

County of San Diego

Department of the Medical Examiner



2015 Annual Report

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Chief Medical Examiner

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
OVERVIEW AND INTRODUCTION	5
DEDICATION, MISSION, AND VISION	7
POPULATION AND GEOGRAPHY OF SAN DIEGO COUNTY	9
DEATHS WE INVESTIGATE	11
HISTORY	13
ORGANIZATIONAL CHART	15
MEDICAL EXAMINER FACILITY	17
HOURS AND LOCATION.....	19
ACTIVITIES OF THE MEDICAL EXAMINER	21
INVESTIGATIONS.....	23
AUTOPSIES	25
EXAMINATION ROOM.....	27
PATHOLOGY	29
TOXICOLOGY LABORATORY REVIEW	31
Major Achievements	31
Workload Data for 2015 in Comparison to Previous Years.....	32
Number of Cases.....	32
Average Turnaround Time	33
Publications	33
DEATH CERTIFICATION.....	35
BEREAVEMENT CENTER	37
CASE REPORT REQUESTS AND DATA SHARING	39
DEATH REVIEW TEAMS	41
FORENSIC PATHOLOGY FELLOWSHIP	45
TEACHING AND RESEARCH	47
JOHN/JANE DOE CENTER	49
ABANDONED BODIES	51
LEGAL TESTIMONY	53
ORGAN AND TISSUE DONATION.....	55
PREPAREDNESS AT THE MEDICAL EXAMINER DEPARTMENT.....	57

2015 DATA SECTION	59
OVERVIEW OF ALL CASES.....	61
All Deaths Reported to M.E, 2015.....	61
Manners of Death, 2015	62
Manner of Death by Year, 2000 – 2015	62
Manner of Death by Month: 2015	63
Age Distribution of Decedents, 2015	63
Number of Decedents by Age and Sex, 2015.....	64
Rate per 100,000 of Investigations by Age and Sex, 2015	64
Number and Rate of Deaths by Race/Ethnicity, 2015.....	65
Rates of Manner by Race/Ethnicity, 2015.....	65
HOMICIDE	67
Homicide Count and Rate by Year, 1988 - 2015	67
Homicide Rate per 100,000 Compared to National And State Rates	68
Homicide Methods: 2015.....	68
Number and Rate of Homicide Victims by Age and Gender, 2015	69
Homicide Method by Year: 1988 - 2015	69
Toxicology Results - Percent of Homicide: 2015	70
Homicide Rate per 100,000 by Subregional Area, 2006 - 2015	71
MOTOR VEHICLE FATALITIES	73
Motor Vehicle Related Fatalities: 1988 - 2015.....	73
Motor Vehicle Related Fatalities by Victim Type: 2015	73
Traffic-Related Fatalities by Year, 1988 - 2015	74
Traffic-Related Fatality Rate by Year, 1988 - 2015.....	75
Alcohol Toxicology by Motor Vehicle Victim Type: 2015.....	75
Motor vehicle Related Death Rates by Subregional Area, 2006 – 2015	76
Motor Vehicle Occupant Death Rates by Subregional Area, 2006 – 2015	77
Number of Motor Vehicle Occupants Deaths by Age and Sex, 2015.....	78
Rate of Motor Vehicle Occupants Deaths by Age and Sex, 2015.....	78
Seat Belt Use: Motor Vehicle Occupants, 2015	79
Unintentional Motorcyclist Deaths by Age and Gender, 2015	79
Helmet Use: Unintentional Motorcyclist Fatalities, 2015	79
Motorcycle Deaths by Subregional Area, 2006 – 2015.....	80
Pedalcyclist Deaths by Age and Gender, 2015.....	81
Unintentional Pedestrian Deaths by Age and Gender, 2015	81
Pedestrian Deaths per 100,000 by Subregional Area, 2006 – 2015.....	82
UNINTENTIONAL DEATHS DUE TO MEDICATIONS, ALCOHOL, AND ILLICIT DRUGS	83
Number of Unintentional Drug/Alcohol Related Deaths, 2000 – 2015	85
Number of Deaths of Selected Substances, 2000 – 2015	85
Number of Drug/Med/Alcohol Deaths by Age and Gender, 2015.....	86
Rates of Drug/Med/Alcohol Deaths by Age and Gender, 2015	86

Unintentional Illicit Drug Deaths, 2000 – 2015	87
Unintentional Deaths due to Drug/Medication Type, 2000 – 2015.....	87
Unintentional Deaths - Selected Drugs & Medications, 2000 – 2015.....	88
Unintentional Deaths, Top 25 DrugS/MedicationS by Age, 2015	88
Novel Psychoactive Substance-Related Deaths, 2011 - 2015	89
2015 Unintentional Drug/Med/Alcohol Deaths by Combination	89
Unintentional Deaths due to Opiates and Benzodiazepines, 2000 - 2015	90
Relative Frequency of Substances in Cause of Death by age, 2015.....	91
Relative Frequency of Substances in Cause of Death by age, five year Cumulative, 2011-2015	91
Drug/Medication Related Death Rates by Subregional Area: 2006 – 2015.....	92
UNINTENTIONAL DEATHS, OTHERS	93
Other Accidental Manners of Death, 2015	93
Other Mechanisms of Accidental Death: Mechanism by Age Group, 2015.....	93
SUICIDES.....	95
Suicides by year: 1988 – 2015	95
Suicide Rates by Year: County, State, and National Comparison.....	96
Suicide Method by Year: 1988 - 2015	97
Number of Suicides Investigated by Age and Gender, 2015.....	98
Suicide Rates by Age and Gender, 2015.....	98
Suicide Numbers and Rates by Ethnicity, 2015.....	99
Suicide Methods by Gender, 2015	99
Suicide Deaths by Age, Gender, and Method, 2015	100
Homicide/Suicide Events, 1988 – 2015.....	100
Suicide Rate per 100,000 by Subregional Area, 2006 – 2015	101
NATURAL DEATHS	103
Deaths Due to Natural Causes by Age and Sex and Total Rate, 2015.....	103
Deaths from Natural Causes by Type, 2015	104
HOMELESS.....	105
Deaths in the Homeless by Age and Sex, 2015	105
Deaths in the Homeless, 2015.....	105
Deaths in the Homeless by Age and Year, 2000 - 2015	106
Deaths in the Homeless by Method and Year, 2000 - 2015.....	106
PEDIATRIC DEATHS & SIDS.....	107
Pediatric Deaths by Age and Manner of Death, 2015.....	107
Accidental Deaths Age 0 to 13 by Mechanism, 2015.....	108
Pediatric Deaths by Year and Manner, 2001 – 2015.....	108
SIDS Deaths by Year, 2000 – 2015.....	109
SIDS Death Rates by Regional Area, 2000 – 2015	109
SIDS Death Rates by Subregional Area, 2000 – 2015	110
M.E. Investigated Infant Deaths by Regional Area, 2000 – 2015.....	111
M.E. Investigated Infant Deaths by Subregional Area, 2000 – 2015.....	112

FALL-RELATED DEATHS	113
Deaths from Falls by Age and Sex, 2015	113
Fall-Related Death Rate by Age and Sex, 2015	113
Fall-Related Death Rates by Subregional Area, 2006 – 2015	114
Fall-Related Death Rates by Year and Age, 2010 – 2015	115
FIREARM RELATED DEATHS	117
Weapon Type by Manner (All Manners), 2015	117
Weapon Type by Gender (All Manners), 2015	117
Suicide Weapon Type by Gender, 2015	118
Suicide Weapon Type by Age Range, 2015	118
All Firearm Deaths by Manner, 1988 – 2015	119
Relative Proportions of Firearm Deaths by Manner, 1988-2015	119
ACKNOWLEDGEMENTS	121

EXECUTIVE SUMMARY

Welcome to the 2015 San Diego County Medical Examiner's Office Annual Report. The statistics and scope of activity covered here reflect ever-changing patterns of disease and trauma in public health and safety within our community. The work of the Medical Examiner's Office is largely based on Government Code 27491, which states that all unnatural deaths including homicides, suicides, accidents, and deaths in custody are, by definition, coroner/medical examiner cases. Also falling under our jurisdiction are infectious diseases reaching epidemic proportions, deaths in state or local institutions, and deaths believed to be natural but that occurred suddenly and unexpectedly where the decedent had not seen their health care provider in the last 20 days of life.

With San Diego County's land area of 4,261 square miles, 86 miles of border, 70 miles of coastline, and a diverse geography including deserts, mountains, forests, mesas and coastal areas, and an equally diverse population of more than 3.2 million residents and 19,000-21,000 deaths recorded each year, the Medical Examiner's Office investigates some 8,700 cases annually, or approximately 725 cases/month.

Not all of those cases are brought to the department's 45,000-square-foot facility at the County Operations Center in Kearny Mesa. Approximately 5,700 cases reported and investigated by the Medical Examiner's Office each year are ultimately waived as sudden, unexpected natural deaths. In these cases, the decedent's healthcare provider will sign the death certificate.

Some 3,000 cases are brought to the facility each year for further evaluation. This annual breakdown has been relatively constant. Of the 2,996 cases for which we took jurisdiction in 2015, 46 percent were determined to be accidents (such as prescription drug, motor vehicle and industrial/agriculture-related or home-based), another 34 percent represented natural deaths (such as heart attacks, cancer, diabetes mellitus, strokes, or liver and kidney failure), 14 percent were suicides, four percent were homicides and two percent were of undetermined causes. These percentages are very similar to those in 2014 and prior years.

Unintentional drug, medication, and alcohol deaths continued to represent a regional issue in 2015. In general, prescription medications can kill when either taken in excess, or when taken appropriately but in combination with other, similar acting medications. Prescription-related death numbers have been relatively flat or declining slightly over the last few years after a multiyear climb that peaked in 2011/2012 ¹. Two-thirds of unintentional medication-related fatalities were due to a mixture of more than one medication, with opiates and/or

¹ Sparklines (small graphs presented in line with text) represent previous 10 years of data (2006-2015). High and low years are marked in red. Each is linked to its corresponding complete graph in the Data section.

benzodiazepines accounting for 91 percent of medication-related deaths. In half of the deaths attributed to opiates, the decedent also had taken a benzodiazepine. The relationship between these two classes of substances is examined more closely in this report. These numbers emphasize the fact that while opiates are the major component in the prescription abuse/overuse issue, they are only part of the story, and often have other mediations present with additive adverse effects. Opiates account for 65 percent of unintentional overdose deaths due to a single medication. Heroin took 90 lives in 2015, down from 105 the previous year but still part of the general 10 year upward trend . About a third of heroin deaths were combined with a benzodiazepine, and almost half were combined with methamphetamine. Heroin was the most frequent substance causing death in 20-29 year olds in 2015 as well as over the last five years.

After a drop in 2014, we saw another increase in methamphetamine-related deaths in 2015 , confirmation that methamphetamine continues to pose a major problem throughout the region. It remains the first or second most common substance responsible for unintentional deaths due to intoxication. Most (61 percent) methamphetamine fatalities had no other substance present, and of those people with only methamphetamine in their blood, three-quarters had pre-existing cardiovascular disease. This stands to reason as those with cardiac disease have a lower threshold for sudden cardiac death when using an illegal stimulant like methamphetamine. For those using another substance with methamphetamine, 40 percent used heroin, and interestingly, five of the seven fentanyl analogue related deaths also had methamphetamine present. These novel psychoactive substances are examined in more detail in the data section.

Suicides  increased very slightly from 2014 to 2015 (420 to 427), still staying below the peak in 2013. When adjusted for population, elderly men have historically had the highest rate of suicide, and this pattern continued in 2015. Men commit suicide at an approximately four times higher rate than women. Similar methods are used between the genders, but where men prefer firearms, women prefer intoxication.

Last year saw another increase in motor vehicle-related fatalities, with a total of 302, compared to 291 the year before . Pedestrian fatalities remained flat after a sharp increase the previous year . Information regarding motorcyclists and bicyclists as well as toxicological data are provided in the data section.

Largely based on its geographic position and diverse population, the Medical Examiner's Office investigates the deaths of some 200-300 unidentified people, or John and Jane Does, representing a population composed of undocumented immigrants, homeless, and individuals living under an alias, or those simply dying without identification. Using photographs, fingerprints, dental records, general X-ray comparison, personal effects, and DNA testing, the nationally acclaimed John/Jane Doe Center identifies approximately 97 percent of these John and

Jane Does. The Medical Examiner's Bereavement Center, also nationally acclaimed, brings together a large number of community resources to assist the families of decedents in cases handled by the Medical Examiner's Office.

It is the intent of the Medical Examiner's Office to be more than the "County Morgue," by developing as much information on every case as resources permit and studying those cases in cohorts that reflect or are likely to reflect changing patterns important to public health and safety as well as risk factors for premature deaths. Current areas of study include child fatalities and SIDS, elder abuse, domestic violence, prescription drug abuse, repetitive brain injuries, sudden unexpected death associated with epilepsy, schizophrenia and bipolar disorders, Alzheimer's dementia, autism, and suicides.

The Medical Examiner's Office is a popular rotation among medical students, including those studying allopathic (MD) and osteopathic (DO) medical degrees locally and throughout the U.S. The rotation provides a strong clinicopathological correlation for their clinical studies and is frequently cited as one of the most sought-after and educational rotations. The department also continues to train pathology residents from UC San Diego School of Medicine and Naval Medical Center San Diego (Balboa Hospital), as well as forensic pathology fellows in our Accreditation Council for Graduate Medical Education (ACGME) accredited program.

Research efforts continue to grow with staff-written publications in the areas of toxicology, SIDS and child fatalities. The Medical Examiner's Office is also currently engaged with Scripps Translational Science Institute in a multiyear study of molecular forensics exploring the genetic markers of sudden unexpected cardiovascular deaths. With family consent, we have been enrolling those individuals who die suddenly and unexpectedly without a clear cause of death. We feel this is the next frontier in the postmortem setting, having not only the ability to identify plausible genetic causes of death, but to also provide information that can alert surviving relatives to potential risks in their family.

The dead do have a story to tell – not only of death but of life – and we, the living, have an obligation to listen to that story and perhaps, just perhaps, learn something about ourselves and our community.

Glenn N. Wagner, D.O.
Chief Medical Examiner

OVERVIEW AND INTRODUCTION

This Annual Report is a summary of the activities of the San Diego County Medical Examiner for the calendar year 2015. It is designed to provide an overview of victim characteristics, frequency, cause and location of deaths in the county, using graphs, charts, maps, and tables. In addition, we highlight some of the many activities we participate in to give back to the community and to keep other stakeholders informed. A goal of this report is to describe in detail many aspects of our mandated day-to-day activities in order to shed some light on what is often misunderstood and shrouded in misperception: the functions and responsibilities of the San Diego County Medical Examiner.

The report is divided into three major sections:

1. **Introduction and overview,**
2. The **activities** of the Medical Examiner's Office, and
3. The **data** describing the types of deaths investigated by the Medical Examiner in San Diego County.

DEDICATION, MISSION, AND VISION

DEDICATION

Although this report deals with aggregate numbers and statistics, we acknowledge that every case represents an individual's death, mourned by family and loved ones. This report and the work that is summarized are dedicated to those we serve: to the persons, living and deceased, who have passed through our doors, to their families, and to the people of the County of San Diego.

MISSION

Our mission is to promote safe and livable communities by certifying the cause and manner of death for all homicides, suicides, accidents and sudden/unexpected natural deaths in San Diego County. In addition, our mission is to provide related forensic services, assistance and education to families of the deceased, as well as to public and private agencies, in a professional and timely manner.

VISION

We are committed to working as a team to meet the needs and expectations of our customers by fulfilling our mandated mission in a professional, compassionate, ethical, and timely manner.

POPULATION AND GEOGRAPHY OF SAN DIEGO COUNTY



The County of San Diego is the fifth most populous county in the United States and the second most populous in California with a population greater than 20 of the 50 states. We have one percent of the national population and eight percent of the State population. The total population of the county is currently estimated to be 3,227,496. Nearly half of the more than three million people who live in the county reside within the city of San Diego, with the remainder in smaller cities and towns, reservations, or unincorporated areas. Most of the urban regions are concentrated along the coast and freeway corridors, while there are many rural areas and large expanses of undeveloped open terrain in the eastern portions of the county.

San Diego County is unique in its geographic diversity. Our 4,261 square miles include 75 miles of coastline and 86 miles of the U.S.-Mexico international border. The county includes impressively diverse features such as forested mountains, deserts, beaches, bays, wetlands, rivers, lakes, canyons, and mesas. These natural features are an important part of understanding the variety and range of sudden and unexpected deaths in our community.

With such variety, the county has numerous microclimates. As a whole, we have an average annual high temperature of 70°F, and average daily temperature of 64°F. While coastal areas have one of the mildest climates in the continental United States, inland areas experience more variety: in the summer, some areas may experience temperatures above 100°F, or, the winter may have temperatures falling well below freezing.

The San Diego County Medical Examiner deals with many deaths of the types expected in any jurisdiction with a large urban and rural population, such as those from motor vehicle accidents, natural causes, alcohol or drug-related causes, or homicidal violence. In addition, the great

variety of terrain, microclimates, and geography result in an even wider range of cases seen at our office, including deaths from exposure to hot and cold environmental conditions. San Diego County has a large homeless population; the deaths of these individuals are often linked to drug or alcohol use violence, or untreated natural disease. So, deaths of homeless people play a significant role in the numbers of cases this seen by this office.

Temperature extremes, in combination with the rugged terrain of many inland areas, are strongly tied to the deaths of undocumented persons crossing the U.S.-Mexico Border. Elevated temperatures may lead to dehydration or hyperthermia; low temperatures may lead to hypothermia; and in any season, the terrain may lead to exhaustion, getting lost, or death from exacerbation of their existing natural disease. Proximity to the international border also increases the numbers of case investigations as people injured or ill in Mexico are sometimes transferred to hospitals in the U.S. where they nevertheless die.

Drownings can occur in our oceans, lakes, or rivers, as well as swimming pools. In addition to swimmers, drownings may involve scuba divers, people trapped in flooding waters, or those involved in boating accidents. Because of our thriving seaport, the Medical Examiner may also have jurisdiction on deaths occurring on a boat or ship at sea when it makes San Diego its first port-of-call. Deaths involving attacks by marine life do occur (i.e. sharks), but are extremely rare, averaging less than one every 20 years.

Deaths due to falls most commonly occur from injuries in the home, but may occur in urban areas from buildings, in the workplace, from our local bridges, or from mountain and beach cliffs. Cliff collapses have contributed to other deaths as well.

The variety presented by our unique environment is ever-growing and always challenging. The size of our jurisdiction, and its numerous remote areas, can be an obstacle for responding to a death scene and retrieving remains, much less providing a thorough death investigation. Nonetheless, your San Diego Medical Examiner's Office rises to that challenge.

DEATHS WE INVESTIGATE

Under California law the Medical Examiner is both required and empowered to determine the cause and circumstance (manner) of certain deaths. For additional details, see [Government Code Section 27491](#) and the [Health and Safety Code 102850](#). In general, deaths of a sudden and unexpected nature and those related to any type of injury or intoxication must be reported to the Medical Examiner and investigated by our office. These include deaths that are obviously due to trauma (such as motor vehicle related fatalities) and deaths known or suspected to be due to drug or alcohol intoxication. In addition, if an injury or intoxication is known to *contribute* to the death - even in a small way - or is even merely suspected to have contributed to death, the death falls under our jurisdiction. This applies when an individual dies of complications of a prior injury, even if that injury occurred many years prior to the death.

Each death is assigned a Medical Examiner Investigator, who will generally go to the location of the death, interview family and friends, and obtain medical records, providing a synopsis of the circumstances surround the death. In the majority of cases a postmortem examination (autopsy) is conducted by a physician specializing in forensic pathology in order to determine the cause of death, and a California State death certificate will be completed. This examination normally occurs within three days of our receipt of the decedent's body, but usually the next day. Our forensic pathologist staff will assess whether an autopsy and/or laboratory tests are required as part of the examination. Autopsies are required in approximately 75 percent of the cases we examine. In the others, an examination of only the external surfaces of the body is performed and the death can be certified based upon investigation and review of the medical history. If we do not require an autopsy for our official purposes, the legal next-of-kin may request that we perform one at his/her expense.

We constantly try to accommodate all the wishes of family members and the decedent, but occasionally the circumstances of the death necessitate that an autopsy be performed despite the oppositions of the family or the decedent. Common reasons include the involvement of a law enforcement agency, mandates specified in California Law, and our legal obligation to investigate deaths under our jurisdiction.

HISTORY

The San Diego County Medical Examiner's Office was established as the County Coroner with the creation of the County in 1850. Initially led by San Diego's first coroner, John Brown, the office had 27 different coroners throughout its history until the County converted to a Medical Examiner system in 1990. One major difference between the two systems is that a Medical Examiner must be a physician, specifically a forensic pathologist, while a coroner can be a layperson and is traditionally elected. In California, most Counties are Sheriff-Coroner systems. Despite being a stand-alone department within the County, we are an active partner with all of the law enforcement agencies serving the San Diego community, including the District Attorney, the Public Defender, the San Diego Sheriff's Office, the San Diego Police Department, and each of the other law enforcement agencies in the County.

For the first hundred years of our existence, we performed the administrative aspects of the department in what was then the County courthouse and various offices downtown (including the Spreckels Building and the Land Title Building, which is now where the NBC Building stands) and conducted examinations at various local mortuaries. All functions were consolidated under one roof on April 1, 1957 at the now nonexistent 3322 Congress Street in Old Town, close to the current Old Town Transit station. Our first toxicology laboratory was operational the following year.



1963



2009

In October of 1963 we moved into Building 14 at the current County Operations Center (COC) in Kearny Mesa. We remained there for the next 46 years, undergoing several expansions.



In December 2009, we moved into our state-of-the-art facility at the COC, more than tripling our space and our capacity for future growth. Building 14 was demolished in early 2010 for one of the multi-story parking structures at the COC.

MEDICAL EXAMINER FACILITY



In December of 2009, we moved into our facility at 5570 Overland Avenue, Suite 101 in Kearny Mesa. It is the third building that has housed all the operations of the Medical Examiner's Department since 1957.

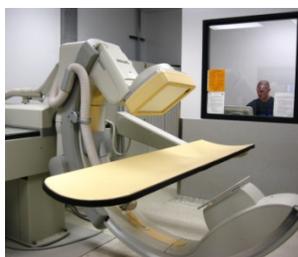
Our building was the first one of the larger project of redesigning and updating the entire County Operations Center. It is a two-story building encompassing 83,000 square feet, tripling our office space and storage capacity, and giving us the capability to handle certain types of mass casualty incidents on site. Although we are the single largest tenant of the building, we share the building with the Department of Environmental Health.



We proudly achieved a LEED (Leadership in Energy and Environmental Design) Silver certification. This is a rating based on an evaluation of the environmental performance of the whole building over its life cycle and emphasizes the commitment the County has to the environment. Among the improvements is the use of natural light throughout the building, most notably in the examination areas where a bright, natural lit area is essential to detailed forensic



procedures.



In addition to an upgraded work environment, we now have several shared conference rooms equipped with the latest audio-visual technology, advanced instrumentation in the toxicology laboratory allowing for additional

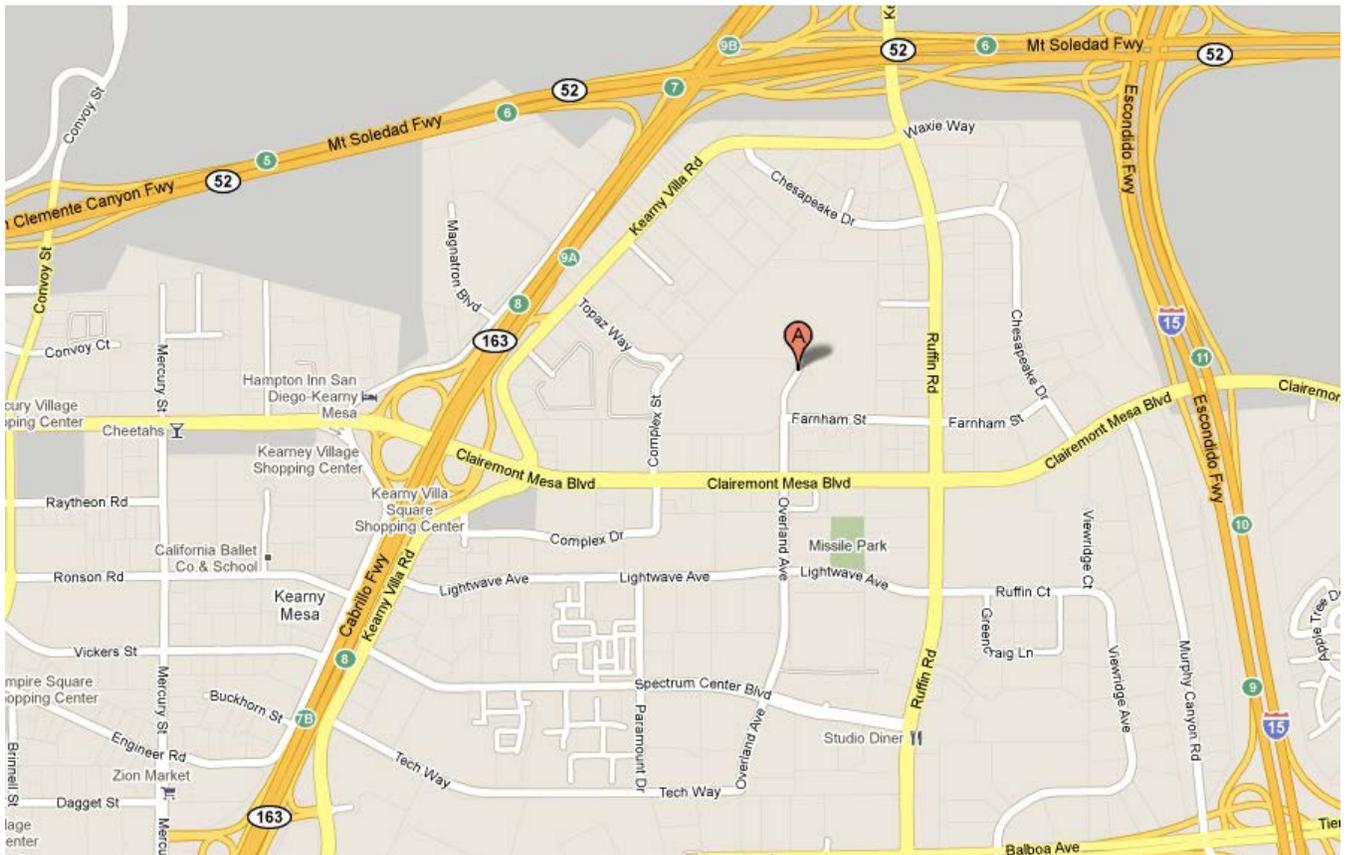


methodologies, and a combination fluoroscope and digital X-ray system with 3-dimensional reconstruction and vascular imaging capability. These advances, among others, are part of the overall strategy to develop a viable regional forensic science complex that will have the capabilities to address the anticipated county needs for the next several decades.

HOURS AND LOCATION

The Medical Examiner Department is located at the County Operations Center in the Kearny Mesa neighborhood of San Diego at:

5570 Overland Ave.
Suite 101
San Diego, CA 92123



We conduct operations year around, 24-hours a day, but are open to the public weekdays between the hours of 8:00 AM and 5:00 PM. Our main telephone line is 858-694-2895.

ACTIVITIES OF THE MEDICAL EXAMINER

In the “Activities” section of the report, we discuss the general process of death investigation from the examination of the death scene to the certification of death, as well as other non-mandated activities in which the Medical Examiner is involved.

In addition to death investigation, the Medical Examiner conducts or participates in numerous activities that support our own mission as well as that of other local, state, and federal agencies and institutions. Those activities include distributing reports, sharing data, teaching various groups, providing training, working to identify unknown deceased people, providing legal testimony, participating in research, and providing court testimony, among others. This section will discuss each of these activities and more to show the impressive span our office covers, especially for such a small department.

INVESTIGATIONS

Medico-legal investigations are completed in a professional, ethical and timely manner and they are geared to assist in the determination of the cause and manner of death. This is accomplished through the continued cooperation between law enforcement agencies, health care professionals, and the public.

The initial phase of the process typically starts with a report of death. In 2015, Investigators processed 8,717 reports of death. In 5,721 (66 percent) of those cases, after undergoing a methodical and structured process of review to ensure they did not fall under the criteria of California Government Code 27491 requiring further investigation, we waived jurisdiction to the treating physician so he or she could attest the death certificate. Medical Examiner's Jurisdiction was invoked in the other 2,996 (34 percent) of those reports.

Investigators physically respond to the majority of the death scenes falling into the Medical Examiner jurisdiction. In 2015, we responded to 2,022 scenes (67 percent). An initial body and scene assessment is completed at the place of death, which can be virtually anywhere in the 4,261 square miles of San Diego County. Photographs are taken and relevant evidence is collected in order to assist in the investigation. The evidence may include weapons, biological specimens, medications, drugs, and drug paraphernalia. All the investigations are completed with a methodical and systematic approach and all the findings are documented in a comprehensive investigative report.

Medical Examiner's investigators have the difficult task of notifying the next of kin of the death. This process starts with the identification of the decedent –one of the most important duties of our office. Methods for identification include fingerprint and dental comparison, unique skeletal features, DNA analysis, visual comparison, or even serial numbers on implanted medical devices. This is a multidisciplinary approach which involves other county agencies. The process continues with a diligent search for the decedent's family, with which the Medical Examiner's Office has a high rate of success. (see John/Jane Doe Center for more information)

Those who die suddenly or unexpectedly often die with valuables – both monetary and sentimental – in their possession. It is extremely important that we ensure that these items make their way to the next of kin. Often, the retention of the decedent's personal property is of the utmost importance to the family. We take this responsibility seriously, accurately tracking and recording the chain of custody until the property is returned to the family.

When a death occurs at home, that person may leave behind many medications, many of which are often controlled substances. As part of our investigation, we collect and inventory all of the decedent's prescription medications at the scene. This task serves three functions. First, by inventorying the remaining medications, including dosage and dates, we can gain an understanding as to whether there was medication overuse or non-compliance. Second, medications can give clues to an individual's medical or social history, and provide names of prescribing physicians who may know critical information about the person's history. Lastly, we remove medications from the home, eliminating the possibility of inappropriate use by other members of the household (especially children), as well as the possibility that the medications will become part of illegal trafficking. Medication disposal occurs at regular intervals after a period of secure storage at our offices.

Medical Examiner investigators also discuss the circumstances of the death with the decedent's family; conduct interviews at the scene; and obtain additional statements from witnesses, the treating physician and responding emergency personnel. They also offer the family free support through our Bereavement Center. Follow-up investigation is required in many cases, and may involve reviewing medical records, police reports and traffic accident reports.

Medical Examiner Investigators are the front line for our office – the eyes and ears of the Medical Examiner. Their caring attitudes, compassion, professionalism, and objectivity allow our office to conduct thorough, balanced and accurate death investigations while at the same time helping ease the difficulties the family will have during their time of grief.

AUTOPSIES

Nearly 2,000 autopsies are performed each year by the Medical Examiner's pathologists, serving as a critical component used by the Medical Examiner to determine a decedent's cause and manner of death. An autopsy consists of both external and internal examinations of the body. Externally, the condition of the body, evidence of medical intervention, scars, tattoos, injuries, and any other external marks are noted. Internally – through surgical incisions across the chest and abdomen and across the top of the head – the organs of the head, torso, and any other necessary aspects of the body are thoroughly examined, removed, and sectioned, and small tissue samples collected for microscopic examination. During the examination, specimens are collected for toxicological testing, and may include blood, urine, liver, vitreous (eye) fluid, stomach contents, and other tissues or fluids. Sometimes it might be necessary to save a whole organ for further examination by a sub-specialist like a neuropathologist or cardiac pathologist. Digital photographs are commonly taken at various points to document certain findings, or, in some cases, a pertinent lack of findings.

A common misconception is that an autopsy will render a body unsuitable for viewing in a funeral after the procedure. This is far from true. In fact, changes made during an autopsy are easily hidden by a mortuary so that the individual can be viewed by loved ones.

In 2015, the Medical Examiner's Department performed autopsies on 1,771 of the 2,996 individuals examined. Of those 1,771 autopsies, 108 were performed by pathology residents, generally from the University of California San Diego Medical Center, or the US Naval Medical Center, San Diego, under the direct supervision of a board-certified pathologist. The remaining 1,225 individuals who were not autopsied had sufficient accompanying medical history and known circumstances to allow certification of death without an autopsy, based on the investigation, external examination of the body, and sometimes review of medical records.

Decedents who do not fall under the Medical Examiner's jurisdiction, or for whom an autopsy is not necessary to determine the cause of death, may have an autopsy requested and paid for by the decedent's next of kin. Local hospitals may also request that we perform an autopsy in cases that would not normally require us to take jurisdiction. In 2015, the San Diego County Medical Examiner performed nine family-requested autopsies.

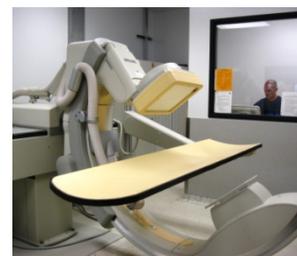
It has been said that the body is the only unbiased witness to the death. It is our department's responsibility to hear what that body is saying, so that loved ones can feel a sense of finality, light

can be shed on a criminal investigation, and accurate vital statistics can be provided to the community at large.

EXAMINATION ROOM

The examination room at the Medical Examiner's Department is a modern, clean, safe, state-of-the-art space used to conduct postmortem examinations. The examination room area is where bodies are received, property and evidence are collected, postmortem examinations take place, and bodies are released to mortuaries. It is staffed by seven Forensic Autopsy Specialists and one supervisor, all of whom are licensed embalmers.

A variety of important procedures take place in this area, including forensic photographic documentation, fingerprinting, and all the procedures associated with the examination itself. The Medical Examiner has an X-ray room housing a C-arm digital X-ray unit which also performs fluoroscopy, angiography, and three-dimensional digital reconstructions. These 3D images can be rotated and sliced to view aspects of the body that are difficult to view during an autopsy, and is an important supplemental tool for postmortem examination. It can also be a valuable resource for courtroom demonstrations. The larger X-ray unit is supplemented by a portable unit as well. The Medical Examiner also has an ultrasound machine – a unique piece of equipment in the postmortem setting – and is exploring its applications. Barcode systems are used throughout the area to ensure accurate body tracking, specimen tracking, and evidence management.



The exam room area is actually made up of several rooms. The largest is a main room, which contains 11 autopsy stations and has space for expansion. The room has ample natural and fluorescent lighting and high air flow. Other spaces include an autopsy room that can be dedicated to homicides, a room with two stations used for teaching, and a room currently used as a space for forensic anthropological and forensic dental examinations.

Finally, there is an isolation room attached to a dedicated refrigerator for examination of known or suspected infectious cases. There are also detectors at the entrance to the facility to detect radiation coming from bodies brought to the Medical Examiner.

All of these features allow for safe, thorough, and state-of-the-art postmortem examinations with the ultimate goals of identification and cause and manner of death in mind.

PATHOLOGY

The Pathology Division is composed of eight pathologists that include the Chief Medical Examiner (CME), Chief Deputy Medical Examiner (CDME), six Deputy Medical Examiners (DME's), two forensic pathology physician trainees (fellows), two Medical Transcriptionists, and a forensic photographer. Each of the pathologists has received a medical degree, trained in anatomic pathology, and subsequently trained in the medical subspecialty of forensic pathology. Some have also received training in clinical pathology, and one also has training in forensic neuropathology and cardiac pathology. All of the pathologists have been certified by the American Board of Pathology (ABP) in their respective specialties, meaning that they have been deemed to be appropriately trained and have passed the corresponding nationally-administered examinations.

Training and education are an integral part of the pathology division, including instruction of medical students and pathology residents in autopsy pathology. The pathologists have faculty appointments with the Department of Pathology at the University of California, San Diego (UCSD) School of Medicine. Residents from both the UCSD School of Medicine and Naval Medical Center Balboa rotate with and are trained by the pathologists here at the Medical Examiner's Office, and the pathologists deliver lectures to pathology residents at the UCSD Medical Center. In addition, medical students from UCSD and several osteopathic schools rotate through the pathology division each month.



Lastly, the Pathology division trains two forensic pathology fellows per year. The fellows are pathologists who have completed training in anatomic or anatomic and clinical pathology, and wish to subspecialize in forensic pathology. Following the fellowship training, the fellow is expected to take the annual American Board of Pathology-administered forensic pathology examination along with the other fellows from around the country. The importance of having one of the 38 training programs in the U.S. accredited by the Accreditation Council for Graduate Medication Education (ACGME) cannot be understated, since only around 45-50 forensic pathology fellows complete their training each year in this country, and this program contributes two of them.

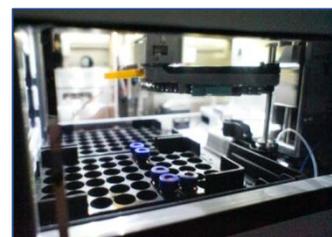
TOXICOLOGY LABORATORY REVIEW

Forensic toxicology provides a comprehensive drug testing service in medico-legal death investigations. The laboratory offers routine testing for alcohol and simple volatile compounds, drugs of abuse (cocaine, amphetamines, opioids, benzodiazepines, fentanyl, cannabinoids, buprenorphine, carisoprodol, oxycodone, zolpidem, methadone, phencyclidine-PCP, and many of the novel psychoactive substances like bath salts or fentanyl analogues), as well as many therapeutic agents and poisons. This cases work translates into about 30,000 tests annually. Currently the laboratory is staffed by a laboratory manager, a supervisor, five toxicologists, and two laboratory assistants.

MAJOR ACHIEVEMENTS

The laboratory has maintained full accreditation by the American Board of Forensic Toxicology (ABFT) since 2005. Furthermore, the laboratory manager (Dr. Iain M. McIntyre, Ph.D.) has participated in the inspection and review of a number of forensic toxicology laboratories around the nation on behalf of the ABFT. These inspections and reviews ensure that the San Diego Medical Examiner's forensic toxicology laboratory maintains an equivalent standard of performance to those nationally recognized facilities according to the ABFT, the American Academy of Forensic Sciences (AAFS), and the Society of Forensic Toxicologists (SOFT) Forensic Laboratory guidelines and standards.

The laboratory has maintained contracted services by offering alcohol analyses and complete toxicology testing to other facilities. The forensic toxicology laboratory routinely performs testing for the San Bernardino coroner and NMS Labs (an independent provider of clinical and forensic toxicology, endocrinology and criminalistics services).



Due to the ever-increasing expansion of both therapeutic and illicit drugs, the forensic toxicology is constantly developing and re-developing its analytical procedures.

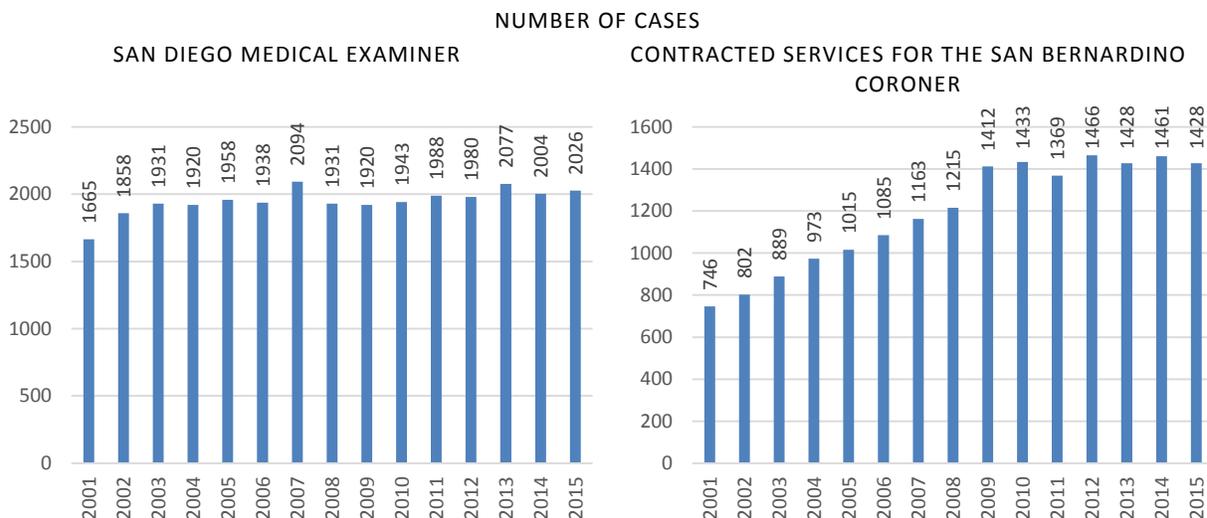
In 2015, the laboratory identified a number of new synthetic drugs. These included opioid compounds including fentanyl analogues and hallucinogens. The importance of developing both screening tests and confirmation analyses for these newer drugs of abuse is essential. As a result of these developments, the San Diego County Medical Examiner's Department is able to assist law enforcement agencies (both local and national) in monitoring trends for drugs currently circulating, and being abused, in the local community.

The laboratory has also developed collaborative efforts with the California Poison Control System, and created additional research programs with the Department of Pathology, University of California - San Diego, and the Center for Advanced Laboratory Medicine. The expansion of teaching responsibilities, together with the development of research programs, has ensured that the laboratory and its staff keep up-to-date with advances in the field of forensic toxicology, and maintain current with the newest technological innovations. The laboratory has also assisted with training students within the masters of forensic sciences program at National University.

WORKLOAD DATA FOR 2015 IN COMPARISON TO PREVIOUS YEARS

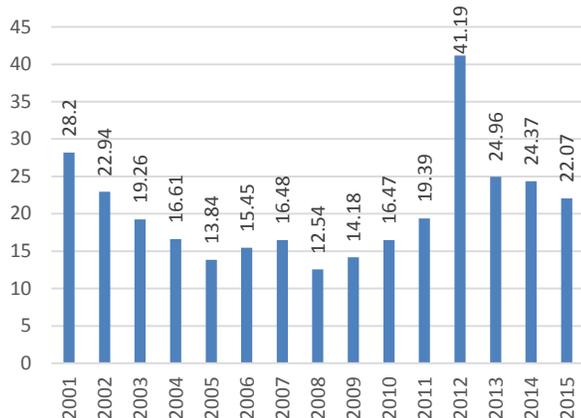
The forensic toxicology laboratory performs testing for the San Diego County Medical Examiner and, under contract, for the San Bernardino Coroner.

As the data illustrates below, the number of cases examined stayed about the same compared to the previous year, at about 3,500 cases total. However, we are seeing a continued increase in the complexity of testing, together with the routine monitoring of therapeutic drugs, vitreous chemistries and volatile screens in cases from both San Diego and San Bernardino.

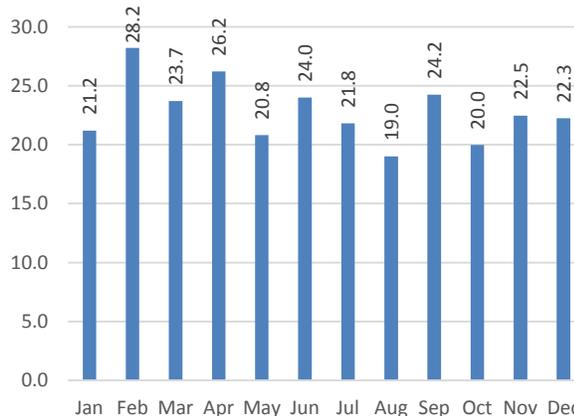


The average turnaround times for the completion of cases dropped to about 22 days (on average) in 2015 for the San Diego Medical Examiner.

AVERAGE TURNAROUND TIME (DAYS) BY YEAR



AVERAGE TURNAROUND TIME BY MONTH, 2015



PUBLICATIONS

Saitman, A., Fitzgerald, R.L. and McIntyre, I.M. "Evaluation and Comparison of Postmortem Hydrocodone Concentrations in Peripheral Blood, Central Blood and Liver Specimens: A Minimal Potential for Redistribution" **Forensic Science International** 247 36-40, 2015. [doi:10.1016/j.forsciint.2014.11.031](https://doi.org/10.1016/j.forsciint.2014.11.031)

McIntyre, I.M., Trochta, A., Stolberg, S. and Campman, S.C. "Mitragynine "Kratom" Related Fatality: A Case Report with Postmortem Concentrations" **Journal of Analytical Toxicology** 39 (2) 152-155, 2015. [doi:10.1093/jat/bku137](https://doi.org/10.1093/jat/bku137)

McIntyre, I.M., Gary, R.G., Trochta, A., Stolberg, S. and Stabley, R. "Acute 5-(2-aminopropyl) Benzofuran (5-APB) Intoxication and Fatality: A Case Report with Postmortem Concentrations" **Journal of Analytical Toxicology** 39 (2) 156-159, 2015. [doi: 10.1093/jat/bku131](https://doi.org/10.1093/jat/bku131)

McIntyre, I.M., Hamm, C.E., Sherrard, J.L, Gary, R.D., Burton, C.G., and Mena, O. "Acute 3,4-Methylenedioxy-N-Ethylcathinone (Ethylone) Intoxication and Related Fatality: A Case Report with Postmortem Concentrations." **Journal of Analytical Toxicology** 39 (3) 225-228, 2015. [doi: 10.1093/jat/bku146](https://doi.org/10.1093/jat/bku146)

McIntyre, I.M., Trochta, A., Gary, R.G., Malamatos, M. and Lucas, J.R. "An Acute Acetyl Fentanyl Fatality: A Case Report with Postmortem Concentrations" **Journal of Analytical Toxicology** 39 (6) 490-494, 2015. [doi:10.1093/jat/bkv043](https://doi.org/10.1093/jat/bkv043)

Saitman, A., Estrada, J., Fitzgerald, R.L. and McIntyre, I.M. "Comparative Analysis of Hospital and Forensic Laboratory Ethanol Concentrations: A 15 Month Investigation of Antemortem Specimens" **Journal of Forensic and Legal Medicine** 33 23-27, 2015. <http://dx.doi.org/10.1016/j.jflm.2015.03.012>

McIntyre, I. M., Mallett, P. and Stabley, R. "Postmortem Distribution of Trazodone Concentrations" **Forensic Science International** 251 195-201, 2015.
<http://dx.doi.org/10.1016/j.forsciint.2015.04.009>

Cantrell, F.L., Mena, O., Gary, R.D. and McIntyre, I.M. "An Acute Gabapentin Fatality: A Case Report with Postmortem Concentrations" **International Journal of Legal Medicine** 129 (4) 771-775, 2015. DOI: [10.1007/s00414-015-1193-3](https://doi.org/10.1007/s00414-015-1193-3)

McIntyre, I.M. "A *Theoretical* Postmortem Redistribution Factor (F_t) as a Marker of Postmortem Redistribution." **European Journal of Forensic Sciences** 2 (4) 24-26, 2015.
[doi:10.5455/ejfs.181615](https://doi.org/10.5455/ejfs.181615)

McIntyre, I.M., Trochta, A., Gary, R.D., Storey, A., Corneal, J. and Schaber, B. "A Fatality Related to Two Novel Hallucinogenic Compounds: 4-Methoxyphencyclidine and 4-Hydroxy-*N*-methyl-*N*-ethyltryptamine" **Journal of Analytical Toxicology** 39 (9) 751-755, 2015. [doi:10.1093/jat/bkv089](https://doi.org/10.1093/jat/bkv089).

DEATH CERTIFICATION

Death certification consists of determining a cause of death and manner of death for those cases that fall under jurisdiction of the Medical Examiner's Office and completing portions of a California Death Certificate for the individual. The *cause* of death can be summarized as the disease or injury that initiates the sequence of events that ultimately results in the person's death. The *manner* of death is essentially a single word that classifies the circumstances as one of the following five categories: natural, accident, suicide, homicide or undetermined. Once a determination is made following an examination and investigation, the cause and manner of death are entered into the office's internal electronic data system, followed by entry into the California Electronic Death Registration System (EDRS) and then attesting with an electronic signature.

The Medical Examiner is able to issue a cause and manner of death shortly after the initial examination in approximately two-thirds of all deaths. However, many deaths require additional investigation and/or testing to determine or confirm the cause and/or manner of death. When this is the case, the cause of death is temporarily listed as "Pending" on the death certificate. The certificate will then be amended following further investigation or examination. In a very small percentage of cases, a cause and/or manner of death might not be determined even after completion of the autopsy, further investigation, and/or extensive toxicological testing.

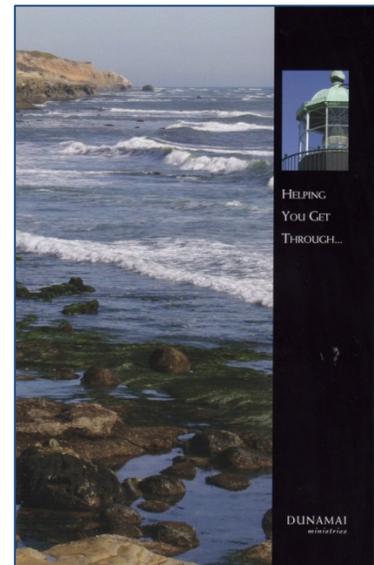
BEREAVEMENT CENTER

The San Diego County Medical Examiner's Bereavement Center offers a host of services to those who are going through the grieving process following the sudden, traumatic, and unexpected loss of a loved one. Started in July 2007, the Bereavement Center offers grief counseling, personal assistance, and volunteer chaplains from an array of religions to those who have lost a loved one. This is the only program in the United States providing counseling services to *all* affected by the sudden and traumatic loss of a loved one. The Center is run by a volunteer chaplain who facilitates counseling services to thousands of clients each year.



Many of the 3,000 deaths investigated by the Medical Examiner each year are sudden, unexpected, and traumatic. Families experiencing this event are in a period of high vulnerability. It has been documented that death from unnatural causes directly influences the nature and course of bereavement. For individuals bereaved through unnatural causes the suddenness and lack of anticipation adversely influences their internal world and coping abilities, thus constituting trauma. There is also evidence that unnatural dying presents a greater incidence of symptoms of posttraumatic stress, victimization, and intrusive thoughts than in populations surviving death by a natural cause. Additionally, increased alcohol consumption, smoking, and use of tranquilizers and other medicines are well-documented among the bereaved, especially among people who had used these substances prior to the loss. Thus, it is apparent that the bereavement state can adversely affect health and exacerbate and precipitate health-compromising behaviors.

Prior to the inception of the Bereavement Center, families enduring the bereavement process were an unserved population. Given the mental and physical problems that grieving can pose, the Medical Examiner's Office recognized the need to establish a set of much needed services. As a result, the Bereavement Center was established to fill this gap in services and help mitigate the adverse effects that an untimely death can pose. As steward of the Bereavement Center, the chaplain provides an array of services to families who recently lost a loved one, including counseling services, cremation assistance, and a 27-page grief resource booklet titled "Helping You Get Through..." Families who encounter the loss of a loved one are plagued with many questions. "What should I expect next?" "What resources are



HELPING
YOU GET
THROUGH...

DUNAMAI
ministries

available?” “How do I deal with insurance companies?” These are some of the typical questions raised by families going through the grieving process.

Medical Examiner Investigators provide the booklet to next of kin during every death notification along with the contact number for organizations providing grief counseling and other resources. The booklet contains an array of subjects, including available support groups, how to help children during a time of loss, the first steps after death (a five page checklist), a funeral checklist, and much more.

The Bereavement Center also offers a support group for mothers who have lost a son or daughter through Umbrella Ministries, which has assisted more than 224 mothers. The Bereavement Center and DUNAMAI Ministries also partner to provide cremation assistance for certain qualified families. DUNAMAI Ministries receives private donations to help pay for cremation costs for families that cannot afford to do so.

The results of the Bereavement Center are remarkable. It’s difficult to measure how much comfort the center provides to grieving families, but it is certainly a great deal.

However, there were a few quantifiable measures of success. As of December, 2015 the center had provided more than 24,000 grief resource booklets at no cost to families. Every person affected by a Medical Examiner case can meet with one of at least eight free grief counselors. And the center had covered the costs of a total of 272 cremations as of December 2015. The Bereavement Center also offers clergy support for funeral arrangements. And perhaps most touching, the Bereavement Center’s chaplain follows up on every local case with a phone call to the family to offer condolences and answer any questions they may have.



As a new addition to the Bereavement Center, we now have a program called Beyond the Caution Tape. It is open to any juvenile or adult using or influenced by drugs, hanging out with the “wrong crowd” or exhibiting any “at risk” behavior. This program provides the ultimate opportunity to offer a “wake up call” to those who may need a change of direction by showing the real and actual consequences others have suffered. Through December 2015 we have served 1,102 juveniles and adults.

CASE REPORT REQUESTS AND DATA SHARING

We investigate deaths throughout the county, and it is critical that we communicate with those who need the details of our investigations, as well as our findings and conclusions as to causes and manners of death. Our most important documents are the autopsy, toxicology, and investigative reports we generate, and it is essential that we distribute these reports in a timely fashion to those who request them after the completion of our investigations.



According to California Law, the reports we generate are public records. We receive between 4,500-5,000 requests for reports per year from a wide variety of people and agencies, including family members, friends, hospitals, law firms, insurance companies, media, and government agencies. Our administrative division completes this task in a timely fashion, while also processing court orders and subpoenas, handling phone calls and emails, and performing innumerable other duties throughout the day. With the exception of the first request from the next-of-kin which is provided at no cost, we charge \$1.60 per page for hard copies of the reports. There is no charge for emailed copies. Historically, we have filled 95 percent of these requests in seven days or less. In 2015 we completed 99 percent (4,980 of 5,030) of the requests for case reports in seven days or less.

In addition to examining individual deaths, we also examine each death as part of a larger group over months or years to identify trends, patterns and specific details in the types of deaths that can shed light on emerging public health concerns. We receive queries from media, government and private agencies, federal and local law enforcement agencies, and the general public on a regular basis regarding a variety of subjects. Threading our information with other agencies and law enforcement can produce a more comprehensive understanding of public health issues and potentially lead to intervention or policy changes to address them.



DEATH REVIEW TEAMS

As part of its greater role in promoting safe and livable communities, employees of the San Diego County Medical Examiner (primarily Deputy Medical Examiners and Medical Examiner Investigators) are members of various multidisciplinary death review committees, participate in county-wide trauma review meetings, and sit on various local task forces, including those listed below. We are a valuable component of these activities and contribute to the greater goal of reducing fatalities in the children and elderly; reducing deaths related to domestic violence, prescription drugs, and methamphetamine; and improving the trauma system.

CHILD ABUSE PREVENTION COORDINATING COUNCIL (CAPCC) FATALITY REVIEW COMMITTEE

This review team is comprised of representatives from the Medical Examiner's Department, clinical medical community, Child Welfare Services, law enforcement, District Attorney, emergency medical personnel, Consumer Product Safety Commission, SDSU Academy for Professional Excellence, Probation, and County Counsel. The committee meets monthly to review all sudden unexpected deaths of children that fall under the jurisdiction of the Medical Examiner to identify factors and circumstances contributing to child deaths. The goal is to prevent future occurrences and make recommendations, as well as to improve coordination and effectiveness of child protection, investigation and legal processes. The CAPCC Fatality Review Committee was established in 1982 and was only the second child fatality committee established in the country. During its first 15 years, it reviewed the deaths of children newborn through age 6, but that was expanded to children through age 12 in 1998 and through age 17 in July 2005. In 2015 and 2016 the committee reviewed a total of 62 and 72 child deaths, respectively. Of these, infants (under one year of age) accounted for 18 and 20 of the reviewed deaths in 2015 and 2016, respectively.

DOMESTIC VIOLENCE FATALITY REVIEW TEAM

The County of San Diego Board of Supervisors established the [Domestic Violence Fatality Review Team](#) (DVFRT) in 1996. The DVFRT is a confidential multidisciplinary team that conducts in-depth retrospective case reviews of intimate partner-related fatalities that have occurred in San Diego County. The team is made up of dedicated representatives from more than 30 public and non-profit organizations such as the Medical Examiner, the District Attorney's Office, law enforcement, Health and Human Services Agency, domestic violence service agencies, and local

healthcare settings. This is the 20th year the team has been convening and 208 deaths have been reviewed to date.

The DVFRT seeks to identify system-based opportunities for improvements in violence prevention and intervention policies, procedures, and coordinated strategies, make recommendations for system change and raise public awareness about intimate partner violence.

In addition to conducting case reviews, the DVFRT also tracks the intimate partner violence-related deaths (homicides and suicides) that occur in San Diego County. The Medical Examiner continues to be a key partner in this process, as the DVFRT depends upon representatives from the Medical Examiner, law enforcement, and the District Attorney's Office to identify and track these cases to ensure accurate reporting.

For more information: <http://www.sdcdca.org/helping/domestic-violence-fatality-review-team.html>

ELDER AND DEPENDENT ADULT DEATH REVIEW TEAM

The San Diego County Elder and Dependent Adult Death Review Team is a county-wide group with a core membership from the District Attorney's Office, Medical Examiner's Office, Sheriff's Department, San Diego Police Department, and County Aging and Independence Services, designed to facilitate communication among the agencies involved in the identification, investigation, or prosecution of elder/dependent adult abuse or deaths. Its task is to review elder and dependent adult deaths in San Diego County with the goal of reducing the number of deaths related to physical abuse, neglect, or self-neglect. The County's Elder Death Review Team was established in 2003, in accordance with Senate Bill 333, Chapter 301, of 2001, authorizing counties in California to establish such committees, and was expanded to include dependent adults in 2011. The San Diego County team was one of the first elder death review teams in the country and continues to be a model for other jurisdictions trying to establish similar review committees.

The team promotes policy changes in government and private agencies, retrospectively identifies gaps and barriers to service that existed for victims prior to death, increases public awareness, and has a positive impact on the safety and health of San Diego County residents by promoting change. The team also participates in a number of other projects, such as an annual review of elder suicides, research studies, and more importantly, daily, real-time cross-reference efforts between the Medical Examiner and Adult Protective Services databases to help identify cases of abuse that might otherwise be missed.

DIVER DEATH REVIEW COMMITTEE

With miles of coastline, beautiful kelp beds, and a number of shipwrecks, San Diego is a haven for scuba divers. In order to improve the safety of San Diego's scuba divers and ensure thorough investigation of all diving-related deaths, a multidisciplinary diver death review committee formed in 2009. The committee includes members from the San Diego Lifeguards, San Diego Police Department, UCSD's Undersea and Hyperbaric Medicine section, Scripps Institute of Oceanography, the United States Coast Guard, the local dive community, and a Deputy Medical Examiner with expertise in scuba diving and diving medicine. Each diving-related death is thoroughly reviewed and discussed by the committee. This review guides certification in cause and manner of death and contributes to recommendations for diver safety in the County of San Diego. In 2015, the committee reviewed the one such death that occurred.

OTHER PARTICIPATION

Our office also participates in several local Trauma meetings and groups as well as a county wide trauma monitoring system, including:

- Rady Children's Hospital Trauma Mortality and Morbidity (M&M) Conference
- Sharp Memorial Hospital Trauma M&M Conference
- MAC (Medical Audit Committee) meeting of Trauma Centers (County-wide)

We also are part of the [San Diego County Methamphetamine Strike Force](#), the [Prescription Drug Task Force](#), and the California SIDS Advisory Council.

FORENSIC PATHOLOGY FELLOWSHIP

A fellowship is a period of subspecialty training for physicians, undertaken after completion of a specialty residency. The San Diego County Medical Examiner is one of only 38 sites in the U.S. that provide a one-year accredited training program in the medical subspecialty of forensic pathology, and has trained 20 fellows over the last 24 years.

Our program has been fully and continuously accredited by the Accreditation Council for Graduate Medical Education (ACGME) and we currently have two fellowship positions. These two are part of the approximately 45-50 forensic pathology fellows trained each year in the United States. We have positions currently filled through June of 2018.

San Diego County is uniquely positioned to provide a forensic pathology fellow exposure to sudden, unexpected deaths in a variety of manners not encountered in many, more populous jurisdictions: our population, our proximity to an international border, the ocean and our waterways, our blend of well-developed modern urban areas and remote unpopulated urban areas, and our remarkable variety of inland geography. The Medical Examiner's team of fully board-certified forensic pathologists comes from diverse training backgrounds, which provide the fellow a wide breadth of knowledge, experience and perspective from which to learn. In addition, we require our fellows to participate in death scene response and to provide court testimony. Combine all of this with the fact that we have one of the highest faculty-to-fellow ratios in the country, and it is clear that the San Diego Medical Examiner is well-positioned to successfully train fellows to become proficient in the field of forensic pathology and instill the confidence, skills and knowledge they need to practice in any setting.

TEACHING AND RESEARCH

TEACHING

Pathology Residents: In addition to formal instruction of the Forensic Pathology Fellow, the Medical Examiner Department provides critical teaching rotations for Pathology Residents from both the UCSD School of Medicine and Naval Medical Center Balboa. Residents receive in-depth training in forensic and autopsy pathology under the direct supervision of Medical Examiner Department pathologists – training that is required for them to be eligible for Pathology board examinations. In 2015, six residents completed rotations ranging from two to six weeks at the Medical Examiner’s Office, working on a total of 108 cases under direct supervision, receiving invaluable learning opportunities.

Additional instruction of Pathology Residents included around a dozen formal lectures by our Deputy Medical Examiners (forensic pathologists) at UCSD Hillcrest’s Department of Pathology on topics including gunshot wounds, sharp and blunt force injuries, asphyxia, electrical and thermal injuries, toxicology, postmortem changes, death certification, and environmental deaths among others. These lectures have been part of the annual UCSD Pathology curriculum for many years, and will continue to be so in the years to come.

Teaching for the greater community: Medical Examiner Department staff including pathologists, investigators, and others gave dozens of presentations during 2015, with teaching and presentations to approximately 1300 people split among topics and audiences such as safety stand-downs/drinking and driving for military personnel; awareness lectures for juvenile and adult Probationers; and courses about the Medical Examiner Department for Funeral Directors, Sheriff Search and Rescue and the DA Citizen’s Academy; forensic pathology topics for Cal Western Law School, and Grossmont College as well as many others. These presentations were given either at the Medical Examiner facility or at locations throughout the county. They were intended to educate, inform, and minimize misconceptions about our function.

The Medical Examiner Department was able to allow 27 groups – a total of 511 guests, including police cadets and paramedic students – to learn more about our department and even view a postmortem examination by a forensic pathologist. Student feedback from such opportunities was universally positive and appreciative, as they noted that viewing an autopsy showed them anatomy, function and appreciation of the body, and forensic medicine in a way that simply cannot be taught in any other manner. Law enforcement cadets and paramedic students learn

various aspects about the death process and anatomy that serve them well in their future careers.

In 2015, the Medical Examiner hosted an annual visit by the Grand Jury. The members of the jury toured the building and were briefed on the scope of our operations and the many interactions we have throughout the region.

RESEARCH INVOLVEMENT

Through the course of 2015, the Medical Examiner's Office was involved in many different research opportunities. Our toxicology section produced ten scientific papers (some in collaboration with our pathology and investigations sections) and combined with the pathology division published in journals including the *Journal of Analytical Technology*, *Journal of Forensic and Legal Medicine*, *European Journal of Forensic Science*, *International Journal of Legal Medicine*, *Acta Neuropathologica*, *Cardiovascular Pathology*, *Journal of Neuropathology & Experimental Neurology*, *Journal of Forensic Sciences*, and *Forensic Science International*. We continued our ongoing collaboration with research doctors and scientists at Rady Children's Hospital and Harvard University to provide research specimens to study associations and possible causes of Sudden Infant Death Syndrome (SIDS), a multiyear project that has become one of the greatest contributors to the body of knowledge on this tragic issue.

Other research involvement has included the donation of human brains, only in cases with full consent from families. In 2015, we sent human brains to the University of California, Irvine and the Veteran's Administration in Los Angeles for programs involving the study of schizophrenia, bipolar disorder, and depression, and the Allen Institute for Brain Science for the Human Brain Atlas project. Seizures are being studied in collaboration with two groups – one at New York University and one at Baylor College of Medicine. We have also continued our multiyear study with Scripps Translational Science Institute (STSI) with the goal of identifying genetic causes of sudden death. To date several possible genetic causes of sudden death have been identified.

JOHN/JANE DOE CENTER

The identification of a decedent is one of the most critical functions of the Medical Examiner's Office and must be made by official and verifiable means. The misidentification of an individual is not an option and, conversely, if a person is not identified, we know nothing of their medical or psychiatric history or how they came to be in the situation in which they were found. In addition, families cannot have closure until the remains are identified and released for funeral services. The majority of decedents are identified by family members or through government identification (such as a driver's license). However, when a decedent carries no identification, no family is present to make identification, or the condition of the body is such that a visual identification is not possible, he or she becomes a Doe and the identification process begins.

Most decedents become identified quickly, often within a day or two, through fingerprints or tattoos. Some decedents are identified by a family member who views a photograph and then provides supporting identifying documentation. Scientific identification can be made by a dental comparison using our forensic odontologist, through radiographic comparison, or through surgical history and identifying anatomic features. When identification cannot be made by these means, DNA profile comparison is attempted. Very rarely, we will use a circumstantial identification based on physical characteristics, morphology, and known activities and location at the time of death.



When necessary, we make every effort to obtain an artist's sketch, through the assistance of a Medical Examiner's Office volunteer. We have then released the sketch, along with any identifiable information, and the decedent's physical characteristics, to San Diego media outlets in hopes of learning an identity or contacting possible family.

When a decedent remains unidentified and we have no leads for a possible identity, several legal mandates go into effect. Those legal mandates include an entry of the decedent's information, known physical characteristics and full forensic dental examination into NCIC (National Crime Information Center) in order to perform a comparison of the decedent against reported missing persons. Often a full anthropology examination is conducted to provide information such as race/ethnicity, age, height, and skeletal anomalies. We also provide a DNA sample to the California Department of Justice (DOJ) DNA Laboratory, so that the decedent's genetic profile can be entered into CODIS (Combined DNA Index System) for a possible match against someone missing or wanted, whose profile is already in CODIS.

In 2015, 98 of 2,823 cases (6.4 percent) came to the Medical Examiner's Office with an unknown or uncertain identity. Three-quarters of those were identified in the first week and all but 21 were identified within the first 30 days. As of September 2016, all but 10 – eight of those skeletonized remains – were identified from 2015.

ABANDONED BODIES

State law (California Health & Safety Code Sections 7100-7105) requires San Diego County to handle the disposition of decedents when they have been declared indigent, abandoned when families fail to act, or when next of kin is unable to be located. The disposition is the final state of the body after death. *Identified* abandoned bodies are always cremated, while *unidentified* abandoned bodies are always buried to allow for possible identification in the future.

A family that is unable to take care of the disposition of their loved one due to financial reasons can apply for Indigent Assistance through the Public Administrator's Office. Provided they meet the financial criteria, the Public Administrator will assist the family in selecting a cremation service and pay for the cremation.

If the family cannot be located, fails to act, or does not apply for or qualify for Indigent Assistance, a decedent's body may be declared "Abandoned" after 30 days have passed since the death. In 2015, 199 bodies were declared abandoned. The Medical Examiner's Office handles abandoned bodies over which we have taken jurisdiction, as well as those abandoned at a hospital or mortuary as long as these agencies have completed their mandated due diligence.

On a rotating basis, county mortuaries and cremation service providers have agreed to take part in this process for a specific reimbursement amount. As the funding falls under the budget of the Public Administrator/Public Guardian (PA/PG), the PA/PG is involved in the disposition of every abandoned body and every indigent body.

LEGAL TESTIMONY

Another significant duty of the Medical Examiner's Office is providing legal testimony. Pathologists, investigators, and toxicologists are called upon to testify, most often in homicide cases, but also in other criminal cases such as motor vehicle accidents (particularly those involving driving under the influence of alcohol, drugs, or medications), and sometimes, in civil cases. Forensic Autopsy Specialists who assist with autopsies may sometimes be called to testify as witnesses.



Investigators, who conduct scene investigations and interviews, may be called to describe their findings. Toxicologists may be called to discuss their methods for conducting toxicology studies to prove their validity; the Toxicology Laboratory Manager may also serve as an expert witness with insight as to interpretation of drug or medication levels. In 2015, our staff were subpoenaed in 17 civil cases, two grand juries, 73 preliminary hearings, and 146 jury trials.

Pathologists provide testimony as expert witnesses regarding their autopsy findings, including evidence of trauma, natural disease, or other information the court deems relevant. Their expertise in the evaluation of trauma sheds valuable insight on critical aspects of legal issues. In 2015, pathologists testified in preliminary hearings, jury trials, and Grand Juries, providing a total of more than 183 hours of testimony (including preparation and local travel time).

In addition to criminal matters, Medical Examiner staff members are often subpoenaed for testimony in civil matters, most commonly by deposition. In this situation, the County bills either the plaintiff's or defendant's attorney for the time any of these County employees is called away to prepare or provide testimony. The County's fee for such civil court appearances is based on reimbursement for wages and benefits to the County, and is not the sort of "expert witness" fee that private employees might garner.

Lastly, pathologists frequently meet with various members of legal teams that might include District Attorneys and their investigators, defense attorneys and their investigators, civil plaintiff or defense attorneys, or law enforcement personnel. These meetings generally take place prior to hearings and trials, and various aspects of the autopsy findings may be discussed and clarified prior to appearance in court. We have an "open door" policy in that we will gladly meet with

those on either side of a legal proceeding to describe our objective documentation and opinions. In conclusion, Medical Examiner staff members are available as resources and as witnesses to those who call on them regarding legal matters of the County.

ORGAN AND TISSUE DONATION



Organ and tissue transplantation is an ever-growing field of medicine, and with new techniques, medications, and technology, the need for life-saving organ and tissue donation continues to increase. When a death occurs, organs such as the heart, lungs, liver, and kidneys can be transplanted to replace damaged or diseased organs in a recipient. Tissues, such as skin, bone, or cartilage, may be used for grafts in burn victims or reconstruction in trauma patients or those with degenerative disease.

A large number of the suitable organ and tissue donors fall under Medical Examiner jurisdiction. The Medical Examiner recognizes the need to permit organ and tissue recovery whenever possible and *only when there is next-of-kin or prior consent*, while balancing our statutory requirements to ensure the integrity of the body to allow determination of cause and manner of death, collection of evidence, and documentation of injuries and natural disease.

To those ends, we work closely with Lifesharing, the County's only organ and tissue procurement organization, and the San Diego Eye Bank in order to allow for organ and tissue recovery prior to and following autopsy while at the same time ensuring that all necessary documentation is made, in cases that fall under Medical Examiner jurisdiction. Maximization of donation benefits not only the recipients of organs and tissues, but also grieving families who may find some solace in the knowledge that even with the loss of a loved one, they were able to improve, or even save, the life of one or more recipients.

Tissue donation: During 2015, there were 408 donors at the Lifesharing Operating Suite at the Medical Examiner Facility. Fifty-seven percent (233) of Lifesharing's tissue donors were either Medical Examiner referrals or Medical Examiner cases. Of the remaining cases, consent for donation was not permitted for medicolegal reasons, the patient had not pre-registered to be a donor and the family did not give consent for donation, or other factors prevented donation. A single tissue donor can help multiple people; therefore, this represents a significant impact in terms of enhancing lives.



Organ donation: Of Lifesharing's organ donors for 2015, 60 percent were Medical Examiner cases resulting in the procurement of 219 organs – which translates to 219 lives saved!

Eye/cornea donation: In 2015, the San Diego Eye Bank recovered corneas from 316 donors at the Medical Examiner.

The above statistics highlight the importance of the Medical Examiner's close working relationships with Lifesharing and the Eye Bank: our office not only assists the families of our cases, but is also a part of the chain that allows donation of organs and tissues to those in need.

PREPAREDNESS AT THE MEDICAL EXAMINER DEPARTMENT

MASS DISASTER PREPARATION

Mass disasters or mass fatalities may take many different forms, including disease epidemics or pandemics like influenza, natural disasters such as earthquakes or wildfires, accidents such as aircraft crashes or industrial/nuclear incidents, and terrorist attacks. Whether these fatalities involve natural or human causes, the Medical Examiner Office must be ready to respond as part of the greater community of essential emergency services. Our response plans are continually reviewed and updated as necessary and provide a general outline for our plans in event of mass fatalities. Our office has given multiple presentations to various groups including the Red Cross, San Diego City Schools, and various hospital agencies on the Medical Examiner's role in mass



disaster fatality response. This past year we participated in several county and statewide exercises involving mass fatalities, interacting and planning with a variety of civilian and military first responders so that we will be ready when needed. These exercises – both tabletop and full-scale – ensure that, if needed, we will respond in an integrated fashion with the variety of regional and federal agencies that may be involved.

DMORT

Some of our Investigators and one Deputy Medical Examiner have been members of the National Disaster Medical System (NDMS) Region IX Disaster Mortuary Operational Response Team (DMORT), a federally funded and operated team that may deploy within the United States or internationally to provide mortuary assistance (investigation, identification, pathology, and disposition of remains) for mass fatality incidents.

2015 DATA SECTION

California statute mandates that our office determine the cause and manner of death for each person whose case falls under the jurisdiction of the Medical Examiner. However, another important function of the M.E. Department is to identify patterns and trends of various types of deaths, allowing other agencies to identify issues that need additional resources or to confirm that ongoing interventional efforts are accomplishing their goals. Coupled with the right data from other agencies, this information can potentially also be used to prevent harm to those living in our community.

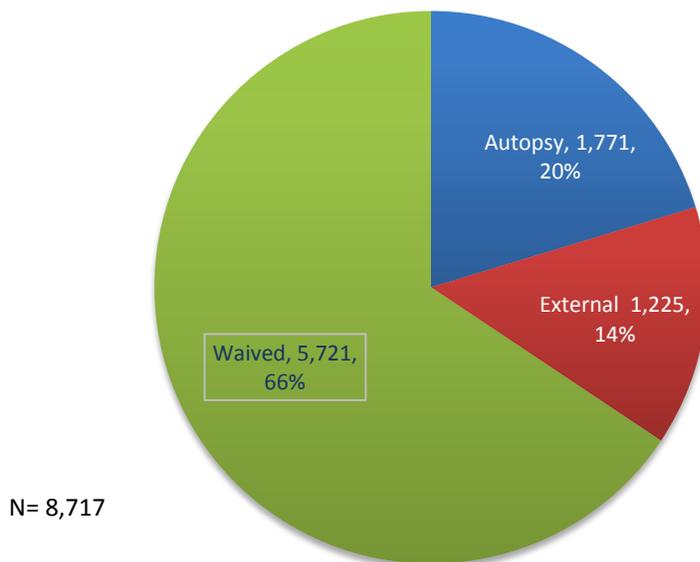
This section is designed to provide data in an easy-to-understand format so that the reader, and other regional stakeholders, can use the information to make decisions and stay informed. Most of the data is designed to speak for itself, but where applicable a narrative or explanatory caption will be provided to further explain the data, point out caveats, and give background and context. In some areas, a multi-year perspective is given to demonstrate trends over time and show how 2015 compares with previous years.

Keep in mind that this report represents investigation of only a certain subset of deaths in the county – approximately 15 percent (2,996) of the approximately 20,000 deaths in 2015. These are the deaths in which we chose to or were required to take jurisdiction (see Deaths We Investigate for more information) and include ALL deaths due to non-natural causes (injury, drugs/alcohol, homicides, suicides, etc.) and a relatively small, but unique group of natural deaths (5 percent of all natural deaths) in the county.

OVERVIEW OF ALL CASES

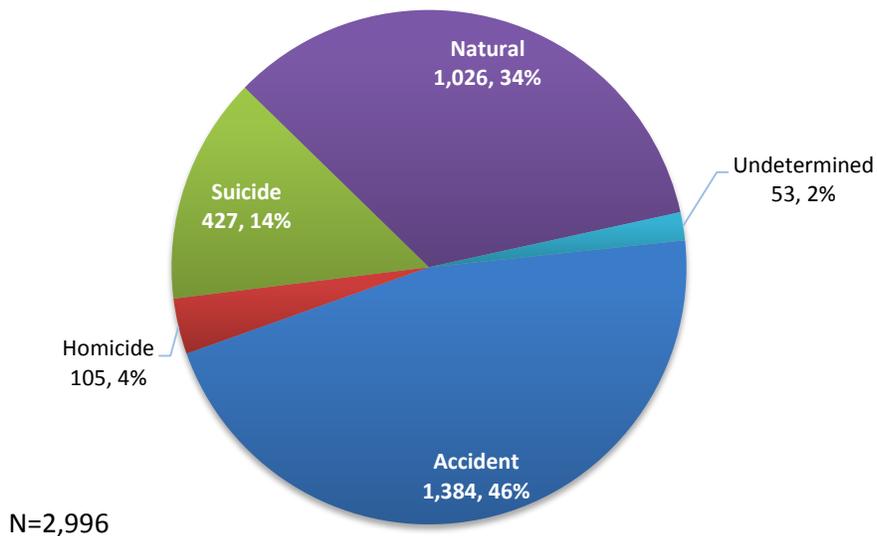
In 2015, 8,717 deaths were reported to the San Diego County Medical Examiner's Office. Jurisdiction was waived on 66 percent of these (5,721) and invoked in 34 percent (2,996). We performed 1,771 autopsies (59 percent of jurisdiction cases, 20 percent of all deaths reported to us, and 8.1 percent of all deaths in the County) and 1,225 external examinations (41 percent of jurisdiction cases).

ALL DEATHS REPORTED TO M.E, 2015

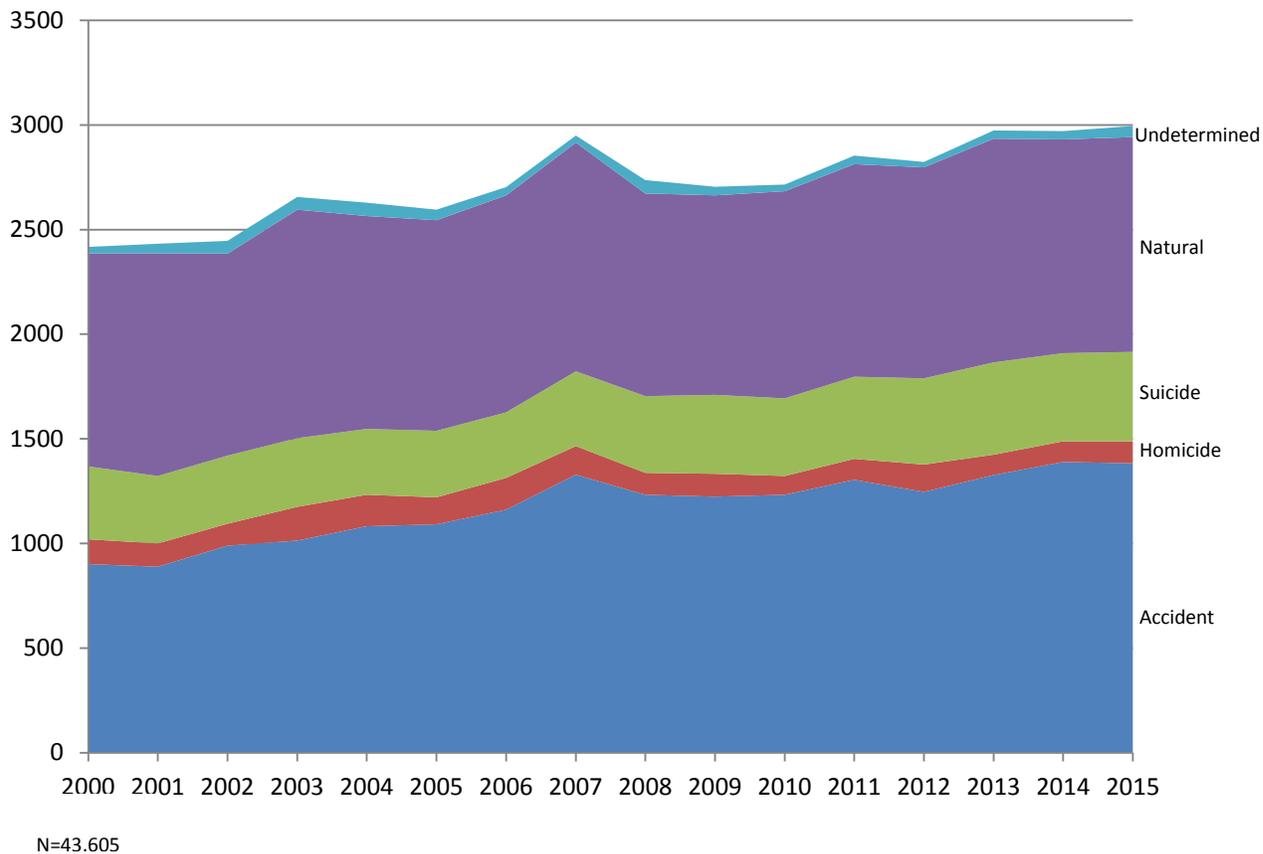


The San Diego County Medical Examiner's Office performs an average of five autopsies per day, and 3.4 external examinations. In 2015, 46 percent of investigations were determined to be unintentional (accident) manners of death, followed by natural causes (34 percent), suicides (14 percent), and homicides (3.5 percent). The manner of death was undetermined for 1.8 percent of deaths (53).

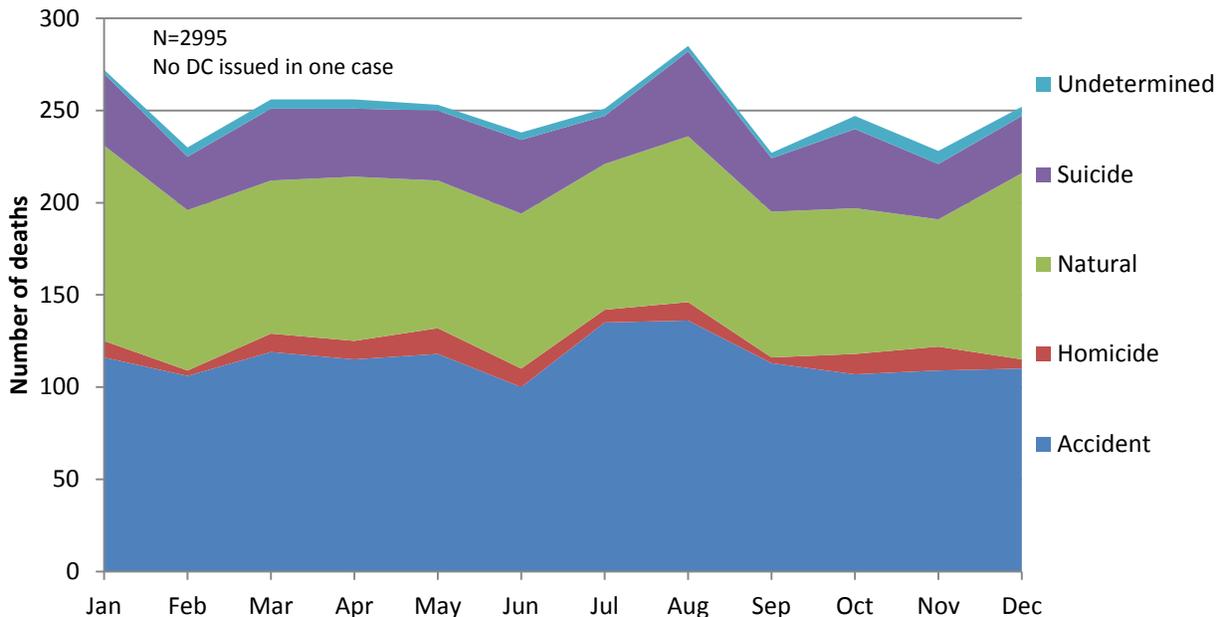
MANNERS OF DEATH, 2015



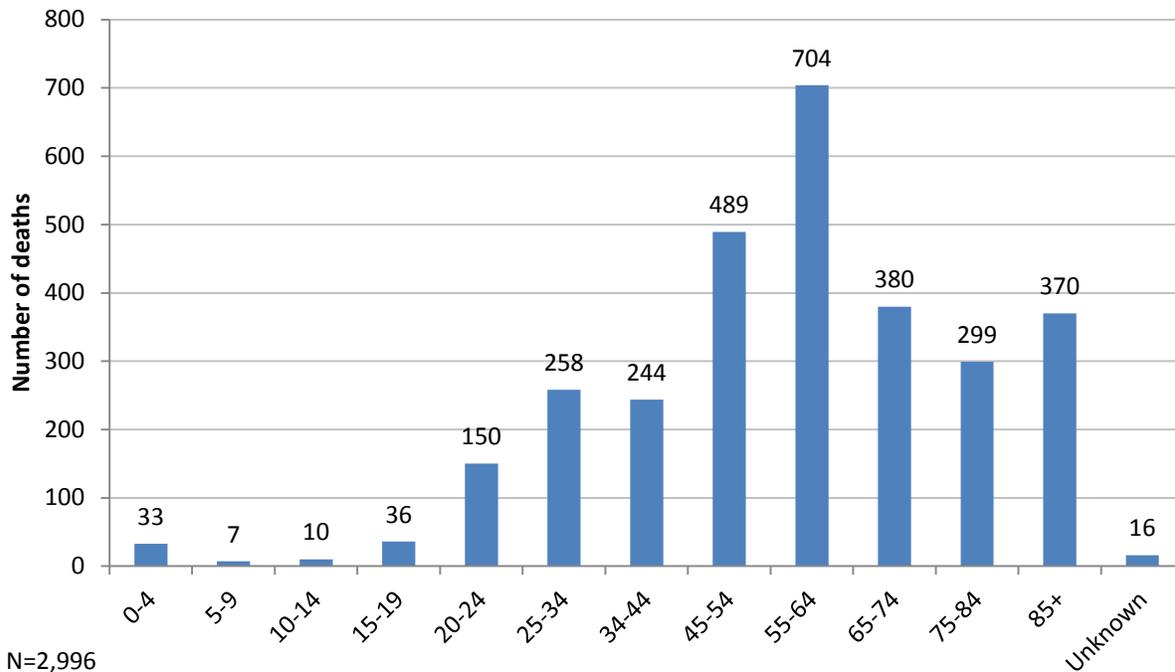
MANNER OF DEATH BY YEAR, 2000 – 2015



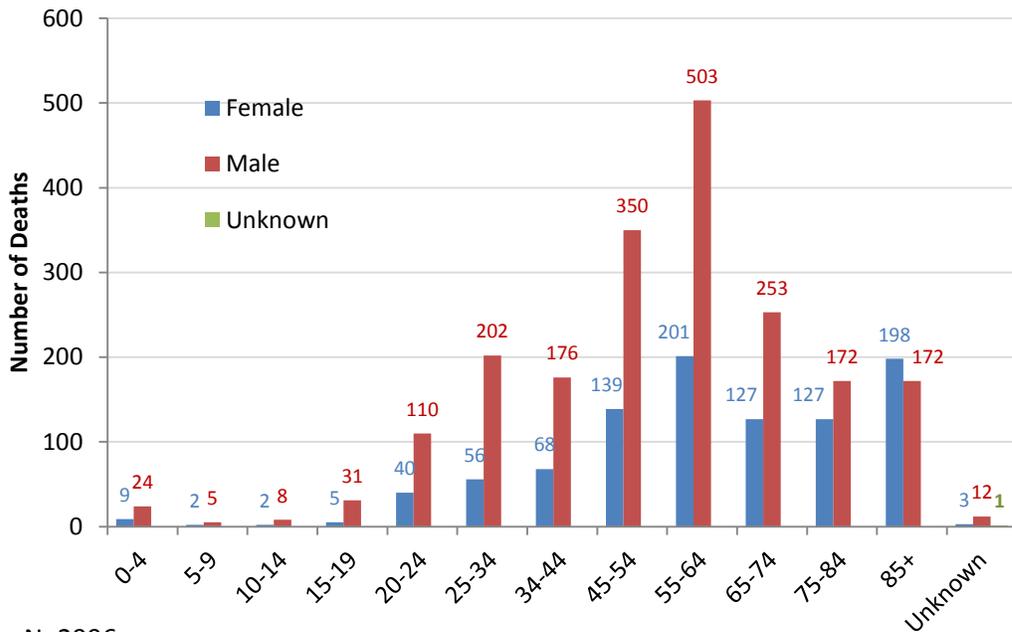
MANNER OF DEATH BY MONTH: 2015



AGE DISTRIBUTION OF DECEDENTS, 2015

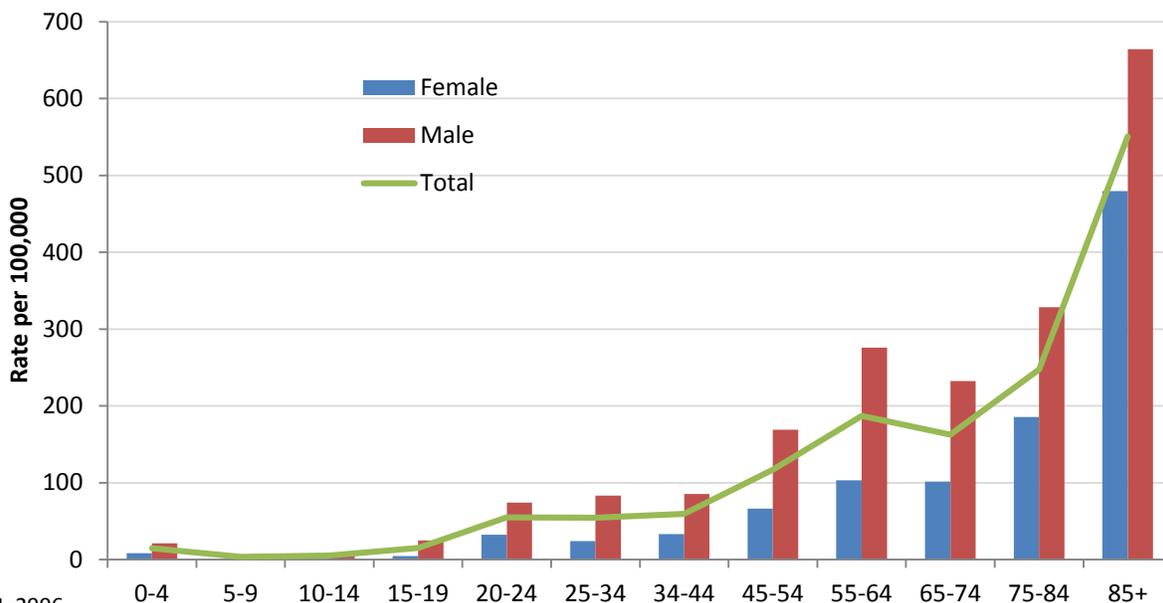


NUMBER OF DECEDENTS BY AGE AND SEX, 2015



N=2996

RATE PER 100,000 OF INVESTIGATIONS BY AGE AND SEX, 2015

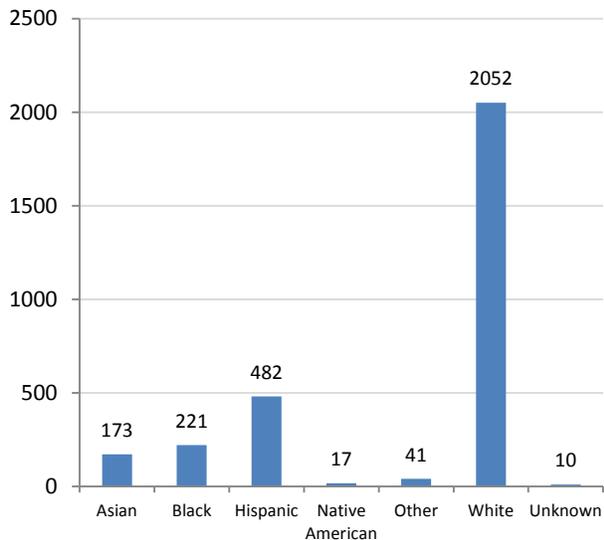


N=2996

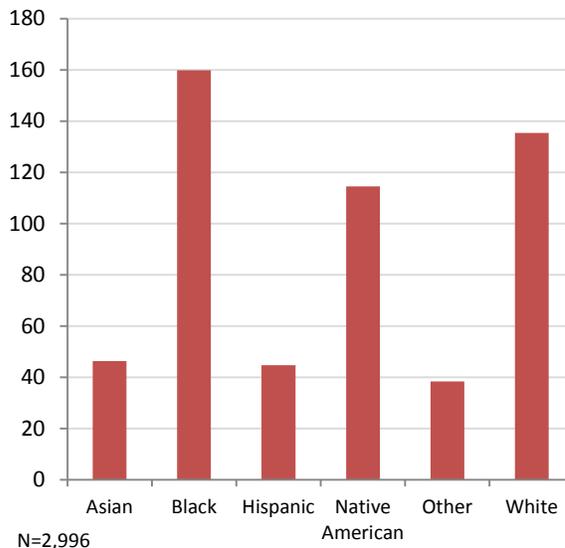
Rate not calculated for fewer than five events

NUMBER AND RATE OF DEATHS BY RACE/ETHNICITY, 2015

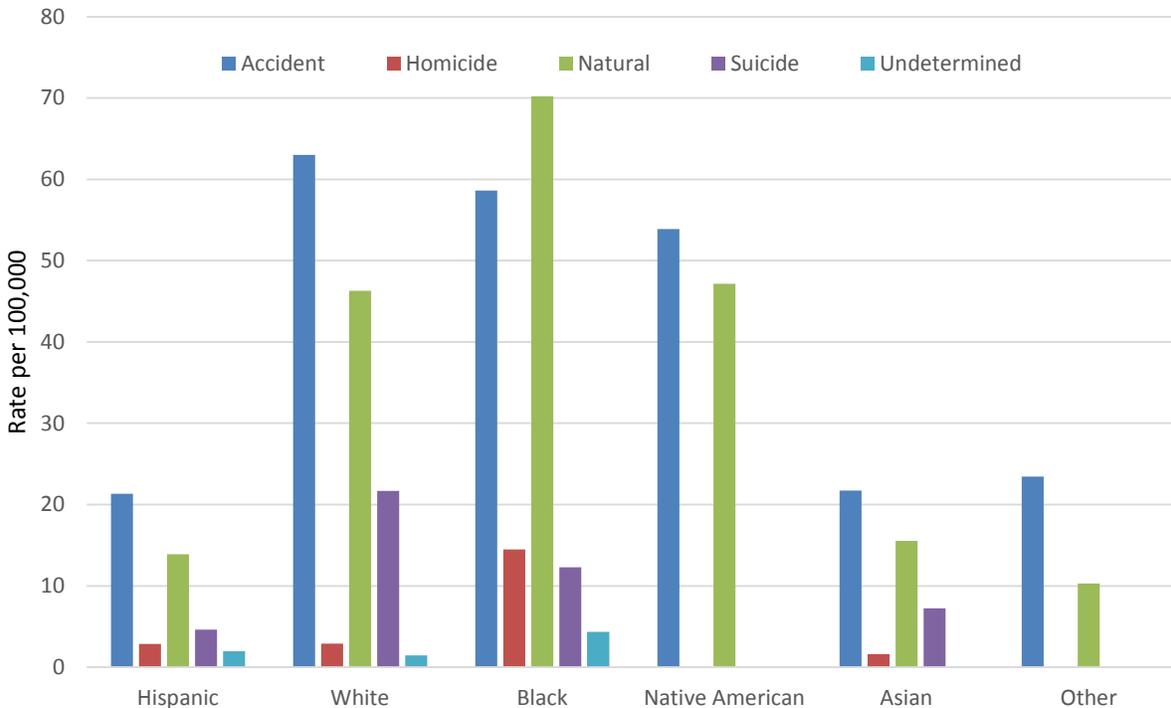
NUMBER OF DEATHS



RATE OF DEATHS PER 100,000



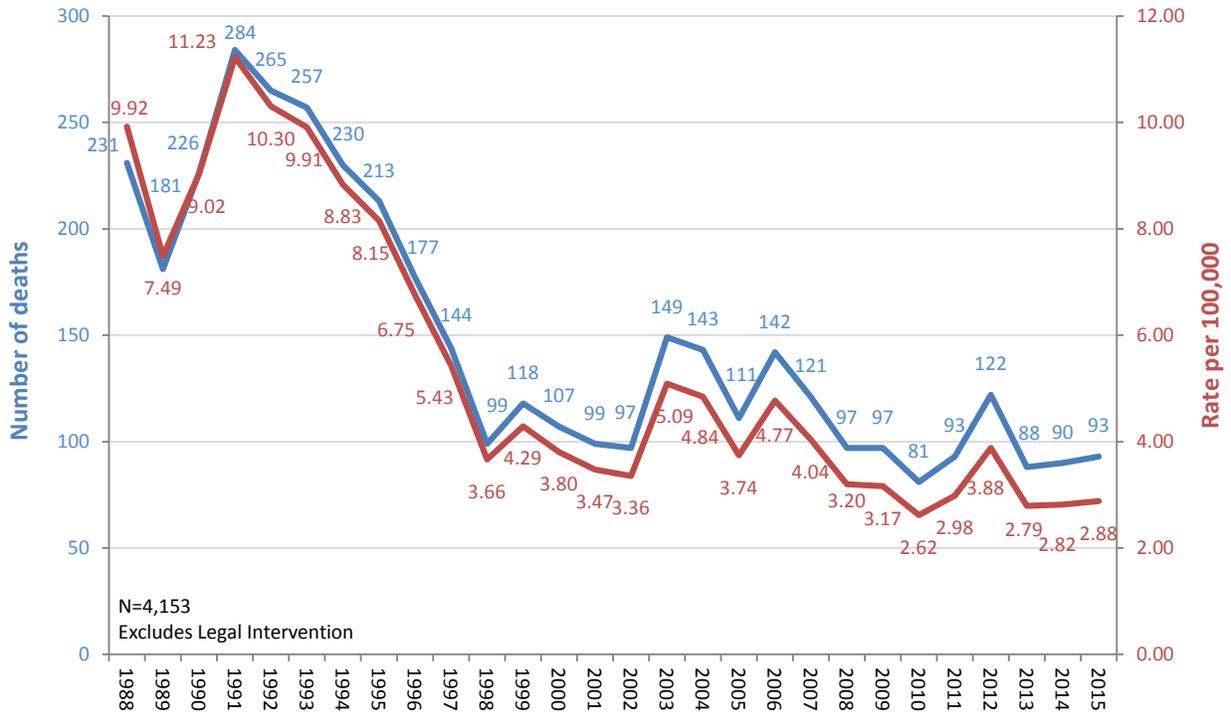
RATES OF MANNER BY RACE/ETHNICITY, 2015



Rates not calculated for fewer than five incidents

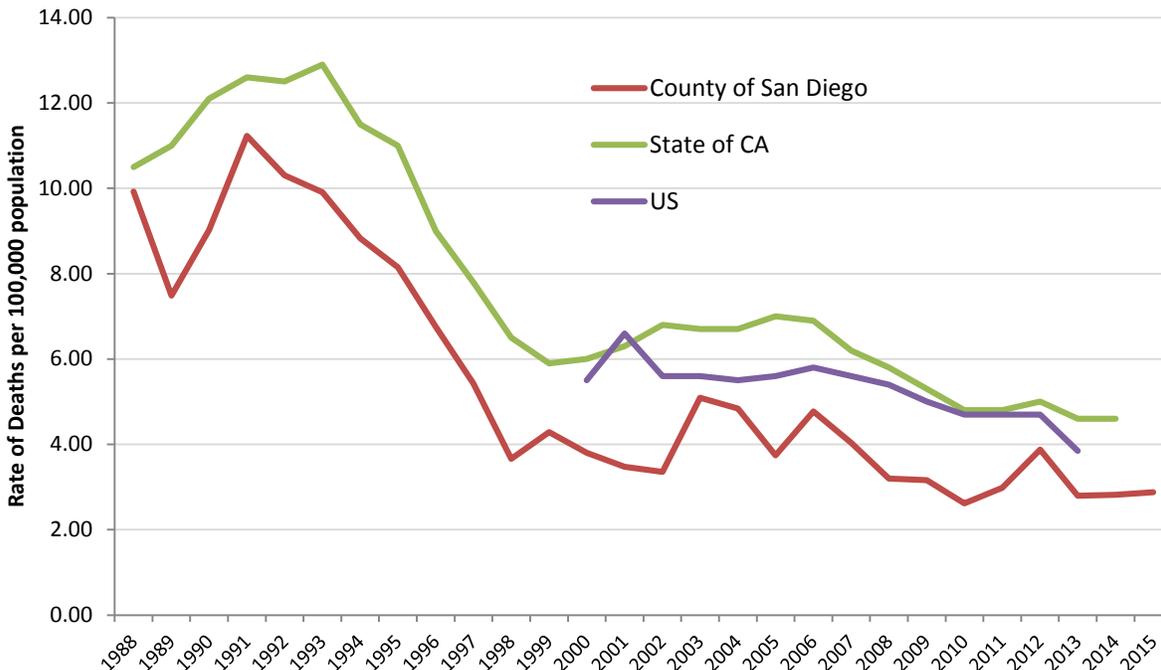
HOMICIDE

HOMICIDE COUNT AND RATE BY YEAR, 1988 - 2015



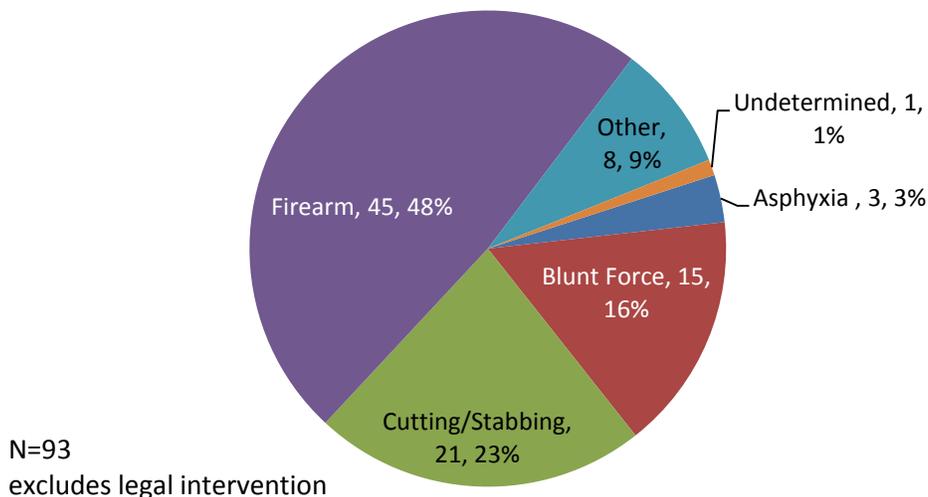
Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number	231	181	226	284	265	257	230	213	177	144	99	118
Rate per 100,000	9.9	7.5	9.0	11.2	10.3	9.9	8.8	8.2	6.8	5.4	3.7	4.3
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	107	99	97	149	143	111	142	121	97	97	81	93
Rate per 100,000	3.8	3.5	3.4	5.1	4.8	3.7	4.8	4.0	3.2	3.2	2.6	3.0
Year	2012	2013	2014	2015								
Number	122	88	90	93								
Rate per 100,000	3.9	2.8	2.8	2.9								

HOMICIDE RATE PER 100,000 COMPARED TO NATIONAL AND STATE RATES

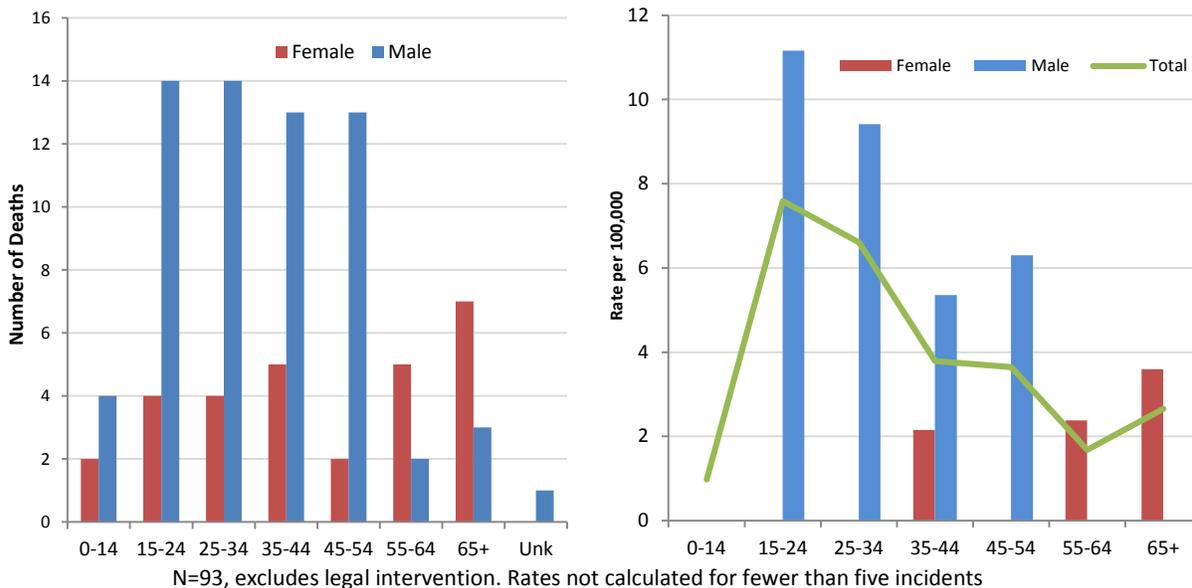


Sources: United Nations Office on Drugs and Crime (UNODC) website, Global Study on Homicide, <https://data.unodc.org/#state:0>, accessed June 2, 2015. CDC Website, National Center for Health Statistics, Homicide Mortality by State: 2014, <http://www.cdc.gov/nchs/pressroom/sosmap/homicide.htm>, accessed 8/20/2016, *Homicide in California 2013*, Kamala D. Harris, Atty General, California Department of Justice. *Homicide in California*, several previous years.

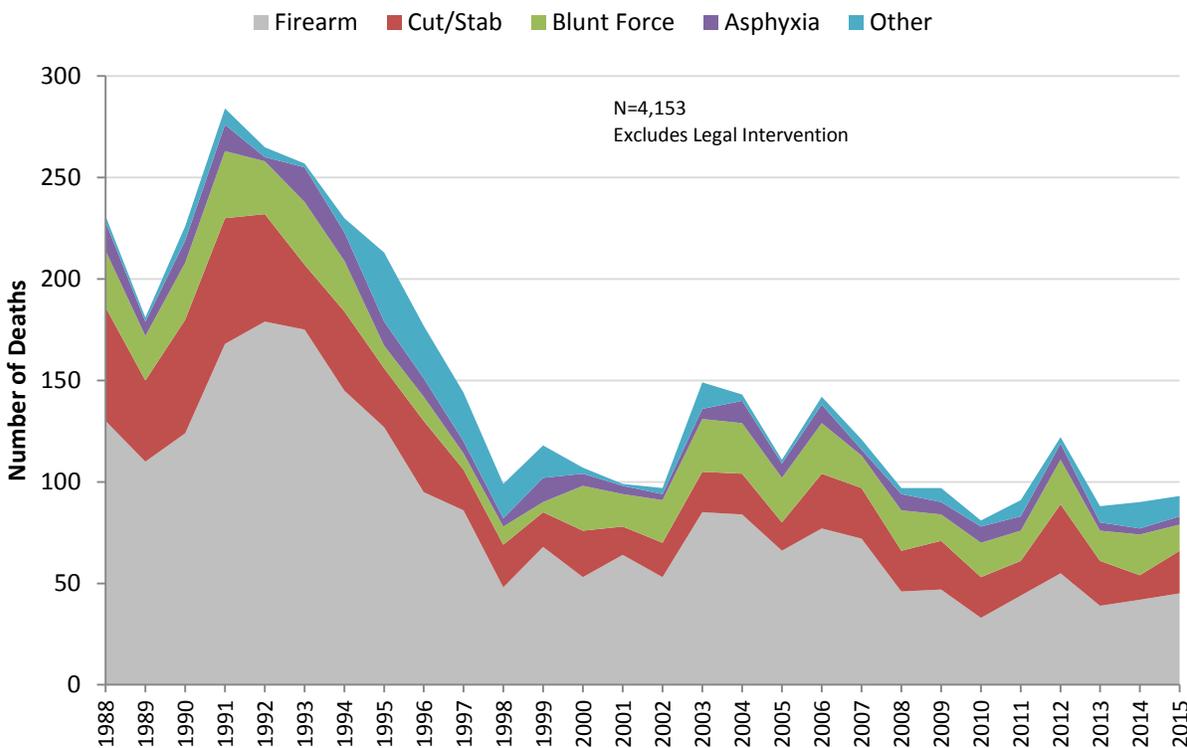
HOMICIDE METHODS: 2015



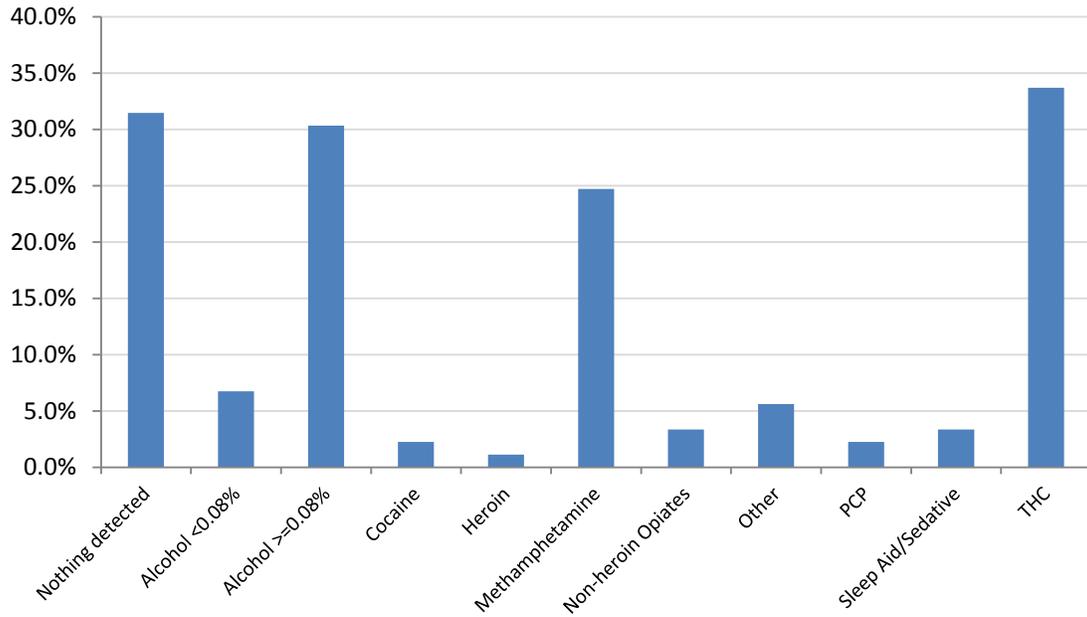
NUMBER AND RATE OF HOMICIDE VICTIMS BY AGE AND GENDER, 2015



HOMICIDE METHOD BY YEAR: 1988 - 2015

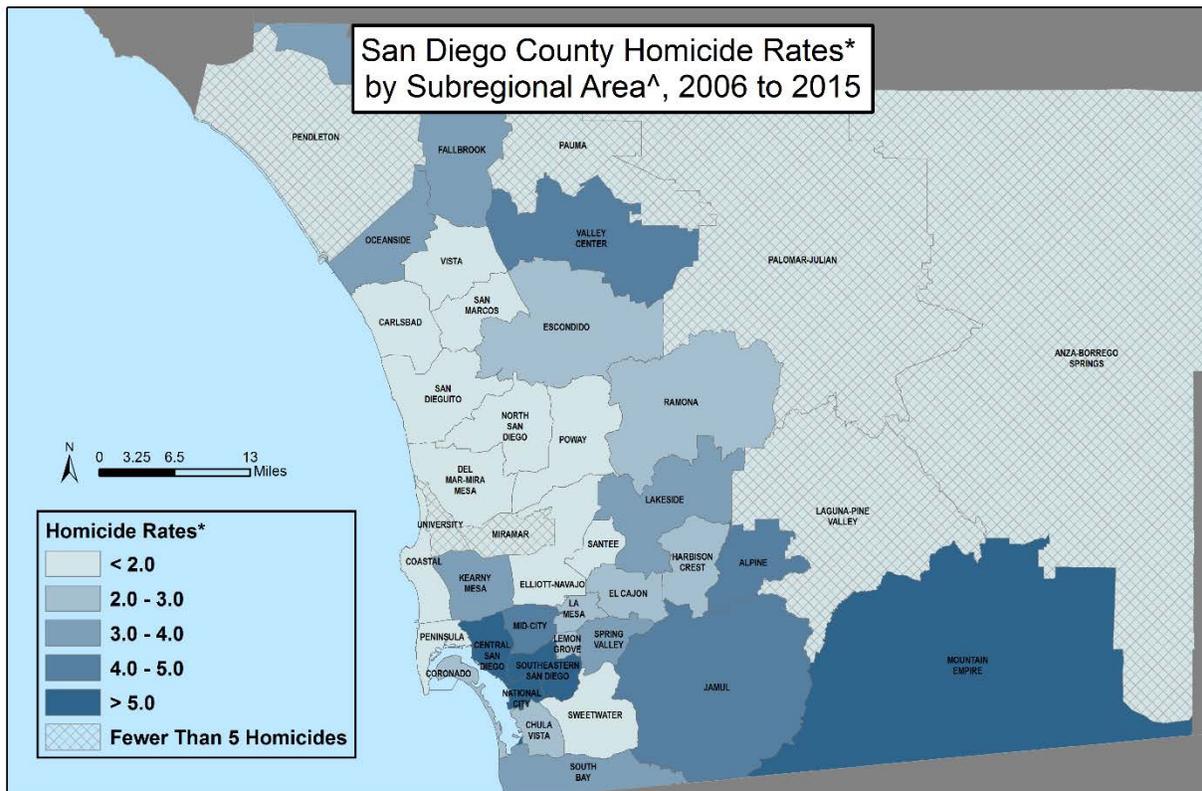


TOXICOLOGY RESULTS - PERCENT OF HOMICIDE: 2015



Percent of homicides in which testing was performed. Excludes legal intervention. N=89. Four of the non-legal intervention homicides were not tested. A single case may have more than one substance detected.

HOMICIDE RATE PER 100,000 BY SUBREGIONAL AREA, 2006 - 2015



*Rates per 100,000 people

^SRA of 'Event' was used where available with SRA of 'Residence' and 'Death' used to fill in missing data.

Map Date: September, 2016
 Maps/Analysis by County of San Diego, EMS
 Contact Joshua Smith, Leslie Ray 619.285.6429



- 9.74 Southeast San Diego
- 8.04 Mountain Empire
- 7.63 Central San Diego
- 5.22 National City
- 4.98 Mid-City
- 4.63 Alpine
- 4.62 Jamul
- 4.44 Valley Center
- 3.72 South Bay
- 3.63 Lakeside
- 3.58 Oceanside
- 3.08 Fallbrook
- 3.05 Kearny Mesa
- 3.02 Spring Valley

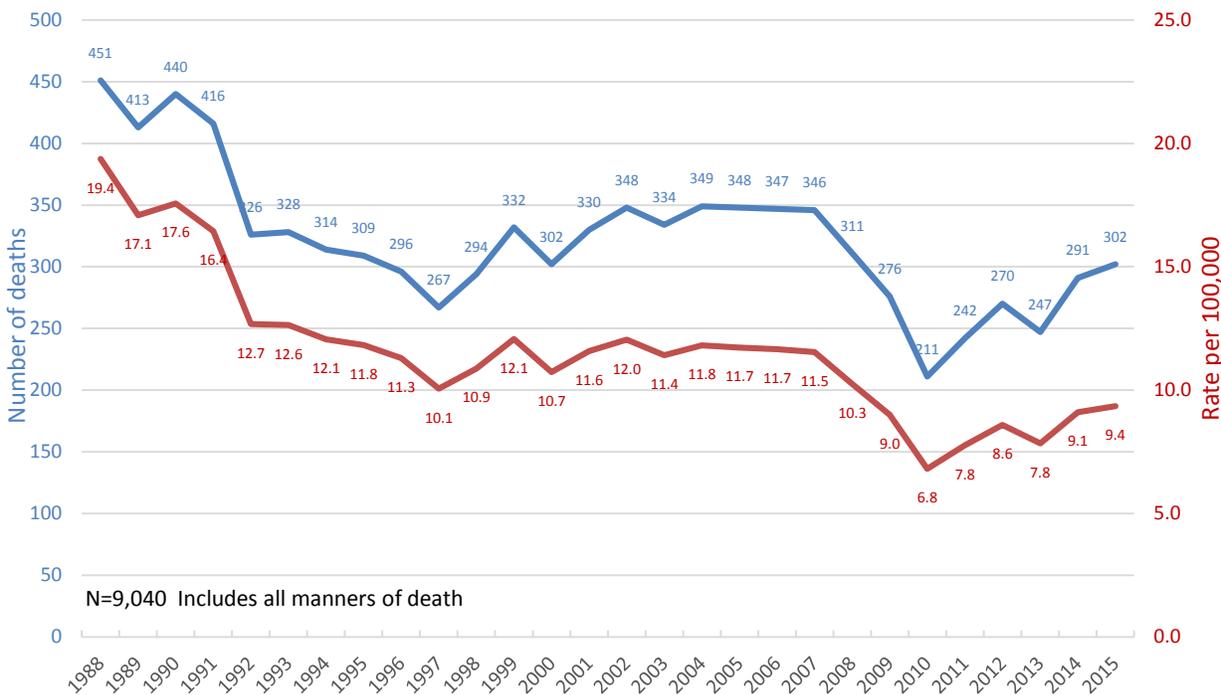
- 2.96 Escondido
- 2.62 Chula Vista
- 2.46 El Cajon
- 2.36 Lemon Grove
- 2.31 Harbison Crest
- 2.23 Ramona
- 2.14 Coronado
- 2.10 La Mesa
- 1.91 Sweetwater
- 1.86 Santee
- 1.80 Carlsbad
- 1.77 Vista
- 1.70 San Marcos
- 1.68 Del Mar-Mira Mesa

- 1.63 Elliott-Navajo
- 1.53 Peninsula
- 1.45 Coastal
- 1.34 San Dieguito
- 0.97 Poway
- 0.57 North San Diego
- * University
- * Miramar
- * Pendleton
- * Pauma
- * Palomar-Julian
- * Laguna-Pine Valley
- * Anza-Borrego Springs

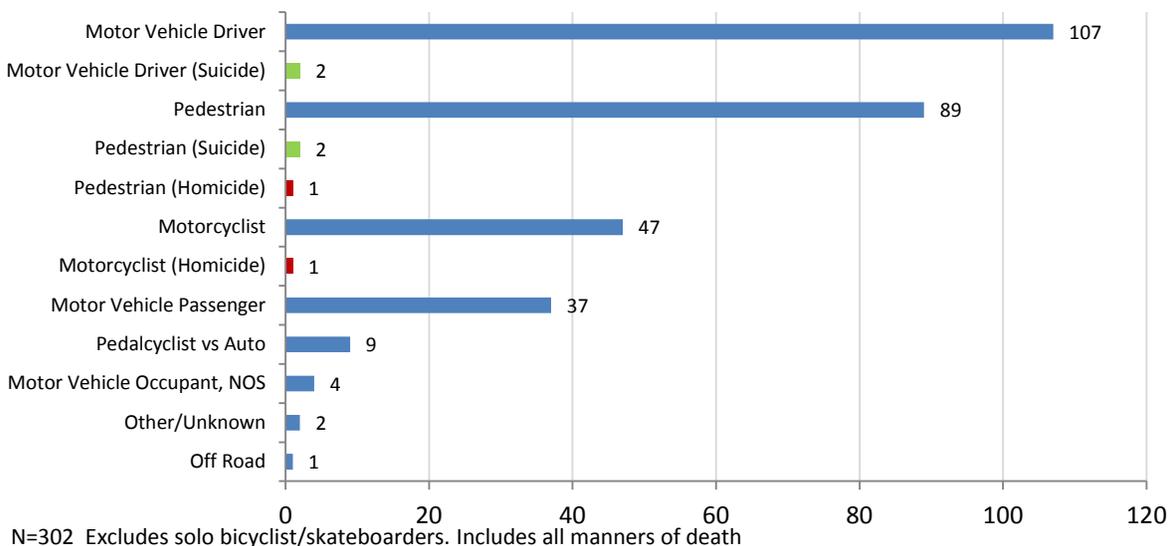
*rates not calculated for fewer than five events

MOTOR VEHICLE FATALITIES

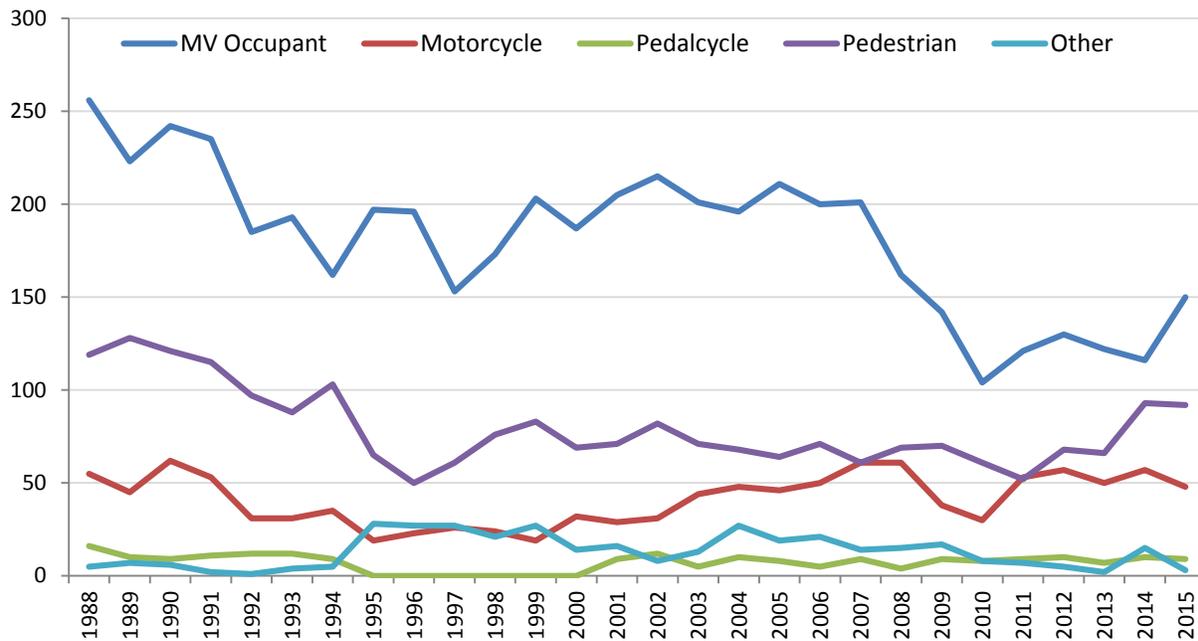
MOTOR VEHICLE RELATED FATALITIES: 1988 - 2015



MOTOR VEHICLE RELATED FATALITIES BY VICTIM TYPE: 2015



TRAFFIC-RELATED FATALITIES BY YEAR, 1988 - 2015

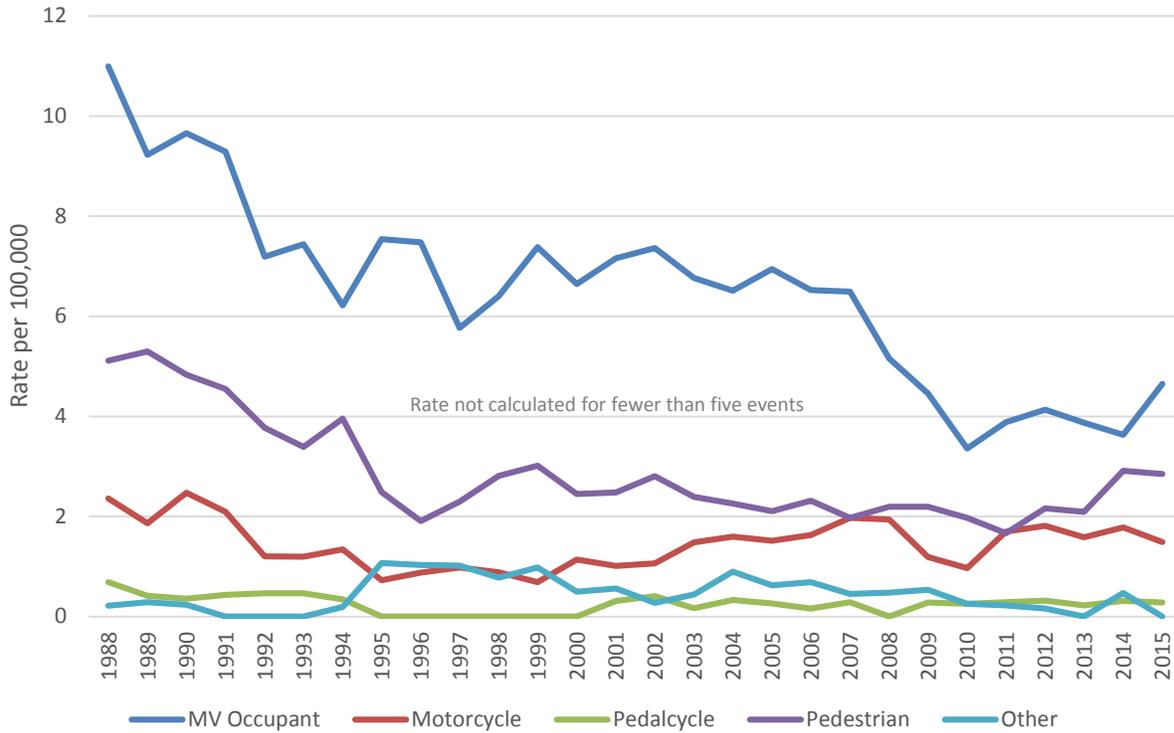


	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MV Occupant	256	223	242	235	185	193	162	197	196	153	173	203
Motorcycle	55	45	62	53	31	31	35	19	23	26	24	19
Pedalcycle	16	10	9	11	12	12	9	0	0	0	0	0
Pedestrian	119	128	121	115	97	88	103	65	50	61	76	83
Other	5	7	6	2	1	4	5	28	27	27	21	27
Total	451	413	440	416	326	328	314	309	296	267	294	332

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
MV Occupant	187	205	215	201	196	211	200	201	162	142	104	121
Motorcycle	32	29	31	44	48	46	50	61	61	38	30	53
Pedalcycle	0	9	12	5	10	8	5	9	4	9	8	9
Pedestrian	69	71	82	71	68	64	71	61	69	70	61	52
Other	14	16	8	13	27	19	21	14	15	17	8	7
Total	302	330	348	334	349	348	347	346	311	276	211	242

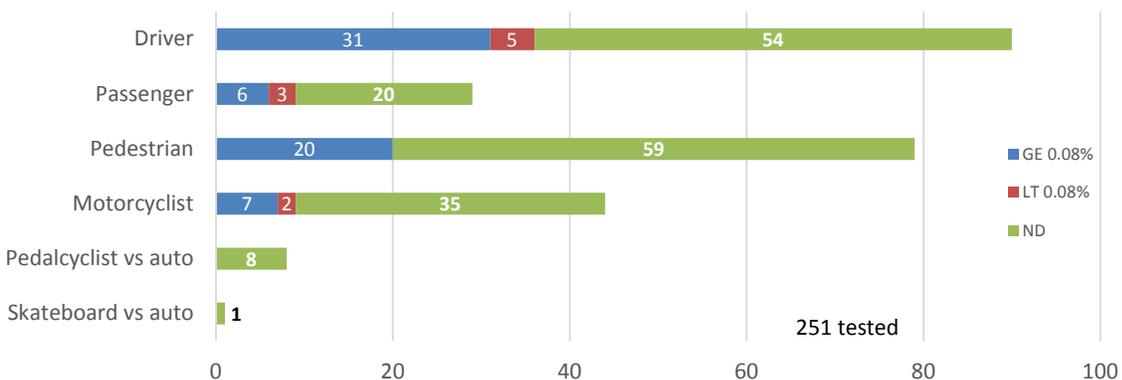
	2012	2013	2014	2015
MV Occupant	130	122	116	150
Motorcycle	57	50	57	48
Pedalcycle	10	7	10	9
Pedestrian	68	66	93	92
Other	5	2	15	4
Total	270	247	291	302

TRAFFIC-RELATED FATALITY RATE BY YEAR, 1988 - 2015

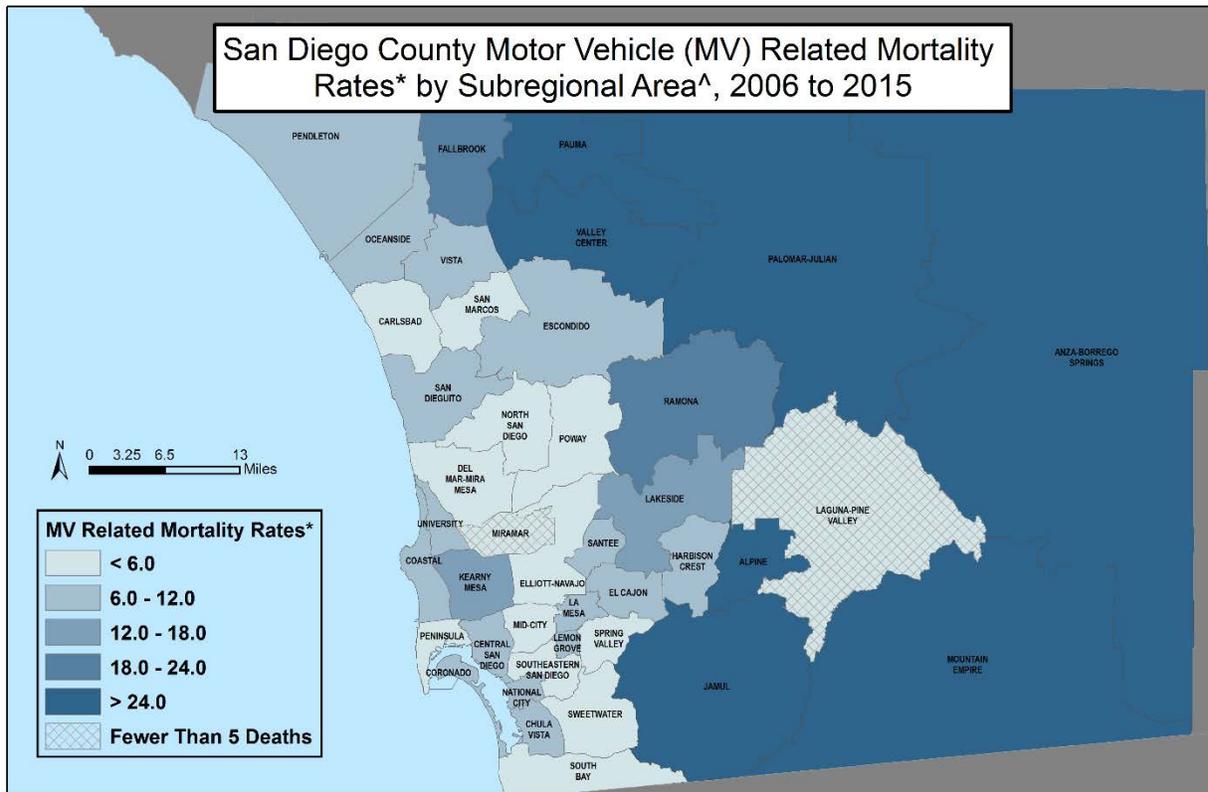


Motor vehicle occupant death rates dropped by more than half from the late 1980's to 2010, and after a few years of remaining at historic lows, saw an increase in 2015. Motorcyclist deaths saw a sharp decline from 1988 to the late 1990's, coinciding with the implementation of California's mandatory helmet law, but much of this decline has reversed over the last 15 years. Pedestrian fatalities dropped by one from 2014, but are still higher than they have been for the last 21 years.

ALCOHOL TOXICOLOGY BY MOTOR VEHICLE VICTIM TYPE: 2015



MOTOR VEHICLE RELATED DEATH RATES BY SUBREGIONAL AREA, 2006 – 2015



*Rates per 100,000 people

^SRA Code of 'Event' was used where available with SRA Code of 'Residence' and 'Death' used to fill in missing data.

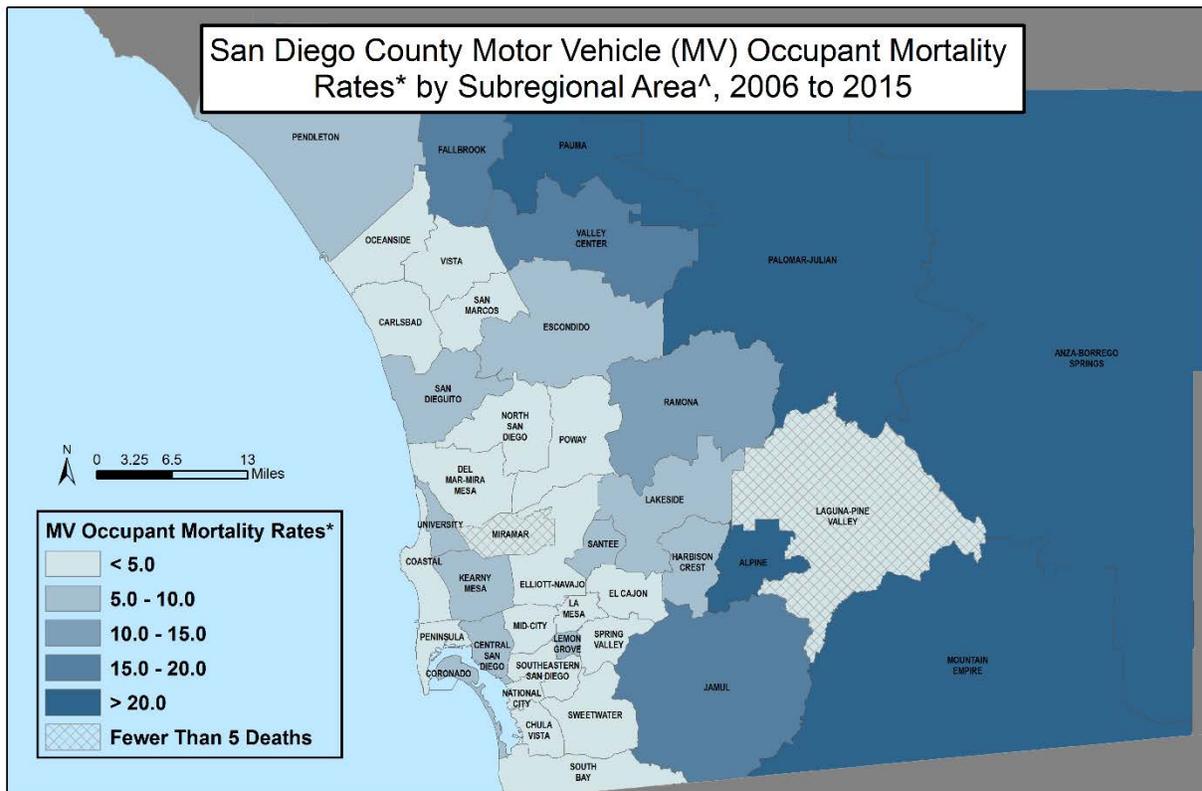
Map Date: September, 2016
 Maps/Analysis by County of San Diego, EMS
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128.1 Pauma	10.8 National City	5.9 Mid-City
121.4 Palomar-Julian	10.8 Escondido	5.8 San Marcos
79.6 Anza-Borrego Springs	8.6 San Dieguito	5.8 South Bay
65.3 Mountain Empire	8.3 Santee	5.8 Elliott-Navajo
36.4 Jamul	8.1 Coronado	5.0 Spring Valley
28.3 Alpine	8.1 University	5.0 Peninsula
28.3 Valley Center	7.9 Lemon Grove	5.0 Poway
23.1 Fallbrook	7.9 La Mesa	4.7 Del Mar-Mira Mesa
18.6 Ramona	7.8 Vista	4.6 Carlsbad
13.3 Lakeside	7.6 El Cajon	4.3 North San Diego
12.7 Kearny Mesa	7.6 Oceanside	3.1 Sweetwater
12.0 Pendleton	7.0 Chula Vista	* Miramar
11.4 Central San Diego	6.0 Southeast San Diego	* Laguna-Pine Valley
10.9 Harbison Crest		

*rates not calculated for fewer than 5 events

MOTOR VEHICLE OCCUPANT DEATH RATES BY SUBREGIONAL AREA, 2006 – 2015



*Rates per 100,000 people

^SRA Code of 'Event' was used where available with SRA Code of 'Residence' and 'Death' used to fill in missing data.

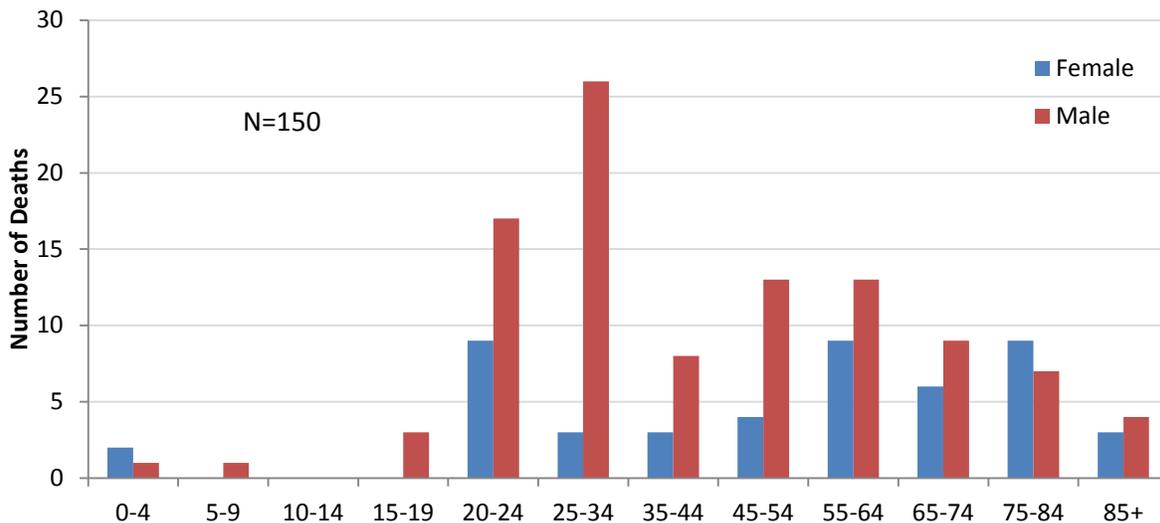
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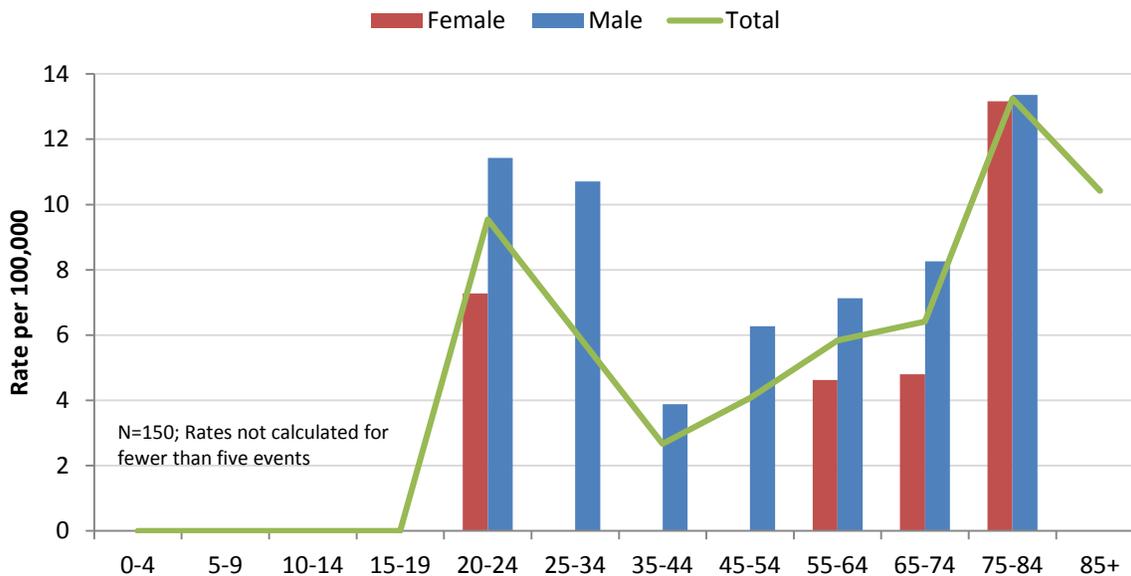
72.2	Palomar-Julian	5.8	Santee	3.0	San Marcos
72.2	Pauma	5.4	University	2.7	Chula Vista
43.2	Mountain Empire	5.2	Harbison Crest	2.7	Southeast San Diego
37.9	Anza-Borrego Springs	5.2	Central San Diego	2.7	Spring Valley
21.4	Alpine	5.1	San Dieguito	2.7	Peninsula
19.7	Jamul	5.1	Lemon Grove	2.7	Poway
17.2	Valley Center	4.1	Coastal	2.6	Del Mar-Mira Mesa
16.0	Fallbrook	3.8	La Mesa	2.5	North San Diego
10.0	Ramona	3.6	Oceanside	2.4	Mid-City
9.6	Pendleton	3.6	Elliott-Navajo	2.1	Sweetwater
8.0	Lakeside	3.4	El Cajon	2.0	Carlsbad
6.9	Kearny Mesa	3.4	National City	*	Miramar
6.4	Coronado	3.3	Vista	*	Laguna-Pine Valley
6.1	Escondido	3.1	South Bay		

*rates not calculated for fewer than 5 events

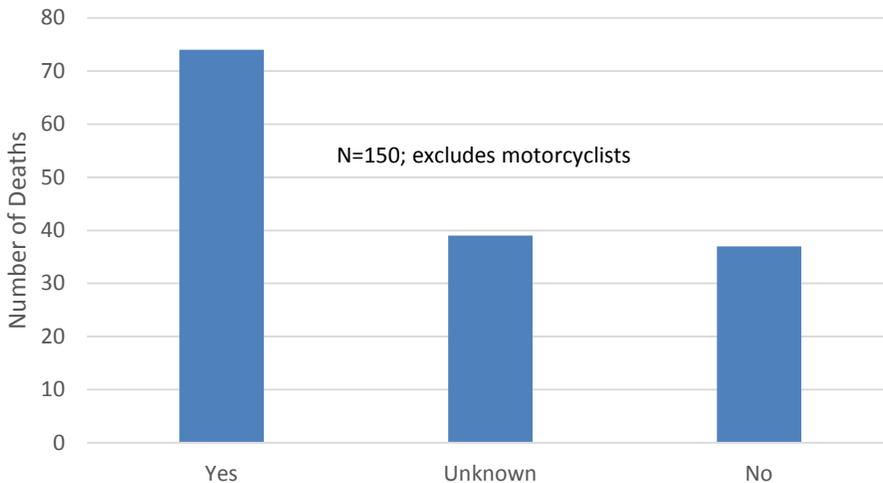
NUMBER OF MOTOR VEHICLE OCCUPANTS DEATHS BY AGE AND SEX, 2015



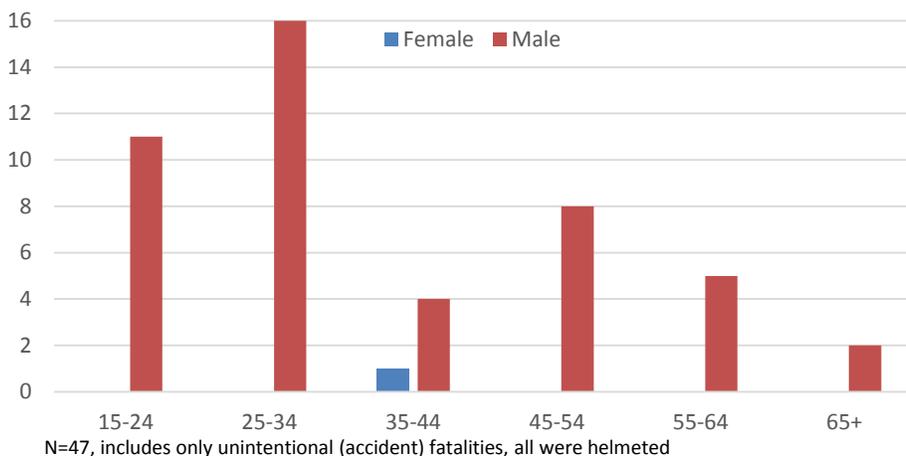
RATE OF MOTOR VEHICLE OCCUPANTS DEATHS BY AGE AND SEX, 2015



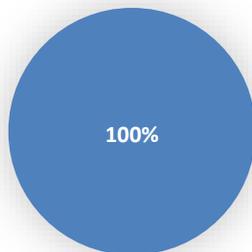
SEAT BELT USE: MOTOR VEHICLE OCCUPANTS, 2015



UNINTENTIONAL MOTORCYCLIST DEATHS BY AGE AND GENDER, 2015

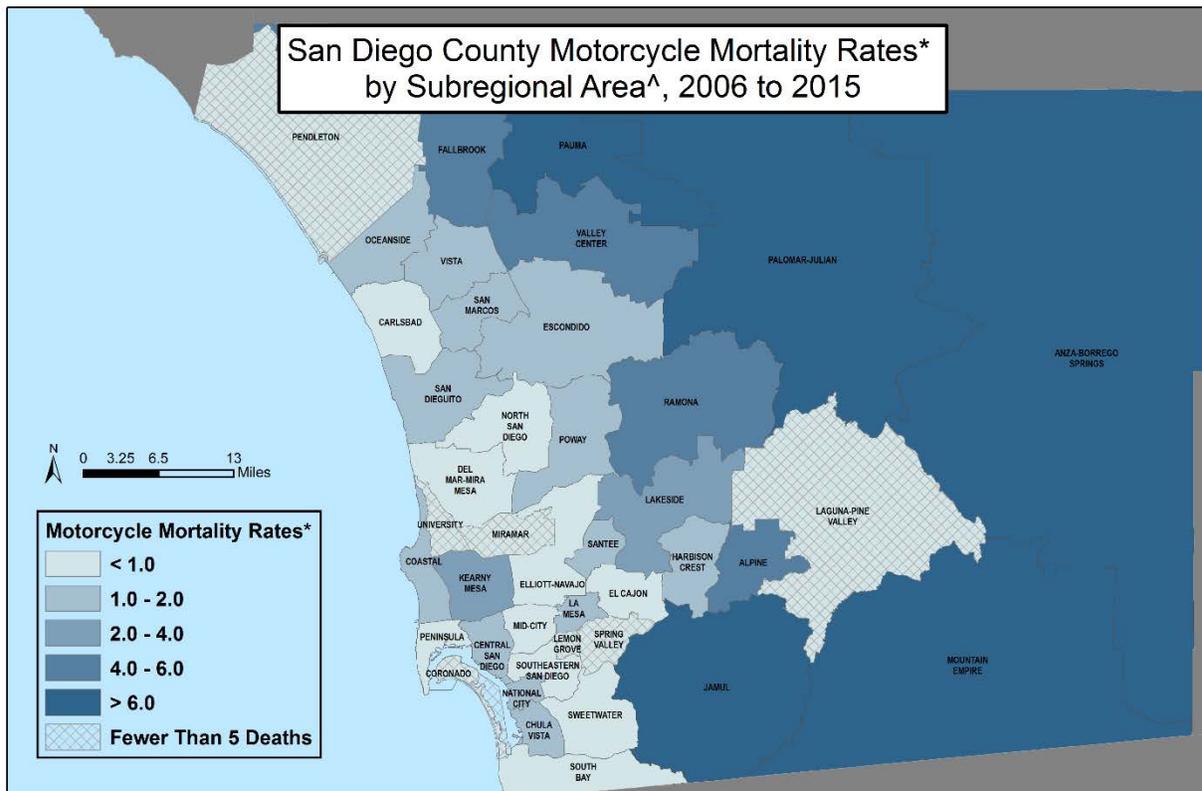


HELMET USE: UNINTENTIONAL MOTORCYCLIST FATALITIES, 2015



N=47 All unintentional motorcycle fatalities were helmeted

MOTORCYCLE DEATHS BY SUBREGIONAL AREA, 2006 – 2015



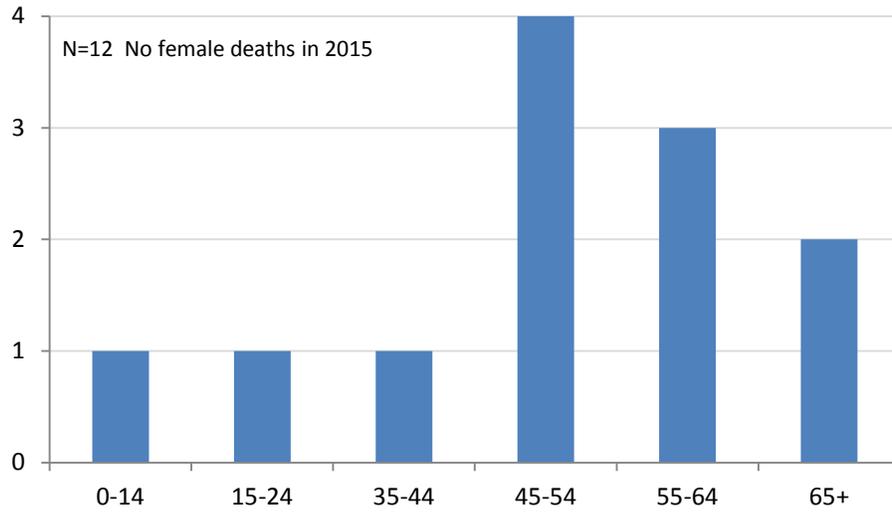
*Rates per 100,000 people
 ^SRA of 'Event' was used where available with SRA of 'Residence' and 'Death' used to fill in missing data.
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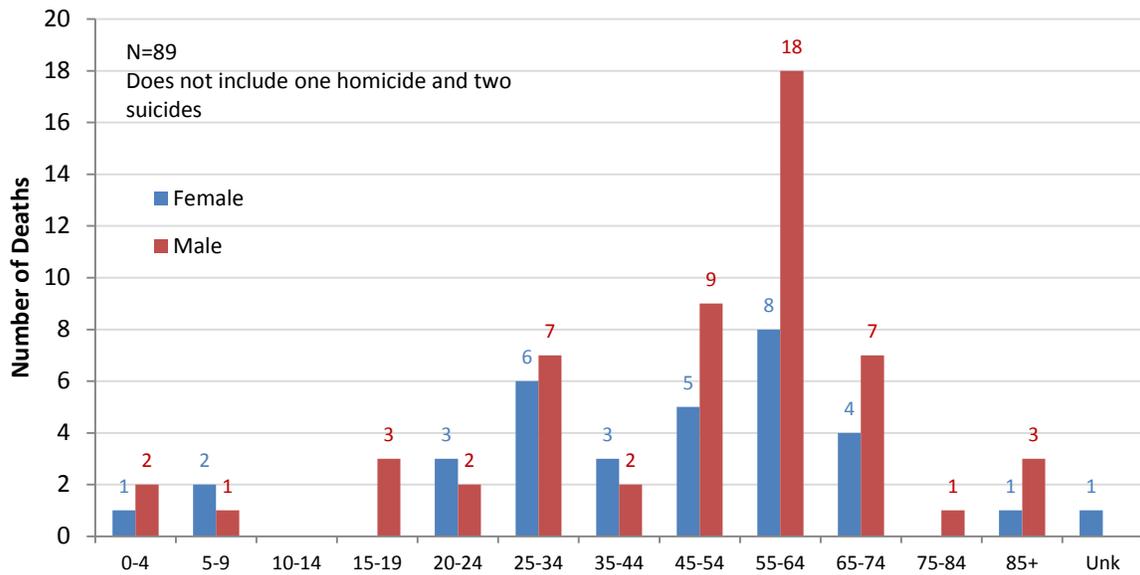
39.6	Pauma	1.6	San Marcos	0.8	Del Mar-Mira Mesa
34.7	Palomar-Julian	1.5	Vista	0.7	Southeast San Diego
34.1	Anza-Borrego Springs	1.5	San Dieguito	0.6	North San Diego
15.1	Mountain Empire	1.4	National City	0.6	Elliott-Navajo
13.9	Jamul	1.3	Oceanside	0.5	Sweetwater
5.8	Ramona	1.3	Santee	0.5	Carlsbad
5.2	Alpine	1.2	Poway	*	Miramar
5.0	Valley Center	1.1	La Mesa	*	Laguna-Pine Valley
4.6	Fallbrook	1.1	Chula Vista	*	Pendleton
2.2	Lakeside	1.0	Coastal	*	Coronado
2.0	Kearny Mesa	1.0	Mid-City	*	University
1.8	Escondido	1.0	El Cajon	*	Lemon Grove
1.7	Harbison Crest	1.0	Peninsula	*	Spring Valley
1.6	Central San Diego	0.9	South Bay		

*rates not calculated for fewer than 5 events

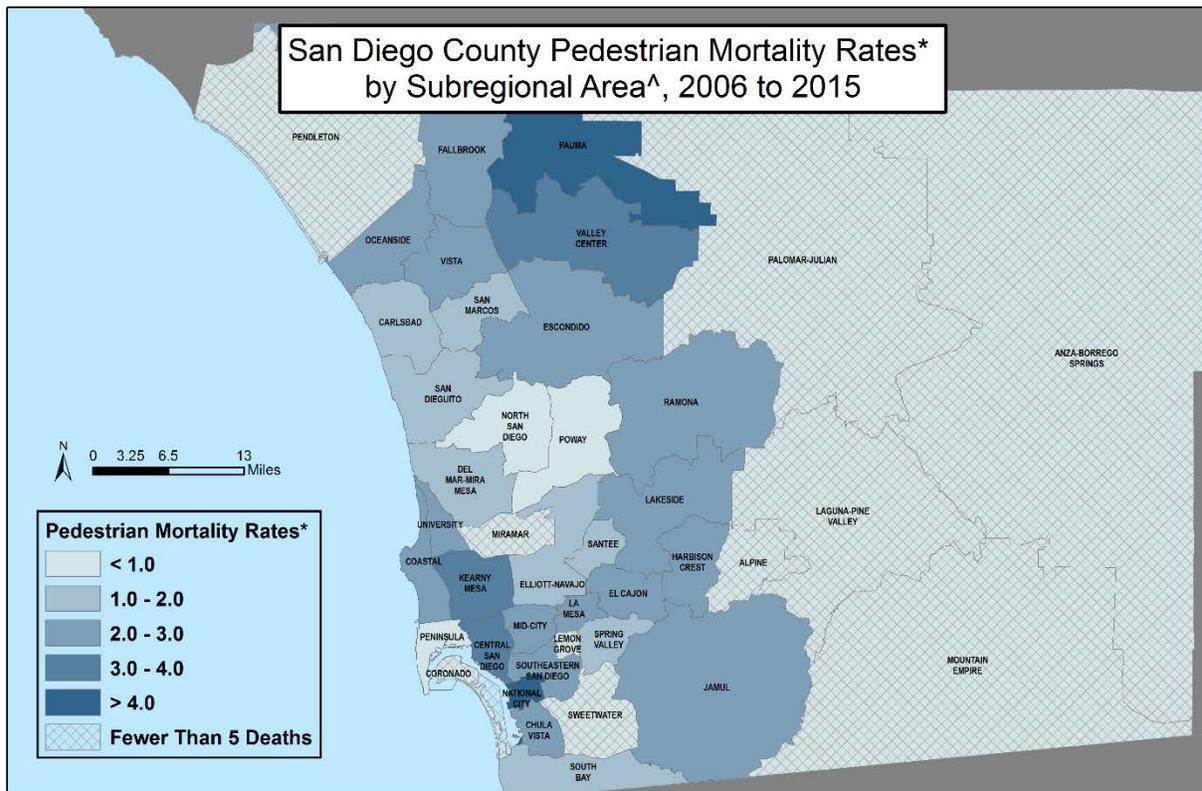
PEDALCYCLIST DEATHS BY AGE AND GENDER, 2015



UNINTENTIONAL PEDESTRIAN DEATHS BY AGE AND GENDER, 2015



PEDESTRIAN DEATHS PER 100,000 BY SUBREGIONAL AREA, 2006 – 2015



*Rates per 100,000 people

^SRA of 'Event' was used where available with SRA of 'Residence' and 'Death' used to fill in missing data.

Map Date: September, 2016
 Maps/Analysis by County of San Diego, EMS
 Contact Joshua Smith, Leslie Ray 619.285.6429



- 14.0 Pauma
- 5.4 National City
- 4.0 Central San Diego
- 3.9 Valley Center
- 3.2 Kearny Mesa
- 2.9 Harbison Crest
- 2.9 Jamul
- 2.9 El Cajon
- 2.8 Vista
- 2.8 La Mesa
- 2.8 Chula Vista
- 2.7 Lakeside
- 2.6 Escondido
- 2.5 Coastal

- 2.4 Oceanside
- 2.4 Southeast San Diego
- 2.2 Ramona
- 2.2 Mid-City
- 2.1 Fallbrook
- 2.1 University
- 1.8 Carlsbad
- 1.5 Spring Valley
- 1.5 San Dieguito
- 1.5 South Bay
- 1.4 Elliott-Navajo
- 1.2 Del Mar-Mira Mesa
- 1.1 San Marcos
- 1.1 Santee

- 1.0 North San Diego
- 1.0 Peninsula
- 0.8 Poway
- * Miramar
- * Laguna-Pine Valley
- * Pendleton
- * Coronado
- * Lemon Grove
- * Palomar-Julian
- * Anza-Borrego Springs
- * Mountain Empire
- * Alpine
- * Sweetwater

*rates not calculated for fewer than 5 events

UNINTENTIONAL DEATHS DUE TO MEDICATIONS, ALCOHOL, AND ILLICIT DRUGS

The following graphs represent medications, alcohol, and prescription drugs that alone or in combination, were responsible for being either the primary cause of death or contributing to death. In other words, these substances were listed on the death certificate as having played a role in the death. In this publication, the word “drug” refers to illicit drugs and the word “medication” refers to medications normally obtained through a prescription.

In some cases, the intoxication contributed to the circumstances of the death and was *required* for an explanation of those circumstances, such as drowning in a bathtub while intoxicated (neurologically intact, sober adults should not drown in a bathtub unless they are unwilling or unable to get above the water line). However, in other cases – such as motor vehicle fatalities – although the crash may have been more likely to occur because of the intoxication, by convention we do not include intoxications as part of the cause of death in these circumstances. The death certificate lists the death as being due to physical injuries.

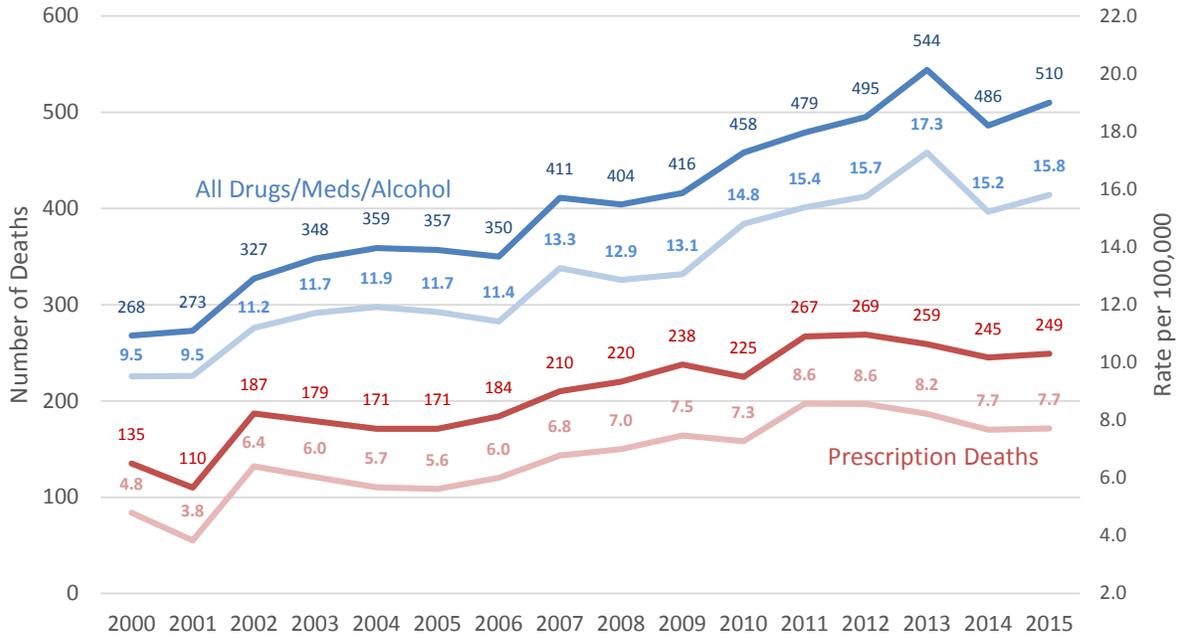
Where numbers of deaths related to an individual drug or medication are provided, one should not add the values of different substances to reach a total. This is because several medications may be involved in one case. In other words, the same case may be represented multiple times by different drugs or medications.

Some notable trends:

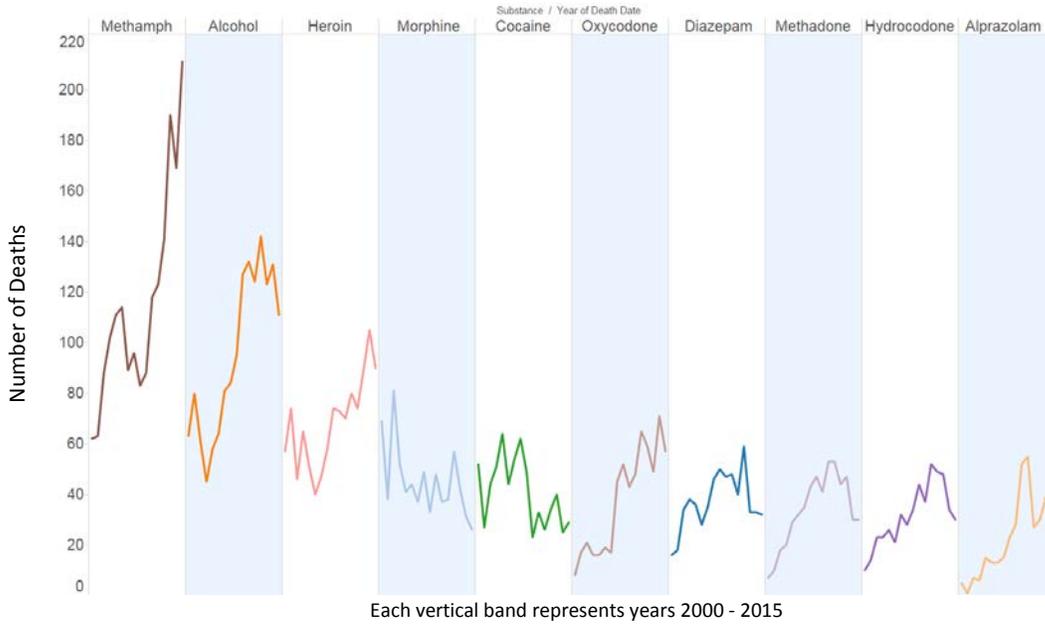
1. There has been a general increasing trend in unintentional deaths due to drugs and medications over the past 15 years. After a drop in 2014, 2015 saw an increase in the total number of these types of deaths.
2. After more than 10 years of increasing, prescription medication death rates peaked in 2011/2012 and have shown a general decline or plateaued over the last four years.
3. The most frequently seen groups of medications and drugs were opiates (heroin, morphine, and related compounds) and benzodiazepines, similar to previous years. In 40 percent of prescription opiate deaths, a benzodiazepine was also present, and in 81 percent of deaths with benzodiazepines, a prescription opiate was also present.

4. The increase in heroin deaths seen since 2005/2006 has continued, and this substance was the most common drug/medication seen in those 20 – 29 years of age over the past five years. In 46 percent of heroin deaths, a stimulant was also present. Of those stimulants, 95 percent included methamphetamine. In contrast to prescription opiates, 28 percent of heroin deaths had a benzodiazepine present, usually alprazolam or diazepam.
5. Methamphetamine continued to represent the number one cause of drug/medication-related deaths for the population as a whole, rising from 2014 to an all-time high. It was also the number one or two ranked substance in those between 10 and 69 years of age. Most (61 percent) methamphetamine deaths have no other substance present, but 78 percent of the “meth only” deaths also had cardiovascular disease. Of the methamphetamine deaths with another substance present, half had heroin. Five of the seven fentanyl analogue deaths also had methamphetamine present.
6. The highest rate of drug/medication deaths was among those between 45-64, year old, with an approximately 2:1 male:female ratio.
7. The most deaths due to novel psychoactive substances (see below) were seen in 2015, with seven due to fentanyl analogues and four due to mitragynine (also known as kratom, a plant derived opioid).

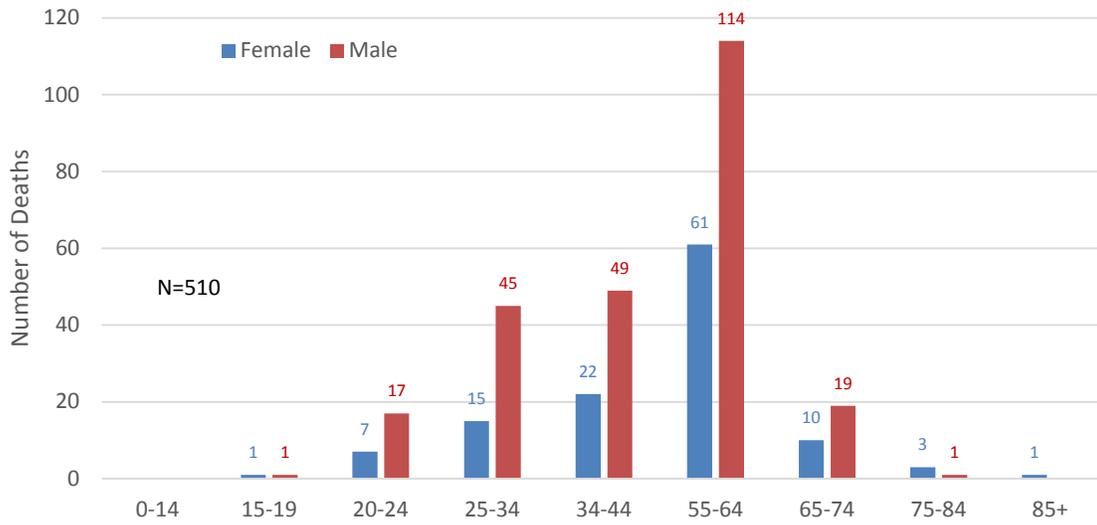
NUMBER OF UNINTENTIONAL DRUG/ALCOHOL RELATED DEATHS, 2000 – 2015



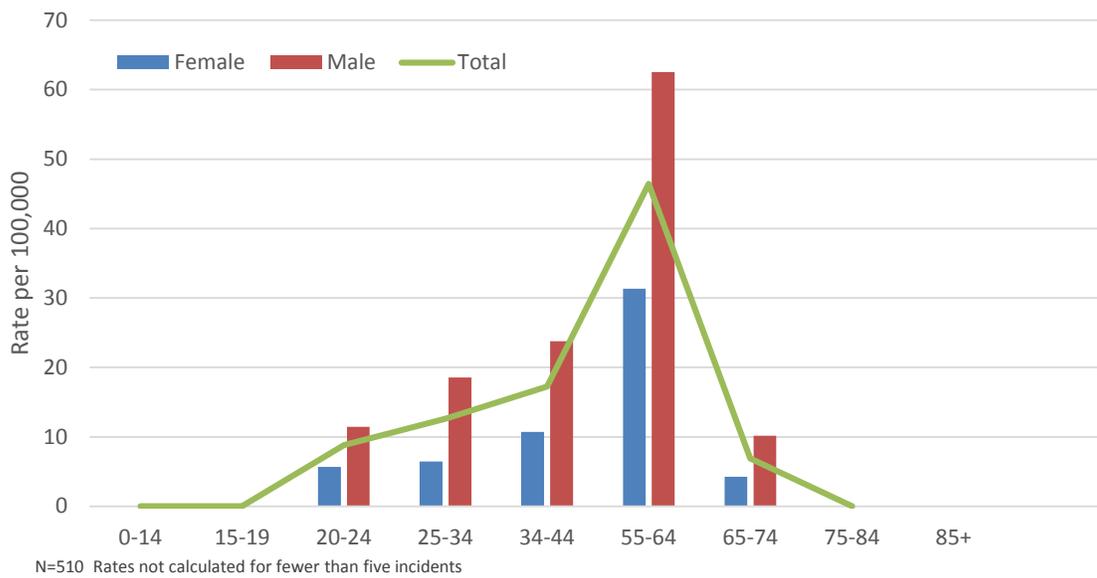
NUMBER OF DEATHS OF SELECTED SUBSTANCES, 2000 – 2015



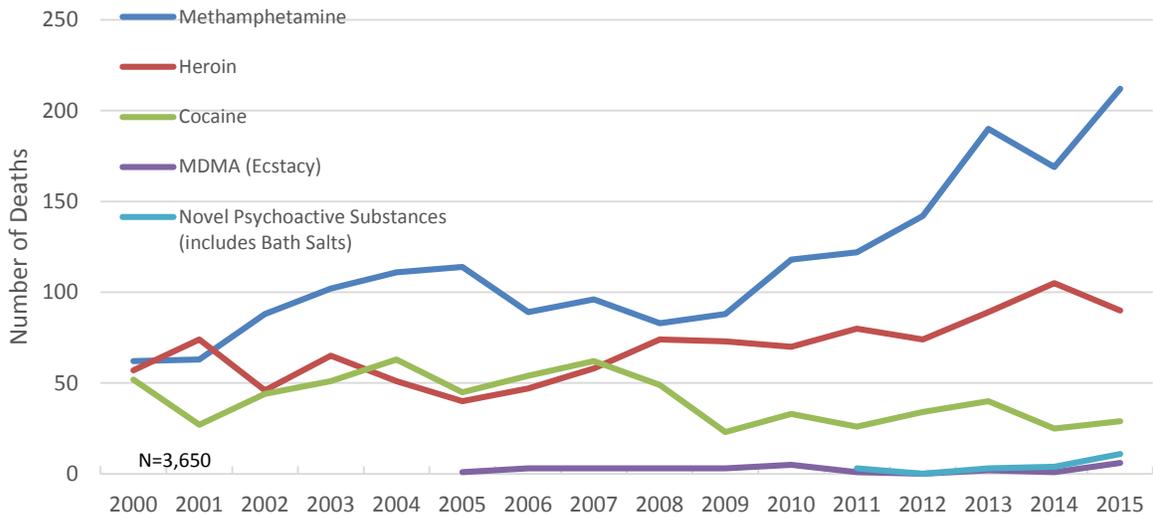
NUMBER OF DRUG/MED/ALCOHOL DEATHS BY AGE AND GENDER, 2015



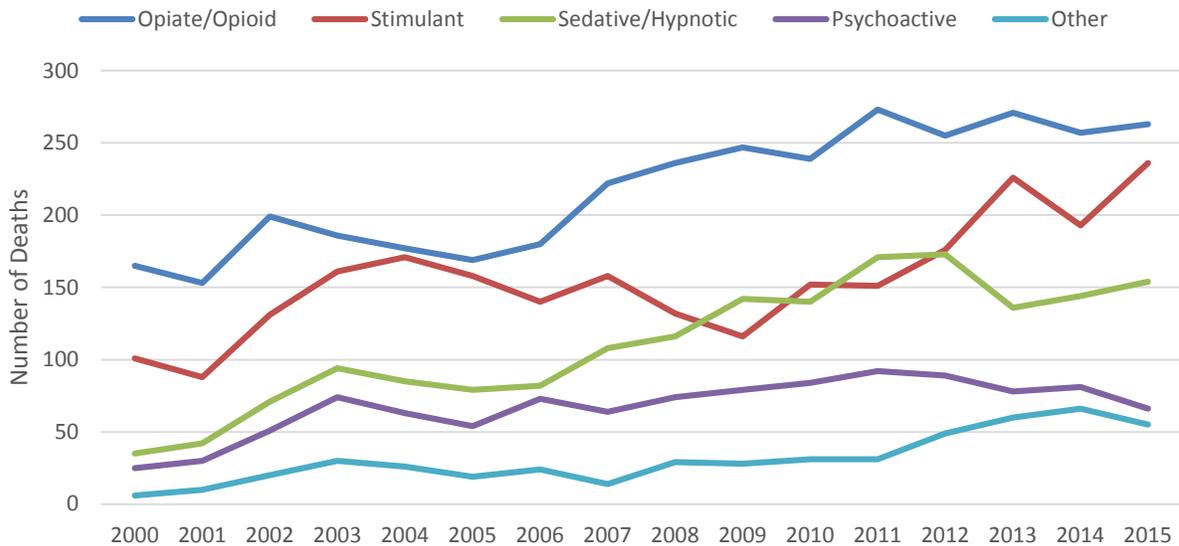
RATES OF DRUG/MED/ALCOHOL DEATHS BY AGE AND GENDER, 2015



UNINTENTIONAL ILLICIT DRUG DEATHS, 2000 – 2015



UNINTENTIONAL DEATHS DUE TO DRUG/MEDICATION TYPE, 2000 – 2015



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Opiate/Opioid	165	153	199	186	177	169	180	222	236	247	239	273	255	271	257	263
Stimulant	101	88	131	161	171	158	140	158	132	116	152	151	176	226	193	236
Sedative/Hypnotic	35	42	71	94	85	79	82	108	116	142	140	171	173	136	144	154
Psychoactive	25	30	51	74	63	54	73	64	74	79	84	92	89	78	81	66
Other	6	10	20	30	26	19	24	14	29	28	31	31	49	60	66	55

UNINTENTIONAL DEATHS - SELECTED DRUGS & MEDICATIONS, 2000 – 2015

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Methamphetamine	62	63	88	102	111	114	89	96	83	88	118	122	142	190	169	212
Alcohol	63	80	61	45	58	64	81	84	95	127	132	124	142	127	133	110
Heroin	57	74	46	65	51	40	47	58	74	73	70	80	74	89	105	90
Morphine	69	38	81	52	40	45	37	49	33	48	37	38	57	45	31	26
Cocaine	52	27	44	51	63	45	54	62	49	23	33	26	34	40	25	29
Diazepam	16	18	34	38	36	28	35	46	50	47	48	40	59	35	33	31
Methadone	7	10	18	20	29	32	35	43	47	41	53	53	44	47	30	30
Oxycodone	8	17	21	16	16	19	17	45	52	43	48	65	59	49	71	57
Hydrocodone	10	14	23	23	26	21	32	28	34	44	37	52	49	48	34	30
Diphenhydramine	2	5	14	13	14	10	14	21	17	21	21	30	25	30	26	23
Alprazolam		5	1	7	6	15	13	13	15	23	28	52	55	27	30	39
Tramadol	5	5	2	10	8	2	4	8	4	10	17	16	19	19	20	17
Fentanyl	7	5	9	9	8	19	23	20	23	23	12	14	12	14	16	21
MDMA (Ecstasy)	1			1		1	3	3	3	3	5	1		2	1	6
Phencyclidine (PCP)										1				2	1	1
Novel Psychoactive Substances (NPS) – See table on page 89												3		3	4	11

UNINTENTIONAL DEATHS, TOP 25 DRUGS/MEDICATIONS BY AGE, 2015

Substance	15-19	20-24	25-34	34-44	45-54	55-64	65+	Total
Methamphetamine	1	8	19	33	73	68	10	212
Alcohol		4	11	17	29	42	7	110
Heroin		11	19	17	19	21	3	90
Oxycodone	1	2	10	9	11	21	3	57
Alprazolam		4	7	7	8	10	3	39
Gabapentin				3	8	14	6	31
Diazepam		1	6	6	5	11	2	31
Hydrocodone		1	2	3	8	10	6	30
Methadone		5	2	3	5	14	1	30
Benzodiazepine		1	5	4	3	15	1	29
Cocaine		4	2	4	4	13	2	29
Morphine		1	3	2	6	13	1	26
Diphenhydramine		1	1	1	7	10	3	23
Fentanyl		2	5	3	7	2	2	21
Tramadol	1	1	3	2	4	3	3	17
Clonazepam		1	3	2	3	6	2	17
Trazodone			1	2	4	6	3	16
Opiate (NOS)		2	4	2	3	2	2	15
Amitriptyline			1	1	3	3	4	12
Citalopram			1		6	3	2	12
Quetiapine					4	4	3	11
Temazepam		1			2	7	1	11
Morphine			1	2		5	2	10
Chlordiazepoxide			1	2	4	3	0	10
Sertraline				1	5	2	0	8

Note: Because an individual case may be due to a combination of medications, the medications are not mutually exclusive.

NOVEL PSYCHOACTIVE SUBSTANCE-RELATED DEATHS, 2011 - 2015

	2011	2012	2013	2014	2015
MDPV†	1		1		
Methylone†	2		1		
Ethylone†				1	
Kratom (Mitragynine)				1	4
AH-7921			1 [‡]		
Methoxyphenyclidine				1	
Methoxetamine			1 [‡]		
Acetyl Fentanyl				1	3
Butyr Fentanyl					3
Acetyl and Butyr Fentanyl					1
Total NPS	3		3	4	11

†Bath salts; ‡Same case; No NPS were implicated in death prior to 2011

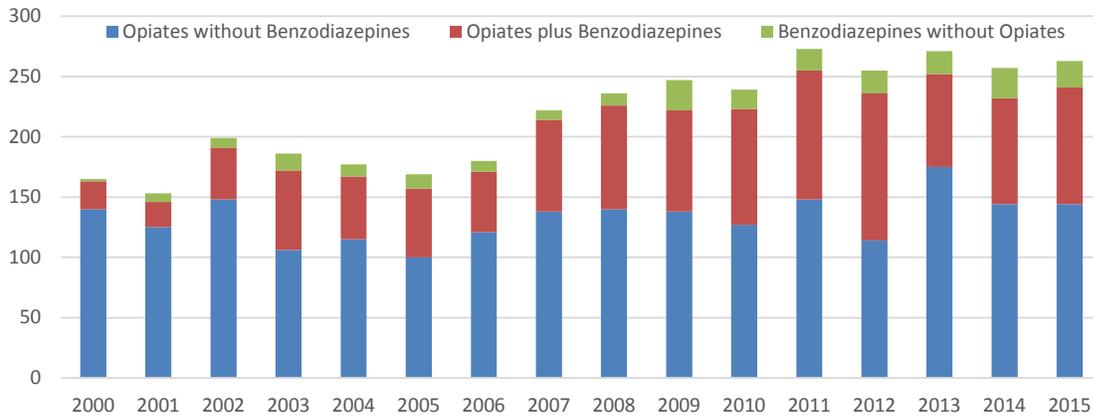
2015 UNINTENTIONAL DRUG/MED/ALCOHOL DEATHS BY COMBINATION

Illicit	198
Prescription	130
Prescription and Illicit	59
Alcohol	41
Prescription and Alcohol	36
Illicit and Alcohol	16
Prescription, Illicit and alcohol	13
Prescription and OTC	5
Other	3
Prescription and Other	2
Unknown	2
Prescription, Illicit and OTC	2
Alcohol and OTC	1
OTC	1
Illicit, Alcohol and OTC	1

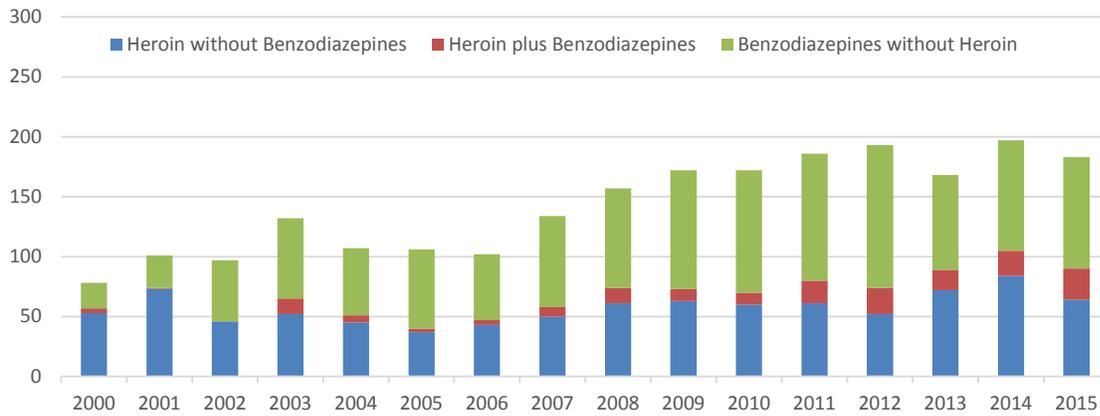
Note: includes all medication/alcohol/drug-related deaths whether the substance(s) were the primary cause of death or contributory to the death. Illicit – heroin, cocaine, ecstasy, methamphetamine, PCP, NPS as above. Prescription – medications *normally* obtained by prescription. OTC – over the counter medications. Other includes three difluoroethane and two hydroxychloroquine deaths.

UNINTENTIONAL DEATHS DUE TO OPIATES AND BENZODIAZEPINES, 2000 - 2015

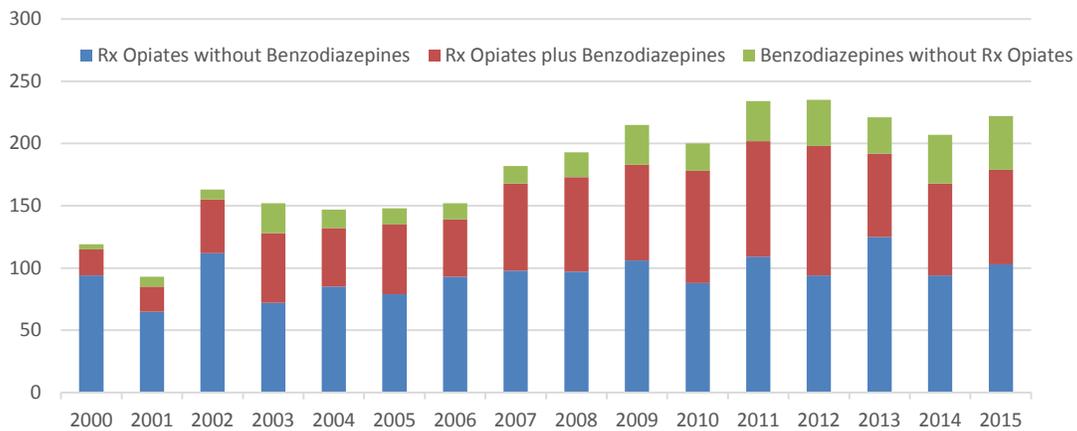
ALL OPIATES AND BENZODIAZEPINES



HEROIN AND BENZODIAZEPINES



PRESCRIPTION OPIATES AND BENZODIAZEPINES



RELATIVE FREQUENCY OF SUBSTANCES IN CAUSE OF DEATH BY AGE, 2015

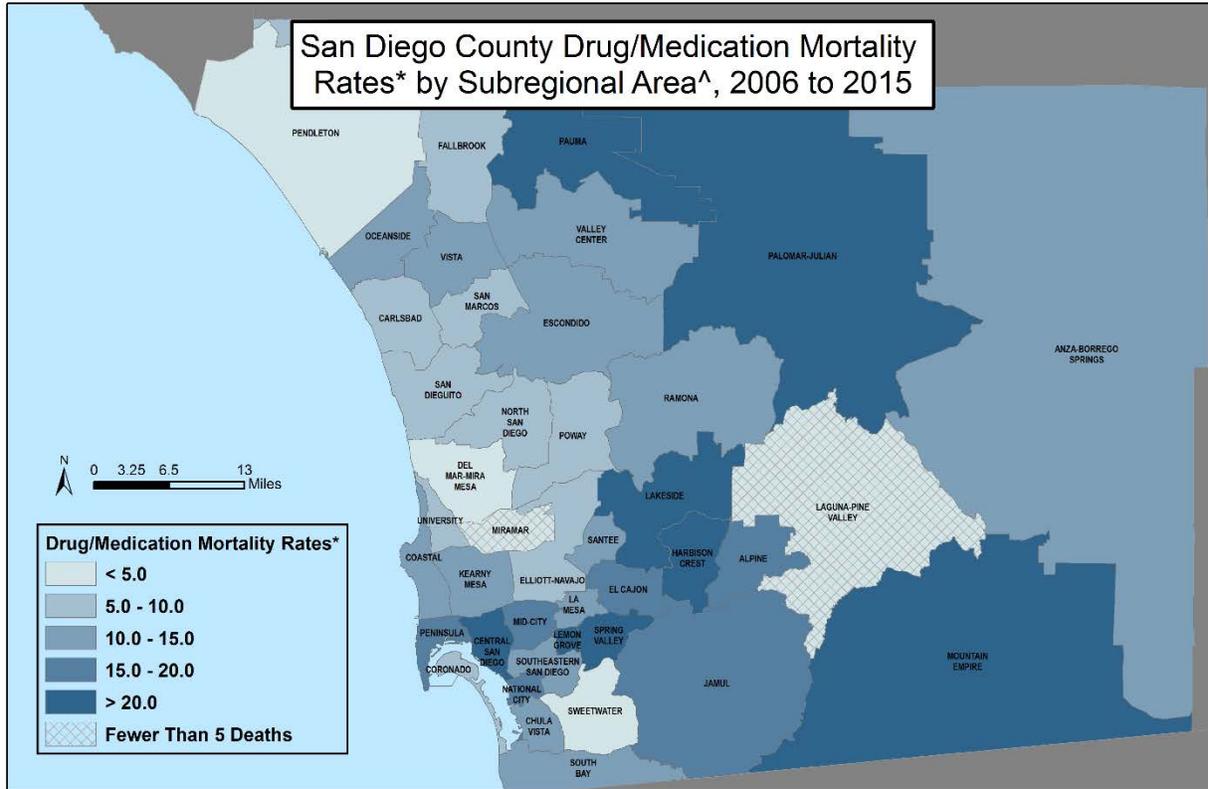
	10-19	20-29	30-39	40-49	50-59	60-69
1	Methamphetamine (1)	Heroin (21)	Methamphetamine (29)	Methamphetamine (49)	Methamphetamine (82)	Methamphetamine (31)
	MDMA (1)					
	Tramadol (1)					
	Oxycodone (1)					
2		Methamphetamine (16)	Heroin (21)	Alcohol (23)	Alcohol (43)	Alcohol (21)
3		Alcohol (9)	Alcohol (13)	Heroin (11) Oxycodone (11)	Heroin (25)	Heroin (12)
		Alprazolam (8)	Oxycodone (10)	Hydrocodone (7) Fentanyl (7)	Oxycodone (20)	Hydrocodone (8) Oxycodone (8)
5		Oxycodone (6)	Alprazolam (7) Diazepam (7)	Alprazolam (6) Cocaine (6) Gabapentin (6)	Gabapentin (13) Methadone (13) Alprazolam (13) Diazepam (13)	Morphine (7) Gabapentin (7)
	6	Cocaine (5) Opiate (5) Methadone (5)	Fentanyl (5)	Chlordiazepoxide (5) Morphine (5) Diazepam (5)	Cocaine (12)	Benzodiazepine (6)

RELATIVE FREQUENCY OF SUBSTANCES IN CAUSE OF DEATH BY AGE, FIVE YEAR CUMULATIVE, 2011-2015

	10-19	20-29	30-39	40-49	50-59	60-69
1	Alprazolam (7) Oxycodone (7) Heroin (7)	Heroin (125)	Methamphetamine (111)	Methamphetamine (214)	Methamphetamine (338)	Methamphetamine (97)
	Methamphetamine (3)					
	Methadone (3) Alcohol (3) Morphine (3)					
2		Methamphetamine (65)	Heroin (107)	Alcohol (158)	Alcohol (234)	Alcohol (81)
3	Methylone (2) Diphenhydramine (2)	Alcohol (54)	Alcohol (85)	Oxycodone (68)	Oxycodone (110)	Hydrocodone (36)
	1 each of nine different substances	Alprazolam (43)	Oxycodone (50)	Heroin (67)	Heroin (97)	Oxycodone (35)
5		Methadone (28) Cocaine (28)	Alprazolam (49)	Hydrocodone (56)	Diazepam (74)	Morphine (34)
	6		Oxycodone (27)	Methadone (33)	Diazepam (49)	Hydrocodone (70)

Blue Opiates Green Cocaine Orange Benzodiazepine
 Yellow Methamphetamine Gray Alcohol

DRUG/MEDICATION RELATED DEATH RATES BY SUBREGIONAL AREA: 2006 – 2015



*Rates per 100,000 people

^SRA of 'Residence' was used where available with SRA Code of 'Event' and 'Death' used to fill in missing data.

Map Date: September, 2016
 Maps/Analysis by County of San Diego, EMS
 Contact Joshua Smith, Leslie Ray 619.285.6429

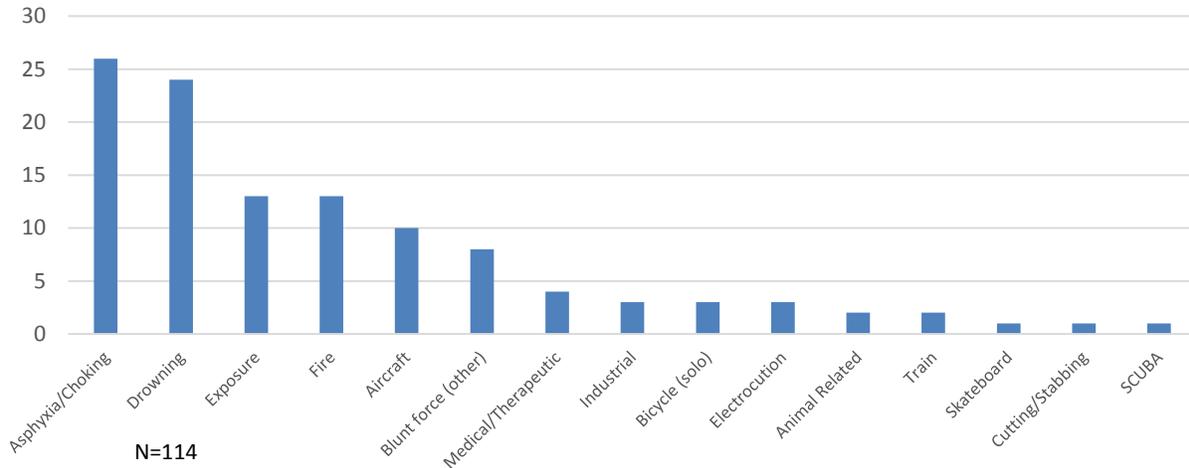


32.0	Central San Diego	15.0	Valley Center	9.8	San Marcos
30.3	Lakeside	14.6	Southeast San Diego	9.3	San Dieguito
30.3	Pauma	14.5	Ramona	9.0	Carlsbad
28.1	Mountain Empire	14.1	Kearny Mesa	8.5	Elliott-Navajo
20.8	Lemon Grove	13.9	Santee	8.1	Coronado
20.6	Harbison Crest	13.9	Anza-Borrego Springs	5.3	Poway
20.2	Palomar-Julian	13.7	Oceanside	5.2	University
20.1	Spring Valley	13.6	La Mesa	5.2	North San Diego
16.4	El Cajon	13.3	Vista	4.8	Del Mar-Mira Mesa
16.2	Jamul	12.0	Escondido	3.1	Sweetwater
15.6	Alpine	11.8	South Bay	1.6	Pendleton
15.5	Peninsula	10.9	Coastal	*	Miramar
15.5	National City	10.8	Chula Vista	*	Laguna-Pine Valley
15.3	Mid-City	9.8	Fallbrook		

*Rates not calculated for fewer than 5 events

UNINTENTIONAL DEATHS, OTHERS

OTHER ACCIDENTAL MANNERS OF DEATH, 2015

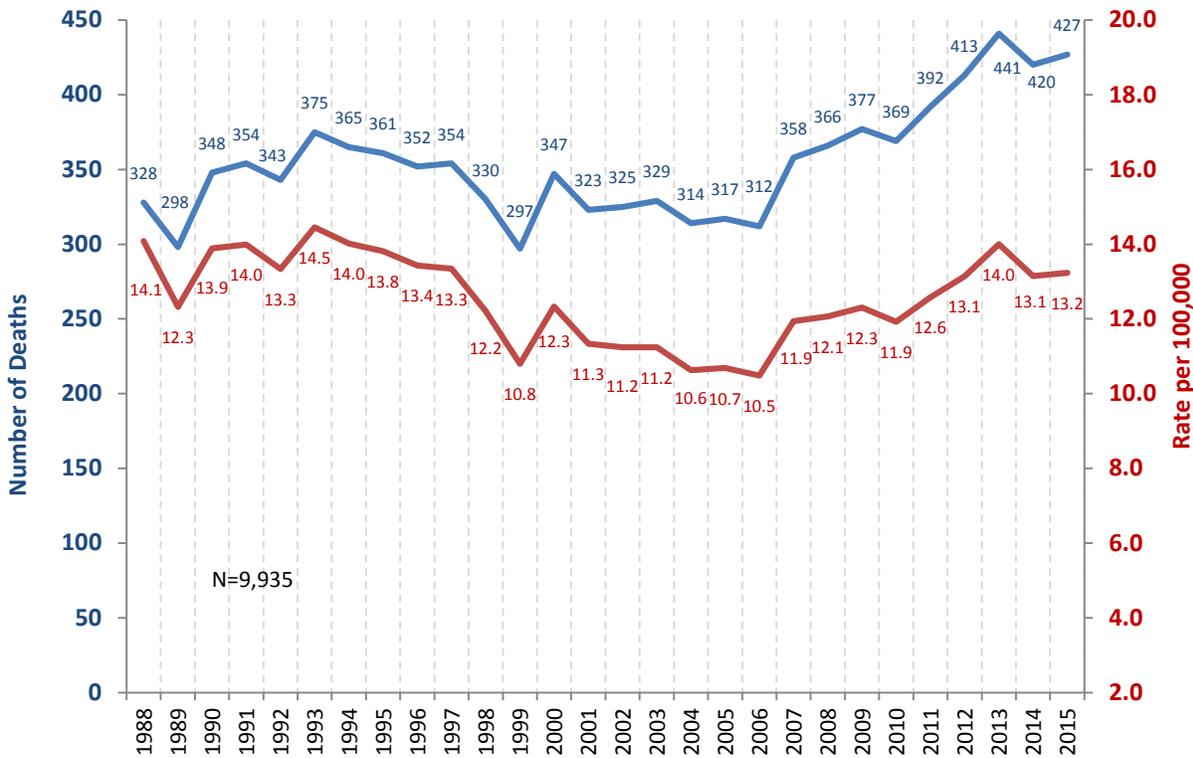


OTHER MECHANISMS OF ACCIDENTAL DEATH: MECHANISM BY AGE GROUP, 2015

	0-14	15-24	25-34	35-44	45-54	55-64	65+	Total
Asphyxia/Choking	2			1	1	8	14	26
Drowning	7	5	2	1	1	3	5	24
Exposure	1	2			1	3	6	13
Fire	1	4				5	3	13
Aircraft			1	2	1	3	3	10
Blunt force (other)				1		3	4	8
Medical/Therapeutic			1		2	1		4
Industrial					1	2		3
Bicycle (solo)		1			1	1		3
Electrocution			1				2	3
Animal Related							2	2
Train			1	1				2
Skateboard			1					1
Cutting/Stabbing					1			1
SCUBA							1	1
Total	11	12	7	6	9	29	40	114

SUICIDES

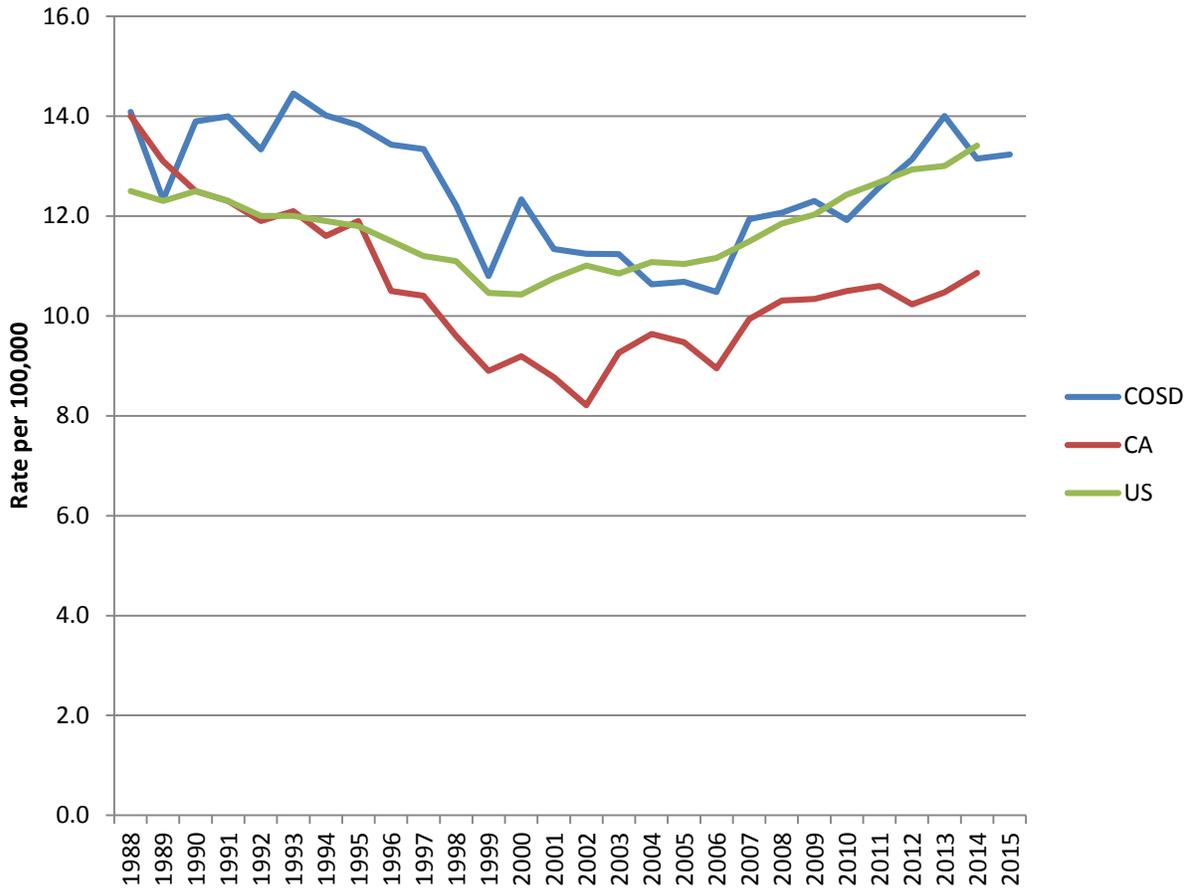
SUICIDES BY YEAR: 1988 – 2015



	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number	328	298	348	354	343	375	365	361	352	354	330	297
Rate/100,000	14.1	12.3	13.9	14.0	13.3	14.5	14.0	13.8	13.4	13.3	12.2	10.8
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number	347	323	325	329	314	317	312	358	366	377	369	392
Rate/100,000	12.3	11.3	11.2	11.2	10.6	10.7	10.5	11.9	12.1	12.3	11.9	12.6
	2012	2013	2014	2015								
Number	413	441	420	427								
Rate/100,000	13.1	14.0	13.1	13.2								

In 2014 – the most recent data available from the Centers for Disease Control and Prevention (CDC) – the national rate of suicide was highest among adults 45 to 59 years old at 19.7 – 20.6 per 100,000 people. But when broken down by gender and age, men over 85 years old have the highest suicide rate at 50 per 100,000.

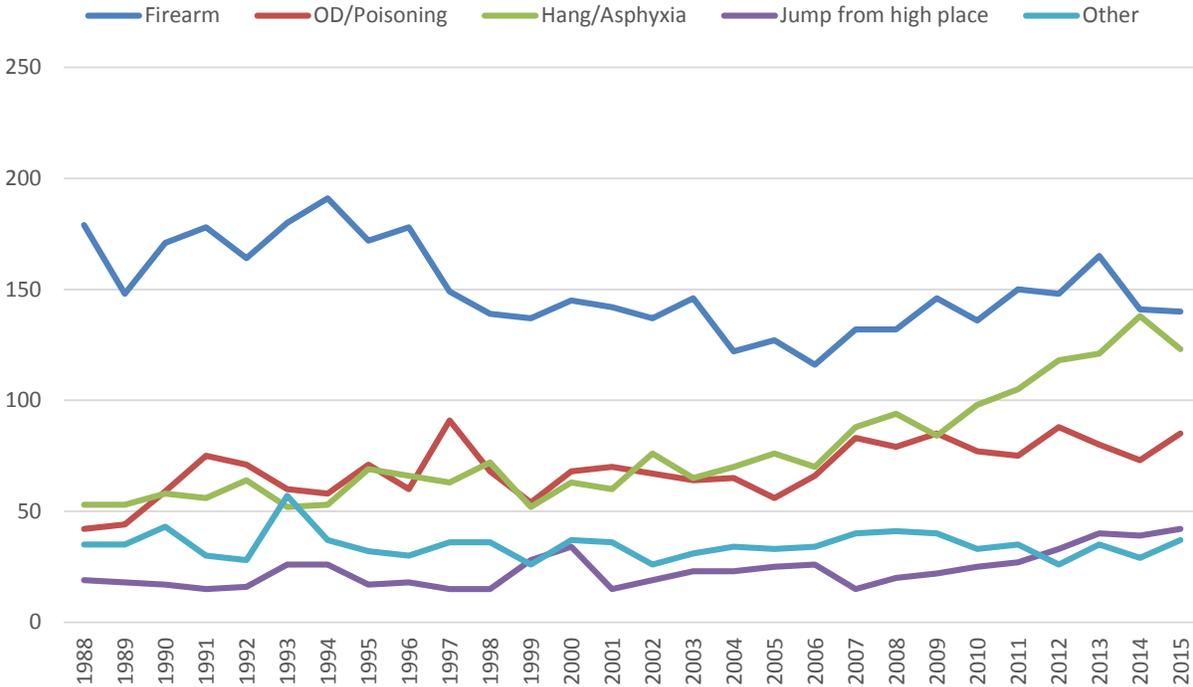
SUICIDE RATES BY YEAR: COUNTY, STATE, AND NATIONAL COMPARISON



Historically, suicide rates have tracked with national rates. However, San Diego County’s rate is higher than that of California.

Sources: Years 1988-1998: National data - Centers for Disease Control and Prevention (CDC) data on American Foundation for Suicide Prevention website accessed June 2, 2015, <http://www.afsp.org/understanding-suicide/facts-and-figures>; State Data - CA Dept of Public Health website, Suicide Deaths, California (various years), accessed June 16, 2015. Years 1999-2014: Centers for Disease Control and Prevention (CDC) Data & Statistics Fatal Injury Report for 2014, accessed August 27, 2016, crude rates, http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html.

SUICIDE METHOD BY YEAR: 1988 - 2015

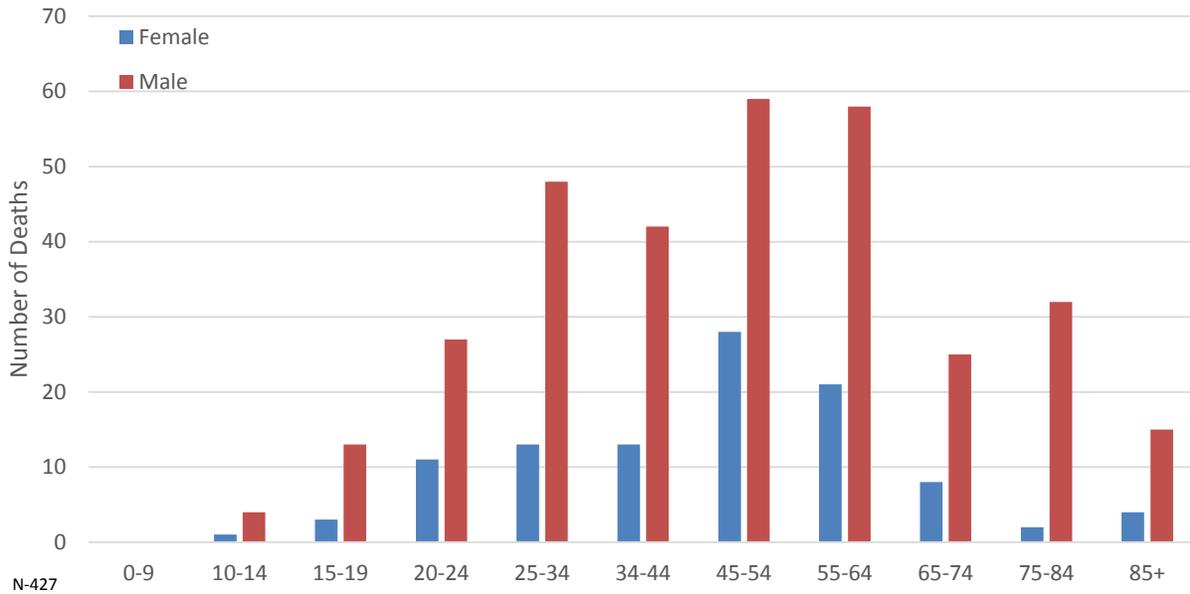


	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Firearm	179	148	171	178	164	180	191	172	178	149	139	137
OD/Poisoning	42	44	59	75	71	60	58	71	60	91	68	54
Hang/Asphyxia	53	53	58	56	64	52	53	69	66	63	72	52
Jump	19	18	17	15	16	26	26	17	18	15	15	28
Other	35	35	43	30	28	57	37	32	30	36	36	26

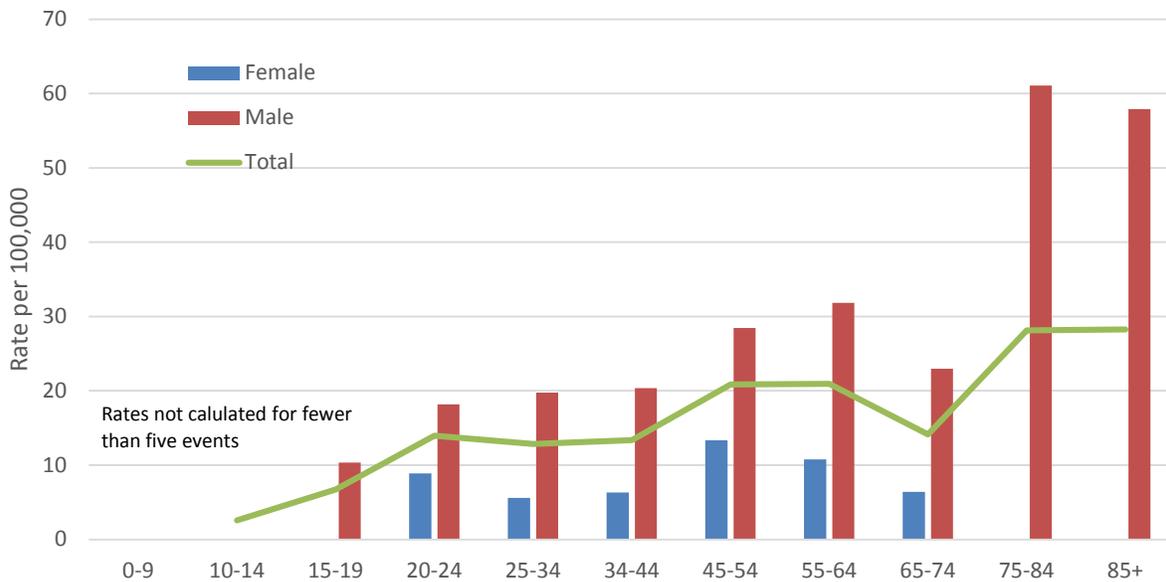
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Firearm	145	142	137	146	122	127	116	132	132	146	136	150
OD/Poisoning	68	70	67	64	65	56	66	83	79	85	77	75
Hang/Asphyxia	63	60	76	65	70	76	70	88	94	84	98	105
Jump	34	15	19	23	23	25	26	15	20	22	25	27
Other	37	36	26	31	34	33	34	40	41	40	33	35

	2012	2013	2014	2015
Firearm	148	165	143	140
OD/Poisoning	88	80	73	85
Hang/Asphyxia	118	121	138	123
Jump	33	40	39	42
Other	26	35	27	37

NUMBER OF SUICIDES INVESTIGATED BY AGE AND GENDER, 2015

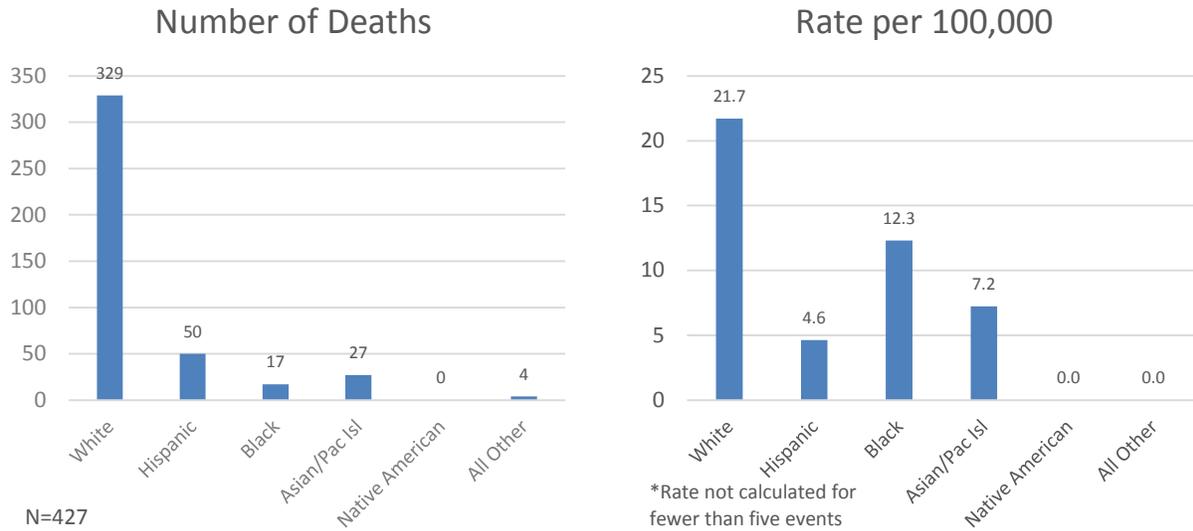


SUICIDE RATES BY AGE AND GENDER, 2015

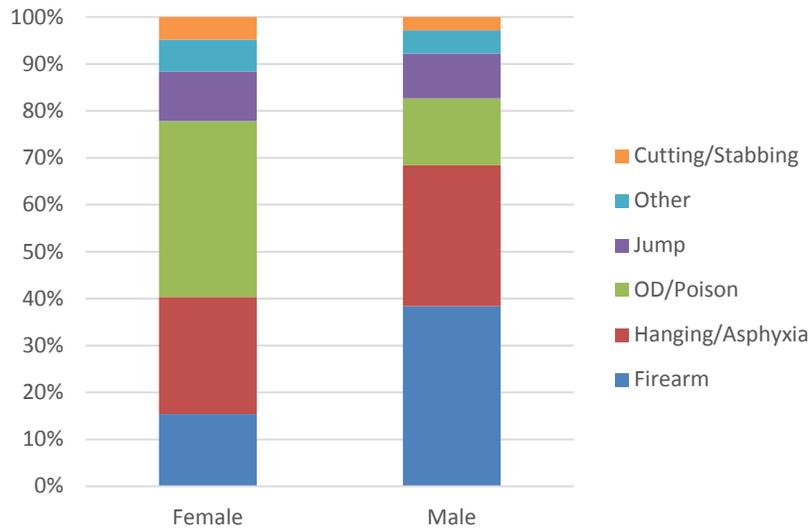


Historically, the highest suicide rate has been among men 85 years and older. In 2015, men over 75 had the highest rate of suicide.

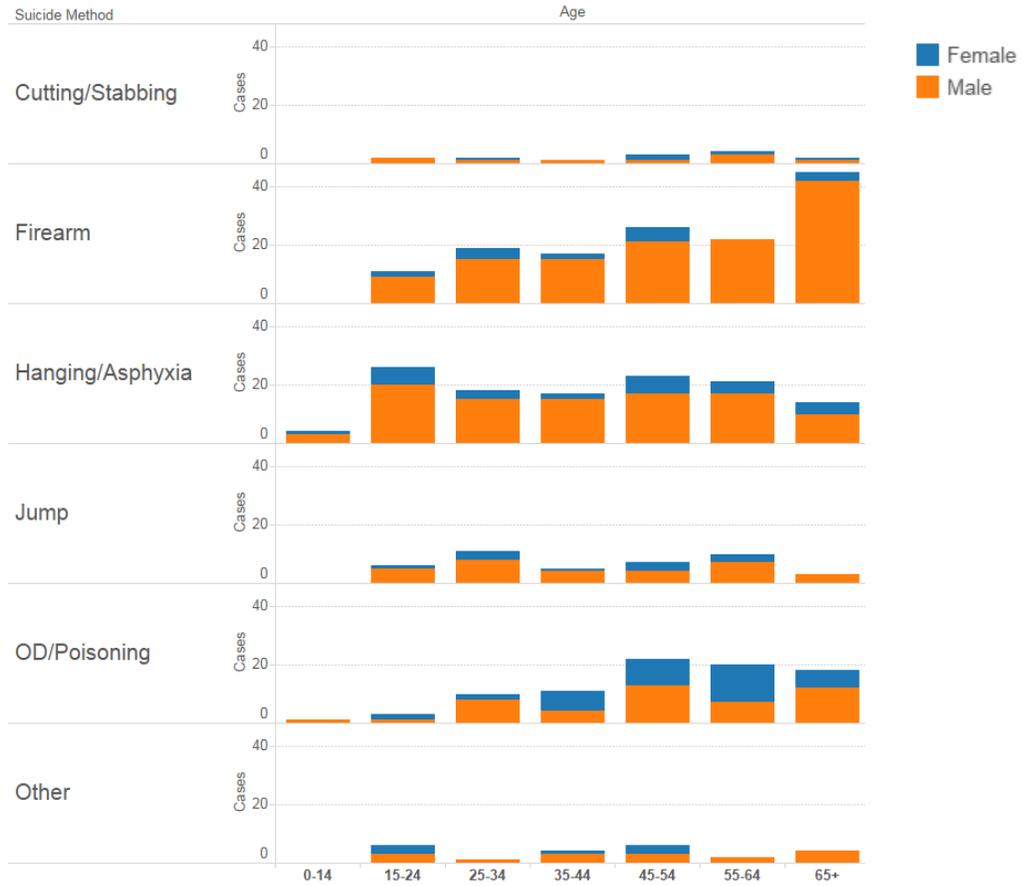
SUICIDE NUMBERS AND RATES BY ETHNICITY, 2015



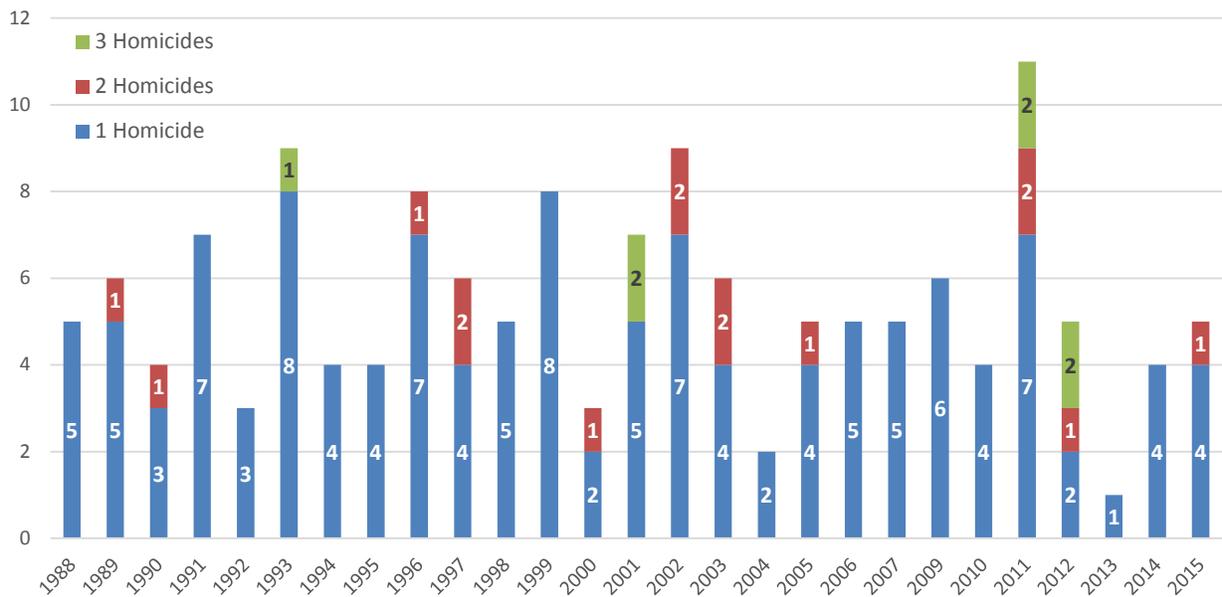
SUICIDE METHODS BY GENDER, 2015



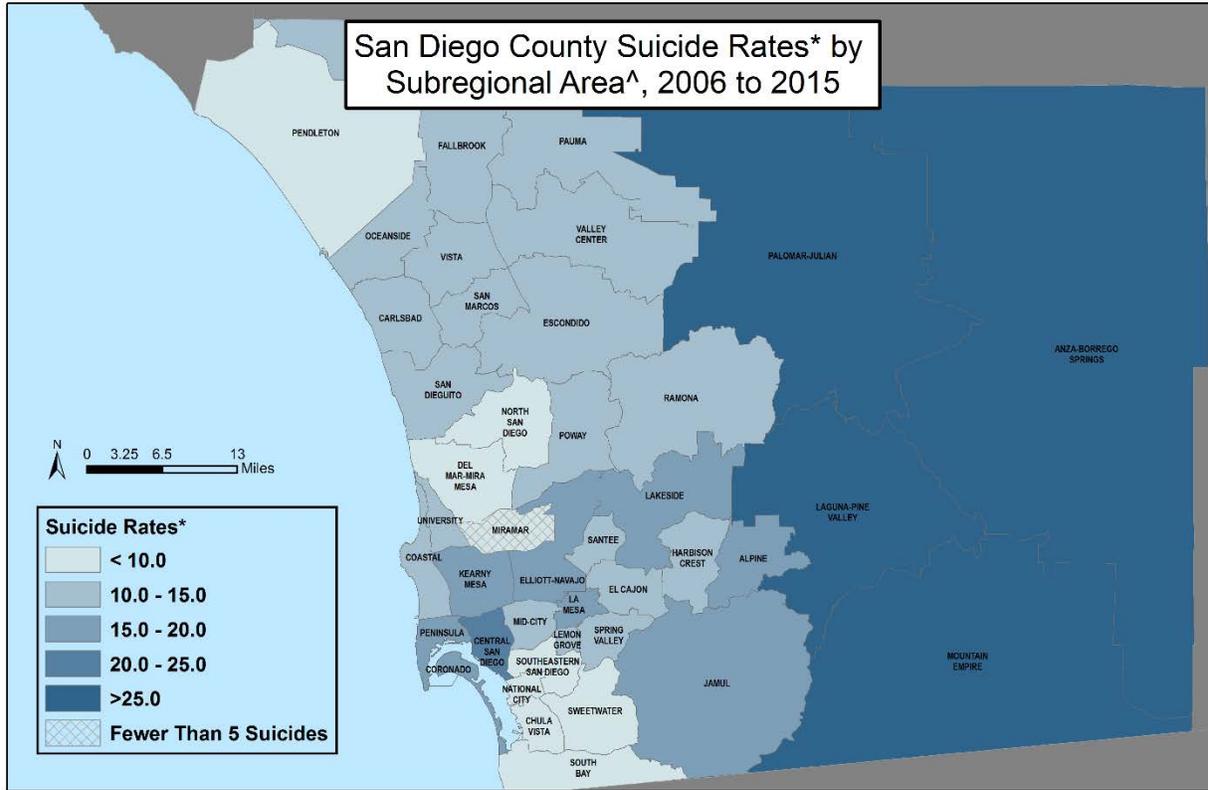
SUICIDE DEATHS BY AGE, GENDER, AND METHOD, 2015



HOMICIDE/SUICIDE EVENTS, 1988 – 2015



SUICIDE RATE PER 100,000 BY SUBREGIONAL AREA, 2006 – 2015



*Rates per 100,000 Infants Aged 0 - 12 Months

^SRA of 'Residence' was used where available with SRA of 'Event' and 'Death' used to fill in missing data.

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 Contact Joshua Smith, Leslie Ray 619.285.6429

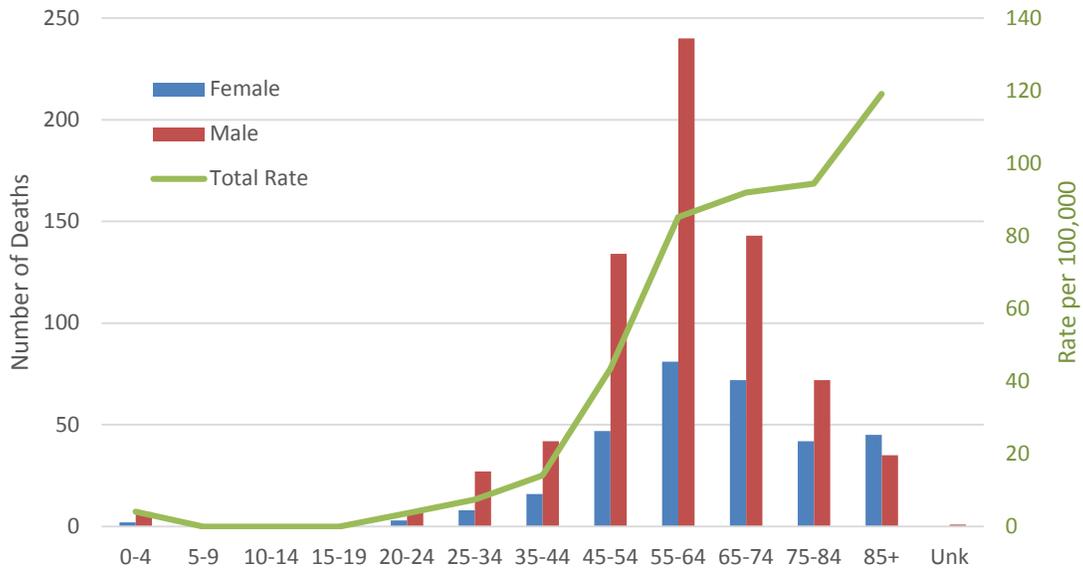


<ul style="list-style-type: none"> 46.2 Palomar-Julian 33.2 Laguna-Pine Valley 28.1 Mountain Empire 27.8 Anza-Borrego Springs 20.0 Central San Diego 17.4 Kearny Mesa 16.7 Coronado 16.2 Lakeside 16.2 Alpine 15.6 Jamul 15.6 La Mesa 15.3 Peninsula 15.0 Elliott-Navajo 14.9 El Cajon 	<ul style="list-style-type: none"> 14.7 Oceanside 14.5 Lemon Grove 14.4 Fallbrook 14.1 Vista 13.9 Valley Center 13.7 Harbison Crest 13.5 San Dieguito 13.0 Coastal 12.8 Ramona 12.1 Santee 12.1 Carlsbad 12.0 Escondido 11.6 Mid-City 11.6 Pauma 	<ul style="list-style-type: none"> 11.0 University 10.9 Spring Valley 10.3 Poway 10.2 San Marcos 9.2 Del Mar-Mira Mesa 8.8 North San Diego 8.6 South Bay 8.5 National City 7.7 Southeast San Diego 7.3 Chula Vista 6.6 Sweetwater 3.2 Pendleton * Miramar
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*rates not calculated for fewer than 5 events

NATURAL DEATHS

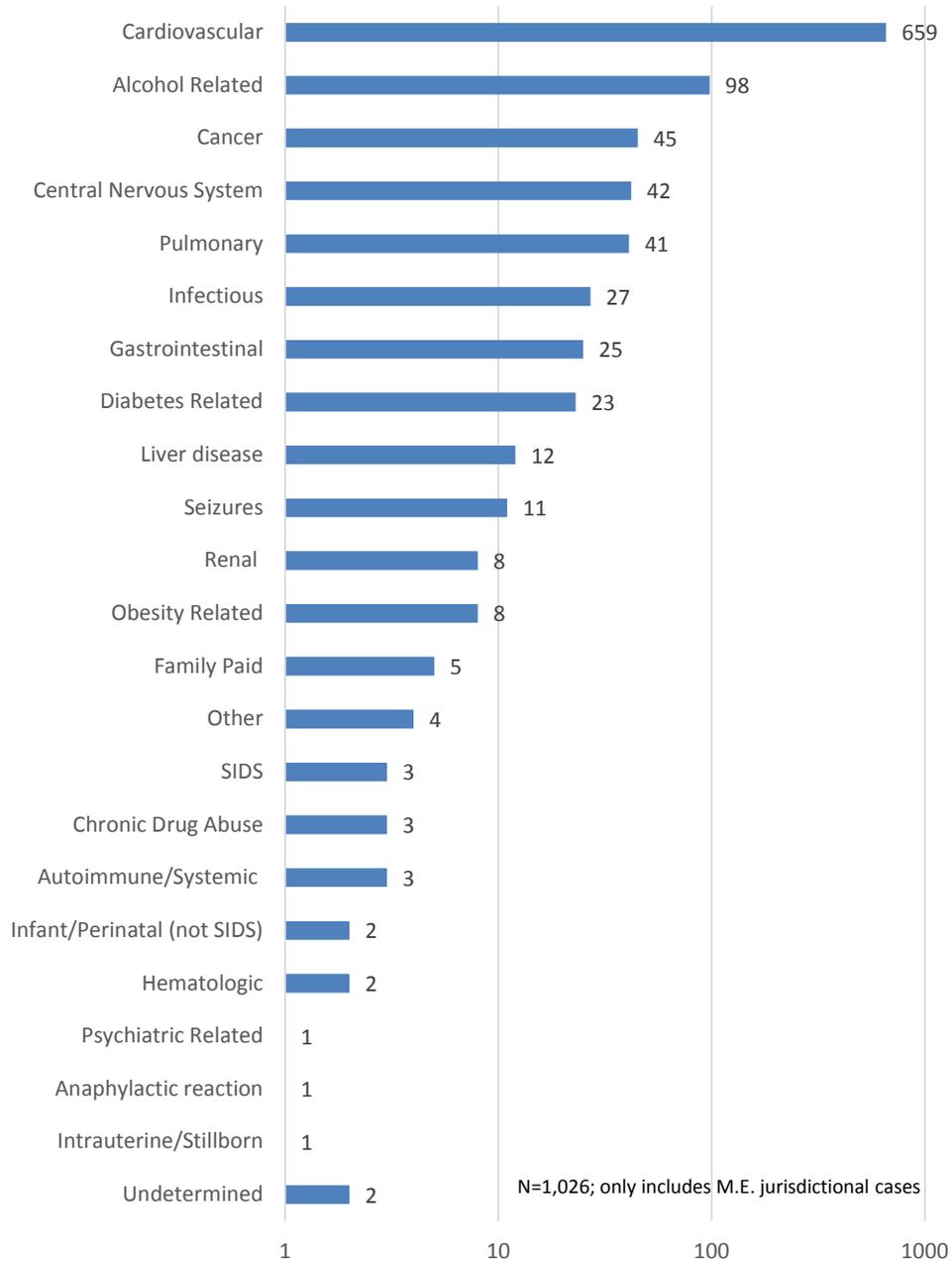
DEATHS DUE TO NATURAL CAUSES BY AGE AND SEX AND TOTAL RATE, 2015



N=1,026; rate not calculated for fewer than five events; only includes M.E. jurisdictional cases

The peak in the rate of individuals between 55 and 64 years of age represents a bias in Medical Examiner cases towards sudden and unexpected natural deaths, often due to undiagnosed fatal disease in middle-aged adults.

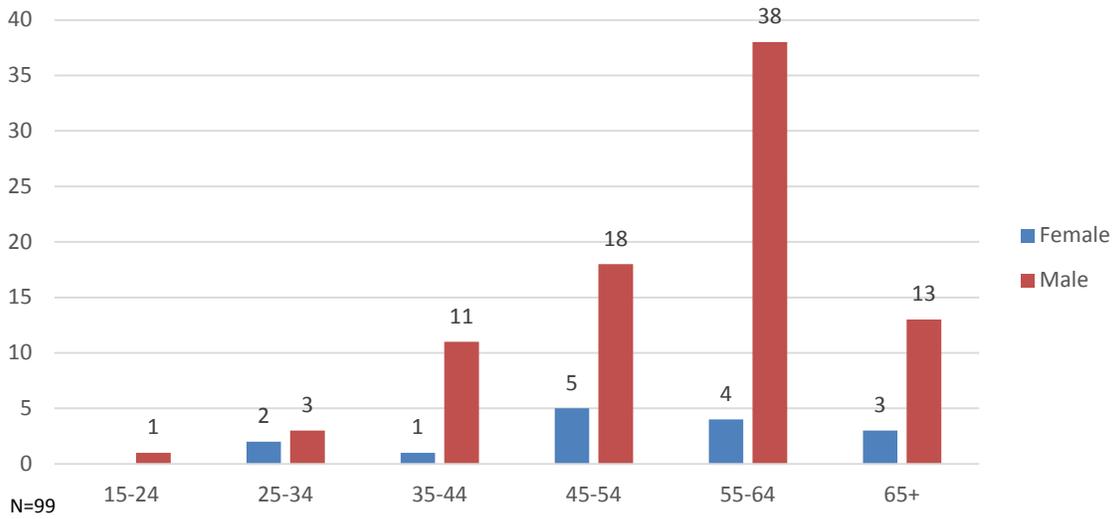
DEATHS FROM NATURAL CAUSES BY TYPE, 2015



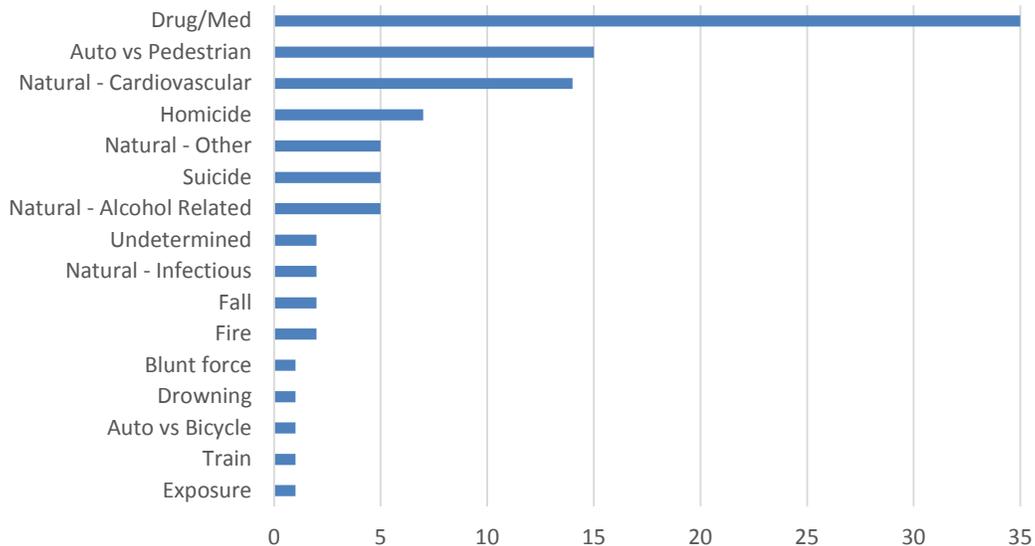
HOMELESS

According to the 2015 WeALLCount Campaign (aka, Point-In-Time Count), 8,742 homeless individuals were identified in the County in January, 2015.

DEATHS IN THE HOMELESS BY AGE AND SEX, 2015



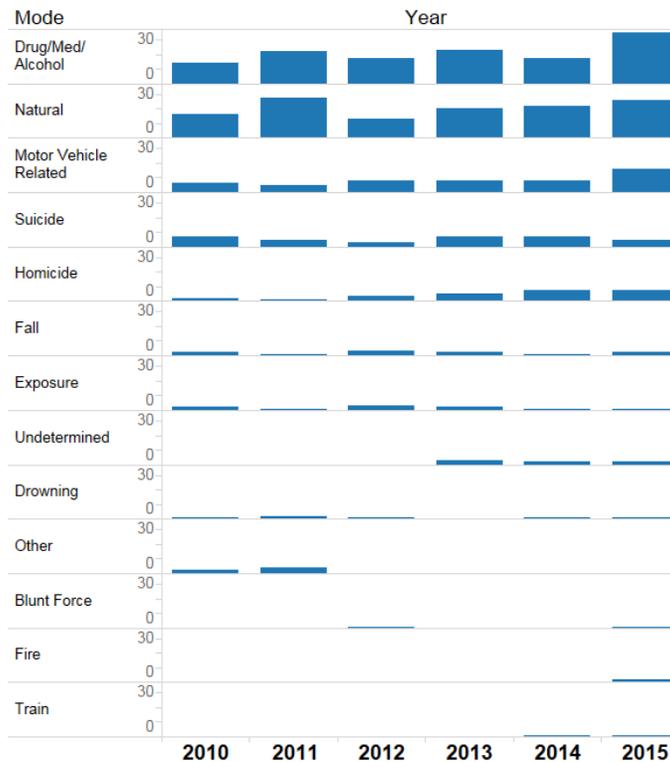
DEATHS IN THE HOMELESS, 2015



DEATHS IN THE HOMELESS BY AGE AND YEAR, 2000 - 2015



DEATHS IN THE HOMELESS BY METHOD AND YEAR, 2000 - 2015



PEDIATRIC DEATHS & SIDS

PEDIATRIC DEATHS BY AGE AND MANNER OF DEATH, 2015

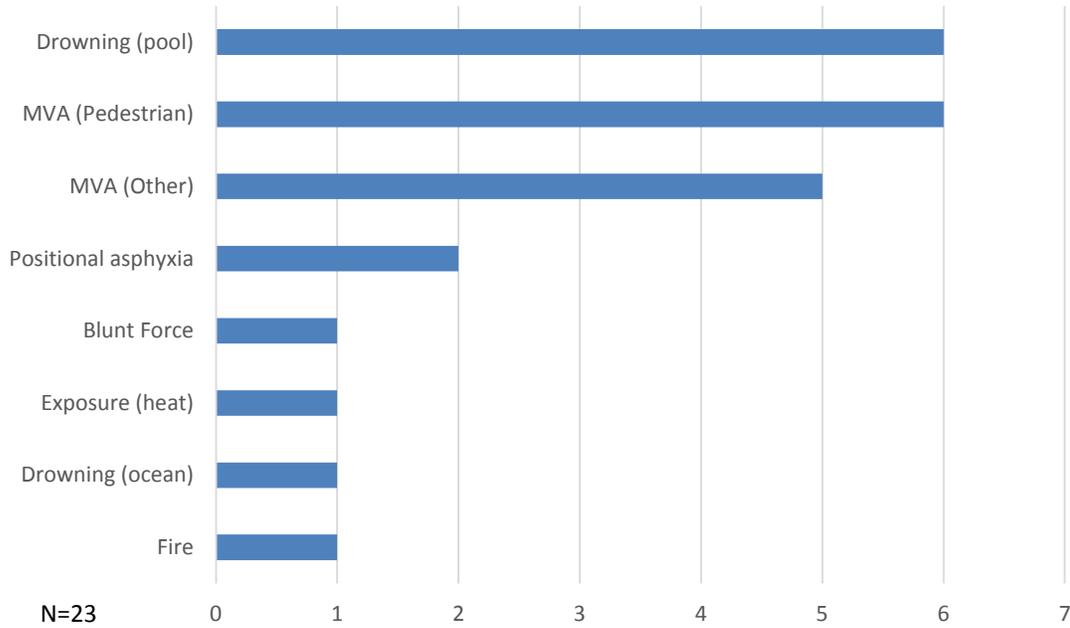
Age	Accident	Homicide	SIDS	Other Natural	Suicide	Undetermined*	Total
<1	7	1	3	4		5	20
1	1	1		1		1	4
2	1			1			2
3	2	1					3
4	4						4
5	1						1
6	2	1					3
7	2						2
8							0
9	1						1
10							0
11				1			1
12	2						2
13							0
14		1			5		6
15	1				1		2
16		1			3		4
17	2			1			3
Total	26	6	3	8	9	6	58

Does not include cases that are sealed at the request of law enforcement.

*There were six cases that were certified with a manner of undetermined. They are as follow:

Undetermined Type	Number
Bed sharing	4
Sudden unexplained death in infancy	1
Sudden unexplained death in childhood	1

ACCIDENTAL DEATHS AGE 0 TO 13 BY MECHANISM, 2015

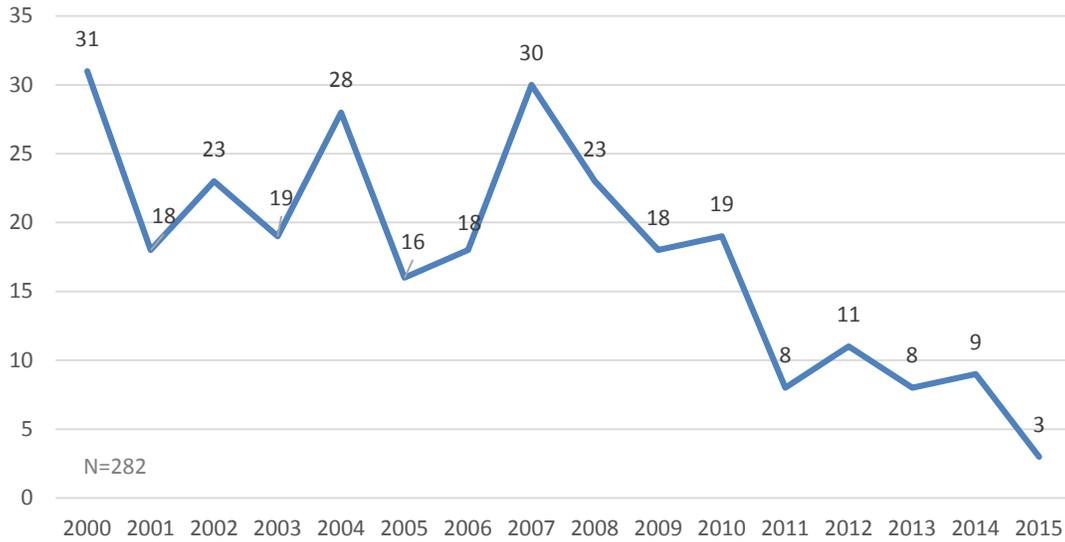


PEDIATRIC DEATHS BY YEAR AND MANNER, 2001 – 2015

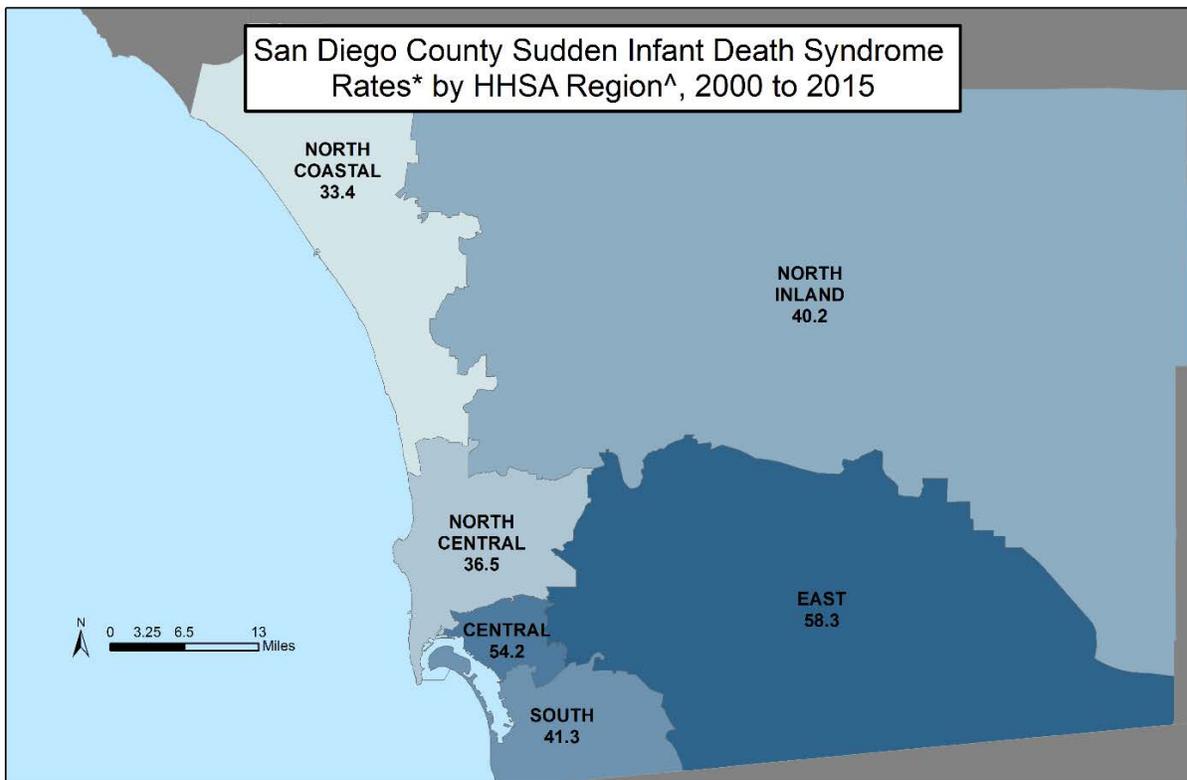
Age	Accident					Homicide					SIDS					Other Natural					Suicide					Undetermined				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
<1	2	10	6	4	7	1	6	1		1	8	11	8	9	3	8	2	5	5	4						5	7	17	5	5
1	7	1	6	5	1	1				1						4	1	1	1	1						1				1
2	2	2	2	3	1											1	1			1										
3	3	1	3	1	2													1												1
4		3	4	1	4			1											2							1				
5		2	3	1	1																									
6	2		1	1	2	1																								1
7		2			2																									
8										1						1		1		1										
9		2	3	1	1	2												1	1											
10		1	3																											
11	1	1		1		1	1													1	1									
12	1	1			2	1	1																	1	2					
13			1			1			1																	1				
14	1	2		1		1	1									1														1
15		2	1	3	1	1			1							1					1	1								1
16	6	1	2	2		2	3	1		1								1	2	1	1		4	1	3					
17	2	3	1	2	2	2	3	1								1	2	2		1	1	1	2	2		1				

Does not include cases that are sealed at the request of law enforcement.

SIDS DEATHS BY YEAR, 2000 – 2015



SIDS DEATH RATES BY REGIONAL AREA, 2000 – 2015



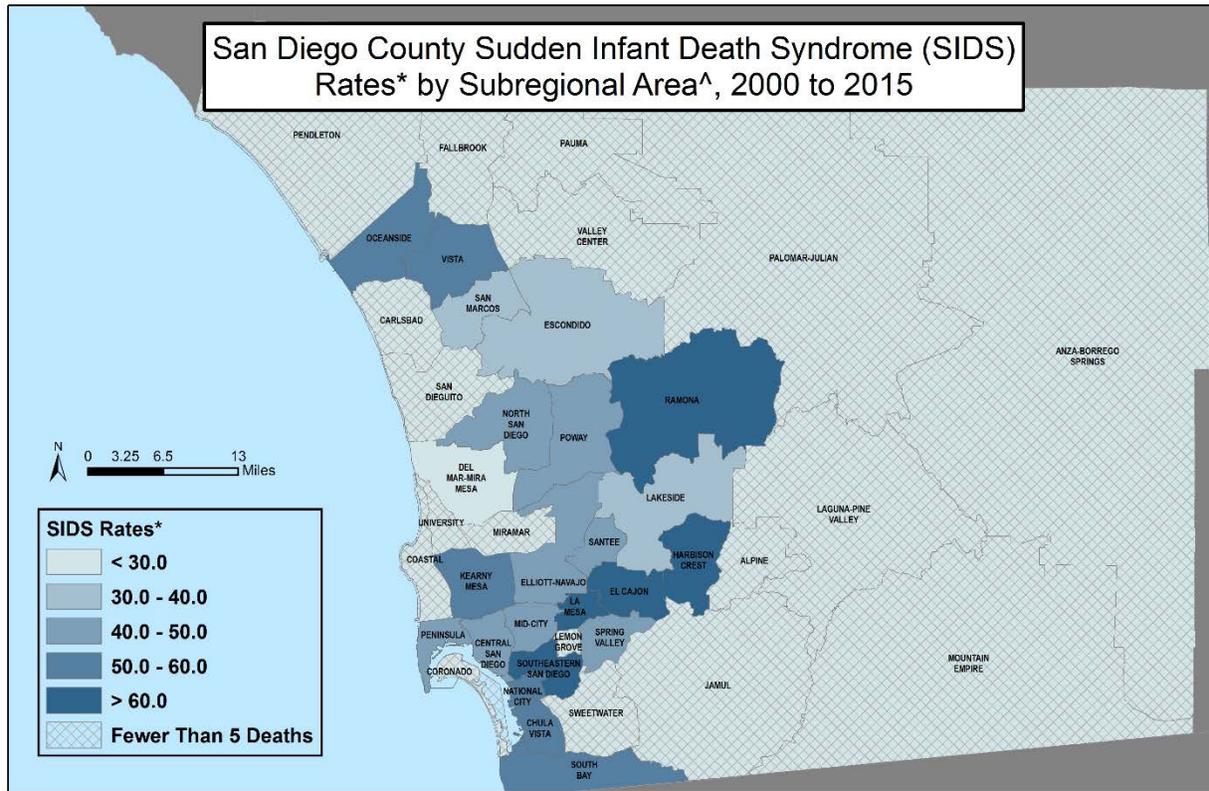
*Rates per 100,000 Infants Aged 0 - 12 Months

^Region of 'Residence' was used where available with Region of 'Event' and 'Death' used to fill in missing data.

Map Date: August, 2016
 Maps/Analysis by County of San Diego, EMS
 Contact Joshua Smith, Leslie Ray 619.285.6429



SIDS DEATH RATES BY SUBREGIONAL AREA, 2000 – 2015



*Rates per 100,000 Infants Aged 0 - 12 Months

[^]SRA of 'Residence' was used where available with SRA of 'Event' and 'Death' used to fill in missing data.

Map Date: September, 2016
 Maps/Analysis by County of San Diego, EMS
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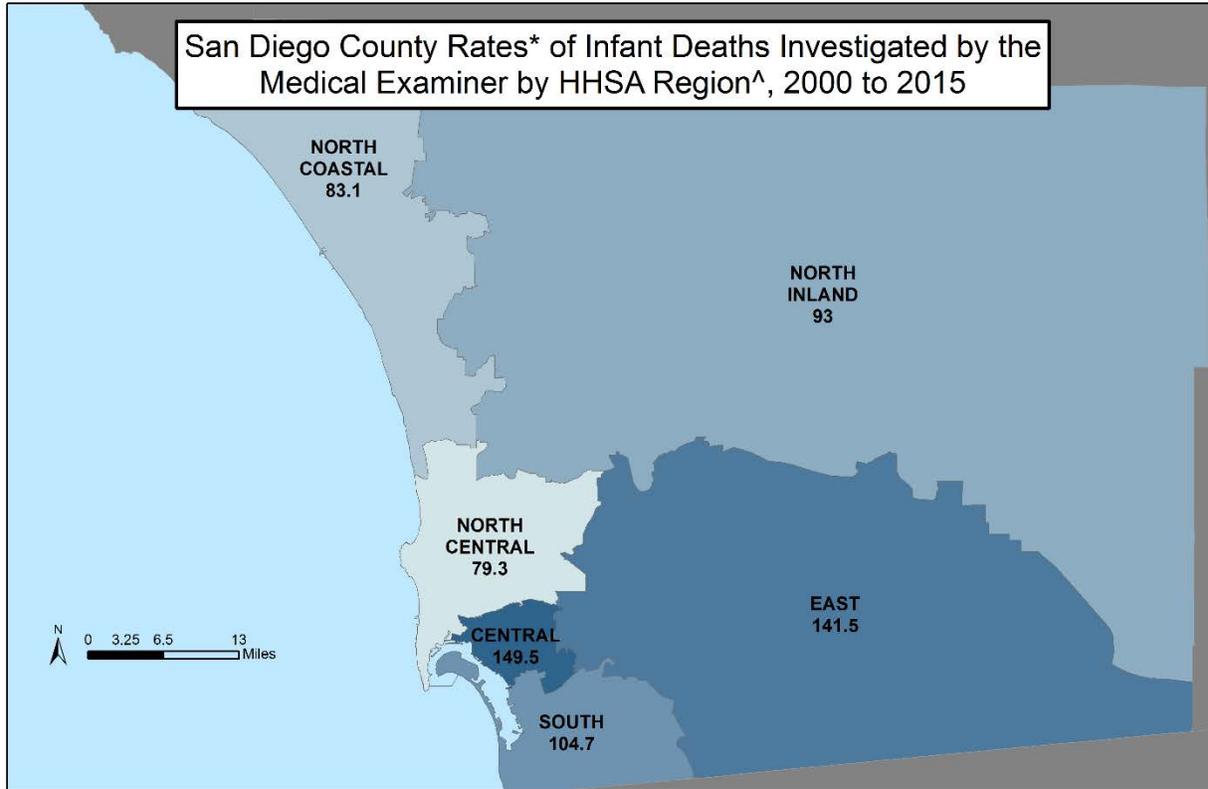
84.2	La Mesa
71.9	El Cajon
71.9	Harbison Crest
71.7	Ramona
71.6	Southeast San Diego
55.2	Chula Vista
55.2	National City
53.5	Vista
51.1	Oceanside
50.8	Kearny Mesa
50.5	South Bay
48.9	Poway
48.4	Peninsula
47.6	Santee

46.4	Spring Valley
46.3	Elliott-Navajo
46.3	Mid-City
42.5	Central San Diego
40.9	North San Diego
39.8	Lakeside
35.4	Escondido
34.4	San Marcos
22.7	Del Mar-Mira Mesa
*	Coronado
*	Coastal
*	University
*	Miramamar
*	Sweetwater

- * Jamul
- * Lemon Grove
- * Alpine
- * San Dieguito
- * Carlsbad
- * Pendleton
- * Valley Center
- * Pauma
- * Fallbrook
- * Palomar-Julian
- * Laguna-Pine Valley
- * Mountain Empire
- * Anza-Borrego Springs

*rates not calculated for fewer than 5 events

M.E. INVESTIGATED INFANT DEATHS BY REGIONAL AREA, 2000 – 2015

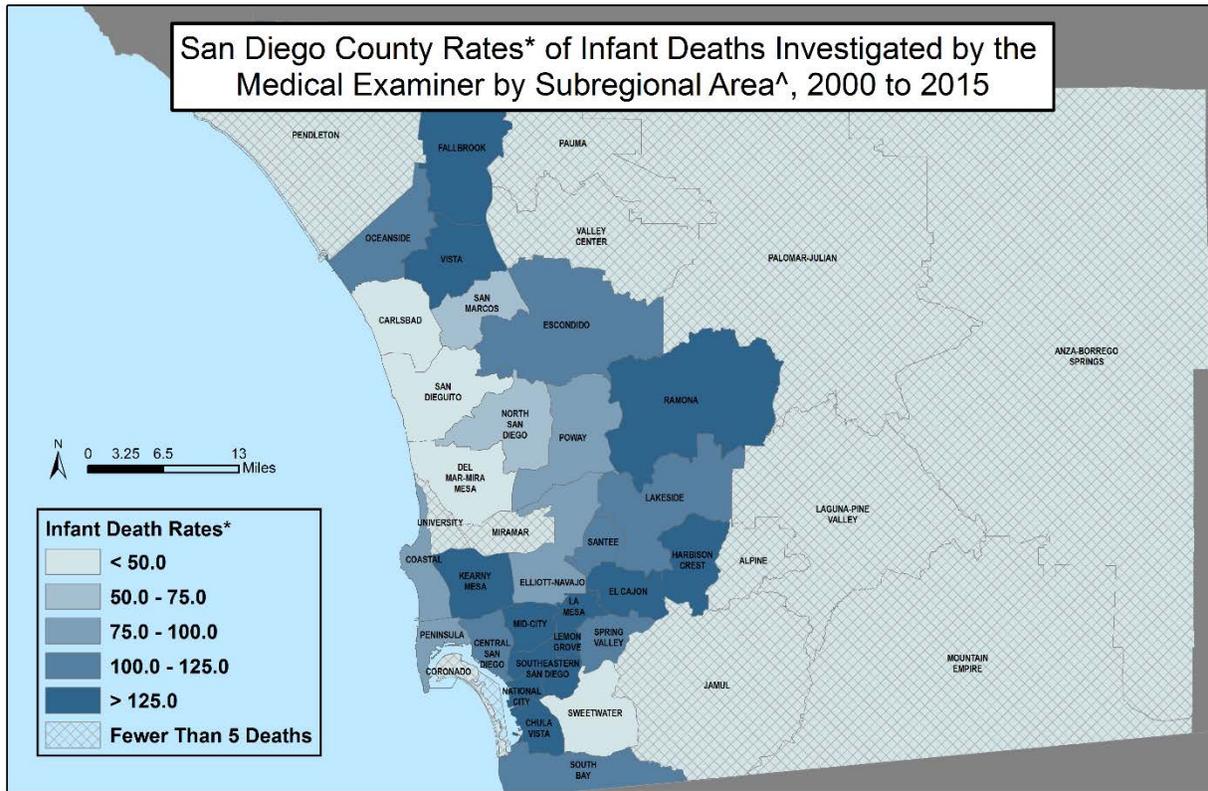


*Rates per 100,000 Infants Aged 0 - 12 Months
 ^Region of 'Residence' was used where available with
 Region of 'Event' and 'Death' used to fill in missing data.

Map Date: September, 2016
 Maps/Analysis by County of San Diego, EMS
 Contact Joshua Smith, Leslie Ray 619.285.6429



M.E. INVESTIGATED INFANT DEATHS BY SUBREGIONAL AREA, 2000 – 2015



*Rates per 100,000 Infants Aged 0 - 12 Months

^SRA of 'Residence' was used where available with SRA of 'Event' and 'Death' used to fill in missing data.

Map Date: September, 2016
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177.7	Southeast San Diego
173.4	National City
173.2	El Cajon
173.2	Harbison Crest
157.7	Ramona
153.9	Chula Vista
143.2	La Mesa
141.3	Mid-City
140.0	Vista
137.9	Lemon Grove
128.4	Fallbrook
126.9	Kearny Mesa
123.9	Central San Diego
122.7	Oceanside

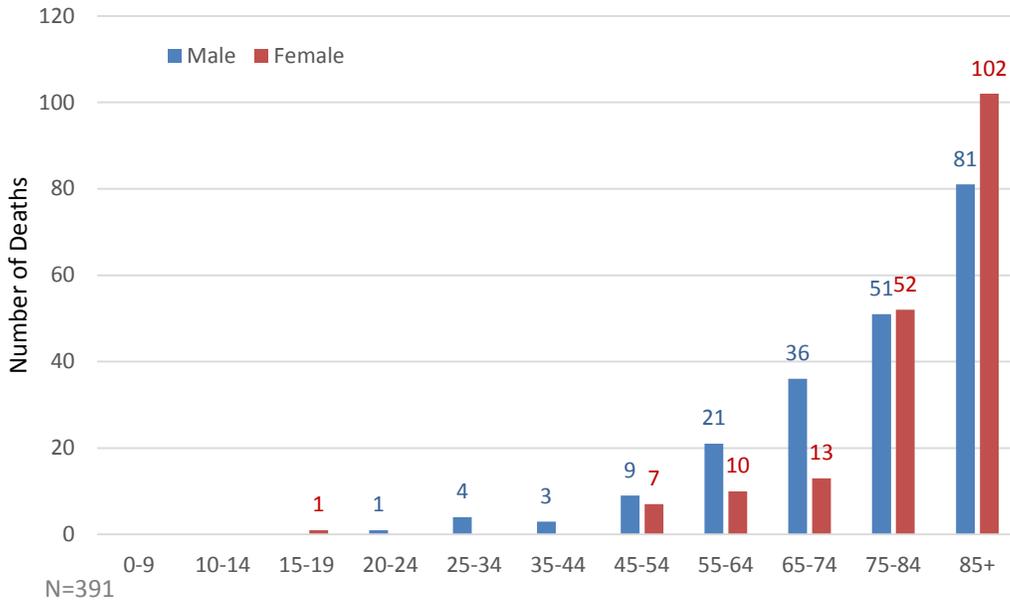
114.2	Santee
111.5	Lakeside
104.4	Spring Valley
103.7	Escondido
101.0	South Bay
96.7	Peninsula
87.4	Elliott-Navajo
81.5	Coastal
76.8	Poway
68.1	North San Diego
63.9	San Marcos
39.0	Del Mar-Mira Mesa
34.7	Sweetwater
34.6	Carlsbad

33.6	San Dieguito
*	Coronado
*	University
*	Miramar
*	Jamul
*	Alpine
*	Pendleton
*	Valley Center
*	Pauma
*	Palomar-Julian
*	Laguna-Pine Valley
*	Mountain Empire
*	Anza-Borrego Springs

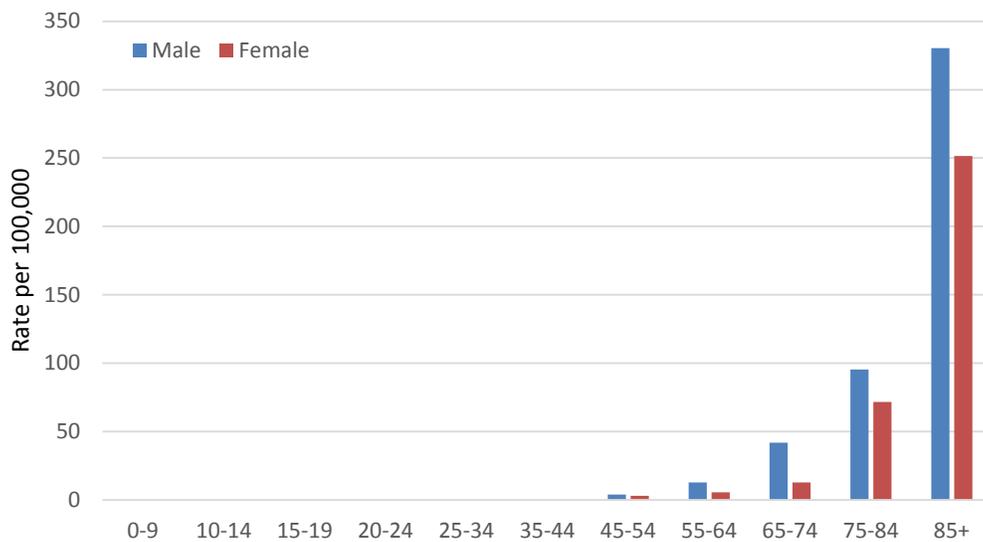
*rates not calculated for fewer than 5 events

FALL-RELATED DEATHS

DEATHS FROM FALLS BY AGE AND SEX, 2015

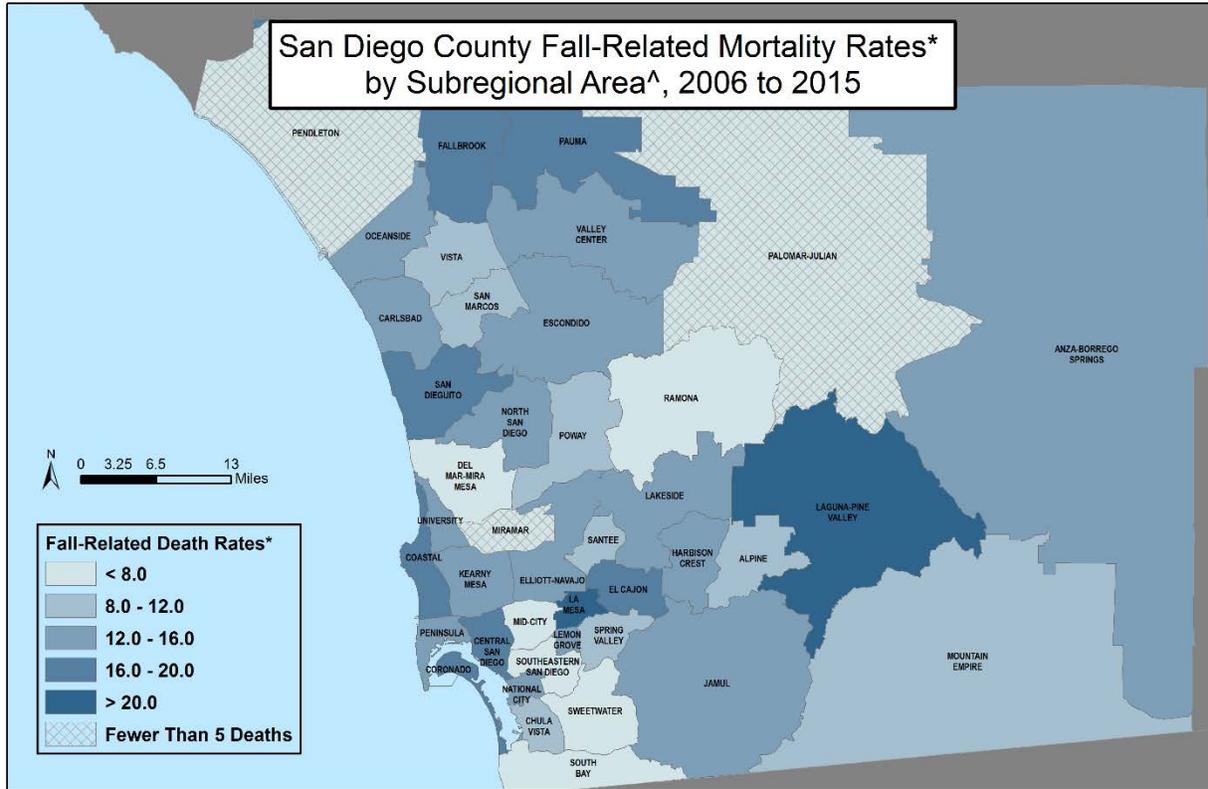


FALL-RELATED DEATH RATE BY AGE AND SEX, 2015



*rate not calculated for fewer than five events

FALL-RELATED DEATH RATES BY SUBREGIONAL AREA, 2006 – 2015



*Rates per 100,000 people

^SRA of 'Residence' was used where available with SRA of 'Event' and 'Death' used to fill in missing data.

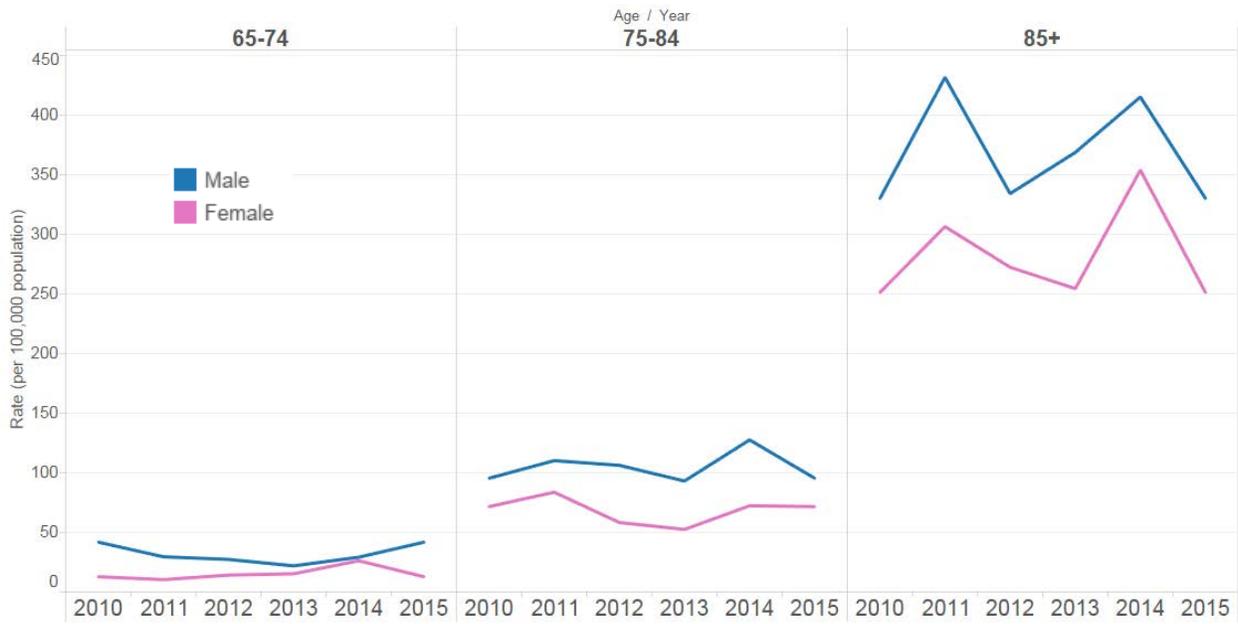
Map Date: September, 2016
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25.8 Laguna-Pine Valley	13.8 Lakeside	10.8 Poway
20.5 La Mesa	13.7 University	10.4 Alpine
19.7 Coronado	13.4 North San Diego	9.8 Vista
19.2 San Dieguito	13.3 Valley Center	9.0 Mountain Empire
19.1 Coastal	13.1 National City	7.7 Mid-City
19.1 Fallbrook	12.7 Oceanside	7.5 Del Mar-Mira Mesa
17.7 El Cajon	12.6 Anza-Borrego Springs	7.4 Southeast San Diego
17.4 Central San Diego	12.5 Harbison Crest	7.2 South Bay
16.3 Pauma	12.1 Jamul	6.7 Ramona
15.3 Escondido	12.0 Peninsula	5.3 Sweetwater
15.3 Carlsbad	11.7 Spring Valley	* Miramar
15.1 Kearny Mesa	11.7 Chula Vista	* Palomar-Julian
14.9 Lemon Grove	11.6 San Marcos	* Pendleton
14.9 Elliott-Navajo	11.1 Santee	

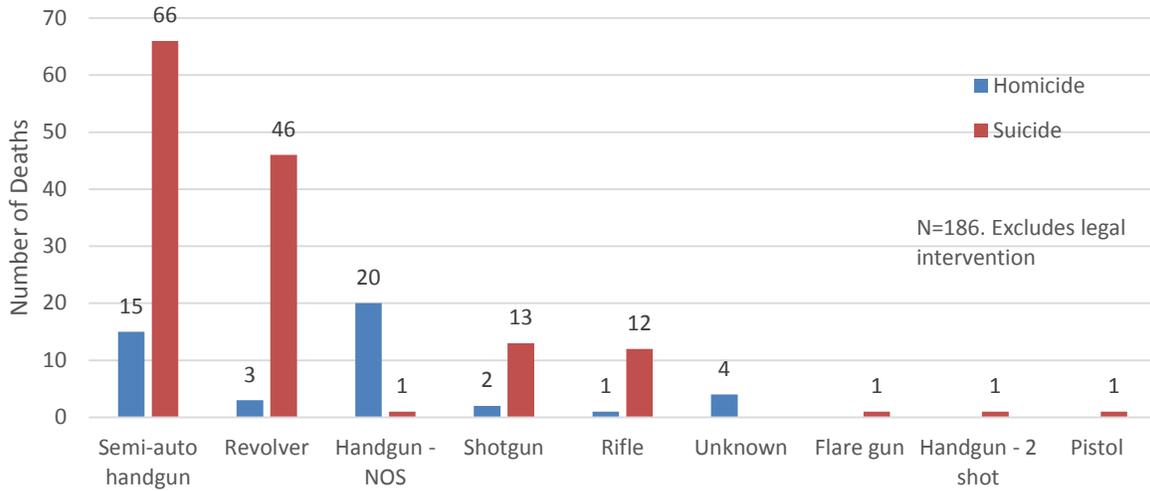
*rates not calculated for fewer than 5 events

FALL-RELATED DEATH RATES BY YEAR AND AGE, 2010 – 2015

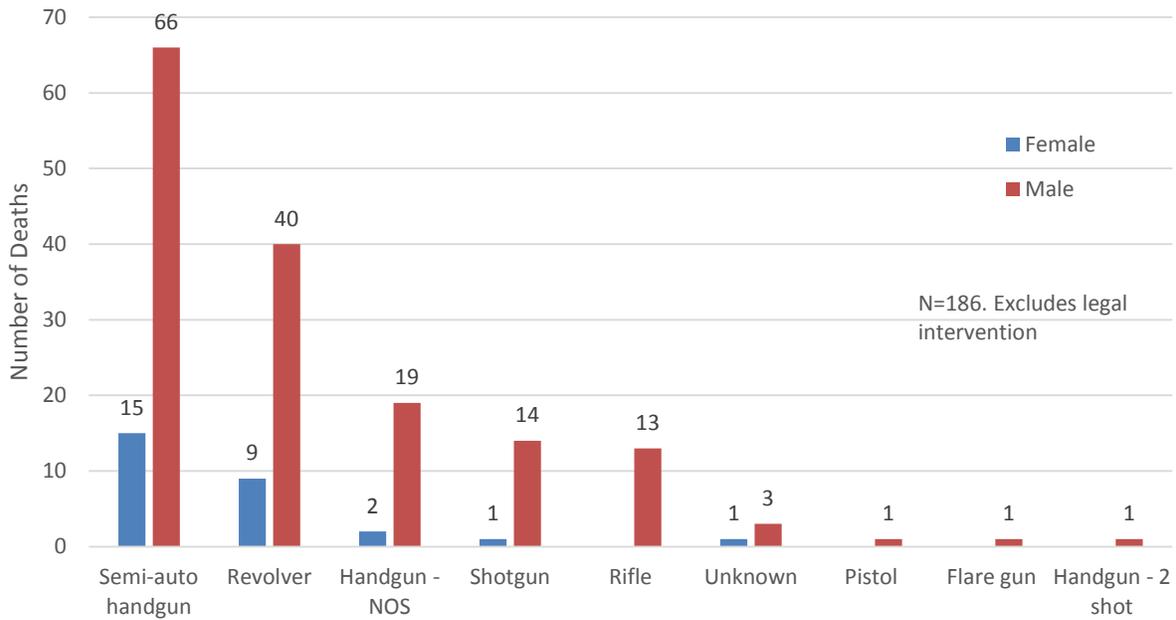


FIREARM RELATED DEATHS

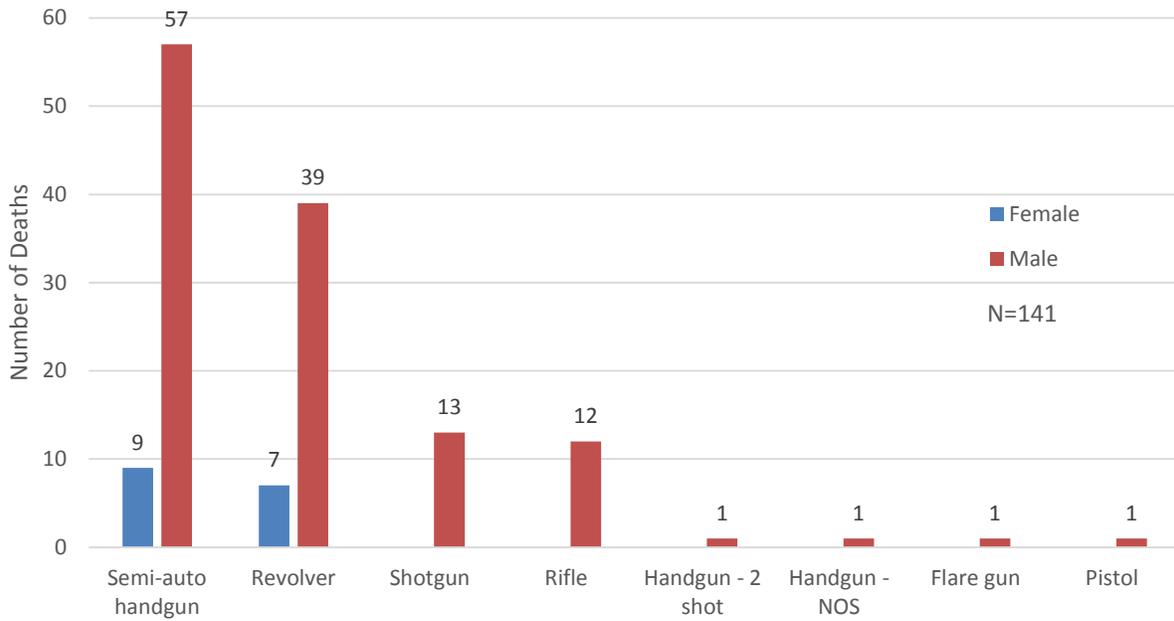
WEAPON TYPE BY MANNER (ALL MANNERS), 2015



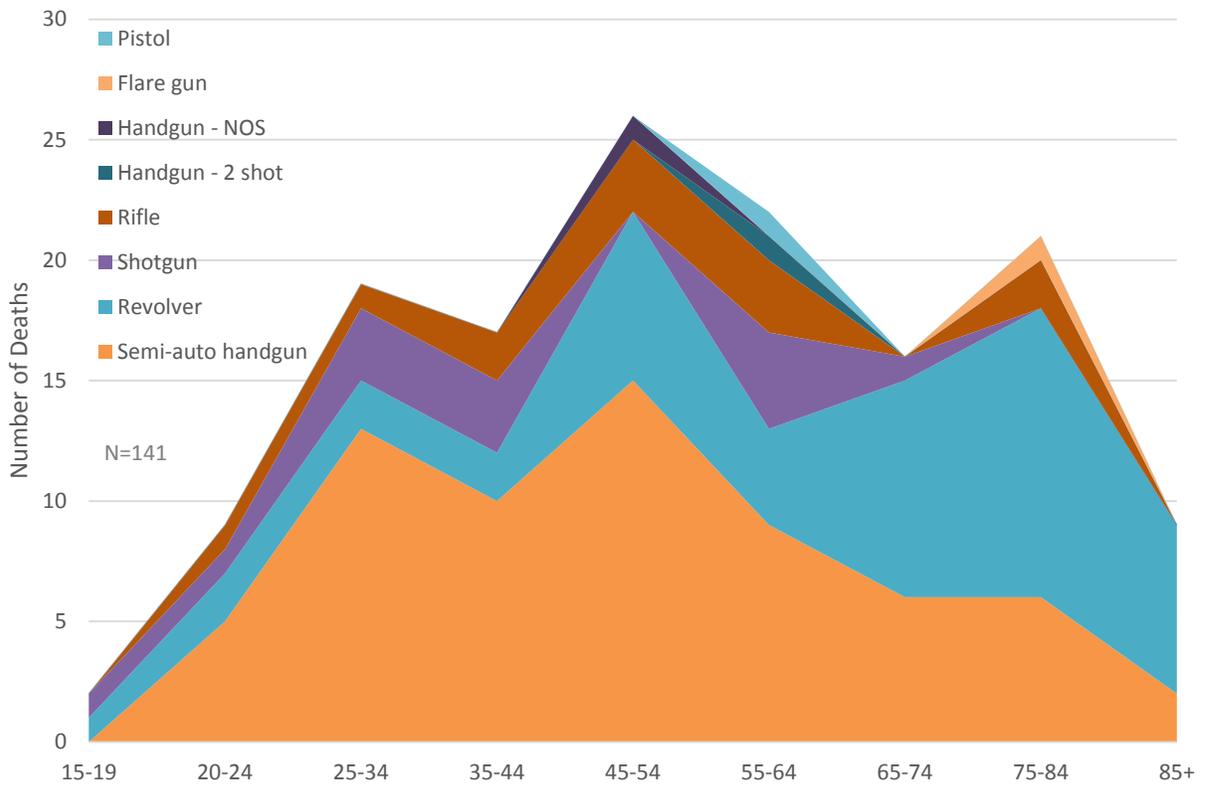
WEAPON TYPE BY GENDER (ALL MANNERS), 2015



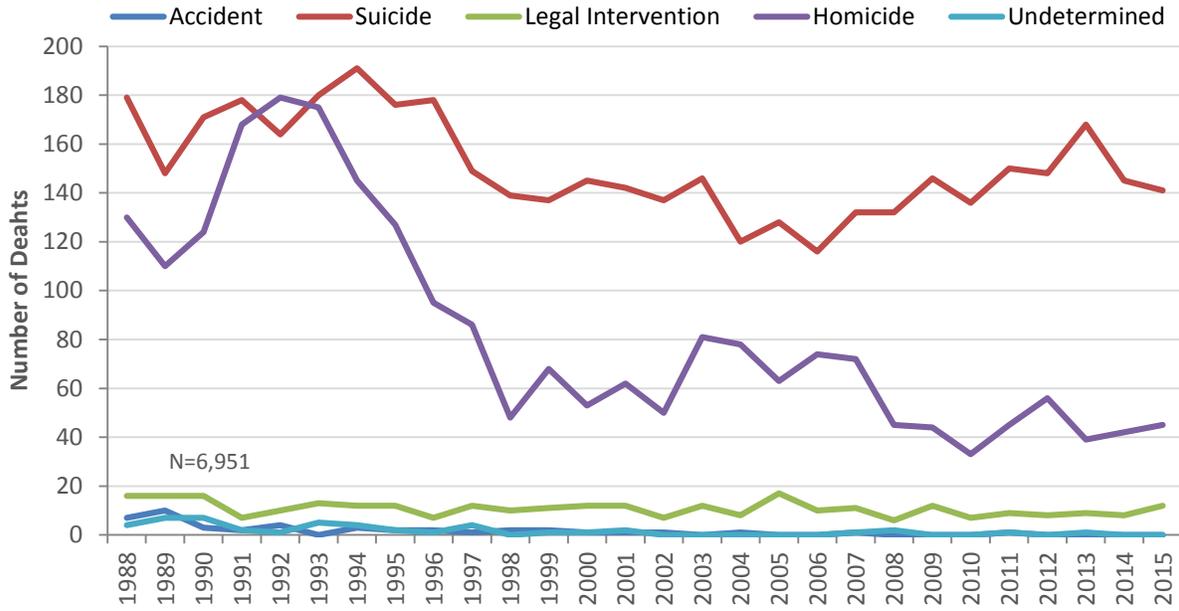
SUICIDE WEAPON TYPE BY GENDER, 2015



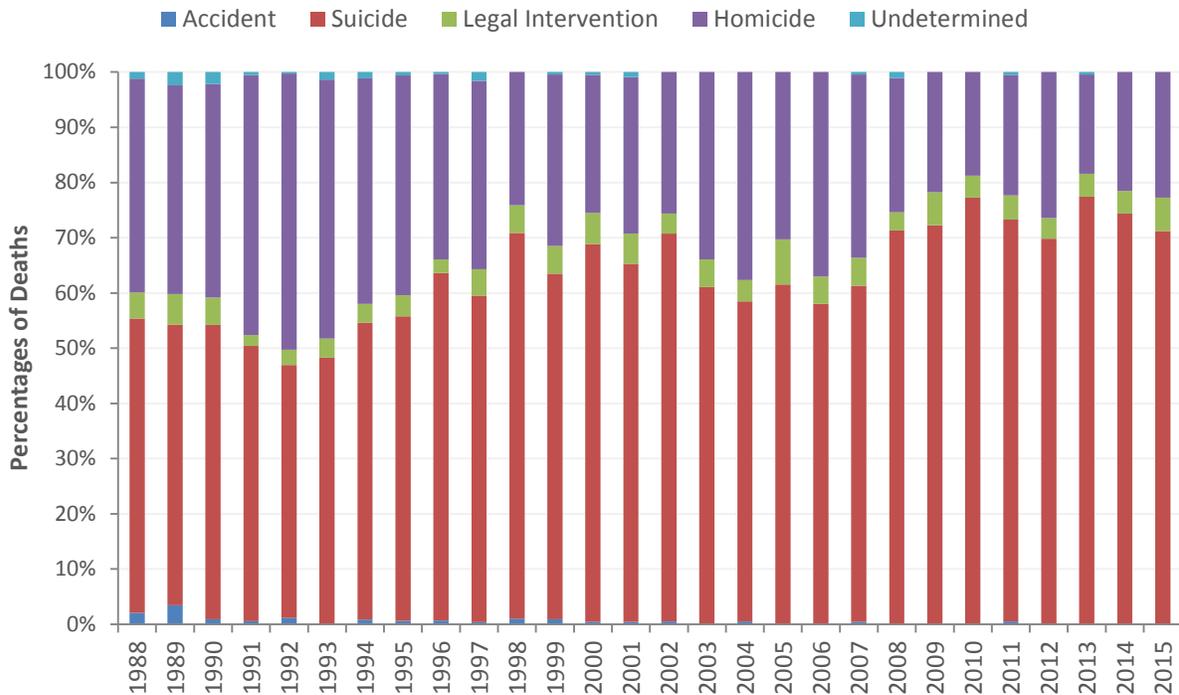
SUICIDE WEAPON TYPE BY AGE RANGE, 2015



ALL FIREARM DEATHS BY MANNER, 1988 – 2015



RELATIVE PROPORTIONS OF FIREARM DEATHS BY MANNER, 1988-2015



ACKNOWLEDGEMENTS

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