King County Medical Examiner's Office

Annual Report 2018

Public Health
Seattle & King County

www.kingcounty.gov/examiner

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DEDICATION

We recognize that each case in this report represents the death of a person whose absence is grieved by friends and relatives. These deaths also represent a loss to our community. As those responsible for investigating these deaths, we dedicate this report to the memory of those lost and to those who have suffered the loss of a friend or relative.

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FOREWORD

The King County Medical Examiner's Office serves the community by investigating sudden, unexpected, violent, suspicious, and unnatural deaths. Medical Examiner staff recognize the tragedy surrounding an untimely death and perform investigations, in part, to assist the grieving family. A complete investigation provides for the quick settling of estates and insurance claims, as well as for implementing civil and criminal actions. Questions that seem irrelevant in the initial hours after death can become significant in the following months. For example, it is not uncommon that families will question whether a fatal action was intentional or not. The surviving family, friends, and general public can have the assurance that the Medical Examiner conducted a comprehensive investigation.

When a death occurs on the job or is work-related, the King County Medical Examiner's Office immediately forwards the results of its investigation to the Washington State Department of Labor and Industries to fully investigate the death, which may be important to the family as well as industrial safety. Private insurance companies also routinely use the findings to settle claims. Whenever a consumer product is implicated in a death, the King County Medical Examiner's Office notifies the Consumer Product Safety Commission to ensure that the product is reported and the necessary steps are taken to protect the public.

The public health role of the Medical Examiner is to isolate and identify the causes of sudden, unexpected death that might affect more than one person. When an infectious agent or toxin is implicated in a death, the Medical Examiner's Office reports to the Communicable Diseases Office within Public Health and notifies the family of the deceased so they may receive any needed medical treatment. Trends in injury and violence are monitored. In this era of concern about emergency response and bioterrorism, the Medical Examiner provides an important level of preparedness and surveillance.

Civil or criminal judicial proceedings frequently require the medical investigation of violent death. Thus, the King County Medical Examiner's Office conducts a prompt medical investigation to provide the criminal justice system with medical information and evidence required for adjudication. Although criminal death investigations constitute a small portion of deaths investigated by the Medical Examiner, these deaths are studied in great detail because of the issues and legal consequences involved. The King County Medical Examiner's Office provides the criminal justice system the best support that medical science can provide.

In summary, the King County Medical Examiner's Office provides expert medical evaluation and extensive services related to the investigation of deaths that are of concern to the health, safety, and welfare of the community.

EXECUTIVE SUMMARY

The Medical Examiner's Office 2018 Annual Report reflects the activities pertaining to the investigation of deaths in King County. The mission of the King County Medical Examiner's Office (KCMEO) is to investigate sudden, unexpected and unnatural deaths in King County with the highest level of professionalism, compassion and efficiency, and to provide a resource for improving the health and safety of the community.

This annual report presents detailed analyses of the different manners of death, as well as trends in homicides, traffic fatalities, and drug overdose deaths. While non-natural causes of death comprise the majority of Medical Examiner cases, it is worth noting that nearly 41% (1,003/2,460) of cases are classified as natural deaths.

In addition, data provided within this report helps shape Public Health policies designed to save lives by reducing preventable deaths. This report also documents the Medical Examiner's role in support of life saving organ and tissue donations, see page 56 for further details.

A few selected findings are highlighted below:

- In 2018, there were an estimated 14,796 deaths in King County. Of those deaths, 7,358 (50%) were reported to the Medical Examiner's Office. Deaths occurring in a hospital or hospice setting from a known natural disease process are not required to be reported to the Medical Examiner's Office. The Medical Examiner's Office assumed jurisdiction over 2,576 deaths; the number of applicable cases used in this report is 2,460 deaths after non-human remains and cases from other jurisdictions (autopsies provided through contractual arrangements) are removed. The King County Medical Examiner's Office assumes jurisdiction if a death meets the criteria under the Revised Code of Washington (RCW 68.50.101) that defines the Medical Examiner's charge.

- The Medical Examiner's Office performed autopsies in 57% of jurisdictional deaths (1,401/2,460). In 2018, these included: 95 homicides, 319 suicides, 164 traffic deaths, 818 accidental deaths, 1,003 natural deaths and 61 deaths due to undetermined causes.

- Of the 14 natural deaths of children (ages 0-3 years) investigated by the Medical Examiner, 79% (11/14) were of infants less than one year of age. Of those 11 infants who died of natural causes, 4 were due to Sudden Infant Death Syndrome (SIDS). 6 were classified as "Sudden Unexplained Infant Death" (SUID), manner undetermined, due to the inability to exclude external factors that might have contributed to the death.

- Of all traffic fatalities in which alcohol testing was performed, 39% tested positive for the presence of alcohol in the blood.

- Firearms were the most frequent instrument of death in homicides (69%) and suicides (37%).

- Males comprised 76% (72/95) and women 24% (23/95) of the homicide victims in 2018. The majority of victims, 48% (46/95), were between the age 25 and 44 years. The number of homicide victims 24 years old and younger accounted for 24% (23/95) with 9 of those victims being under 18 years of age. Of the 95 homicide victims 86% (82/95) were tested for the presence of alcohol in the blood. Of those tested 29% (24/82) showed alcohol present at the time of death.

- In 2018, there were 66 firearm homicide victims, 35% (23/66) were 23 years old and younger. There was a disproportionate number (19/66 or 29%) of firearm homicide victims that were African American when compared to the percentage of African Americans in King County's population (6.7%). Of the 19 African American firearm homicide victims, 42% (8/19) were males 29 years old and younger. In comparison, 59% (39/66) of all the homicide firearm victims were White. Of the 39 White firearm homicide victims, 33% (13/39) were males 29 years old and younger.

- For King County in 2018, drugs caused 435 deaths, approximately 18% (435/2,460) of all deaths investigated. The total number of drug-caused deaths increased from 399 in 2017. In 2018, deaths due to drugs comprised 36% (435/1,198) of all suicidal, accidental and undetermined cause deaths combined. Accidental drug overdose deaths in 2018 were the highest ever representing an increase of 20% over the last 10 years with the majority of the increase related to cases positive for both heroin and methamphetamine.

- Acute drug or alcohol intoxication deaths are described in detail in a separate report; (www.kingcounty.gov/overdose/2018).

- Since early 2017, KC-MEO has been building its capacity to monitor and disseminate information about overdose deaths in real-time. Using information from death investigations, autopsies, and field drug testing, the KC-MEO started documenting "probable overdose deaths". Line-level information about probable and confirmed drug overdose deaths is shared with a close network of individuals responsible for responding to emerging drug threats. Aggregate information about probable and confirmed drug overdose deaths is updated weekly on the KC-MEO website (www.kingcounty.gov/overdose).

- In 2018 the King County Medical Examiner's Office maintained accreditation by the National Association of Medical Examiners. This is the national professional organization of physician medical examiners, medicolegal death investigators and death investigation system administrators who perform the official duties of the medicolegal investigation of deaths in the United States.

Description and purpose

In 1969, the King County Home Rule Charter abolished the King County Office of the Coroner, which was replaced with the King County Medical Examiner's Office. The Medical Examiner's Office is a part of the Prevention Division of Public Health – Seattle & King County. The King County Medical Examiner's Office is funded by King County and operates under the direction of the King County Executive.

The Chief Medical Examiner, Dr. Richard Harruff, is a physician trained and certified in forensic pathology - the branch of medicine devoted to the scientific investigation of sudden, unexpected, violent, suspicious, or unnatural deaths. There are four sections under the Chief Medical Examiner's direction: Forensic Pathology, Scene Investigation, Autopsy Support and Administrative Support. The duties of these four sections include the performance of autopsies, certification of death, field investigation of scene and circumstances of death, identification of the deceased, notification of next-of-kin, and control and disposition of the deceased's personal property.

Deaths that come under the jurisdiction of the Medical Examiner are defined by state statute (RCW 68.50) and include, but are not limited to, the following circumstances:

1. *Persons who die suddenly when in apparent good health and without medical attendance within 36 hours preceding death.* This category is reserved for the following situations: (1) Sudden death of an individual with no known natural cause for the death. (2) Death during an acute or unexplained rapidly fatal illness, for which a reasonable natural cause has not been established. (3) Death of a person who was not under the care of a physician. (4) Death of a person in a nursing home or care facility where medical treatment is not provided by a licensed physician.

2. *Circumstances which indicate death was caused in part or entirely by unnatural or unlawful means*. This category includes but is not limited to: (1) Drowning, suffocation, smothering, burns, electrocution, lightning, radiation, chemical or thermal injury, starvation, environmental exposure, or neglect. (2) Unexpected death during, associated with, or as a result of diagnostic or therapeutic procedures. (3) All deaths in an operating room whether due to surgical or anesthetic procedures. (4) Narcotics or other drugs including alcohol or toxic agents, or toxic exposure. (5) Death of the mother caused by known or suspected abortion. (6) Death from apparent natural causes during the course of a criminal act, e.g., a victim collapses during a robbery. (7) Death that occurs within one year following an accident, even if the accident is not thought to have contributed to the cause of death. (8) Death following all injury-producing accidents, if recovery was considered incomplete or if the accident is thought to have contributed to the cause of death (regardless of the interval between the accident and death).

3. *Suspicious circumstances.* This category includes, but is not limited to, deaths under the following circumstances: (1) Deaths resulting from apparent homicide or suicide. (2) Hanging, gunshot wounds, stab wounds, cuts, strangulation, etc. (3) Alleged rape, carnal knowledge, or sodomy. (4) Death during the course of, or precipitated by, a criminal act. (5) Death that occurs while in a jail or prison, or while in custody of law enforcement or other non-medical public institutions.

4. *Unknown or obscure causes.* This category includes: (1) Bodies that are found dead. (2) Death during or following an unexplained coma.

5. *Deaths caused by any violence whatsoever, when the injury was the primary cause or a contributory factor in the death.* This category includes, but is not limited to: (1) Injury of any type, including falls. (2) Any death due to or contributed to by any type of physical trauma.

6. *Contagious disease.* This category includes only those deaths wherein the diagnosis is undetermined and the suspected cause of death is a contagious disease which may be a public health hazard.

7. Unclaimed bodies. *This category is limited to deaths where no next of kin or other legally responsible representatives can be identified for disposition of the body.*

8. Premature and stillborn infants. *This category includes only those stillborn or premature infants whose birth was precipitated by maternal injury or drug use, criminal or medical negligence, or abortion under unlawful circumstances.*

Mission Statement

The mission of the King County Medical Examiner's Office (KCMEO) is to investigate sudden, unexpected and unnatural deaths in King County with the highest level of professionalism, compassion and efficiency and to provide a resource for improving the health and safety of the community consistent with the general mission of Public Health.

To achieve this mission, the KCMEO will:

- Coordinate investigative efforts with law enforcement, hospitals, and other agencies in a professional and courteous manner.
- Treat decedents and their effects with dignity and respect, and without discrimination.
- Conduct investigations and autopsies professionally, scientifically, and conscientiously; complete reports expeditiously with regard for the concerns of family members, criminal justice, and public health and safety.
- Provide compassion, courtesy, and honest information to family members and, with cultural competence, make appropriate efforts in assisting with their grief, medical and legal questions, disposition of decedents and effects, and other settlements.
- Collect, compile, and disseminate information regarding deaths in a manner consistent with the laws of Washington state and consistent with the mission of Public Health.
- Provide medical and scientific testimony in court and in deposition as well as medicolegal consultation for prosecuting attorneys, defense attorneys, and attorneys representing surviving family members.
- Promote and advance, through education and research, the sciences and practices of death investigation, pathology, and anthropology within KCMEO and in collaboration with educational institutions.
- Promote and maintain an emotionally and physically healthy and safe working environment for KCMEO employees, following Public Health policies for standards of conduct, management, and support for employee diversity, training, and development.
- Expand communication throughout Public Health and the community at large regarding the roles, responsibilities, and objectives of KCMEO.

Explanation of data

The Medical Examiner serves the geographic area that includes all 2,130 square miles of King County, bounded by Pierce County to the south, Snohomish County to the north, Kittitas and Chelan Counties to the east, and Puget Sound to the west. In 2018, the King County population was estimated to be 2,233,163.[1] Included within King County are 39 cities and towns including Seattle, the state's largest city. Mercer Island, Vashon Island, two major airports and several colleges and universities are in the geographic area served by the Medical Examiner's Office. In King County there are more than 20 hospitals and one regional trauma center (Harborview) which serves the entire Pacific Northwest region.

The KCMEO assumes jurisdiction of deaths occurring in King County that include both King County residents and nonresidents. King County residents who die in other counties do not fall under KCMEO jurisdiction. For data on deaths of King County residents, along with other health indicators, please see Public Health–Seattle & King County Community Health Indicators online at: www.kingcounty.gov/chi.

This report summarizes demographics from individual cases in which the Medical Examiner assumed jurisdiction and presents them in aggregate form. Table 1-7 (Nearest Incorporated City to the Fatal Incident) on pages 19 and 20 represents the location of the incident to the nearest city, not the residential address of the individual. Each manner (category) of death is subdivided into the various sub-groupings (methods) appropriate to that manner, which together form a more detailed description of the cause and manner of death.

The variables displayed in the tables such as race, gender, age, etc., have been selected as those most likely to assist and interest individuals using this data in assembling a profile of statistics on deaths examined by the Medical Examiner's Office for 2018. The United States Census Bureau estimates the racial distribution of King County to be 66.9% White, 20% Asian/Pacific Islander (including Hawaiian and other Pacific Islanders), 6.8% African American, 9.8% Hispanic or Latino, 5.1% Two or More Races, and 1.0% American Indian/Alaska Native.[2]

Medical Examiner figures cannot be directly compared to the racial distribution of King County residents. This is because as mentioned above and emphasized in Table 1-8 on page 21, in 8% (206/2,460) of the Medical Examiner cases the incident leading to death occurred outside of King County and the decedent likely was not a resident of King County. However, as a rough estimate, the only manner of death that varies from the racial distribution of the county by a large percentage is homicide (see discussion on page 26).

Blood alcohol (ethanol) data included here represent the blood level at the time of death. Alcohol is metabolized at a rate of 0.015 to 0.018 grams percent per hour. Thus, if there is a significant survival interval, the blood alcohol at the time of death will be lower than at the time of incident. Consequently, blood alcohol tests are not performed in cases where death occurs more than 24 hours after the fatal injury. For these reasons, an unknown number of cases not tested or showing no blood alcohol may have had a measurable alcohol concentration at the time of incident.

[1] United States Census Bureau 2018 estimate.

[2] United States Census Bureau 2018 estimate.

Three sections are included that review specific issues: deaths due to drugs, deaths due to firearms, and deaths among children and youth. The firearm data pertain to the victim because data relating to the shooter are not included in the Medical Examiner's investigation. For deaths among children and youth, the analysis focuses on violent, non-natural causes of death.

Data on natural deaths is included. However, these deaths due to natural causes are not representative of all natural deaths in King County. Natural deaths that the Medical Examiner investigates are those that occur suddenly and unexpectedly with no physician in attendance, or under suspicious circumstances. Such natural deaths comprised 41% (1,003/2,460) of all deaths that the Medical Examiner's Office investigated in 2018.

The "undetermined" category includes deaths in which the manner could not be clearly determined. In some cases, serious doubt existed as to whether the injury occurred with intent or as a result of an accident. In others, lack of witnesses or prolonged time between death and discovery precluded the accurate determination of the circumstances surrounding death. Moreover, it may be difficult to assess street drug or medication overdose deaths as showing enough features to reasonably determine the manner of death. Also included in the undetermined category are fetal deaths, which, according to the State of Washington death certification guidelines, are not assigned a manner of death.

Medical Examiner cases in 2018

The following provides a summary of the raw data from the Medical Examiner's cases for the year 2018. Ten-year trends are shown beginning on page 22.

In 2018, there were an estimated 14,796 deaths that occurred in King County (0.68% of a 2017 population estimate of 2,188,649). A total of 50%, (7,358/14,796) were reported to the Medical Examiner's Office by medical and law enforcement personnel. Based on analysis of the scene, circumstances of death and the decedent's medical history, the Medical Examiner's Office assumed jurisdiction in 2,576 of these reported deaths, of which 116 were either ultimately found to be non-human remains or contract cases in which an autopsy and/or anthropology exams were done for other counties or agencies. Throughout the report, except where stated, the non-human, anthropology, and contract cases are excluded. Thus, the Medical Examiner assumed jurisdiction in 17% (2,460/14,796) of deaths that occurred in King County in 2018.

In approximately 67% (4,898/7,358) of the reported deaths, the Medical Examiner did not assume jurisdiction and perform an investigation; instead a "No Jurisdiction Assumed" (NJA) number was assigned. In such instances a physician with knowledge and awareness of the decedent's state of health certified the death. These are primarily natural deaths, with a predominance of individuals in nursing homes with a known fatal disease process. The Medical Examiner's Office applies a strict interpretation of its governing legislative language "persons who die suddenly when in apparent good health and without medical attendance within thirty-six hours preceding death" (RCW 68.50). The Medical Examiner assumes jurisdiction only if both conditions (lack of medical care and apparent good health) apply, and there is no attending outside physician with sufficient knowledge of the individual's natural disease condition to certify the death.

The Medical Examiner's Office performed autopsies in 57% (1,401/2,460) of the cases in which jurisdiction was assumed. Autopsies by a Medical Examiner pathologist were not performed in deaths where scene, circumstances, medical history, and external examination of the body provided sufficient information for death certification. In 2018, there were 461 such deaths, accounting for 19% (461/2,460) of the total deaths. In addition, there were 291 deaths, accounting for 12% (291/2,460) certified by attending private physicians after review by and consultation with the Medical Examiner. Of the remaining 12% (307/2,460) of the cases, 302 were cases where the Medical Examiner completed the death certificate after review of medical records and investigation reports without a need for examination of the body and 5 were cases where the investigation was transferred to the jurisdiction where the incident occurred.

Of all the traffic fatalities in which tests were performed 39% (35/89) tested positive for presence of alcohol (ethanol) in the blood. In recognition of the importance of safety devices in traffic accidents, Medical Examiner data indicate that of the 91 vehicle occupants who died, 45% (41/91) were known to be wearing seatbelt restraints.

In the 18 deaths involving motorcyclists, 89% (16/18) were wearing helmets.

Firearms were the most frequent instrument of death in homicides and suicides, accounting for 59% (66/95) of the homicides and 40% (118/319) of the suicides.

Table 1-1 Deaths Occurring in King County / Medical Examiner Cases / 2018

CASES BY MANNER OF DEATH[3]		NUMBER OF KCME DEATHS	PERCENT OF KCME DEATHS
Accident Other	(A)	818	33%
Accident Traffic	(T)	164	7%
Homicide	(H)	95	4%
Natural	(N)	1,003	41%
Suicide	(S)	319	13%
Undetermined	(U)	61[4]	2%
Total KCME general cases		2,460[5]	100%
Non-applicable cases where jurisdiction was assumed		116	
Total KCME jurisdiction cases		2,576	
Total KCME general cases		2,460[5]	17%
Deaths reported to KCME but no jurisdiction was assumed (NJA)		4,898	33%
All other deaths in King County not reported to KCME		7,438	50%
ALL KING COUNTY DEATHS		14,796	100%

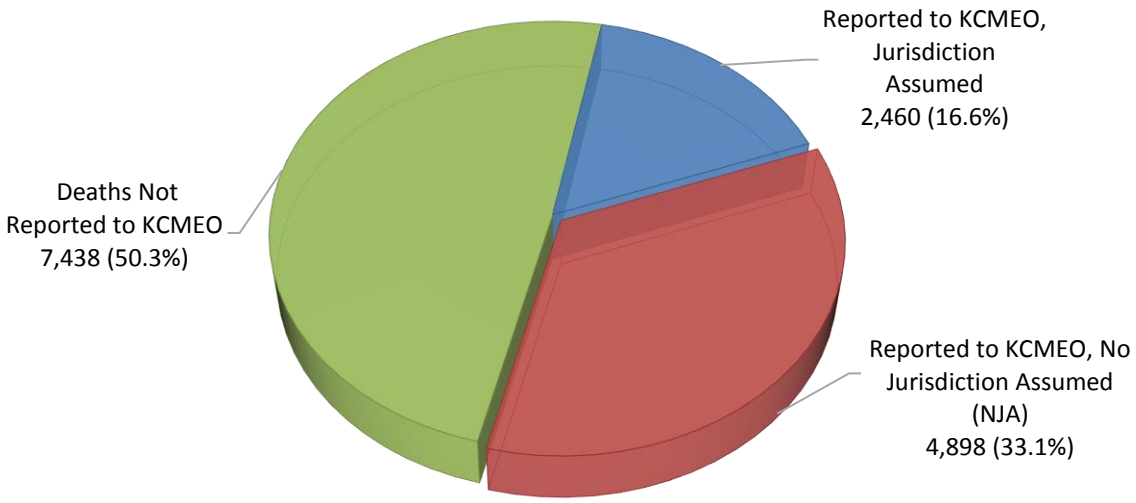
[3]The letters following each manner of death will be used in most tables throughout this report.

[4]Includes 4 fetal deaths, which according to Washington State death certification procedures, are not assigned a manner of death.

[5]This is the total number of cases that will be referred to throughout this report unless otherwise noted.

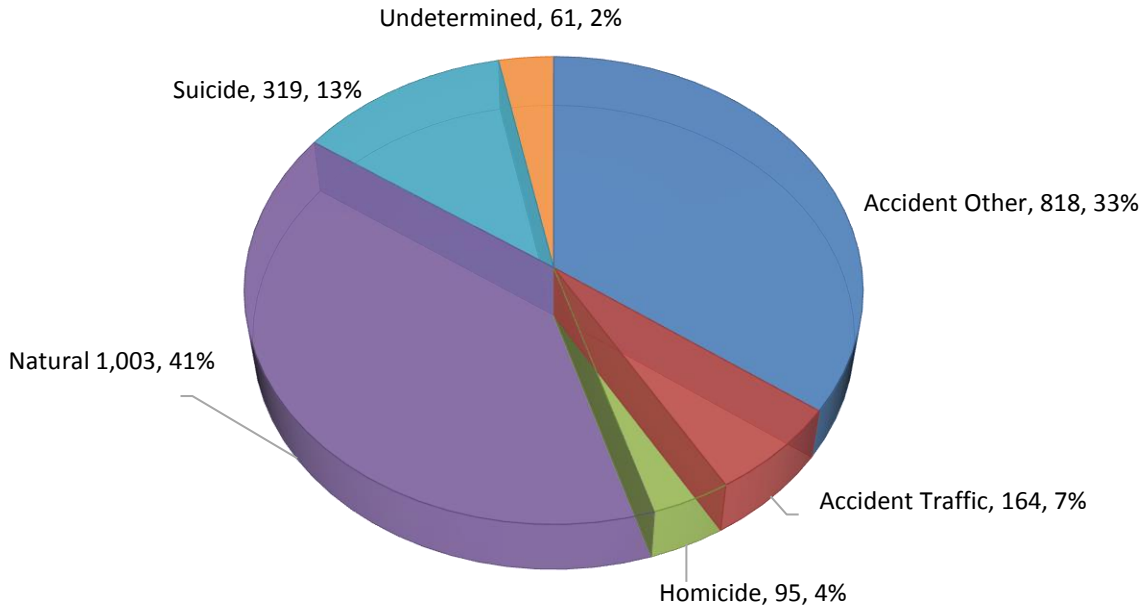
Graph 1-1 All King County Deaths with Medical Examiner Jurisdiction / 2018

Total Deaths in King County, 2018: 14,796



Graph 1-2 Manner of Death for All Medical Examiner Jurisdiction Cases / 2018

Jurisdiction assumed in 2,460 cases.[6]



[6]This number does not include 116 non-applicable cases (non-human tissue/bones and anthropology/contract cases).

Graph 1-3 Method of Certification for all King County Medical Examiner Jurisdiction Cases / 2018

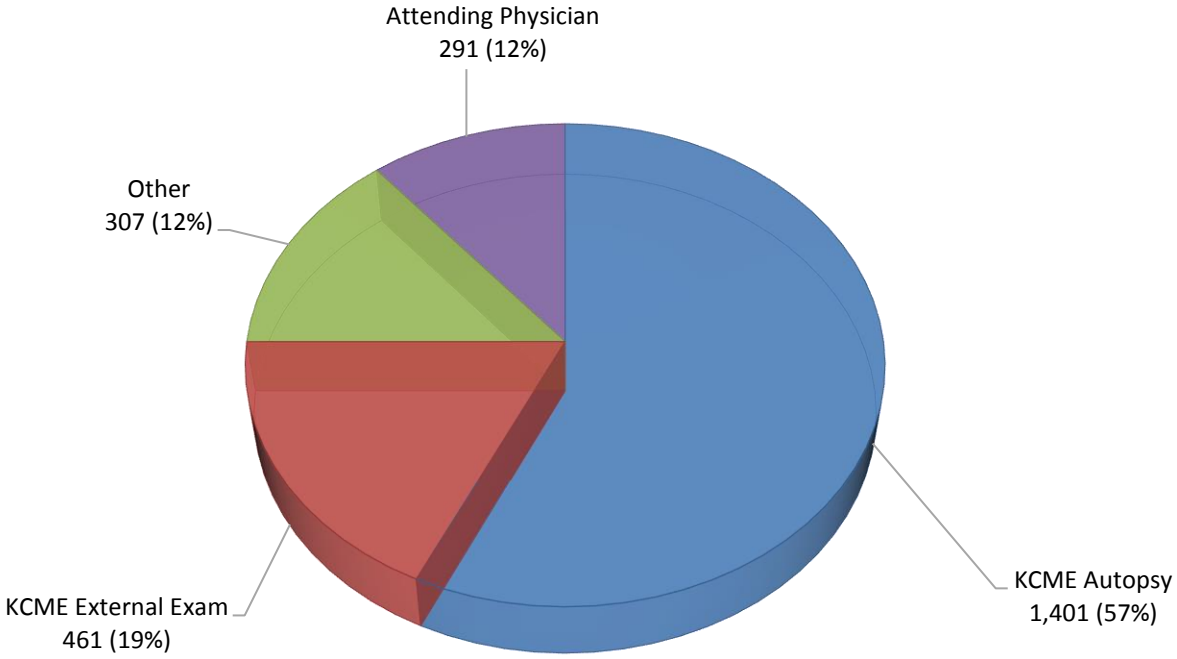


Table 1-2 Method of Certification / Manner of Death / KCME / 2018[7]

	MANNER OF DEATH							
	A	T	H	N	S	U	TOTAL	%
KCME Autopsies	441	111	90	444	259	56	1,401	57%
KCME External Exams	96	41	1	262	59	2	461	19%
KCME Other	279	12	4	8	1	3	307	12%
Attending Physician	2	0	0	289	0	0	291	12%
Totals	**818**	**164**	**95**	**1,003**	**319**	**61**	**2,460**	**100%**

Manner of Death in 2018
King County Medical Examiner's Office General Cases

[7] A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

Graph 1-4 Gender / Manner of Death / KCME / 2018

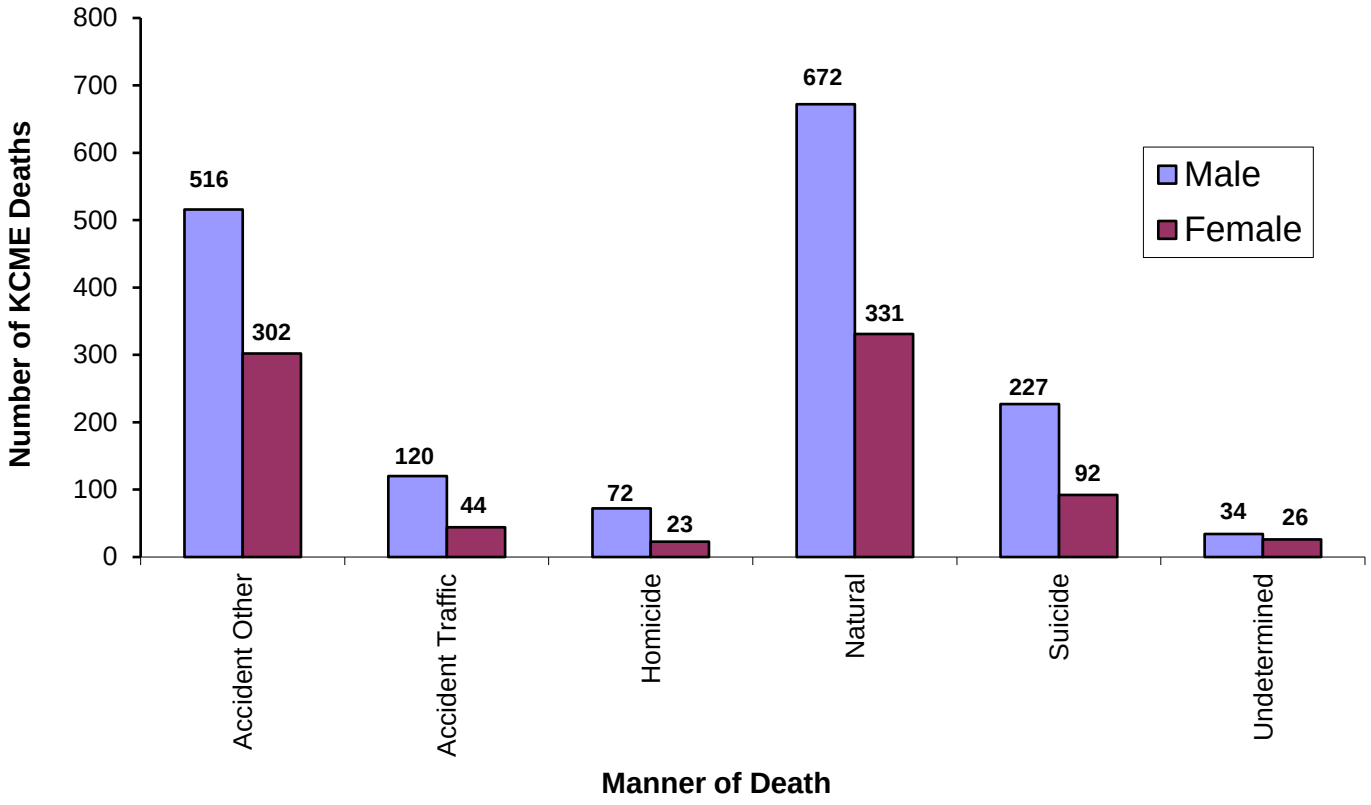


Table 1-3 Gender / Manner of Death / KCME / 2018[8]

GENDER	MANNER OF DEATH						TOTAL	%
	A	T	H	N	S	U		
Male	516	120	72	672	227	34	1,641	69%
Female	302	44	23	331	92	26	762	31%
Totals	**818**	**164**	**95**	**1,003**	**319**	**61[9]**	**2,460**	100%

[8] A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

[9] Includes one fetal death of undetermined gender.

Table 1-4 Age / Gender / Manner of Death / KCME / 2018[10]

AGE / GENDER	MANNER OF DEATH A	T	H	N	S	U	Sub-Total	TOTAL	%
Under 1 year	4	0	0	5	0	20		30[8]	1.2%
Male	*3*	*0*	*0*	*2*	*0*	*10*	*15*		
Female	*1*	*0*	*0*	*3*	*0*	*10*	*14*		
1-17 years	11	20	8	10	12	2		49	2%
Male	*6*	*16*	*5*	*4*	*6*	*1*	*25*		
Female	*5*	*4*	*3*	*6*	*6*	*1*	*14*		
18-24	28	20	14	5	38	5		111	4.5%
Male	*24*	*17*	*11*	*3*	*28*	*5*	*88*		
Female	*4*	*3*	*3*	*2*	*11*	*0*	*23*		
25-44 years	159	57	46	101	108	15		486	19.8%
Male	*127*	*44*	*35*	*74*	*78*	*9*	*367*		
Female	*32*	*13*	*11*	*27*	*30*	*6*	*119*		
45-64 years	249	41	21	398	104	17		830	33.7%
Male	*171*	*33*	*16*	*295*	*68*	*10*	*593*		
Female	*78*	*8*	*5*	*103*	*36*	*7*	*237*		
≥ 65 years	370	38	5	478	57	6		954	38.8%
Male	*187*	*23*	*4*	*188*	*47*	*2*	*553*		
Female	*183*	*15*	*1*	*290*	*10*	*4*	*401*		
Totals	**818**	**164**	**95**	**1,003**	**319**	**61**[11]		**2,460**	**100.%**

[10] A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

[11] Includes one fetal death of undetermined gender.

Table 1-5 Race / Gender / Manner of Death / KCME / 2018[12]

	MANNER OF DEATH								
RACE / GENDER	A	T	H	N	S	U	Sub-Total	TOTAL	%
White	679	118	52	793	263	39		1,944	79%
Male	*431*	*85*	*39*	*520*	*193*	*21*	*1,289*		
Female	*248*	*33*	*13*	*273*	*70*	*18*	*655*		
African American	60	15	27	116	16	8		242	9.8%
Male	*35*	*11*	*22*	*89*	*13*	*6*	*176*		
Female	*25*	*4*	*5*	*27*	*3*	*2*	*66*		
Asian/Pacific Is.	56	18	11	69	33	6		193	7.9%
Male	*36*	*13*	*7*	*46*	*17*	*4*	*123*		
Female	*20*	*5*	*4*	*23*	*16*	*2*	*70*		
American Indian / Alaska Native	13	8	3	12	3	3		42	1.7%
Male	*7*	*7*	*3*	*5*	*1*	*2*	*25*		
Female	*6*	*1*	*0*	*7*	*2*	*1*	*17*		
Other	10	5	2	13	4	5[13]		39	1.6%
Male	*7*	*4*	*1*	*12*	*3*	*1*	*28*		
Female	*3*	*1*	*1*	*1*	*1*	*3*	*10*		
Totals	**818**	**164**	**95**	**1,003**	**319**	**61**		**2,460**	**100%**

[12] A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

[13] Includes one fetal death of undetermined gender.

Graph 1-5 Month / Manner of Death / KCME / 2018

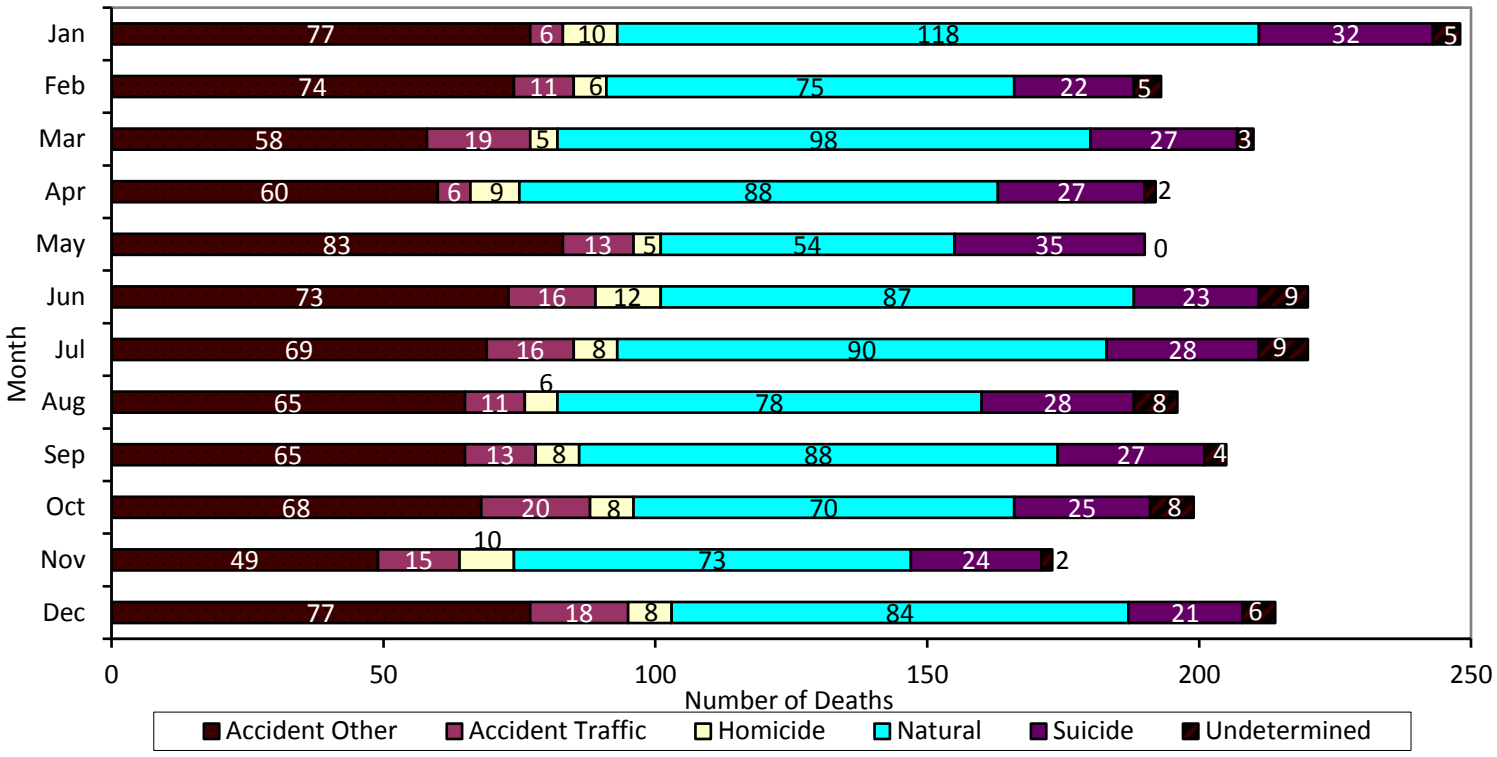


Table 1-6 Month / Manner of Death / KCME / 2018[14]

	MANNER OF DEATH							
MONTH	A	T	H	N	S	U	Total	%
January	77	6	1	118	32	5	248	10.1%
February	74	11	6	75	22	5	193	7.9%
March	58	19	5	98	27	3	210	8.5%
April	60	6	9	88	27	2	192	7.8%
May	83	13	5	54	35	0	190	7.7%
June	73	16	12	87	23	9	220	8.9%
July	69	16	8	90	28	9	220	8.9%
August	65	11	6	78	28	8	196	8%
September	65	13	8	88	27	4	205	8.3%
October	68	20	8	70	25	8	199	8.1%
November	49	15	10	73	24	2	173	7&
December	77	18	8	84	21	6	214	8.8%
Totals	**818**	**164**	**95**	**1,003**	**319**	**61**	**2,460**	**100%**

[14] A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

Table 1-7 Nearest Incorporated City to the Fatal Incident / KCME / 2018[15]

	MANNER OF DEATH						
CITY	A	T	H	S	U	TOTAL	%
Algona	1	0	0	1	0	2	0.1%
Auburn	32	15	3	15	4	69	4.7%
Beaux Arts	0	0	0	0	0	0	0%
Bellevue	31	2	0	19	0	52	3.6%
Black Diamond	0	0	0	1	0	1	0.1%
Bothell	6	1	0	3	1	11	0.8%
Burien	18	1	6	7	1	33	2.3%
Carnation	1	1	0	0	0	2	0.1%
Clyde Hill	0	0	1	0	0	2	0.1%
Covington	1	1	2	1	1	6	0.4%
Des Moines	24	1	2	8	2	37	2.5%
Duvall	2	0	1	5	0	8	0.6%
Enumclaw	5	2	0	4	2	13	0.9%
Federal Way	31	10	3	11	1	56	3.8%
Hunts Point	0	0	0	0	0	0	0%
Issaquah	13	4	2	11	0	30	2.1%
Kenmore	0	0	0	2	0	2	0.1%
Kent	33	14	7	20	5	79	5.4%
Kirkland	17	1	1	7	2	28	1.9%
Lake Forest Park	3	1	0	0	0	4	0.3%
Maple Valley	3	4	0	4	1	12	0.8%
Medina	0	0	0	0	0	0	0%
Mercer Island	5	0	3	0	0	8	0.6%
Milton	1	0	0	0	0	1	0.1%
Newcastle	1	0	0	2	0	3	0.2%
Normandy Park	0	0	0	1	0	1	0.1%
North Bend	7	2	0	2	1	12	0.8%
Pacific	1	0	0	2	0	3	0.2%

[15] Table does not include cases where manner of death is classified "Natural". A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

Table 1-7 Nearest Incorporated City to the Fatal Incident / KCME / 2018[16] (continued)

	MANNER OF DEATH						
CITY	A	T	H	S	U	Total	%
Redmond	19	3	1	7	0	30	2.1%
Renton	42	11	6	24	0	83	5.7%
Sammamish	3	0	0	4	0	7	0.5%
SeaTac	12	3	3	1	3	22	1.5%
Seattle	328	40	44	110	21	543	37.3%
Shoreline	16	2	2	5	1	26	1.8%
Skykomish	2	0	0	0	0	2	0.1%
Snoqualmie	5	0	0	3	0	8	0.5%
Tukwila	14	3	3	5	1	26	1.8%
Woodinville	6	0	0	4	0	10	0.7%
Yarrow Point	0	0	0	0	0	0	0%
Unincorporated King County							
Baring	0	0	0	0	0	0	0%
Hobart	0	3	0	0	0	3	0.2%
Greenwater	0	0	0	0	0	0	0%
Fall City	2	1	0	3	0	6	0.4%
Preston	0	0	0	0	0	0	0%
Ravensdale	2	0	0	1	0	3	0.2%
Vashon Island	2	0	0	2	1	5	0.3%
Outside of King County	108	35	9	18	6	176	12.1%
Unknown Location	21	4	0	0	7	32	2.2%
Totals	**818**	**164**	**95**	**319**	**61**	**1,457**	**100%**

[16] A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

Out of County Cases 2018

King County is home to many hospitals and a regional trauma center (Harborview) that serves the entire Pacific Northwest and the western United States. Consequently, there are numerous deaths each year where the incident leading to death occurred outside of King County. However, because the death occurred within King County, it comes under the jurisdiction of the King County Medical Examiner's Office. In 2018, there were 206 deaths, 14% (206/1,457) where the incident (excluding deaths classified as "Natural") occurred out of county or where the incident location was unknown. Table 1-8 displays these deaths by incident location and manner.

Table 1-8 Fatal Incident Occurred Outside of King County / KCME / 2018[17]

	MANNER OF DEATH					
INCIDENT LOCATION	A	T	H	S	U	TOTAL
Alaska	3	1	1	1	2	8
Montana	1	0	0	0	1	2
Idaho	2	0	0	2	0	4
Oregon	1	1	0	0	0	2
Other States	2	4	0	0	0	6
Washington						
Island County	6	1	0	0	0	7
Kitsap County	7	2	0	1	0	10
Pierce County	5	1	1	0	1	8
Skagit County	9	3	1	3	0	16
Snohomish County	29	3	3	0	1	36
Thurston County	0	4	0	1	0	5
Other WA Counties	44	17	3	10	1	75
Washington Sub-Total	*100*	*31*	*8*	*15*	*3*	*157*
Out of Country	1	1	0	0	0	2
Unknown	18	0	0	0	7	25
Totals	**128**	**38**	**9**	**18**	**13**	**206**

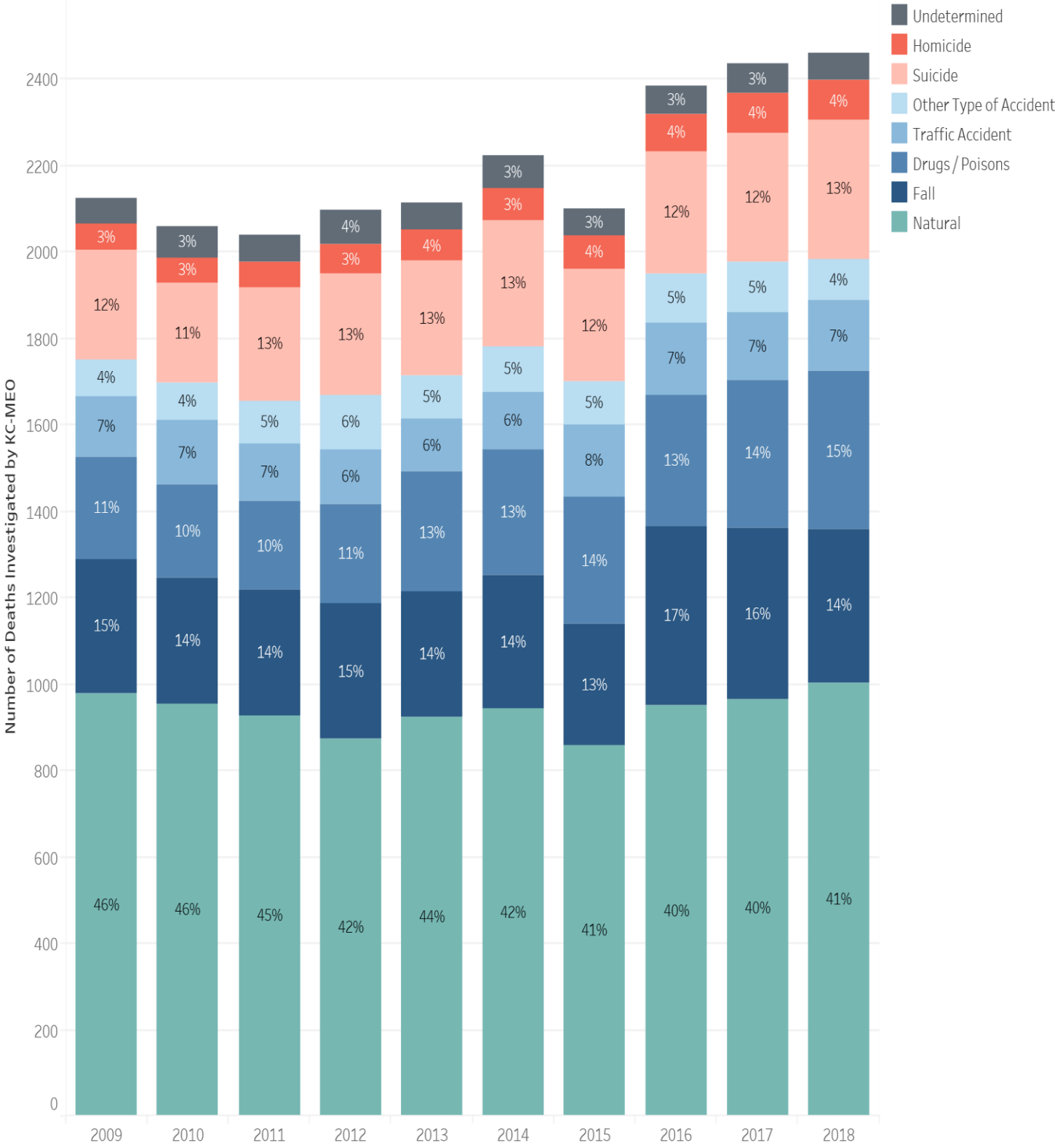
[17]Table does not include cases where manner of death is classified as "Natural." A = Accident (Non-Traffic), T = Traffic, H = Homicide, S = Suicide, U = Undetermined.

Ten-year perspective

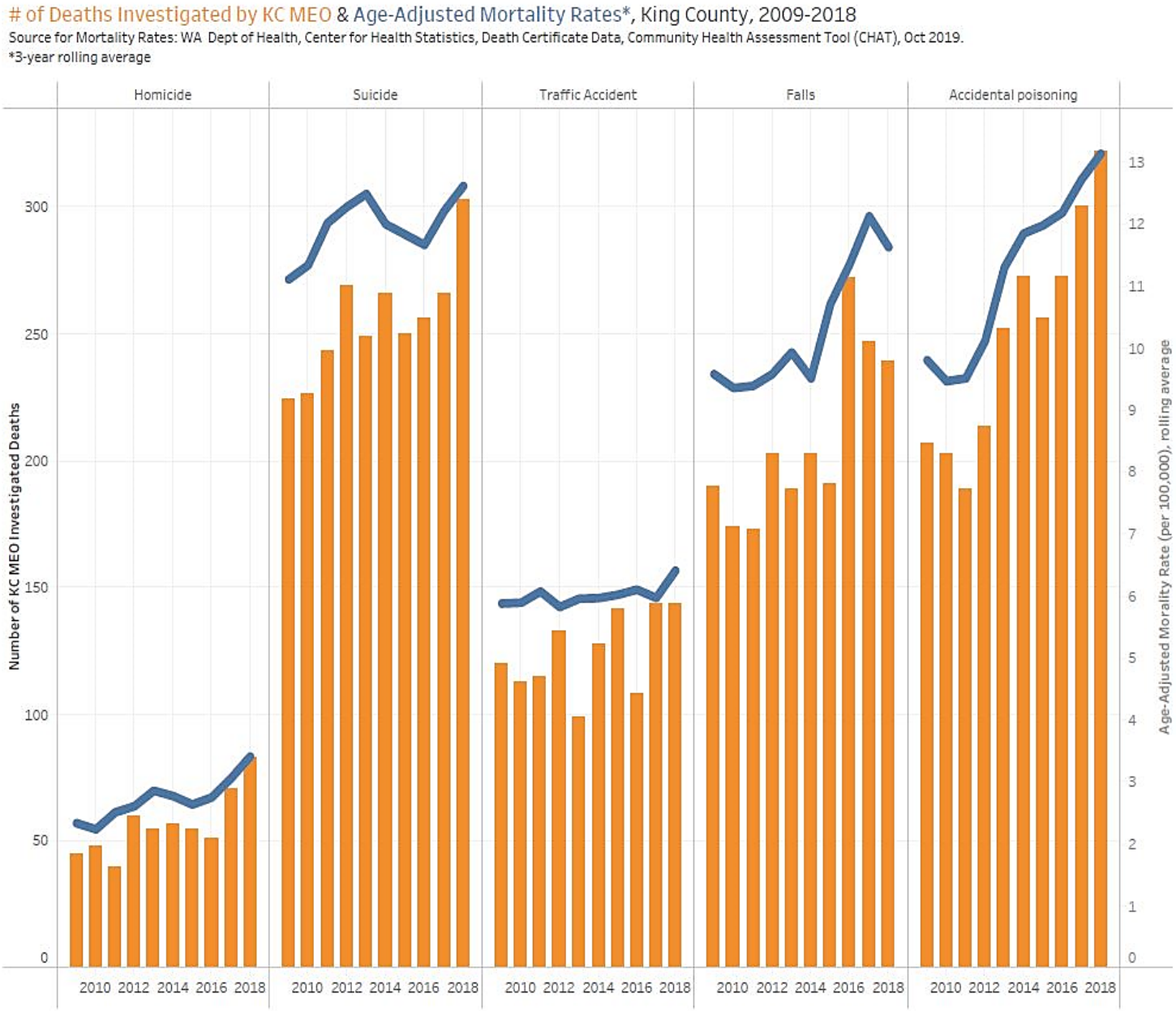
This section provides a ten-year perspective on deaths investigated by the Medical Examiner. Between 2009 and 2018, the King County population grew by nearly 14% from 1.89 million to 2.15 million inhabitants. The number of deaths investigated by the Medical Examiner grew in parallel to the population growth, though the relative proportions of the type of deaths investigated remained remarkably stable (Figure 2-1). Figure 2-2 juxtaposes the number of deaths investigated by the Medical Examiner against population-based age-adjusted mortality rates for homicide, suicide, traffic fatalities, accidental poisonings, and falls, derived from the Department of Health Death Certificate Data[18]. Suicide, accidental poisonings, and falls comprised 42% (1,040/2,460) of deaths investigated by the Medical Examiner in 2018, with each causing approximately 11 to 12 deaths annually per 100,000 King County residents. Both the rate and the count data suggest that the number of deaths caused by accidental poisonings and falls have been trending upward in recent years. Very little year-to-year variation was observed in the mode and nature of deaths from suicide, homicide, traffic fatalities, and non-traffic accidents (Figure 2-3). More detailed analysis of 2018 data is provided in separate sections for each manner of death (Accident, Homicide, Natural, Suicide, Traffic, and Undetermined).

[18] WA Dept of Health, Center for Health Statistics, Death Certificate Data, Community Health Assessment Tool (CHAT), Sept 2018.

Graph 2-1 Number and Characteristics of Deaths Investigated, King County, 2009-2018



Graph 2-2 Number of Deaths Investigated by Manner, King County, 2009-2018



Graph 2-3 Trends in the Characteristics of Deaths Investigated by King County MEO, 2009-2018

Mode of Homicide

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Other	5%	10%	7%	4%	3%	1%	4%	8%	2%	1%
Asphyxia / Strangulation	5%	2%	4%		4%	3%	3%	2%		1%
Stab Wound(s)	17%	3%	16%	19%	15%	12%	5%	6%	11%	17%
Blunt Force	8%	19%	11%	9%	19%	17%	18%	14%	12%	12%
Gunshot Wound(s)	65%	66%	63%	68%	59%	67%	70%	70%	75%	69%

Mode of Suicide

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Other	3%	2%	1%	1%	2%	2%	2%	1%	2%	3%
Drowning	3%	1%	2%	2%	1%	2%	1%	1%	1%	2%
Incised / Stab Wound(s)	3%	3%	5%	3%	3%	1%	3%	3%	3%	3%
Asphyxia	3%	6%	6%	7%	9%	9%	8%	8%	6%	5%
Jumped	8%	9%	7%	9%	6%	6%	6%	8%	7%	6%
Drugs / Poisons	17%	20%	18%	18%	15%	14%	16%	14%	14%	18%
Hanging	24%	19%	18%	17%	27%	24%	23%	25%	25%	25%
Gunshot Wound(s)	39%	40%	44%	42%	38%	43%	42%	40%	42%	37%

Type of Traffic Collision

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Other	1%		2%	1%	1%	1%	1%	2%	1%	
Bicycle	9%	2%	6%	4%	6%	2%	4%	5%	6%	9%
Motorcycle	13%	16%	20%	20%	18%	15%	15%	16%	16%	12%
Pedestrian	21%	18%	13%	23%	20%	20%	23%	24%	24%	24%
Automobile	56%	64%	59%	52%	55%	62%	57%	54%	53%	55%

Characteristics of Non-Traffic Accidents

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Other	6%	6%	8%	8%	5%	6%	6%	5%	6%	5%
Asphyxia	2%	1%	1%	1%	1%	2%	1%	1%	1%	1%
Aspiration	1%	1%	1%	2%	2%	2%	1%	2%	2%	1%
Burns / Fire	2%	5%	3%	4%	3%	3%	3%	3%	3%	3%
Drowning	3%	2%	4%	4%	3%	3%	3%	3%	2%	2%
Drugs / Poisons	38%	36%	35%	34%	42%	41%	44%	37%	40%	45%
Fall	49%	49%	49%	47%	44%	44%	42%	50%	47%	43%

Manner of death: Homicide

The Medical Examiner classifies a death as a homicide when the death results from injuries inflicted by another person. In this context, the word homicide does not necessarily imply the existence of criminal intent behind the action of the other person. This is reflected in the fact that the prosecuting attorney may either charge the person responsible for the injuries with murder or manslaughter, or decline to file charges. In 2018, the Medical Examiner classified 95 deaths as homicide. This number represents 3.9% (95/2,460) of the Medical Examiner death investigations for the calendar year 2018.

The data reflect the weapons or mechanisms responsible for the homicidal deaths in 2018. Firearms were responsible for 69% (66/95). Stabbing by a knife or other sharp-edged instrument caused 17% (16/95) of deaths of homicide victims. Blunt force injuries were responsible for 13% (12/95) of the 2018 homicide deaths. There was one death due to strangulation/asphyxia and no deaths due to homicidal violence of unknown etiology.

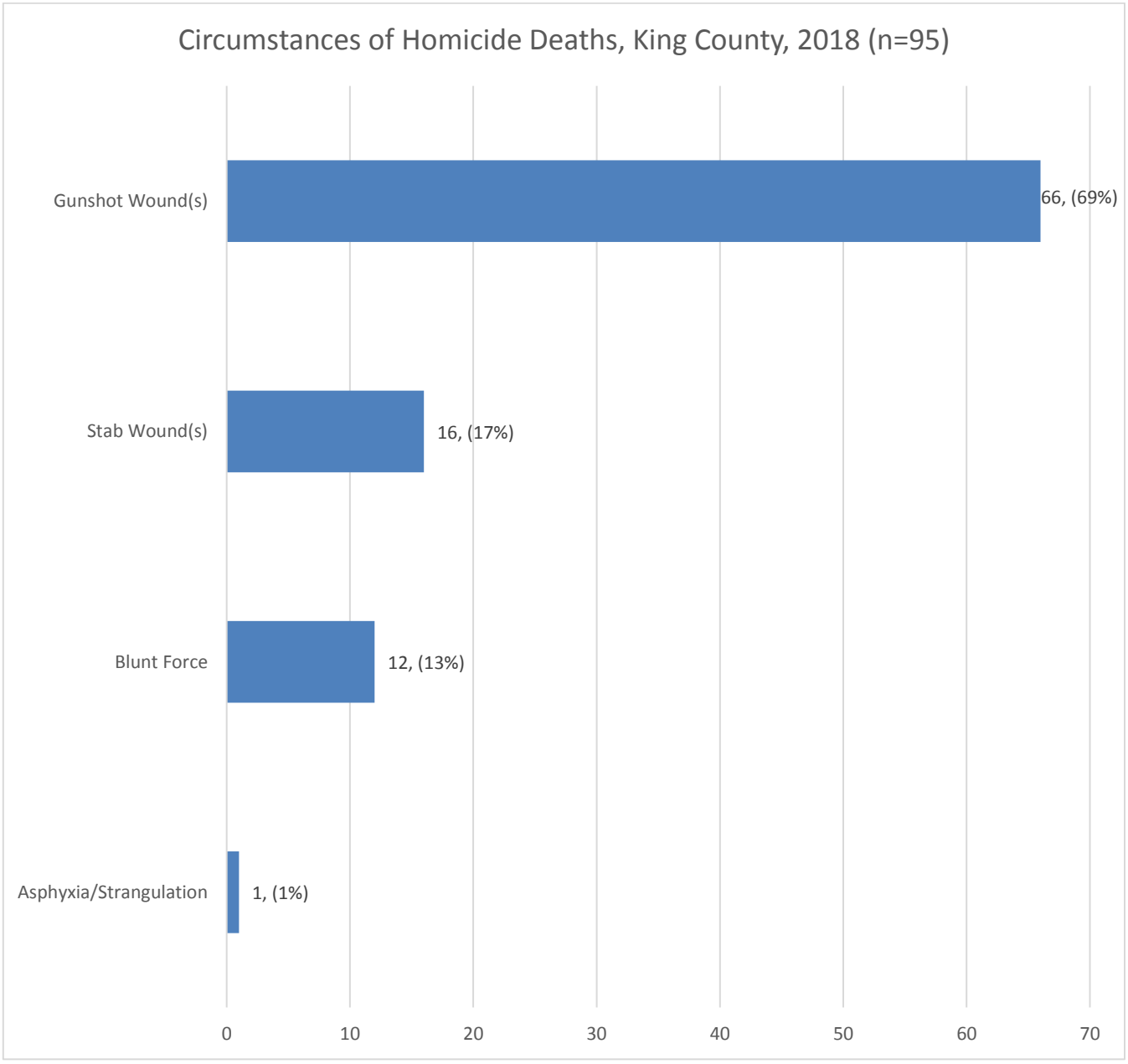
Certain demographic groups were disproportionately represented among homicide victims. Whereas non-Hispanic Black residents comprise only 6% of the King County population, 28% (27/95) of homicide victims were Black. A quarter of homicide victims (25%, 24/95) were between the age of 20 and 29 years. Thirteen victims were between the age of 12 and 19 years. Males comprised 76% (72/95) of the homicide victims in 2018.

Whereas firearms were involved in 69% of all homicide deaths investigated by KC-MEO, there were significant differences ($p<.05$) by race/ethnicity and age. The percent of homicide victims suffering gunshot wounds was slightly higher among Whites (75%) than Blacks (73%). Gunshot wounds were more common among younger homicide victims than older homicide victims.

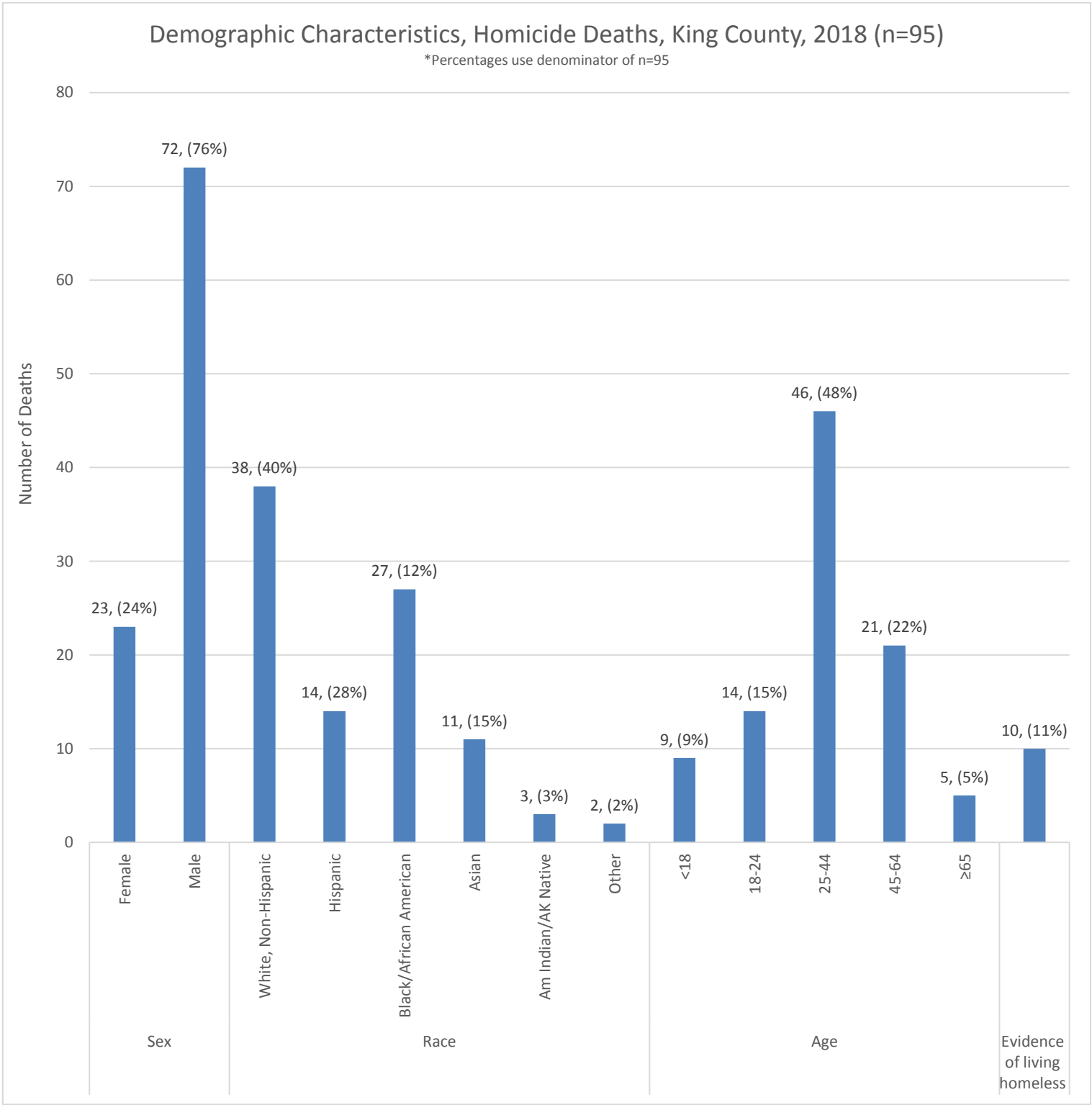
The presence of blood alcohol was tested for in 86% percent (82/95) of the homicide victims. Of those tested 29% (24/82) showed alcohol present at the time of death. The presence of alcohol was not associated with demographic characteristics or type of injury sustained.

Of the 95 homicide deaths in 2018, 91% (86/95) occurred within King County, and of these, 36% (34/95) occurred within the city limits of Seattle. In 9 of the 95 homicidal deaths, the incident occurred outside of King County, but death occurred within King County.

Graph 3-1 Homicide Injury Methods / KCME / 2018



Graph 3-2 Demographics / Homicide / KCME / 2018



Manner of death: Suicide

Suicides are deaths caused by self-inflicted injuries with evidence of intent to end one's life. Evidence of intent includes an explicit expression, such as a suicide note or verbal threat, or an act constituting implicit intent, such as deliberately placing a gun to one's head or rigging a vehicle's exhaust. In 2018, there were 319 suicides, accounting for 13% (319/2,460) of the deaths that the King County Medical Examiner's Office investigated.

Suicide victims were disproportionately comprised of men (71% of all suicide victims) and non-Hispanic Whites (81% of suicide victims). Victims ages 24 and under accounted for 16% of all suicides (50/319) with 6% (20/319) being ages 19 and younger.

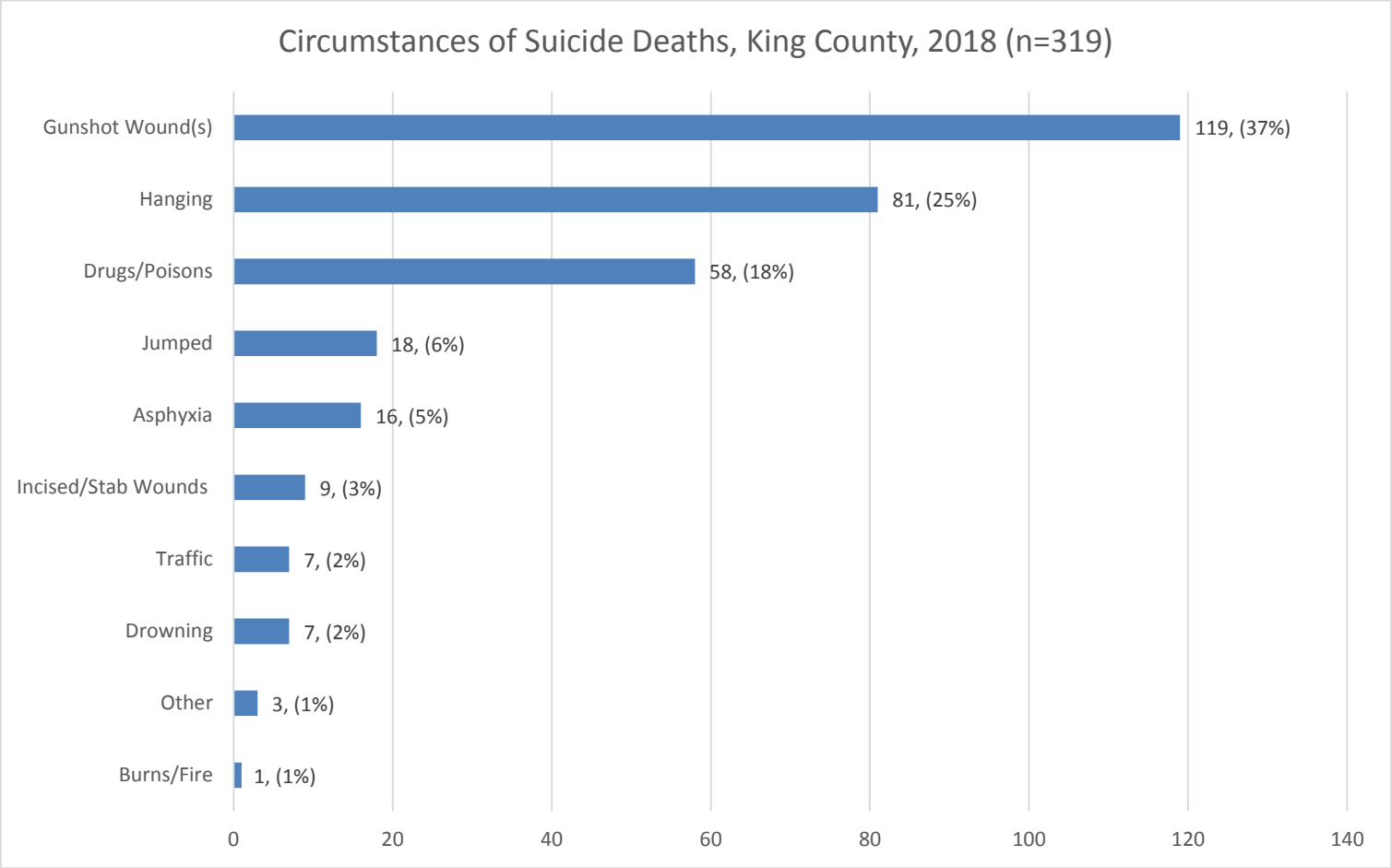
Of the 319 suicide deaths that occurred in 2018, 37% (119/319) were attributed to firearm, 25% (81/319) to hanging, 18% (58/319) to drugs and poisonings, and 6% (18/319) to jumping from a height. Self-inflicted gunshot wounds were significantly more common among men and decedents ≥60 years old.

Blood alcohol tests were performed in 48% (154/219) of suicidal deaths and were positive in 31% (48/154) of cases tested. Detection of alcohol was not associated with mode of suicide or the victim's demographic characteristics.

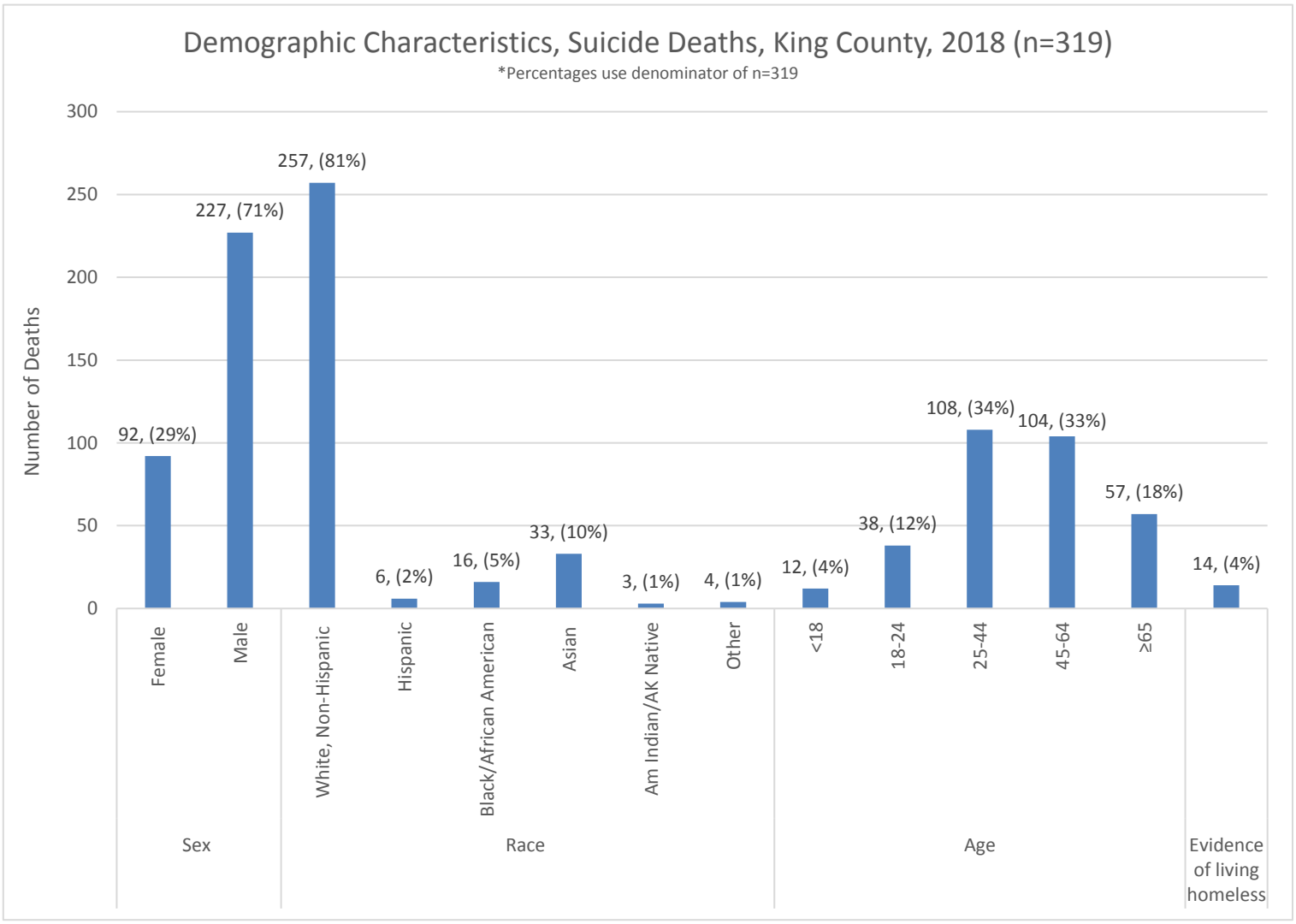
The Washington Death with Dignity Act, Initiative 1000, codified as RCW 70.245, passed on November 4, 2008 and took effect on March 5, 2009. This act allows terminally ill adults seeking to end their life to request lethal doses of medication from medical and osteopathic physicians. These terminally ill patients must be Washington state residents who have less than six months to live.[19] As provided in the act, "the patient's death certificate…shall list the underlying terminal disease as the cause of death." The act also states that, "Actions taken in accordance with this chapter do not, for any purpose, constitute suicide, assisted suicide, mercy killing, or homicide, under the law." Given these instructions, the King County Medical Examiner's Office has no involvement in these cases and collects no statistics on the number of deaths where an individual has utilized their rights under the provisions of this act. Statistics are kept and released annually by the Washington State Department of Health.

[19] Washington State Department of Health website: http://www.doh.wa.gov/dwda

Graph 4-1 Suicide Injury Methods / KCME / 2018



Graph 4-2 Demographics / Suicide / KCME / 2018



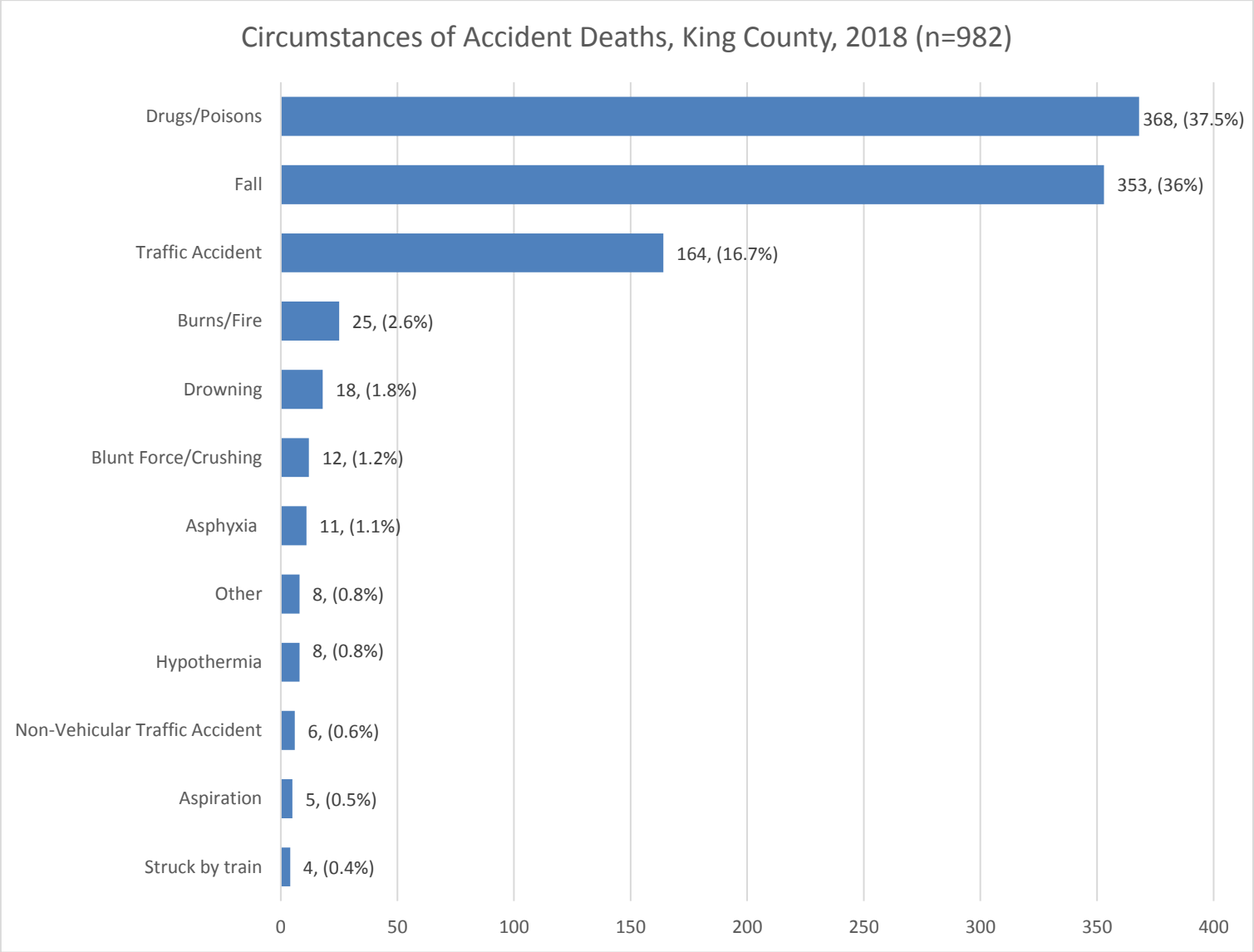
Manner of death: Accident

The Medical Examiner certified 982 accidental deaths for the calendar year 2018. Nearly 43% (353/982) of accidental deaths were attributed to injury sustained in falls, which most commonly involved ground-level falls in elderly adults that resulted in fractures or head injuries leading to complications such as pneumonia. Drug overdose and accidental poisonings accounted for one-third of accidental deaths; these deaths are described beginning on page 40. Traffic fatalities accounted for 16% of accidental deaths; these deaths are described beginning on page 35. Other causes of accidental death that were investigated by the Medical Examiner include fire (n=25), blunt force/crushing (n=12), drowning (n=18), and aspiration (n=5).

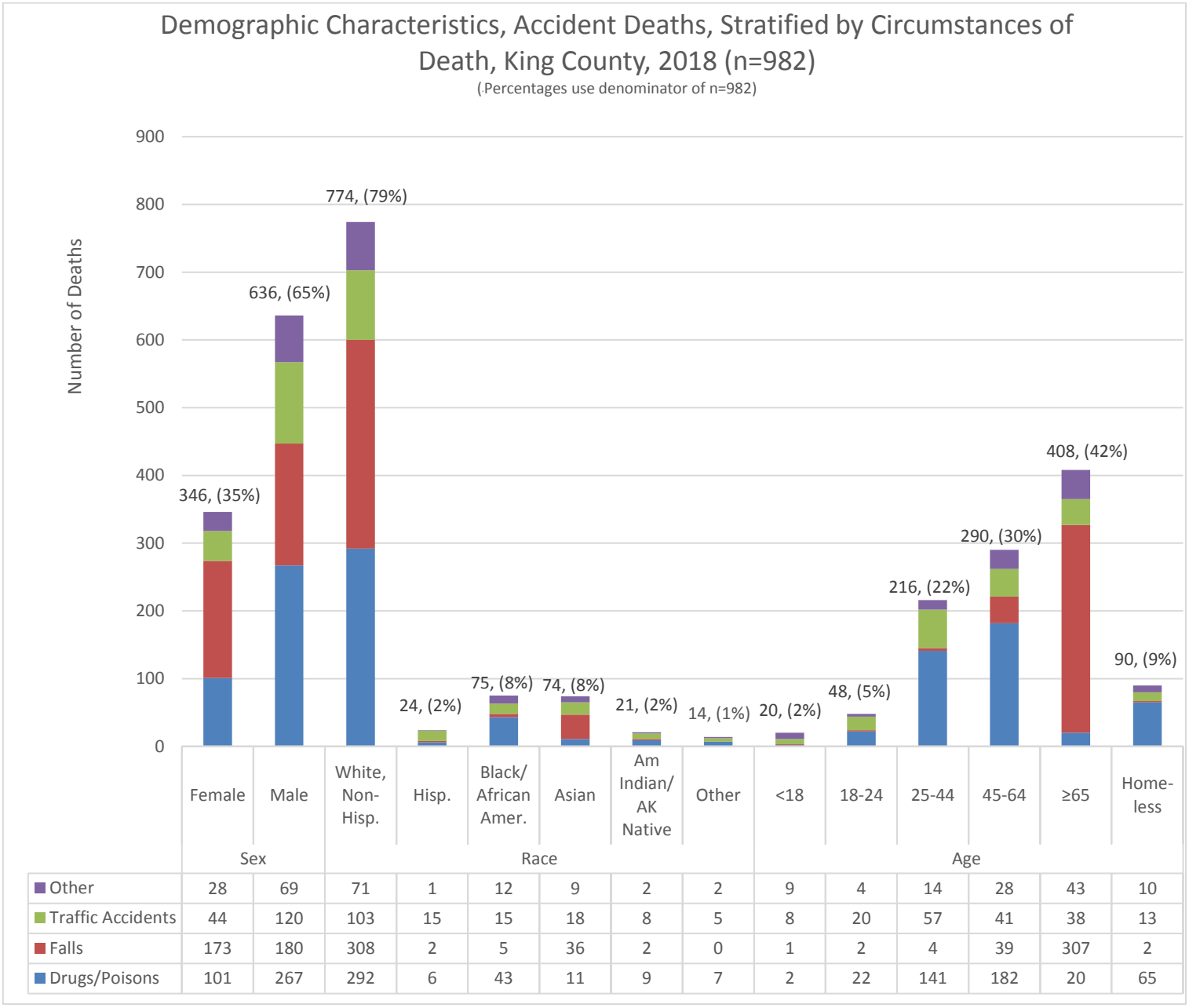
Of the 818 individuals with deaths attributed to non-traffic accidents, 16% (128/818) had suffered an injury outside of King County, were transported to King County for medical care, and ultimately died in King County and thus fell under King County Medical Examiner's Office jurisdiction.

47% (388/818) of the victims were tested for the presence of alcohol. Of those tested, 28% (109/388) showed alcohol present at the time of death.

Graph 5-1 Circumstances of Accidental Death / KCME / 2018



Graph 5-2 Demographics /Accidental Deaths / KCME/ 2018



	Female	Male	White, Non-Hisp.	Hisp.	Black/ African Amer.	Asian	Am Indian/ AK Native	Other	<18	18-24	25-44	45-64	≥65	Home-less
	Sex		Race						Age					
Other	28	69	71	1	12	9	2	2	9	4	14	28	43	10
Traffic Accidents	44	120	103	15	15	18	8	5	8	20	57	41	38	13
Falls	173	180	308	2	5	36	2	0	1	2	4	39	307	2
Drugs/Poisons	101	267	292	6	43	11	9	7	2	22	141	182	20	65

Traffic deaths

During the calendar year 2018, the Medical Examiner's Office investigated 164 traffic fatalities. Twenty three percent (38/164) of the traffic deaths that the Medical Examiner investigated were the result of collisions that occurred outside of King County, with the injured transported to hospitals in King County where death occurred, primarily Harborview Medical Center. These deaths fall under the jurisdiction of the King County Medical Examiner. Although these deaths are classified "Accident" for death certification purposes, the more accurate term is "motor vehicle collision."

In 2018, 35% (57/164) of the traffic fatalities were motor vehicle drivers. By age, 4% (2/57) of vehicle driver deaths were people between the under the age of 18, 16% (9/57 between the ages of 18 and 24, 37% (21/57) between the ages of 25 and 44, 25% (14/57) between the ages 45-64, and 19% (11/57) age 65 or greater. Male drivers represented 72% (41/57) of driver deaths and female drivers represented 28% (16/57) of driver deaths.

Of the 164 traffic fatalities in 2018, 16% (27/164) were motor vehicle passengers. In 2018, teenagers (13-19 years of age) accounted for four motor vehicle passenger deaths. There were no passenger deaths of infants (less than one year of age), no vehicle passenger death of a child between the ages of 1-12 years.

Blood alcohol statistics are presented to describe the role of alcohol in traffic deaths.[20] However, it should be noted that in many cases someone other than the person who died was under the influence of alcohol and was directly responsible for the collision. The Medical Examiner determines the blood alcohol levels of persons who die, not of everyone involved in the incident. In addition, blood alcohol is not tested in persons who die after surviving more than 24 hours, because in those deaths the alcohol has had time to metabolize and is no longer detectable.[20] Therefore, blood alcohol figures presented in this report underestimate the role of alcohol intoxication in traffic collisions.

Seatbelt restraint status was known in 68% (62/91) of the fatalities involving motor vehicle occupants. Of those, 57 cases 92% (57/62) were drivers. Of those drivers, 44% (25/57) were not restrained. The figures for drivers not wearing seatbelts for the previous three years are: 42% (22/53) in 2017, 15% (6/41) in 2016, and 40% (23/55) in 2015.

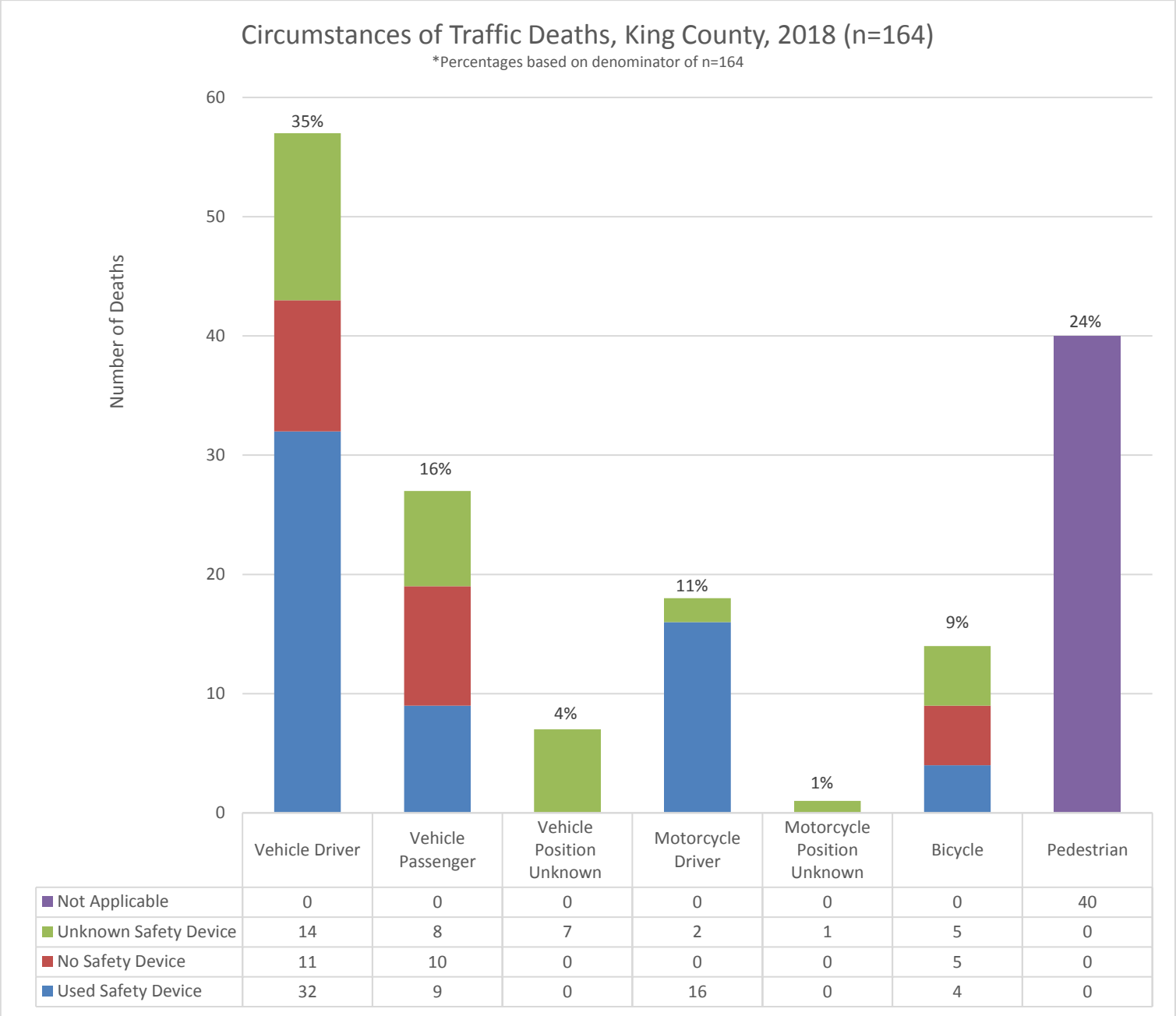
Motorcycle riders accounted for 12% (19/164) of traffic fatalities. Among the 19 motorcycle fatalities, 18 cases were in drivers and for one case it was unknown if the victim was a driver or passenger. All 19 motorcycle deaths were male. Of the 19 motorcycle fatalities, 84% (16/19) of the motorcyclists were wearing a helmet; and in 16% (3/19) of the deaths it was unknown if a helmet was in use. Of the 19 motorcyclist fatalities 14 were tested for the presence of blood alcohol and 36% (5/14) had alcohol detectable.

[20] See "Explanation of Data" for criteria for blood alcohol testing, page 9.

Pedestrians constituted 24% (40/164) of traffic fatalities. The majority of pedestrian deaths, 73% (29/40), were male. Of the pedestrian fatalities that were tested, 36% (10/28) had detectable amounts of alcohol present in their blood at the time of death.

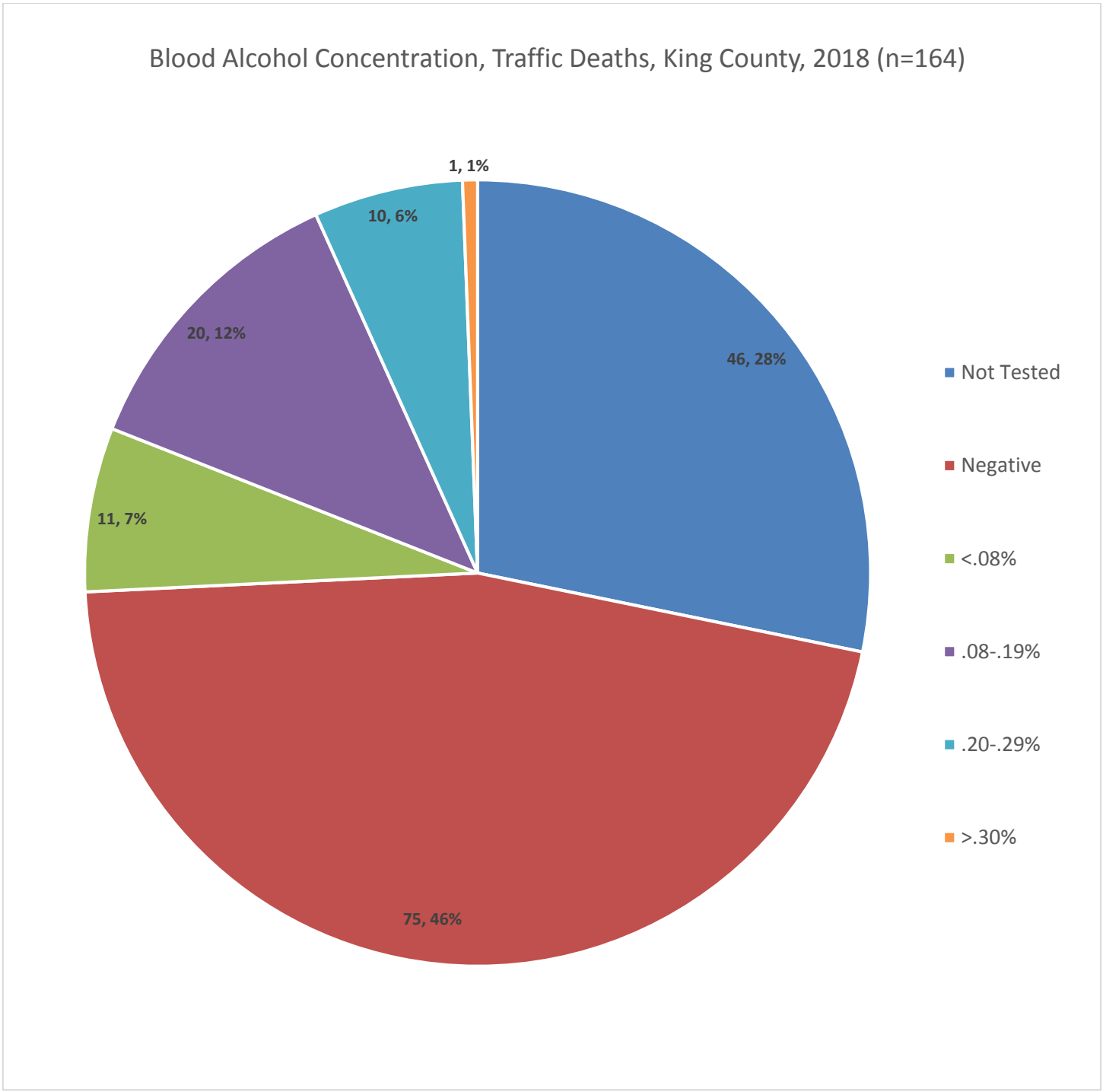
There were 11 bicyclist deaths in 2018; 4 were riders wearing a helmet, 3 were not wearing a helmet, and 4 had unknown helmet use. Eight of the bicyclist fatalities were tested and only one had a detectable amount of alcohol present in his/her blood at the time of death.

Graph 5-3 Traffic Fatality Circumstances / KCME / 2018

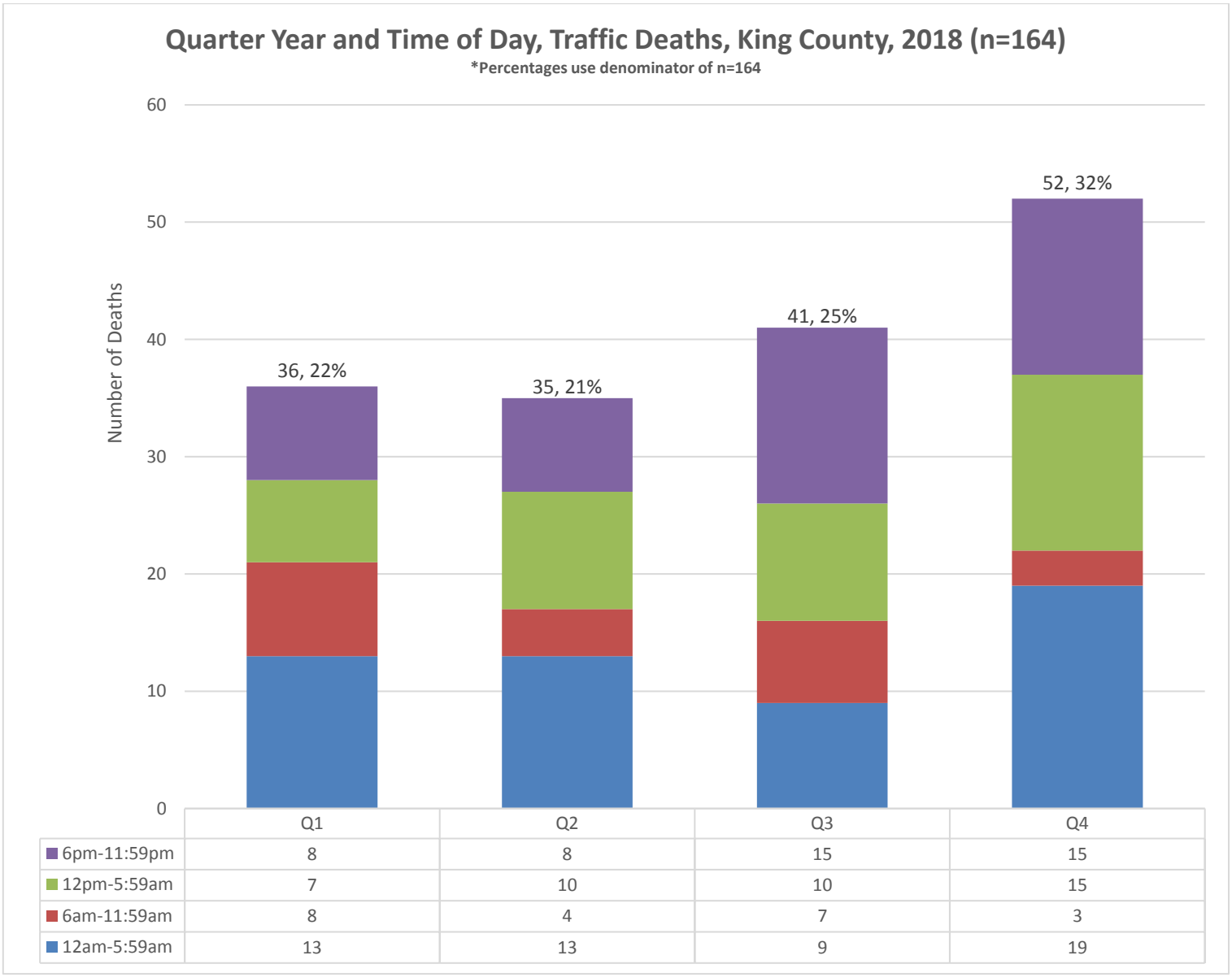


	Vehicle Driver	Vehicle Passenger	Vehicle Position Unknown	Motorcycle Driver	Motorcycle Position Unknown	Bicycle	Pedestrian
Not Applicable	0	0	0	0	0	0	40
Unknown Safety Device	14	8	7	2	1	5	0
No Safety Device	11	10	0	0	0	5	0
Used Safety Device	32	9	0	16	0	4	0

Graph 5-4 Traffic Fatalities / Blood Alcohol / KCME / 2018



Graph 5-5 Time of Fatal Traffic Collision / KCME / 2018



	Q1	Q2	Q3	Q4
6pm-11:59pm	8	8	15	15
12pm-5:59am	7	10	10	15
6am-11:59am	8	4	7	3
12am-5:59am	13	13	9	19

Deaths due to drugs and poisons

In 2012, it was reported in the *National Vital Statistics Report*[21] that preliminary cause of death information from 2009 shows drug-induced deaths were the leading cause of accidental deaths of Americans. This was the first time drug-induced deaths had surpassed motor vehicle accidents as the number one cause of accidental deaths.

For King County in 2018, drugs and poisons caused 435 deaths, approximately 18% of all deaths investigated (435/2,460) and represented approximately 30% (416/1,401) of autopsies conducted. The total number of drug-caused deaths increased compared to 2017 when there were 399 overdose deaths. In 2018, deaths due to drugs and poisons comprised 32% (435/1,362) of all suicidal, accidental and undetermined deaths combined.

For the purpose of this section, the term "overdose" is used to describe a death caused by a single drug or multiple drugs in combination. Multiple drug intoxication continued to cause the majority of overdose deaths in 2018. Of the drug/poison deaths in 2018, a single drug or poison caused 30% (142/435) of the drug related deaths, and drugs or poisons in combination caused 70% (293/435.) Multiple drug intoxication caused 68% of the drug/poison deaths in 2017. Table 9-1 displays the specific drugs that caused death in 2018. Because of their prevalence, ethanol, cocaine (a stimulant), and opiates[22] are identified as separate drug categories. Data on deaths involving methadone, oxycodone, and methamphetamine are also shown in detail.

Deaths due to drugs and poisons are represented in the manners of accident, suicide, and undetermined. There were no deaths classified as homicide in 2018 in which drugs or poisons were the primary cause of the death, although the victim may have been under the influence of drugs at the time of the fatal incident.

The classification of undetermined manner is used when the circumstances surrounding the overdose does not allow clarification of whether the fatal intoxication was suicide or an accident. In 2018, drugs and poisons caused 10 deaths of undetermined manner, compared to 18 in 2017.

In 2018, 58 suicides were due to drugs/poisons, compared to 41 in 2017.

[21] Kenneth D. Kochanek, M.A.; Jiaquan Xu, M.D.; Sherry L. Murphy, B.S.; Arialdi M. Miniño M.P.H.; and Hsiang-Ching Kung, Ph.D., Division of Vital Statistics "Deaths: Preliminary Data 2009," National Vital Statistics Report Volume 59 Number 4 (March 2013)

[22] When the term "opiate" is used in this section, the drug detected by analysis is a derivative of opium, usually morphine, the source of which is either pharmaceutical morphine or heroin. The term opioid refers to the general class of drugs, often called narcotics, which interact with the opioid receptor. For example, oxycodone, and methadone are "opioids" but in this section are not "opiates."

Ethanol (alcohol) is also a drug to be critically examined for its role in the circumstances surrounding death. In 2018, 9 accidental deaths were attributed to acute ethanol intoxication where ethanol was the single substance used. Eighty-five people died in 2018 where ethanol, in combination with other drugs, was the cause of death. Blood alcohol (ethanol) tests were performed in 54% (788/1,457) of non-natural deaths. Blood alcohol tests are only performed when death occurs within 24 hours of the initial injury/event, or, in hospital deaths when an admission blood sample is available for testing. Positive blood alcohol levels were detected in 17% (246/1,457) of non-natural deaths where tests were performed. High blood alcohol levels found in chronic alcoholics are usually certified as "natural", meaning that the high ethanol level represents an exacerbation of the underlying chronic disease (alcoholism) and not the cause of death. This practice is in accordance with the prevailing standards of death certification.

It is important to know that the following tables and charts represent toxicology results only from specimens gathered by the King County Medical Examiner's Office and are not necessarily reflective of the total number of overdose deaths. While there were 435 overdose deaths in 2018 not all of those deaths had toxicological specimens available for testing by the Medical Examiner's Office. In certain instances delayed hospital deaths were classified based on toxicology test results from medical records where samples for confirmatory laboratory testing by the Medical Examiner's Office were no longer available. There were 27 such deaths listed as drug overdose based on documentation in medical records alone.

Drug- and alcohol-caused deaths that occurred in 2018 are described in detail in a separate report (www.kingcounty.gov/overdose/2018). Additionally, up-to-date information about drug overdose deaths can be viewed at www.kingcounty.gov/overdose.

Table 5-1 2018 Drug & Poison Caused Deaths[1]

		Overdose Deaths (435) – Drug Present						Overdose Deaths (435) – Drug Causing					
Drug Name	**Total deaths out of 2,460 cases in which drug was present**	In which drug was present	Single drug OD in which drug was present	Multiple drug OD in which drug was present	Accident	Suicide	Undetermined	In which drug caused death	OD in which a single drug caused death	OD in which multiple drugs caused death	Accident	Suicide	Undetermined
Acetaminophen	9	4	1	3	1	3	0	4	2	2	1	3	0
Alprazolam	73	60	0	60	55	5	0	62	0	62	57	5	0
Amitriptyline	5	3	0	3	3	0	0	3	0	3	3	0	0
Amlodipine	1	1	0	1	0	1	0	1	0	1	0	1	0
Amphetamine	204	108	34	74	103	3	2	7	1	6	6	1	0
Buprenorphine	3	1	0	1	1	0	0	3	0	3	3	0	0
Buproprion	13	10	0	10	4	5	1	9	0	9	4	3	1
Butalbital	2	2	0	2	1	1	0	2	0	2	1	1	0
Cannabinoids / THC[2]	64	61	1	3	2	2	0	0	0	0	0	0	0
Carbon Monoxide[3]	24	11	1	10	4	7	0	10	9	1	3	7	0
Carisoprodol	1	1	0	1	0	1	0	1	0	1	0	1	0
Chlordiazepoxide	8	6	1	5	6	0	0	5	0	5	5	0	0
Chlorpheniramine	2	1	0	1	0	1	0	2	0	2	1	1	0
Citalopram	18	9	1	8	5	4	0	8	0	8	4	4	0
Clonazepam	4	3	0	3	1	2	0	10	0	10	5	5	0
Clozapine	1	1	1	0	0	1	0	1	1	0	0	1	0
Cocaine[4]	103	74	16	58	74	0	0	86	20	66	86	0	0
Codeine[5]	123	88	11	77	84	3	1	2	0	2	0	2	0
Cyanide	1	1	1	0	0	1	0	1	1	10	0	1	0
Cyclobenzaprine	10	6	0	6	2	4	0	5	0	5	2	3	0
Dextromethorphan	13	9	0	9	9	0	0	9	0	9	8	1	0
Diazepam	23	15	0	15	11	3	1	16	0	16	12	3	1
Difluoroethane	1	0	0	0	0	0	0	1	1	0	1	0	0
Dicyclomine	1	1	0	1	0	1	0	1	0	1	0	1	0
Dinitrophenol	1	1	1	0	0	1	0	11	1	0	0	1	0
Diphenhydramine	43	27	7	20	14	13	0	30	26	4	19	11	0
Doxepin	3	3	0	3	2	1	0	3	0	3	2	1	0

Table 5-1 2018 Drug & Poison Caused Deaths, page 2

		Overdose Deaths (435) – Drug Present						Overdose Deaths (435) – Drug Causing					
Drug Name	**Total deaths out of 2,460 cases in which drug was present**	In which drug was present	Single drug OD in which drug was present	Multiple drug OD in which drug was present	Accident	Suicide	Undetermined	In which drug caused death	OD in which a single drug caused death	OD in which multiple drugs caused death	Accident	Suicide	Undetermined
Doxylamine	5	1	0	1	0	1	0	4	0	4	3	1	0
Duloxetine	2	1	0	1	0	1	0	1	0	1	0	1	0
Ethanol	294	102	20	82	86	13	3	94	9	85	84	8	2
Etizolam	3	3	0	3	2	1	0	3	0	3	2	1	0
Fentanyl[6]	72	67	14	54	66	1	0	66	14	52	65	1	0
Fluoxetine	7	5	0	5	3	2	0	4	0	4	2	2	0
Gabapentin	11	9	0	9	5	3	1	9	0	9	5	3	1
Hydrocodone	19	13	0	9	8	4	1	13	0	9	8	4	1
Hydromorphone	18	10	1	9	8	2	0	1	0	1	1	0	0
Hydroxyzine	2	2	0	2	2	0	0	1	0	1	1	0	0
Isopropranol[7]	10	1	1	0	1	0	1	1	1	0	1	0	0
Lamotrigine	7	1	0	1	0	1	0	3	0	3	0	3	0
Loperarmide	2	2	0	2	2	0	0	2	0	2	2	0	0
Lorazepam	12	7	1	6	4	2	1	6	0	6	3	2	1
MDA	2	1	1	0	1	0	0	3	1	2	3	0	0
MDMA	4	3	0	3	3	0	0	3	0	3	3	0	0
Meprobamate	1	1	0	1	0	1	1	0	0	0	0	0	0
Metformin	1	1	0	1	0	1	0	2	0	2	0	2	0
Methadone	56	4	2	2	40	40	2	0	43	3	40	41	2
Methamphetamine	211	137	40	97	131	3	3	156	45	111	149	3	4
Methocarbamol	3	3	0	3	1	2	0	2	0	2	1	0	0
Methylphenidate	1	1	0	1	0	1	0	1	0	1	0	1	0
Mirtazapine	3	1	0	1	0	1	0	2	0	2	1	1	0
Mitragynine[8]	7	2	0	2	1	1	0	5	0	5	4	1	0
Monoacetylmorphine[9]	110	65	3	62	63	1	1	0	0	0	0	0	0
Nortriptyline[10]	8	6	0	6	5	1	0	3	0	3	2	1	0

Table 5-1 2018 Drug & Poison Caused Deaths, page 3

		Overdose Deaths (435) – Drug Present						Overdose Deaths (435) – Drug Causing					
Drug Name	**Total deaths out of 2,460 cases in which drug was present**	In which drug was present	Single drug OD in which drug was present	Multiple drug OD in which drug was present	Accident	Suicide	Undetermined	In which drug caused death	OD in which a single drug caused death	OD in which multiple drugs caused death	Accident	Suicide	Undetermined
Olanzapine	3	1	0	1	0	1	0	2	0	2	1	1	0
Opiate[11]	185	47	17	130	144	2	1	164	19	145	160	1	3
Oxycodone	47	30	2	28	23	7	0	31	2	29	24	7	0
Pentobarbital	2	2	1	1	0	2	0	2	1	1	0	2	0
Phencyclidine	4	1	0	1	1	0	0	1	0	1	1	0	0
Phenobarbital	5	1	0	1	1	0	0	1	0	1	1	0	0
Promethazine	4	2	0	2	1	1	10	2	0	2	1	1	0
Propranolol	1	1	0	1	1	0	0	1	0	1	0	1	0
Pseudoephedrine	3	2	1	1	2	0	0	1	0	1	1	0	0
Quetiapine	23	10	1	9		3	0	1	0	1	0	1	0
Salicylates	3	2	0	2	0	2	0	3	0	3	0	3	0
Sertraline	9	2	0	2	0	2	0	3	0	3	2	1	0
Topiramate	4	2	0	2	1	1	0	3	0	3	1	2	0
Tramadol	6	5	0	5	2	3	0	5	0	5	2	3	0
Trazodone	18	13	0	13	10	3	0	12	0	12	9	3	0
Venlafaxine	13	9	0	9	7	1	1	9	0	9	7	1	1
Verapamil	3	2	0	2	0	2	0	3	0	3	0	3	0
Zolpidem	5	3	0	3	1	2	0	3	0	3	1	2	0
Zopiclone	3	2	0	2	1	1	0	2	0	2	1	1	0

Table 5-1 2018 Drug & Poison Caused Deaths, page 4

[1]In general, acetaminophen was listed as causing our contributing to death only if liver necrosis was identified anatomically or clinically.

[2]Table 9-3 is constructed on the basis of finding each of the listed drugs by laboratory analysis of the decedent's blood. The first column represents the total number of cases in which the specific drug was detected, regardless of cause and manner of death. The rest of the columns represent only drug overdose deaths and are divided into two parts. The part that lists "Drug Present" represents the number of cases in drug overdose deaths in which the drug was present in quantifiable amounts. The other part that lists "Drug Causing" represents the number of drug overdose deaths in which the specific drug caused or contributed to death in the opinion of the certifying Medical Examiner, i.e., the drug was included on the death certificate. In many cases, the numbers in the first part are more than those in the second part because the drug, although present, was not considered to contribute significantly to death, i.e., the drug was not listed on the death certificate even though it was detected in the decedent. In a few cases, the column that lists "In which drug caused death" is greater than the column that lists "In which drug was present," because the drug was detected but not in quantifiable levels, and the certifying Medical Examiner considered the drug to have contributed to death.

[3]Cannabinoids are not routinely tested for in death investigations except under certain circumstances, for example law enforcement-related, traffic-related, or at the request of the submitting agency or family. Cannabinoids are listed if they were found at any level in blood, not necessarily in quantified levels. Cannabinoids in levels typically found are not considered lethal agents and, therefore, there are no instances of single drug overdose deaths involving cannabinoids or THC. Although cannabinoids/THC were not considered contributory to death, they were detected in overdose deaths as listed.

[3]Carbon monoxide fatalities are listed in the first column if the level of carboxyhemoglobin was 5% or greater. The rest of the columns represent only drug overdose deaths and are divided into two parts, "Drug Present" and "Drug Causing". There were 7 suicides from the inhalation of carbon monoxide and 3 accidental deaths where carbon monoxide was the drug causing.

[4]Includes benzoylecgonine.

[5]Out of the 88 overdose deaths involving codeine, in 86 cases, the source of the drug was likely small quantities of codeine present in heroin used by illicit drug users. In 2 cases the source of the drug was thought to be pharmaceutical.

[6]Includes fentanyl, fentanyl precursor 4-ANPP, fentanyl analogues: acetylfentanyl, cyclopropylfentanyl, furanylfentanyl, methoxyacetylfentanyl, and the drug U-47700.

[7]Isopropanol (isopropyl alcohol) is usually encountered in cases of diabetic ketoacidosis. in which this alcohol is a conversion product of the ketone, acetone, arising as a metabolic disturbance of diabetes. In two cases, isopropanol was consumed and resulted in an intoxication similar to, bust more severe, than ethanol.

[8]The toxicity of mitragynine (kratom) is still not well established, and it was listed in this table by its presence in combination drug overdoses.

[9]Monoacetylmorphine (MAM) is a principal toxicological marker for heroin. It is the first breakdown product of heroin, which is diacetylmorphine. The presence of MAM, therefore, proves the source of opiate to be heroin. However, the absence of MAM does not imply that the source of the opiate was not heroin.

[10]In 3 of the 8 total cases, nortriptyline was present without the presence of amitriptyline, indicating that the source of the drug was, in fact, nortriptyline. In the other 5 cases, amitriptyline was also present, indicating that the nortriptyline was present due to the breakdown of amitriptyline. There were a total of 3 nortriptyline overdose deaths; all three were multiple drug overdoses, 2 were manner Accident, 1 was manner Suicide.

[11]As used in this section, "opiate" refers exclusively to the naturally occurring drug (morphine) or its derivative (heroin). This category does not include the other "opioids" such as oxycodone, hydrocodone, hydromorphone, oxymorphone, tramadol and methadone. In 2018 there were 164 deaths caused by opiates. Toxicological analysis detects only morphine and cannot differentiate heroin and pharmaceutical morphine as the likely source of the opiate. Based on toxicology analysis (presence of acetylmorphine), scene investigation, and circumstances it was determined that out of these 164 deaths, 150 were definitely or probably due to heroin and 7 were due to pharmaceutical morphine. In the remaining 7 cases it was not possible to determine whether the death was due to heroin or pharmaceutical morphine.

Table 5-2 Total Overdose Deaths / Accident, Suicide, Undetermined / 2009 – 2018

Overdose Deaths	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Accident	233	217	205	230	279	290	295	305	340	367
Suicide	29	43	48	51	41	41	41	40	41	58
Undetermined	9	11	15	17	9	13	9	15	18	10
Totals	**271**	**271**	**268**	**298**	**329**	**344**	**345**	**360**	**399**	**435**

Table 5-3 Blood Alcohol Testing / Manner / KCME / 2018

Test Results	ACCIDENT	TRAFFIC	HOMICIDE	NATURAL	SUICIDE	UNDETERMINED	TOTAL
Tested	389 (48%)	118 (72%)	82 (86%)	234 (23%)	154 (48%)	45 (74%)	1,022 (42%)
Positive	*109 (13%)*	*43 (26%)*	*24 (25%)*	*58 (6%)*	*48 (15%)*	*12 (20%)*	*294 (12%)*
Negative	*230 (28%)*	*75 (46%)*	*58 (61%)*	*176 (17%)*	*106 (32%)*	*33 (54%)*	*728 (30%)*
Not Tested	429 (52%)	46 (28%)	13 (14%)	769 (77%)	165 (52%)	16 (26%)	1,438 (58%)
Totals	**818**	**164**	**95**	**1,003**	**319**	**61**	**2,460**

Manner of death: Natural

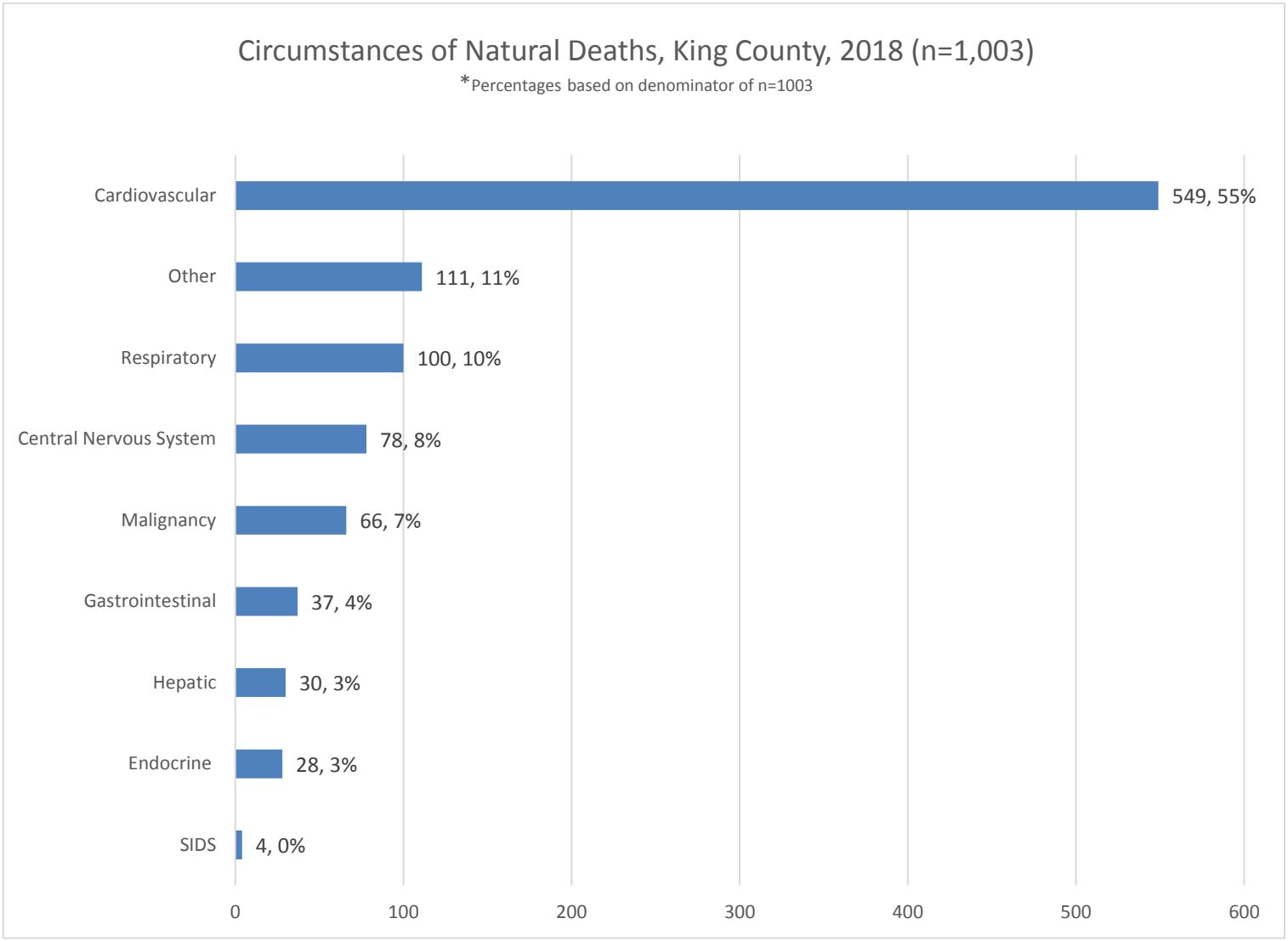
The Medical Examiner assumes jurisdiction over deaths that are determined to be natural due to the sudden and unexpected nature of the death in an apparently healthy individual, when there is no physician who has knowledge or awareness of the decedent's condition, when there is no next of kin to make disposition, or when there are suspicious circumstances surrounding the death. In these situations, the Medical Examiner becomes responsible for certification of death. It should be stressed that the natural deaths the Medical Examiner investigates may not be representative of all natural deaths in the general population, due to the possibility that jurisdictional considerations introduce significant bias.

In 2018, the King County Medical Examiner's Office assumed jurisdiction over 1,003 deaths attributed to natural causes, representing 41% (1,003/2,460) of the cases investigated. The King County Medical Examiner certified 71% (714/1,003) of these deaths; attending physicians who had knowledge of the decedent's medical condition certified 29% (289/1,003). It should be noted that when a death is initially reported, there may be no evidence of an attending physician. A thorough scene investigation often reveals that the deceased did, in fact, have a physician with knowledge of the decedent's medical condition. In that case, this physician would then be contacted to certify the death.

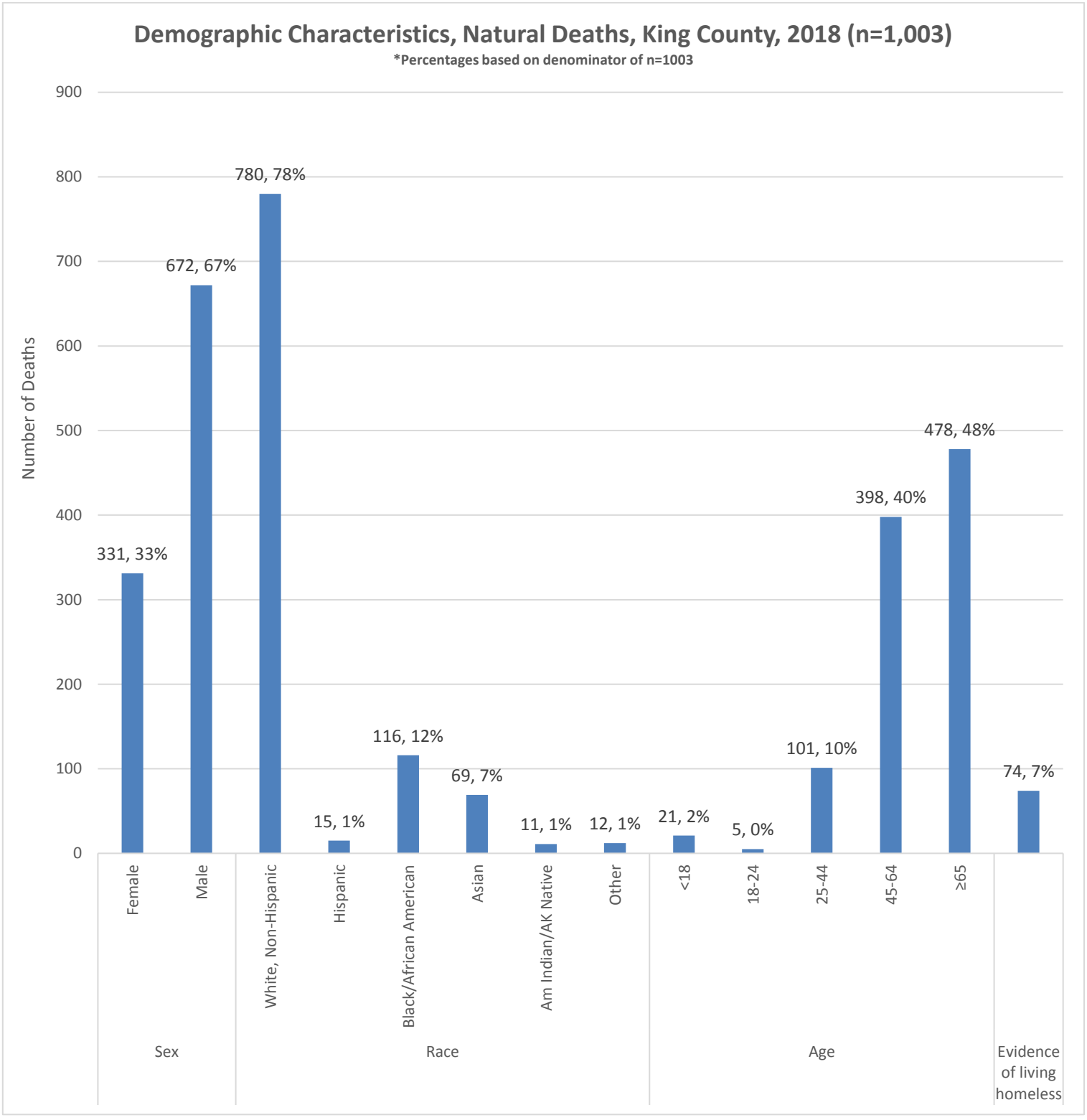
The King County Medical Examiner performed autopsies in 62% (444/714) of the deaths certified as natural, which included autopsies performed in 100% (4/4) of deaths classified as Sudden Infant Death Syndrome (SIDS). In this context, it is important to recognize that there are changes occurring in the classification of sudden infant deaths. The term "Sudden Unexplained Infant Death" (SUID) is used by some as an alternative to SIDS. Whatever the designation, it is important to recognize that an autopsy is performed on all sudden infant deaths.

Cardiovascular disease accounted for the greatest proportion of natural deaths. Most jurisdictional deaths in which an autopsy was not performed were certified as due to "probable atherosclerotic cardiovascular disease."

Graph 6-1 Deaths due to Natural Causes / KCME / 2018



Graph 6-2 Demographics/ Natural / KCME / 2018



Manner of death: Undetermined

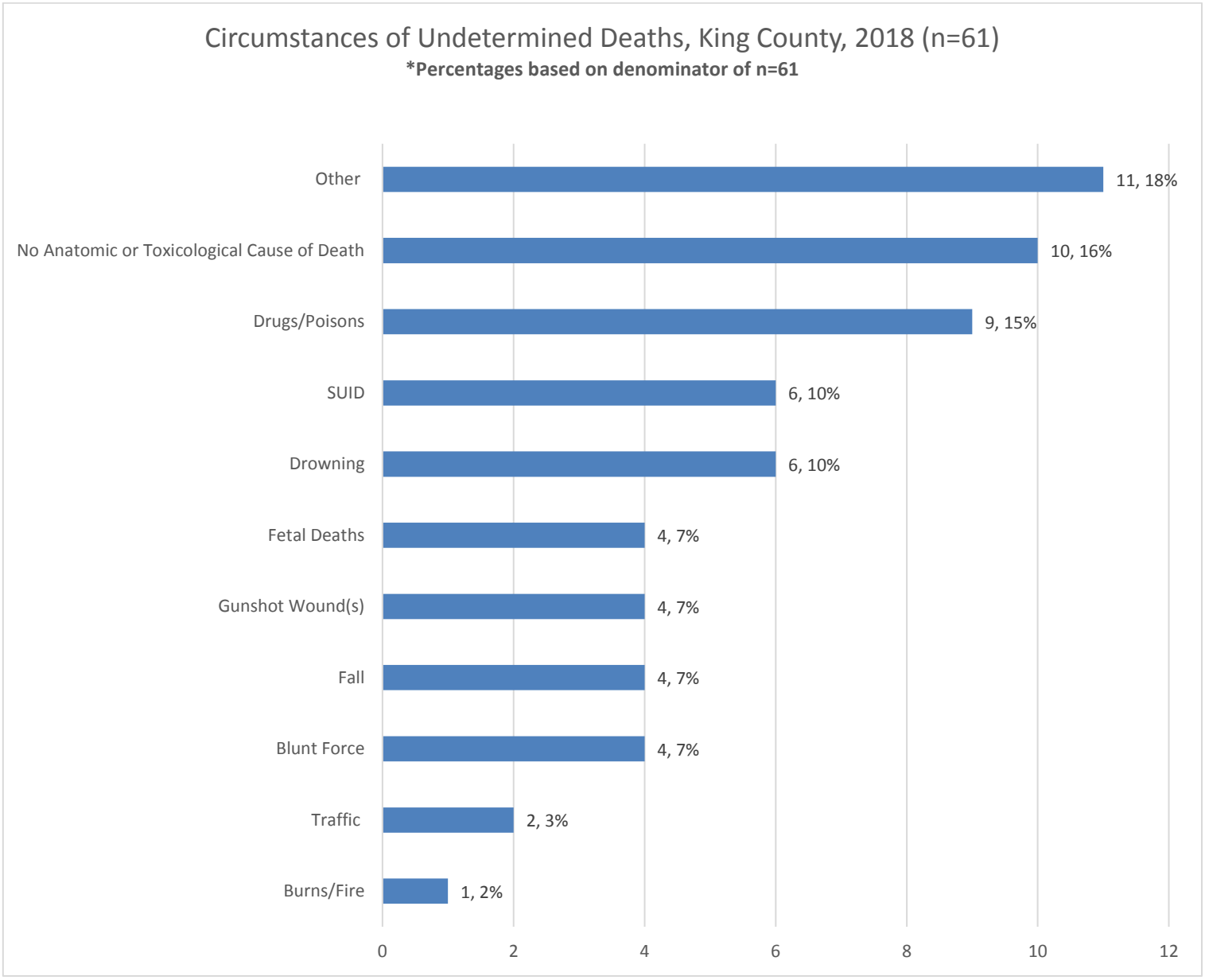
The King County Medical Examiner's Office certifies a manner of death as undetermined when available information regarding the circumstances of death is insufficient to classify the death into one of the specific manners of natural or unnatural (Accident, Homicide or Suicide) death. In some cases, serious doubt exists as to whether an injury occurred with intent or as a result of an accident. Information concerning the circumstances may be lacking due to the absence of background information or witnesses, or because of a lengthy delay between death and discovery of the body. Moreover, it may be difficult to assess street drug or medication overdose deaths as showing enough features to reasonably determine the manner of death. If an extensive investigation and autopsy cannot clarify the circumstances, the death is classified undetermined.

The King County Medical Examiner's Office certified 61 deaths with manner undetermined, accounting for 2.5% (61/2,460) of the deaths investigated in 2018. Drugs and poisons caused 20% (12/61) of the deaths classified as undetermined. For a more detailed review of overdose deaths in 2018, see the discussion in the section on Drugs and Poisons on page 40.

The 61 deaths that were classified as undetermined for 2018 included 4 fetal deaths, which, in accordance with the Washington State Department of Health - Center for Health Statistics Fetal Death Certification Guidelines, are not assigned a manner of death. Fetal death certificates must be issued for every fetus of 20 weeks or more gestation. Of the 4 fetal deaths in 2018, 2 were related to maternal trauma, and one was related to maternal drug abuse.

There were no Sudden Unexplained Neonatal Death (SUND) cases in 2018. An infant is defined as a newborn from birth to a few weeks of age. In medical contexts, neonate refers to an infant that is in the first 28 days after birth whether premature, postmature, or full term.

Graph 7-1 Undetermined Manner of Death[23] / KCME / 2018



[23]NATCOD is an abbreviation for "no anatomic or toxicological cause of death," and refers to deaths in which full autopsies and toxicological analyses (if relevant) fail to identify an adequate cause of death.

Deaths due to firearms

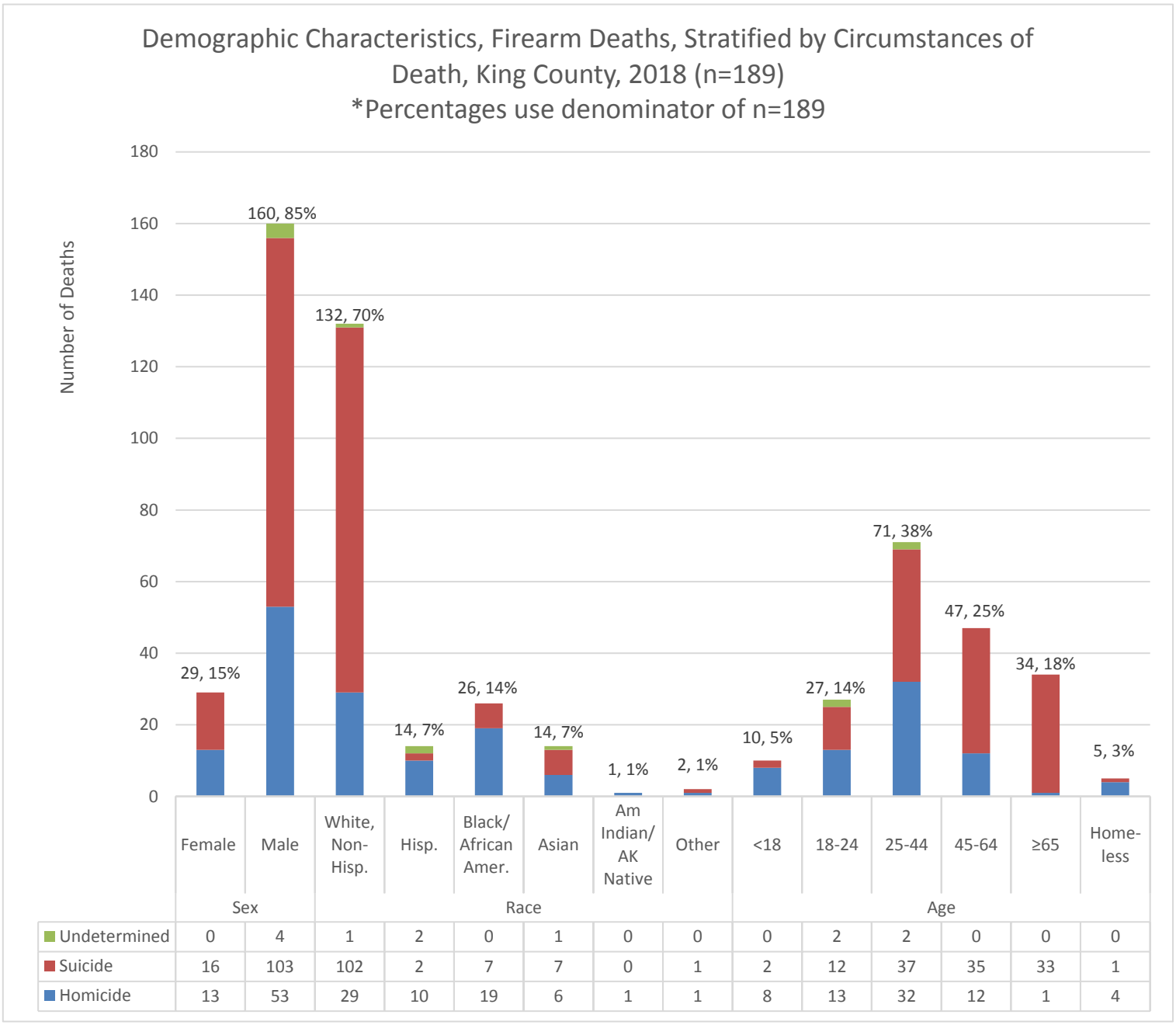
The Medical Examiner is responsible for investigating all deaths due to firearms that occur in King County. Medical Examiner data relate primarily to the victim because information regarding the weapon and the shooter is often unknown.

In 2018, the Medical Examiner investigated 189 firearm deaths. As stated previously (see discussion on page 26 and 29 respectively), 66 deaths (35%) were homicides and 119 deaths (63%) were suicides. Four firearm deaths were classified as undetermined.

Of the 69 firearm homicide victims, 49% (32/65) were between the ages 25 and 44 years and a substantial majority 82% (53/65) were male. A disproportionate number were African American, 26% (17/66), compared to the percentage of African Americans in the general population (6%). Of the 119 firearm suicide victims in 2018, 31% (37/119) were between 25 and 44 years of age, 86% (102/119) were White and 87% (103/119) were male.

Three (75%) of the undetermined deaths were white males and all four were male.

Graph 8-1 Firearm Deaths / Manner / Age Group / KCME / 2018



	Female	Male	White, Non-Hisp.	Hisp.	Black/ African Amer.	Asian	Am Indian/ AK Native	Other	<18	18-24	25-44	45-64	≥65	Home-less
	Sex		Race						Age					
Undetermined	0	4	1	2	0	1	0	0	0	2	2	0	0	0
Suicide	16	103	102	2	7	7	0	1	2	12	37	35	33	1
Homicide	13	53	29	10	19	6	1	1	8	13	32	12	1	4

Causes of death in infant and young children

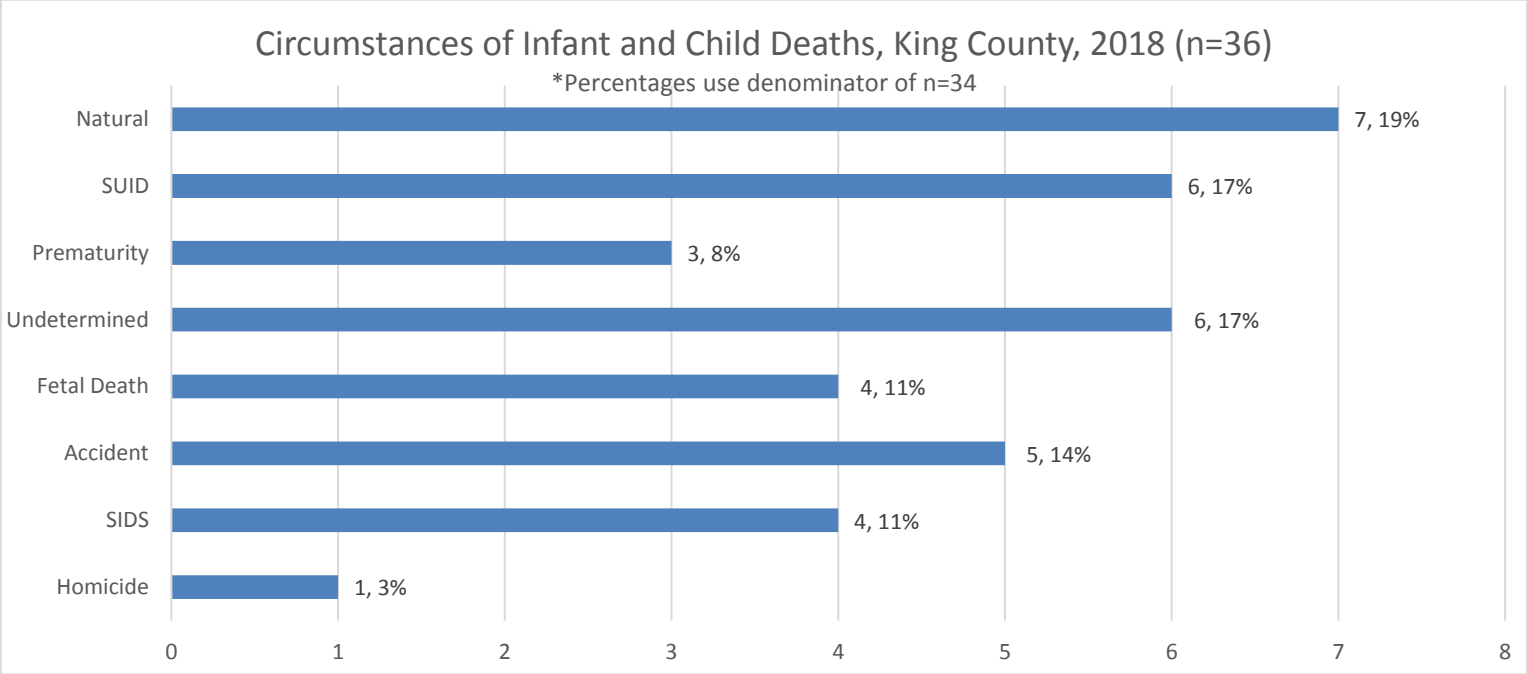
In 2018, the King County Medical Examiner's Office investigated 36 deaths of infants and children three years or younger, which represented 1.5% (36/2,460) of the total deaths investigated. Of these deaths, 39% (14/36) were from natural causes, 8% (3/36) were accidental (non-traffic), 6% (2/36) were accident (traffic), 3% (1/36) were homicide, and 44% (16/36) were classified as manner undetermined. In addition to investigating childhood deaths, the King County Medical Examiner participates in Child Death Review authorized under state law (Revised Code of Washington 70.05.170)[24], a process which discusses these deaths in detail with a multi-disciplinary team and formulates prevention strategies.

Of the 14 natural deaths of children and youth investigated by the Medical Examiner, 79% (11/14) were of infants less than one year of age. Of these 11 infants who died of natural causes, four were due to Sudden Infant Death Syndrome (SIDS), four were from prematurity, and seven were from other natural causes. In addition, six infant deaths were classified as "Sudden Unexplained Infant Death" (SUID), manner undetermined, due to the inability to exclude if external factors contributed to death.

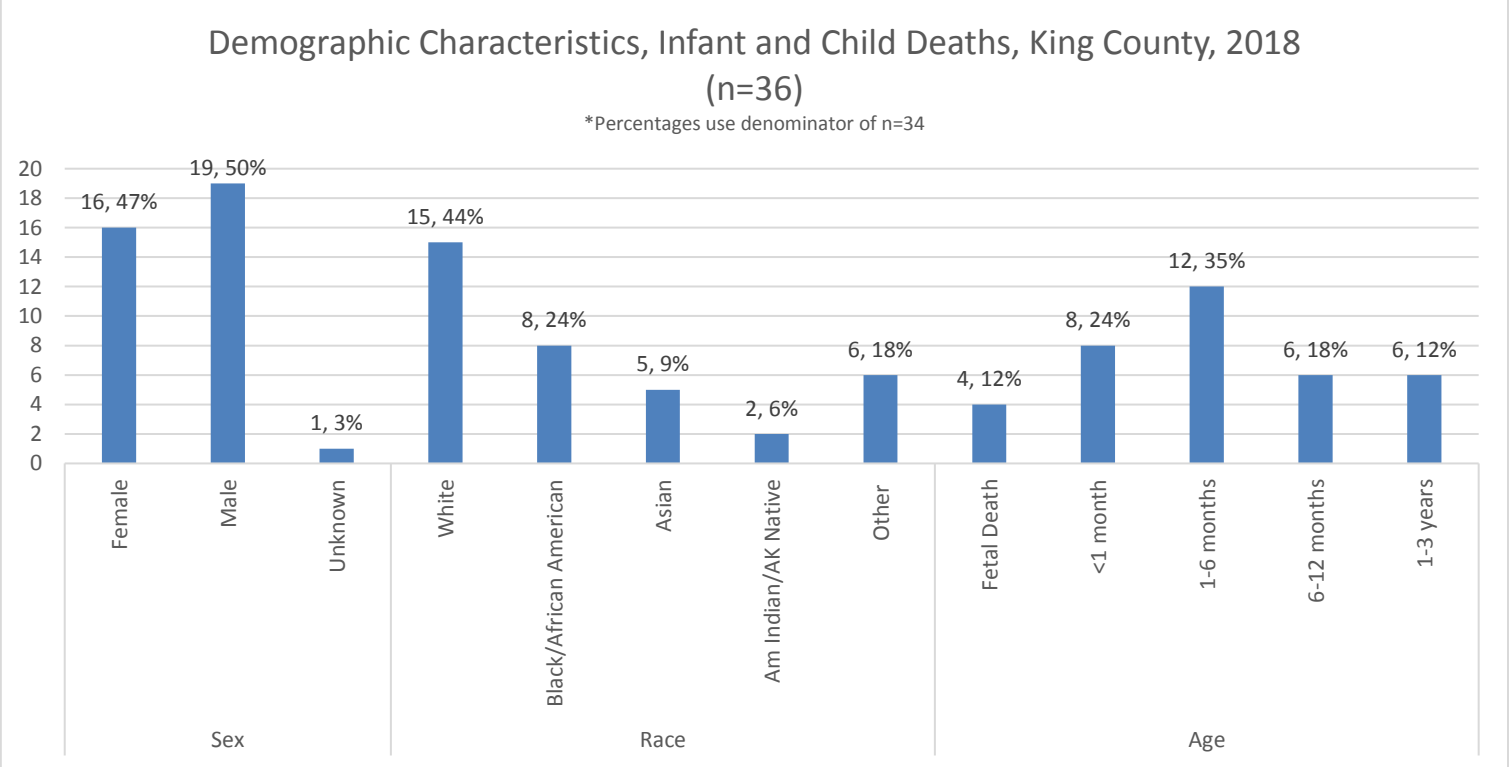
Of the 16 undetermined infant and children deaths, four were fetal deaths which were listed as manner undetermined in accordance with Washington State law. Another six of the undetermined deaths were classified as "Sudden Unexplained Infant Death" (SUID) due to the inability to exclude if external factors contributed to the death.

[24] Revised Code of Washington 70.05.170: Child Mortality Review., https://app.leg.wa.gov/rcw/default.aspx?cite=70.05.170

Graph 9-1 Causes of Death / Infant & Children / KCME / 2018



Graph 9-2 Demographics / Infant & Children / KCME / 2018



Organ donation

Although the King County Medical Examiner's Office does not approach families for donation of organs and tissue from decedents, we recognize the tremendous need for this life-saving activity and cooperate fully with organ and tissue procurement agencies. It is the philosophy of the King County Medical Examiner's Office that all requests for organ and/or tissue donation be given high priority for approval. In practice, the procurement agency contacts the KCMEO with information regarding a potential donor and the specific organs or tissue requested. The Medical Examiner then evaluates the request to determine if the donation would significantly affect the postmortem examination. In the great majority of cases, examinations can be conducted so that donations do not interfere with certification of death or collection of evidence. In this way, the King County Medical Examiner's Office works to maximize the donation of organs and tissue that go directly to save lives.

In 2018, the King County Medical Examiner's Office gave release for organ donation on 55 deaths that came under the office's jurisdiction. Altogether, there were 170 organs donated for transplant from the 55 cases referred to the King County Medical Examiner. The number of specific organs transplanted in 2018 is shown in Table 10-1. In addition to the living organs listed in Table 10-1 that were donated in 2018, the KCMEO approved the donation of skin, bone, cartilage, heart valves, corneas and other tissues through tissue procurement agencies LifeCenter Northwest, LifeNet Health and Sightlife. Altogether, these donations were able to provide thousands of tissue grafts for patients in need.

Table 10-1 Organs Transplanted / KCME / 2018

ORGAN	# Transplanted
Heart	27
Kidney(s	92
Liver	34
Lung(s)	14
Pancreas	3
Total	**170**

Disposition review

All deaths covered under RCW 68.50.010 are required by law to be reported to the Medical Examiner, however in the past these deaths have not always been reported in a timely manner. For some of these deaths, a complete investigation is not possible because the body was cremated prior to the death being reported to the Medical Examiner.

Beginning January 1, 2008, the King County Council authorized the Medical Examiner's Office to review the death certificates of all decedents to be cremated in order to rule out the need for additional investigation and ensure the proper determination of cause and manner of death.

Beginning January 1, 2011, the King County Council authorized the Medical Examiner's Office to review the death certificates of all decedents to be buried in order to rule out the need for additional investigation and ensure the proper determination of cause and manner of death.

In 2018, the Medical Examiner's Office handled 14,842 disposition review requests.

Medical Examiner activity

The staff of the Medical Examiner's Office are involved in a wide variety of activities commensurate with the mission of the office including responding to and investigating the scene of death, performing postmortem examinations, certifying the cause and manner of death, and providing information and assistance to families. Investigators, who are familiar with the emotional trauma of an unexpected death, communicate directly with families as do the Medical Examiner pathologists, who review their findings with the families in order to clarify the many questions that accompany a sudden loss of life. The office also provides referrals to grief support services.

In all cases investigated by the Medical Examiner, it is essential that the decedent's identity is established and the next-of-kin is located and notified regarding the death. In addition, property belonging to the decedent must be controlled and released according to legal requirements. In most cases these issues are resolved expeditiously. In certain cases, identification requires additional effort in locating dental, medical or police records. Some individuals may have died leaving no next-of-kin or next-of-kin far removed. Ensuring that all leads have been exhausted in pursuit of next-of-kin can be a very time consuming but ultimately a rewarding effort.

The postmortem examination on each decedent includes the preservation of various body fluids and tissues for microscopic and toxicologic analysis. Photographs are taken of the external and internal portions of the examination, which are available for review at a later date if needed. Photographic documentation is also an essential item in those cases where the pathologist must provide court testimony. Forensic Anthropology is another important activity necessary to resolve skeletal cases and difficult identification issues.

Medical Examiner pathologists, anthropologist and investigators provide testimony in court and at depositions. Staff participates in meetings with police, medical professionals, and attorneys. A recent addition to the duties of the Chief Medical Examiner is expert medical consultation and testimony in cases involving nonfatal domestic violence assaults.

Autopsy reports and related data from individual investigations are provided to law enforcement agencies, prosecuting attorneys and many other agencies including Labor and Industries, the Drug Enforcement Administration, and the Consumer Product Safety Commission. Drug deaths are reported to the Drug Abuse Warning Network (DAWN).

The Medical Examiner's Office has a very proficient educational program in which KCMEO pathologists and staff host and train pathology residents and medical students from the University of Washington (UW) as well as visiting scholars throughout the year in the field of Forensic Pathology. In participation with the UW, KCMEO conducts a weekly educational conference for Forensic Science that is accredited by the Accreditation Council for Continuing Medical Education (ACCME). The educational program also includes one of approximately 42 Forensic Pathology Fellowship Training Programs in the country and is nationally accredited by the Accreditation Council for Graduate Medical Education (ACGME).

In 2003, the Medical Examiner's Office created a student internship program that provides educational opportunities for students interested in forensic autopsy and death investigation. Through this program, numerous interns have obtained full-time careers in death investigation, both at the KCMEO and in other area medical examiner's offices.

Medical Examiner investigations require frequent contact between the Medical Examiner's Office and the news media. Staff members are skilled in responding to the media inquiries that occur daily. The Medical Examiner pathologists and other staff participate in a variety of medical conferences, and provide information on a regular basis to law enforcement and to medical personnel on various aspects regarding the role and function of the Medical Examiner's Office.

The data collected and presented in this and other Medical Examiner annual reports also provide baseline information for further analysis. Medical Examiner staff analyzes data to study relevant death investigation topics that have applications in such fields as law enforcement, medicine, law, social sciences, and injury prevention. Examples include infant mortality, teenage suicide, child abuse, law enforcement restraint, investigation of vehicular traffic collisions, and investigation of therapeutic complication deaths. In addition, the office participates in teaching medical students, pathology residents, emergency medical service, and law enforcement personnel.

In 2018, staff participated as speakers at universities, conferences, and training seminars for law enforcement, medical, legal, and social service personnel in the following presentations and lectures:

Richard C. Harruff, M.D., Ph.D., Chief Medical Examiner

Academic appointment:

- Clinical Associate Professor, Department of Pathology, University of Washington School of Medicine.

Professional organizations:

- American Academy of Forensic Sciences.
- Editorial review board, Journal of Forensic Sciences.
- National Association of Medical Examiners.
- Disaster Mortuary Operations Response Team, Region 10.

Preceptor and faculty positions

- Program Director, King County Medical Examiner's Office Fellowship Training Program in Forensic Pathology.
- Course Director and Faculty, "Problems in Forensic Pathology", King County Medical Examiner's Office.
- Preceptor for medical students and pathology residents, University of Washington School of Medicine.

Educational presentations

- Explanation of medical examiner function, Cambodian Health Board, Seattle, March 10.
- Introduction to the medical examiner, Harborview Paramedic training, Seattle, March 23.
- Pattern injury and strangulation. Sexual Assault Nurse Examiner Spring Training, Harborview Center for Sexual Assault and traumatic Stress, Seattle, Washington, April 12.
- Basics of death investigation for private investigators, University of Washington Private Investigators Class, Seattle, June 1.

- Toward a real-time drug overdose monitoring system in Washington (with Julia Hood), Summit on Reducing the Supply of Illegal Opioids in Washington, University of Washington, Seattle, June 15
- Physiology of death, Biology 118 Survey of Physiology, University of Washington, Seattle, July 28.
- Monitoring the opioid epidemic in King County. Public Health - Seattle and King County, Lunch and Learn, Seattle, September 8.
- Unexpected deaths of infants and young children. Seattle Children's Hospital, Seattle, September 21.
- Strangulation injuries. EMS &Trauma Conference, University of Washington Medicine, Seattle September 25.
- Pathology of child abuse. Seattle Children's Hospital, Seattle, September 27.
- Pattern injury and strangulation. Sexual Assault Nurse Examiner Fall Training, Harborview Center for Sexual Assault and traumatic Stress, Seattle, Washington, November 1.
- Pathology of fatal child abuse. King County Medical Examiner's Office, Seattle December 27.

Micheline Lubin, MD, Associate Medical Examiner

Associations, Committees & Boards

- Child Death Review Committee, King County Medical Examiner Office
- Elder Death Review Committee, King County Medical Examiner Office
- Quality Improvement Subcommittee, King County Medical Examiner Office
- Multiple Fatality Incident Committee, King County Medical Examiner Office

Educational presentations

- The Effect of Public Awareness and Legislation Against Strangulation on the Occureence of Gender-Based Violence. Presented at the 70th Annual Scientific Meeting of American Academy of Forensic Sciences, February 1-24, Seattle, WA.

Brian Mazrim, MD, Associate Medical Examiner

Associations, Committees & Boards

- Child Death Review Committee, King County Medical Examiner Office
- Elder Death Review Committee, King County Medical Examiner Office
- Quality Improvement Subcommittee, King County Medical Examiner Office
- Multiple Fatality Incident Committee, King County Medical Examiner Office
- Forensic Investigations Council, Washington State

Katherine M. Taylor, Ph.D., D-ABFA Forensic Anthropologist

Committees

- Quality Improvement Subcommittee, King County Medical Examiner Office
- Multiple Fatality Incident Committee, King County Medical Examiner Office

Educational presentations

- Buried Body School Instructor - Sponsored by the Lewis County Coroner's Office. Chehalis, WA, June 6th-7th
- Speaker, Basic Homicide Investigation class. Burien, WA, October 10th
- Speaker Washington Association of Coroners and Medical Examiner's Basic Death Investigation Course. Leavenworth, WA, November 28th

Professional and Academic Affiliation

- Fellow, American Academy of Forensic Sciences
- Diplomat, American Board of Forensic Anthropology
- Member, Society of Forensic Anthropologists
- Affiliate Faculty, University of Washington Department of Anthropology
- Board Member, Seattle University Criminal Justice Advisory Board

Timothy Williams, MD, Associate Medical Examiner

Academic Appointment

- Clinical Assistant Professor, Department of Pathology, University of Washington School of Medicine

Preceptorship

- University of Washington School of Medicine, Supervisor of Medical Student and Resident Rotations
- King County Medical Examiner's Office, Forensic Pathology Fellowship Faculty
- Rotating Moderator, Medicolegal Death Investigation didactic series, King County Medical Examiner's Office

Associations, Committees, Boards

- Member, National Association of Medical Examiners
    - Maintenance of Certification Committee
    - Forensic Pathology Education Committee
- Child Death Review Committee, King County Medical Examiner
- Elder Death Review Committee, King County Medical Examiner
- Graduate Medical Education Committee, King County Medical Examiner

Educational presentations

- Examination and Interpretation of Gunshot Wounds: Basics. Lecture at University of Washington Hospital Department of Pathology, May 15

Publications

- Ziegler A, Williams T, Yarid N, Shultz DL, Bundock EA, Fatalities Due to Failure of Continuous Subcutanous Insulin Infusion Devices: A Report of Six Case. J Forensic Sci. 2019 Jan;6491):275-280 (Also presented as a poster at the 70th Annual Scientific Meeting of American Academy of Forensic Sciences, February 1-24, Seattle, WA.

Nicole Yarid, MD, Associate Medical Examiner

Preceptorship and Faculty Positions

- Program Co-Coordinator, University of Washington and Harborview Medical Center Forensic Neuropathology Case Conference
- Faculty, University of Washington School of Medicine, medical students and pathology residents
- Faculty, King County Medical Examiner's Office, Forensic Pathology Fellowship Training Program
- Coordinator, King County Medical Examiner's Office, Real-Time Drug Overdose Surveillance Network

Associations, Committees and Boards

- Member, National Association of Medical Examiners
- Member, American Academy of Forensic Sciences
- Member, American Society for Clinical Pathology, Case Reports Forensic Pathology Author Committee
- Graduate Medical Education Committee Member, King County Medical Examiner's Office
- Quality Improvement Subcommittee Member, King County Medical Examiner's Office
- Multiple Fatality Incident Preparedness Team Member, Public Health Seattle and King County
- Child Death Review Committee Member, King County Medical Examiner's Office
- Elder Death Review Committee Member, King County Medical Examiner's Office
- Overdose Monitoring and Response Workgroup Member, representing King County Medical Examiner's Office

Scientific and Educational Presentations

- Yarid N. Opioid Deaths and KCMEO Overdose Surveillance. Oral presentation. Jail Health Services, Kent and Seattle, WA, May-June 2018; Washington Poison Center, Seattle, WA, June 2018; King County Medical Examiner's Office, Seattle, WA, October 2018; University of Washington School of Dentistry, Seattle, WA, November 2018.
- Yarid NA, Hood J, Harruff RC. Protocol for "Real-Time" Surveillance of Drug Overdose Deaths in King County, Washington. Oral presentation. National Association of Medical Examiners Annual Meeting, West Palm Beach, FL, October 2018.
- Yarid N, Harruff R, Hood J. Developing a "Real-Time" Surveillance for Drug Overdose Deaths in King County, Washington. Oral presentation. American Academy of Forensic Sciences 70th Annual Meeting, Seattle, WA, February 2018.
- Yarid N. Fentalogs: Autopsy Findings in Opioid and Fentanyl Overdose Deaths. Invited lecture for "Fentalogs Workshop. American Academy of Forensic Sciences 70th Annual Meeting, Seattle, WA, February 2018.
- Yarid N, Harruff R, Orvik A, Blank J, Panicker S. Does Black Tar Heroin "Protect" King County, Washington from Fentanyl-Related Mortality? Poster presentation. American Academy of Forensic Sciences 70th Annual Meeting, Seattle, WA, February 2018.
- Hart AM, Maloney KF, Yarid NA, Mahar TJ. Two Dead Bodies in a Cemetery: An Unexpected Lightning Strike. Oral presentation. American Academy of Forensic Sciences 70th Annual Meeting, Seattle, WA, February 2018.

Publications

- Dixon T, Yarid N. Pott's Puffy Tumor. ASCP Case Reports Forensic Pathology. 2018 Nov.

- Yarid N, Brown EC, Boos M, Otjen J, Metz J, Jenny C, Feldman KW. Cardiac ventricular laceration due to child abuse. Journal of Forensic Sciences. 2018 July 10.
- Ziegler A, Williams TL, Yarid N, Schultz DL, and Bundock EA. Fatalities Due to Failure of Continuous Subcutaneous Insulin Infusion Devices: A Report of Six Cases. Journal of Forensic Sciences. 2018 Jun 25.

William Barbour, BS, D-ABMDI, Medicolegal Investigator II

Associations

- Diplomate, American Board of Medicolegal Death Investigators
- Member, Washington Associations of Coroners & Medical Examiners
- Compiling Editor of KCMEO Annual Report

Educational Presentations

- Role and Responsibility of the King County Medical Examiner's Office
  - Harborview HIPRC's INSIGHT Summer Research Program - KCMEO - Seattle, WA July 24

Barry Peterson, Forensic Autopsy Technician

Associations, Committees & Boards

- Certificate Holder, Washington State Peace Officer
- Member, International Association for Identification
- Member, American Society of Media Photographers

Samantha Barbour, BS, Health Program Assistant I

Associations, Committees & Boards

- Child Death Review Committee, King County Medical Examiner Office
- Graduate Medical Education Committee Coordinator, King County Medical Examiner's Office
- Health and Medical Area Command Member, Seattle and King County Public Health
- Multiple Fatality Incident Committee, King County Medical Examiner Office
- Program Administrator, King County Medical Examiner's Office Forensic Pathology Fellowship Training Program
- Quality Improvement Subcommittee, King County Medical Examiner Office

Weekly Variation

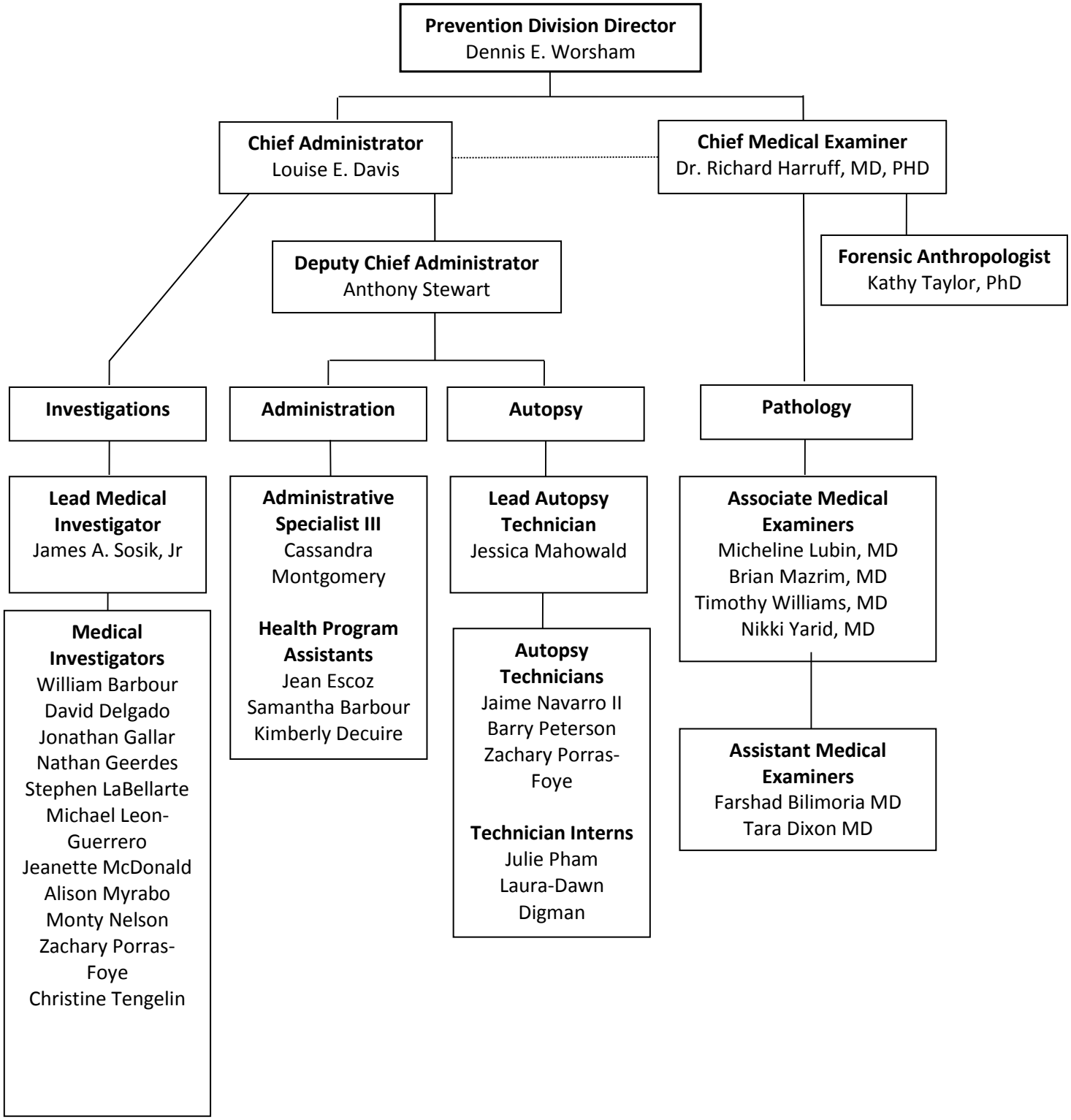
Table 11-1 Weekly Variation of Deaths Investigated by the King County Medical Examiner's Office

	TOTAL
Number of weeks studied	52
Mean number of ME jurisdiction cases per week	47
Maximum ME jurisdiction cases in any one week	69
Minimum ME jurisdiction cases in any one week	29

Table 11-2 Weekly Variation of Autopsies Investigated by the King County Medical Examiner's Office

	TOTAL
Number of weeks studied	52
Mean number of autopsies performed per week	27
Maximum # autopsies performed in any one week	41
Minimum # autopsies performed in any one week	12

Organization of the King County Medical Examiner's Office 2018



Glossary of Terms

Blood alcohol level:

The concentration of ethanol (alcohol) found in blood following ingestion. Measured in grams per 100 ml of blood or grams %. In the State of Washington, 0.08 grams % is considered the legally intoxicated level while driving.

Cause of Death:

Any injury or disease that produces a physiological derangement in the body that results in the death of an individual.[1]

Drug:

Therapeutic drug: A substance, other than food, used in the prevention, diagnosis, alleviation, treatment, or cure of disease.

Recreational drug: A drug used non-medically for personal stimulation/depression/euphoria.

Drug-caused death:

Death directly caused by a drug or drugs in combination with each other or with alcohol.

Fetal Death:

Category of deaths that occur within the uterus. The Medical Examiner assumes jurisdiction over fetal deaths that meet the criteria specified in RCW 68.50. See pages 2 - 3 of this report for details.

Jurisdiction:

The jurisdiction of the Medical Examiner extends to all reportable deaths occurring within the boundaries of King County, whether or not the incident leading to the death (such as an accident) occurred within the county. Reportable deaths are defined by RCW 68.50, as explained in the "Description and Purpose" section of this report. Not all natural deaths reported fall within the jurisdiction of the Medical Examiner**.**

Manner of Death:

A classification of the way in which the events preceding death were causal factors in the death. The manner of death as determined by the forensic pathologist is an opinion based on the known facts concerning the circumstances leading up to and surrounding the death, in conjunction with autopsy findings and laboratory tests. [2]

[1]DiMaio, Vincent J. & DiMaio, Dominick. Forensic Pathology, Second Edition. CRC Press, 2001.

[2]Ibid, p. 3

Manner: Accident

Death other than natural, where there is no evidence of intent, i.e., unintentional. In this report, traffic accidents are classified separately.

Manner: Homicide

Death resulting from intentional harm (explicit or implicit) of one person by another, including actions of grossly reckless behavior.

Manner: Natural

Death caused solely by disease. If natural death is hastened by injury (such as a fall or drowning in a bathtub), the manner of death is classified other than natural. The Natural category includes complication of therapy deaths.

Manner: Suicide

Death as a result of a purposeful action with intent (explicit or implicit) to end one's own life.

Manner: Traffic

Unintentional deaths of drivers, passengers, and pedestrians involving motor vehicles on public roadways. Accidents involving motor vehicles on private property (such as driveways) are not included in this category and are classified non-traffic, vehicular accidents.

Manner: Undetermined

Manner assigned when there is insufficient evidence or information**,** especially about intent, to assign a specific manner.

Opiate:

Any preparation or derivative of opium, including heroin, morphine or codeine. In this report "opiate deaths" most likely refer to heroin caused deaths.

Poison:

Any substance, either taken internally or applied externally, that is injurious to health or dangerous to life, and with no medicinal benefit.

Race:

The racial categories used in this report are: White, African American, American Indian/Alaska Native, Asian/Pacific Islander, and Other.