Kent County
Medical Examiner

2018
Annual Report

Office of the Medical Examiner
700 Fuller N.E.
Grand Rapids, Michigan 49503

2018 Kent County Medical Examiner Annual Report

To the Kent County Board of Commissioners
and to the Citizens of Kent County:

It is my pleasure to present the Kent County Medical Examiner 2018 Annual Report. Our autopsies decreased by 62 in 2018. Our referred cases, however, increased by 44 over 2017 to 1854. I'm pleased to announce that we were approved to hire two more medical examiner investigators and that has been done and their training will commence soon. However, because of the decrease in autopsies, our expenditures decreased approximately $180,000.00 from 2017. We continue to be the top county in terms of referring tissue donors (59) and eye donors (48). We facilitated 28 organ donors.

Local hospitals have slipped a bit in their compliance with saving admission blood samples for toxicology screening on patients who have lived more than a few days in the hospital. The saving of such blood is vital in our ability to accurately determine the cause and manner of death, since blood and other specimens recovered several days after admission are useless for toxicology testing.

Our percentage of deaths by manner was similar to that in 2017. In 2018 57% of our deaths were natural, 33% were accident, nearly 8% were suicide, and just over 2% were homicide. Once again, in 2018 our homicides were 28, the same as in 2017. Unfortunately, nearly 29% of our homicides were in the 0-19 year age group. Our suicides increased 9% from 2017 to 2018 stressing the importance of family and friends to provide support to those in need. Sixty one percent of our suicides were in the 20-44 year age group. Drug overdose continues to be the single biggest cause of accidental deaths in 2018, accounting for approximately one fourth. This continues to trend the past three years in which overdose has replaced vehicular accidents as the most common cause of accidental deaths. In 2018, we had 114 overdose deaths in 2018 compared to 156 in 2017, which represented an all-time high. About half the overdose deaths were narcotic analgesics (prescribed opiates, such as Vicodin, oxycodone, etc.) with 13% heroin deaths representing a substantial decrease in this drug. Cocaine and methadone accounted for approximately 20% of the drugs first mentioned. The number of child deaths reviewed in 2018 was 21, up one from 2017, and in the past five years, down from a high of 27 in 2014 and 2015.

We at the Medical Examiner's Office continue our efforts to contribute to the overall health of the citizens of Kent County and our colleagues in hospitals, public health and law enforcement fields.

Respectively submitted,

Stephen D. Cohle, MD
Kent County Chief Medical Examiner

Office of the Kent County Medical Examiner

700 Fuller N.E., Grand Rapids, MI 49503
Phone (616) 632-7247; Fax (616) 632-7088
Medical Examiner Exchange (616) 588-4500

Medical Examiner Personnel

Stephen D. Cohle, MD
Chief Medical Examiner and
Forensic Pathologist

David A. Start, MD
Deputy Chief Medical Examiner and
Forensic Pathologist

Elizabeth L. Brown, D-ABMDI
Medical Examiner Investigator

Judy A. Chamberlain
Medical Examiner Investigator

Paul R. Davison, F-ABMDI
Medical Examiner Investigator

Cynthia L. Debiak, RN
Medical Examiner Investigator

Peter J. Noble
Medical Examiner Investigator

Theodore E. Oostendorp
Medical Examiner Investigator

Daniel Hopkins
Kent County Conveyance Specialist

Carmen D. Marrero-Perez
Office Administrator and
Child Death Review Coordinator

Jessica Carnes
Medical Examiner Support Staff

Board Certification
The American Board of Medicolegal Death Investigators (ABMDI) sets quality and process standards for death investigators. Medical examiners who pass the certification requirements of the ABMDI are designated as registered Diplomats (D-ABMDI). Medical examiners with continued time in investigation and who pass required tests are designated as certified Fellows (F-ABMDI).

Medical Examiner Program Expenditures, 2017 and 2018

	2017		2018	
	Amount	Percentage	Amount	Percentage
Medical examiner (compensation)	$ 267,830	15.7%	$ 247,417	16.2%
Autopsies	1,270,827	74.5%	1,118,617	73.3%
Body transport	100,977	5.9%	88,752	5.8%
Support services	6,221	.0.4%	10,665	0.7%
Administration	60,000	3.5%	60,000	4.0%
Total	$1,705,855	100.0%	$1,525,451	100.0%
Average cost per case investigated	$1,358		$1,210	

Medical Examiner Reportable Deaths and Autopsy

The Michigan County Medical Examiners Law, P.A. 181 of 1953, as amended, and the Michigan Public Health Code, P.A. 368 of 1978, as amended, mandates that specific types of deaths (listed below, left) be referred to the medical examiner for investigation. Medical examiner investigation of a death may also be ordered by the county's prosecuting attorney, the Michigan Attorney General or, upon the filing of a petition, signed by six (6) electors of a county. Not all deaths referred to the medical examiner for investigation necessarily result in an autopsy; however, an autopsy is generally ordered in certain circumstances (listed below, right), to determine more accurately the cause and manner of death.

Types of Deaths Reportable to the Medical Examiner, P.A. 368 of 1978

1. Sudden deaths and unexpected deaths (all deaths occurring in operating room, in recovery room, anesthesia related, natural death but not expected, occupational related deaths, subdural hematoma, intracerebral hemorrhage, etc.)*
2. Accidental deaths (motor vehicle, burns, drowning, falls, broken bones, drug overdose, drug toxicity, subdural hematoma, recent or past trauma, etc.)
3. Violent deaths (homicide, gunshot, stabbing, suicide, subdural hematoma, etc.)*
4. Suspicious circumstances surrounding a death.*
5. Deaths occurring as a result of an abortion.
6. Upon written order of the prosecuting attorney or the attorney general or upon the filing of a petition signed by six (6) electors of a county.
7. Death of a prisoner in any county or city jail who dies while so imprisoned.
8. If a fetal death occurs without medical attendance at or after the delivery.

In terms of a physician attendance: for the purposes of the medical examiner program, we consider that an investigation is required when:

A. The deceased was last seen by a physician more than **ten (10) days before his or her death, if the cause of death appears to be other than the illness or condition for which the deceased was being treated.
B. The attending physician cannot accurately determine the cause of death.
C. When the deceased has not received any medical attention during the ***48 hours prior to the hour of death unless the attending physician, if any, is able to accurately determine the cause of death.

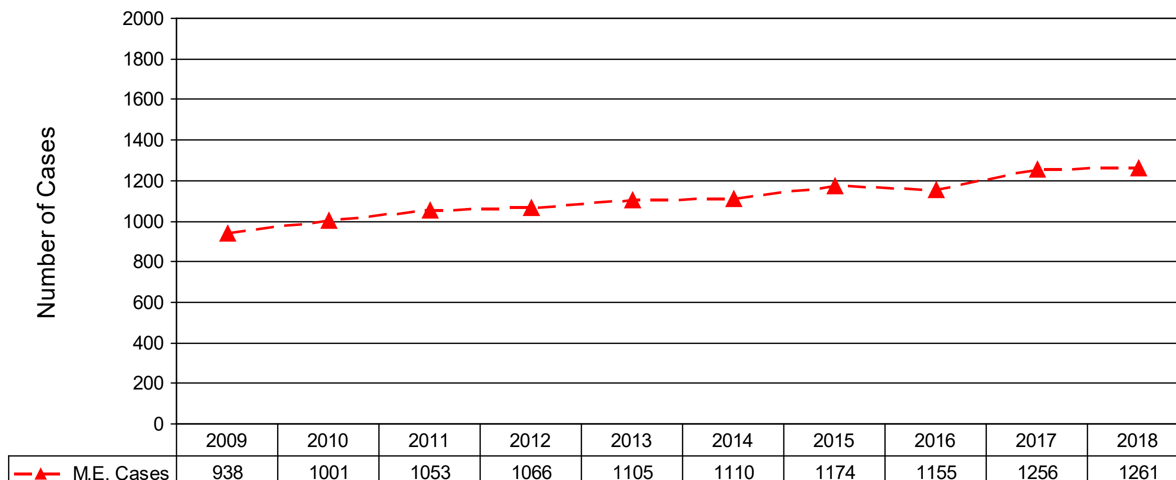
* All trauma related deaths no matter when the trauma occurred.
** The ten (10) day requirement relates solely to physician attendance.
***The 48 hour requirement triggers an investigation when there has been no medical attendance of any kind (i.e., nursing care, etc.)

Types of Medical Examiner Cases for which Autopsy is Generally Ordered

1. Sudden deaths and unexpected deaths only when in the medical examiner's judgment, sufficient medical history is not available to determine cause and manner of death.
2. Accidental deaths such as motor vehicle, burns, drowning, etc. If an individual has been hospitalized for a length of time, it is the medical examiner's decision to order an autopsy.
3. Violent deaths such as homicide, suicide, gunshot, stabbing, etc.
4. Suspicious circumstances surrounding death, including unidentified bodies.
5. Death related to an abortion.
6. Sudden infant deaths (SIDS) and deaths of children 18 and under without significant medical history.
7. Death of a prisoner imprisoned at any county or city jail.
8. In a fetal death occurring without medical attendance at or after delivery.
9. An autopsy may be ordered at the discretion of the medical examiner if the cause of death appears to be other than the illness or condition for which the deceased was being treated, or if the attending physician cannot accurately determine the cause of death.
10. Anesthesia-related and unexpected deaths of patient in health care institutions.
11. Partial autopsies are not done because it is not best practice.
12. Views are performed in cases in which there is adequate history to explain the death, but there are external findings, such as injuries, that require direct examination to determine whether they maybe significant injuries that mandate full autopsy.

2018 Medical Examiner Caseload

Figure 1: Accepted Kent County Medical Examiner Cases, 2009-2018

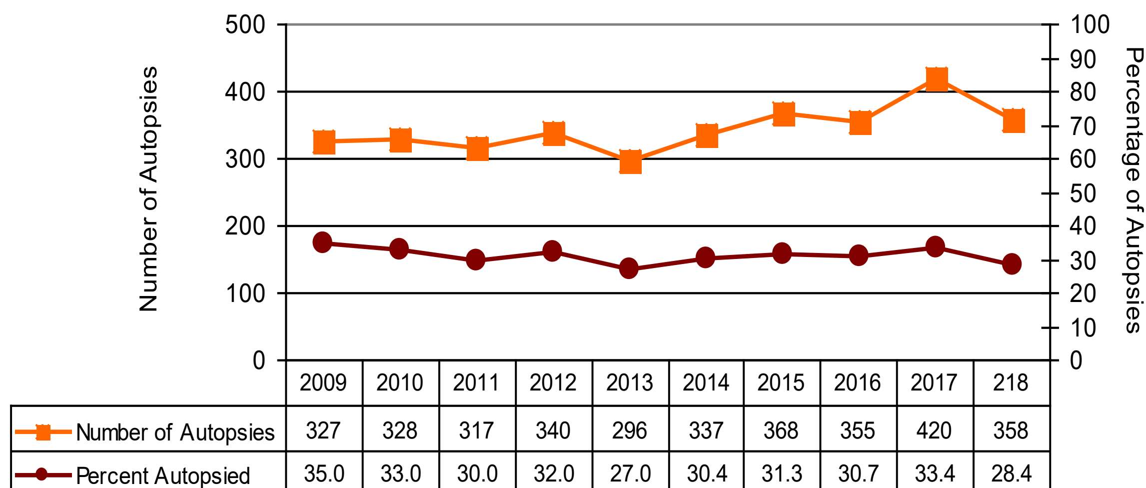


Total Referred Medical Examiner Cases in 2016: 1,854

Accepted	1,261	68.0%
Declined	593	32.0%

In 2018, there were 6,071 deaths in Kent County. The medical examiner was contacted regarding 1,854 of these deaths. 1,261 cases were accepted for investigation, while 593 were declined and did not fall within the requirements for investigation by the Medical Examiner's Office. There were no exhumations in 2018. In 2018, there were 150 referrals to Gift of Life and Eversight resulting in 29 tissue donors and 21 eye donors.

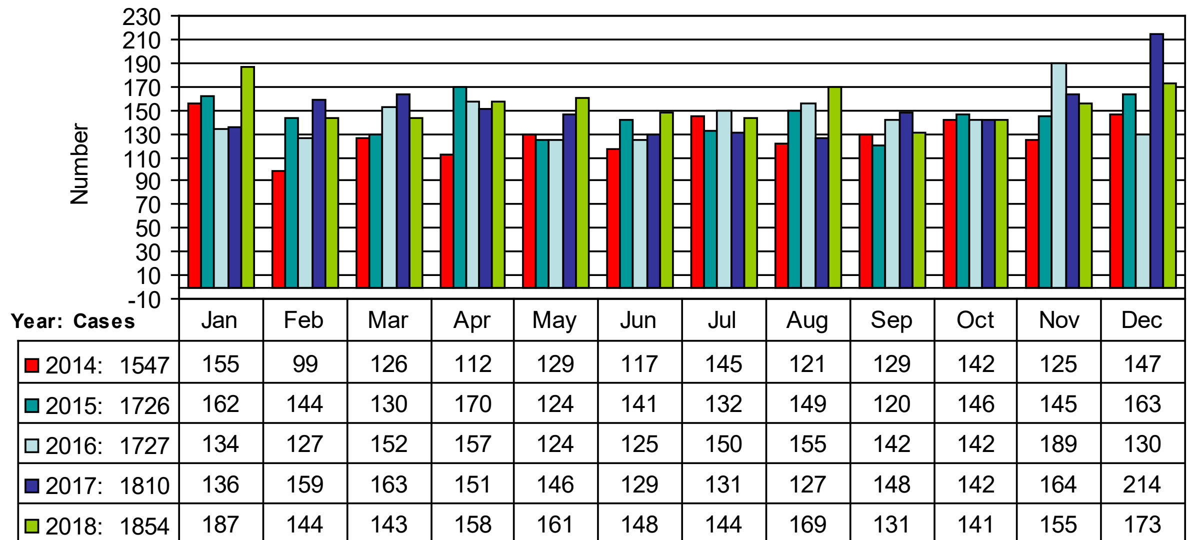
Figure 2: Medical Examiner Cases with Autopsy, 2009-2018



Of the 358 autopsies performed, 350 were charged to Kent County. The remaining 8 autopsies were performed at the request of other counties. Toxicology was performed on 375 cases with 20 of those being views (84) and 12 where only toxicology was performed. There were no partial autopsies performed.

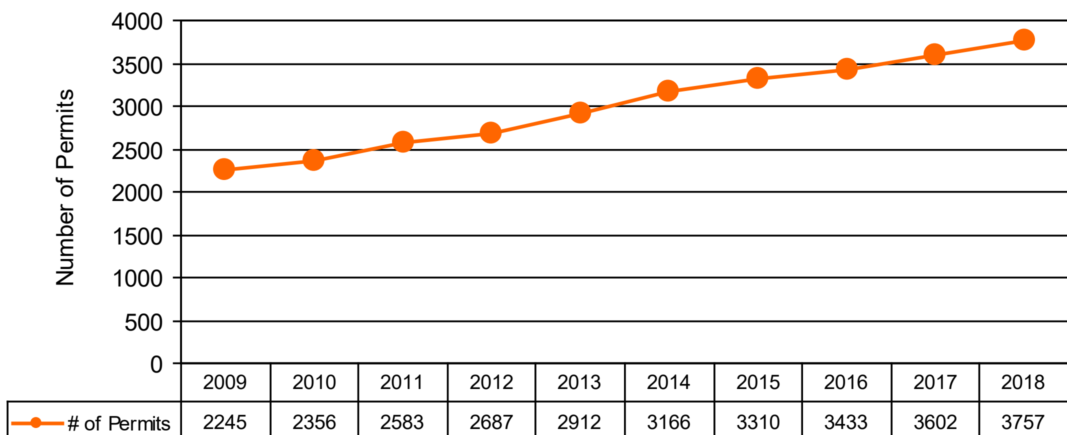
2018 Medical Examiner Caseload

Figure 3: Referred Medical Examiner Caseload by Month, 2014-2018



Year: Cases	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014: 1547	155	99	126	112	129	117	145	121	129	142	125	147
2015: 1726	162	144	130	170	124	141	132	149	120	146	145	163
2016: 1727	134	127	152	157	124	125	150	155	142	142	189	130
2017: 1810	136	159	163	151	146	129	131	127	148	142	164	214
2018: 1854	187	144	143	158	161	148	144	169	131	141	155	173

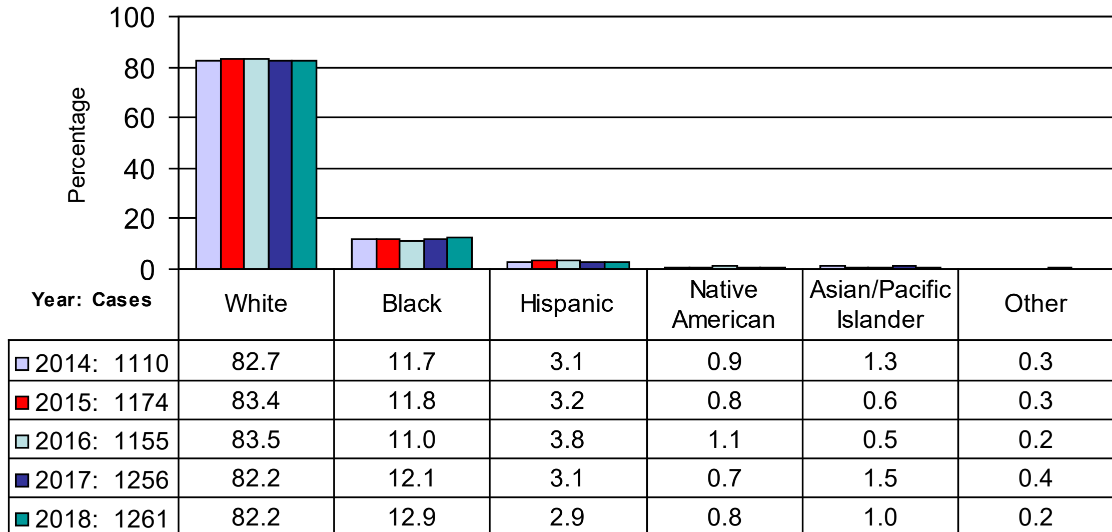
Figure 4: Cremation Permits Issued, 2009-2018



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
# of Permits	2245	2356	2583	2687	2912	3166	3310	3433	3602	3757

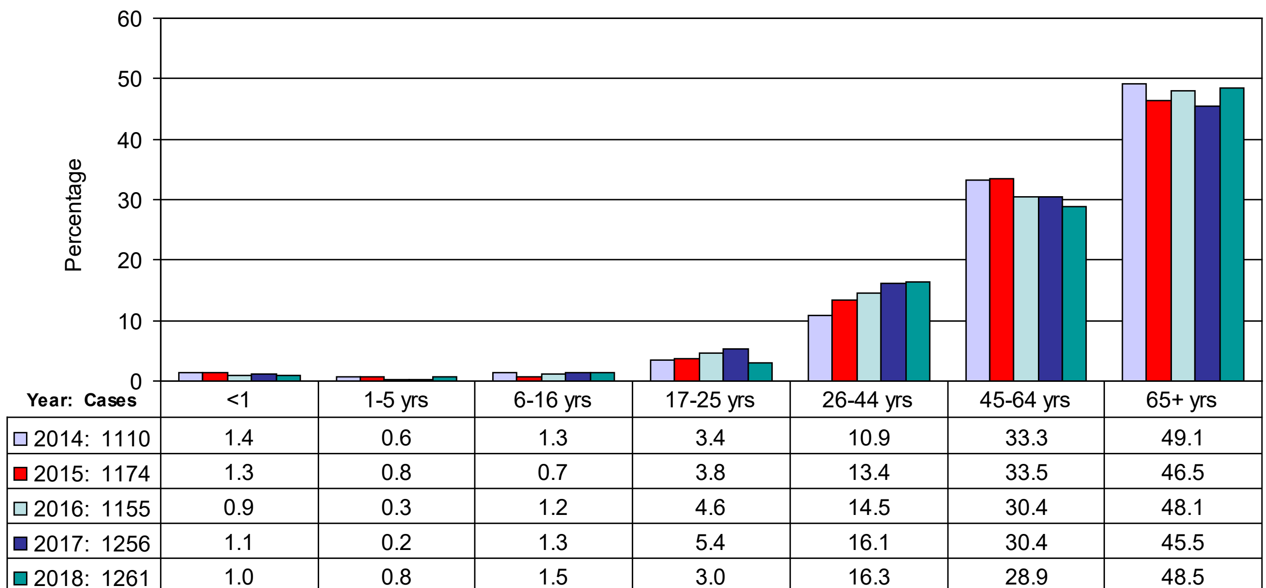
Demographics of Medical Examiner Cases

Figure 5: Medical Examiner Cases by Race/Ethnicity, 2014-2018



Year: Cases	White	Black	Hispanic	Native American	Asian/Pacific Islander	Other
2014: 1110	82.7	11.7	3.1	0.9	1.3	0.3
2015: 1174	83.4	11.8	3.2	0.8	0.6	0.3
2016: 1155	83.5	11.0	3.8	1.1	0.5	0.2
2017: 1256	82.2	12.1	3.1	0.7	1.5	0.4
2018: 1261	82.2	12.9	2.9	0.8	1.0	0.2

Figure 6: Medical Examiner Cases by Age at Death, 2014-2018



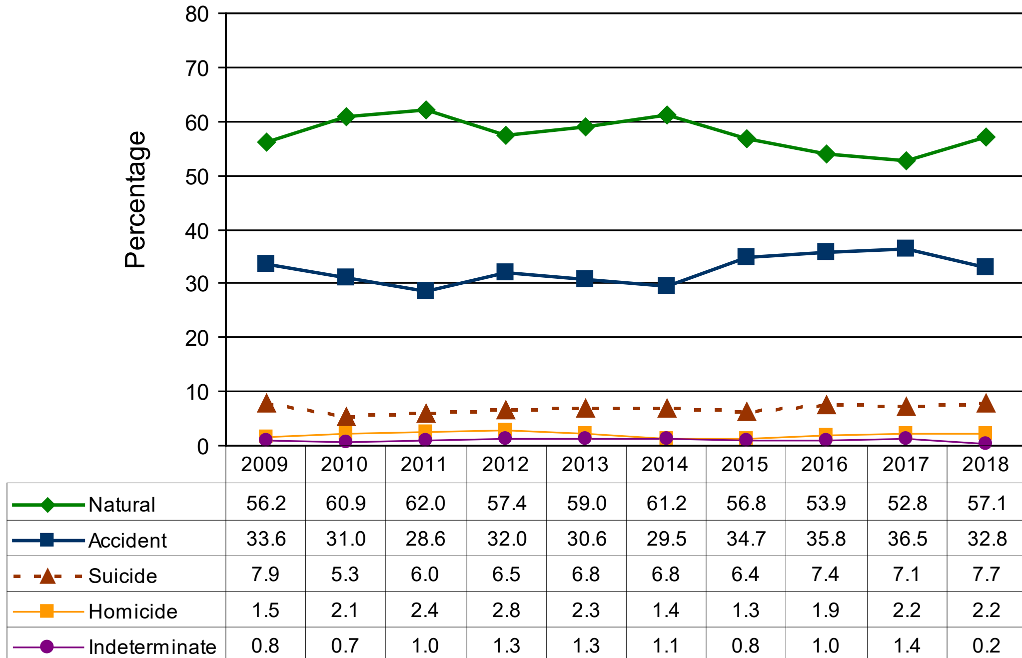
Year: Cases	<1	1-5 yrs	6-16 yrs	17-25 yrs	26-44 yrs	45-64 yrs	65+ yrs
2014: 1110	1.4	0.6	1.3	3.4	10.9	33.3	49.1
2015: 1174	1.3	0.8	0.7	3.8	13.4	33.5	46.5
2016: 1155	0.9	0.3	1.2	4.6	14.5	30.4	48.1
2017: 1256	1.1	0.2	1.3	5.4	16.1	30.4	45.5
2018: 1261	1.0	0.8	1.5	3.0	16.3	28.9	48.5

Table 1: Medical Examiner Cases by Gender, 2014-2018

	2014	2015	2016	2017	2018
Female	38.8%	37.3%	39.8%	37.9%	39.1% (493 cases)
Male	61.1%	62.7%	60.2%	62.1%	60.9% (768 cases)
Unknown	0.1% (bones)				

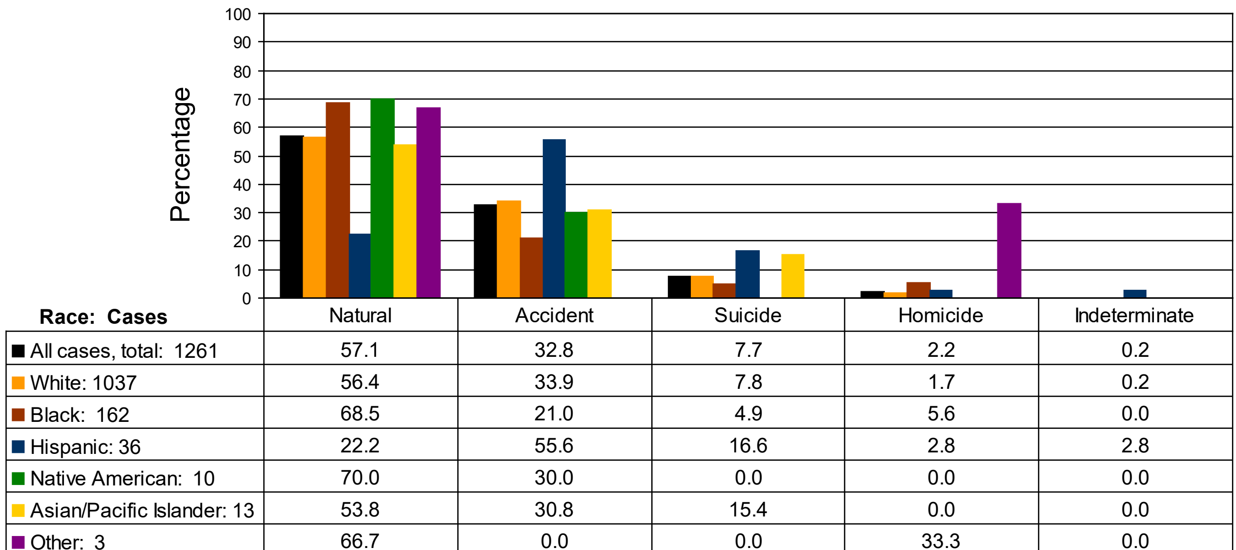
Manner of Death

Figure 7: Medical Examiner Cases by Manner of Death, 2009-2018



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Natural	56.2	60.9	62.0	57.4	59.0	61.2	56.8	53.9	52.8	57.1
Accident	33.6	31.0	28.6	32.0	30.6	29.5	34.7	35.8	36.5	32.8
Suicide	7.9	5.3	6.0	6.5	6.8	6.8	6.4	7.4	7.1	7.7
Homicide	1.5	2.1	2.4	2.8	2.3	1.4	1.3	1.9	2.2	2.2
Indeterminate	0.8	0.7	1.0	1.3	1.3	1.1	0.8	1.0	1.4	0.2

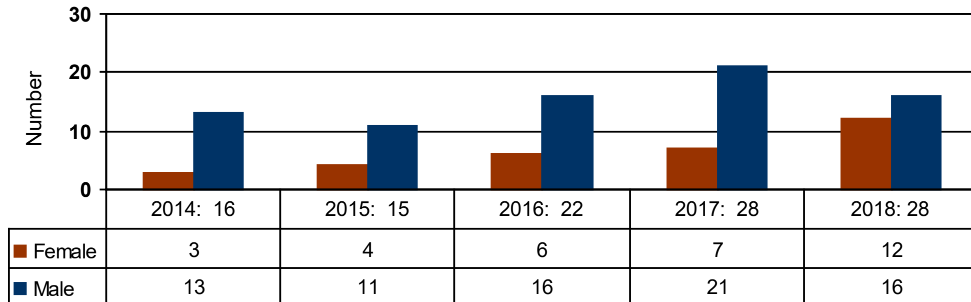
Figure 8: Manner of Death by Race/Ethnicity, 2018



Race: Cases	Natural	Accident	Suicide	Homicide	Indeterminate
All cases, total: 1261	57.1	32.8	7.7	2.2	0.2
White: 1037	56.4	33.9	7.8	1.7	0.2
Black: 162	68.5	21.0	4.9	5.6	0.0
Hispanic: 36	22.2	55.6	16.6	2.8	2.8
Native American: 10	70.0	30.0	0.0	0.0	0.0
Asian/Pacific Islander: 13	53.8	30.8	15.4	0.0	0.0
Other: 3	66.7	0.0	0.0	33.3	0.0

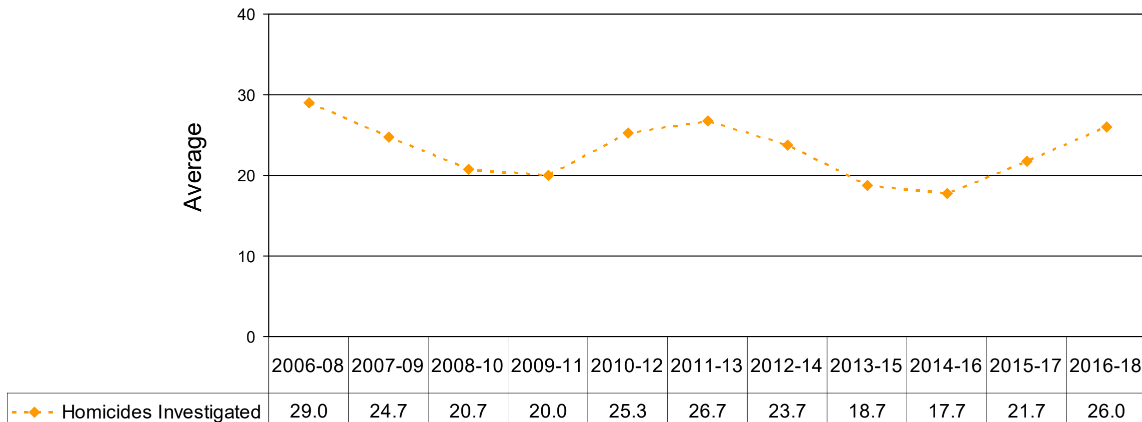
Manner of Death

Figure 9: Kent County Homicides by Gender, 2014-2018



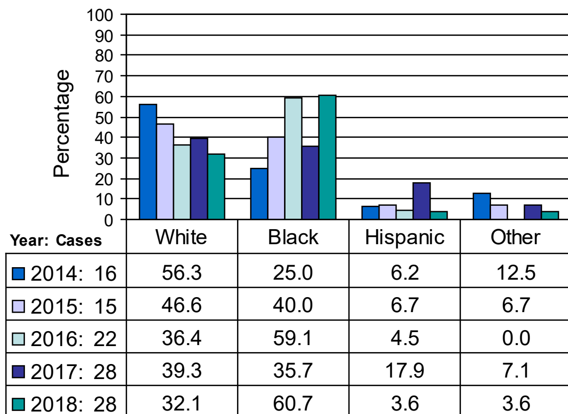
	2014: 16	2015: 15	2016: 22	2017: 28	2018: 28
Female	3	4	6	7	12
Male	13	11	16	21	16

Figure 10: Kent County Homicides, Three-Year Moving Averages, 2006-2018



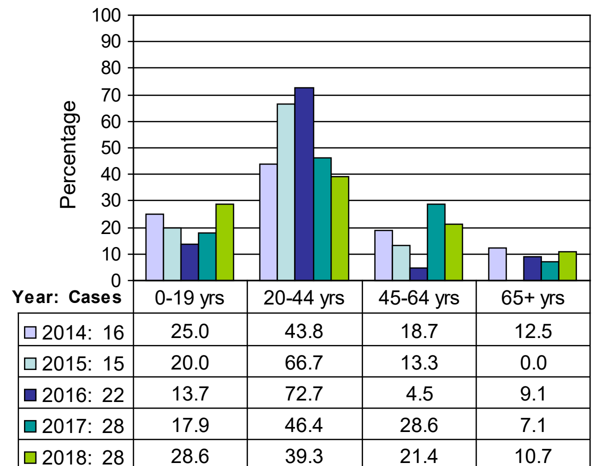
	2006-08	2007-09	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15	2014-16	2015-17	2016-18
Homicides Investigated	29.0	24.7	20.7	20.0	25.3	26.7	23.7	18.7	17.7	21.7	26.0

Figure 11: Homicides by Race, 2014-2018



Year: Cases	White	Black	Hispanic	Other
2014: 16	56.3	25.0	6.2	12.5
2015: 15	46.6	40.0	6.7	6.7
2016: 22	36.4	59.1	4.5	0.0
2017: 28	39.3	35.7	17.9	7.1
2018: 28	32.1	60.7	3.6	3.6

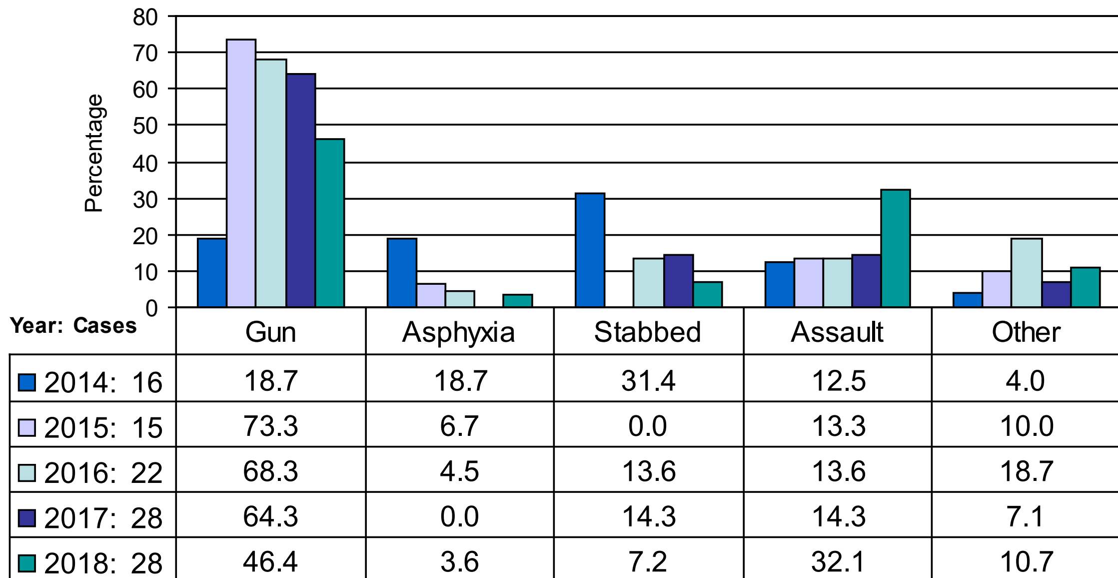
Figure 12: Homicides by Age, 2014-2018



Year: Cases	0-19 yrs	20-44 yrs	45-64 yrs	65+ yrs
2014: 16	25.0	43.8	18.7	12.5
2015: 15	20.0	66.7	13.3	0.0
2016: 22	13.7	72.7	4.5	9.1
2017: 28	17.9	46.4	28.6	7.1
2018: 28	28.6	39.3	21.4	10.7

Manner of Death

Figure 13: Homicide Cases by Method Used, 2014-2018



Year: Cases	Gun	Asphyxia	Stabbed	Assault	Other
2014: 16	18.7	18.7	31.4	12.5	4.0
2015: 15	73.3	6.7	0.0	13.3	10.0
2016: 22	68.3	4.5	13.6	13.6	18.7
2017: 28	64.3	0.0	14.3	14.3	7.1
2018: 28	46.4	3.6	7.2	32.1	10.7

Table 2: Gun Homicides by Age, 2014-2018

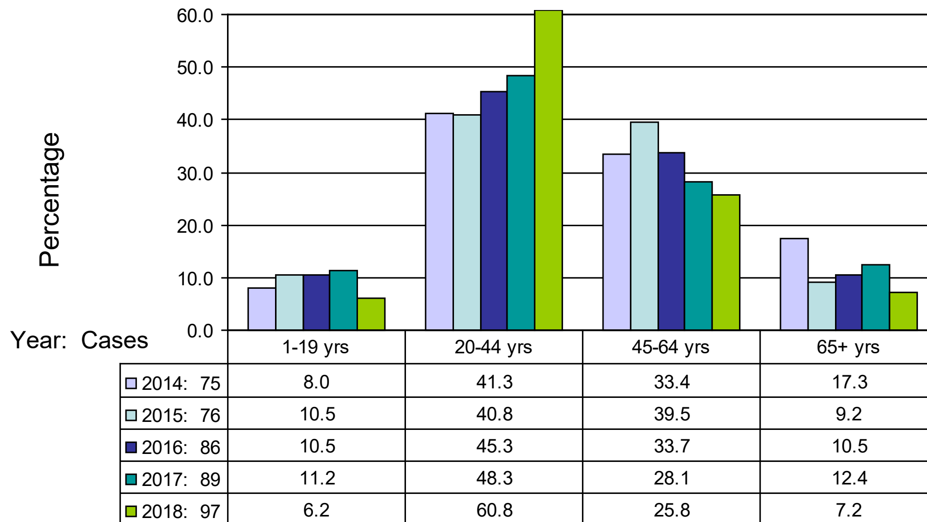
	AGE			
Year: Cases	0-19 yrs	20-29 yrs	30-39 yrs	40+ yrs
2014: 3	1	1	1	0
2015: 11	1	3	5	2
2016: 15	1	8	3	3
2017: 18	2	9	1	6
2018: 13	2	5	0	6

Table 3: Suicide Cases by Race, 2014-2018

	White	Black	Hispanic	Native American	Asian
2014: 75	90.7%	8.0%	0.0%	0.0%	1.3%
2015: 76	85.5%	7.9%	5.3%	0.0%	1.3%
2016: 86	83.7%	7.0%	3.5%	3.5%	2.3%
2017: 89	87.7%	2.2%	4.5%	2.2%	3.4%
2018: 97	83.5%	8.2%	6.2%	0.0%	2.1%

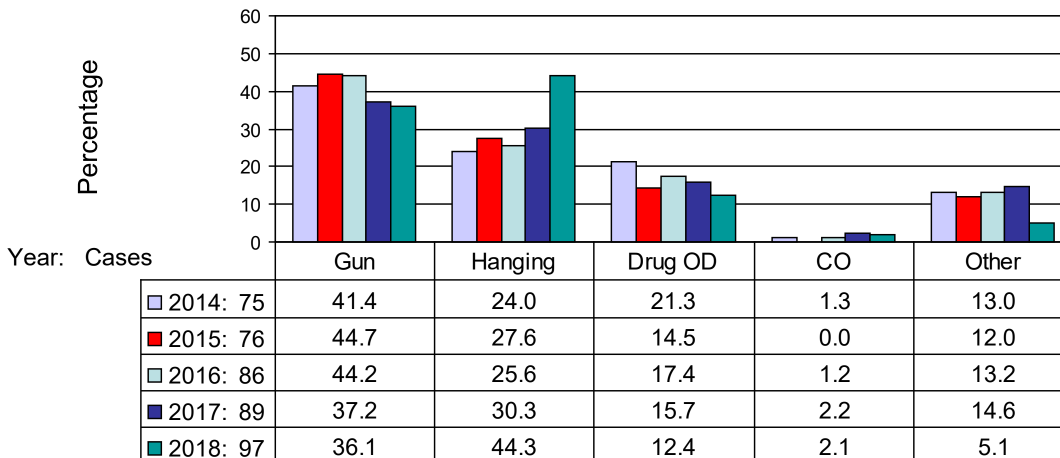
Manner of Death

Figure 14: Suicide Cases by Age, 2014-2018



Year: Cases	1-19 yrs	20-44 yrs	45-64 yrs	65+ yrs
2014: 75	8.0	41.3	33.4	17.3
2015: 76	10.5	40.8	39.5	9.2
2016: 86	10.5	45.3	33.7	10.5
2017: 89	11.2	48.3	28.1	12.4
2018: 97	6.2	60.8	25.8	7.2

Figure 15: Suicide Cases by Method Used, 2014-2018



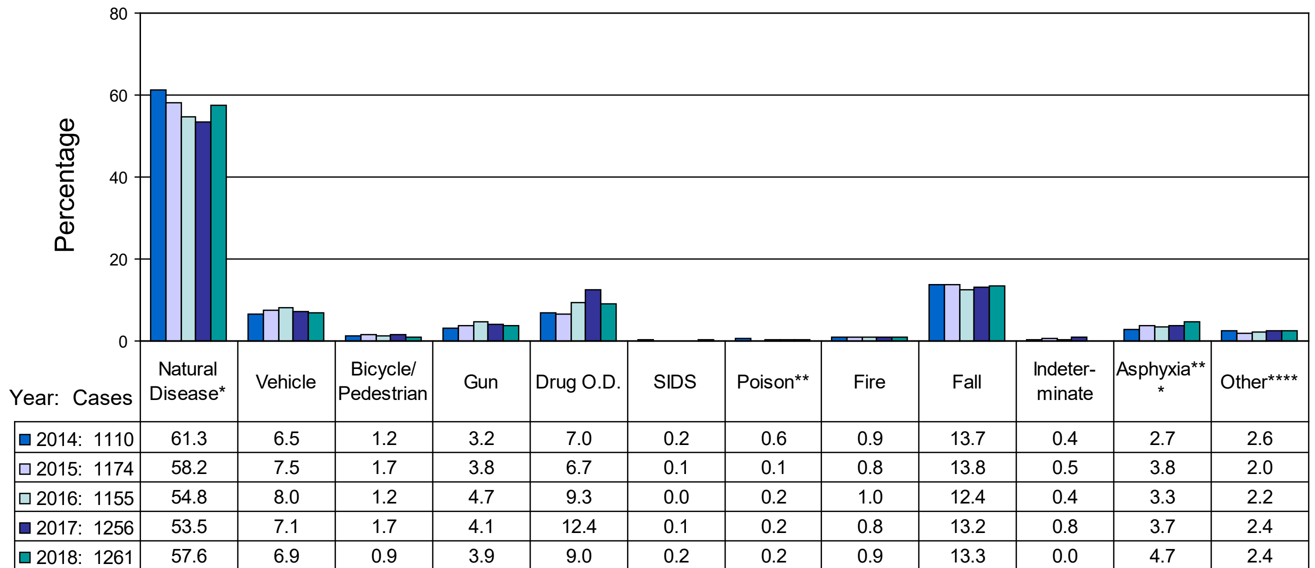
Year: Cases	Gun	Hanging	Drug OD	CO	Other
2014: 75	41.4	24.0	21.3	1.3	13.0
2015: 76	44.7	27.6	14.5	0.0	12.0
2016: 86	44.2	25.6	17.4	1.2	13.2
2017: 89	37.2	30.3	15.7	2.2	14.6
2018: 97	36.1	44.3	12.4	2.1	5.1

In 2018, CO is carbon monoxide poisoning, while Other consists of vehicle accident (1), fire (1), drowning (1), incised wounds (1), and cancer with contributing factor of gunshot (1).

Of the 97 suicide deaths for 2018, females accounted for 27 (27.8%) deaths, while males accounted for 70 (72.2%).

Cause of Death

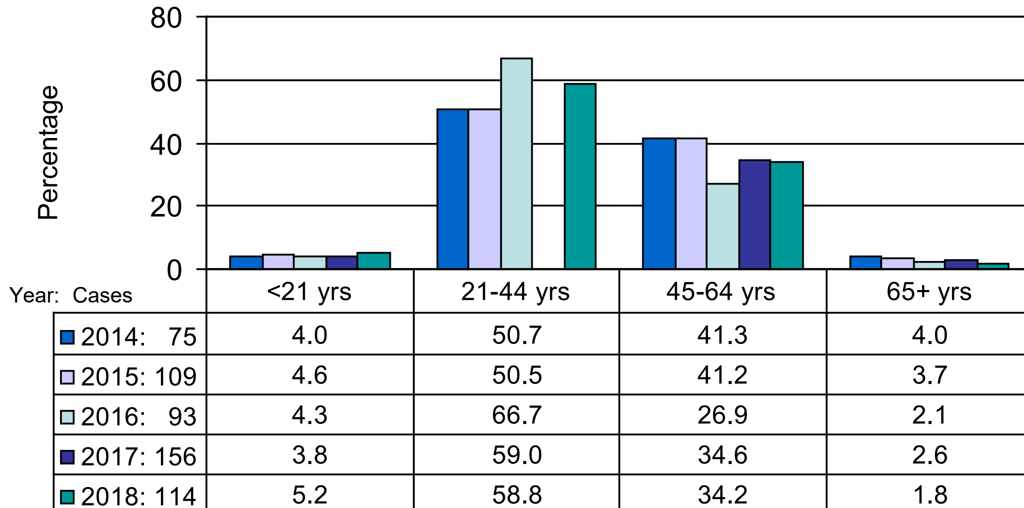
Figure 16: Medical Examiner Cases by Cause of Death, 2014-2018



Year: Cases	Natural Disease*	Vehicle	Bicycle/ Pedestrian	Gun	Drug O.D.	SIDS	Poison**	Fire	Fall	Indeter-minate	Asphyxia***	Other****
2014: 1110	61.3	6.5	1.2	3.2	7.0	0.2	0.6	0.9	13.7	0.4	2.7	2.6
2015: 1174	58.2	7.5	1.7	3.8	6.7	0.1	0.1	0.8	13.8	0.5	3.8	2.0
2016: 1155	54.8	8.0	1.2	4.7	9.3	0.0	0.2	1.0	12.4	0.4	3.3	2.2
2017: 1256	53.5	7.1	1.7	4.1	12.4	0.1	0.2	0.8	13.2	0.8	3.7	2.4
2018: 1261	57.6	6.9	0.9	3.9	9.0	0.2	0.2	0.9	13.3	0.0	4.7	2.4

*Natural: alcohol (57; 7.8%), cancer (30; 4.1%), cardiovascular (526; 72.4%), CNS (21; 2.9%), respiratory (44; 6.1%) and other (49; 6.7%).
**Poison includes carbon monoxide poisoning (2; 100%).
***Asphyxia includes deaths from hanging (43; 72.9%), choking on food (7; 11.8%), suffocation with bedding, (2; 3.4%), co-sleeping (1; 1.7%), crushed by object (2; 3.4%), positional asphyxia (2; 3.4%), and strangulation (2; 3.4%).
****Other includes deaths from assault (9; 29.0%), drowning (7; 22.6%), stabbed (2; 6.5%), hypothermia (3; 9.7%), incised wounds (1; 3.2), struck by object (1; 3.2%),, CCT/struck by tree (1; 3.2%), kicked by horse (1; 3.2%), neglect with dehydration (2; 6.5%), diving accident (3; 9.7%) ,and homicide (1; 3.2%).

Figure 17: Drug Deaths by Age, 2014-2018



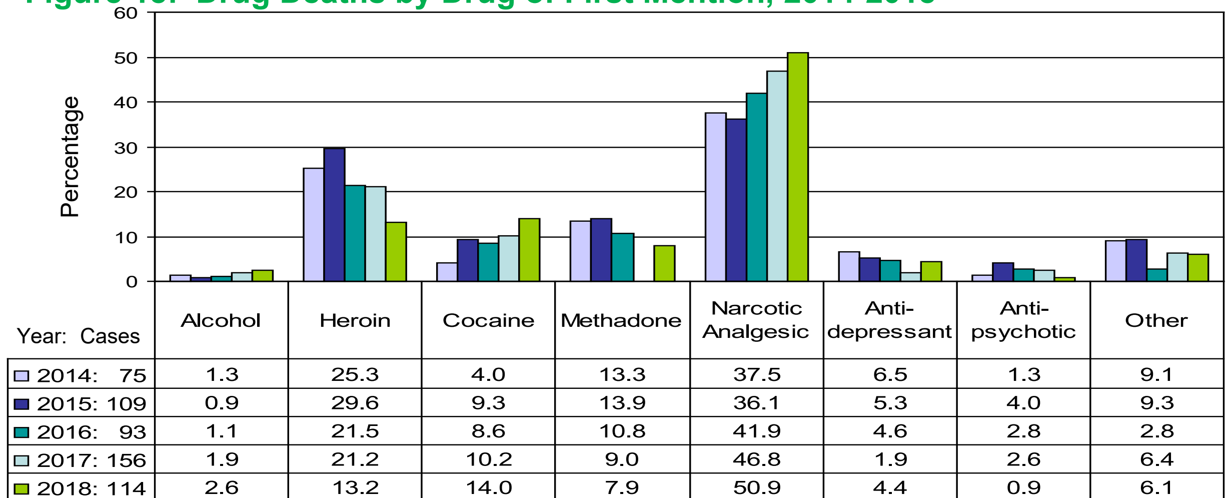
Year: Cases	<21 yrs	21-44 yrs	45-64 yrs	65+ yrs
2014: 75	4.0	50.7	41.3	4.0
2015: 109	4.6	50.5	41.2	3.7
2016: 93	4.3	66.7	26.9	2.1
2017: 156	3.8	59.0	34.6	2.6
2018: 114	5.2	58.8	34.2	1.8

Table 4: Drug Deaths by Gender, 2018

	Female (44)	Male (70)
Accident	36	66
Suicide	8	4

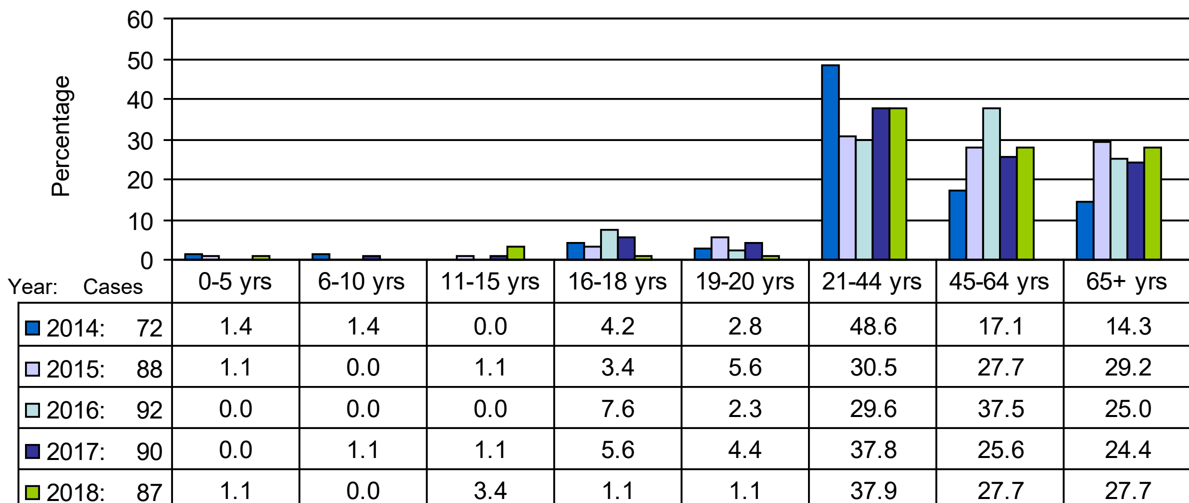
Cause of Death

Figure 18: Drug Deaths by Drug of First Mention, 2014-2018



Year: Cases	Alcohol	Heroin	Cocaine	Methadone	Narcotic Analgesic	Anti-depressant	Anti-psychotic	Other
2014: 75	1.3	25.3	4.0	13.3	37.5	6.5	1.3	9.1
2015: 109	0.9	29.6	9.3	13.9	36.1	5.3	4.0	9.3
2016: 93	1.1	21.5	8.6	10.8	41.9	4.6	2.8	2.8
2017: 156	1.9	21.2	10.2	9.0	46.8	1.9	2.6	6.4
2018: 114	2.6	13.2	14.0	7.9	50.9	4.4	0.9	6.1

Figure 19: Vehicular Deaths by Age, 2014-2018



Year: Cases	0-5 yrs	6-10 yrs	11-15 yrs	16-18 yrs	19-20 yrs	21-44 yrs	45-64 yrs	65+ yrs
2014: 72	1.4	1.4	0.0	4.2	2.8	48.6	17.1	14.3
2015: 88	1.1	0.0	1.1	3.4	5.6	30.5	27.7	29.2
2016: 92	0.0	0.0	0.0	7.6	2.3	29.6	37.5	25.0
2017: 90	0.0	1.1	1.1	5.6	4.4	37.8	25.6	24.4
2018: 87	1.1	0.0	3.4	1.1	1.1	37.9	27.7	27.7

Table 5: Vehicular Deaths by Gender, 2014-2018

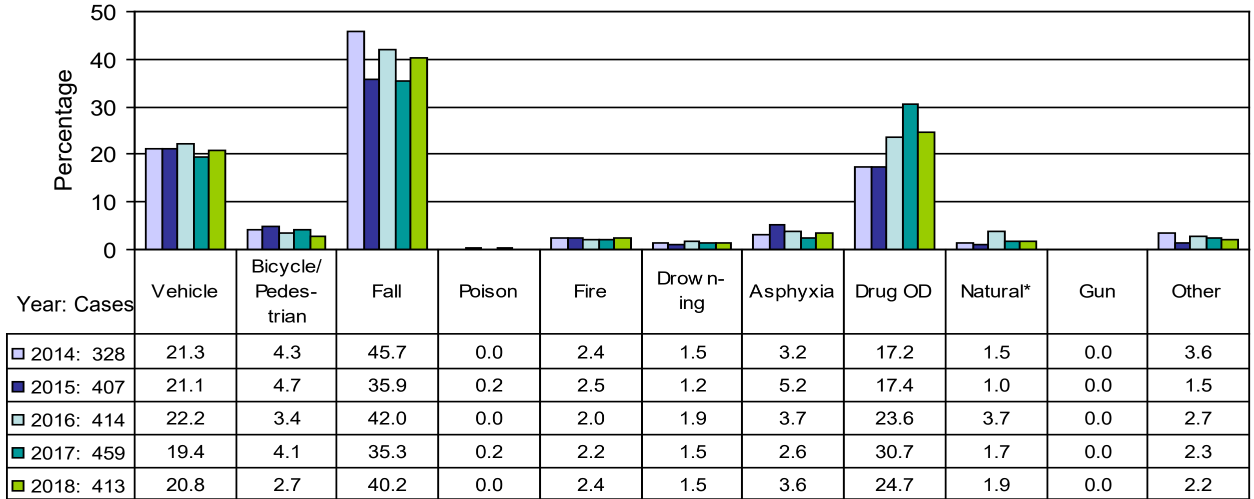
Year	Cases	Female	Male
2014:	72	38.9% (28)	61.1% (44)
2015:	88	26.1% (23)	73.9% (65)
2016:	92	40.2% (37)	59.8% (55)
2017:	90	30.0% (27)	70.0% (63)
2018:	87	37.9% (33)	62.1% (54)

Table 6: Bicycle/Pedestrian Deaths by Age, 2014-2018

	<21 yrs	21-44 yrs	45-64 yrs	65+ yrs
2014: 14	2	4	8	0
2015: 20	3	4	10	3
2016: 14	2	6	4	2
2017: 21	3	8	5	5
2018: 11	3	3	3	2

Cause of Death

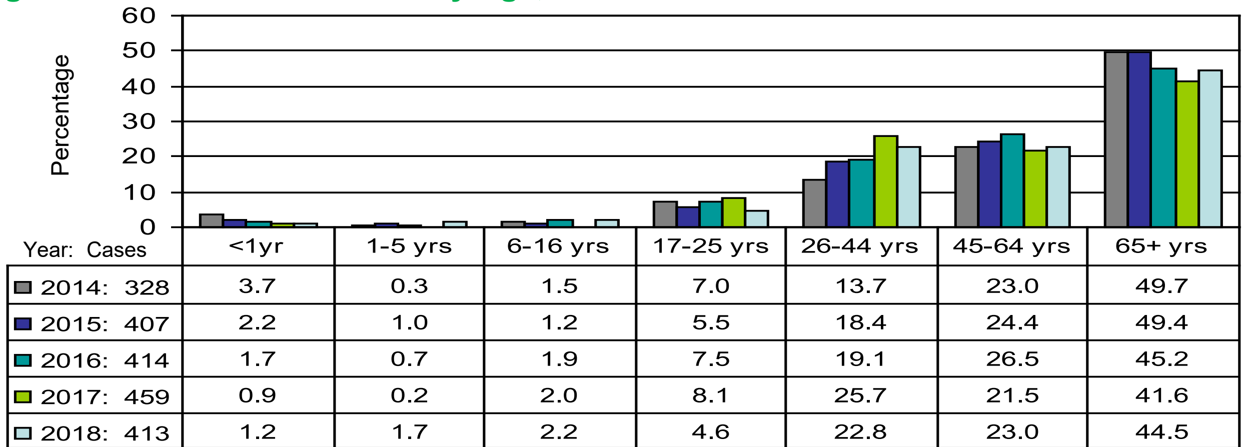
Figure 20: Accidental Deaths by Cause, 2014-2018



Year: Cases	Vehicle	Bicycle/ Pedes-trian	Fall	Poison	Fire	Drown-ing	Asphyxia	Drug OD	Natural*	Gun	Other
2014: 328	21.3	4.3	45.7	0.0	2.4	1.5	3.2	17.2	1.5	0.0	3.6
2015: 407	21.1	4.7	35.9	0.2	2.5	1.2	5.2	17.4	1.0	0.0	1.5
2016: 414	22.2	3.4	42.0	0.0	2.0	1.9	3.7	23.6	3.7	0.0	2.7
2017: 459	19.4	4.1	35.3	0.2	2.2	1.5	2.6	30.7	1.7	0.0	2.3
2018: 413	20.8	2.7	40.2	0.0	2.4	1.5	3.6	24.7	1.9	0.0	2.2

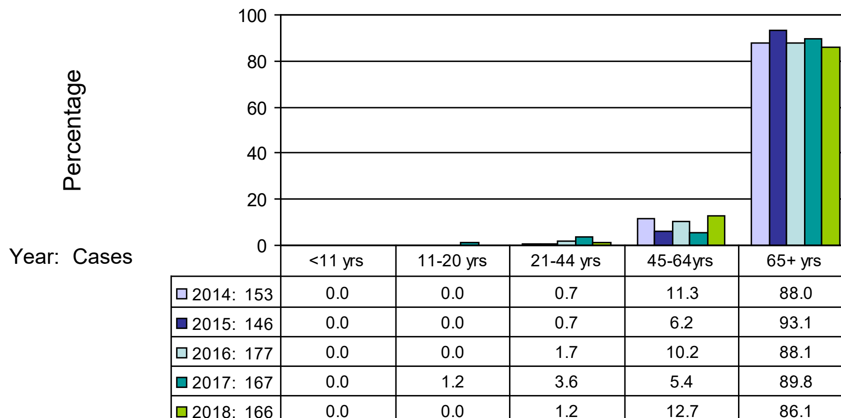
*A natural cause of death can have a contributing factor that determines the death to be accidental. There were 8 deaths that fell into this category in 2018 from falls (4), thermal burns (1), cocaine toxicity (1), motor vehicle accident (1), and drowning (1).

Figure 21: Accidental Deaths by Age, 2014-2018



Year: Cases	<1yr	1-5 yrs	6-16 yrs	17-25 yrs	26-44 yrs	45-64 yrs	65+ yrs
2014: 328	3.7	0.3	1.5	7.0	13.7	23.0	49.7
2015: 407	2.2	1.0	1.2	5.5	18.4	24.4	49.4
2016: 414	1.7	0.7	1.9	7.5	19.1	26.5	45.2
2017: 459	0.9	0.2	2.0	8.1	25.7	21.5	41.6
2018: 413	1.2	1.7	2.2	4.6	22.8	23.0	44.5

Figure 22: Deaths Resulting from Falls by Age, 2014-2018



Year: Cases	<11 yrs	11-20 yrs	21-44 yrs	45-64yrs	65+ yrs
2014: 153	0.0	0.0	0.7	11.3	88.0
2015: 146	0.0	0.0	0.7	6.2	93.1
2016: 177	0.0	0.0	1.7	10.2	88.1
2017: 167	0.0	1.2	3.6	5.4	89.8
2018: 166	0.0	0.0	1.2	12.7	86.1

MISCELLANEOUS

Unclaimed Bodies 2014-2017

The Medical Examiner's Office handles all indigent burials in Kent County even if they do not fall under the medical examiner's jurisdiction with the assistance of the Michigan Department of Human Services. In 2017, the office processed 30 unclaimed bodies.

	2014	2015	2016	2017	2018
Medical Examiner Cases	11	18	9	15	13
Not Medical Examiner Cases	19	18	18	22	17
Total Cases	30	36	27	37	30

Deceased are considered unclaimed when they absolutely have no legal next of kin, and others fall under this category when family members either can not afford the expense of a burial/cremation or just do not want anything to do with the funeral arrangements.

Child Death Cases Reviewed 2014-2018

The Child Death Review Team reviews the deaths of those in Kent County who are 17 and younger. In 2018, there were 21 child death cases reviewed. Of these cases, 2 were deaths from 2017 and 19 were deaths from 2018.

	2014	2015	2016	2017	2018
Natural	5	3	3	1	0
SIDS	2	1	0	0	2
Vehicular Accident	5	2	2	5	3
Accidental	6	11	9	6	5
Suicide	4	4	3	4	4
Homicides	3	1	4	2	5
Indeterminate	2	2	0	2	0
Total Cases	27	27	21	20	21

Accidental includes death by suffocation (2), positional asphyxia (1), drug overdose (1), and house fire (1).
Suicide includes death by gun (3) and hanging (1).
Homicide includes death by gun (2), dehydration d/t neglect by adult caregiver(s) (2) and craniocerebral trauma (1).

Kent County Medical Examiner 2018 Annual Report

This publication may be reproduced, in whole or in part, without permission.

Copies of this publication are available on the World Wide Web at:
www.accesskent.com/health/healthdepartment/medicalexaminer

Created by:
Carmen D. Marrero-Perez
Office Administrator