
2018	63	99	2	492	3	659
2019	41	59	2	530	2	634
2020	53	73	2	380	3	511
2021	57	99	1	460	2	619
2022	51	91	0	697	3	842
2023	29	108	0	607	1	745
2024	22	111	0	391	2	526

Forensic Anthropology

Forensic Anthropology services are provided to all WMed Medical Examiner counties led by 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 assists in the coordination of all scientific identifications performed via fingerprint or DNA analysis. As necessary, they also contribute to the determination of identification via multiple corresponding factors. In 2022, our team grew with the addition of a two-year post-doctoral fellowship program, currently filled with Dr. B Charles.

	Comparative Medical Radiography	Comparative Dental Radiography	Fingerprint Analysis	Multiple Corresponding Factors	DNA Analysis	Recoveries	Non- human ¹¹⁴	Skeletal Analysis
2016	38	12	24	2	0	2	6	14
2017	65	16	29	2	4	11	8	11
2018	55	27	48	5	4	9	17	18
2019	60	18	49	3	4	8	20	14
2020	83	10	52	5	4	7	17	15
2021	116	9	42	4	5	13	7	22
2022	135	16	27	7	4	3	14	15
2023	125	13	20	10	3	3	10	13
2024	128	19	28	8	3	2	4	11

¹¹⁴ This is likely a significant undercount of the total number of non-human cases evaluated by our anthropologists, as many of these cases are confirmed to be non-human, thus non-forensically relevant and not further logged/documentated.

Hospital/Private/Consultant Postmortem Examinations

Our office provides autopsy services to Bronson Healthcare Group and Spectrum Health Lakeland, private examinations to families searching for answers, and forensic autopsies to various counties in Michigan, including the Upper Peninsula, and northern Indiana.

	Hospital	Private	Consultant (Forensic)	Total
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
2023	14	11	300	325
2024	9	20	263	292

Referrals & Donations to Organ Procurement Organizations (OPO), 2024

	Referrals to OPO	Tissue Donations	Cornea Donations
Allegan	123	14	9
Barry	68	4	7
Berrien	232	15	18
Calhoun	198	16	24
Cass	54	10	10
Grand Traverse	82	2	35
Kalamazoo	302	25	42
Leelanau	12	1	0
Mason	33	0	0
Muskegon	155	14	24
St. Joseph	76	7	6
Van Buren	105	10	9
Total	1440	118	184

Comparison of All Medical Examiner Counties, 2024

	Total Population ¹¹⁵	Total Sq. Miles	Deaths in the County ¹¹⁶	Deaths Reported	Deaths Investigated	MEI Scene Investigations	DCs by ME	Cremation Permits	Unclaimed Investigations
Allegan	120,502	1,833	916	229	219	202	94	659	6
Barry	62,423	577	465	158	140	129	57	325	3
Berrien	154,316	1,581	1,736	610	525	456	233	1,207	18
Calhoun	134,310	718	1,432	530	482	401	204	1,040	29
Cass	51,589	508	359	128	124	110	60	282	1
Grand Traverse	95,238	601	1,598	461	380	231	182	1,355	12
Kalamazoo	261,670	580	3,176	1,086	880	741	450	2,449	63
Leelanau	22,301	2,532	202	42	42	28	13	172	1
Mason	29,052	1,242	293	90	84	71	40	244	3
Muskegon	175,824	1,459	1,902	678	533	466	261	1,491	63
St. Joseph	60,939	521	497	170	161	139	63	371	5
Van Buren	75,587	1,090	503	206	201	192	79	382	9
Total	1,243,751	13,242	13,079	4,388	3,771	3,166	1,736	9,977	213

For all counties, about 34% of deaths are reported; jurisdiction is accepted, and deaths are investigated in about 29% of the deaths. Complete autopsies are conducted in about 5% of all deaths within the county and in about 16% of deaths reported. A formal external or limited examination occurs in another 3% of deaths in the county. In total, a postmortem examination occurs in about 26% of deaths reported.

¹¹⁵ Total county populations based on 2020 estimates by the US Census Bureau

¹¹⁶ Provisional number of deaths occurring in each county

Forensic Postmortem Examinations, 2024

	Complete Autopsies	Limited Exams	External Exams	Total Postmortem Exams	Cardiovascular Consults
Allegan	32	7	27	66	0
Barry	26	4	14	44	1
Berrien	105	5	43	153	1
Calhoun	85	7	53	145	0
Cass	26	3	18	47	0
Grand Traverse	58	2	28	88	0
Kalamazoo	173	17	86	276	0
Leelanau	1	0	6	7	0
Mason	17	2	12	31	0
Muskegon	121	10	51	182	2
St. Joseph	34	0	20	54	0
Van Buren	37	4	23	64	0
Consultant Counties	251	1	12 ¹¹⁷	264	3
2024 Total	966	62	393	1,421	7

¹¹⁷ Includes both external examinations and individuals brought in solely for identification purposes.

Manners of Death Reported, All Medical Examiner Counties, 2024

	Natural	Accident	Suicide	Homicide	Indeterminate	Total
Allegan	173	35	17	2	2	229
Barry	123	25	8	2	0	158
Berrien	472	104	17	8	8	609
Calhoun	395	95	27	8	5	530
Cass	95	26	6	0	1	128
Grand Traverse	329	111	11	1	3	456
Kalamazoo	780	238	35	16	14	1,083
Leelanau	36	3	3	0	0	42
Mason	68	12	8	0	2	90
Muskegon	494	130	33	13	6	676
St. Joseph	130	30	6	1	2	169
Van Buren	159	31	9	4	3	206
Total	3,254	840	180	55	46	4,376

Significant Death Statistics, 2024

	Accidental Drug-Related Deaths	Indeterminate Drug-Related Deaths	Opioid-Related Deaths	Accidental Vehicle-Related Deaths	Accidental Fall-Related Deaths
Allegan	5	0	2	15	7
Barry	3	0	2	7	12
Berrien	29	3	22	18	37
Calhoun	39	0	20	20	26
Cass	9	0	2	8	4
Grand Traverse	16	0	8	25	60
Kalamazoo	60	0	32	41	112
Leelanau	0	0	0	0	2
Mason	4	0	4	4	2
Muskegon	49	0	38	21	42
St. Joseph	15	1	6	10	3
Van Buren	12	1	5	9	7
Total	241	5	141	178	314

