King County
Medical Examiner's Office
Annual Report 2017

Public Health
Seattle & King County

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2017 Annual Report

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. 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 so that the family can gain the full benefit of the findings. 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 studied 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 notifies the family and contacts 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 2017 Annual Report reflects the activities pertaining to the investigation of jurisdictional 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 the report tends to depict the more violent types of death, it is worth noting that nearly 40% of Medical Examiner cases were 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 95 for further details.

A few selected findings are highlighted below:

- In 2017, there were an estimated 14,991 deaths in King County. Of those deaths, 7,620 (51%) 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 2,555 deaths; the number of applicable cases used in this report is 2,444 deaths after non-human remains and contract anthropology cases for other jurisdictions are removed. The King County Medical Examiner's Office assumes jurisdiction if a death falls under the Revised Code of Washington that defines the Medical Examiner's charge.

- The Medical Examiner's Office performed autopsies in 57% of those jurisdictional deaths (1,383/2,444). In 2017, those jurisdictional deaths included: 92 homicides, 298 suicides, 160 traffic deaths, 853 accidental deaths, 964 natural deaths and 77 deaths due to undetermined causes.

- Of the 18 natural deaths of children and youth investigated by the Medical Examiner, 28% (5/18) were of infants less than one year of age. Of those 5 infants who died of natural causes, 2 were due to Sudden Infant Death Syndrome (SIDS). In addition, 11 infant deaths 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 tests were performed, 37% tested positive for the presence of alcohol in the blood.

- Firearms were the most frequent instrument of death in homicides (75%) and suicides (42%).

- Certain demographic groups were disproportionately represented among homicide victims. Whereas non-Hispanic Black residents compose only 6% of the King County population, 42% (39/92) of homicide victims were non-Hispanic Black. Nearly half of homicide victims (47%) were between the ages of 20 and 29. Males comprised 83% of the homicide victims.

- Suicide victims were disproportionately comprised of men (80% of all suicide victims) and non-Hispanic Whites (82% of suicide victims).

- Acute drug or alcohol intoxication caused 384 deaths investigated by the KC-MEO. These deaths have been described in detail in a separate report (https://kingcounty.gov/depts/health/examiner/~/media/depts/health/medical-examiner/documents/2017-overdose-death-report.ashx).
  - 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 (https://kingcounty.gov/depts/health/examiner/overdose.aspx).

- In 2017 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 2017, the King County population was estimated to be 2,188,649.[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/healthservices/health/data/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 18 and 19 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 2017. The United States Census Bureau estimates the racial distribution of King County to be 68% White, 18.2% Asian/Pacific Islander (including Hawaiian and other Pacific Islanders), 6.8% African American, 5.1% Two or More Races, and 1.0% American Indian/Alaska Native.[2] Information on Hispanic ethnicity of the decedent is not available for every case, and will not be presented in this report.

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 20, in 9% (228/2,444) 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 38).

Age groups displayed in the tables are divided into youth and adult. The youth groups are infants (newborn to 11 months), toddlers (1-5 years), grade school (6-12 years), junior high (13-15 years), and high school (16-19 years). Adult age groups are in corresponding decades with the last being 90 years of age or older.

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[1] United States Census Bureau 2017 estimate.

[2] United States Census Bureau 2017 estimate.

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 actually have had a measurable alcohol concentration at the time of incident.

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 39% (964/2,444) of all deaths that the Medical Examiner's Office investigated in 2017.

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 2017

The following provides a summary of the raw data from the Medical Examiner's cases for the year 2017. Ten-year trends are shown beginning on page 21.

In 2017, there were an estimated 14,991 deaths that occurred in King County (0.68% of a 2017 population estimate of 2,188,649). A total of 51%, (7,620/14,991) 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 2,555 of these reported deaths, of which 111 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 16% (2,444/14,991) of deaths that occurred in King County in 2017.

In approximately 68% (5,176/7,620) 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. Of note is the fact that the Medical Examiner declined jurisdiction in 5,176 of the deaths that were reported. 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% (1,381/2,444) 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 2017, there were 439 such deaths, accounting for 18% (439/2,444) of the total deaths. In addition, there were 249 deaths, accounting for 11% (279/2,444) certified by attending private physicians after review by and consultation with the Medical Examiner. Of the remaining 14% (345/2,444) of the cases, 344 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 1 case where a presumptive death certificate was issued without the presence of a body.

Of all the traffic fatalities in which tests were performed 37% (44/120) 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 89 vehicle occupants who died, 37% (31/84) were known to be wearing seatbelt restraints.

In the 26 deaths involving motorcyclists, 85% (22/26) were wearing helmets.

Firearms were the most frequent instrument of death in homicides and suicides, accounting for 75% (69/92) of the homicides and 41% (123/298) of the suicides.

Table 1-1   Deaths Occurring in King County / Medical Examiner Cases / 2017

CASES BY MANNER OF DEATH[3]		NUMBER OF KCME DEATHS	PERCENT OF KCME DEATHS
Accident Other	(A)	853	35%
Accident Traffic	(T)	160	7%
Homicide	(H)	92	4%
Natural	(N)	964	39%
Suicide	(S)	298	12%
Undetermined[4]	(U)	77	3%
Total KCME general cases		2,444	100%
Non-applicable cases where jurisdiction was assumed		111	
Total KCME jurisdiction cases		2,555	
Total KCME general cases[5]		2,444	16%
Deaths reported to KCME but no jurisdiction was assumed (NJA)		5,176	35%
All other deaths in King County not reported to KCME		7,371	49%
ALL KING COUNTY DEATHS[6]		14,991	100%

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

[4]Includes 9 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.

[6]Estimate from King County Medical Examiner's Office Disposition Authorizations

Graph 1-1   All King County Deaths with Medical Examiner Jurisdiction / 2017

Total Deaths in King County, 2017: 14,991

Reported to KCMEO, Jurisdiction Assumed 2,444 (16.3%)

Deaths Not Reported to KCMEO 7,371 (49.2%)

Reported to KCMEO, No Jurisdiction Assumed (NJA) 5,176 (34.5%)
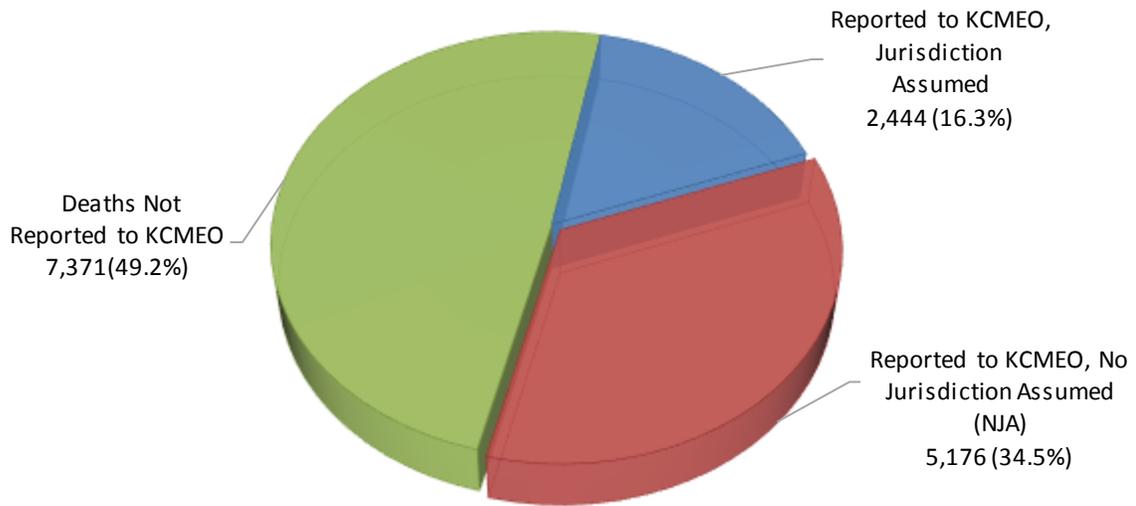
Graph 1-2   Manner of Death for All Medical Examiner Jurisdiction Cases / 2017

Jurisdiction assumed in 2,444 cases.[7]

Undetermined, 77, 3%

Suicide, 298, 12%

Accident Other, 853, 35%

Natural, 964, 39%

Accident Traffic, 160, 7%

Homicide, 92, 4%
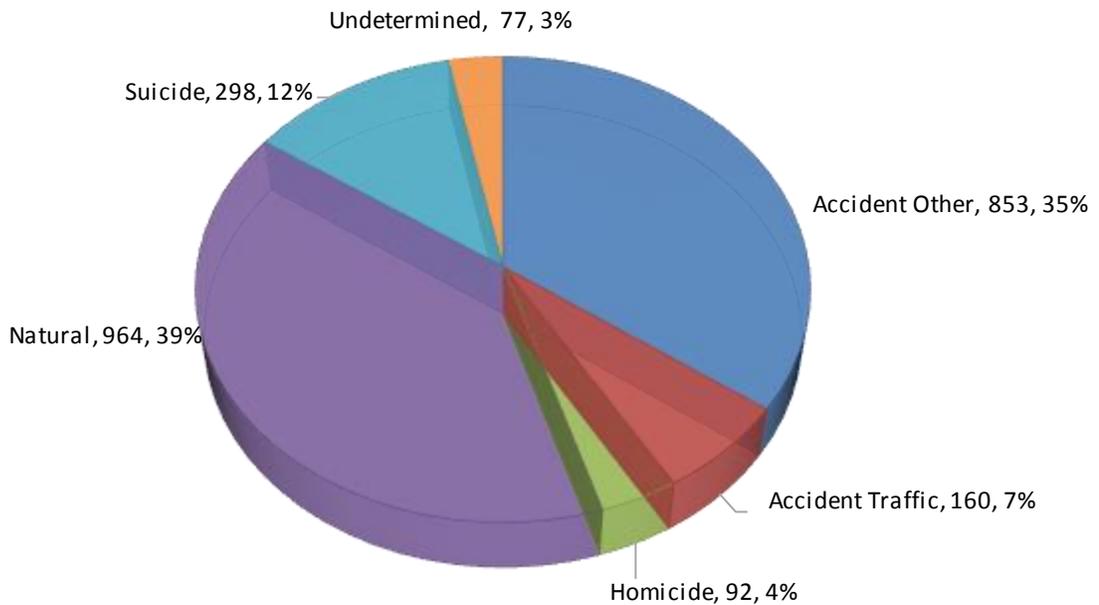
[7]This number does not include 111 non-applicable cases (non-human tissue/bones and anthropology/contract cases).

Graph 1-3   Method of Certification for all King County Medical Examiner Jurisdiction Cases / 2017

Attending Physician
279 (11%)

Other
345 (14%)

KCME External Exam
439 (18%)

KCME Autopsy
1,381 (57%)
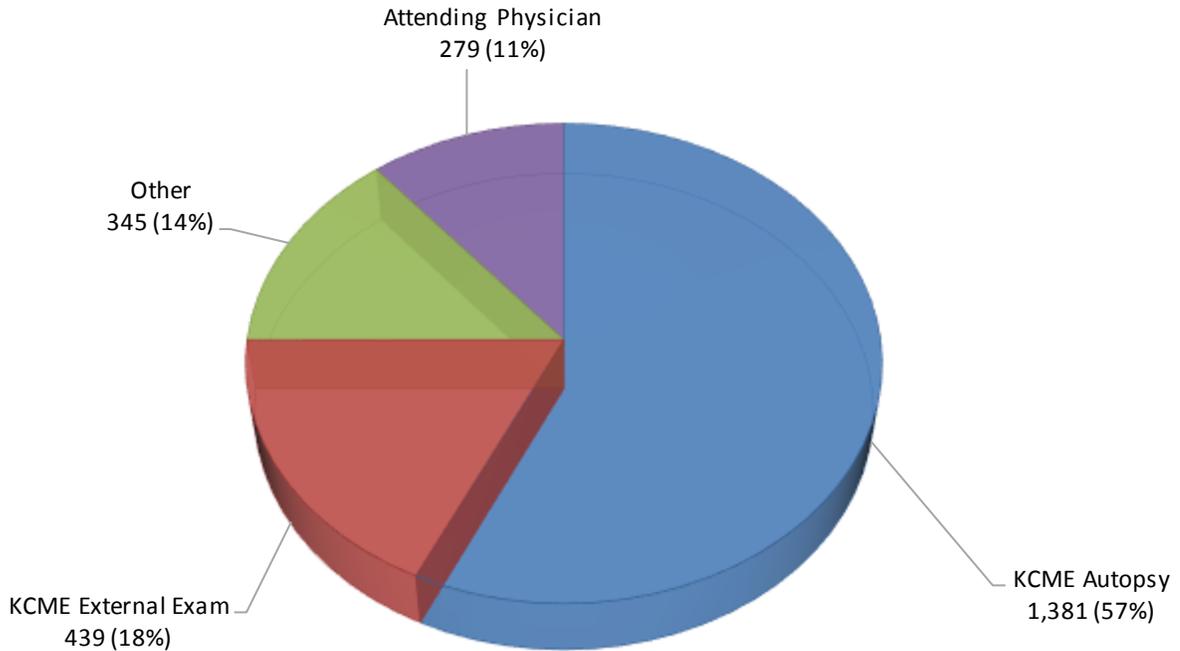
Table 1-2   Method of Certification / Manner of Death / KCME / 2017

	MANNER OF DEATH							
	A	T	H	N	S	U	TOTAL	%
KCME Autopsies	425	99	92	446	249	770	1,381	57%
KCME External Exams	113	5	0	228	45	3	439	18%
KCME Other	312	11	0	16	4	2	345	14%
Attending Physician	3	0	0	274	0	2	279	11%
Totals	**853**	**160**	**92**	**964**	**298**	**77**	**2,444**	**100%**

Manner of Death in 2017

King County Medical Examiner's Office General Cases

Graph 1-4   Gender / Manner of Death / KCME / 2017
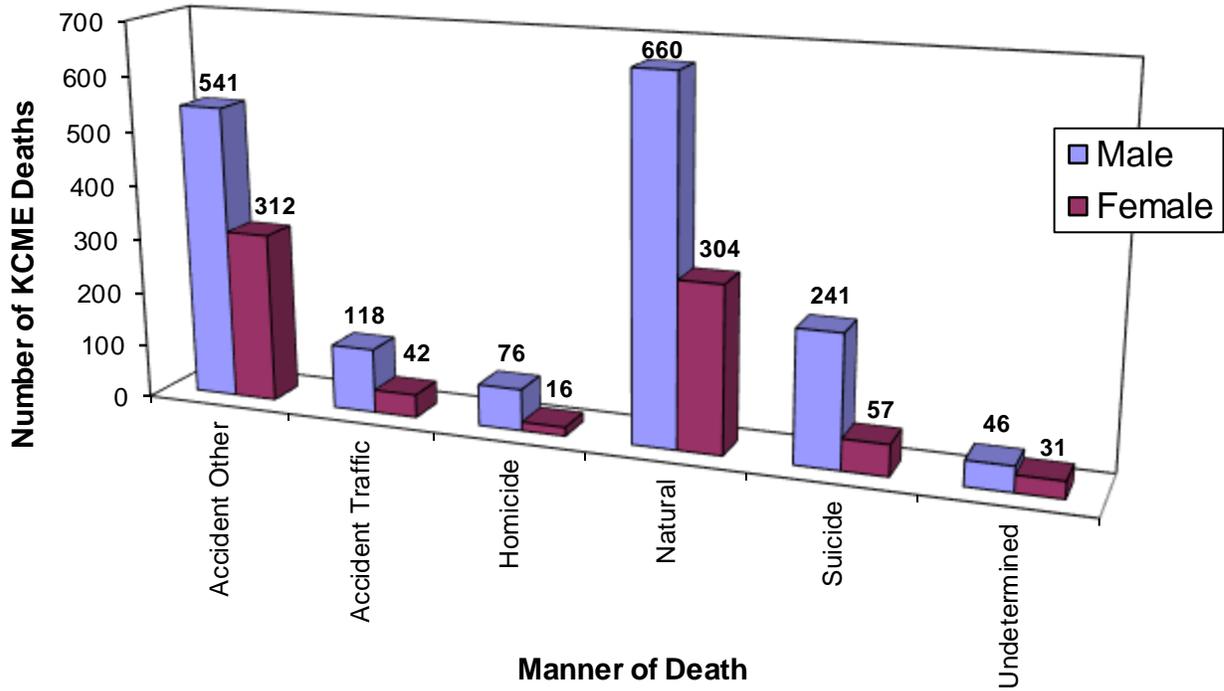
Table 1-3   Gender / Manner of Death / KCME / 2017

GENDER	MANNER OF DEATH						TOTAL	%
	A	T	H	N	S	U		
Male	541	118	76	660	241	46	1,682	69%
Female	312	42	16	304	57	31	762	31%
Totals	**853**	**160**	**929**	**964**	**298**	**77**	**2,444**	100%

Table 1-4   Age / Gender / Manner of Death / KCME / 2017

AGE / GENDER	MANNER OF DEATH						Sub-Total	TOTAL	%
	A	T	H	N	S	U			
Under 1 year	4	0	0	5	0	20		29	1.2%
Male	3	0	0	2	0	10	15		
Female	1	0	0	3	0	10	14		
1-5 years	1	2	3	5	0	0		11	0.5%
Male	1	1	3	4	0	0	9		
Female	0	1	0	1	0	0	2		
6-12 years	3	1	0	4	0	1		9	0.3%
Male	2	0	0	3	0	1	6		
Female	1	1	0	1	0	0	3		
13-15 years	2	0	1	1	5	0		9	0.3%
Male	0	0	1	1	5	0	7		
Female	2	0	0	0	0	0	2		
16-19 years	5	7	9	3	8	1		33	1.4%
Male	4	6	8	2	7	1	28		
Female	1	1	1	1	1	0	5		
20-29 years	66	33	43	19	57	14		232	9.5%
Male	56	26	36	11	45	11	185		
Female	10	7	7	8	1	23	47		
30-39 years	88	23	12	52	47	9		231	9.5%
Male	64	16	10	34	39	6	169		
Female	24	7	2	18	8	3	62		
40-49 years	95	19	6	86	55	88		269	11%
Male	67	17	6	63	41	4	198		
Female	28	2	0	23	14	4	71		
50-59 years	134	30	13	92	51	12		432	17.7%
Male	87	22	10	132	39	7	297		
Female	47	8	3	60	12	5	135		
60-69 years	101	15	3	285	36	6		446	18.2%
Male	64	10	0	217	29	4	324		
Female	37	5	3	68	7	2	122		
70-79 years	95	23	2	178	24	1		323	13.2%
Male	60	14	2	120	22	0	218		
Female	35	9	0	58	2	1	105		
80-89 years	150	5	0	84	13	4		256	10.5%
Male	75	4	0	49	12	2	142		
Female	75	1	0	35	1	2	114		
90+years	109	2	0	50	2	1		164	6.7%
Male	58	2	0	22	2	0	84		
Female	51	0	0	28	0	1	80		
Totals	**853**	**160**	**92**	**964**	**298**	**77**		**2,444**	**100.%**

Table 1-5   Race / Gender / Manner of Death / KCME / 2017

RACE / GENDER	A	T	H	N	S	U	Sub-Total	TOTAL	%
			MANNER OF DEATH						
White	719	117	36	787	249	57		1,965	80%
Male	*448*	*90*	*29*	*539*	*208*	*37*	*1,351*		
Female	*271*	*27*	*7*	*248*	*41*	*20*	*614*		
African American	57	18	39	95	10	5		224	9%
Male	*42*	*11*	*62*	*65*	*9*	*3*	*162*		
Female	*15*	*7*	*7*	*30*	*1*	*2*	*62*		
Asian/Pacific Is.	56	20	7	64	34	7		188	8%
Male	*38*	*13*	*6*	*45*	*2*	*14*	*127*		
Female	*18*	*7*	*1*	*19*	*13*	*3*	*61*		
American Indian / Alaska Native	15	5	7	15	5	4		51	2%
Male	*8*	*4*	*6*	*8*	*3*	*2*	*31*		
Female	*7*	*1*	*1*	*7*	*2*	*2*	*20*		
Other	6	0	3	3	0	4		16	1%
Male	*5*	*0*	*3*	*3*	*0*	*2*	*13*		
Female	*1*	*0*	*0*	*0*	*0*	*2*	*3*		
Totals	**853**	**160**	**92**	**964**	**298**	**77**		**2,444**	**100%**

Graph 1-5   Month / Manner of Death / KCME / 2017
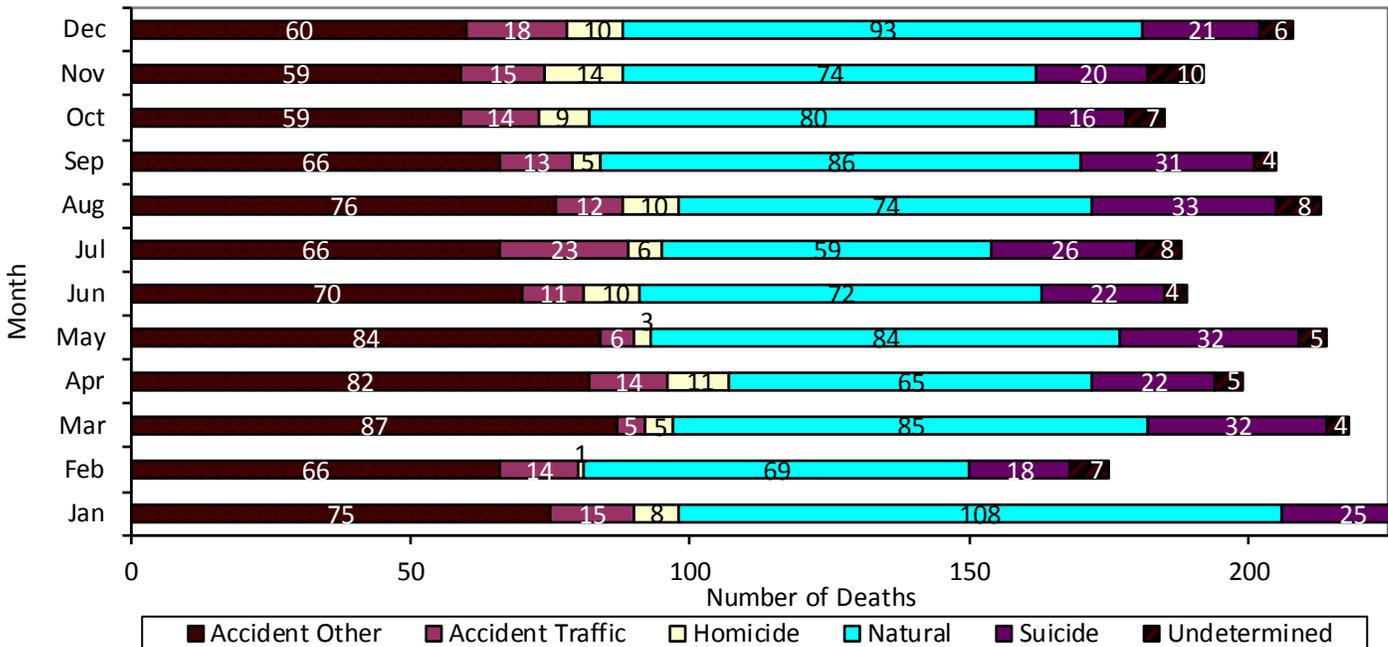
Table 1-6   Month / Manner of Death / KCME / 2017[8]

MONTH	MANNER OF DEATH						Total	%
	A	T	H	N	S	U		
Prior to 2016	0	0	0	0	0	3	3	0.1%
2016	3	0	0	15	0	4	22	0.9%
January	75	15	8	108	25	2	232	9.5%
February	66	14	1	69	18	7	175	7.2%
March	87	5	5	85	32	4	218	8.9%
April	82	14	11	65	22	5	199	8.1%
May	84	6	3	84	32	5	217	8.8%
June	70	11	10	72	22	4	189	7.7%
July	66	23	6	59	26	8	188	7.7%
August	76	12	10	74	33	8	213	8.7%
September	66	13	5	86	31	21	205	8.4%
October	59	14	9	80	16	7	185	7.6%
November	59	15	14	74	20	10	192	7.9%
December	60	18	10	93	21	6	208	8.5%
Totals	**853**	**160**	**92**	**964**	**298**	**77**	**2,444**	**100%**

[8]Month of death; A = Accident (Non-Traffic), T = Traffic, H = Homicide, N = Natural, S = Suicide, U = Undetermined.

Table 1-7   Nearest Incorporated City to the Fatal Incident / KCME / 2017[9]

CITY	MANNER OF DEATH					TOTAL	%
	A	T	H	S	U		
Algona	1	0	0	0	0	1	0.1%
Auburn	27	12	5	17	3	64	4.3%
Beaux Arts	0	0	0	0	0	0	0%
Bellevue	44	3	0	20	1	68	4.6%
Black Diamond	0	0	0	0	0	0	0%
Bothell	4	1	0	2	0	7	0.5%
Burien	19	5	5	5	1	35	2.4%
Carnation	1	1	0	2	0	4	0.3%
Clyde Hill	0	0	0	0	0	0	0%
Covington	4	0	1	4	0	9	0.6%
Des Moines	15	0	4	4	1	24	1.6%
Duvall	2	1	0	1	0	4	0.3%
Enumclaw	10	4	0	2	0	16	1.1%
Federal Way	39	6	8	8	3	64	4.3%
Hunts Point	0	0	0	0	0	0	0
Issaquah	16	3	0	5	2	26	1.8%
Kenmore	2	2	0	2	1	7	0.5%
Kent	41	11	12	15	9	88	5.9%
Kirkland	20	2	2	5	2	31	2.1%
Lake Forest Park	2	1	0	1	0	4	0.3%
Maple Valley	6	1	0	9	0	16	1.1%
Medina	1	0	0	0	0	1	0.1%
Mercer Island	7	1	0	4	1	13	0.9%
Milton	0	0	0	0	0	0	0%
Newcastle	0	0	0	1	1	2	0.1%
Normandy Park	3	0	0	0	0	3	0.2%
North Bend	3	2	0	4	2	11	0.7%
Pacific	1	0	0	1	0	2	0.1%

[9] 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 / 2017[10] (continued)

CITY	MANNER OF DEATH					Total	%
	A	T	H	S	U		
Redmond	15	2	2	8	0	27	1.8%
Renton	29	4	2	11	8	54	3.6%
Sammamish	3	0	3	3	1	10	0.7%
SeaTac	12	5	5	11	0	33	2.2%
Seattle	335	39	39	113	21	547	37%
Shoreline	21	1	0	5	1	28	1.9%
Skykomish	0	1	0	1	0	2	0.1%
Snoqualmie	1	2	0	2	0	5	0.3%
Tukwila	14	6	0	3	2	25	1.7%
Woodinville	5	0	0	1	0	6	0.4%
Yarrow Point	0	0	0	0	0	0	0%
Unincorporated King County							
Baring	0	0	0	1	0	1	0.1%
Hobart	0	0	0	0	0	0	0%
Greenwater	0	0	0	1	0	1	0.1%
Fall City	2	0	0	2	0	4	0.3%
Preston	1	0	0	0	0	1	0.1%
Ravensdale	0	1	0	2	0	3	0.2%
Vashon Island	1	1	0	0	0	2	0.1%
Outside of King County	138	40	3	22	13	216	14.6%
Unknown Location	8	2	1	0	4	15	1%
Totals	**853**	**160**	**92**	**298**	**77**	**1,480**	**100%**

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

Out of County Cases 2017

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 2017, there were 228 deaths, 15% (228/1,480) where the incident (excluding deaths classified as "Natural") occurred out of county or where the incident location was unknown. Table 1-9 displays these deaths by incident location and manner.

Table 1-8   Fatal Incident Occurred Outside of King County / KCME / 2017[11]

INCIDENT LOCATION	MANNER OF DEATH					TOTAL
	A	T	H	S	U	
Alaska	3	1	1	0	3	8
Montana	1	1	0	0	0	2
Idaho	1	1	0	0	0	2
Oregon	0	1	0	0	0	1
Other States	5	0	0	0	0	5
Washington						
Island County	8	0	0	1	0	9
Kitsap County	9	3	0	4	1	17
Pierce County	13	2	0	1	2	18
Skagit County	8	0	0	2	3	13
Snohomish County	34	7	0	3	0	44
Thurston County	1	2	0	1	1	5
Other WA Counties	57	22	2	10	3	94
Washington Sub-Total	*130*	*36*	*2*	*22*	*10*	*200*
Out of Country	0	0	0	0	0	0
Unknown	4	2	1	0	3	10
Totals	**144**	**42**	**4**	**22**	**16**	**228**

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[11]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 2008 and 2017, 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[12]. Suicide, accidental poisonings, and falls comprised 42% of deaths investigated by the Medical Examiner in 2017, 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. Traffic fatality and homicide rates are lower (approximately 6 deaths per 100,000 and 3 deaths per 100,000, respectively) and have been stable 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 2017 data is provided in separate sections for each manner of death (Accident, Homicide, Natural, Suicide, Traffic, and Undetermined).

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[12] 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, 2008-2017
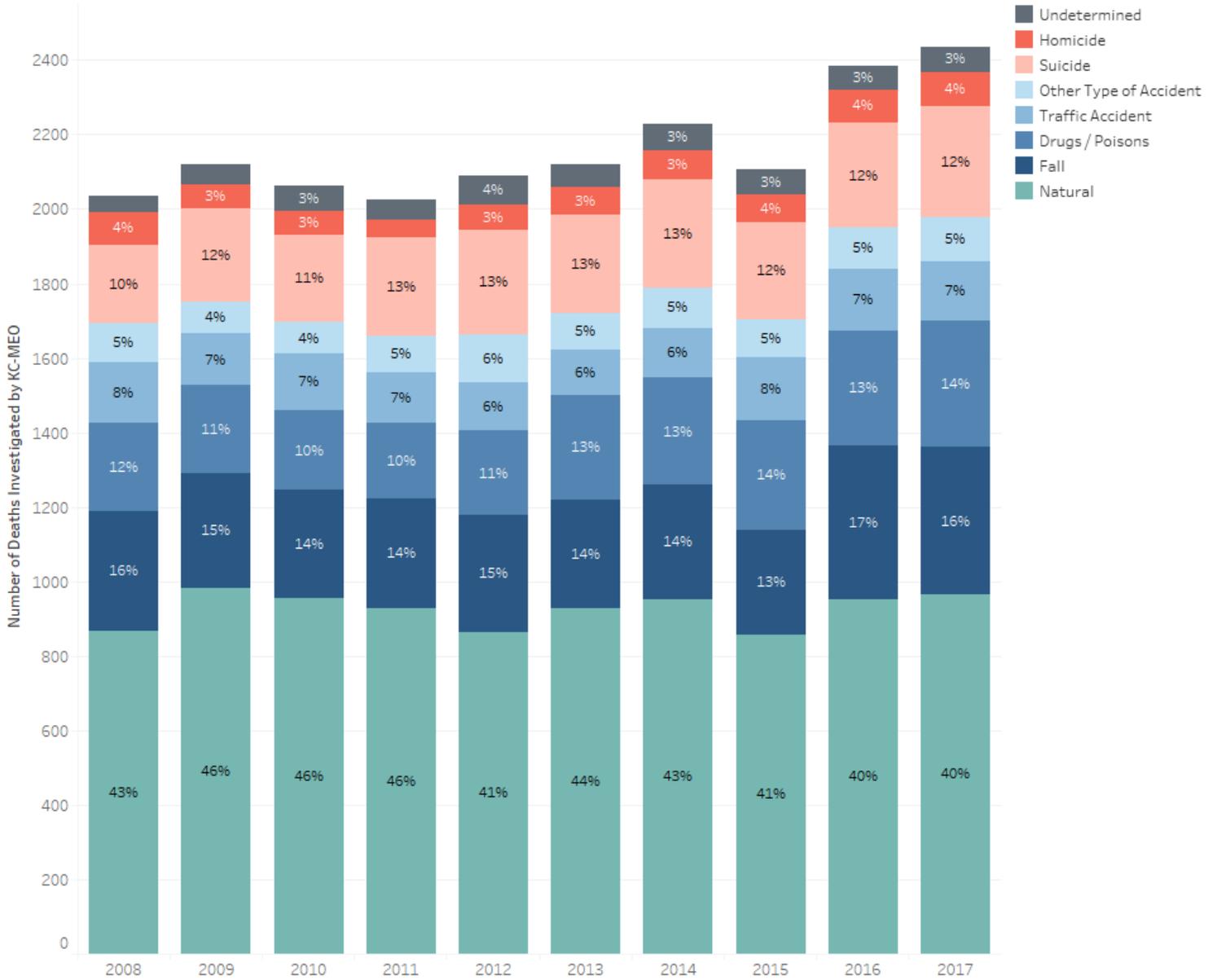
Graph 2-2:

of Deaths Investigated by KC MEO & Age-Adjusted Mortality Rates*, King County, 2008-2017

Source for Mortality Rates: WA Dept of Health, Center for Health Statistics, Death Certificate Data, Community Health Assessment Tool (CHAT), Sept 2018.
*3-year rolling average
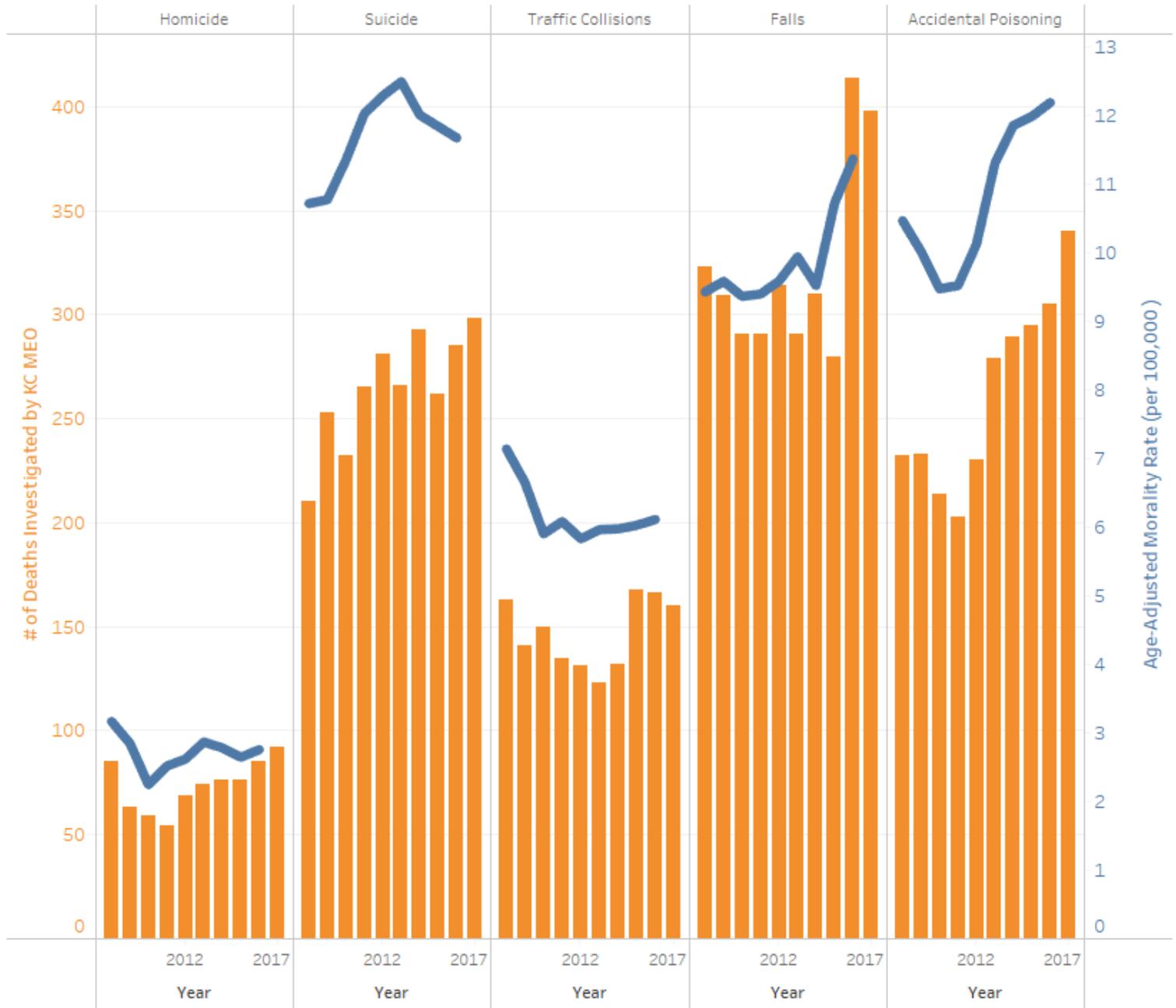
Graph 2-3: Trends in the Characteristics of Deaths Investigated by King County MEO, 2008-2017

Mode of Suicide

of Deaths in Category
1 ▭ 69

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Other	5%	6%	3%	3%	4%	3%	3%	3%	2%	3%
Asphyxia	4%	3%	6%	6%	7%	9%	9%	8%	8%	6%
Incised / Stab Wound(s)	2%	3%	3%	5%	3%	3%	1%	3%	3%	3%
Jumped	7%	8%	9%	7%	9%	6%	6%	6%	8%	7%
Drugs / Poisons	16%	17%	21%	18%	18%	15%	14%	16%	14%	14%
Hanging	23%	24%	19%	18%	17%	27%	24%	22%	25%	25%
Gunshot Wound(s)	44%	40%	39%	44%	43%	37%	43%	41%	40%	42%

Mode of Homicide

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Asphyxia / Strangulation	5%	5%	3%	2%		4%	3%	3%	2%	
Other	9%	5%	8%	4%	4%	3%	1%	1%	7%	2%
Stab Wound(s)	14%	17%	5%	16%	19%	15%	12%	5%	6%	11%
Blunt Force	19%	8%	17%	12%	9%	19%	17%	20%	14%	12%
Gunshot Wound(s)	53%	65%	67%	65%	68%	59%	67%	71%	71%	75%

Type of Traffic Collision

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Other	3%	1%		2%	1%	1%	1%	1%	2%	1%
Bicycle	2%	9%	2%	6%	4%	6%	2%	3%	5%	6%
Motorcycle	18%	13%	16%	20%	20%	18%	15%	15%	16%	16%
Pedestrian	16%	21%	18%	13%	23%	20%	20%	23%	24%	24%
Automobile	61%	56%	64%	59%	52%	55%	62%	58%	53%	53%

Characteristics of Non-Traffic Accidents

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Other Type of Accident	Other	6%	5%	5%	6%	5%	5%	3%	5%	3%	4%
	Asphyxia	2%	2%	1%	1%	1%	1%	2%	1%	1%	1%
	Aspiration	2%	1%	1%	1%	2%	2%	2%	1%	2%	2%
	Blunt Force	2%	1%	1%	2%	3%	0%	3%	2%	1%	2%
	Burns / Fire	2%	2%	5%	3%	4%	3%	3%	3%	3%	3%
	Drowning	3%	3%	2%	4%	4%	3%	2%	3%	3%	2%
Drugs / Poisons		35%	37%	36%	34%	34%	42%	41%	44%	37%	40%
Fall		49%	49%	49%	49%	47%	43%	44%	42%	50%	47%

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 2017, the Medical Examiner classified 92 deaths as homicide. This number represents 3.8% (92/2,444) of the Medical Examiner death investigations for the calendar year 2017. Of these 92 homicides, 96% (88/92) were the result of incidents that occurred within King County.

The data reflect the weapons or mechanisms responsible for the homicidal deaths in 2017. Firearms were responsible for 75% (69/92). Stabbing by a knife or other sharp-edged instrument caused 11% (10/92) of deaths of homicide victims. Blunt force injuries were responsible for 12% (11/92) of the 2017 homicide deaths. There were no deaths due to strangulation/asphyxia, two deaths due to homicidal violence and no deaths due to other means. The term "homicidal violence" is used when circumstances indicate that death was due to homicide, but the exact cause of death is not determined, for example, in a decomposed body.

Certain demographic groups were disproportionately represented among homicide victims. Whereas non-Hispanic Black residents compose only 6% of the King County population, 42% (39/92) of homicide victims were Black. Nearly half of homicide victims (47%, 43/92) were between the ages of 20 and 29. Other young homicide victims include three victims who were under five years of age and eight victims were between the ages of 16 and 19. Males comprised 83% (76/92) of the homicide victims in 2017.

Whereas firearms were involved in 75% 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 lower among Whites (48%) than Blacks (95%). Gunshot wounds were more common among younger homicide victims than older homicide victims.

The presence of alcohol was tested for in 92% percent (85/92) of the homicide victims. Of those tested 34% (29/85) 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 92 homicide deaths in 2017, 96% (88/92) of the fatal incidents occurred within King County, and of these deaths, 43% (40/92) occurred within the city limits of Seattle. In 4 of the 92 homicidal deaths, the incident occurred outside of King County, but death occurred within King County.

Graph 3-1   Homicide Injury Methods / KCME / 2017

Graph 3-2

Race/Ethnicity, King County, 2017
Outer Circle = General Population
Inner Circle = Homicide Victims

- White Only-NH
- Black Only-NH
- American Indian/Alaskan Native Only-NH
- Asian Only-NH
- Hispanic as Race
- Other

Graph 3-3

Demographic Charateristics of 2017 Homicide Victims (n=92),
Stratified by Injury Type, *p<0.05

■ Gunshot Wound   ▨ Other Injury
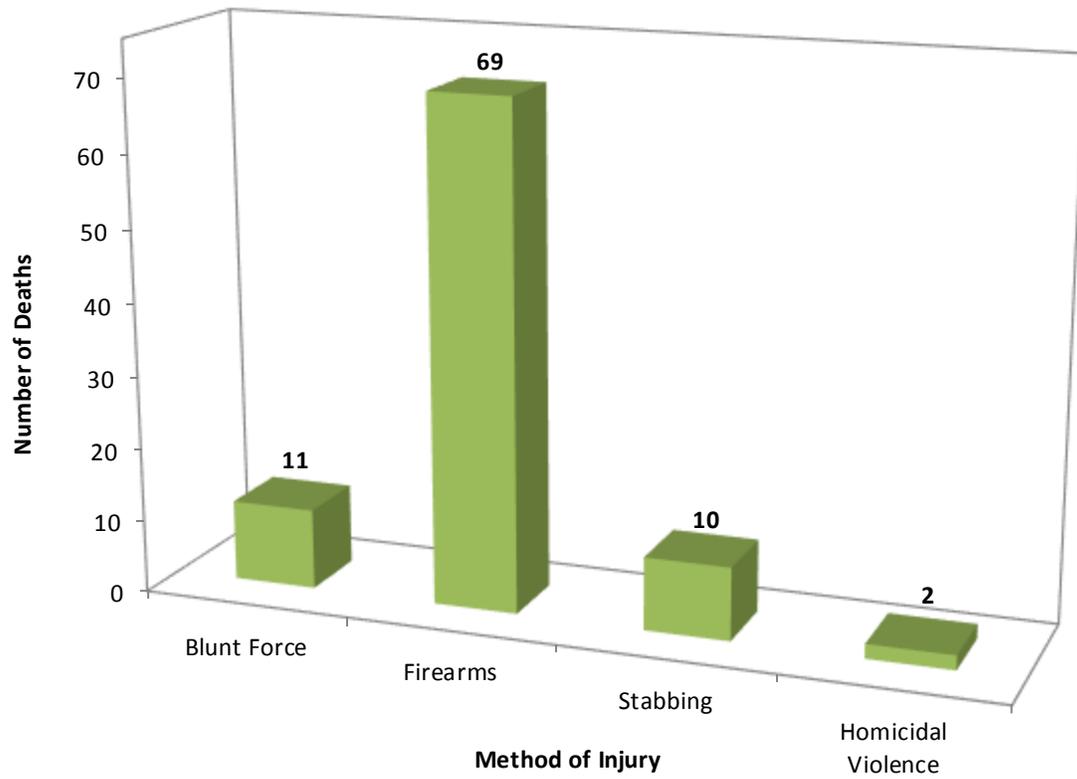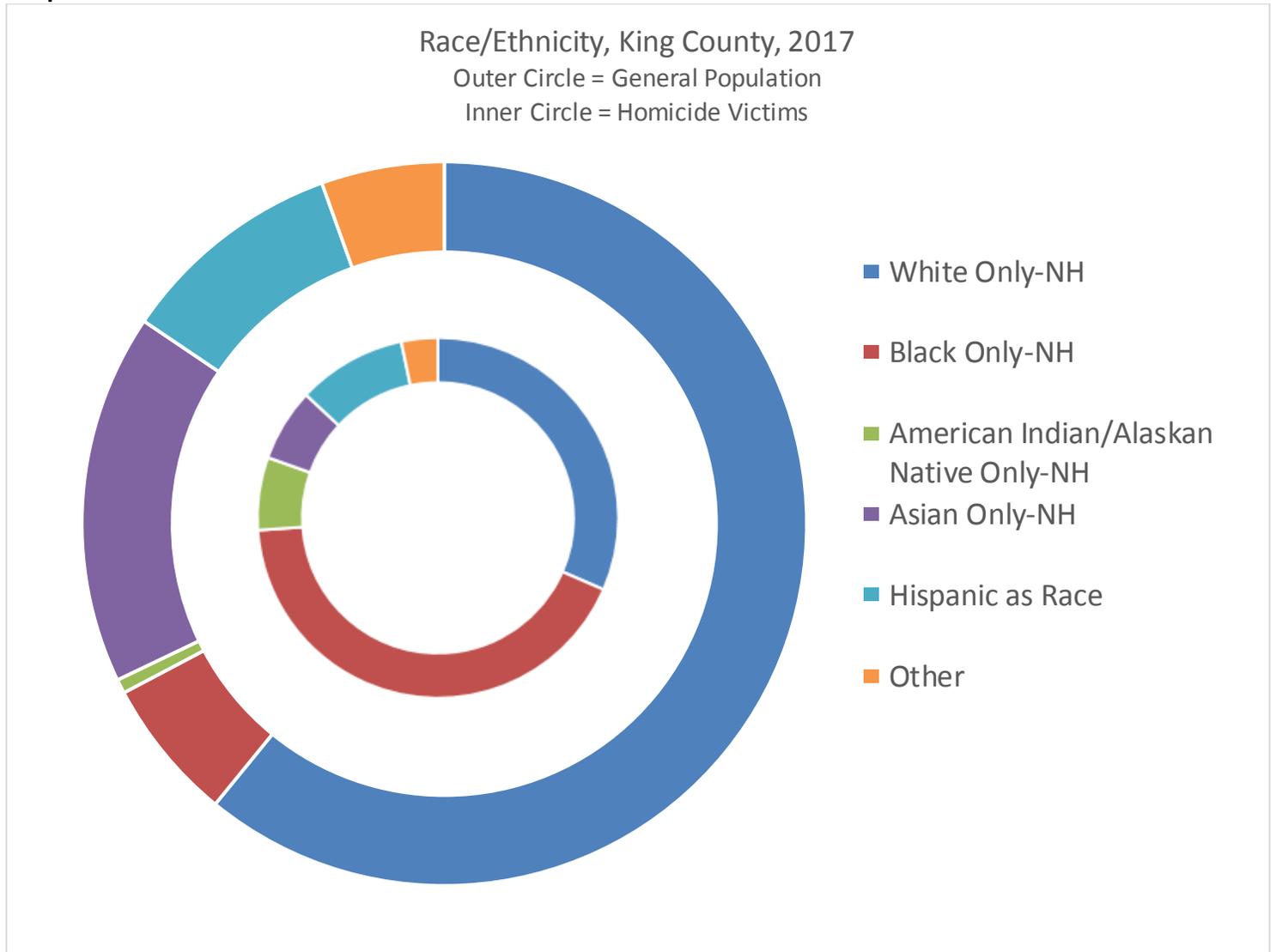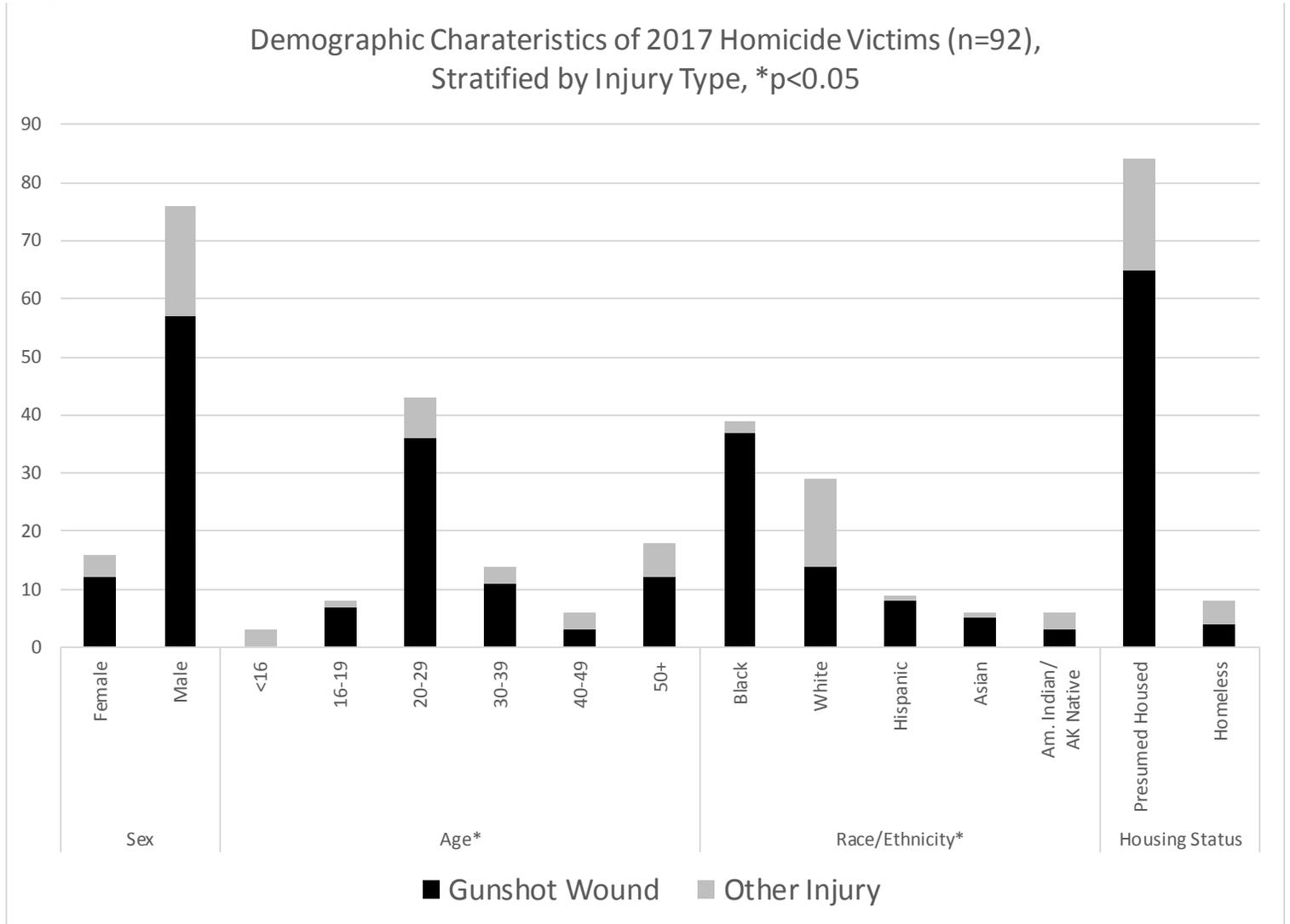
Manner of death: Suicide

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 2017, there were 298 suicides, accounting for 12% (298/2,444) of the deaths that the King County Medical Examiner's Office investigated.

Suicide victims were disproportionately comprised of men (80% of all suicide victims) and non-Hispanic Whites (82% of suicide victims). The age distribution of suicide victims was evenly distributed; 13 suicide deaths occurred among teenagers between the ages of 13 and 19.

Of the 298 suicide deaths that occurred in 2017, 41% (126/298) were attributed to firearm, 25% (74/298) to hanging, 12% to drugs and poisonings, and 7% (21/298) to jumping from a height. Self-inflicted gunshot wounds were significantly more common among men and decedents ≥60 years old. Firearms were significantly less likely to be used among victims experiencing homelessness.

Blood alcohol tests were performed in 91% (272/298) of suicidal deaths and were positive in 28% (77/272) 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.[13] 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.

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

Graph 4-1   Suicide Injury Methods / KCME / 2017

Graph 4-2

Race/Ethnicity, King County, 2017
Outer Circle = General Population
Inner Circle = Suicide Victims

- White Only-NH
- Black Only-NH
- American Indian/Alaskan Native Only-NH
- Asian Only-NH
- Hispanic as Race
- Other

Graph 4-3

Demographic Charateristics of Suicide Victims,
Stratified by Gunshot Wound vs Other Injury
(*p<.05)
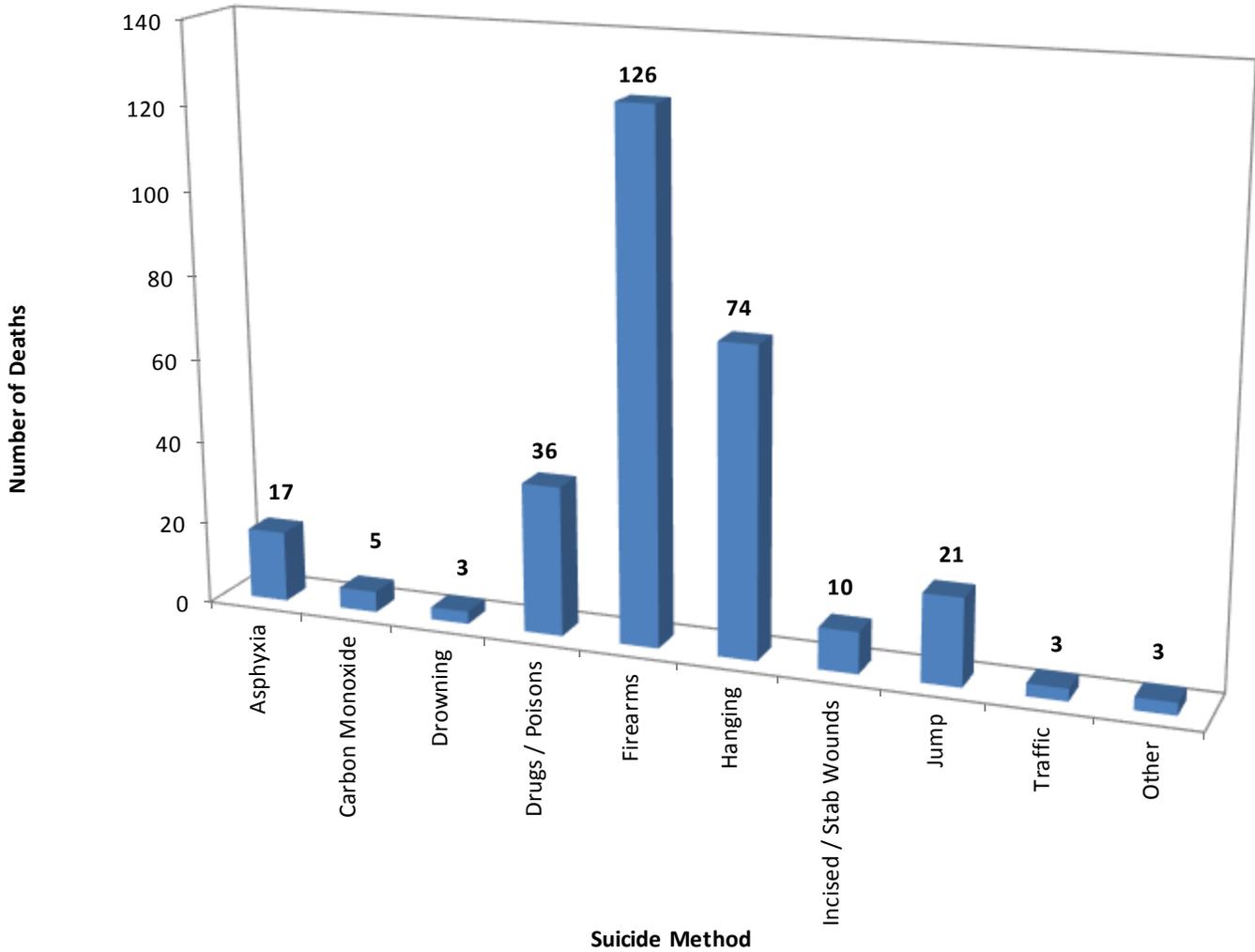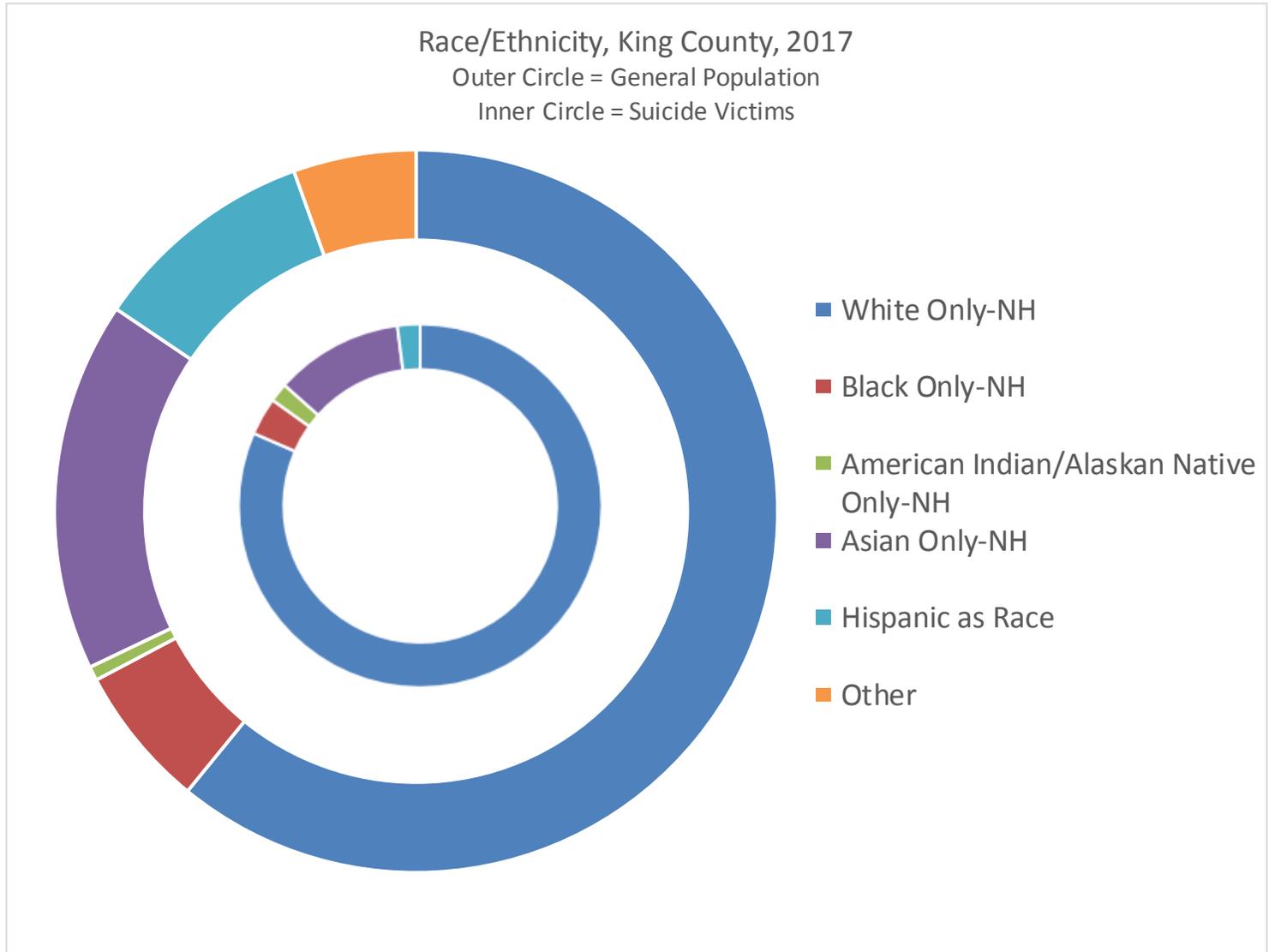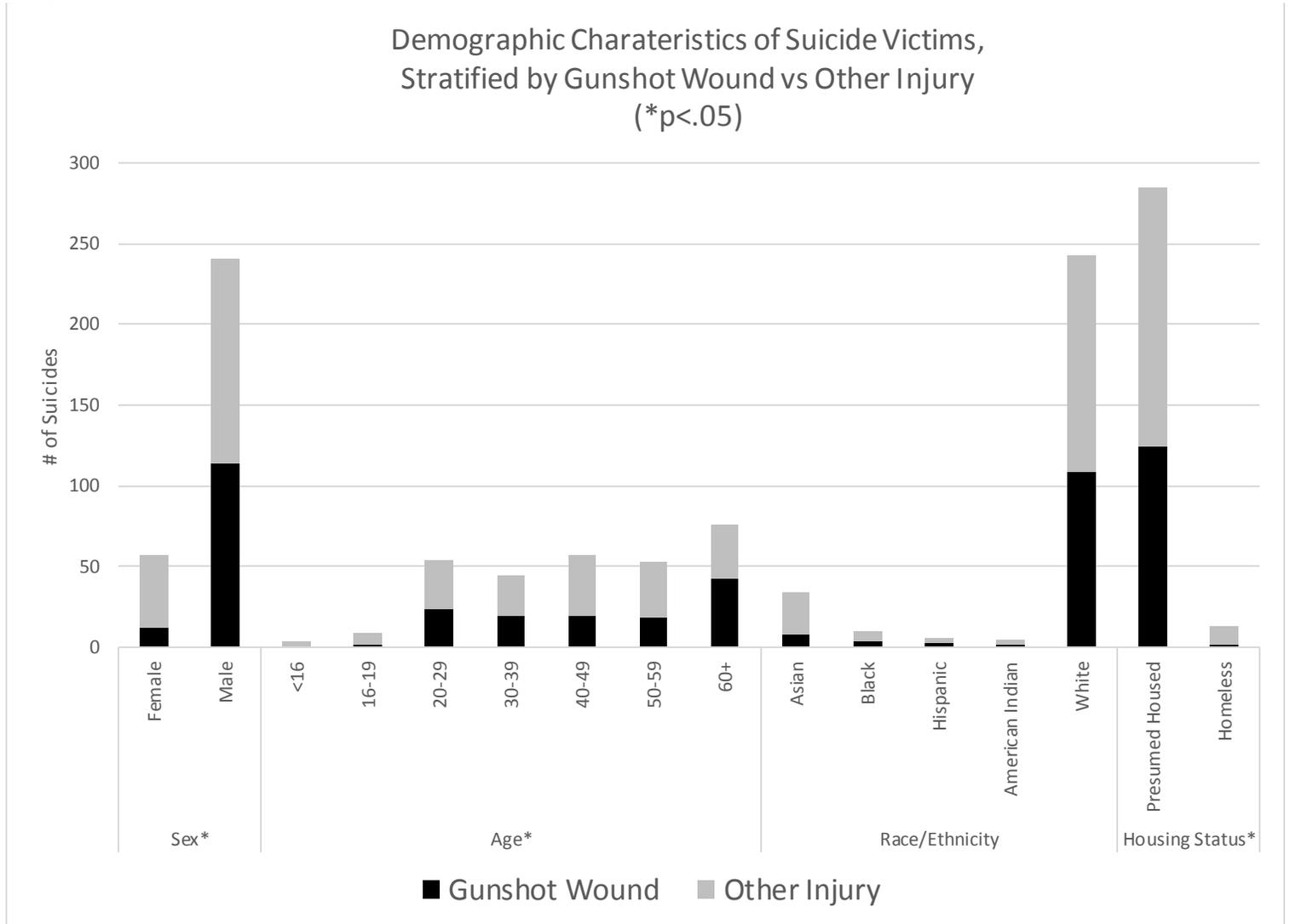
Manner of death: Accident

The Medical Examiner certified 1,013 accidental deaths for the calendar year 2017. Nearly 40% 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 will be described on page 44. Traffic fatalities accounted for 16% of accidental deaths; these deaths will be described on page 35. Other causes of accidental death that were investigated by the Medical Examiner include fire (n=25), blunt force/crushing (n=20), drowning (n=18), and aspiration (n=16).

Of the 853 individuals with deaths attributed to non-traffic accidents, 17% (145/853) 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. This scenario was most common for fire-related deaths, half of which resulted from injuries that occurred outside of King County and were transported to Harborview Medical Center's Burn Intensive Care Unit.

52% (443/853) of the victims were tested for the presence of alcohol. Of those tested, 28% (123/443) showed alcohol present at the time of death.

Graph 5-1   Circumstances of Accidental Death / KCME / 2017

Accidental Deaths

Number of Deaths
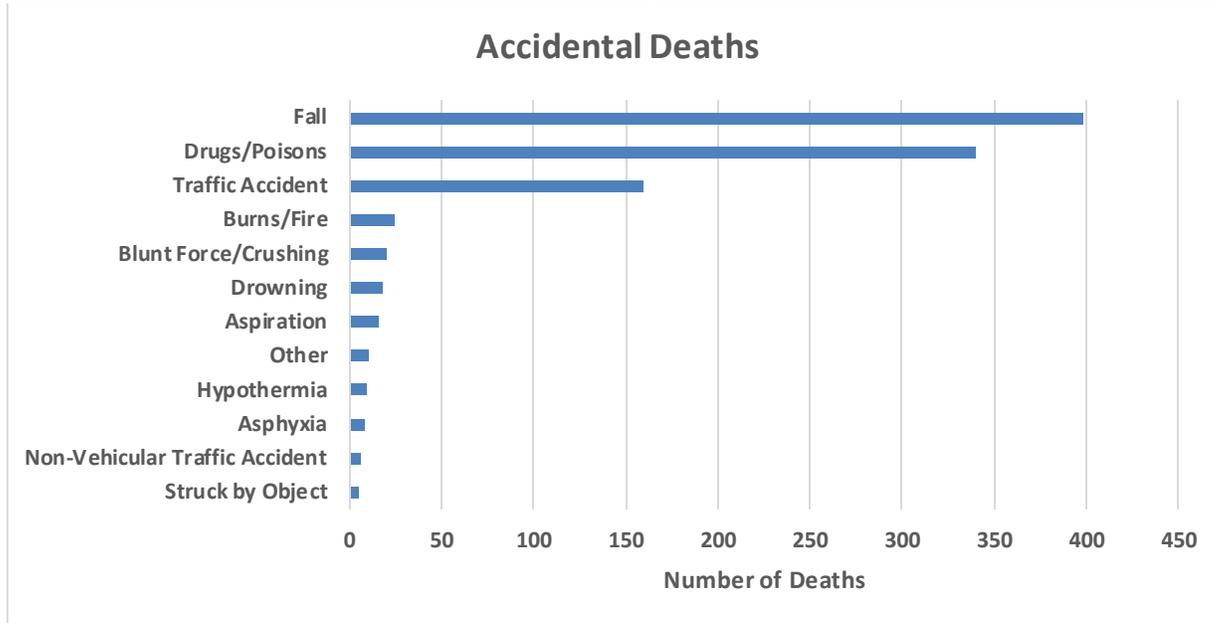
Traffic deaths

During the calendar year 2017, the Medical Examiner's Office participated in the investigation of 160 traffic fatalities. In 2017, 26% (42/160) 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, primarily Harborview Medical Center. Because the deaths occurred in King County, it falls 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 2017, 42% (67/160) of the traffic fatalities were motor vehicle drivers. Teenage drivers (16-19 years of age) were 4% (3/67) of the driver deaths in 2017 and 3% (2/62) in 2016. By age, 30% of vehicle driver deaths (20/67) were people between the ages of 20 and 29, 16% of driver deaths (11/67) were adults between the ages of 30 and 39, and 10% (7/67) were adults between the ages of 40 and 49. Male drivers represented 76% (51/67) of driver deaths and female drivers represented 24% of driver deaths (16/67).

Of the 160 traffic fatalities in 2017, 17 were motor vehicle passengers, representing 11% of the total (17/160). In 2017, teenagers (13-19 years old) accounted for 3 motor vehicle passenger deaths. There were no passenger deaths of infants (less than one year of age), 2 vehicle passenger death of a child between the ages of 1-5 years, and 1 death of child between the ages of 6-12 years.

Blood ethanol (alcohol) statistics are presented to describe the role of alcohol in traffic deaths. 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.[14] Therefore, blood alcohol figures presented in this report are not a total description of the role of alcohol in traffic collisions.

Of cases in which seatbelt restraint status was known (53/84), 42% (22/53) of drivers in vehicle deaths were not restrained. The figures for drivers not wearing seatbelts for the previous three years are: 15% (6/41) in 2016, 40% (23/55) in 2015, and 40% (19/47) in 2014.

Motorcycle riders accounted for 16% (26/160) of traffic fatalities. In 2017, there were 25 motorcycle driver fatalities and 1 motorcycle passenger fatality. Twenty-four of the motorcycle driver deaths were male and 1 was female. Of the 26 motorcycle fatalities, 85% (22/26) of the motorcyclists were wearing a helmet; and 8% (2/26) were not using a helmet at the time of the collision. In 8% (2/26) of the deaths it was unknown if a helmet was in use. Twenty-one of the motorcyclist fatalities were tested for the presence of blood alcohol. Five, or 24% (5/21), had a detectable amount of alcohol at the time of autopsy.

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

Pedestrians constituted 24% (38/160) of traffic fatalities. The majority of pedestrian deaths, 55% (21/38), were male. Of the pedestrian fatalities that were tested, 38% (10/26) had detectable amounts of alcohol present in their blood at the time of death.

There were 10 bicyclist deaths in 2017; 5 were riders wearing a helmet, 4 were not wearing a helmet, and 1 had unknown helmet use. Seven 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 5-2   Traffic Fatality Circumstances / KCME / 2017
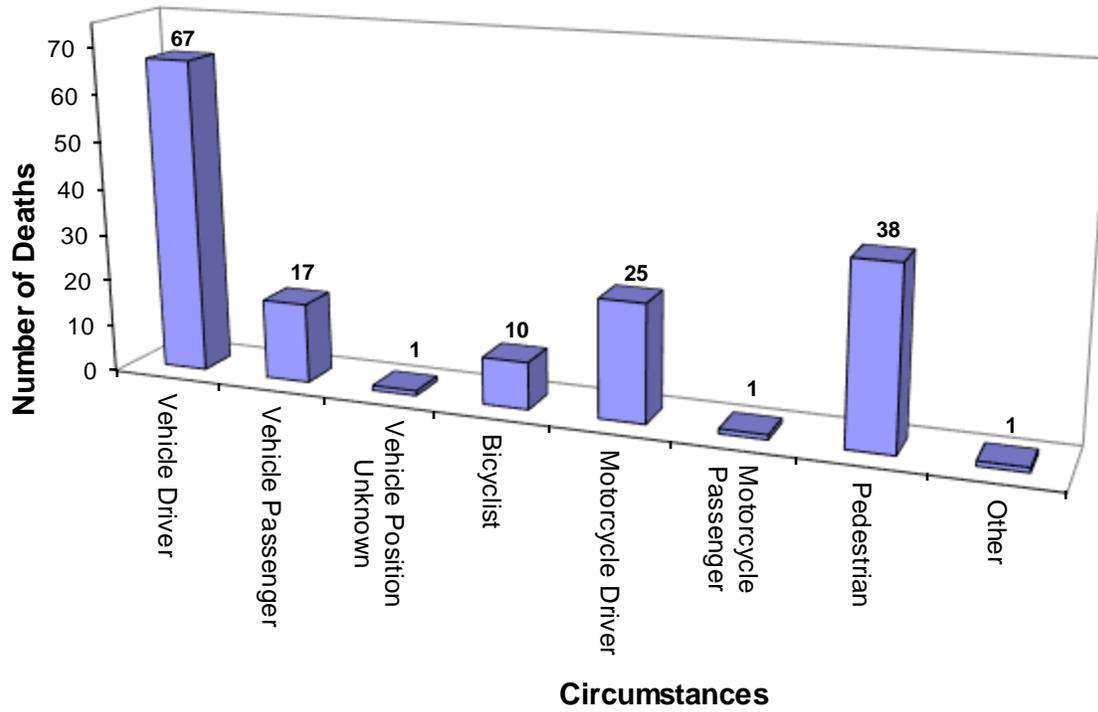
Table 5-1   Traffic Fatality Circumstances / Race / Gender / KCME / 2017

CIRCUMSTANCES / GENDER	RACE					SUB-TOTAL	TOTAL
	WHITE	AFRICAN AMER	ASIAN/ PAC IS	AM INDIAN /AK NATIVE	OTHER		
Vehicle Driver	48	9	7	3	0		67
Male	*38*	*5*	*6*	*2*	*0*	*51*	
Female	*10*	*4*	*1*	*1*	*0*	*16*	
Vehicle Passenger	10	2	4	1	0		17
Male	*8*	*0*	*1*	*1*	*0*	*10*	
Female	*2*	*2*	*3*	*0*	*0*	*7*	
Vehicle Unknown Position	1	0	0	0	0		1
Male	*1*	*0*	*0*	*0*	*0*	*1*	
Female	*0*	*0*	*0*	*0*	*0*	*0*	
Bicycle	7	2	1	0	0		10
Male	*7*	*2*	*1*	*0*	*0*	*10*	
Female	*0*	*0*	*0*	*0*	*0*	*0*	
Motorcycle Driver	21	1	3	0	0		25
Male	*20*	*1*	*3*	*0*	*0*	*24*	
Female	*1*	*0*	*0*	*0*	*0*	*1*	
Motorcycle Passenger	1	0	0	0	0		1
Male	*0*	*0*	*0*	*0*	*0*	*0*	
Female	*1*	*0*	*0*	*0*	*0*	*1*	
Pedestrian	28	4	5	1	0		38
Male	*15*	*3*	*2*	*1*	*0*	*21*	
Female	*13*	*1*	*3*	*0*	*0*	*17*	
Other	1	0	0	0	0		1
Male	*1*	*0*	*0*	*0*	*0*	*1*	
Female	*0*	*0*	*0*	*0*	*0*	*0*	
Totals	**117**	**18**	**20**	**5**	**0**		**160**
Percent	73%	11%	13%	3%	0%		100%

Graph 5-3 **Traffic Fatalities / Race / KCME / 2017**
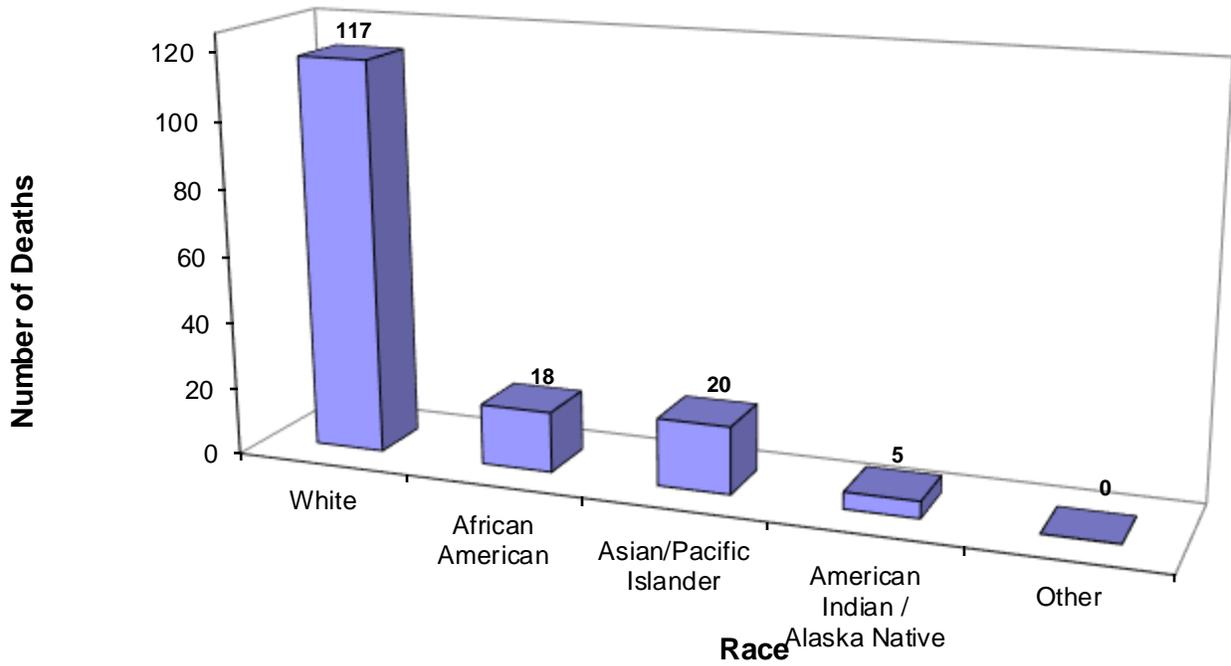
Graph 5-4 **Traffic Fatalities / Age / KCME / 2017**

Table 5-2   **Traffic Fatality Circumstances / Age / Gender / KCME / 2017**

Circumstances/Gender	<1	1 to 5	6 to 12	13 to 15	16 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90+	SUB-TOTAL	TOTAL
Vehicle Driver	0	0	0	0	3	20	11	7	10	4	8	3	1		67
Male	0	0	0	0	2	15	6	6	7	4	7	3	1	51	
Female	0	0	0	0	1	5	5	1	3	0	1	0	0	16	
Vehicle Passenger	0	2	1	0	3	2	0	3	2	0	3	1	0		17
Male	0	1	0	0	3	1	0	2	1	0	1	1	0	10	
Female	0	1	1	0	0	1	0	1	1	0	2	0	0	7	
Vehicle Position Unknown	0	0	0	0	0	0	0	0	1	0	0	0	0		1
Male	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicyclist	0	0	0	0	0	0	1	2	2	3	2	0	0		10
Male	0	0	0	0	0	0	1	2	2	3	2	0	0	10	
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Motorcycle Driver	0	0	0	0	0	7	5	3	6	4	0	0	0		25
Male	0	0	0	0	0	7	5	3	6	3	0	0	0	24	
Female	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Motorcycle Passenger	0	0	0	0	0	0	0	0	1	0	0	0	0		1
Male	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Female	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
Pedestrian	0	0	0	0	1	4	5	4	8	4	10	1	1		38
Male	0	0	0	0	1	3	3	4	5	0	4	0	1	21	
Female	0	0	0	0	0	1	2	0	3	4	6	1	0	17	
Other	0	0	0	0	0	0	1	0	0	0	0	0	0		1
Male	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	**0**	**2**	**1**	**0**	**7**	**33**	**23**	**19**	**30**	**15**	**23**	**5**	**2**		**160**
Percent	0%	1%	1%	0%	4%	21%	14%	12%	19%	10%	14%	3%	1%		100%

Table 5-3　　　　　　　**Traffic Fatality Circumstances / Gender / KCME / 2017**

CIRCUMSTANCES	GENDER		TOTAL
	MALE	FEMALE	
Vehicle Driver	51	16	67
Vehicle Passenger	10	7	17
Vehicle Position Unknown	1	0	1
Bicyclist	10	0	10
Motorcycle Driver	24	1	25
Motorcycle Passenger	0	1	1
Pedestrian	21	17	38
Other Mode	1	0	1
Totals	**118**	**42**	**160**
Percent	74%	26%	100%

Table 5-4　　　　　　　**Traffic Fatality Circumstances / Use of Restraint / Helmet / KCME / 2017**

CIRCUMSTANCES	Used Safety Device	No Safety Device Used	Unknown	TOTAL
Vehicle Driver	25	19	23	67
Vehicle Passenger	6	3	8	17
Bicyclist	5	4	1	10
Motorcycle Driver	21	2	2	25
Motorcycle Passenger	1	0	0	1
Totals	**58**	**28**	**34**	**120**
Percent	49%	23%	28%	100%

Table 5-5   **Traffic Fatality Circumstances / Blood Alcohol Results / KCME / 2017**

CIRCUMSTANCES	TESTED		NOT TESTED	TOTAL
	POSITIVE	NEGATIVE		
Vehicle Driver	26	27	14	67
Vehicle Passenger	2	10	5	17
Vehicle Position Unknown	0	0	1	1
Bicyclist	1	6	3	10
Motorcycle Driver	5	16	4	25
Motorcycle Passenger	0	0	1	1
Pedestrian	10	16	12	38
Other Mode	0	1	0	1
Totals	**44**	**76**	**40**	**160**
Percent	27.5%	47.5%	25%	100%

Graph 5-5   **Blood Alcohol Results / KCME / 2017**
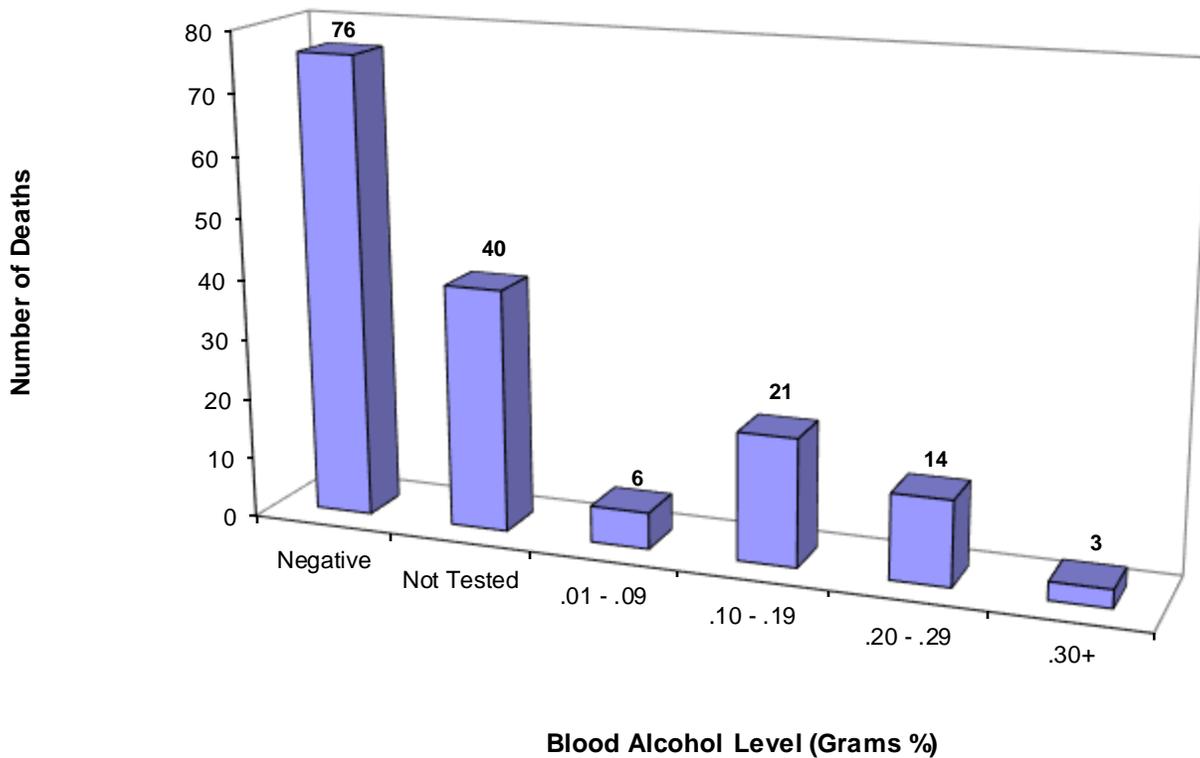
Table 5-6   **Time of Fatal Traffic Collision / KCME / 2017**

TIME OF DAY	TOTAL	PERCENT
12:01 a.m. - 3:00 a.m.	24	15%
3:01 a.m. - 6:00 a.m.	14	9%
6:01 a.m. - 9:00 a.m.	11	7%
9:01 a.m. - Noon	17	11%
12:01 p.m. - 3:00 p.m.	12	7%
3:01 p.m. - 6:00 p.m.	30	19%
6:01 p.m. - 9:00 p.m.	32	20%
9:01 p.m. - Midnight	16	10%
Unknown	4	2%
TOTALS	**160**	100%

Graph 5-6   **Time of Fatal Traffic Collision / KCME / 2017**
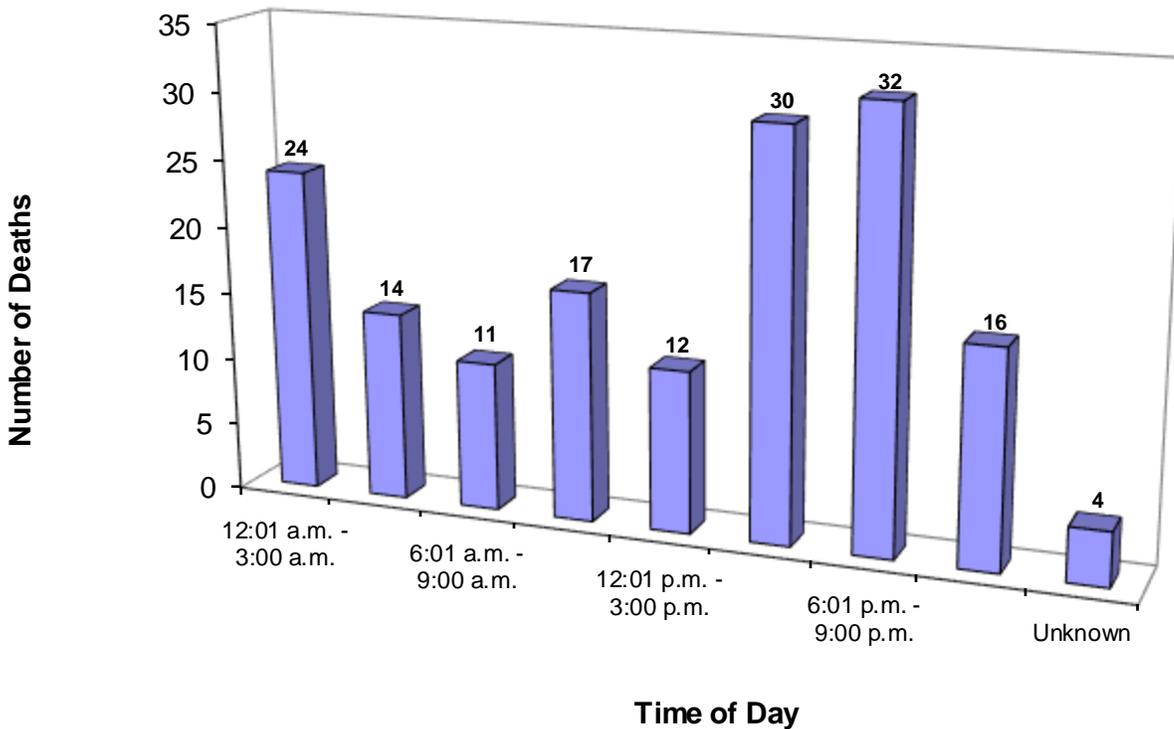
Deaths due to drugs and poisons

In 2012, it was reported in the *National Vital Statistics Report*[15] 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 2017, 399 deaths were attributed to acute drug or alcohol intoxication (n=384), chemical poisonings (n=12), or fetal death attributed to maternal drug use (n=3). The majority (85%) of deaths attributed to acute alcohol or drug intoxication were accidental, whereas two-thirds of deaths attributed to chemical poisoning were suicides. Drug- and alcohol-caused deaths that occurred in 2017 have been described in detail in a separate report (https://kingcounty.gov/depts/health/examiner/~/media/depts/health/medical-examiner/documents/2017-overdose-death-report.ashx). Additionally, up-to-date information about drug overdose deaths can be viewed at https://kingcounty.gov/depts/health/examiner/overdose.aspx . Table 9-3 displays the specific drugs that caused death in 2017.

In 2017, 11 accidental deaths were attributed to acute ethanol intoxication where ethanol was the single substance used. Eighty-five deaths were attributed to a combination of alcohol and other drugs. Blood alcohol (ethanol) tests were performed in 66% (983/1,480) 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 24% (348/1,480) of non-natural deaths where tests were performed.

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[15] 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)

Table 5-7   **2017 Drug & Poison Caused Deaths[1]**

Drug Name	Total deaths out of 2,444 cases in which drug was present	Overdose Deaths– Drug Present						Overdose Deaths – Drug Causing					
		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	6	5	1	4	1	3	1	8	4	4	3	3	2
Alprazolam	77	50	0	50	46	4	0	50	0	50	46	4	0
Amantadine	1	1	1	0	0	0	1	1	1	0	0	0	1
Amitriptyline	8	5	0	5	3	2	0	4	0	4	2	2	0
Amlodipine	1	1	0	1	0	1	0	1	0	1	0	1	0
Amphetamine	197	110	34	76	103	3	4	2	0	2	2	0	2
Atenolol	1	1	0	1	0	1	0	1	0	1	0	1	0
Buprenorphine	2	1	0	1	1	0	0	3	0	0	3	0	0
Buproprion	14	8	2	6	5	2	1	8	2	6	5	2	1
Butalbital	2	2	0	2	1	1	0	2	0	2	1	1	0
Cannabinoids / THC[2]	89	2	0	2	1	1	0	0	0	0	0	0	0
Carbon Monoxide[3]	35	9	6	3	5	3	1	9	7	2	3	5	1
Chlordiazepoxide	8	4	0	4	4	0	0	4	0	4	4	0	0
Chlorpheniramine	2	1	0	1	1	0	0	1	0	1	1	0	0
Citalopram	33	18	1	17	15	3	0	18	1	17	15	3	0
Clomipramine	1	1	0	1	0	1	0	1	0	1	0	1	0
Clozapine	1	1	0	1	1	0	0	1	0	1	1	0	0
Cocaine[4]	97	68	15	53	65	1	2	72	17	55	69	1	2
Codeine[5]	106	94	14	80	87	6	1	3	0	3	1	2	0
Cyclobenzaprine	7	4	0	4	3	1	0	4	0	4	3	1	0
Delorazepam	1	1	0	1	1	0	0	1	0	1	1	0	0
Dextromethorphan	14	6	0	6	4	2	0	7	0	7	5	2	0
Diazepam	34	20	0	20	16	3	1	22	0	22	18	3	1
Difluoroethane	3	3	0	3	3	0	0	3	0	3	3	0	0
Digoxin	1	1	0	1	0	1	0	1	0	1	0	1	0
Diltiazem	4	3	0	3	1	2	0	2	0	2	0	2	0
Diphenhydramine	55	29	3	26	19	6	4	29	3	26	19	6	4

Table 5-7   2017 Drug & Poison Caused Deaths (continued)

Drug Name	Total deaths out of 2,444 cases in which drug was present	Overdose Deaths– Drug Present						Overdose Deaths – Drug Causing					
		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
Doxepin	6	5	1	4	3	2	0	5	1	4	3	2	0
Doxylamine	10	3	0	3	3	0	0	3	0	3	3	0	0
Ethanol	348	88	16	72	79	8	1	85	11	74	76	7	2
Ethylene Glycol	2	2	2	0	0	2	0	2	2	0	0	2	0
Fentanyl[6]	42	35	8	27	30	4	1	33	6	27	30	2	1
Fluoxetine	14	8	1	7	5	2	1	8	1	7	5	2	1
Gabapentin	19	9	0	9	8	0	1	18	0	10	9	0	1
Haloperidol	2	1	0	1	1	0	0	1	0	1	1	0	0
Hydrocodone	16	7	0	7	3	4	0	8	0	8	4	3	1
Hydromorphone	18	11	0	11	10	0	1	10	0	10	9	0	1
Hydroxychloroquine	1	1	0	1	0	1	0	1	0	1	0	1	0
Hydroxyzine	3	1	0	1	1	0	0	0	0	0	0	0	0
Isopropranol	11	1	0	1	1	0	0	0	0	0	0	0	0
Ketamine	5	1	1	0	1	0	0	0	0	0	0	0	0
Lamotrigine	10	1	0	1	0	1	0	1	0	1	0	1	0
Lithium	1	1	1	0	0	1	0	1	1	0	0	1	0
Lorazepam	9	2	0	2	0	2	0	2	0	2	0	2	0
MDA	4	3	1	2	3	0	0	1	0	1	1	0	0
MDMA	8	4	0	4	4	0	0	4	0	4	4	0	0
Methadone	74	53	4	49	50	1	2	55	51	4	52	1	2
Methamphetamine	183	125	34	91	117	4	4	137	36	101	130	3	4
Midazolam	51	8	3	5	5	2	1	0	0	0	0	0	0
Mirtazapine	13	4	0	4	4	0	0	3	0	3	3	0	0
Mitragynine	2	1	0	1	1	0	0	1	0	1	1	0	0
Monoacetylmorphine[7]	71	68	12	56	67	1	0	0	0	0	0	0	0
Nortriptyliine[8]	10	7	0	7	5	2	0	3	0	3	3	0	0

Table 5-7   2017 Drug & Poison Caused Deaths (continued)

Drug Name	Total deaths out of 2,444 cases in which drug was present	Overdose Deaths– Drug Present						Overdose Deaths – Drug Causing					
		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	2	1	0	1	1	0	0	1	0	1	1	0	0
Opiate[9]	196	153	22	131	145	7	1	166	24	142	160	4	2
Oxycodone	55	24	0	24	22	2	0	26	0	26	23	3	0
Phenobarbital	9	4	2	2	2	1	1	2	1	1	1	1	0
Phencyclidine	1	1	0	1	1	0	0	1	0	1	1	0	0
Promethazine	4	3	0	3	3	0	0	2	0	2	2	0	0
Propranolol	1	1	0	1	0	1	0	1	0	1	0	1	0
Sertraliine	20	7	3	4	5	1	1	3	1	2	2	0	1
Topiramate	3	1	0	1	0	1	0	1	0	1	0	1	0
Tramadol	12	5	0	5	4	0	1	6	0	6	5	1	0
Trazodone	36	15	0	15	14	1	0	15	0	15	14	1	0
Venlafaxine	12	4	0	4	4	0	0	4	0	4	4	0	0
Zolpidem	23	13	0	13	9	4	0	12	0	12	8	4	0

Table 5-7   2017 Drug & Poison Caused Deaths (continued)

[1]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.

[2]Cannabinoids confirmation tests are not routinely tested for in death investigations except under certain circumstances where the death was law enforcement-related, traffic-related, impairment may be a factor, or at the request of the submitting agency. 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 5 suicides from the inhalation of carbon monoxide, 3 from running cars in enclosed garages, 1 from running a hose from a car's exhaust system to the interior and 1 from burning charcoal in an enclosed space. There were 3 accidental deaths where carbon monoxide was the drug causing, 2 were related to multiple drug use in the setting of a vehicle with faulty exhaust and 1 was from burning charcoal in an enclosed space. There was 1 undetermined death from carbon monoxide poisoning from a generator being run inside a bedroom.

[4]Includes benzoylecgonine.

[5]Out of the 94 overdose deaths involving codeine, in 91 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 was thought to be pharmaceutical and in case it was unclear if the codeine was from heroin or prescription medications.

[6]Includes Fentanyl, Fentanyl precursor 4-ANPP, Fentanyl analogues: Acetylfentanyl, Cyclopropylfentanyl, Furanylfentanyl, and Methoxyacetylfentanyl, and the drug U47700.

[7]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.

[8]In 2 of the 10 total cases, nortriptyline was present without the presence of amitriptyline, indicating that the source of the drug was, in fact, nortriptyline. In the other 16 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, manner Accident.

[9] 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 and methadone. In 2017 there were 166 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 166 deaths, 151 were definitely or probably due to heroin and 9 were due to pharmaceutical morphine. In the remaining 6 cases it was not possible to determine whether the death was due to heroin or pharmaceutical morphine.

Table 5-8   Blood Alcohol Testing / Manner / KCME / 2017

Test Results	ACCIDENT	TRAFFIC	HOMICIDE	NATURAL	SUICIDE	UNDETERMINED	TOTAL
Tested	445	122	85	441	274	57	1,424
Positive	*123*	*45*	*29*	*62*	*77*	*12*	*348*
Negative	*322*	*77*	*56*	*379*	*197*	*45*	*1,076*
Not Tested	408	38	7	523	2	20	1,020
Totals	**853**	**160**	**92**	**964**	**298**	**77**	**2,444**

Table 5-9   Blood Alcohol Testing / Percentage / Manner / KCME / 2017

Test Results	ACCIDENT	TRAFFIC	HOMICIDE	NATURAL	SUICIDE	UNDETERMINED	TOTAL
Tested	52%	76%	92%	46%	92%	74%	58%
Positive	*14%*	*28%*	*31%*	*7%*	*26%*	*15%*	*15%*
Negative	*38%*	*48%*	*61%*	*39%*	*66%*	*55%*	*43%*
Not Tested	48%	24%	8%	54%	8%	26%	42%
Totals	**100%**	**100%**	**100%**	**100$**	**100%**	**100%**	**100%**

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 2017, the King County Medical Examiner's Office assumed jurisdiction over 951 deaths attributed to natural causes, representing 39% (964/2,444) of the cases investigated. The King County Medical Examiner certified 73% (702/964) of these deaths; attending physicians who had knowledge of the decedent's medical condition certified 27% (262/964). 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 64% (446/702) of the deaths certified as natural, which included autopsies performed in 100% (2/2) 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 deaths in which an autopsy was not performed were certified as due to "probable arteriosclerotic cardiovascular disease."

Table 6-1   **Disease Processes Causing Natural Deaths / KCME / 2017**

NUMBER OF DEATHS	DISEASE DESCRIPTION
	CARDIOVASCULAR
1	Aortic aneurysm
8	Aortic dissection
73	Arteriosclerotic cardiovascular disease (ASCVD)
1	Bacterial endocarditis
5	Cardiac dysrhythmia
16	Cardiomyopathy
3	Congestive heart failure
171	Hypertensive ASCVD / Hypertensive heart disease
2	Myocarditis
2	Other
189	Probable arteriosclerotic cardiovascular disease
3	Valvular heart disease
474	TOTAL CARDIOVASCULAR
	CENTRAL NERVOUS SYSTEM
7	Epilepsy (idiopathic & other non-traumatic etiologies)
11	Infarct
1	Meningitis
8	Spontaneous intracerebral hemorrhage
7	Spontaneous rupture of aneurysm
4	Subarachnoid hemorrhage (unknown etiology)
42	Other
80	TOTAL CENTRAL NERVOUS SYSTEM
79	**CHRONIC ETHANOLISM (ALCOHOLISM)**
23	**CHRONIC SUBSTANCE ABUSE**
	COMPLICATION OF THERAPY (COT)
1	Drug Related COT
5	Procedure Related COT
3	Surgery Related COT
9	TOTAL COMPLICATION OF THERAPY
	ENDOCRINE
13	Diabetic ketoacidosis
15	Diabetes mellitus
2	Pancreatitis
3	Other
33	TOTAL ENDOCRINE

Table 6-1 **Disease Processes Causing Natural Deaths / KCME / 2017** (continued)

NUMBER OF DEATHS	DISEASE DESCRIPTION
	GASTROINTESTINAL
4	Bacterial peritonitis
15	Gastrointestinal hemorrhage
4	Perforating ulcer
10	Other
33	TOTAL GASTROINTESTINAL
	HEPATIC
2	Cirrhosis
1	Fatty liver
1	Hepatic failure
2	Hepatitis
3	Other
9	TOTAL HEPATIC
	MALIGNANCY
4	Breast
6	Colon
17	Lung
6	Pancreas
8	Prostate
24	Other
67	TOTAL MALIGNANCY
	RESPIRATORY
3	Asthma
32	Chronic obstructive pulmonary disease
32	Pneumonia
20	Pulmonary thromboembolus
5	Other
92	TOTAL RESPIRATORY
	SUDDEN INFANT DEATH SYNDROME
2	SIDS

Table 6-1 **Disease Processes Causing Natural Deaths / KCME / 2017** (continued)

NUMBER OF DEATHS	DISEASE DESCRIPTION
	OTHER PROCESSES
2	Chronic renal disease
1	Failure to thrive
5	HIV / AIDS
1	Inanition
17	Infection
3	Labor/delivery/prematurity
11	No anatomic or toxicological cause of death
15	Sepsis
2	Sudden unexplained death in childhood (SUDC)
3	Other
3	Unspecified natural causes
63	TOTAL OTHER PROCESSES
474	TOTAL Non-Cardiovascular Cause of Death
490	TOTAL Cardiovascular Cause of Death
964	**Total NATURAL DEATHS under KCMEO Jurisdiction 2017**

Graph 6-1   Deaths due to Natural Causes / KCME / 2017
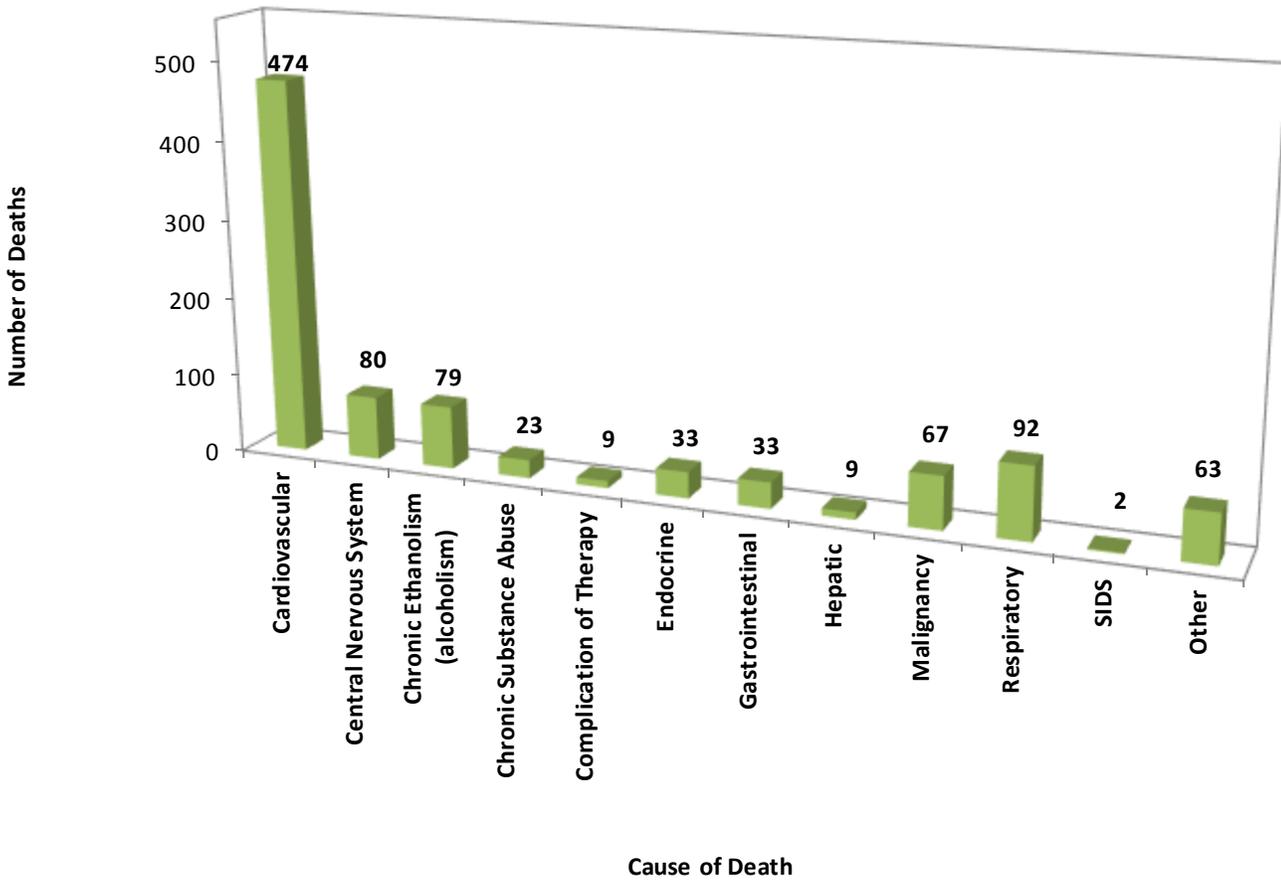
Table 6-2   **Natural Deaths / Race / Gender / KCME / 2017**

DISEASE PROCESS / GENDER	RACE					SUB-TOTAL	TOTAL
	WHITE	AFRIC AMER	ASIAN/ PAC IS	AM INDIAN/ /AK NATIVE	OTHER		
Cardiovascular	389	41	40	3	1		474
Male	272	31	33	3	1	340	
Female	117	10	7	0	0	134	
Central Nervous	63	5	9	2	1		80
Male	40	3	5	1	1	50	
Female	23	2	4	1	0	30	
Chronic Ethanolism	68	4	4	3	0		79
Male	51	3	4	3	0	61	
Female	17	1	0	0	0	18	
Chronic Substance Abuse	21	2	0	0	0		23
Male	13	2	0	0	0	15	
Female	8	0	0	0	0	8	
Complication of Therapy	7	0	2	0	0		9
Male	2	0	1	0	0	3	
Female	5	0	1	0	0	6	
Endocrine	28	4	1	0	0		33
Male	19	2	0	0	0	21	
Female	9	2	1	0	0	12	
Gastrointestinal	26	4	1	2	0		33
Male	19	4	0	1	0	24	
Female	7	0	1	1	0	9	
Hepatic	9	0	0	0	0		9
Male	5	0	0	0	0	5	
Female	4	0	0	0	0	4	
Malignancy	53	12	1	1	0		67
Male	38	9	0	0	0	47	
Female	15	3	1	1	0	20	
Respiratory	75	14	1	2	0		92
Male	51	6	1	0	0	58	
Female	24	8	0	2	0	34	
SIDS	2	0	0	0	0		2
Male	1	0	0	0	0	1	
Female	1	0	0	0	0	1	
Other	46	9	5	2	1		63
Male	28	5	1	0	1	35	
Female	18	4	4	2	0	28	
Totals	**787**	**95**	**64**	**15**	**3**		**964**
Percent	81.6%	9.9%	6.6%	1.6%	0.3%		100%

Graph 6-2   Natural Deaths / Race / KCME / 2017
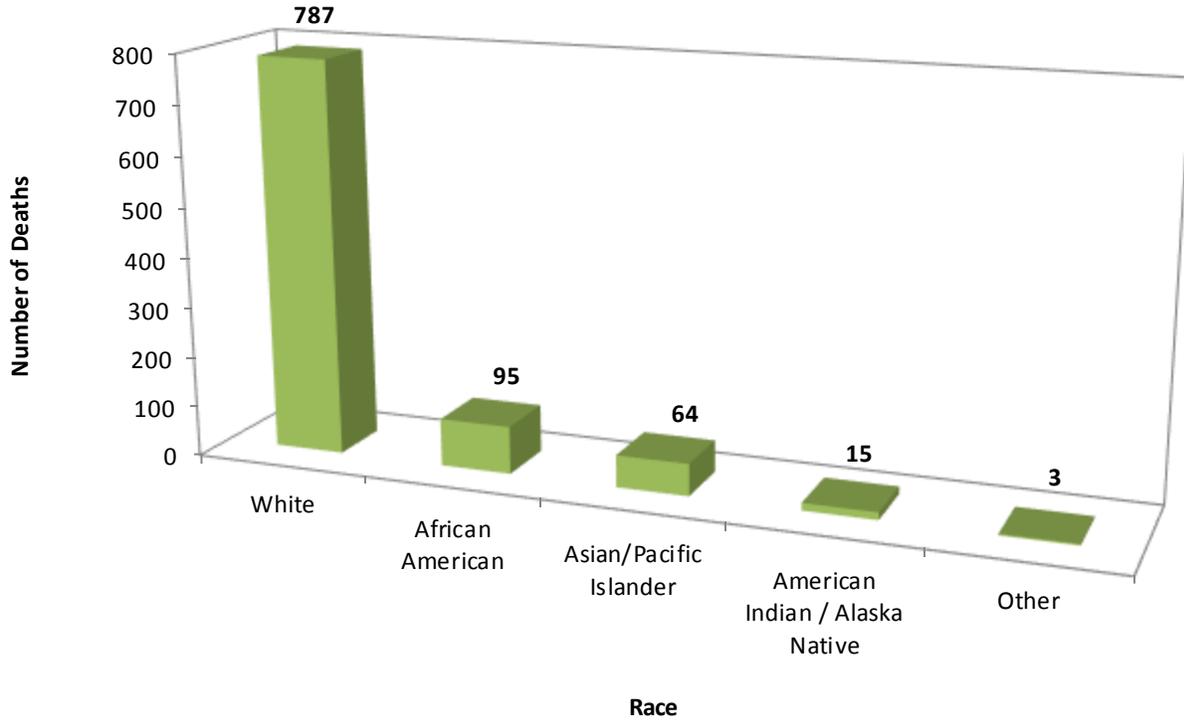
Graph 6-3   Natural Deaths / Age Group / KCME / 2017
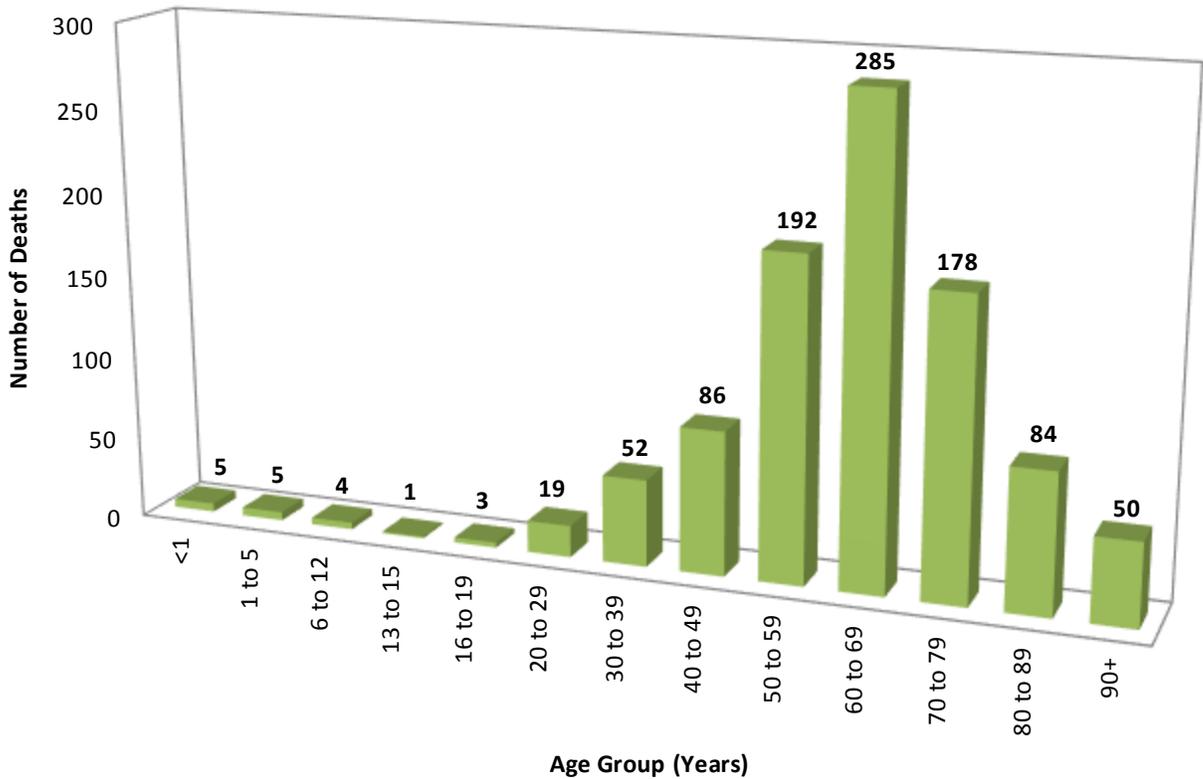
Table 6-3   **Natural Deaths / Age / Gender / KCME / 2017**

DISEASE PROCESS/ GENDER	< 1	1 to 5	6 to 12	13 to 15	16 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 +	SUB-TOTAL	TOTAL
Cardiovascular	0	0	0	1	0	3	11	33	77	174	107	48	20		474
Male	0	0	0	1	0	2	9	26	56	133	75	30	8	340	
Female	0	0	0	0	0	1	2	7	21	41	32	18	12	134	
Central Nervous	0	0	1	0	2	4	4	4	8	14	10	17	16		80
Male	0	0	1	0	1	4	4	3	5	10	6	9	7	50	
Female	0	0	0	0	1	0	0	1	3	4	4	8	9	30	
Chronic Ethanolism	0	0	0	0	0	3	6	17	31	17	5	0	0		79
Male	0	0	0	0	0	1	4	16	19	17	4	0	0	61	
Female	0	0	0	0	0	2	2	1	12	0	1	0	0	18	
Chronic Substance Abuse	0	0	0	0	0	2	8	2	8	3	0	0	0		23
Male	0	0	0	0	0	1	6	0	6	2	0	0	0	15	
Female	0	0	0	0	0	1	2	2	2	1	0	0	0	8	
Complication of Therapy	0	0	0	0	0	1	1	0	0	3	2	2	0		9
Male	0	0	0	0	0	0	0	0	0	0	2	1	0	3	
Female	0	0	0	0	0	1	1	0	0	3	0	1	0	6	
Endocrine	0	1	0	0	0	1	7	8	3	11	2	0	0		33
Male	0	1	0	0	0	1	3	4	2	8	2	0	0	21	
Female	0	0	0	0	0	0	4	4	1	3	0	0	0	12	
Gastrointestinal	0	0	2	0	0	0	4	6	9	6	5	0	1		33
Male	0	0	2	0	0	0	3	5	7	5	2	0	0	24	
Female	0	0	0	0	0	0	1	1	2	1	3	0	1	9	
Hepatic	0	0	0	0	0	0	1	1	4	2	0	1	0		9
Male	0	0	0	0	0	0	1	0	2	2	0	0	0	5	
Female	0	0	0	0	0	0	0	1	2	0	0	1	0	4	
Malignancy	0	0	0	0	1	0	1	2	14	20	23	5	1		67
Male	0	0	0	0	1	0	1	1	10	15	16	2	1	47	
Female	0	0	0	0	0	0	0	1	4	5	7	3	0	20	
Respiratory	1	2	1	0	0	1	8	3	23	23	16	8	6		92
Male	0	1	0	0	0	1	3	3	13	18	9	6	4	58	
Female	1	1	1	0	0	0	5	0	10	5	7	2	2	34	
SIDS	2	0	0	0	0	0	0	0	0	0	0	0	0		2
Male	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
Female	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
Other	2	2	0	0	0	4	1	10	15	12	8	3	6		63
Male	1	2	0	0	0	1	0	5	12	7	4	1	2	35	
Female	1	0	0	0	0	3	1	5	3	5	4	2	4	28	
Totals	5	5	4	1	3	19	52	86	192	285	178	84	50		964
Percent	0.5%	0.5%	0.4%	0.1%	0.3%	2 %	5.4%	8.9%	19.9%	19.9%	18.5%	8.7%	5.2%		100%

Table 6-4 **Natural Deaths / Gender / KCME / 2017**

CIRCUMSTANCES	GENDER		
	MALE	FEMALE	TOTAL
Cardiovascular	340	134	474
Central Nervous	50	30	80
Chronic Ethanolism	61	18	79
Chronic Substance Abuse	15	8	23
Complication of Therapy	3	6	9
Endocrine	21	12	33
Gastrointestinal	24	9	33
Hepatic	5	4	9
Malignancy	47	20	67
Respiratory	58	34	92
SIDS	1	1	2
Other	35	28	63
Totals	**660**	**304**	**964**
Percent	68.5%	31.5%	100%

Table 6-5 **Natural Deaths / Blood Alcohol Results / 2017**

METHOD	TESTED		NOT	
	POSITIVE	NEGATIVE	TESTED	TOTAL
Cardiovascular	28	208	238	474
Central Nervous System	0	12	68	80
Chronic Ethanolism	24	29	26	79
Chronic Substance Abuse	1	14	8	23
Complication of Therapy	0	0	9	9
Endocrine	3	15	15	33
Gastrointestinal	0	23	10	33
Hepatic	0	3	6	9
Malignancy	1	9	57	67
Respiratory	4	32	56	92
SIDS	0	2	0	2
Other	0	2	61	63
Totals	**61**	**349**	**554**	**964**
Percent	6%	36%	58%	100%

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 77 deaths with manner undetermined, accounting for 3% (77/2,444) of the deaths investigated in 2017. Drugs and poisons caused 19% (15/77) of the deaths classified as undetermined. For a more detailed review of drug-caused deaths in 2017, see the discussion in the section on Drugs and Poisons on pages 74 and 75.

The 77 deaths that were classified as undetermined for 2017 included 9 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 5 fetal deaths in 2017, 3 were related to maternal drug abuse.

Although there were none in 2017, Sudden Unexplained Neonatal Death (SUND) cases, can be included in the Sudden Unexplained Infant Death (SUID) statistics. An infant is defined as a newborn that is only hours, days, or up to a few weeks old. 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[16] / KCME / 2017

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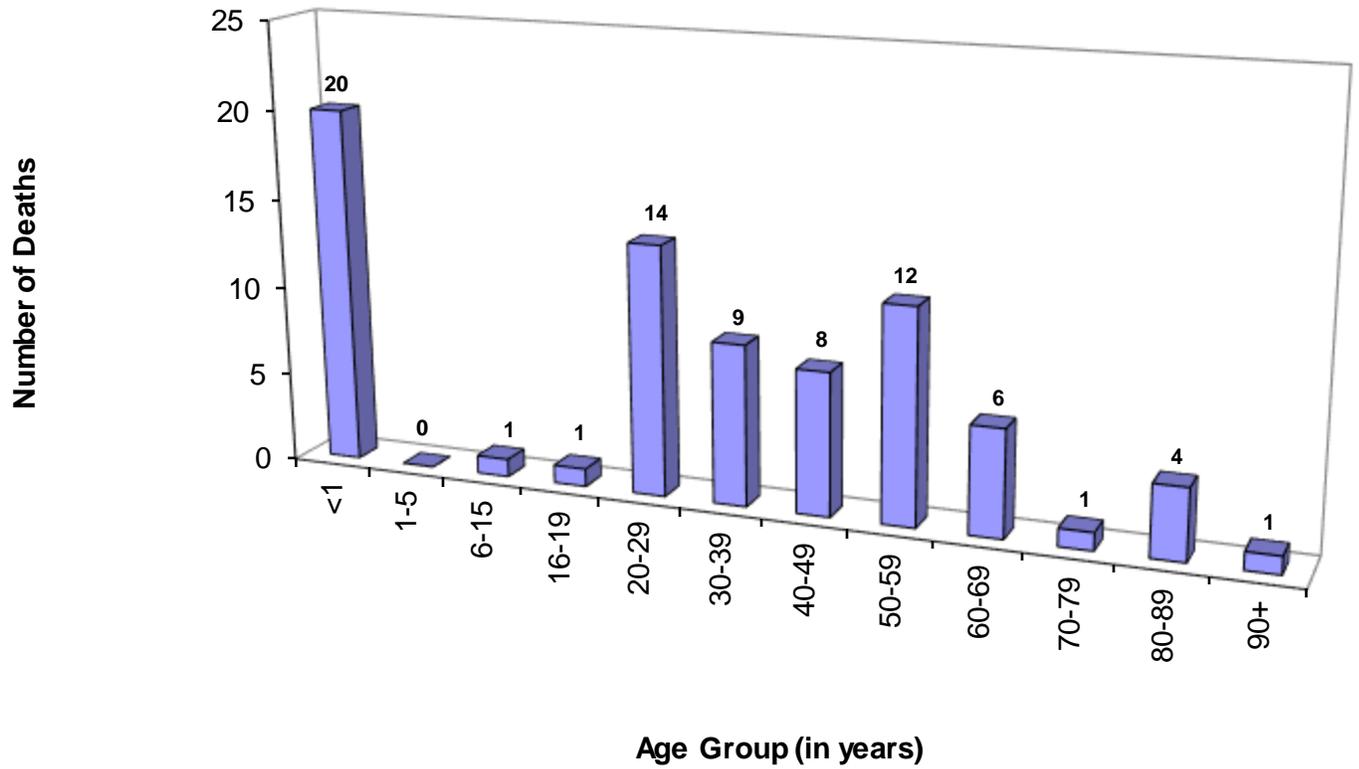
[16]NATCOD is an abbreviation for "no anatomic or toxicological cause of death," and refers to deaths in which full autopsies and toxicological analyses (if relevant) fail to identify an adequate cause of death.

Table 7-1   **Undetermined Manner of Death / Race / Gender / KCME / 2017**

CIRCUMSTANCES / GENDER	WHITE	AFRIC AMER	ASIAN/ PAC IS	AM INDIAN/ AK NATIVE	OTHER / UNK	SUB-TOTAL	TOTAL
Blunt Force	4	1	1	0	0		6
Male	2	1	0	0	0	3	
Female	2	0	1	0	0	3	
Burns / Fire	3	0	0	0	0		3
Male	2	0	0	0	0	2	
Female	1	0	0	0	0	1	
Drowning	2	1	0	0	0		4
Male	1	1	0	0	0	2	
Female	1	0	1	0	0	2	
Drugs / Poisons	12	0	1	2	0		15
Male	7	0	0	0	0	7	
Female	5	0	1	2	0	8	
Fall	6	0	1	0	0		7
Male	5	0	1	0	0	6	
Female	1	0	0	0	0	1	
Fetal Deaths	7	1	0	0	1		9
Male	4	0	0	0	0	4	
Female	3	1	0	0	1	5	
Gunshot Wound(s)	3	0	0	0	1		4
Male	2	0	0	0	1	3	
Female	1	0	0	0	0	1	
No Anatomic or Toxicological Cause of Death	5	0	0	1	0		6
Male	5	0	1	1	0	6	
Female	0	0	0	0	0	0	
Other	10	0	1	1	0		12
Male	5	0	1	1	0	7	
Female	5	0	0	0	0	5	
SUID	4	2	1	0	2		9
Male	3	1	0	0	1	5	
Female	1	1	1	0	1	4	
Pedestrian	1	0	1	0	0		2
Male	1	0	1	0	0	2	
Female	0	0	0	0	0	0	
Totals	**57**	**5**	**7**	**4**	**4**		**77**

Graph 7-2   Undetermined Manner / Race / KCME / 2017
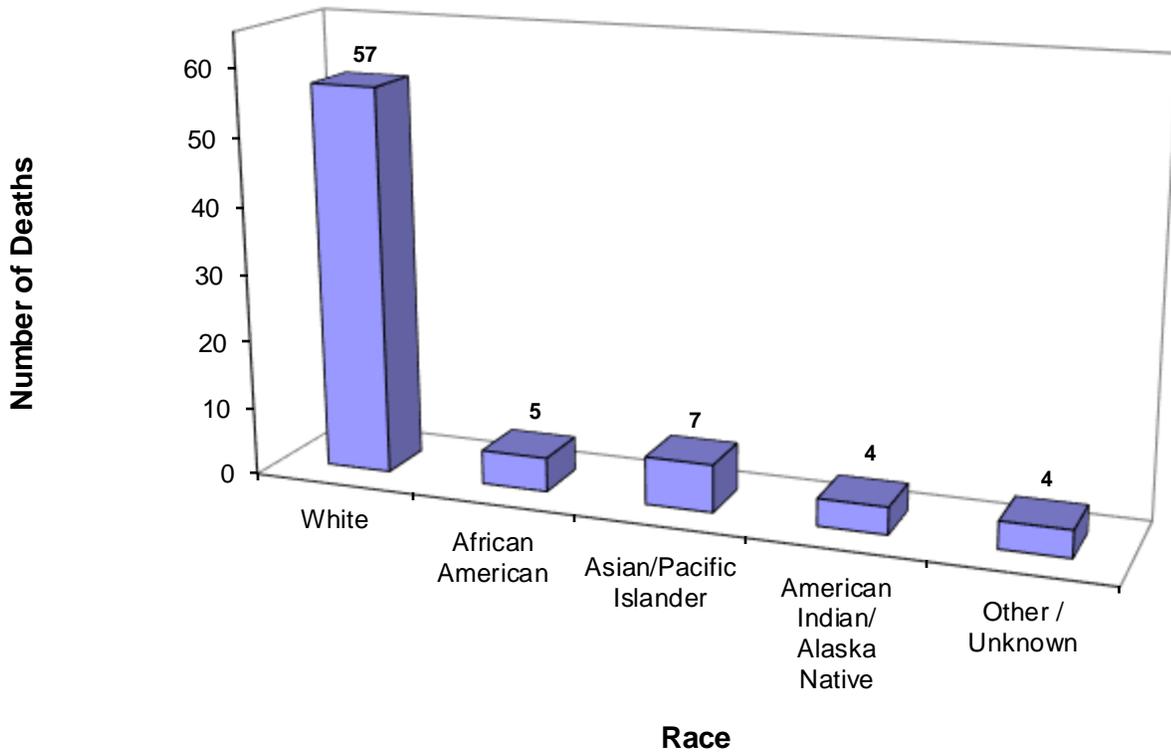
Graph 7-3   Undetermined Manner / Age Group / KCME / 2017
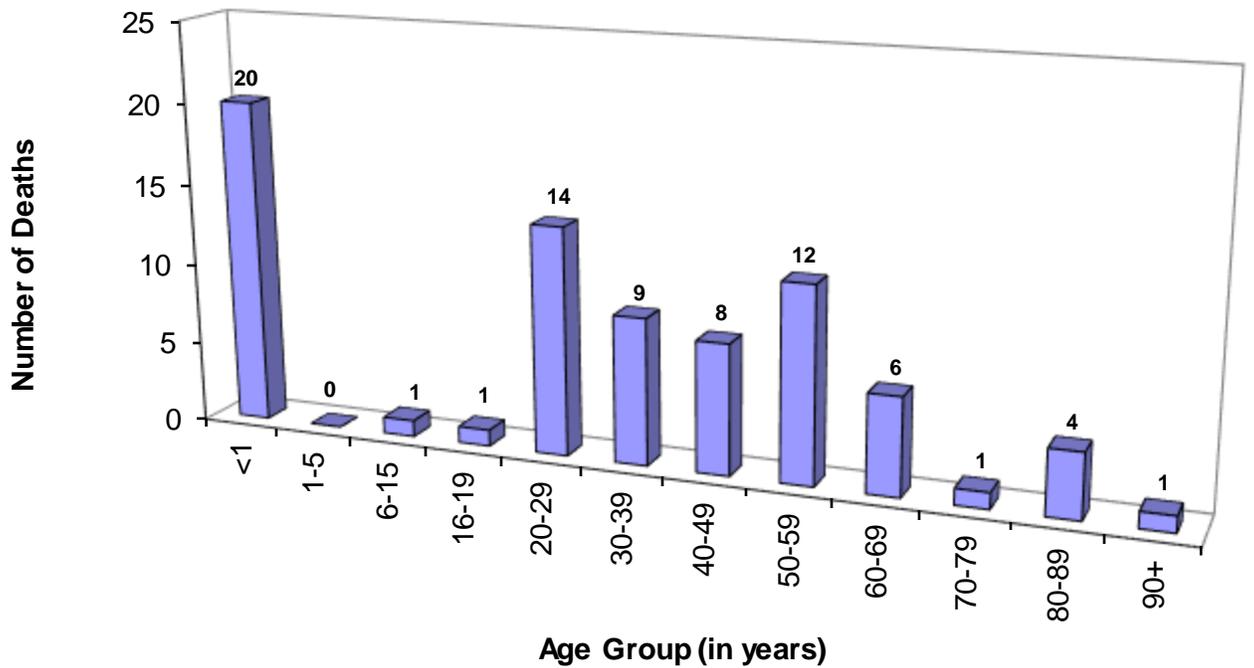
| Table 7-2 | | | | Undetermined Circumstances / Age / Gender / KCME / 2017 | | | | | | | | | | |

INJURY METHOD / GENDER	<1	1 to 5	6 to 15	16 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 +	SUB-TOTAL	TOTAL
Blunt Force	0	0	0	0	1	2	0	2	1	0	0	0		6
Male	0	0	0	0	1	1	0	1	0	0	0	0	3	
Female	0	0	0	0	0	1	0	1	1	0	0	0	3	
Burns / Fire	0	0	0	0	0	1	0	0	1	1	0	0		3
Male	0	0	0	0	0	1	0	0	0	0	0	0	1	
Female	0	0	0	0	0	0	0	0	1	1	0	0	2	
Drowning	0	0	0	0	2	1	0	1	0	0	0	0		4
Male	0	0	0	0	1	1	0	0	0	0	0	0	2	
Female	0	0	0	0	1	0	0	1	0	0	0	0	2	
Drugs / Poisons	0	0	0	0	3	2	5	4	0	0	1	0		15
Male	0	0	0	0	1	1	2	3	0	0	0	0	7	
Female	0	0	0	0	2	1	3	1	0	0	1	0	8	
Fall	0	0	0	0	4	0	1	1	0	0	1	0		7
Male	0	0	0	0	4	0	0	1	0	0	1	0	6	
Female	0	0	0	0	0	0	1	0	0	0	0	0	1	
Fetal Deaths	9	0	0	0	0	0	0	0	0	0	0	0		9
Male	4	0	0	0	0	0	0	0	0	0	0	0	4	
Female	5	0	0	0	0	0	0	0	0	0	0	0	5	
Gunshot Wound(s)	0	0	0	1	0	0	1	2	0	0	0	0		4
Male	0	0	0	1	0	0	1	1	0	0	0	0	3	
Female	0	0	0	0	0	0	0	1	0	0	0	0	1	
No anatomic or toxicological cause of death	0	0	0	0	2	1	0	0	3	0	0	0		6
Male	0	0	0	0	2	1	0	0	3	0	0	0	6	
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other	2	0	1	0	0	2	1	2	1	0	2	1		12
Male	1	0	1	0	0	1	1	1	1	0	1	0	7	
Female	1	0	0	0	0	1	0	1	0	0	1	1	5	
SUID	9	0	0	0	0	0	0	0	0	0	0	0		9
Male	5	0	0	0	0	0	0	0	0	0	0	0	5	
Female	4	0	0	0	0	0	0	0	0	0	0	0	4	
Pedestrian	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Male	0	0	0	0	2	0	0	0	0	0	0	0	2	
Female	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	20	0	1	1	14	9	8	12	6	1	4	1		77

Table 7-3   Undetermined Manner / Gender / KCME / 2017

INJURY METHOD	GENDER		TOTAL
	MALE	FEMALE	
Blunt Force	3	3	6
Burns / Fire	1	2	3
Drowning	2	2	4
Drugs / Poisons	7	8	15
Fall	6	1	7
Fetal Deaths	4	5	9
Gunshot Wound(s)	3	1	4
No Anatomic or Toxicological Cause of Death	6	0	6
Other	7	5	12
SUID	5	4	9
Traffic	2	0	2
Totals	**46**	**31**	**77**
Percent	60%	40%	100%

Table 7-4   Undetermined Manner / Blood Alcohol Results / KCME / 2017

INJURY METHOD	TESTED		NOT TESTED	TOTAL
	POSITIVE	NEGATIVE		
Blunt Force	4	1	1	6
Burns / Fire	0	2	1	3
Drowning	2	2	0	4
Drugs / Poisons	1	11	3	15
Fetal Deaths	0	8	1	9
Fall	2	3	2	7
Gunshot Wounds(s)	2	2	0	4
No Anatomic or Toxicological Cause of Death	0	3	3	6
Other	0	8	4	12
SUID	0	9	0	9
Traffic	1	0	1	2
Totals	12	49	16	77
Percent	16%	64%	20%	100%

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 2017, the Medical Examiner investigated 200 firearm deaths. As stated previously (see discussion on page 25 and 29 respectively), 69 deaths (34.5%) were homicides and 126 deaths (63%) were suicides. One firearm death was classified as accidental and four firearm deaths were classified as undetermined.

Of the 69 firearm homicide victims, over half (35/69, 51%) were between 20 and 29 years old and a significant majority (57/69, 83%) were male. A disproportionate number were African American (37/69, 54%) compared to the percentage of African Americans in the general population. Of the 126 firearm suicide victims in 2017, 20% (26/126) were between 20 and 29 years old, 89% (112/126) were white and 90% (114/126) were male.

The one accidental death occurred in a white male between the ages of 70-79 years old. Two (50%) of the undetermined deaths were in the age group of 50-59 years old and all four were male.

Table 8-1   **Firearm Deaths / Manner / Age / Gender / KCME / 2017**

AGE GROUP / GENDER	MANNER OF DEATH				SUB-TOTAL	TOTAL
	A	H	S	U		
<13 years	0	0	0	0		0
Male	0	0	0	0	0	
Female	0	0	0	0	0	
13-15 years	0	0	0	0		0
Male	0	0	0	0	0	
Female	0	0	0	0	0	
16-19 years	0	9	2	1		12
Male	0	8	2	1	11	
Female	0	1	0	0	1	
20-29 years	0	35	26	0		61
Male	0	29	22	0	51	
Female	0	6	4	0	10	
30-39 years	0	10	20	0		30
Male	0	8	18	0	26	
Female	0	2	2	0	4	
40-49 years	0	3	18	1		22
Male	0	3	15	1	19	
Female	0	0	3	0	3	
50-59 years	0	8	18	2		28
Male	0	7	16	1	24	
Female	0	1	2	1	4	
60-69 years	0	2	17	0		19
Male	0	0	17	0	17	
Female	0	2	0	0	2	
70-79 years	1	2	15	0		18
Male	1	2	14	0	17	
Female	0	0	1	0	1	
80-89 years	0	0	8	0		8
Male	0	0	8	0	8	
Female	0	0	0	0	0	
90+	0	0	2	0		2
Male	0	0	2	0	2	
Female	0	0	0	0	0	
Totals	**1**	**69**	**126**	**4**		**200**
Percent	.5%	34.5%	63%	2%		100%

Graph 8-1   **Firearm Deaths / Manner / Age Group / KCME / 2017**
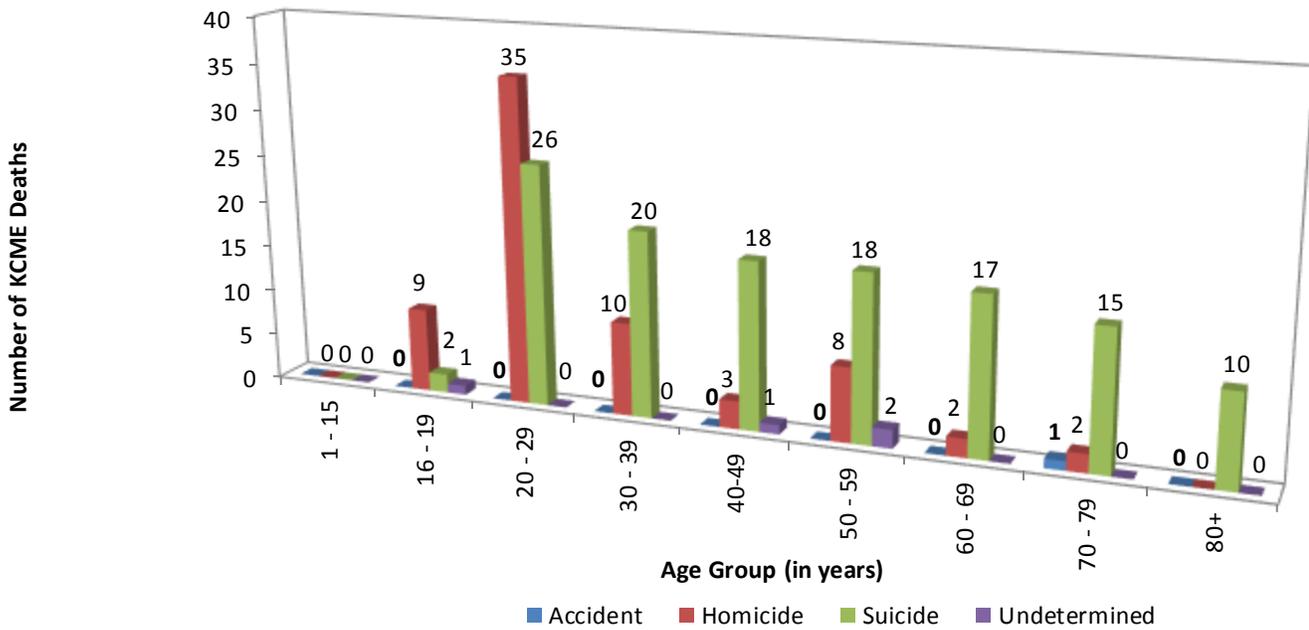
Table 8-2   **Firearm Deaths / Manner / Race / Gender / KCME / 2017**

RACE / GENDER	MANNER OF DEATH				SUB-TOTAL	TOTAL
	A	H	S	U		
Asian/Pacific Islander	0	5	8	0		13
Male	0	4	7	0	11	
Female	0	1	1	0	2	
African American	0	37	4	0		41
Male	0	31	4	0	35	
Female	0	6	0	0	6	
Am Indian / AK Native	0	4	2	0		6
Male	0	3	1	0	4	
Female	0	1	1	0	2	
White	1	21	112	3		137
Male	1	17	102	2	122	
Female	0	4	10	1	15	
Other	0	2	0	1		3
Male	0	2	0	1	3	
Female	0	0	0	0	0	
Totals	**1**	**69**	**126**	**4**		**200**
Percent	**.5%**	**34.5%**	**63%**	**2%**		100%

Causes of death in children and youth

In 2017, the King County Medical Examiner's Office investigated 91 deaths of children and youth ages 19 years or younger, which represented 4% (91/2,444) of the total deaths investigated. Of these deaths, 20% (18/91) were natural, 16% (15/91) were accidental (non-traffic), 14% (13/91) were homicides, 11% (11/91) were traffic-related, 14% (13/91) were suicides, and 24% (22/91) were classified as manner undetermined. In addition to investigating childhood deaths, the King County Medical Examiner participates in Child Death Review, a process which discusses these deaths in detail and formulates prevention strategies.

Of the 18 natural deaths of children and youth investigated by the Medical Examiner, 28% (5/18) were of infants less than one year of age. Of these 5 infants who died of natural causes, 2 were due to Sudden Infant Death Syndrome (SIDS). In addition, 11 infant deaths were classified as "Sudden Unexplained Infant Death" (SUID), manner undetermined, due to the inability to exclude if external factors contributed to death.

There were 13 homicides among children and youth. Of these 13 homicide victims, 10 were teenagers (13 - 19 years of age), and 3 were children (1 to 12 years of age.) Homicides as a result of gunshot wounds accounted for 70% (9/13) of the children and youth homicide victims.

There were 13 youth suicides, with all 13 being between the ages of 13 and 19 years. Males comprised 92% (12/13) of the victims. Regarding the methods used to commit suicide by youth, 2 were by firearm, 7 were by hanging, and 1 by traffic.

Ten children and youth (19 years and under) died in traffic-related accidents, of whom 70% (7/10) were teenagers 13 – 19 years of age. There were 3 motor vehicle driver deaths, 6 motor vehicle passenger deaths, and 1 pedestrian death. Of the 9 children and youth who died in automobiles, 2 were known to be restrained, 5 unrestrained and 2 were restraint unknown.

The following tables list the causes of death among children and youth for all manners in three age groups: less than one year, 1-12 years and 13-19 years.

Graph 9-1   Causes of Death in Children & Youth / KCME / 2017
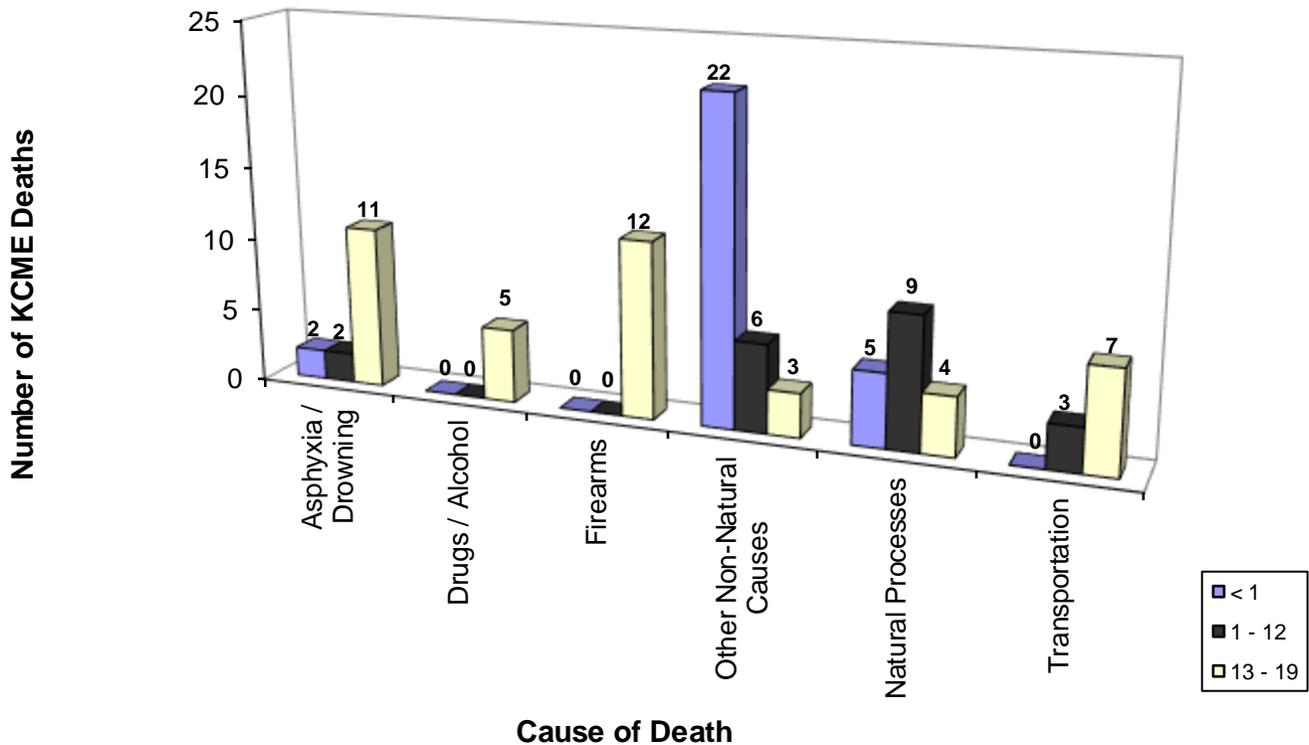
Table 9-1   Causes of Death: Children Under 1 Year of Age / KCME / 2017

CIRCUMSTANCES	MANNER OF DEATH						SUB-TOTAL	TOTAL
	A	H	S	T	U	N		
Miscellaneous	4	0	0	0	20	4		28
Asphyxia	*2*	*0*	*0*	*0*	*0*	*1*	*3*	
Drowning	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
Prematurity	*0*	*0*	*0*	*0*	*0*	*1*	*1*	
Other	*2*	*0*	*0*	*0*	*11[22]*	*0*	*13*	
SIDS	*0*	*0*	*0*	*0*	*0*	*2*	*2*	
SUID	*0*	*0*	*0*	*0*	*9*	*0*	*9*	
Other Natural Disease	0	0	0	0	0	1		1
Totals	**4**	**0**	**0**	**0**	**20**	**5**		**29**

[22] Includes 9 fetal deaths.

Table 9-2   **Causes of Death: Children 1 to 12 Years of Age / KCME / 2017**

CIRCUMSTANCES	MANNER OF DEATH						SUB-TOTAL	TOTAL
	A	H	S	T	U	N		
Asphyxia	1	0	0	0	1	0		2
Carbon Monoxide	0	0	0	0	0	0	0	
Drowning	0	0	0	0	0	0	0	
Hanging	1	0	0	0	1	0	2	
Mechanical	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	
Compressional	0	0	0	0	0	0	0	
Drugs / Alcohol	0	0	0	0	0	0		0
Physical Trauma	3	3	0	0	0	0		6
Blunt Force / Crushing	1	3	0	0	0	0	4	
Burns / Fire	2	0	0	0	0	0	2	
Firearms	0	0	0	0	0	0	0	
Jump	0	0	0	0	0	0	0	
Incised / Stab Wound(s)	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	
Transportation Related	0	0	0	3	0	0		3
Bicycle	0	0	0	0	0	0	0	
Motor Vehicle Driver	0	0	0	0	0	0	0	
Motor Vehicle Passenger	0	0	0	3	0	0	3	
Motorcycle	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	
Pedestrian	0	0	0	0	0	0	0	
Natural Disease	0	0	0	0	0	9		9
Totals	**4**	**3**	**0**	**3**	**1**	**9**		**20**

Table 9-3   **Causes of Death: Children 13 to 19 Years of Age / KCME / 2017**

CIRCUMSTANCES	MANNER OF DEATH						SUB-TOTAL	TOTAL
	A	H	S	T	U	N		
Asphyxia	4	0	7	0	0	0		11
Carbon Monoxide	0	0	0	0	0	0	0	
Drowning	4	0	0	0	0	0	4	
Hanging	0	0	7	0	0	0	6	
Smothering	0	0	0	0	0	0	0	
Positional	0	0	0	0	0	0	0	
Other	0	0	0	0	0	0	0	
Drugs / Alcohol	3	0	2	0	0	0		5
Physical Trauma	0	10	3	0	1	0		14
Blunt Force / Crushing	0	0	0	0	0	0	0	
Burns / Fire	0	0	0	0	0	0	0	
Firearms	0	9	2	0	1	0	12	
Jump	0	0	1	0	0	0	1	
Incised / Stab Wound(s)	0	1	0	0	0	0	1	
Other	0	0	0	0	0	0	0	
Transportation Related	0	0	1	7	0	0		8
Bicycle	0	0	0	0	0	0	0	
Motor Vehicle Driver	0	0	0	3	0	0	3	
Motor Vehicle Passenger	0	0	0	3	0	0	3	
Motorcycle	0	0	0	0	0	0	0	
Pedestrian	0	0	1	1	0	0	0	
Other	0	0	0	0	0	0	0	
Natural Disease	0	0	0	0	0	4		4
Totals	**7**	**10**	**13**	**7**	**1**	**4**		**42**

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 2017, the King County Medical Examiner's Office gave release for organ donation on 54 deaths that came under the office's jurisdiction. Altogether, there were 191 organs donated for transplant from the 54 cases referred to the King County Medical Examiner. The number of specific organs transplanted in 2017 is shown in Table 12-1. In addition to the living organs listed in Table 12-1 that were donated in 2017, 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, there were over 122 donors who were able to provide thousands of tissue grafts for patients in need.

Table 10-1	Organs Transplanted / KCME / 2017
ORGAN	# Transplanted
Heart	28
Intestine	0
Kidney(s	101
Liver	36
Lung(s)	21
Pancreas	5
Total	**191**

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 2017, the Medical Examiner's Office handled 14,895 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 2017, 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

- Webinar Co-Host - "The Forgotten Victims, Elder Homicide" Department of Justice, Elder Justice Initiative September 25

Publications

- Coauthor -"Elder Homicide by the Numbers" – Sheriff & Deputy (March/ April 2018)

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

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

- Snohomish County Search and Rescue training: Outdoor crime scenes. Everett WA, January 11
- Buried Body School Instructor - Sponsored by the Lewis County Coroner's Office. Chehalis, WA, April 13-14 and Aug 3-4
- Speaker: Washington Homicide Investigators Association annual conference, Silverdale WA, May 11
- Instructor: FEMA class on disaster management. Camp Murray, Tacoma WA Sept 6-7
- Speaker, Basic Homicide Investigation class. Burien, WA, Oct 4

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
  - Death Certification Improvement 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

Nicole Yarid, MD, Associate Medical Examiner

Preceptorship and Faculty Positions

- Program Co-Coordinator, University of Washington and Harborview Medical Center Forensic Neuropathology Case Conference
- Preceptor, 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 Society for Clinical Pathology
- 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

- Maloney KF, **Yarid NA**, Giffin C, Corcoran C, Blank J, Mahar T. U-47700: A Synthetic Opioid of Unknown Significance. Poster presentation. American Academy of Forensic Sciences 69th Annual Meeting, New Orleans, LA, February 16
- Asphxyial Deaths. Oral presentation. King County Medical Examiner's Office Problems in Forensic Pathology Conference, Seattle, WA, October 4 and 11.

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
    - Seattle University Biology Department - KCMEO - Seattle, WA March 30.
    - Seattle University Biology Department - KCMEO - Seattle, WA June 6.
    - Harborview HIPRC's INSIGHT Summer Research Program - KCMEO - Seattle, WA July 25

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

Educational presentations

• Role and Responsibility of the King County Medical Examiner's Office - Kennedy Highschool Anatomy & Physiology – Burien, WA February 2.

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 10-2   **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	49
Maximum ME jurisdiction cases in any one week	67
Minimum ME jurisdiction cases in any one week	34

Table 10-3   **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	37
Minimum # autopsies performed in any one week	17

Organization of the King County Medical Examiner's Office 2017

Prevention Division Director
Dennis E. Worsham

Chief Administrator
Louise E. Davis

Chief Medical Examiner
Dr. Richard Harruff, MD, PHD

Forensic Anthropologist
Kathy Taylor, PhD

Deputy Chief Administrator
Anthony Stewart

Investigations

Administration

Autopsy

Pathology

Lead Medical Investigator
James A. Sosik, Jr

Administrative Specialist III
Cassandra Montgomery

Health Program Assistants
Jean Escoz
Samantha Barbour
Kimberly Decuire

Lead Autopsy Technician
Jessica Mahowald

Associate Medical Examiners
Aldo Fusaro, DO
Micheline Lubin, MD
Brian Mazrim, MD
Timothy Williams, MD
Nikki Yarid, MD

Medical Investigators
William Barbour
David Delgado
Nick Fletcher
Jonathan Gallar
Nathan Geerdes
Stephen LaBellarte
Michael Leon-Guerrero
Jeanette McDonald
Alison Myrabo
Monty Nelson
Christine Tengelin

Autopsy Technicians
Jaime Navarro II
Barry Peterson
Zachary Porras-Foye

Technician Interns
Julie Pham
Laura-Dawn Digman

Assistant Medical Examiners
Tara Dixon MD
Rebecca Millius MD

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]

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[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.