Sparrow

Office of the Medical Examiner

2017 Annual Report

Report amended December 6, 2018 (page 21)

Executive Summary

Eaton County Ingham County Ionia County
Isabella County Shiawassee County

We are pleased to present our 2017 Annual Report. This report reflects the work of the Office of the Medical Examiner during the 2017 calendar year. Only those deaths that fall within the geographical jurisdiction of the Medical Examiner, which is based on the county in which death was pronounced, are included.

We pride ourselves on providing outstanding service to the communities we serve. Our commitment to excellence was recognized in 2009, when our office was granted full accreditation by the National Association of Medical Examiners (NAME), and that full accreditation status was renewed by NAME in 2014. We have developed a regional system that delivers consistency and standardization. Thanks to leadership provided by Sparrow Forensic Pathology, there is an expected process which ensures quality, compassionate care when people need it most.

It would not be possible for the Office of the Medical Examiner to operate efficiently without our dedicated staff. Additionally, our investigators are essential to our success and we are grateful for their service. The investigators are listed by county in the text of this report.

Sparrow

Sparrow Forensic Pathology

Office of the Medical Examiner
2017 Staff

Michael A. Markey, M.D.—Medical Director
John A. Bechinski, D.O.
Patrick A. Hansma, D.O.
Daniel L. Schultz, M.D.

Luke R. Vogelsberg, D-ABMDI - Chief Investigator
Holly Marsh - Administrative Assistant
Debra Parsons - Team Advisor & Autopsy Assistant
Brittany Buchholz – Autopsy Assistant & In-House Investigations
Samantha Schaeffer - Autopsy Assistant
Krystin Smith - Autopsy Assistant
Sarah Tresedder – Autopsy Assistant

Sparrow

Medical Examiner Services

Investigation of Deaths

As the Office of the Medical Examiner for five counties in Michigan, we perform autopsies and other postmortem examinations as an important part of the death investigation process. Each county in Michigan has a licensed Physician, appointed by the County Commissioners, who is responsible for investigating deaths as defined by the Michigan Compiled Laws.

In general, the deaths investigated by our office include those that are thought to result from injury or poisoning (such as homicide, suicide, and accidental deaths), and those deaths that are sudden, unexpected, and not readily explainable at the time of death. Because deaths occur around the clock, the Office of the Medical Examiner is staffed 24 hours a day, 365 days a year.

The typical sequence of events that occurs following a death is:

- A death is reported to the on-call Medical Examiner Investigator (MEI).
- The MEI assesses whether we have legal authority and duty to investigate the death.
- The death scene is visited and investigated, if indicated.
- Investigative information is obtained about the decedent's medical and social history, as well as other information surrounding the events that were associated with the death.
- If an examination is indicated, the body is transported to the Forensic Pathology Laboratory at Sparrow Hospital in Lansing, MI.

- If the investigator believes the death does not require a postmortem examination, the on-call Medical Examiner or Chief Investigator may be contacted to discuss the case before the body is released to the funeral home.
- An investigative report is written by the MEI.
- When applicable, the decedent's primary care physician is contacted and notified of the death, and medical history is confirmed.
- A death certificate is generated by either the decedent's personal physician, the attending physician in the medical facility, or the assigned Medical Examiner or Deputy Medical Examiner.
- If a postmortem examination is performed, following receipt and review of all appropriate test results and records, a postmortem examination report is written.
- Permanent records are maintained for future use, as needed, and distributed to those who have requested a copy of the report and are authorized to receive the report.

Occasionally, some deaths require follow-up investigations, which are conducted by our In-House Investigators based at Sparrow Hospital. For 2017, this function was performed by Brittany Buchholz.

Death Certification

The main focus of our investigation is to determine the cause and manner of death, and to clarify circumstances surrounding the death. The cause of death is related to the underlying disease or injury that resulted in the individual's death. The manner of death, in the state of Michigan, is limited to these five options: natural, accident, suicide, homicide, or indeterminate. In addition, information gathered

during the investigation of event(s) before death and/or evidence collected may be critical for future legal proceedings.

Case Management Approach

A board-certified Forensic Pathologist is assigned to each death and determines the level of medical investigation required. Cases are handled by one of the following approaches:

Direct Release - The body is released directly from the scene to the funeral director. The MEI is at the scene and views the body. Based upon scene and medical history information provided by the MEI to the on-call Medical Examiner or Chief Investigator, a decision may be made to release a body directly to the funeral home chosen by the family, without further examination.

External Examination – An external examination includes a detailed record of external observations of the body, and possible laboratory/toxicology testing. A report of external exam and laboratory findings is written by the responsible pathologist.

Autopsy – An autopsy includes an external examination as described above, as well as an internal examination. This internal examination may be a "limited" or "partial" autopsy, or a "full" or "complete" autopsy. A limited autopsy is an internal examination within a specific anatomic boundary (e.g. brain-only examination). Most often, limited autopsies are performed to recover a foreign body, surgical hardware, or answer specific questions. A full autopsy includes internal examination of all organs and body cavities. An autopsy usually includes laboratory/toxicology testing, and may include histologic examination and additional examination by a subspecialty consultant (e.g. cardiac or neuropathologist). A report of examination and laboratory findings is written by the responsible pathologist.

Decision to Autopsy

The Medical Examiners and Deputy Medical Examiners use standards established by the National Association of Medical Examiners (NAME) to determine whether an autopsy is indicated. The standards, most recently revised in September 2016, state:
The Forensic Pathologist shall perform a forensic autopsy when:

- The death is known or suspected to have been caused by apparent criminal violence.
- The death is unexpected and unexplained in an infant or child.
- The death is associated with police action.
- The death is apparently non-natural and in custody of a local, state, or federal institution.
- The death is due to acute workplace injury.*
- The death is caused by apparent electrocution.*
- The 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.
- The death is caused by unwitnessed or suspected drowning.*
- The body is unidentified and the autopsy may aid in identification.
- The body is skeletonized.
- The body is charred.
- The forensic pathologist deems a forensic autopsy is necessary to determine cause or manner of death, or document injuries/disease, or collect evidence.
- The deceased is involved in a motor vehicle incident and an autopsy is necessary to document injuries and/or determine the cause of death.

* unless sufficient antemortem medical evaluation has adequately documented findings and issues of concern that would otherwise have required autopsy performance

Accreditation

All of the Medical Examiners' offices that contract for services with Sparrow Forensic Pathology are accredited by the National Association of Medical Examiners (NAME).

Manner of Death

Guidelines for classifying the manner of death include:

- Natural deaths are due solely or nearly totally to disease and/or the aging process.
- Accident applies when an injury or poisoning (including drug overdoses) 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 committed to do self-harm or cause the death of one's self.
- 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.

Cremation Permit Authorizations

Michigan law requires funeral directors to obtain a signed cremation permit from the Medical Examiner. Our office reviews thousands of cremation permit requests each year. We review the death certificates to ensure 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.

Testimony at Trials

The Medical Examiner and Deputy Medical Examiners are often called upon to provide testimony in criminal and civil matters. They meet regularly with members of law enforcement, prosecutors, defense attorneys and civil litigators.

Public Health and Safety Issues

Although 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 Michigan Child Death Review process in all counties, providing significant information regarding how children died, with the goal of preventing future deaths.

Education

We have a strong affiliation with Michigan State University. Our staff teaches pathology and provides regular lectures to forensic science students. We routinely

have medical students who rotate through our office to gain experience and exposure to forensic pathology. Additionally, we participate in many programs designed to teach youth about careers in forensic pathology.

Comment on Methods and Terms

This annual report reflects the activities of our medical examiner offices during a given calendar year. With rare exception (e.g., deaths reported to the wrong medical examiner office), the data include only those cases over which the county's medical examiner can exercise jurisdiction. Jurisdiction is determined by 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. Furthermore, the data reflect the calendar year in which the deaths were reported to the respective medical examiner offices, regardless of the year in which the death actually occurred. The category "Total Deaths in the County" is based upon numbers provided by that County Clerk's Office. Occasionally, these numbers may change after the time of publication of this report.

The category "Referrals to Gift of Life" does not include in-hospital deaths reported to the medical examiner, which are referred to Gift of Life by hospital staff rather than the medical examiner office. For "Accidental Deaths," the subcategory "Vehicle" consists of deaths that were classified as transportation-related fatalities, and include all forms of transport; drivers/operators, passengers, and pedestrians; this category does not include types of death that might otherwise fall into a different subclassification, such as vehicle fires and traumatic asphyxia.

Eaton County

Medical Examiner

Michael A. Markey, M.D.

Deputy Medical Examiners

John A. Bechinski, D.O.
Patrick A. Hansma, D.O.

Chief Investigator

Luke R. Vogelsberg, D-ABMDI

Medical Examiner Investigators

Ruth Grant, D-ABMDI
Jessica Nicholson
Daniel Sowles, D-ABMDI
Jane Wankmiller, Ph.D, D-ABMDI
Mary Stevens
David Lowndes
Kevin Hearld

Eaton County
Summary of Cases

	2012	2013	2014	2015	2016	2017
TOTAL DEATHS IN THE COUNTY	723	833	838	903	817	783
DEATHS REPORTED TO THE ME	171	162	167	183	170	191
CASES ACCEPTED FOR INVESTIGATION[1]	170	161	159	176	154	176
MEI SCENE INVESTIGATIONS	155	157	154	172	158	187
DEATH CERTIFICATES SIGNED BY ME	77	88	84	88	84	91
BODIES TRANSPORTED TO SPARROW	58	81	66[2]	69	78	85
COMPLETE AUTOPSY	43	53	47	55	64	56
LIMITED AUTOPSY	2	1	2	3	2	4
EXTERNAL EXAMINATION	8	16	9	9	7	13
STORAGE ONLY	5	11	6	2	5	12
UNCLAIMED BODIES	1	0	1	1	2	4
REFERRALS TO GIFT OF LIFE	17	43	49	68	61	53
TISSUE/CORNEA DONORS	4	4	7	19	16	11
CREMATION PERMITS REVIEWED	304	450	407	482	452	450

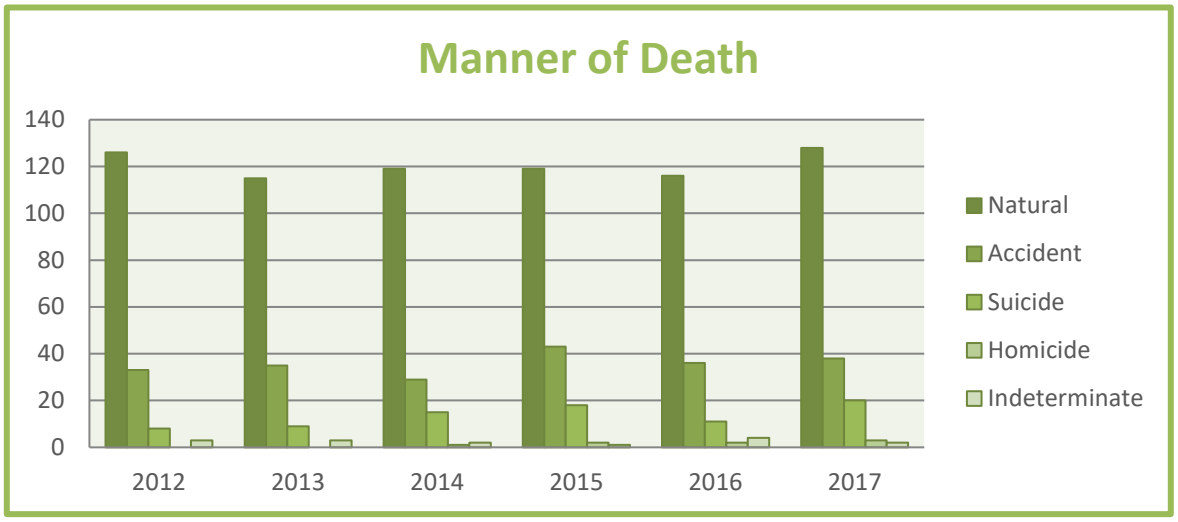
[1] Not every case that is reported to the Medical Examiner's office falls within our jurisdiction. We accept cases for investigation based on the circumstances surrounding the death and the law that governs the Medical Examiner's authority (MCL 52.202). We declined jurisdiction in 15 cases that were reported to us in 2017.
[2] Includes one non-human tissue case

Eaton County

Manner of Death

The data on the following pages refers to those deaths that were reported to the Medical Examiner's Office.

Manner of Death	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
NATURAL	126	115	119	119	116	128
ACCIDENT	33	35	29	43	36	38
SUICIDE	8	9	15	18	11	20
HOMICIDE	0	0	1	2	2	3
INDETERMINATE	3	3	2	1	4[3]	2[4]
TOTAL	170	162	166[5]	183	170[6]	191



[3] (2) multiple drug intoxication, (1) multiple injuries – pedestrian struck by motor vehicle, (1) undetermined cause; severely decomposed body

[4] (1) multiple drug intoxication, (1) sudden unexplained infant death

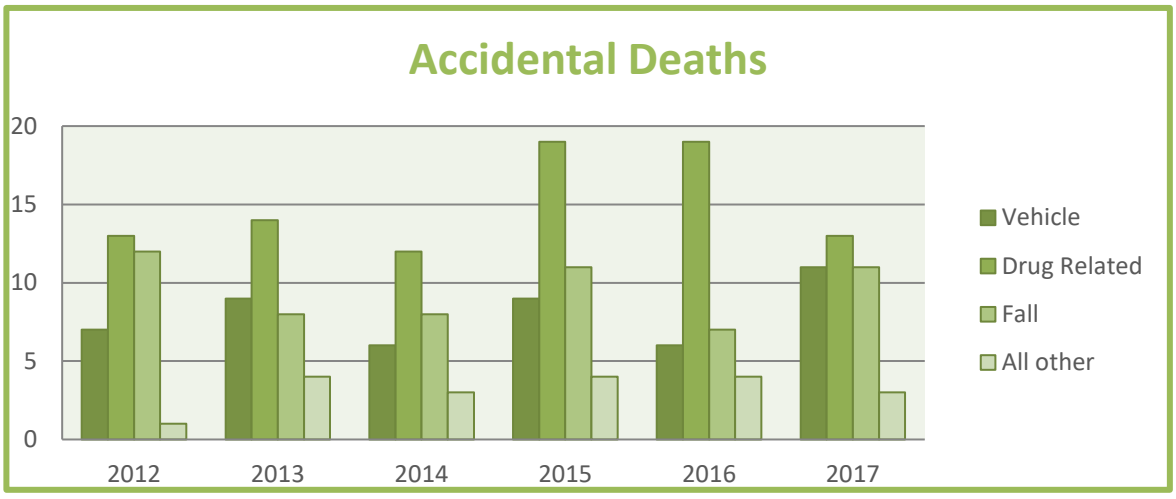
[5] Cases with no manner of death: (1) non-human tissue

[6] Cases with no manner of death: (1) non-human bones

Eaton County

Accidental Deaths

	2012	2013	2014	2015	2016	2017
VEHICLE	7	9	6	9	6	11
DRUG-RELATED	13	14	12	19	19	13
DROWNING	0	1	0	0	0	1
FALL	12	8	8	11	7	11
FIRE	0	1	1	2	0	0
ASPHYXIA	0	2	2	0	0	0
HYPOTHERMIA	1	0	0	1	2	0
OTHER	0	0	0	1[7]	2[8]	2[9]
TOTAL	33	35	29	43	36	38



[7] (1) farm machinery accident

[8] (1) rib fractures due to injury from back brace, (1) ruptured quadriceps tendon following syncopal episode

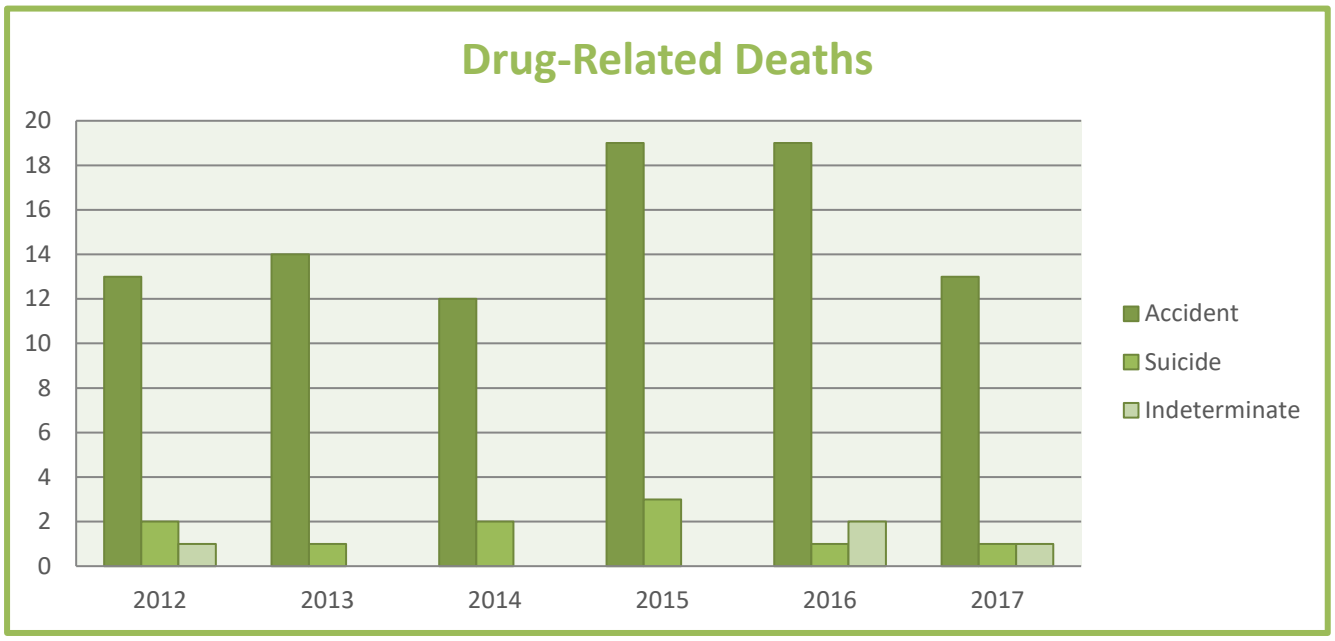
[9] (1) natural disease complicated by environmental exposure, (1) delayed complications of anaphylaxis

Eaton County

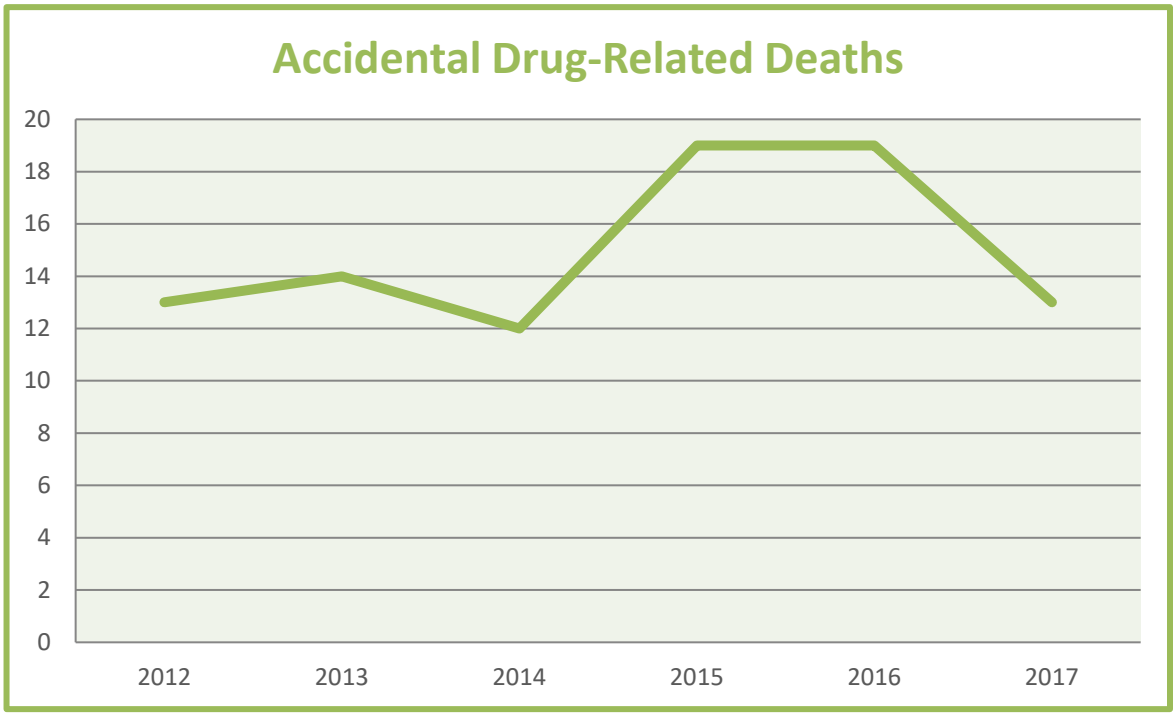
Drug-Related Deaths

For purposes of this report, drug-related fatalities are deaths in which an overdose of a combination of drugs or a single drug caused or contributed to the death. These deaths do not include situations in which intoxication might have been a factor in an incident leading to death, such as motor vehicle crashes, falls, choking while eating, or environmental exposures.

Manner of Death	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
ACCIDENT	13	14	12	19	19	13
SUICIDE	2	1	2	3	1	1
INDETERMINATE	1	0	0	0	2	1
TOTAL	16	15	14	22	22	15



2017 Drug-Related Deaths	
TOTAL	15 cases
SEX	3 female, 12 male
RACE	15 white
AGE RANGE	15-73 years
AVERAGE AGE	34.9 years
MEDIAN AGE	31 years
OPIOID-RELATED	12 cases involved an opiate or opioid (80%)
MANNER OF DEATH	13 Accidents, 1 Suicide, 1 Indeterminate



Eaton County

Suicides

Suicide Totals by Year

2012	2013	2014	2015	2016	2017
8	9	15	18	11	20

Suicide Methods

	2012	2013	2014	2015	2016	2017
FIREARM	4	6	7	7	9	12
HANGING	1	1	5	4	1	7
DRUG INTOXICATION	2	1	2	3	1	1
SHARP FORCE INJURY	0	1	0	1	0	0
SUFFOCATION	0	0	1	2	0	0
OTHER	1[10]	0	0	1[11]	0	0

Suicides by Age

	2012	2013	2014	2015	2016	2017
0 – 17	1	0	1	2	2	1
18 – 25	0	2	2	1	0	4
26 – 44	2	1	6	8	1	6
45 – 64	3	4	5	4	6	7
65 +	2	2	1	3	2	2

[10] Electrocution
[11] Drove in front of train

Eaton County

Reported Deaths of Children

Reported Deaths of Children by Age

	2012	2013	2014	2015	2016	2017
Stillborn	1	0	0	0	0	0
<1 year	1	1	1	0	0	1
1-5	0	0	1	0	0	0
6-10	0	0	0	0	0	0
11-17	1	1	2	5	2	2
TOTAL	3	2	4	5	2	3

Reported Deaths of Children by Manner of Death

Manner of Death	2012	2013	2014	2015	2016	2017
NATURAL	0	0	1	0	0	0
ACCIDENT	0	1	2	2	0	1
SUICIDE	1	0	1	2	2	1
HOMICIDE	0	0	0	1	0	0
INDETERMINATE	1	1	0	0	0	1

AGE	SEX	CAUSE OF DEATH	MANNER
		2017	
6 months	M	Undetermined	Indeterminate
15 years	M	Acute heroin toxicity	Accident
17 years	M	Shotgun wound of head	Suicide

Ingham County

Medical Examiner

Michael A. Markey, M.D.

Deputy Medical Examiners

John A. Bechinski, D.O.
Patrick A. Hansma, D.O.

Chief Investigator

Luke R. Vogelsberg, D-ABMDI

Medical Examiner Investigators

Ashley Ault
Dan Sowles, D-ABMDI
Jane Wankmiller, Ph.D, D-ABMDI
Joy Dempsey, D-ABMDI
Kathleen Brooks
Kevin Hearld
Mark Chojnowski
Megan Bohnett
Steve Dexter, RN
Brett Ramsden
Erica Betts, D.O., MPH
Jessica Nicholson
Karen Phelps
Ken Barnes
Lynne Mark
Mary Stevens
Ruth Grant, D-ABMDI

Ingham County
Summary of Cases

	2012	2013	2014	2015	2016	2017
TOTAL DEATHS IN THE COUNTY	2578	2740	2763	2717	2655	2872
DEATHS REPORTED TO THE ME	736	853	826	843	824	916
CASES ACCEPTED FOR INVESTIGATION[12]	634	731	704	672	660	677
MEI SCENE INVESTIGATIONS	589	710	634	654	677	752
DEATH CERTIFICATES SIGNED BY ME	394	443	452	407	424	422
BODIES TRANSPORTED TO SPARROW	303	349	342	328	267[13]	250
COMPLETE AUTOPSY	206	228	244	255	286	232
LIMITED AUTOPSY	7	3	4	5	9	12
EXTERNAL EXAMINATION	54	54	34	40	46	42
STORAGE ONLY	36	61	48	28	32	55
UNCLAIMED BODIES	9	3	24	21	20	34
REFERRALS TO GIFT OF LIFE	24	72	243	292	308	326
TISSUE/CORNEA DONORS	8	5	45	74	95	92
CREMATION PERMITS REVIEWED	1321	1574	1582	1717	1721	1920

[12] Not every case that is reported to the Medical Examiner's office falls within our jurisdiction. We accept cases for investigation based on the circumstances surrounding the death and the law that governs the Medical Examiner's authority (MCL 52.202). We declined jurisdiction in 239 cases that were reported to us in 2017.

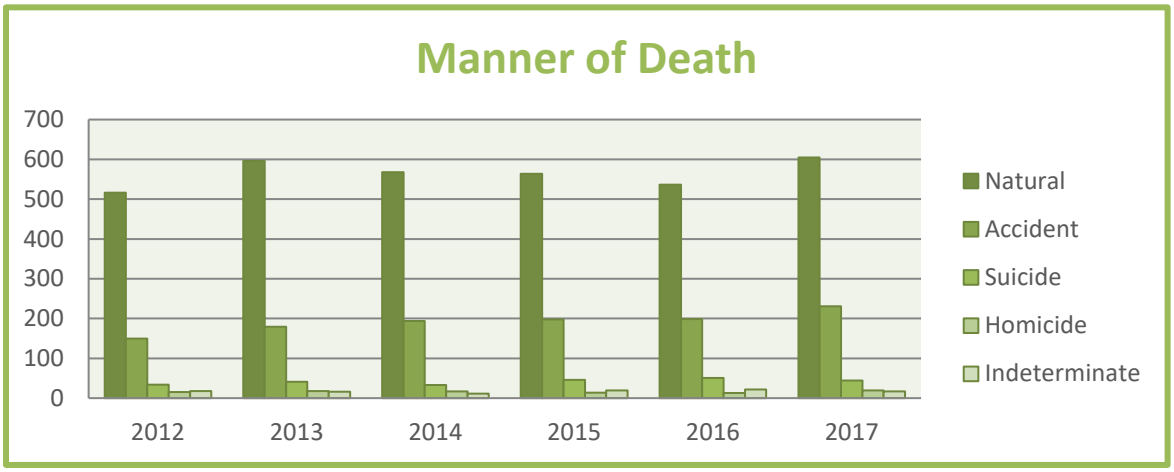
[13] In previous years, this number was listed as the sum of exams (complete, limited, external) and bodies for storage only. In 2016, this number was obtained from the contracted transport provider, and thus excludes decedents who died at Sparrow hospital and would have been transported to the Sparrow morgue by Sparrow staff irrespective of their status as a ME or non-ME case.

Ingham County

Manner of Death

The data on the following pages refers to those deaths that were reported to the Medical Examiner's Office.

Manner of Death	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
NATURAL	516	596	568	564	535	605
ACCIDENT	150	179	194	198	199	231
SUICIDE	34	41	33	46	51	44
HOMICIDE	15	13	17	14	13	~~19~~ 20[14]
INDETERMINATE	18	16	11	19	22	~~16~~ 15[15]
TOTAL	733[16]	845[17]	823[18]	841[19]	820[20]	916[21]

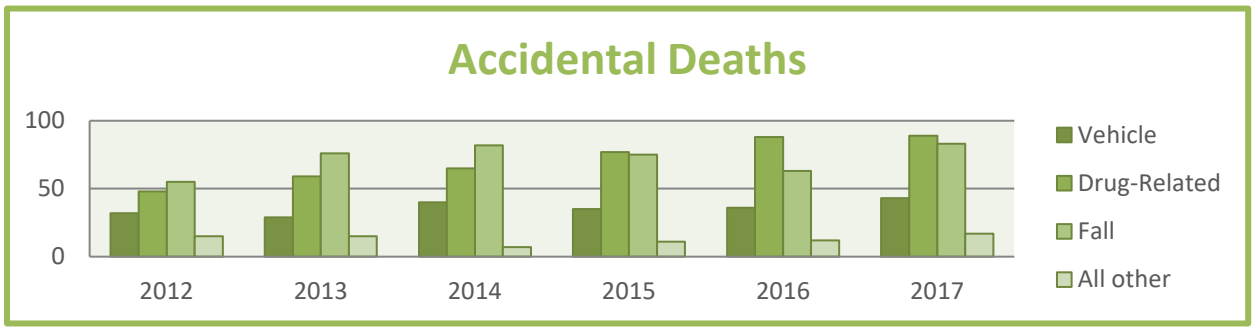


[14] Based on new investigative information, one manner of death was changed from indeterminate to homicide on December 6, 2018.
[15] Based on new investigative information, one manner of death was changed from indeterminate to homicide on December 6, 2018.
[16] Cases with no manner of death: (3) stillbirths
[17] Cases with no manner of death: (3) non-human bones
[18] Cases with no manner of death: (2) stillbirths; (1) non-human bones
[19] Cases with no manner of death: (1) products of conception; (1) stillbirth
[20] Cases with no manner of death: (3) stillbirths; (1) human bone of no contemporary forensic interest
[21] Cases with no manner of death: (1) stillbirth

Ingham County

Accidental Deaths

	2012	2013	2014	2015	2016	2017
VEHICLE	32	29	40	35	36	43
DRUG-RELATED	48	59	65	77	88	89
DROWNING	3	1	2	2	3	3
FALL	55	76	82	75	63	83
FIRE	0	2	1	0	1	0
ASPHYXIA	7	6	3	1	3	4
HYPOTHERMIA	0	2	0	1	2[22]	1
OTHER	5[23]	4[24]	1[25]	7[26]	3[27]	9[28]
TOTAL	150	179	194	198	199	231



[22] Both decedents also acutely intoxicated with ethanol (these cases not included in drug-related category)

[23] (1) anaphylaxis or other reaction to IV injection; (1) hemoperitoneum due to surgical injury; (2) blunt force injuries of head; (1) carbon monoxide intoxication

[24] (1) exacerbation of chronic obstructive pulmonary disease by chemical respiratory irritant; (1) complications of dog bite; (1) injuries from falling tree; (1) carbon monoxide intoxication

[25] (1) injuries from falling tree

[26] (2) gunshot wound deaths; (1) struck by person falling from a ladder; (1) bowel obstruction by foreign object; (1) perforated bowel; (1) remote diving accident; (1) injuries from falling tree

[27] (1) heart disease associated with anabolic androgenic steroid use; (1) methadone therapy contributing to complications of chronic ethanol abuse; (1) carbon monoxide intoxication

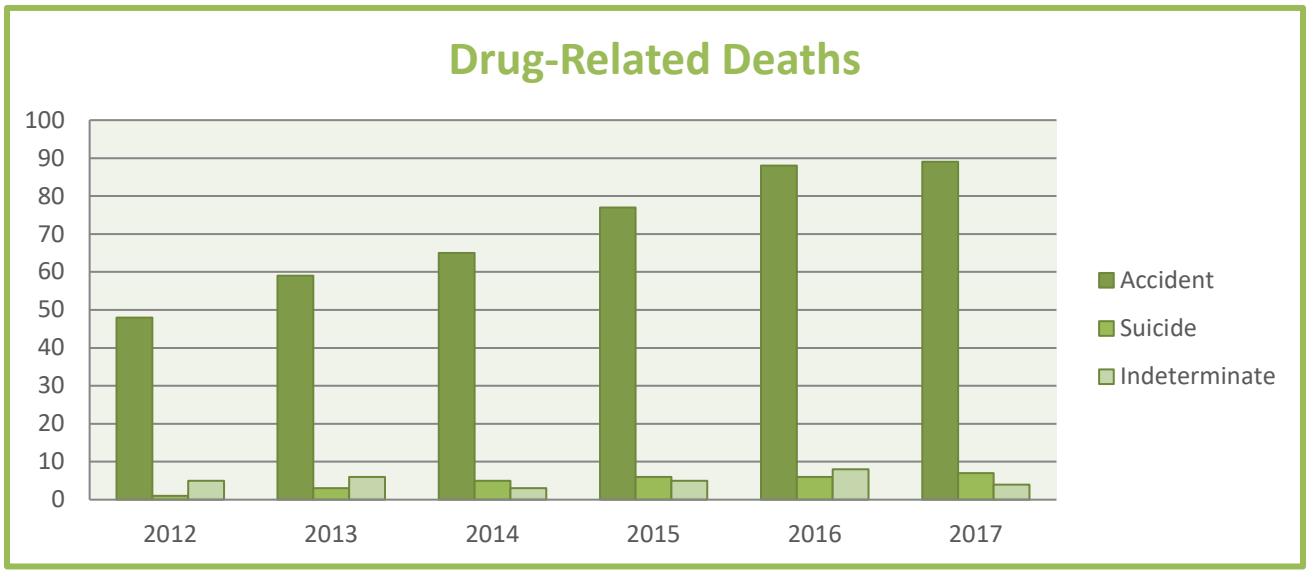
[28] (1) complications of injury from boxing; (1) fall off bicycle; (1) multiple injuries – struck by falling chimney; (1) pneumonia associated with acute and chronic ethanol use; (1) ingestion of poisonous mushroom; (1) rectal perforation from enema; (1) fell into wedged position on railroad – blunt and compressive injuries; (1) esophageal rupture from acute and chronic ethanol use

Ingham County

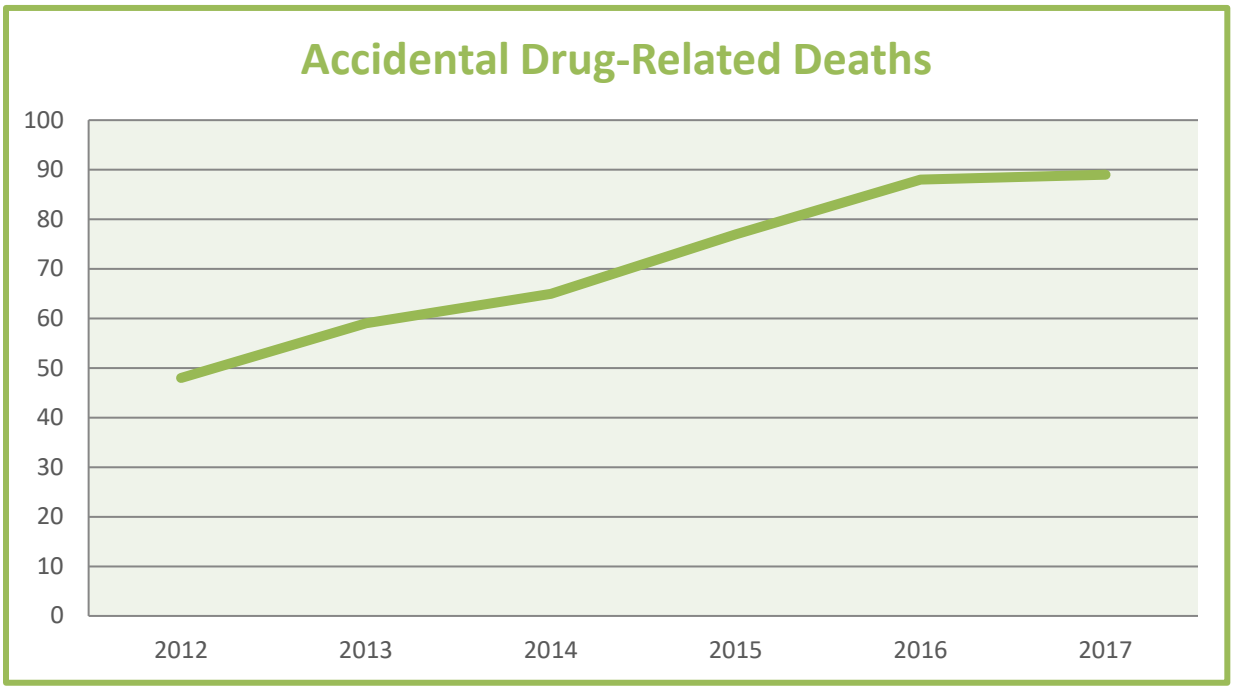
Drug-Related Deaths

For purposes of this report, drug-related fatalities are deaths in which an overdose of a combination of drugs or a single drug caused or contributed to the death. These deaths do not include situations in which intoxication might have been a factor in an incident leading to death, such as motor vehicle crashes, falls, choking while eating, or environmental exposures.

Manner of Death	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
ACCIDENT	48	59	65	77	88	89
SUICIDE	1	3	5	6	6	8
INDETERMINATE	5	6	3	5	8	4
TOTAL	54	68	73	88	102	101



2017 Drug-Related Deaths	
TOTAL	101 cases
SEX	42 female, 59 male
RACE	90 white, 9 black, 1 Asian, 1 mixed race
AGE RANGE	19-74 years
AVERAGE AGE	45 years
MEDIAN AGE	46 years
OPIOID-RELATED	79 cases involved an opiate or opioid (78.2%)
MANNER OF DEATH	89 accidents, 8 suicides, 4 indeterminate



Ingham County

Suicides

Suicide Totals by Year

2012	2013	2014	2015	2016	2017
34	41	33	46	51	44

Suicide Methods

	2012	2013	2014	2015	2016	2017
FIREARM	11	13	16	19	26	18
HANGING	16	19	11	16	10	13
DRUG INTOXICATION	1	3	5	6	6	8
SUFFOCATION	1	1	0	2	3	1
SHARP FORCE INJURY	2	0	0	1	1	1
JUMP FROM HEIGHT	1	1	1	1	3	2
DROWNING	0	1	0	0	0	0
MOTOR VEHICLE CRASH	2	1	0	0	1	1
CARBON MONOXIDE	0	2	0	0	0	0
STRUCK BY TRAIN	0	0	0	1	0	0
OTHER	0	0	0	0	1[29]	0

Suicides by Age

	2012	2013	2014	2015	2016	2017
0 – 17	2	4	1	2	3	2
18 – 25	6	11	3	9	9	9
26 – 44	14	12	10	12	21	12
45 – 64	9	11	16	18	7	18
65 +	3	3	3	5	11	3

[29] Penetrating head trauma – shot self with nail gun

Ingham County

Reported Deaths of Children

Sudden Unexplained Infant Death (SUID) refers to the death of an infant less than 1 year of age in which investigation, autopsy, medical history, review, and appropriate laboratory testing fails to identify a specific cause of death. SUID includes deaths that meet the definition of sudden infant death syndrome (SIDS).

Reported Deaths of Children by Age

	2012	2013	2014	2015	2016	2017
Stillborn	3	0	5	2	3	1
<1 year	10	12	7	8	10	8
1-5	6	3	0	5	6	3
6-10	2	3	2	1	2	1
11-17	7	5	3	6	10	4
TOTAL	28	23	17	22	31	17

Reported Deaths of Children by Manner of Death

Manner of Death	2012	2013	2014	2015	2016	2017
NATURAL	8	8	4	8	9	7
ACCIDENT	6	2	1	2	5	4
SUICIDE	2	3	1	2	3	2
HOMICIDE	4	3	2	1	4	1
INDETERMINATE	5	7	4	7	7	2

AGE	SEX	CAUSE OF DEATH	MANNER
		2017	
0	F	Intrauterine fetal demise	N/A (stillbirth)
1 day	F	Unspecified natural causes – not certified by ME	Natural
3 days	F	Unconjugated hyperbilirubinemia with kernicterus	Natural
1 month	F	Suffocation – unsafe sleep	Accident
2 months	M	Multiple injuries – inflicted by other person(s)	Homicide
3 months	M	Sudden unexplained infant death associated with unsafe sleep environment and upper respiratory tract infection	Indeterminate
4 months	M	Unspecified natural causes – not certified by ME	Natural
7 months	M	Idiopathic pulmonary hemosiderosis	Natural
8 months	F	Unspecified natural causes – not certified by ME	Natural
1 year	M	Drowning	Accident
1 year	F	Undetermined	Indeterminate
5 years	M	Multiple blunt force injuries – pedestrian struck by vehicle	Accident
10 years	F	Unspecified natural causes – not certified by ME	Natural
14 years	F	Multiple blunt force injuries – motor vehicle crash	Accident
14 years	M	Undetermined	Natural
16 years	M	Hanging	Suicide
17 years	M	Hanging	Suicide

Ionia County

Medical Examiner

Michael A. Markey, M.D.

Deputy Medical Examiners

John A. Bechinski, D.O.
Patrick A. Hansma, D.O.

Chief Investigator

Luke R. Vogelsberg, D-ABMDI

Medical Examiner Investigators

Ann Ward
Derek Schroeder
James Buxton
James Jones
John Sigg
Katharine Dernocoeur
Mark Crawfis
Matthew Kasper, D-ABMDI
Rick Vriesenga
Rob Fisk
Thomas Wodarek
Timothy Thelen

Ionia County

Summary of Cases

Our contract with Ionia began in mid-January, 2014. The 2014 data reflect deaths that occurred between Jan. 22, 2014, and Dec. 31, 2014.

	2014	*2015*	*2016*	*2017*
TOTAL DEATHS IN THE COUNTY	316	321	324	348
DEATHS REPORTED TO THE ME	86	92	95	113
CASES ACCEPTED FOR INVESTIGATION[30]	85	91	92	110
MEI SCENE INVESTIGATIONS	60	69	92	109
DEATH CERTIFICATES SIGNED BY ME	46	48	47	59
BODIES TRANSPORTED TO SPARROW	45	42	38	54
COMPLETE AUTOPSY	36	36	33	36
LIMITED AUTOPSY	2	0	2	2
EXTERNAL EXAMINATION	3	4	2	13
STORAGE ONLY	3	2	1	3
UNCLAIMED BODIES	2	0	1	1
REFERRALS TO GIFT OF LIFE	34	40	34	49
TISSUE/CORNEA DONORS	5	9	13	9
CREMATION PERMITS REVIEWED	173	166	196	221

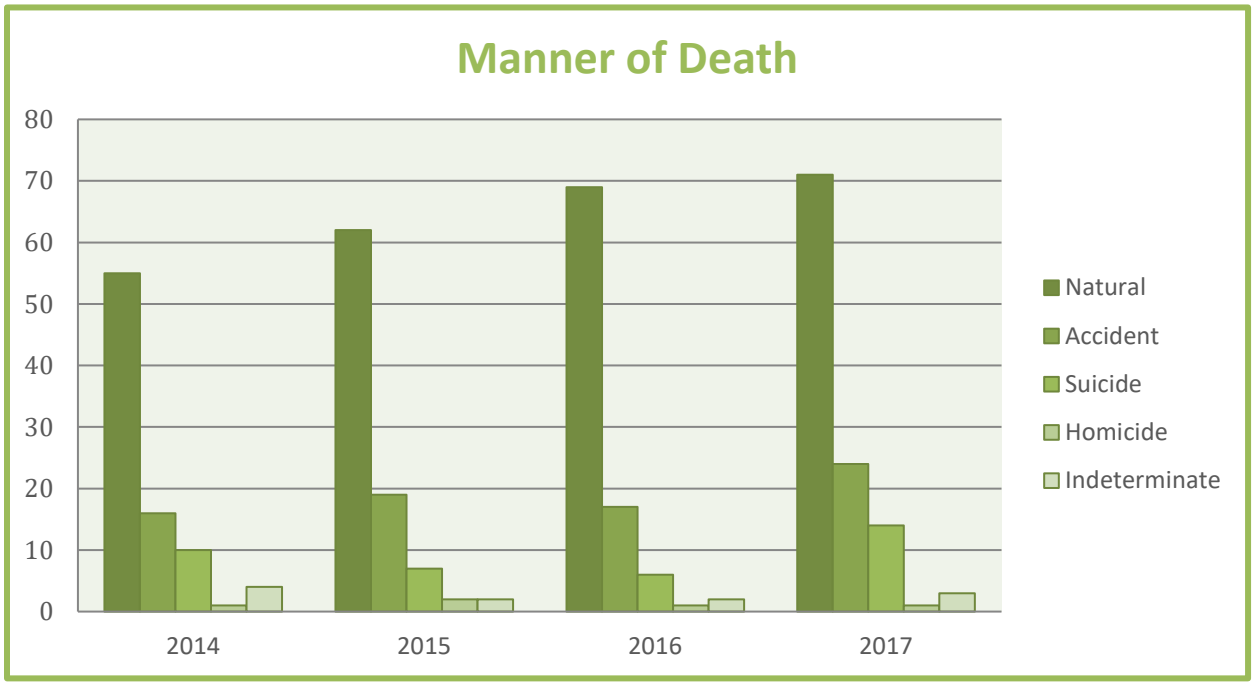
[30] Not every case that is reported to the Medical Examiner's office falls within our jurisdiction. We accept cases for investigation based on the circumstances surrounding the death and the law that governs the Medical Examiner's authority (MCL 52.202). We declined jurisdiction in 3 cases that were reported to us in 2016.

Ionia County

Manner of Death

The data on the following pages refers to those deaths that were reported to the Medical Examiner's Office.

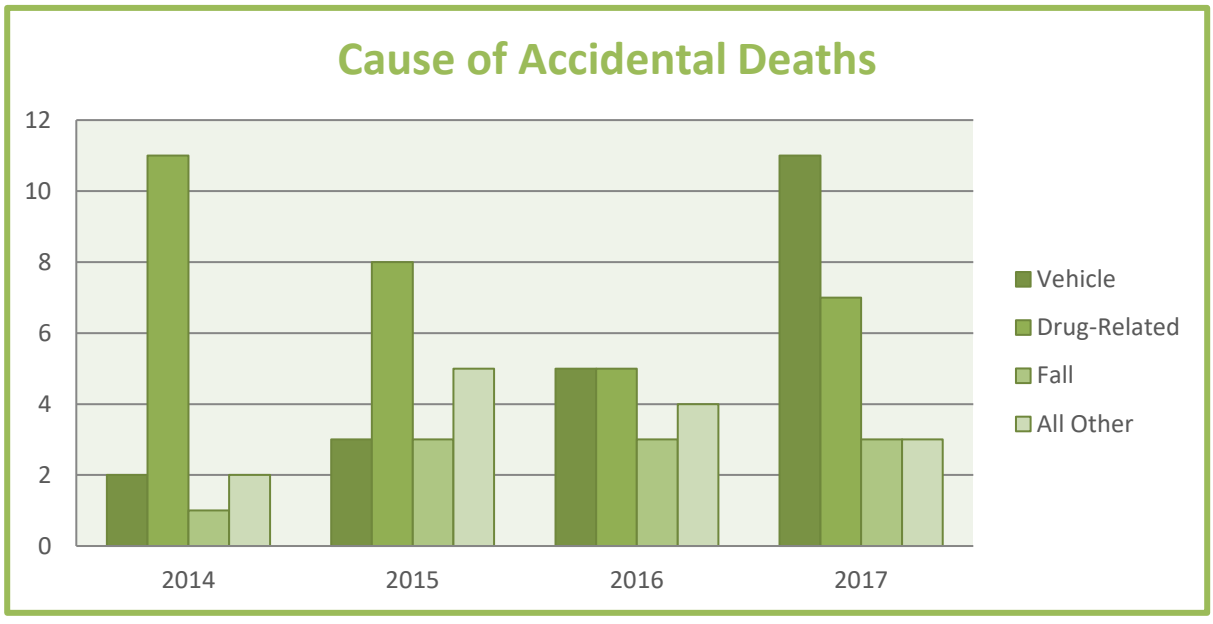
Manner of Death	*2014*	*2015*	*2016*	*2017*
NATURAL	55	62	69	71
ACCIDENT	16	19	17	24
SUICIDE	10	7	6	14
HOMICIDE	1	2	1	1
INDETERMINATE	4	2	2	3
TOTAL	86	92	95	113



Ionia County

Accidental Deaths

	2014	2015	2016	2017
VEHICLE	2	3	5	11
DRUG-RELATED	11	8	5	7
DROWNING	0	1	0	1
FALL	1	3	3	3
FIRE	0	2	2	1
ASPHYXIA	1	1	1	1
WATER INTOXICATION	1	0	0	0
HYPOTHERMIA	0	0	1	0
INDUSTRIAL ACCIDENT	0	1	0	0
TOTAL	16	19	17	24

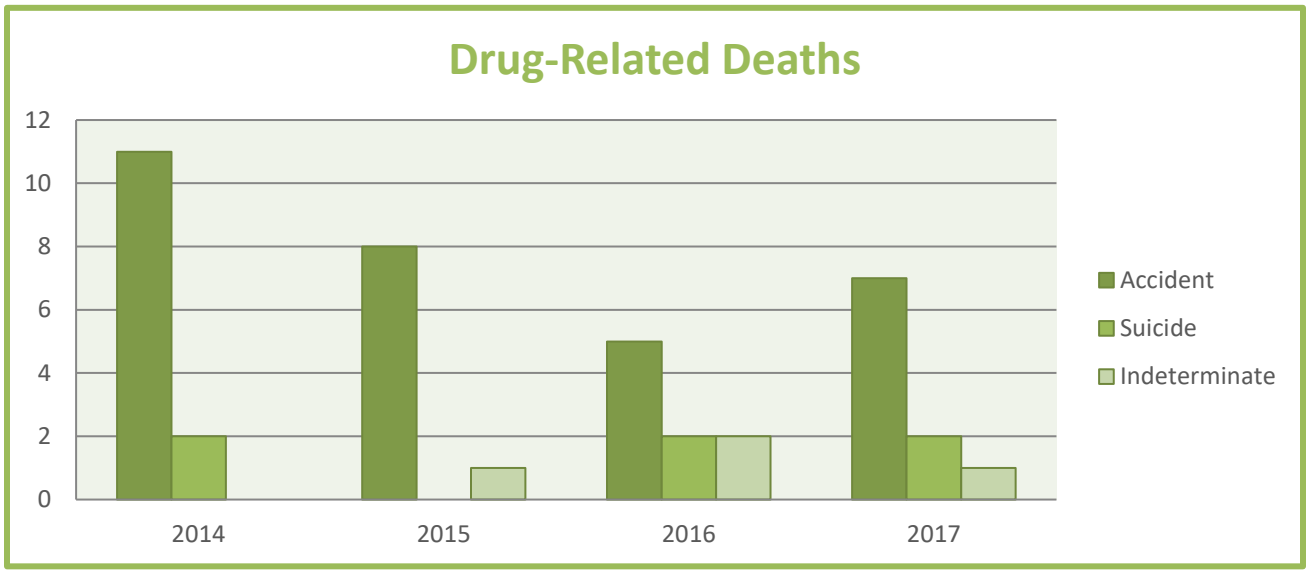


Ionia County

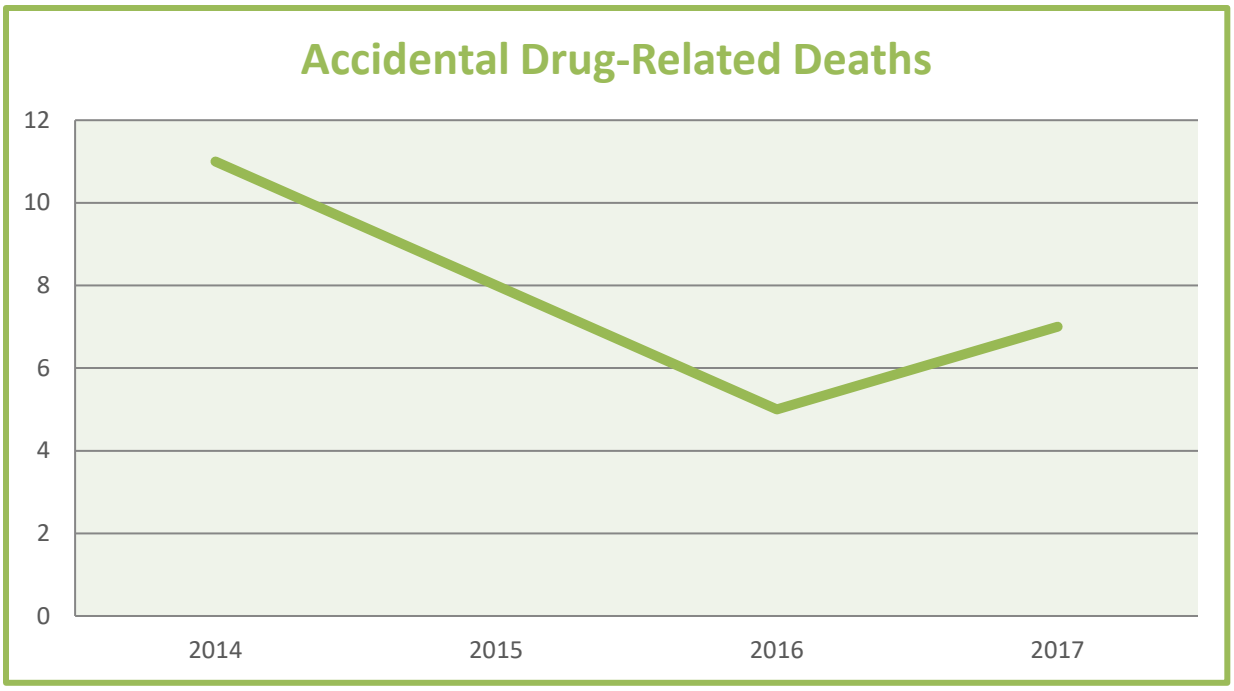
Drug Related Deaths

For purposes of this report, drug related fatalities are deaths in which an overdose of a combination of drugs or a single drug caused or contributed to the death. These deaths do not include situations in which intoxication might have been a factor in an incident leading to death, such as motor vehicle crashes, falls, choking while eating, or environmental exposures.

	2014	*2015*	*2016*	*2017*
ACCIDENT	11	8	5	7
SUICIDE	2	0	2	2
INDETERMINATE	0	1	2	1



2017 Drug Related Deaths	
TOTAL	10 cases
SEX	5 female, 5 male
RACE	10 white
AGE RANGE	26-68 years
AVERAGE AGE	38.9 years
MEDIAN AGE	35 years
OPIOID-RELATED	9 cases involved an opiate or opioid (90%)
MANNER OF DEATH	7 accidents, 2 suicides, 1 indeterminate



Ionia County
Suicides

Suicide Totals by Year

2014	2015	2016	2017
10	7	6	14

Suicide Methods

	2014	2015	2016	2017
FIREARM	5	2	4	3
HANGING	3	3	0	6
DRUG INTOXICATION	2	0	2	2
CARBON MONOXIDE	0	1	0	2
MOTOR VEHICLE	0	1	0	0
OTHER	0	0	0	1[31]

Suicides by Age

Age	2014	2015	2016	2017
0 – 17	1	0	0	0
18 – 25	3	1	0	2
26 – 44	3	4	4	4
45 – 64	1	2	0	5
65+	2	0	2	3

[31] (1) pedestrian struck by train

Ionia County

Reported Deaths of Children

Sudden Unexplained Infant Death (SUID) refers to the death of an infant less than 1 year of age in which investigation, autopsy, medical history, review, and appropriate laboratory testing fails to identify a specific cause of death. SUID includes deaths that meet the definition of sudden infant death syndrome (SIDS).

Reported Deaths of Children by Age

	2014	2015	2016	2017
Stillborn	0	0	0	0
<1 year	2	0	0	1
1-5	1	0	0	0
6-10	0	0	0	0
11-17	2	0	0	2
TOTAL	5	0	0	3

Reported Deaths of Children by Manner of Death

Manner of Death	2014	2015	2016	2017
NATURAL	2	0	0	1
ACCIDENT	1	0	0	0
SUICIDE	1	0	0	0
HOMICIDE	0	0	0	1
INDETERMINATE	1	0	0	1

AGE	SEX	CAUSE OF DEATH	MANNER
		2017	
2 months	M	Undetermined – possible unsafe sleep	Indeterminate
13 years	M	Complications of Goldenhar Syndrome	Natural
16 years	M	Stab wound of neck	Homicide

Isabella County

Medical Examiner

Michael A. Markey, M.D.

Deputy Medical Examiners

John A. Bechinski, D.O.
Patrick A. Hansma, D.O.

Chief Investigator

Luke R. Vogelsberg, D-ABMDI

Medical Examiner Investigators

Christy Mead
Kari Duman
Mary Stevens
Matthew Drake
Michael Rohn
Philip Nartker
Richard Clark
Robert Schumacker
Taylor Hoekwater

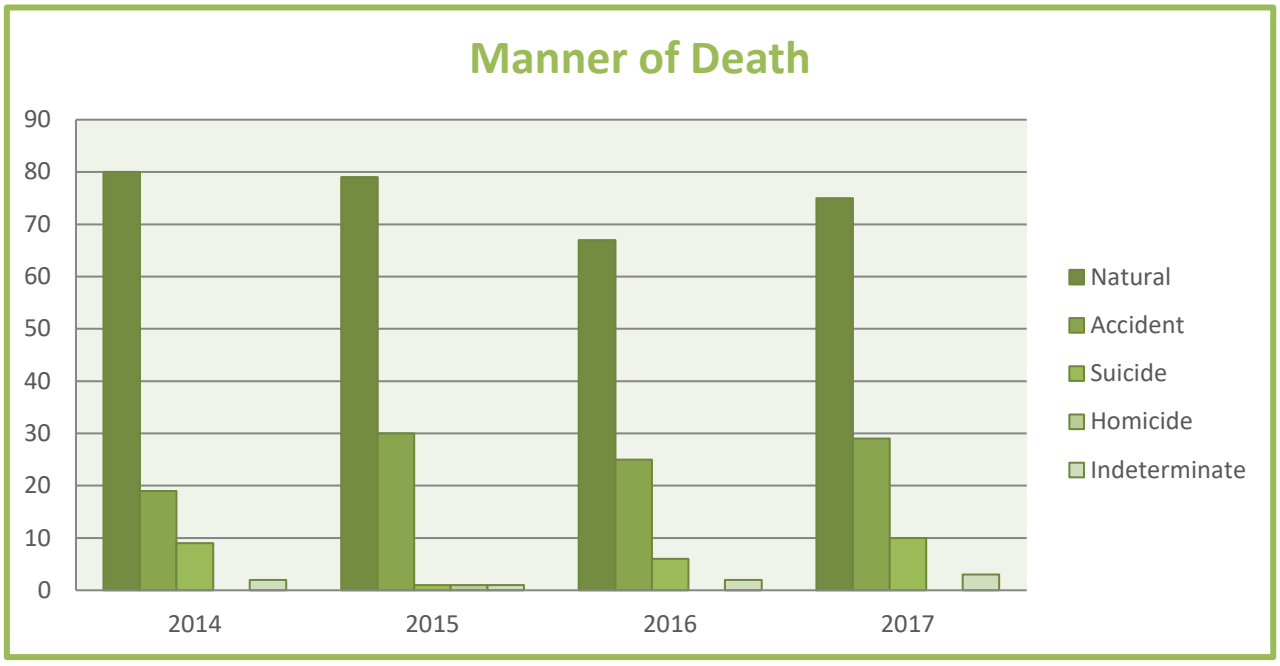
Isabella County
Summary of Cases

	2014	2015	2016	2017
TOTAL DEATHS IN THE COUNTY	475	485	507	528
DEATHS REPORTED TO THE ME	110	113	100	118
CASES ACCEPTED FOR INVESTIGATION[32]	106	104	91	110
MEI SCENE INVESTIGATIONS	65	100	93	105
DEATH CERTIFICATES SIGNED BY ME	59	54	48	56
BODIES TRANSPORTED TO SPARROW	39	46	41	45
COMPLETE AUTOPSY	30	44	35	38
LIMITED AUTOPSY	0	1	1	2
EXTERNAL EXAMINATION	9	1	3	5
STORAGE ONLY	0	0	2	0
UNCLAIMED BODIES	0	4	2	1
REFERRALS TO GIFT OF LIFE	33	53	40	51
TISSUE/CORNEA DONORS	2	6	8	10
CREMATION PERMITS REVIEWED	269	277	267	315

[32] Not every case that is reported to the Medical Examiner's office falls within our jurisdiction. We accept cases for investigation based on the circumstances surrounding the death and the law that governs the Medical Examiner's authority (MCL 52.202). We declined jurisdiction in 8 cases that were reported to us in 2017.

Isabella County
Manner of Death

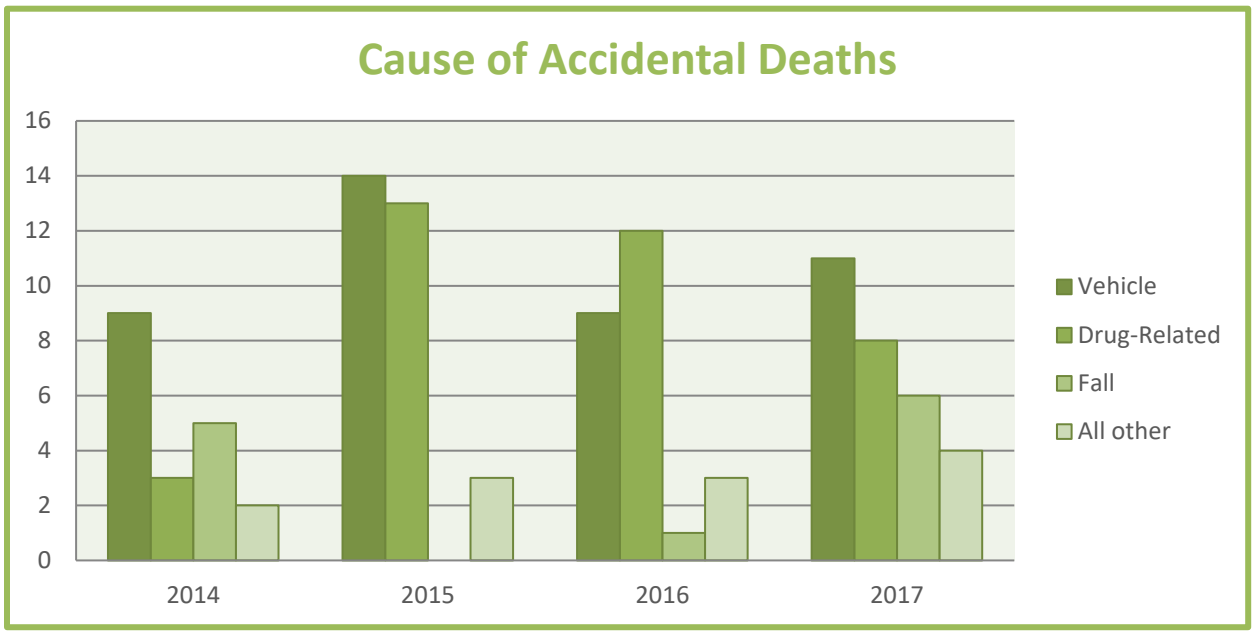
Manner of Death	*2014*	*2015*	*2016*	*2017*
NATURAL	80	79	66	75
ACCIDENT	19	30	25	29
SUICIDE	9	1	6	10
HOMICIDE	0	1	0	0
INDETERMINATE	2	1	2	3
TOTAL	110	112[33]	100[34]	118[35]



[33] Case with no manner of death: stillborn following motor vehicle crash
[34] Case with no manner of death: stillbirth
[35] Case with no manner of death: stillbirth

Isabella County
Accidental Deaths

	2014	*2015*	*2016*	*2017*
VEHICLE	9	14	9	11
DRUG-RELATED	3	13	12	8
DROWNING	1	1	0	2
FALL	5	0	1	6
ASPHYXIA	0	1	0	2
HYPOTHERMIA	0	1	1	0
ANIMAL	1	0	0	0
FALLING TREE	0	0	1	0
PINNED IN MACHINERY	0	0	1	0
TOTAL	19	30	25	29

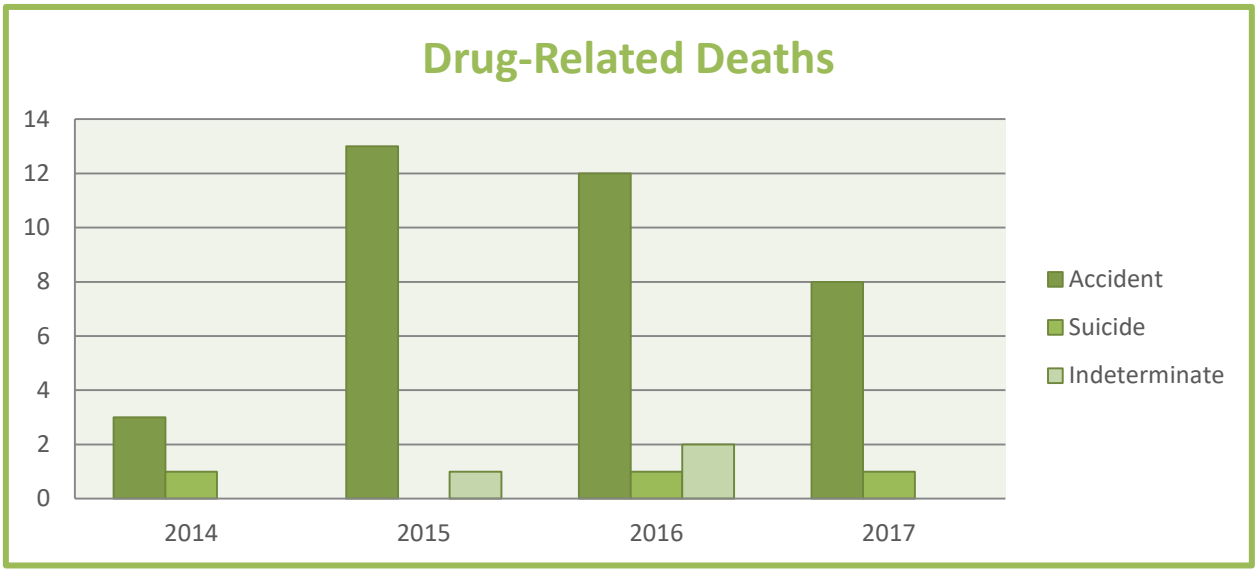


Isabella County

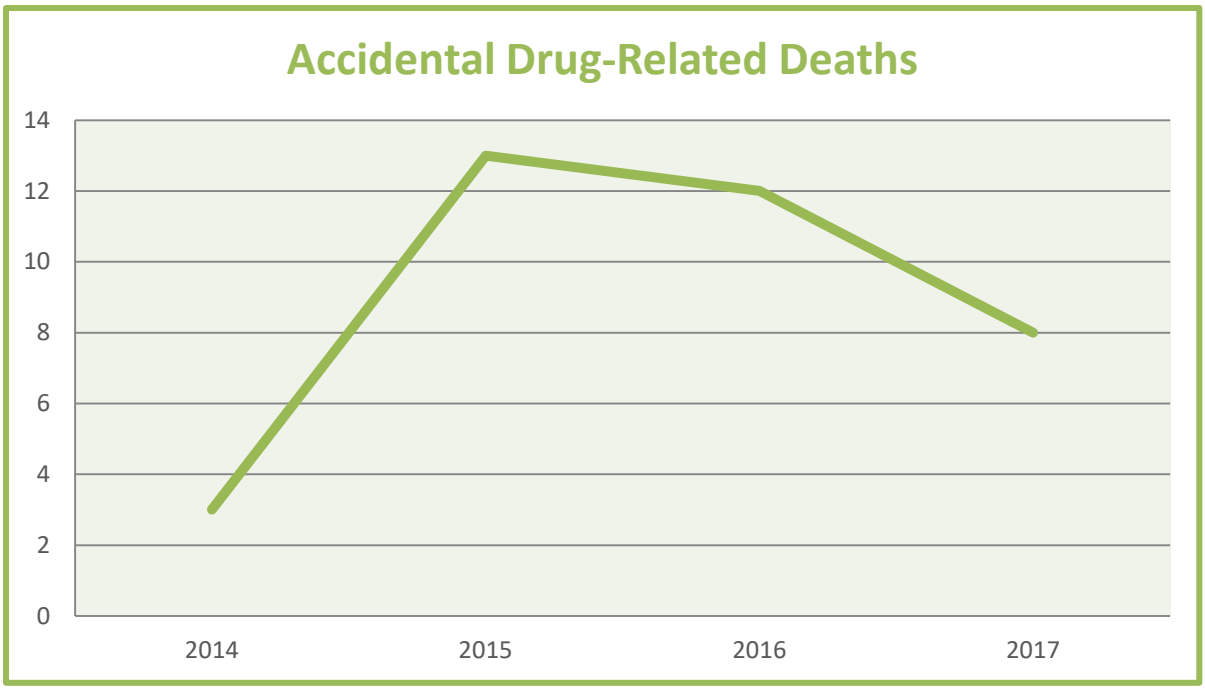
Drug Related Deaths

For purposes of this report, drug related fatalities are deaths in which an overdose of a combination of drugs or a single drug caused or contributed to the death. These deaths do not include situations in which intoxication might have been a factor in an incident leading to death, such as motor vehicle crashes, falls, choking while eating, or environmental exposures.

Manner of Death	*2014*	*2015*	*2016*	*2017*
ACCIDENT	3	13	12	8
SUICIDE	1	0	1	1
INDETERMINATE	0	1	2	0



2017 Drug Related Deaths	
TOTAL	9 cases
SEX	4 female, 5 male
RACE	5 white, 4 Native American
AGE RANGE	23 - 54 years
AVERAGE AGE	38.3 years
MEDIAN AGE	39 years
OPIOD-RELATED	8 cases involved an opiate or opioid (88.9%)
MANNER OF DEATH	8 accidents, 1 suicide



Isabella County
Suicides

Suicide Totals by Year

2014	2015	2016	2017
9	1	6	10

Suicide Methods

	2014	2015	2016	2017
FIREARM	5	1	3	7
HANGING	3	0	1	2
ASPHYXIA	0	0	1	0
DRUG INTOXICATION	1	0	2	1

Suicides by Age

Age	2014	2015	2016	2017
0 – 17	0	0	0	0
18 – 25	4	0	1	0
26 – 44	2	0	3	3
45 – 64	1	0	2	6
65+	2	1	0	1

Isabella County

Reported Deaths of Children

Sudden Unexplained Infant Death (SUID) refers to the death of an infant less than 1 year of age in which investigation, autopsy, medical history, review, and appropriate laboratory testing fails to identify a specific cause of death. SUID includes deaths that meet the definition of sudden infant death syndrome (SIDS).

Reported Deaths of Children by Age

	2014	*2015*	*2016*	*2017*
Stillborn	0	2	1	1
<1 year	0	1	0	0
1-5	1	0	0	1
6-10	0	0	0	0
11-17	0	4	0	1
TOTAL	1	7	1	3

Reported Deaths of Children by Manner of Death

Manner of Death	*2014*	*2015*	*2016*	*2017*
NATURAL	0	1	0	0
ACCIDENT	1	4	0	2
SUICIDE	0	0	0	0
HOMICIDE	0	0	0	0
INDETERMINATE	0	0	0	0

AGE	SEX	CAUSE OF DEATH	MANNER
		2017	
0	F	Stillborn	N/A (stillbirth)
4 years	F	Blunt force head trauma (motor vehicle crash)	Accident
17 years	M	Drowning	Accident

Shiawassee County

Medical Examiner

Michael A. Markey, M.D.

Deputy Medical Examiners

John A. Bechinski, D.O.
Patrick A. Hansma, D.O.

Chief Investigator

Luke R. Vogelsberg, D-ABMDI

Medical Examiner Investigators

Mark Pendergraff, D-ABMDI
Dennis Campbell
Ashley Ault
Lawrence Goff
Nicholas Stratton
Shane Grinnell
MaryLynn Jordan
Mary Valentine

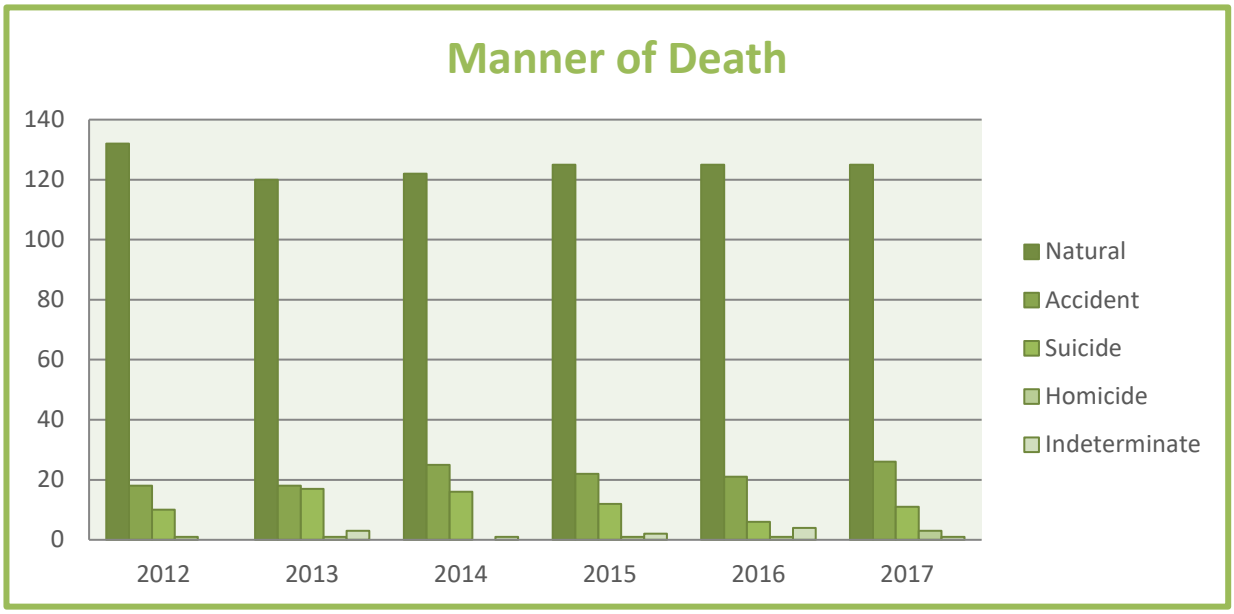
Shiawassee County
Summary of Cases

	2012	2013	2014	2015	2016	2017
TOTAL DEATHS IN THE COUNTY	533	587	651	600	629	618
DEATHS REPORTED TO THE ME	164	159	164	162	158	168
CASES ACCEPTED FOR INVESTIGATION[36]	143	145	145	142	130	151
MEI SCENE INVESTIGATIONS	139	138	137	138	133	151
DEATH CERTIFICATES SIGNED BY ME	70	71	81	72	64	66
BODIES TRANSPORTED TO SPARROW	44	54	54	52	48	57
COMPLETE AUTOPSY	31	32	39	45	44	41
LIMITED AUTOPSY	2	5	4	1	1	7
EXTERNAL EXAMINATION	7	15	11	5	2	3
STORAGE ONLY	4	2	0	1	1	6
REFERRALS TO GIFT OF LIFE	16	16	31	28	43	44
TISSUE/CORNEA DONORS	4	2	2	7	15	8
UNCLAIMED BODIES	0	0	1	0	1	0
CREMATION PERMITS REVIEWED	243	265	308	298	375	356

[36] Not every case that is reported to the Medical Examiner's office falls within our jurisdiction. We accept cases for investigation based on the circumstances surrounding the death and the law that governs the Medical Examiner's authority (MCL 52.202). We declined jurisdiction in 17 cases that were reported to us in 2017.

Shiawassee County
Manner of Death

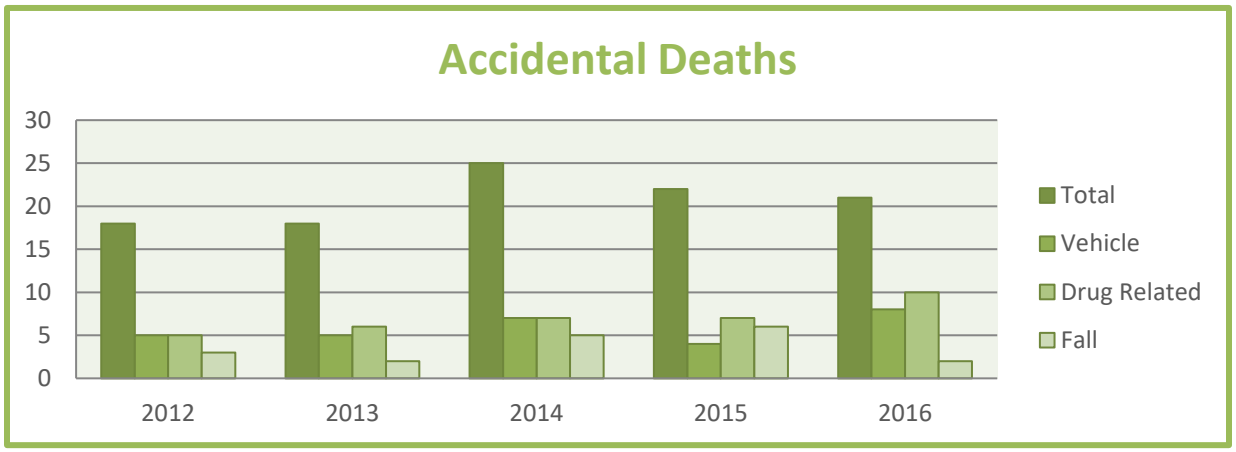
Manner of Death	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
NATURAL	132	120	122	125	125	125
ACCIDENT	18	18	25	22	21	26
SUICIDE	10	17	16	12	6	11
HOMICIDE	1	1	0	1	1	3
INDETERMINATE	0	3	1	2	4	1
TOTAL	161[37]	159	164	162	158[38]	168[39]



[37] Cases with no manner of death: (2) stillbirths; (1) non-human material
[38] Cases with no manner of death: stillbirth
[39] Cases with no manner of death: (1) stillbirth; (1) found "trophy" human skull of no contemporary forensic interest

Shiawassee County
Accidental Deaths

	2012	2013	2014	2015	2016	2017
VEHICLE	5	5	7	4	8	3
DRUG-RELATED	5	6	7	7	10	14
DROWNING	2	0	0	0	0	0
FALL	3	2	5	6	2	7
FIRE	0	1	2	0	1	1
ASPHYXIA	3	2	3	1	0	0
INSECT STING(S)	0	0	0	2	0	0
HYPOTHERMIA	0	0	1	0	0	0
OTHER	0	2[40]	0	2[41]	0	0
TOTAL	18	18	25	22	21	1[42]



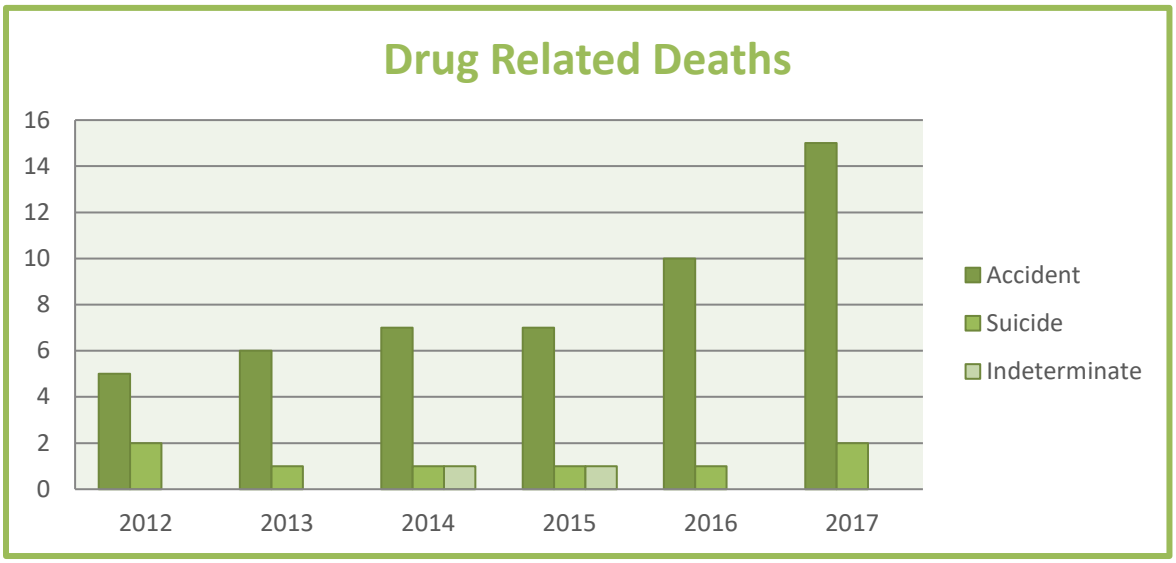
[40] (1) carbon monoxide toxicity; (1) electrocution
[41] (1) perforated artery during attempt at catheter placement; (1) compressed by machinery
[42] Hypothermia complicated by multiple drug intoxication, blunt head trauma, and cardiopulmonary disease

Shiawassee County

Drug Related Deaths

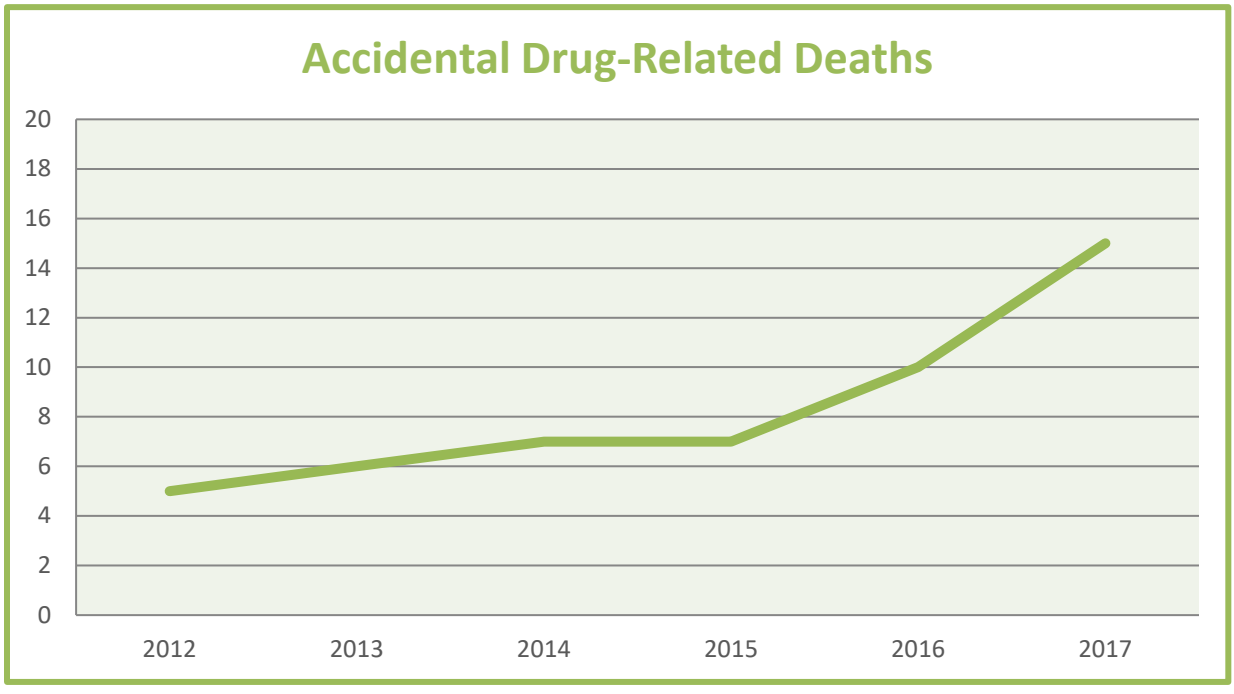
For purposes of this report, drug related fatalities are deaths in which an overdose of a combination of drugs or a single drug caused or contributed to the death. These deaths do not include situations in which intoxication might have been a factor in an incident leading to death, such as motor vehicle crashes, falls, choking while eating, or environmental exposures.

Manner of Death	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*
ACCIDENT	5	6	7	7	10	15[43]
SUICIDE	2	1	1	1	1	2
INDETERMINATE	0	0	1	1	0	0
TOTAL	7	7	9	9	11	17



[43] (1) case is multifactorial – hypothermia complicated by multiple drug intoxication, blunt head injuries, and cardiopulmonary disease (explains discrepancy in total number of accidental drug-related deaths between this chart and that on previous page)

2017 Drug Related Deaths	
TOTAL	17 cases
SEX	5 female, 12 male
RACE	17 white
AGE RANGE	21 - 722 years
AVERAGE AGE	45.3 years
MEDIAN AGE	33 years
OPIOD-RELATED	17 cases involved an opiate or opioid (100%)
MANNER OF DEATH	15 accidents, 2 suicides



Shiawassee County

Suicides

Suicide Totals by Year

2012	2013	2014	2015	2016	2017
10	17	16	12	6	11

Suicide Methods

	2012	2013	2014	2015	2016	2017
FIREARM	6	10	7	4	3	9
HANGING	1	5	7	6	1	0
DRUG INTOXICATION	2	1	1	1	1	2
CARBON MONOXIDE	1	0	1	0	0	0
MOTOR VEHICLE CRASH	0	0	0	0	0	0
STRUCK BY TRAIN	0	1	0	1	1[44]	0

Suicides by Age

Age	2012	2013	2014	2015	2016	2017
0 – 17	1	0	1	0	0	0
18 – 25	0	4	2	1	0	1
26 – 44	2	3	7	6	1	3
45 – 64	3	8	4	3	5	4
65+	4	2	2	2	0	3

[44] Motor vehicle parked on train trucks – struck by train in motor vehicle

Shiawassee County

Reported Deaths of Children

Reported Deaths of Children by Age

	2012	2013	2014	2015	2016	2017
Stillborn	2	1	1	0	1	1
<1 year	1	2	1	1	2	1
1-5	0	0	0	0	0	0
6-10	0	0	0	0	1	0
11-17	2	2	1	0	0	0
TOTAL	5	5	3	1	4	2

Reported Deaths of Children by Manner of Death

Manner of Death	2012	2013	2014	2015	2016	2017
NATURAL	0	0	0	0	0	0
ACCIDENT	2	2	1	0	1	0
SUICIDE	1	0	1	0	0	0
HOMICIDE	0	1	0	0	1	0
INDETERMINATE	0	1	0	1	1	1

AGE	SEX	CAUSE OF DEATH 2017	MANNER
0	F	Stillbirth – intrauterine fetal demise	N/A (stillbirth)
25 days	F	Undetermined – possible unsafe sleep	Indeterminate

Comparisons Across Counties

	Eaton	*Ingham*	*Ionia*	*Isabella*	*Shiawassee*
POPULATION[45]	107,759	280,895	63,905	70,311	70,648
TOTAL DEATHS	783	2,872	348	528	618
DEATHS REPORTED TO THE ME (% OF TOTAL DEATHS)	191 (24.4%)	916 (31.9%)	113 (32.5%)	118 (22.3%)	168 (27.2%)
CASES ACCEPTED FOR INVESTIGATION	176	677	110	110	151
MEI SCENE INVESTIGATION	187	752	109	105	151
DEATH CERTIFICATES SIGNED BY ME	91	422	59	56	66
TOTAL EXAMS (% OF CASES ACCEPTED)	73 (41.5%)	286 (42.2%)	51 (46.4%)	45 (40.9%)	51 (33.8%)
NATURAL DEATHS (% OF DEATHS REPORTED)	128 (67.0%)	605 (66.0%)	71 (62.8%)	75 (63.6%)	125 (74.4%)
ACCIDENTAL DEATHS (% OF DEATHS REPORTED)	38 (19.9%)	231 (25.2%)	24 (21.2%)	29 (24.6%)	26 (15.5%)

[45] Population statistics provided by suburbanstats.org

	Eaton	*Ingham*	*Ionia*	*Isabella*	*Shiawassee*
SUICIDES (% OF DEATHS REPORTED)	20 (10.5%)	44 (4.8%)	14 (12.4%)	10 (8.5%)	11 (6.5%)
HOMICIDES (% OF DEATHS REPORTED)	3 (1.6%)	19 (2.1%)	1 (0.9%)	0 (0%)	3 (1.8%)
INDETERMINATE (% OF DEATHS REPORTED)	2 (1.1%)	16 (1.7%)	3 (2.7%)	3 (2.5%)	1 (0.6%)
DRUG-RELATED DEATHS (% OF DEATHS REPORTED)	15 (7.9%)	101 (11.0%)	10 (8.8%)	9 (7.6%)	11 (6.6%)
REFERRALS TO GIFT OF LIFE	51	326	49	51	44
TISSUE/CORNEA DONORS	11	92	9	10	8
UNCLAIMED BODIES	4	34	1	1	0

Additional Information

In the five counties for which Sparrow Forensic Pathology served as the Office of the Medical Examiner in 2017:

- Zero bodies were exhumed for examination
- Zero bodies remained unidentified at the time a final disposition for the remains was determined
- Toxicology testing was performed in 495 of the 512 examinations performed[46]

[46] Toxicology testing is performed in nearly all cases in which an examination is performed. Exceptions to this may include (but are not limited to): cases sent in for identification purposes only, apparent natural deaths sent in for external examination to rule out trauma, and cases for which adequate toxicology specimens cannot be obtained (due to prolonged stay in hospital following initial event, or decomposition).