

COUNTY OF LOS ANGELES
DEPARTMENT OF MEDICAL EXAMINER CORONER



2021 ANNUAL REPORT

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Chief Medical Examiner-Coroner

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MISSION AND VISION

MISSION

The mission of the County of Los Angeles Department of Medical Examiner-Coroner is to provide independent, quality death investigation using advanced forensic science with compassion and objectivity for families, communities, and public health and safety, working collaboratively with our partners to reduce preventable deaths.

VISION

The Los Angeles County Department of Medical Examiner-Coroner seeks to be the premier medicolegal death investigation agency, nationally recognized as a leader in the forensic science community.

HISTORY

The County of Los Angeles has had a Coroner in place since California became a state in 1850. At the time, the Coroner was an elected official who was tasked with determining the cause and manner of death in specific cases. Following the 1954 Model Postmortem Examinations Act, the Board of Supervisors amended the County Charter to require that the Coroner be a certified pathologist. They appointed the first Chief Medical Examiner-Coroner in 1957.

In 1990, the Board of Supervisors separated duties of the executive management and appointed the then acting Chief Medical Examiner-Coroner to oversee medical matters and a Director to be responsible for all other departmental functions. In 2013, the Board re-established a single Chief Medical Examiner-Coroner Department Head to lead the office.

Six years later, in November 2019, the Board approved a motion to change the name of the office to the Department of Medical Examiner; however, due to COVID-19 pandemic and an increase in cases in 2020, the name was not officially changed during 2020.

The Department occupied its first permanent location at the Old Hall of Records in 1911 and moved to the Hall of Justice in 1926, before the Department moved to its current location on North Mission Road in 1972.

JURISDICTION

California law requires the Department of Medical Examiner-Coroner to inquire into and determine the circumstances, manner, and cause of all sudden, violent, or unusual deaths, and those deaths where the decedent has not been seen by a physician 20 days prior to death. The cause of death is determined by a Deputy Medical Examiner and a death certificate is issued after the examination is completed.

DEPARTMENT DESCRIPTION

The County of Los Angeles Department of Medical Examiner-Coroner (DMEC) is an independent entity, separate from any law enforcement agency. The Department reviews deaths that occur within Los Angeles County, and are sudden, unexpected, or violent, or when the deceased has not been attended recently by a physician (California Government Code 27491). Through forensic investigation and scientific means, the Department offers unbiased determinations of cause and manner of death.

The Department is comprised of five sections, including the Operations Bureau, Forensic Medicine Division, Forensic Sciences Laboratories Division, Public Services Division, and the Administrative Services Division.

OPERATIONS BUREAU

The Operations Bureau is responsible for providing direct services of investigations and decedent services through a 24-hours-a-day, and 7-days-a-week operation. The Bureau includes two main sections: Investigations and Decedent Services.

In the Investigations Section, Coroner Investigators respond to death scenes anywhere in the County. As part of their death investigation, they will conduct a physical examination of the deceased, collect evidence and personal property, take photographs, and conduct interviews. They also are tasked with identifying the deceased and notifying the next of kin. Coroner investigators prepare investigative reports to aid the forensic pathologist in the determination of the cause and manner of death.

The Decedent Services Section is responsible for the transportation, processing, storage, and release of decedents' bodies, which includes the weighing and measuring of bodies, the collection of personal effects, and the collection of physical and medical evidence, fingerprinting and tagging of the decedent.

Additionally, the Operations Bureau oversees the Special Operations Response Team (SORT), emergency and disaster planning, homeland security grants, fleet management, and other ancillary programs, such as regional offices and the court-mandated hospital and morgue program.

FORENSIC MEDICINE DIVISION

The Forensic Medicine Division is comprised of full-time, permanent staff who are board-certified forensic pathologists. Also referred to as Deputy Medical Examiners, the forensic pathologists are responsible for the professional medical investigation and determination of the cause and manner

of each death handled by the Department. Also included in the Medical Division are Forensic Technicians, who assist doctors during autopsy, and photograph and x-ray decedents.

The physicians are experts in the evaluation of sudden, unexpected, natural deaths and unnatural deaths, such as deaths from firearms, sharp and blunt force trauma, etc. Physicians are frequently called to court to testify on cause of death and their medical findings and interpretations, particularly in homicide cases.

In addition, the Forensic Medicine Division has consultants in forensic neuropathology, odontology, anthropology, anesthesiology, pediatrics, ophthalmologic pathology, pulmonary pathology, cardiac pathology, psychiatry, psychology, and radiology to assist the deputy medical examiners in evaluating their cases.

Furthermore, the Forensic Medicine Division is one of few medical examiner offices in the nation that uses computed tomography, commonly known as a CT scanner. The instrument improves accuracy of diagnoses, improves turnaround time by conducting virtual autopsies, and minimizes operational costs. In addition to these applications, the CT scanner is utilized for cases where there is religious objection to autopsy.

FORENSIC SCIENCES LABORATORIES DIVISION

The Forensic Sciences Laboratories Division is responsible for the identification, collection, preservation, and analysis of physical and medical evidence associated with Medical Examiner-Coroner cases and includes the following units: Toxicology, Histology, Human Genomics/DNA, Scanning Electron Microscope lab (which includes gunshot residue and toolmark analysis), Field Criminalistics and Evidence Control.

The Laboratories Division conducts a comprehensive scientific investigation into the cause and manner of any death within the Medical Examiner-Coroner jurisdiction. This is accomplished through the chemical and instrumental analysis of physical and medical evidence. The goal is to provide medical examiners, families of decedents, outside investigating agencies, and the judicial system with timely, accurate, and advanced forensic analyses; and to provide expert interpretation of these analyses through testimony and deposition.

Additionally, the Forensic Sciences Laboratories Division is fully accredited by the prestigious ANSI National Accreditation Board (ANAB) in the following forensic science disciplines: Biology, Firearms and Toolmarks, Materials (Trace), Seized Drugs and Toxicology.

PUBLIC SERVICES DIVISION

The Public Services Division offers compassionate, responsive, and efficient technical decedent processing services to the affected family members, involved law enforcement, mortuaries, medical personnel, and other county departments. Staff in the division often handle sensitive functions

related to the initial, midpoint, and close-out of Medical Examiner-Coroner cases. They offer these functions with utmost professionalism and in a caring manner.

The Public Services Division also manages the Medical Examiner-Coroner case records management and safekeeping and release of decedent personal property. Moreover, the division oversees decedent billing, responds to law enforcement agency inquiries, manages civil and criminal subpoena requirements, and issues death certificates to the mortuaries.

Internal departmental support services include expeditious transcription of all dictated autopsy reports, neuropathology reports, microscopic reports and clerical support to Deputy Medical Examiners.

ADMINISTRATIVE SERVICES DIVISION

The Administrative Services Division is responsible for all departmental financial operations, departmental budget preparation, fiscal reports, personnel, payroll, procurement, accounting, revenue collection, marketing, volunteer services, contracts and grants, public records request processing, information technology, workfare programs, facilities management, and other related functions.

OTHER SERVICES PROVIDED BY DMEC

Special Operations Response Team (SORT)

Within the Operations Bureau is a specialized response unit called SORT (Special Operations Response Team). It is comprised of Medical Examiner-Coroner staff including investigators, criminalists, technicians, doctors and consultants in anthropology and entomology.

The SORT team responds to cases requiring specialized recovery and scene processing techniques, such as those required in aircraft crashes, buried bodies, hazardous materials, and fires, and assists law enforcement agencies in general searches for scattered human remains or possible burial sites. They are the primary responders for mutual aid requests and multiple fatality incidents.

Organ & Tissue Donation

The Tissue Recovery/Organ Transplantation Program provides organs, corneas and other tissue to all in need in the community through coordinated efforts with various tissue banks and hospitals. After consent is obtained, medical staff provide review of organ and tissue procurement in Medical Examiner-Coroner cases. In addition, the program makes tissue available to low-income and indigent patients at County medical facilities at no cost to the patients or hospitals.

Forensic Pathology Resident Training Program

The Department offers the opportunity for pathology residents from local university-affiliated hospitals (USC, UCLA, Cedars-Sinai, and others) to train at the DMEC facility with costs paid by the

hospitals. This program fosters positive relationships with the university hospitals' pathology departments and improves the standard of practice of forensic medicine in general, as these pathology residents will be practicing in the community when they finish training.

Youthful Drunk Driver Visitation Program (YDDVP)

Since 1989, the Department of Medical Examiner-Coroner has conducted the Youthful Drunk Driver Visitation Program (YDDVP) program, which a judicial officer can consider as an alternative sentencing option. The program is designed to present the consequences of certain behavior to the participants in a manner that is both impactful and educational.

STATISTICS AND DATA

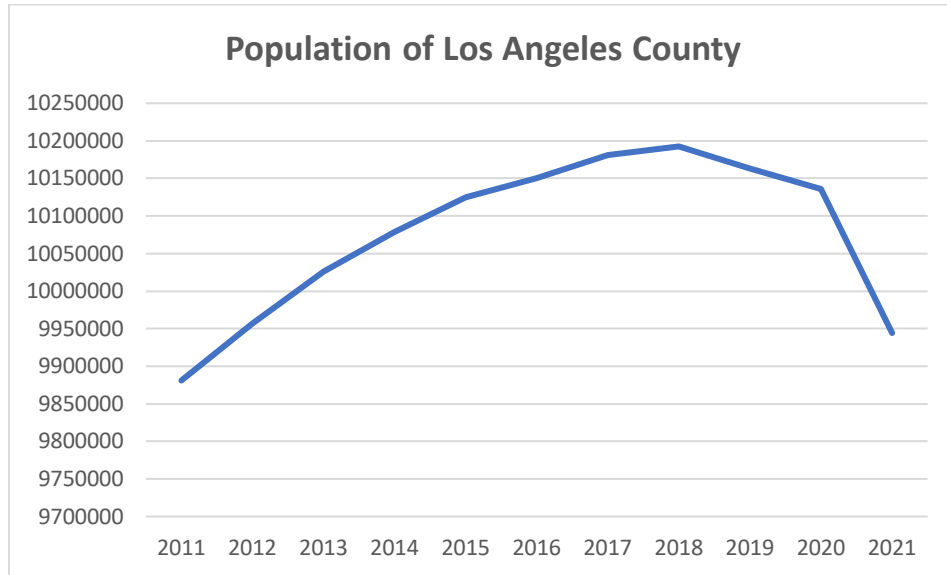
California statute mandates the Department to determine the cause and manner of death for each person that falls under the jurisdiction of the Medical Examiner-Coroner. However, another important function of the DMEC is to compile data regarding the deaths it investigates. Coupled with the right information from other agencies, it can potentially be used to reduce preventable deaths of those living in the community.

Keep in mind that this report represents investigation of only a certain subset of deaths in the county – 15.2% (12,698) of the 83,300 deaths in 2021. These are the deaths in which the Department is required to take jurisdiction and include all deaths due to non-natural causes countywide (injury, drugs/alcohol, homicides, suicides, etc.) and a relatively small proportion of natural deaths (7.4% of natural deaths in the county).

Despite the increase in deaths in the county and the increase in jurisdictional deaths for the Department compared to previous years, the proportion of all county deaths investigated by the department (15.2%) is only minimally changed from 2020 (14.3%).

Statistics Required by National Association of Medical Examiners

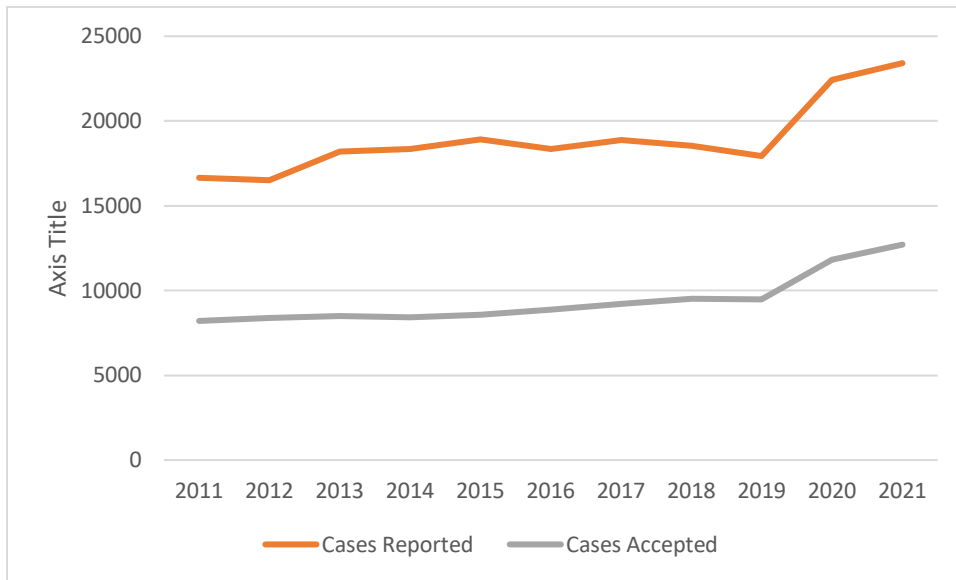
	2020	2021
Deaths Reported	22,445	23,406
Cases Accepted	11,836	12,698
Number of cases by manner of death		
Accident	4,603	5,156
Homicide	770	934
Natural	5,476	5,654
(of which COVID-19)	433	537
Suicide	866	836
Undetermined	121	118
Scene visits	6,031	7,517
Number of bodies transported	8,583	8,686
External examinations		
By physician	4,386	4,598
By investigator	3,395	4,111
Partial autopsies	136	141
Complete autopsies	3,395	3,837
Infant deaths certified	68	71
Infants autopsied	61	69
Hospital autopsies under ME jurisdiction	4	0
Cases where toxicology was performed	6,580	6,963
Bodies unidentified after examination	76	43
Organ and tissue donations	508	540
Unclaimed bodies	860	1,091
Exhumations	0	0



Year	Population
2011	9,881,070
2012	9,956,888
2013	10,025,721
2014	10,078,942
2015	10,124,800
2016	10,150,386
2017	10,181,162
2018	10,192,593
2019	10,163,139
2020	10,135,614
2021	9,944,653

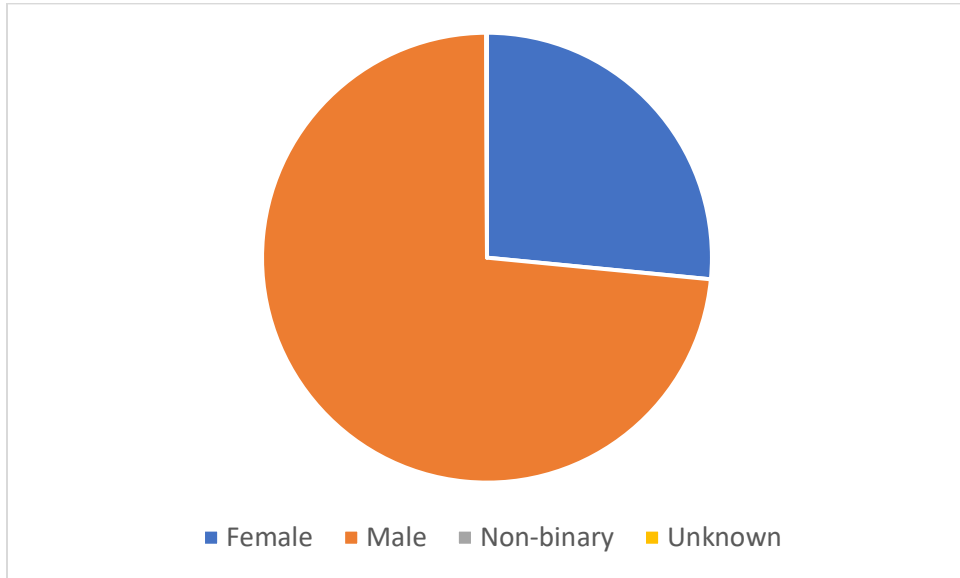
Source: California State Department of Finance

Number of Reported and Accepted Cases per Year 2011-2021



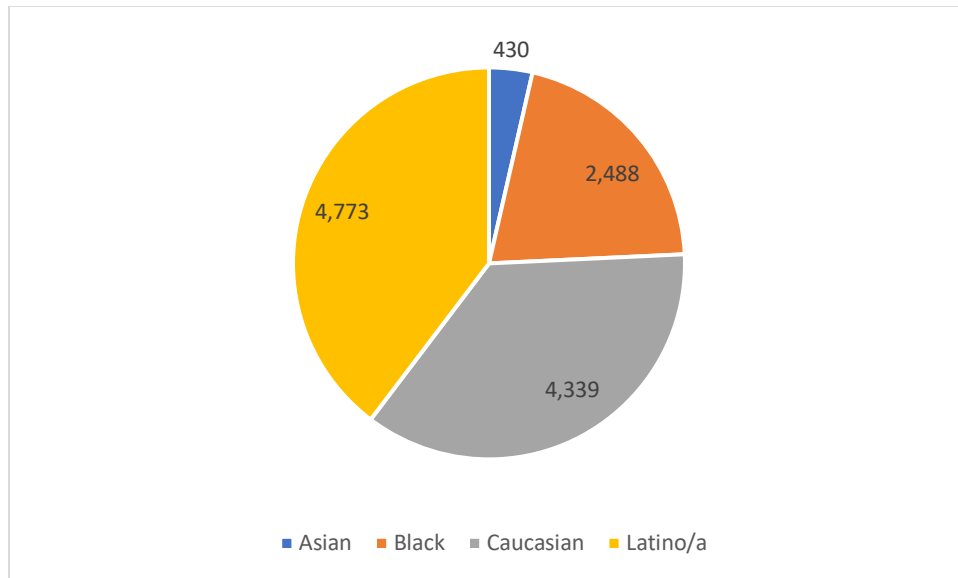
Year	Cases Reported	Cases Accepted
2011	16,668	8,207
2012	16,508	8,390
2013	18,187	8,495
2014	18,365	8,428
2015	18,913	8,578
2016	18,367	8,856
2017	18,892	9,204
2018	18,551	9,523
2019	17,940	9,489
2020	22,445	11,836
2021	23,415	12,698

Medical Examiner-Coroner Cases by Gender, 2021



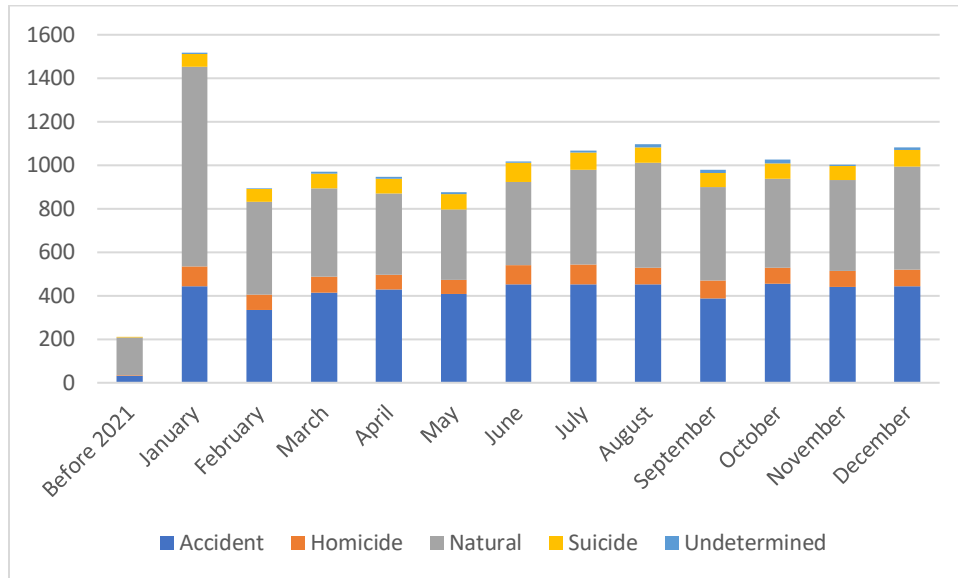
Gender	Number of Cases
Female	3,367
Male	9,326
Non-binary	2
Unknown	3
Total	12,698

Medical Examiner-Coroner's Cases by Race 2021



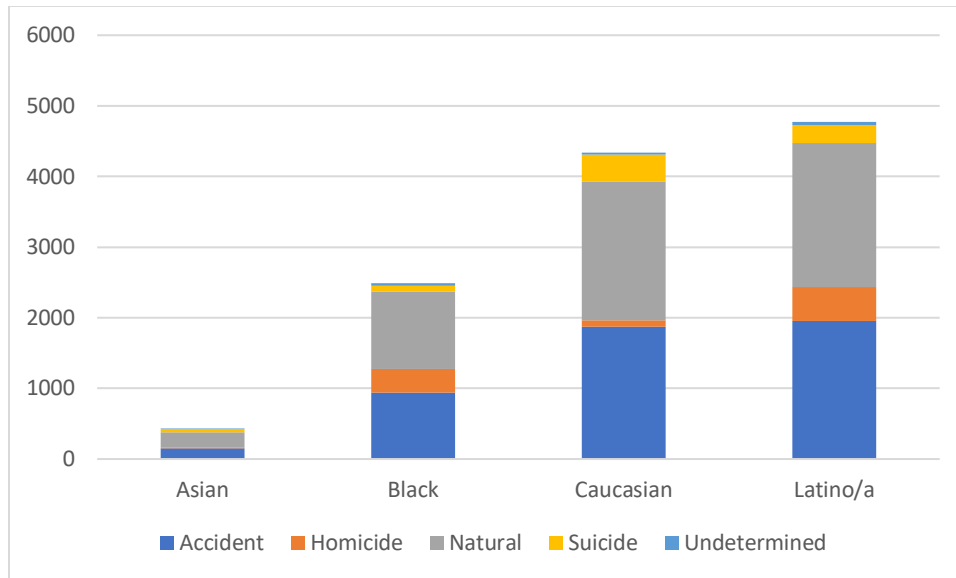
Armenian	67
Asian	430
Black	2,488
Cambodian	17
Caucasian	4,339
Chinese	80
Filipino/a	149
Guamanian	2
Hawaiian	9
Latino/a	4,773
Japanese	62
Korean	58
Middle Eastern	106
Native American	33
Pacific Islander	25
Samoan	11
Thai	4
Unknown	17
Vietnamese	28
Total	12,698

Manner of Death by Month of Death, 2021



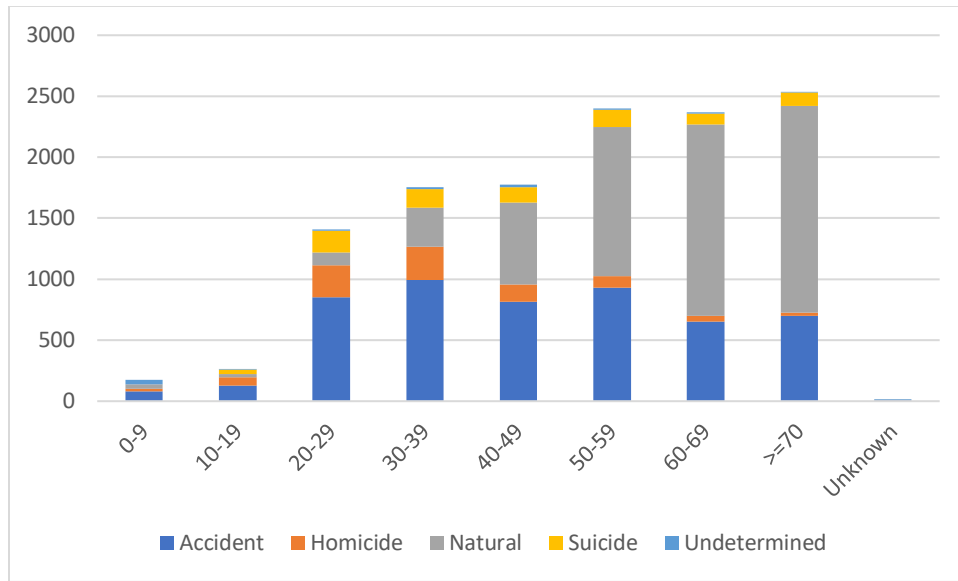
Month	Accident	Homicide	Natural	Suicide	Undetermined
Before 2021	31	3	175	1	0
January	445	89	920	57	6
February	346	70	427	58	4
March	415	73	405	69	9
April	430	67	373	68	10
May	408	66	324	69	9
June	452	88	382	89	7
July	451	92	436	79	9
August	451	78	482	72	14
September	389	82	429	64	15
October	455	75	409	71	15
November	440	73	419	64	8
December	443	78	473	75	12
Total	5156	934	5654	836	118

Race/Ethnicity Distribution for Each Manner, 2021



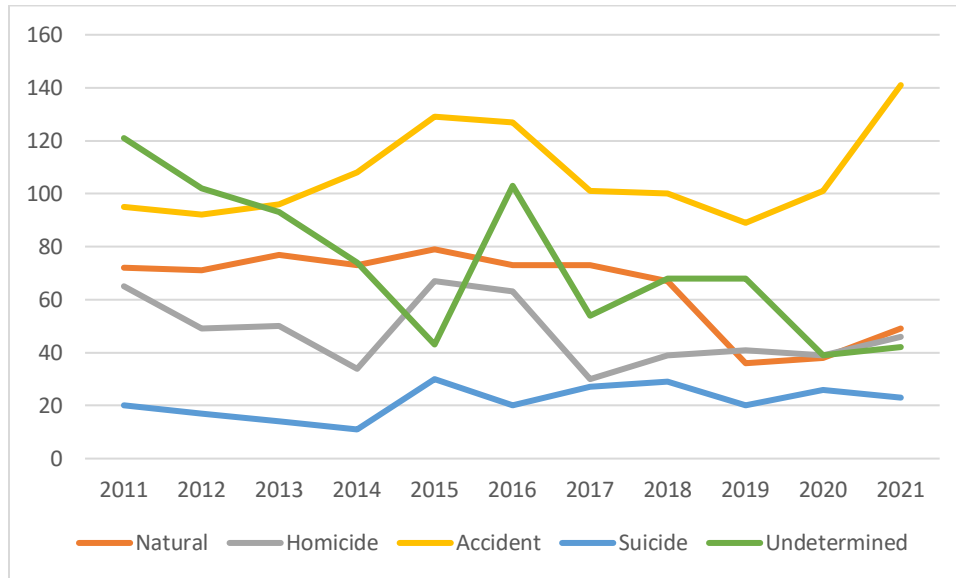
Race/Ethnicity	Accident	Homicide	Natural	Suicide	Undetermined
Armenian	38	5	19	5	0
Asian	151	7	217	52	3
Black	941	334	1097	85	31
Cambodian	6	1	8	2	0
Caucasian	1876	88	1969	374	32
Chinese	30	4	36	9	1
Filipino/a	33	3	101	9	3
Guamanian	0	0	2	0	0
Hawaiian	3	0	5	1	0
Latino/a	1958	480	2035	259	41
Japanese	14	0	43	5	0
Korean	18	0	29	11	0
Middle Eastern	52	5	34	14	1
Native American	9	1	22	1	0
Pacific Islander	9	5	8	1	2
Samoan	1	1	9	0	0
Thai	1	0	2	1	0
Unknown	8	0	5	0	4
Vietnamese	8	0	13	7	0
Total	5156	934	5654	836	118

Number of Cases by Age and Manner, 2021



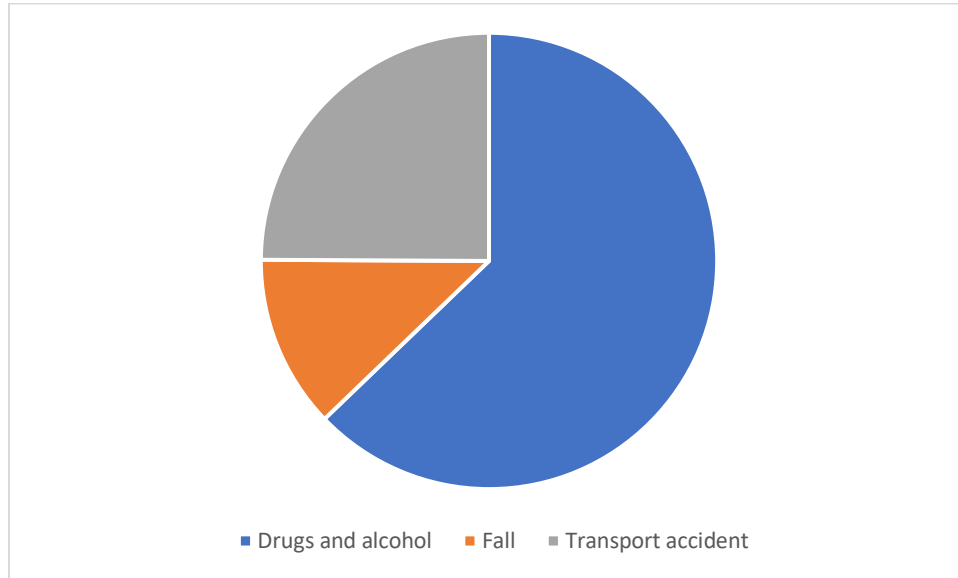
Manner/Age	0-9	10-19	20-29	30-39	40-49	50-59	60-69	>=70	Unknown
Accident	81	126	850	996	813	929	651	702	8
Homicide	19	72	264	269	146	94	48	22	0
Natural	36	24	106	324	667	1222	1572	1697	6
Suicide	0	36	176	150	130	145	89	110	0
Undetermined	40	3	10	15	19	11	8	6	6
Total	176	261	1406	1754	1775	2401	2368	2537	20

Manner for Child Deaths (Age Under 18), 2011-2021



Year	Natural	Homicide	Accident	Suicide	Undetermined
2011	72	65	95	20	121
2012	71	49	92	17	102
2013	77	50	96	14	93
2014	73	34	108	11	74
2015	79	67	129	30	43
2016	73	63	127	20	103
2017	73	30	101	27	54
2018	67	39	100	29	68
2019	36	41	89	20	68
2020	38	39	101	26	39
2021	49	46	141	23	42

Accidental Deaths 2021



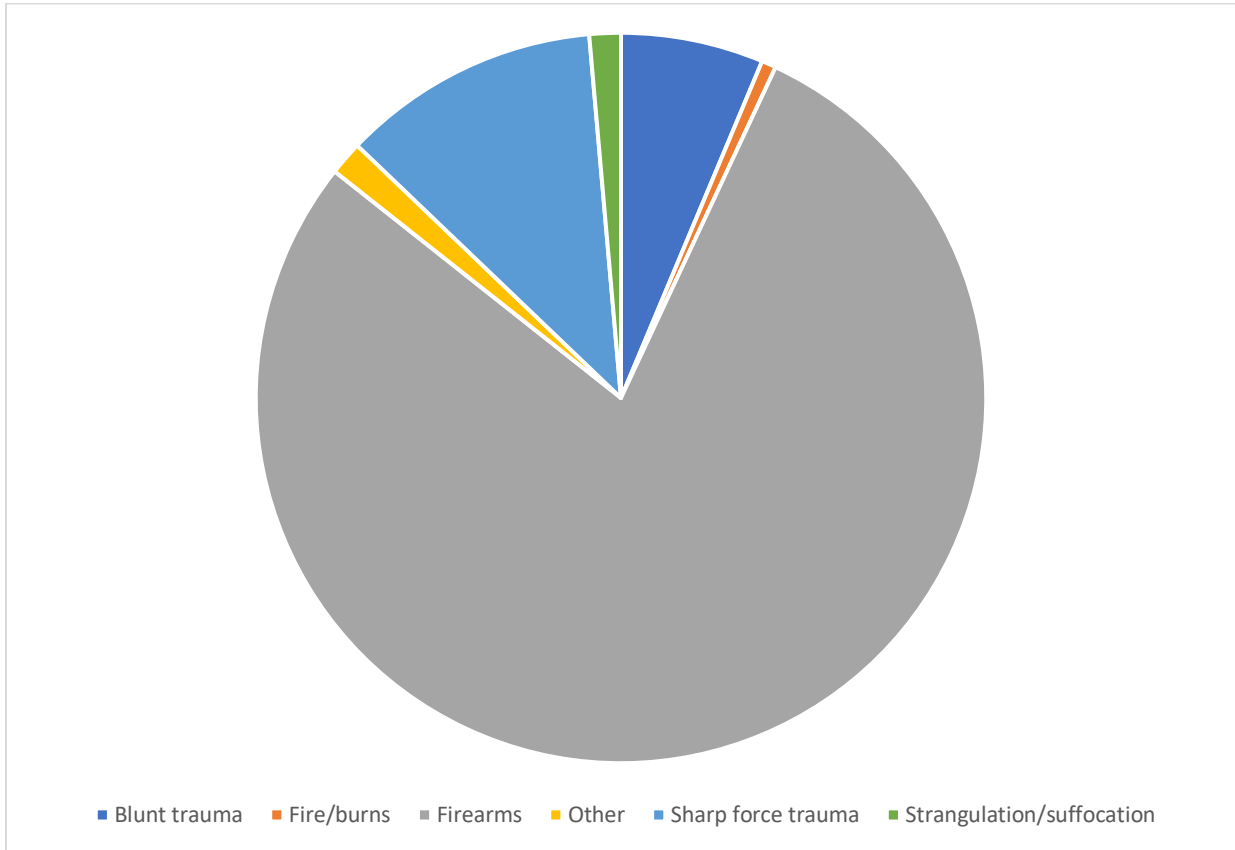
Note: Percentages rounded to nearest whole number

Type of Accidental Death	Number of Cases	Percent
Carbon monoxide/other gas inhalation	12	<1%
Choking and asphyxia	65	1%
Crushed or struck by objects	9	<1%
Drowning/scuba	82	2%
Drugs and alcohol	3058	59%
Electrocution	9	<1%
Fall	597	12%
Fire/burns	60	1%
Firearm injuries	4	<1%
Hyperthermia/hypothermia	22	<1%
Other	8	<1%
Therapeutic misadventure	17	<1%
Transport accident	1213	24%
Total	5156	

Transportation Accidents, 2021

Type of Transportation Accident	Number of Cases
Air transport accidents	1
Motorcyclists	181
Other transport accidents	87
Pedal cyclists	21
Pedestrians	451
Auto/truck/van occupants	473
Water transport accidents	1
Total	1215

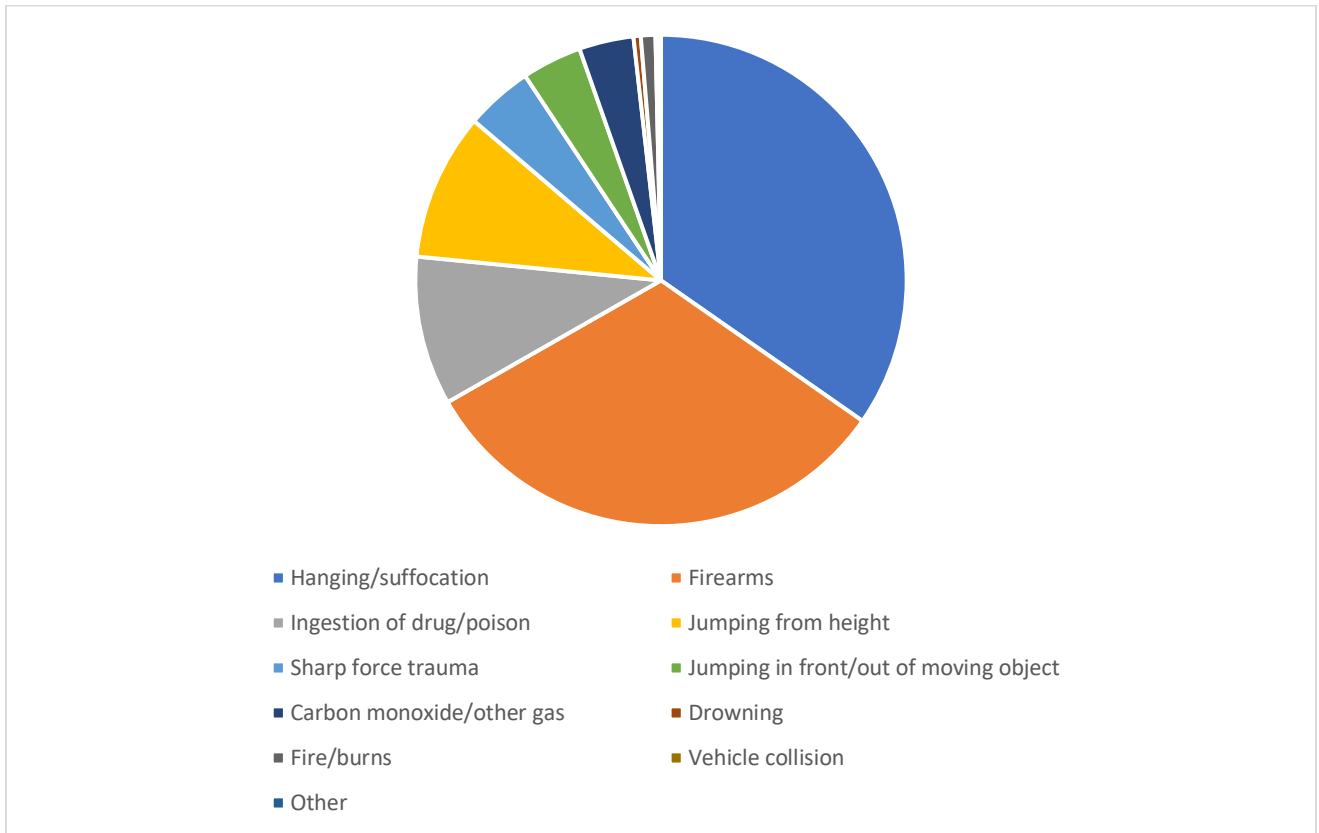
Homicidal Deaths, 2021



Note: Percentages rounded to nearest whole number

Type of Homicide Death	Number of Cases	Percent
Blunt trauma	59	6%
Fire/burns	6	1%
Firearms	735	79%
Other	14	1%
Sharp force trauma	107	11%
Strangulation/suffocation	13	1%
Total	934	

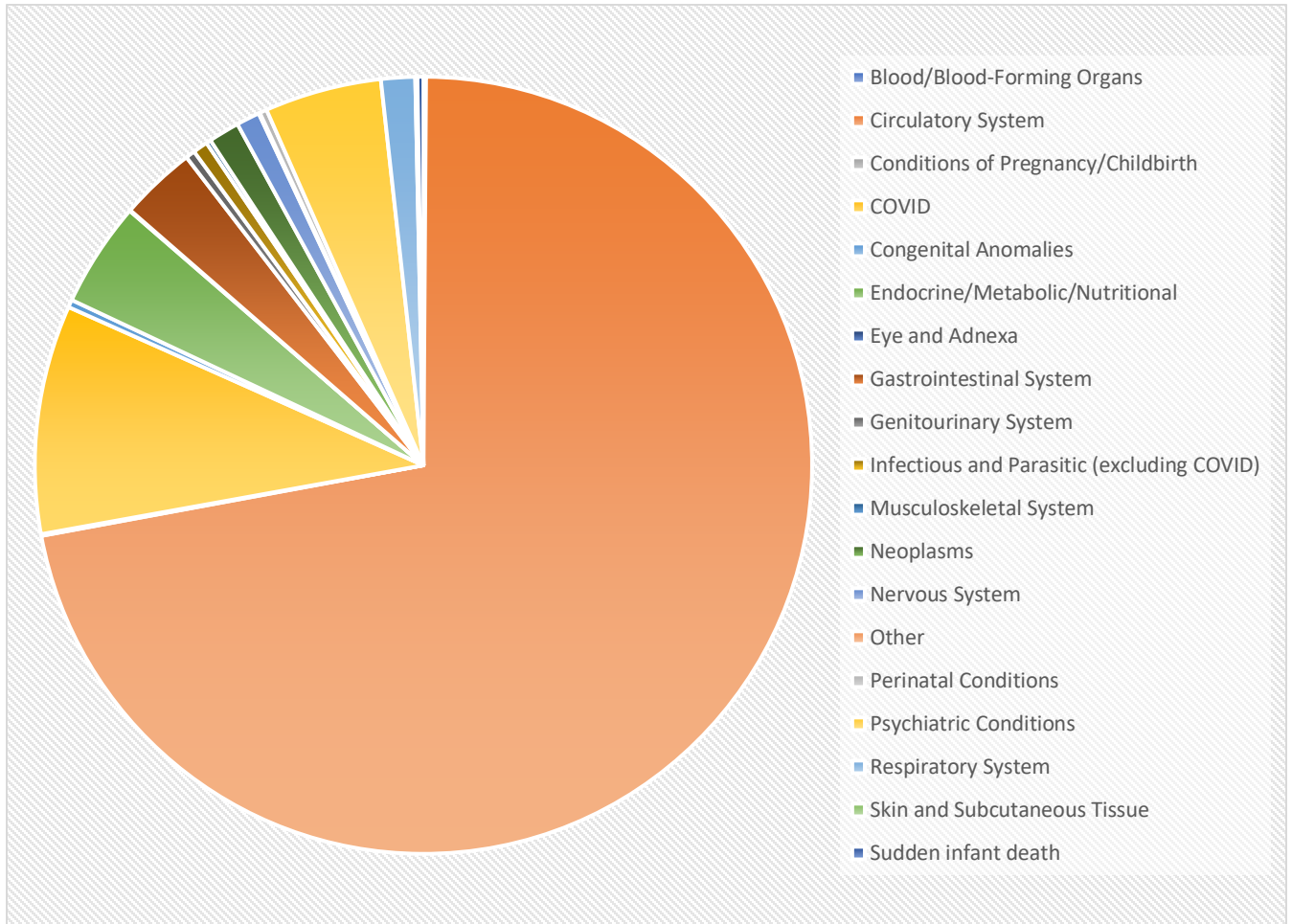
Suicidal Deaths, 2021



Note: Percentages rounded to nearest whole number

Type of Suicidal Death	Number of Cases	Percent
Hanging/suffocation	290	35%
Firearms	268	32%
Ingestion of drug/poison	82	10%
Jumping from height	81	10%
Sharp force trauma	37	4%
Jumping in front/out of moving object	33	4%
Carbon monoxide/other gas	30	4%
Drowning	4	<1%
Fire/burns	8	1%
Vehicle collision	2	<1%
Other	1	<1%
Total	836	

Natural Deaths, 2021



Note: Percentages rounded to nearest whole number
(Data on next page)

Natural Deaths (continued)

	Number of Cases	Percent
Blood/Blood-Forming Organs	6	<1%
Circulatory System	4070	72%
Conditions of Pregnancy/Childbirth	4	<1%
COVID	538	10%
Congenital Anomalies	18	<1%
Endocrine/Metabolic/Nutritional	247	4%
Eye and Adnexa	2	<1%
Gastrointestinal System	179	3%
Genitourinary System	22	<1%
Infectious and Parasitic (excluding COVID)	35	<1%
Musculoskeletal System	11	<1%
Neoplasms	73	1%
Nervous System	55	<1%
Other	3	<1%
Perinatal Conditions	17	<1%
Psychiatric Conditions	275	5%
Respiratory System	80	1%
Skin and Subcutaneous Tissue	5	<1%
Sudden infant death	14	<1%
Total	5654	

Mentions of Drugs in Cause of Death

	2019	2020	2021
Methamphetamine	867	1429	1296
Fentanyl	453	1135	1331
Cocaine	375	511	425
Alcohol*	255	369	786
Heroin	297	366	308

*Excludes mention of specific alcohols, such as ethanol, methanol, and isopropanol

Presentations 2021

Guan, J.J. Postmortem Computed Tomography Findings in Scuba Deaths Due to Arterial Gas Embolism. Poster presented at National Association of Medical Examiners Conference, West Palm Beach FL, October 2021.

Salfati, E., Spencer, E., Topol, S., Rueda, M., Muse, E., Lucas, J., Wagner, G., Campman, S., Topol, E., Torkamani, A. Hybrid Capture Panel Targeting Coding and Non-coding Regions Associated with Sudden Cardiac Death Enables Faster Diagnosis of Sudden Unexplained Death in the Young. Poster presented at National Association of Medical Examiners Conference, West Palm Beach FL, October 2021.

Publications 2021

Hunt, B., Rogers, C., Blais, R. M., Adachi, K., Sathyavagiswaran, L. Paenibacillus sepsis and meningitis in a premature infant: A case report. *Am J Forensic Med Pathol.* 2021;42:96-98.

Schellenberg, M., Hunt B.L., Owattanapanich, N., Jakob, D., Lucas, J.R., Benjamin, E.R., Lewis, M., Inaba, K., Demetriades, D. Hangings: Lessons Learned from the Coroner's Office. *J Surg Res.* 2021;264:158-162.

Kelley, M.A., Lucas, J., Stewart, E., Goldman, D., Doctor, J.N. Opioid-related deaths before and after COVID-19 stay-at-home orders in Los Angeles County. *Drug Alcohol Depend.* 2021 Nov 1;228.

Anaya, Y., Yew, P, Roberts, K.A., Hardy, W.R., DNA methylation of decedent blood samples to estimate the chronological age of human remains. *International Journal of Legal Medicine* (2021) 135:2163–2173.

Welsz, A., Roberts, K.A., Hardy, W.R., Reliability of phenotype estimation and extended classification of ancestry using decedent samples. *International Journal of Legal Medicine* (2021) 135:2221–2233.