County of San Diego

Department of the Medical Examiner

2013 Annual Report

Dr. Glenn Wagner
Chief Medical Examiner

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OVERVIEW AND INTRODUCTION

This Annual Report is a summary of the activities of the San Diego County Medical Examiner for the calendar year 2013. 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 agencies 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 Department, 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 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.

INTRODUCTION FROM DR. GLENN WAGNER

Welcome to the 2013 San Diego County Medical Examiner's Office Annual Report. The statistics and scope of activities reflect ever changing patterns of disease and trauma in public health and safety within our community. The scope of activities of the Medical Examiner's Office is largely based on Government Code 27491 which states that all unnatural deaths including homicides, suicides, accidents, deaths in custody are by definition coroner/medical examiner cases as well as infectious diseases reaching epidemic proportions, deaths in state institutions, and deaths believed to be natural but sudden and unexpected where the decedent has not seen their health care provider in the last 20 days of life. For San Diego County with a land area of 4,200 square miles, 90 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 some 3.2 million with between 19,000-21,000 deaths recorded each year, the Medical Examiner's Office investigates some 10,000 cases annually or approximately 840 cases/month.

Not all of those cases are brought to its 55,000 square foot facility in Kearny Mesa at the County's Operations Center. Approximately 7,000 cases reported and investigated by the Medical Examiner's Office 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 for further evaluation with a relative constant proportion of cases.

For 2013, the 2,974 cases we took jurisdiction on were comprised of 36% natural deaths (heart attacks, cancer, diabetes, strokes, liver and kidney failure), 45% accidents (prescription drug, motor vehicle, industrial/agriculture, home based), 15% suicides, 3.3% homicides and 1.3% undetermined – very close to 2012 and prior years. Motor vehicle related fatalities remain at all-time lows after a two year increase  *. Deaths in which prescription medications played an active role have thankfully remained relatively flat for the last few years, although this plateau is at an all-time high in and of itself  . Prescription related deaths are still the most common cause of accidental deaths in the County, remaining higher than motor vehicle related fatalities and mirroring the national trend. Methamphetamine deaths in 2013 continued an increase that has been occurring since 2008 and are the highest they have been since 2000  . Heroin also remains a prominent illicit drug, rising from 74 deaths in 2012 to 89 in 2013. Suicides continued a numerical increase for which 2013 was the highest on record  . The 2013 suicide rate was at early 1990's levels, but still on an upward trend  . Homicides have continued to remain at all-time lows  . The San Diego County per capita homicide rate remains below both national and state rates.

*Sparklines are small representations of graphs. Click the sparklines to go to relevant section.

Largely based on its geographic position and diverse population, the Medical Examiner's Office investigates the deaths of some 200 John and Jane Does representing a population composed of illegal immigrants, homeless, and individuals living under an alias, or 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% of its 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 falling with the scope of 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 to study 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 accessions. The case categories or cohorts of particular interest are those also of existing task forces-child fatalities including SIDS, elder abuse, domestic violence, prescription drug abuse, repetitive brain injuries, sudden unexpected death associated with epilepsy, schizophrenia and bipolar disorders, Alzheimer's dementia and autism.

The dead do have a story to tell – not only of death but 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

POPULATION AND GEOGRAPHY OF SAN DIEGO COUNTY

The County of San Diego is the fifth most populous in the United States, with a population greater than 20 of the 50 states. The total population of the county is currently estimated to be 3,150,170. Nearly half of the more than 3 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 area of 4,261 square miles includes 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, of course, 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. 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. San Diego County has a large homeless population; the deaths of these individuals are often linked to drug or alcohol use or violence, or at least occur without the care of a physician. So, deaths of homeless persons 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 or getting lost. Proximity to the international border also increases the numbers of cases of less-common infectious diseases, particularly tuberculosis.

Drownings may occur in our oceans, lakes, or rivers, as well as swimming pools. In addition to swimmers, drownings may involve scuba divers, persons 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 port. Deaths involving attacks by marine life do occur, but are extremely rare, averaging less than one every 20 years.

Deaths due to falls may occur in urban areas from buildings, 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 merely *contributes* to the death - even in a small way - or is 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 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% 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.

While we try to accommodate all the wishes of family members and the decedent, 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. The 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. 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 San Diego Sheriff's Office, the San Diego Police Department, and 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 performed 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.

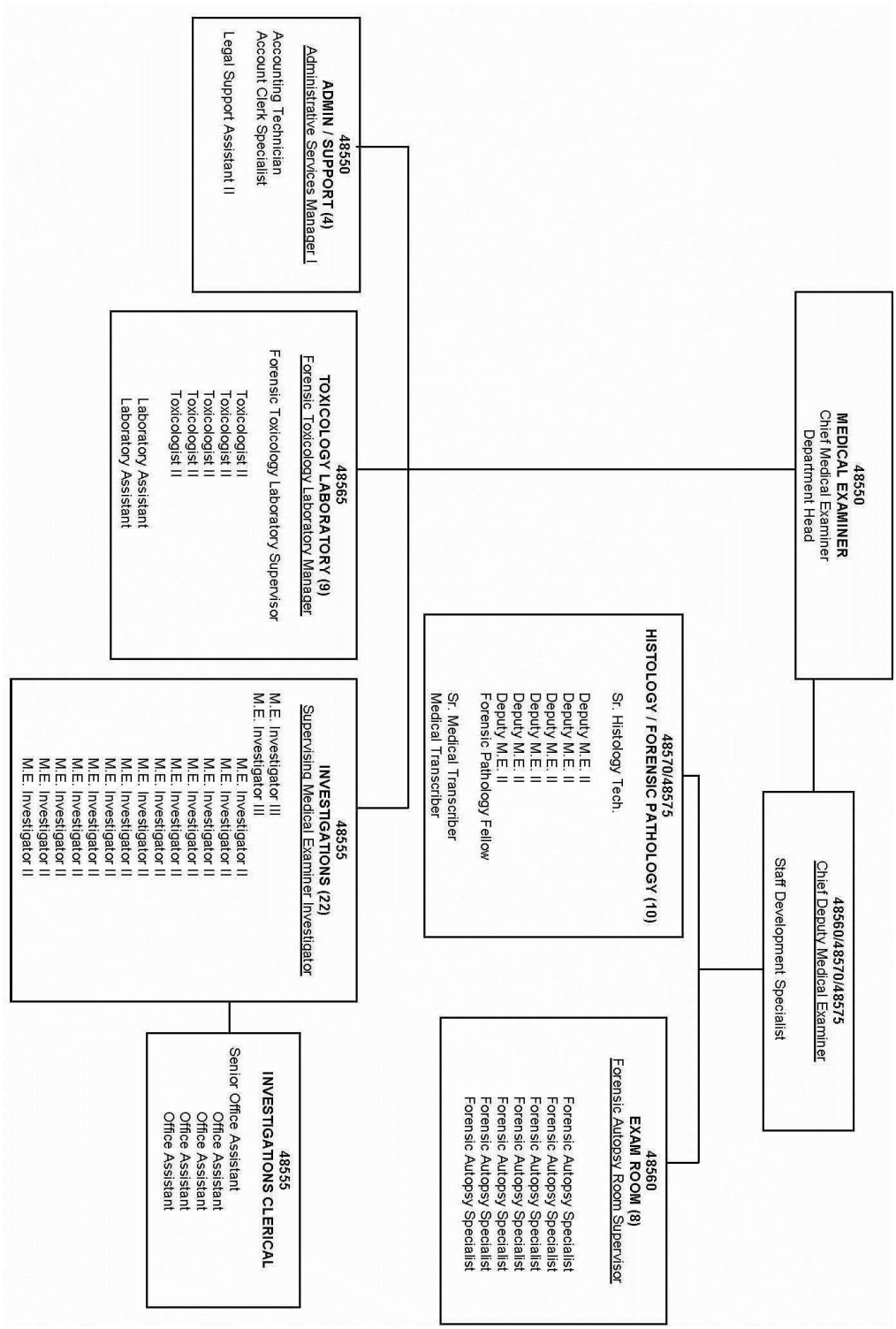
1963

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 a multi-story parking structure at the COC.

ORGANIZATIONAL CHART

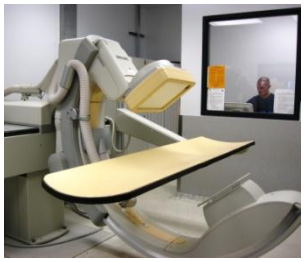


MEDICAL EXAMINER FACILITY

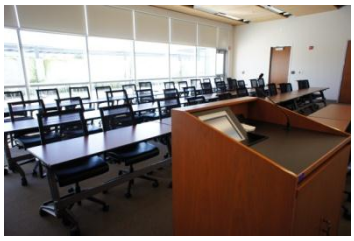
In December of 2009, we moved into our facility at 5570 Overland Avenue, Suite 101 in Kearny Mesa. It is the third building that has housed all the operations of the Medical Examiner's Office since 1957.

Our newest building represents the first completed structure 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 Environmental Health Vector Control, the Hazardous Incident Response Team (HIRT) and the County Veterinarian.

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.



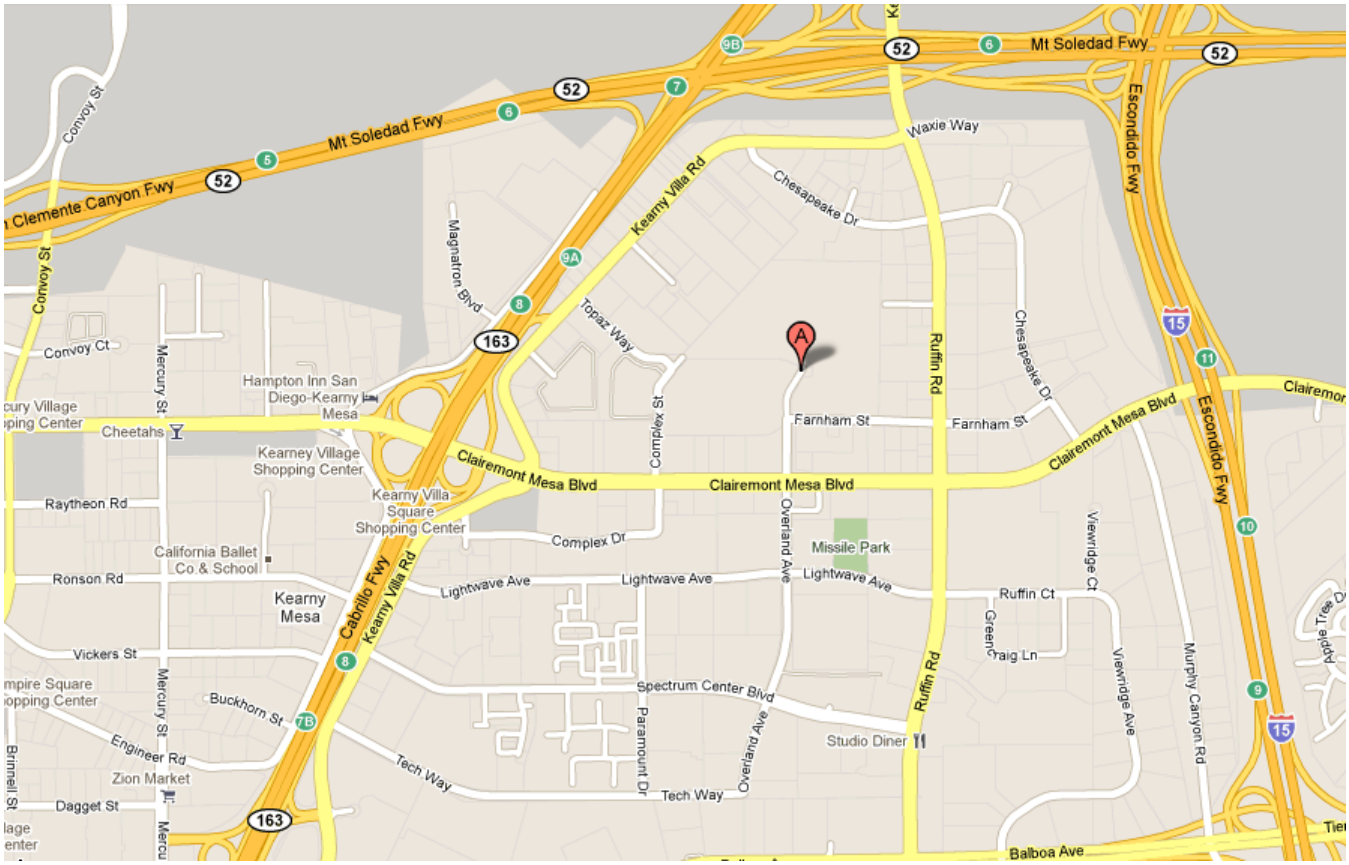
In addition to an upgraded work environment, we now have several shared conference rooms equipped with the latest audio-visual technology, advanced instrumentation in the toxicology laboratory allowing for additional methodologies, and a combination fluoroscope and digital X-ray system with 3-dimensional 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 on multiple levels, working to identify unknown deceased, 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.

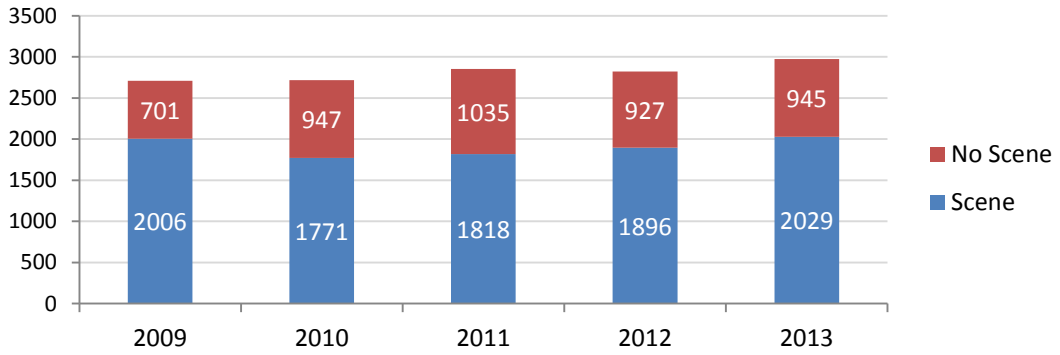
INVESTIGATIONS

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 the law enforcement agencies, health care professionals, and the public.

The initial phase of the process typically starts with a report of death. In 2013, Investigators processed 9,842 reports of death; Medical Examiner's Jurisdiction was invoked in 2,974 (30%) of those reports.

Investigators physically respond to the majority of the death scenes falling into the Medical Examiner Jurisdiction. In 2013, we responded to 2,029 scenes (68%). 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.

SCENE VISITS BY YEAR, 2009 - 2013



Occasionally, in non-suspicious cases in which the circumstances and medical history are well known, and the family needs to proceed with burial services or if the body has been transported out of the County, certification may be completed without bringing the body to the office. In these cases photographs of the body are sent by the mortuary. This occurred in 43 cases in 2013 (2012 – 12, 2011 – 11, 2010 – 35, 2009 – 20).

The Medical Examiner's investigators are the ones with the difficult task of notifying the next of kin of the death. The process starts with the identification of the decedent – arguably one of the most important duties of our office. Methods for identification may range from fingerprint and dental comparison to DNA comparison in some cases. This is a multidisciplinary approach which involves other county agencies. The process continues with a diligent search of 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 that die suddenly or unexpectedly often die with valuables – both monetary and sentimental – in their possession. The importance of ensuring that these items make their way to the next of kin cannot be underestimated. Often, the retention of the decedent's personal property is of the utmost importance to the next of kin. 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 serves three functions. First, we can inventory the pills remaining and based on the dosage and dates 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 take the medications out of 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. Disposal of the medications occurs at regular intervals after a period of secure storage.

Medical Examiner investigators discuss the circumstances of the death with the decedent's family; interviews are conducted at the scene; and additional statements are obtained from witnesses, the treating physician and responding emergency personnel. They offer the family free support through our Bereavement Center. Follow up investigations is required in many cases which involves review of medical records, police reports and traffic accident reports.

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

AUTOPSIES

Nearly 2,000 autopsies are performed each year by the Medical Examiner's pathologists and serve as a major component used by the Medical Examiner to determine a decedent's cause and manner of death. The 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, sectioned, and tissue samples collected for possible further microscopic examination. During the examination, specimens for possible toxicological testing are collected, which may include blood, urine, liver, vitreous (eye) fluid, stomach contents, and other tissues or fluids. Digital photographs may be taken at various points to document certain findings, or in some cases, a pertinent lack of findings.

One 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, the changes made during an autopsy are easily hidden by a mortuary so that the individual can be viewed by loved ones.

In 2013, 1,955 of the 2,974 individuals examined at the Medical Examiner's Office had an autopsy performed. Of the 1,955 autopsies, 285 were performed by pathology residents or our forensic pathology fellow under the direct supervision of a board certified pathologist. The remaining 1,019 individuals had sufficient history and known circumstances to be certified without autopsy based on the investigation and external examination of the body alone.

Decedents who do not fall under the Medical Examiner Office's jurisdiction, or in 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. In 2013, the San Diego County Medical Examiner performed 15 family requested autopsies.

It has been said that the body is the only unbiased witness to the death. It is our office's responsibility to hear what that body is saying, speaking for the dead in a way, so that loved ones can receive closure, light can be shed on a criminal investigation, and vital statistics can be provided to the community at large.

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), and one Forensic Pathology Fellowship position. 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. 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.

Lastly, the Pathology division trains one forensic pathology fellow per year. The fellow is a pathologist who has completed training in anatomic or anatomic and clinical pathology, and wishes to sub-specialize in forensic pathology. Following the fellowship training, the fellow is expected to take the annual ABP-administered forensic pathology examination along with the other fellows from around the country.

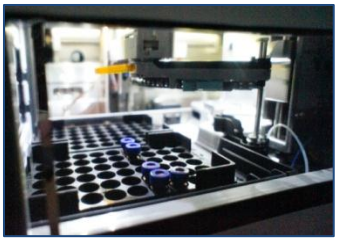
TOXICOLOGY LABORATORY REVIEW

Forensic toxicology provides a comprehensive drug testing service in medico-legal death investigation. The laboratory offers routine testing for alcohol and simple volatile compounds (including difluoroethane), drugs of abuse (cocaine, amphetamines, opioids, benzodiazepines, fentanyl, cannabinoids, buprenorphine, carisoprodol, oxycodone, zolpidem, methadone, and phencyclidine [PCP]), 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 accreditation by the American Board of Forensic Toxicology (ABFT). The laboratory has now been fully accredited since 2005.

The laboratory has maintained contracted services by offering alcohol analyses and complete toxicology testing to other facilities. The forensic toxicology laboratory now routinely performs testing for the San Bernardino coroner, as well as 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.

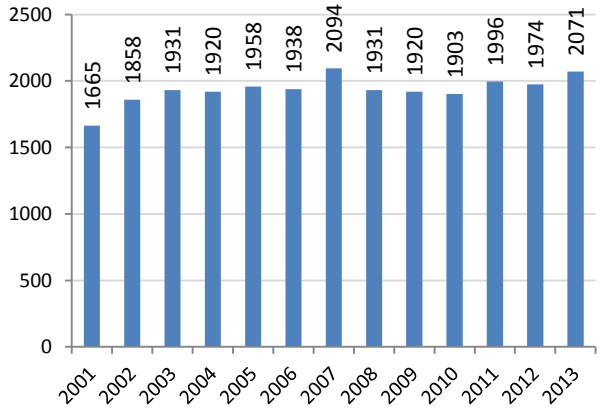
WORKLOAD DATA FOR 2013 IN COMPARISON TO PREVIOUS YEARS

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

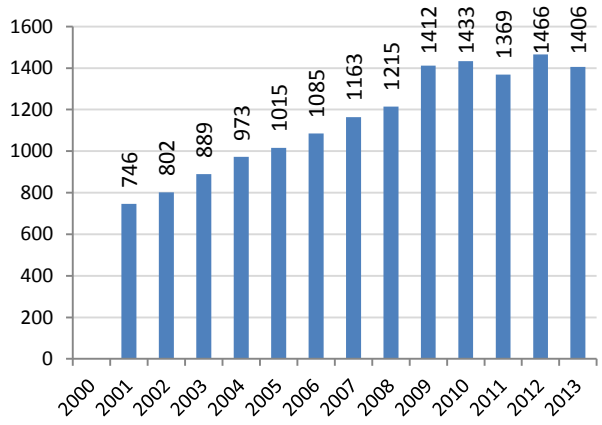
As the data illustrates below, the number cases examined were essentially the same compared to the previous year. A total of about 3,477 cases each year. There is a continued increase in the complexity of testing, together with the routine monitoring of therapeutic drugs, vitreous chemistries and volatile screens in cases from both San Diego and San Bernardino.

NUMBER OF CASES

SAN DIEGO MEDICAL EXAMINER



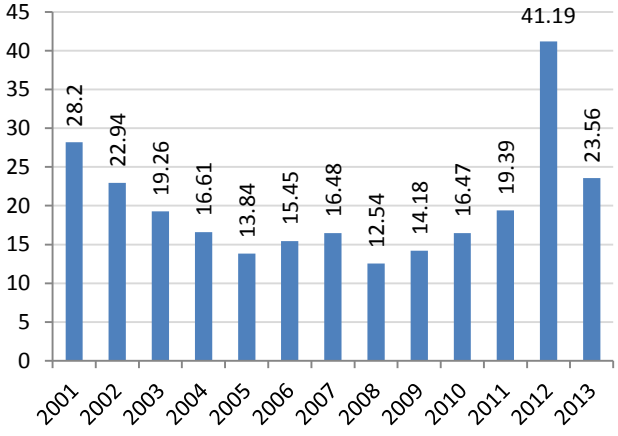
CONTRACTED SERVICES FOR THE SAN BERNARDINO CORONER



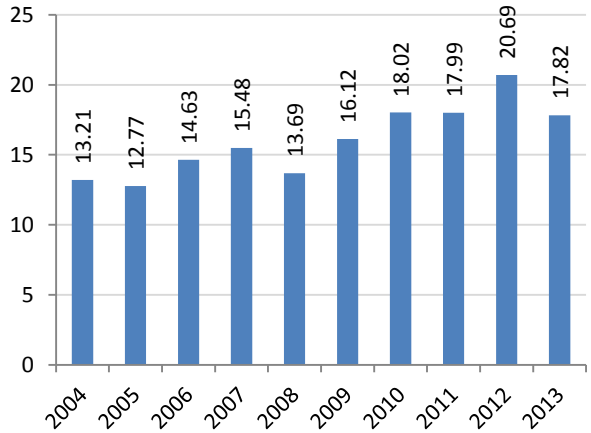
The average turnaround time for the completion of cases continued to decrease – a trend observed toward the end of the previous 12 months. The average turnaround time (for the 2013 period compared to 2012) decreased from 41 to 23 days for the San Diego Medical Examiner. This is a result re-staffing, and increased productivity which was achieved by some analytical re-development.

AVERAGE TURNAROUND TIME (DAYS) BY YEAR

SAN DIEGO MEDICAL EXAMINER



CONTRACTED SERVICES FOR THE SAN BERNARDINO CORONER



PUBLICATIONS

McIntyre, I.M., Mallett, P., Trochta, A. and Morhaime, J. "Hydroxyzine Distribution in Postmortem Cases and Potential for Redistribution." **Forensic Science International** 231 28-33, 2013. http://dx.doi.org/10.1016/j.forsciint.2013.04.013

McIntyre, I.M., Nelson, C.L., Schaber, B. and Hamm, C.E. "Antemortem and Postmortem Methamphetamine Blood Concentrations: Three Case Reports." **Journal of Analytical Toxicology** 37/6 386-389, 2013. http://dx.doi.org/10.1093/jat/bkt040

McIntyre, I.M., Hamm, C.E., Aldridge, L. and Nelson, C.L. "Acute Methylone Intoxication in an Accidental Drowning – A Case Report." **Forensic Science International** 231 1-3, 2013. http://dx.doi.org/10.1016/j.forsciint.2013.06.005

PRESENTATIONS

McIntyre, I.M. "Workshop: Forensic Scientists' Challenges and Successes; Forensic Toxicology". Presented at the American Academy of Psychiatry and the Law, 44th Annual Meeting, San Diego, CA, October 24-27 2013.

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DEATH CERTIFICATION

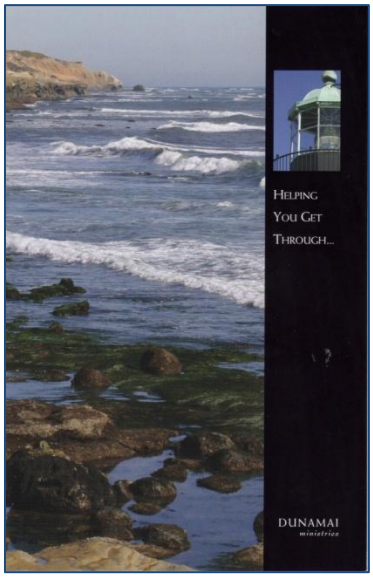
Death certification consists of determining a cause and manner of death for those cases that fall under jurisdiction of the Medical Examiner's Office and completing a California Death Certificate for the individual. The *cause* of death can be summarized as the disease or injury that initiates the sequence of events that ultimately results in the person's death. The *manner* of death is classified into one of the following five categories: natural, accident, suicide, homicide or undetermined. Once a determination is made following an examination, 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 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 the cause and/or manner of death. When this is the case, the certificate of death will be temporarily listed as "Pending." The certificate will then be amended following further investigation or examination. In a small percentage of cases, neither a cause nor a manner of death may 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.

The approximately 3,000 deaths investigated by the Medical Examiner each year are often 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 can exacerbate and precipitate health-compromising behaviors.



Prior to the inception of the Bereavement Center, families enduring the bereavement process were an un-served population. Given the aforementioned 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 available?" "How do I deal with insurance companies?" These are some of the typical questions raised by families going through the grieving process.

At every death notification the booklet is provided to each next of kin by a Medical Examiner Investigator along with the contact number for multiple organizations providing grief counseling and 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 that have lost a son or daughter through Umbrella Ministries to which over 169 mothers (through April 2014) have benefited. 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. Most of the successes of the Bereavement Center's work are not quantifiable. The degree to which the Bereavement Center provides comfort to grieving families is immeasurable. However, there are a few quantifiable measures of success. Through December 2013 over 18,500 grief resource booklets had been provided to grieving families.

In the first 40 months of operation the Center has provided free counseling services and care to hundreds of families. Through April 2014, 234 cremations had been paid for. The Bereavement Center also offers clergy support for funeral arrangements. And perhaps the most touching, is that 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.

EMBALMING

Embalming is the process used to disinfect and preserve human remains so they can be safely viewed by loved ones. Although mortuaries or cremation establishments perform most embalming procedures, the Medical Examiner's Office offers these services at a competitive rate. All eight Forensic Autopsy Specialists on staff are California licensed embalmers, and all have worked in mortuaries prior to working for the County. These employees, with their familiarity of the funeral processes, understand the needs of the mortuaries and are sensitive to the needs of the families.

Given the high quality service we can provide at a competitive rate, we intend on continuing and hopefully expanding this service to the families we serve.

CASE REPORT REQUESTS AND DATA SHARING

We investigate deaths throughout San Diego County, and it is critical that we communicate to those that need the details of our investigation, our findings, and our conclusions as to cause and manner of death. Our most important documents are the autopsy, investigative, and toxicology 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 record. We receive between 3,500-5,000 requests for reports per year from a wide variety of individuals and agencies, including family members, friends, hospitals, law firms, insurance companies, media, and government agencies. Our clerical division completes this task in a timely fashion, while also preparing death certificates and amendments, processing court orders and subpoenas, handling phone calls and emails, helping visitors and mortuaries, 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% of these requests in 7 days or less. In 2013 we completed filling 95% (4,413 of 4,646) case reports in 7 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. 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, or methamphetamine; and improving the trauma system.

CHILD FATALITY REVIEW COMMITTEE

This group is comprised of representatives from the Medical Examiner's Office, Public Health Nursing, the clinical medical community including the regional Children's Hospital, law enforcement, District Attorney, Child Welfare Services, emergency medical personnel, Probation, County Counsel, and the local Child Abuse Prevention Committee. 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, as well as to improve coordination and effectiveness of child protection, investigation and legal processes. The San Diego Child 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 2011 and 2012 the committee reviewed a total of 164 child deaths. 91 deaths were reviewed in 2013.

When an infant (<1 year) dies while sleeping in unsafe circumstances (adult bed, bed sharing, over bundled, cluttered sleep surface), the Committee sends a letter to the San Diego regional birth hospital alerting the nursing staff along with administration and risk management personnel of the need to reinforce safer sleeping guidelines (placed supine [face up], alone, on a firm surface without bumper pads, pillows, blankets, etc.)

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 over thirty 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 October will mark the 18th year the team has been convening and 192 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 all of the intimate partner violence-related deaths (homicides and suicides) for that occur in San Diego County. The Medical Examiner continues to be a key partner is this process, as the DVFRT is dependent 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.sdcda.org/helping/domestic-violence-fatality-review-team.html

ELDER AND DEPENDENT ADULT DEATH REVIEW TEAM

The 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, San Diego Sheriff's Office, and Department of Aging and Independence Services. 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 and 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 has been a model for other jurisdictions.

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

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 to ensure thorough investigation of all diving-related deaths, a multidisciplinary diver death review committee was formed in 2009, including members from 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 (with 2 occurring in 2013) was thoroughly reviewed and discussed by the committee. This review guided certification in cause and manner of death and contributed to recommendations for diver safety in the County of San Diego.

OTHER PARTICIPATION

Our office also participates in several local Trauma meetings as well as a County wide trauma monitoring system:

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 sit on 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 country that provide a one-year accredited training program in the medical subspecialty of forensic pathology, and has trained 15 fellows over the last 21 years. We train one of the just around 40 forensic pathology fellows trained each year in the United States.

Our program has been fully and continuously accredited by the Accreditation Council for Graduate Medical Education (ACGME) and is approved for two positions, although historically we have only had adequate funding for one. We completed training a fellow for the 2013/14 year and are training another for 2014/15. Our position is currently filled through June of 2016, and for the 2015/16 academic year we will be able to have two fellows train together.

San Diego County is uniquely positioned to provide a 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 Office provides important 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 Office pathologists – training that is required for them to be eligible for Pathology board examinations. In 2013, 8 residents spent rotations ranging from two to six weeks at the Medical Examiner Office, performing a total of 125 cases under direct supervision, providing invaluable learning opportunities.

Additional instruction of Pathology Residents included 11 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: Teaching for the greater community: Medical Examiner Department staff including pathologists, investigators, and others facilitated presentations through 2013, with teaching time split among topics and audiences such as courses about the Medical Examiner Department for Probation Officers; forensic pathology topics for Cal Western Law School, and University of San Diego,; forensic pathology as a career for high school students; as well as many others. These presentations were given either at the Medical Examiner facility or at the group locations throughout the county. They were intended to educate, inform, and minimize misconceptions about our function.

The Medical Examiner Department was able to allow 47 groups – a total of 813 guests – including police cadets and paramedic students the opportunity to view an actual autopsy with narration and teaching by a pathologist as an invaluable educational opportunity. 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.

RESEARCH INVOLVEMENT

Through the course of 2013, the Medical Examiner Office was involved in many different research opportunities. Our toxicology section published three scientific papers (some in collaboration with our pathology section) in the scientific journals *Journal of Analytical Toxicology* 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 of this tragic issue.

Other research involvement has included donation of human brains, only in cases with full consent from families. In 2013 we sent human brains to the University of California, Irvine, for programs involving study of schizophrenia, bipolar disorder, and depression; the Allen Institute for Brain Science for the Human Brain Atlas project; and to the Mind Institute for research on epilepsy.

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. 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 release the sketch, any identifiable information and the decedent's physical characteristics to all of San Diego's media outlets in hopes of learning an identity or contacting possible family. We also work with NCMEC (National Center for Missing and Exploited Children) and NamUs in our efforts to identify individuals.

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 2013, 85 of the 2,974 cases (2.9%) came to the Medical Examiner's Department with their identity unknown or in question. Three-quarters of those were identified in the first week and all but 11 were identified within the first 30 days. As of June 26, 2013, all but those 11 – each of those skeletonized remains – were identified from 2013.

ABANDONED BODIES

State law (California Health & Safety Code Sections 7100-7104) requires San Diego County to handle the disposition of decedents who have been declared indigent, whose body is abandoned by the legal next of kin, 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 will 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. The Medical Examiner's Office handles abandoned bodies over which we have taken jurisdiction, as well as those abandoned at a hospital or mortuary.

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.

In 2013 there were a total of 201 abandoned bodies authorized by the Medical Examiner.

LEGAL TESTIMONY

A significant part of the duties of the Medical Examiner Office involves legal testimony. Pathologists, investigators, and toxicologists are called upon to testify most commonly in homicide cases, but also other criminal cases such as motor vehicle accidents (particularly those involving driving under the influence of alcohol, drugs, or medications). 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.

Pathologists provide testimony as expert witnesses regarding their autopsy findings, including evidence of trauma, natural disease, and any finding the court deems relevant. Their expertise in evaluation of trauma sheds valuable insight on critical aspects of legal issues.

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 attorneys for the time of any witnesses called away from their responsibilities for the County. The County's fee for such civil court appearances is based on reimbursement for wages and benefits, 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 may include district attorneys and their investigators, defense attorneys and their investigators, and law enforcement personnel. These meetings can take place prior to or during hearings and trials, and various aspects of the postmortem examination findings may be discussed. We have an "open door" policy in that we will gladly meet with those on either side of a legal proceeding. 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 lifesaving 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 2013, 108 tissue donors – 23% of all of Lifesharing's tissue donors – were referred from the Medical Examiner. Seventeen (17) hearts were recovered for heart valves – 11 of those were Medical Examiner cases. Occasionally, 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 2013, 59% (62) were Medical Examiner cases resulting in the procurement of 258 organs, 33 of which were for research. The organ team also recovered 2 hearts for valves.

Eye/cornea donation: In 2013, the San Diego Eye Bank recovered corneas from 535 donors through the Medical Examiner Department. This has resulted in 1070 patients receiving the Gift of Sight.

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.

BEYOND THE MEDICAL EXAMINER DEPARTMENT

In addition to the tasks that further our mission and support those of other agencies and institutions in the County of San Diego, our activities may also extend beyond the borders of our jurisdiction. As noted elsewhere, the Medical Examiner's Toxicology Laboratory performs testing not only for San Diego County cases but also those from the San Bernardino County Coroner's Office.

MASS DISASTER PREPARATION

Mass disasters or mass fatalities may take many different forms, including disease epidemics or pandemics, natural disasters such as earthquakes or wildfires, accidents such as aircraft crashes or industrial/nuclear incidents, or even terrorist attacks. Whether these fatalities involve natural or human causes, the Medical Examiner Department must be ready to respond as part of the greater community of essential emergency services. The Medical Examiner Department has plans, supplies and capabilities of expanding our operations at any time to respond to local mass fatality incidences. 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. We have worked with the San Diego Airport Authority, the U.S. Navy, San Diego County Public Health, Emergency Medical Services, and local hospitals to ensure a coordinated response. We have a representative involved in the continual planning and training for the Metropolitan Medical Strike Team – a multiagency group involved with organizing and facilitating disaster training.

MULTIDISCIPLINARY DIVE TEAM

One of our Deputy Medical Examiners has been a member of the San Diego Lifeguard/Police Multidisciplinary Dive Team since 2009 and continues to participate in team trainings and operations. The Dive Team uses scuba gear and underwater search techniques in a rescue capacity for possible drownings, boating accidents, scuba diving accidents, or other situations, as well as for recovery situations in which a person is believed to be missing in the water. The team includes personnel from San Diego Lifeguards, San Diego Police, and San Diego Lake Rangers. Having a team member from the Medical Examiner's Office allows for underwater investigation and recovery of remains, as well as strengthens scene documentation and chain of evidence.

DMORT

One of our Medical Examiner Investigators is a member 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.

2013 DATA SECTION

California statute mandates our office to determine the cause and manner of death for each person that falls under the jurisdiction of the Medical Examiner. However, another critical function of the Office 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 the hard interventional work that has been done in the past is accomplishing its goal. Coupled with the right data from other agencies, it can potentially also be used to prevent harm to those living in our community.

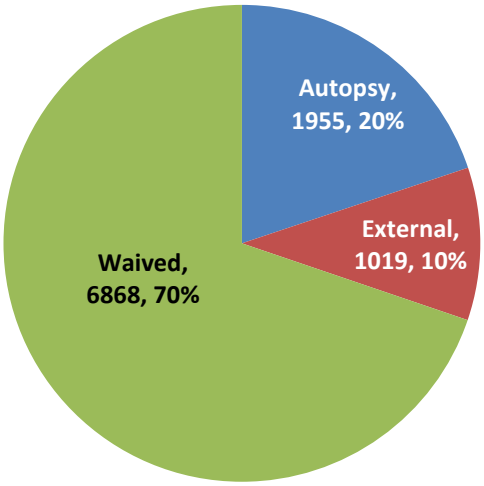
This section is designed to provide data in an easy-to-understand format so that the reader, including regional agencies and groups, can easily use the information to make decisions and stay informed. Most of the data is designed to speak for itself, but where applicable a narrative or explanatory caption 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 2013 compares to previous years.

Keep in mind that this report represents investigation of only a certain subset of deaths in the county – approximately 14.9% (2,974) of the approximately 20,000 deaths in 2013. 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% of all natural deaths) in the county.

OVERVIEW OF ALL CASES

In 2013, 9,842 deaths were reported to the San Diego County Medical Examiner's office. Jurisdiction was waived on 70% of these (6,868) and invoked in 30% (2,974). We performed 1,955 autopsies (66% of jurisdiction cases and 20% of all deaths in the County) and 1,019 external examinations only (34% of jurisdiction cases and 10% of all County deaths).

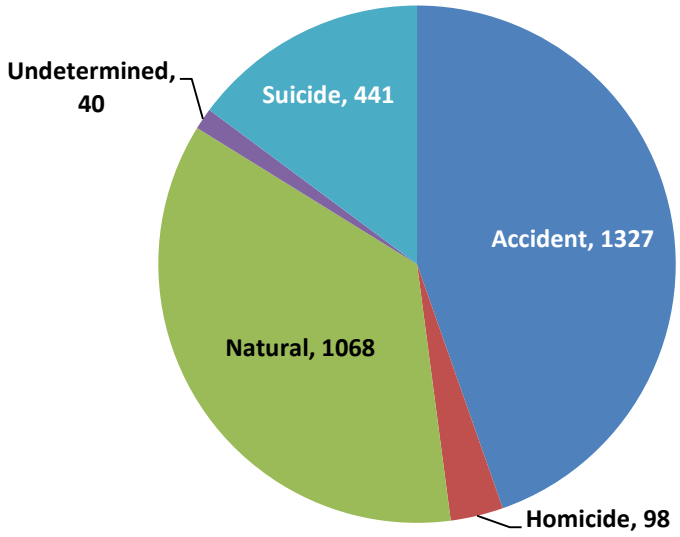
ALL DEATHS REPORTED TO M.E, 2013



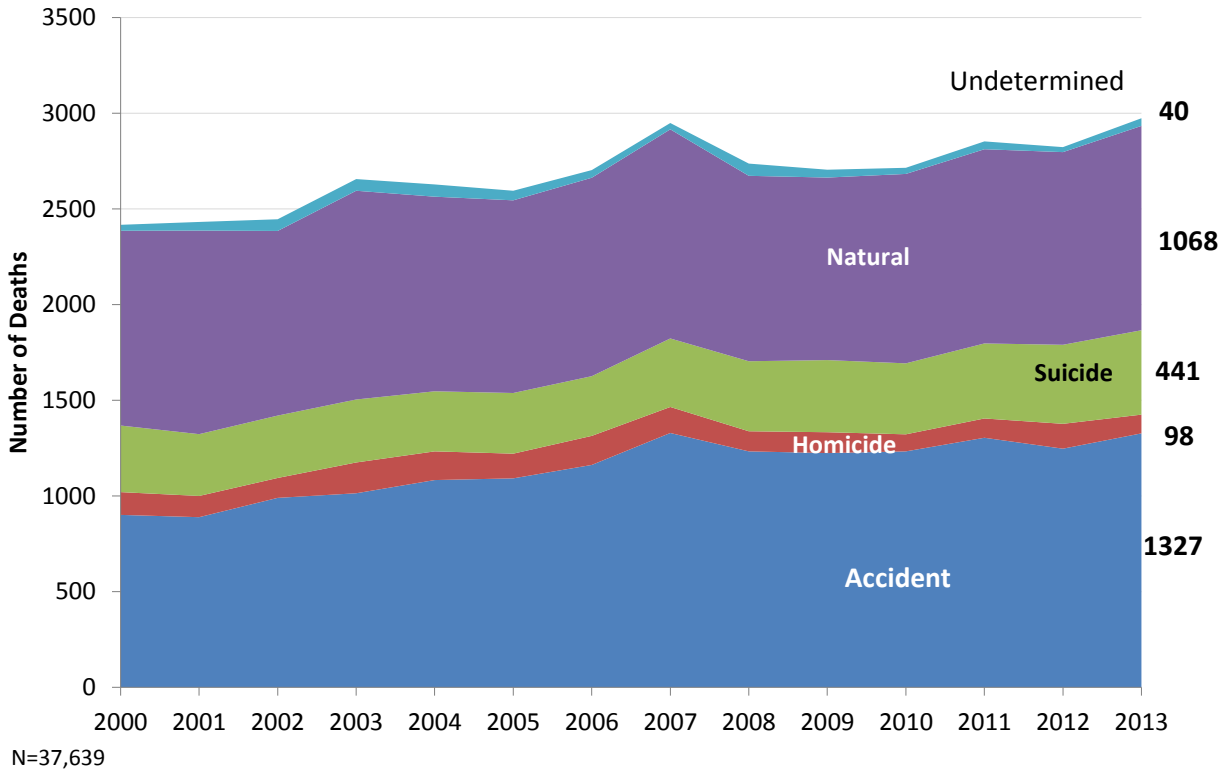
N=9,842

The San Diego County ME's office performs an average of 5.5 autopsies per day, and 2.8 external examinations. In 2013, 45% of investigations were for unintentional (accident) manners of death, followed by natural causes (36%), suicides (15%), and homicides (3.3%). The manner of death was undetermined for 1.3% of deaths for which investigations were performed.

MANNERS OF DEATH, 2013

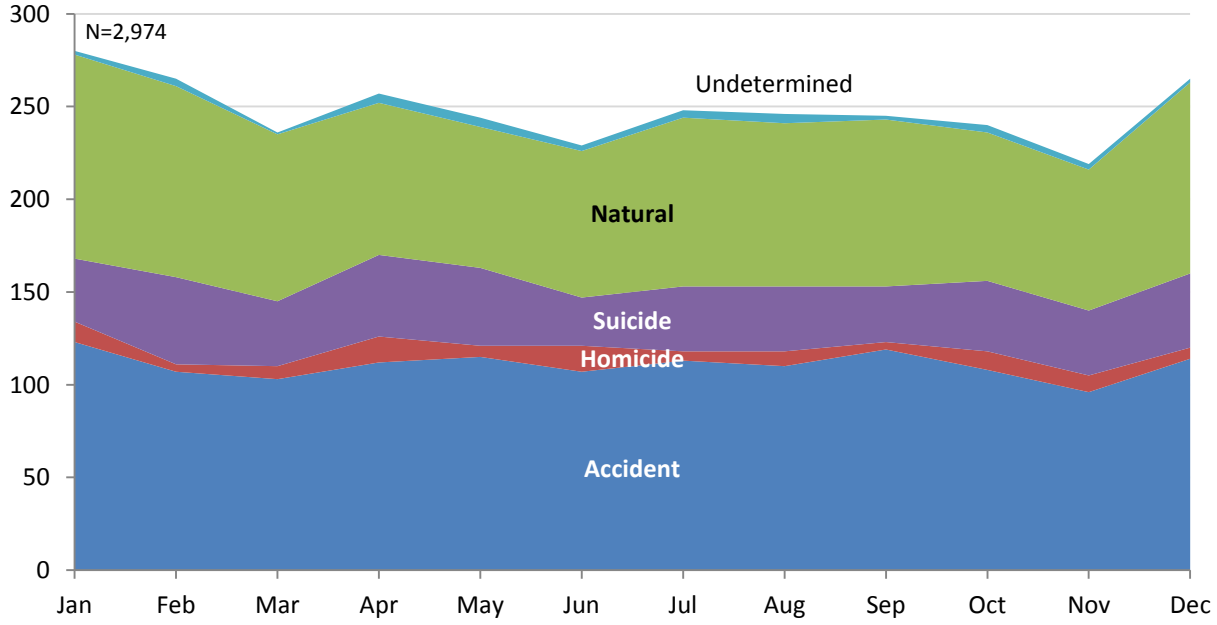


MANNER OF DEATH BY YEAR, 2000 - 2013

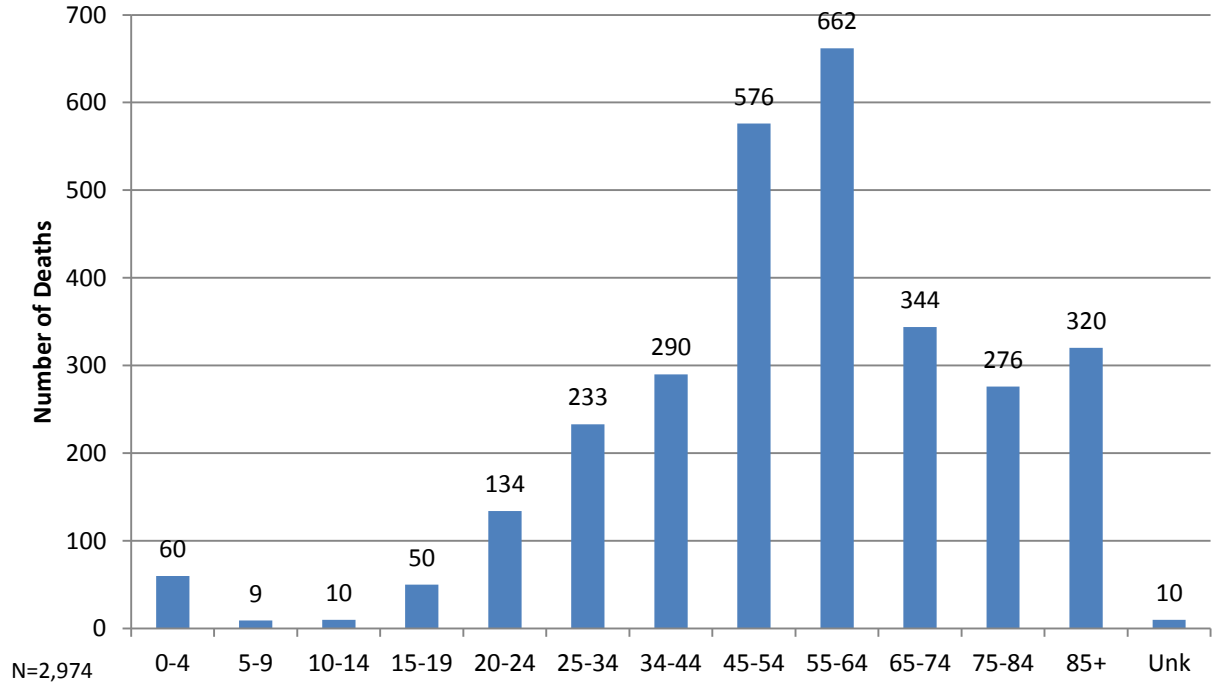


N=37,639

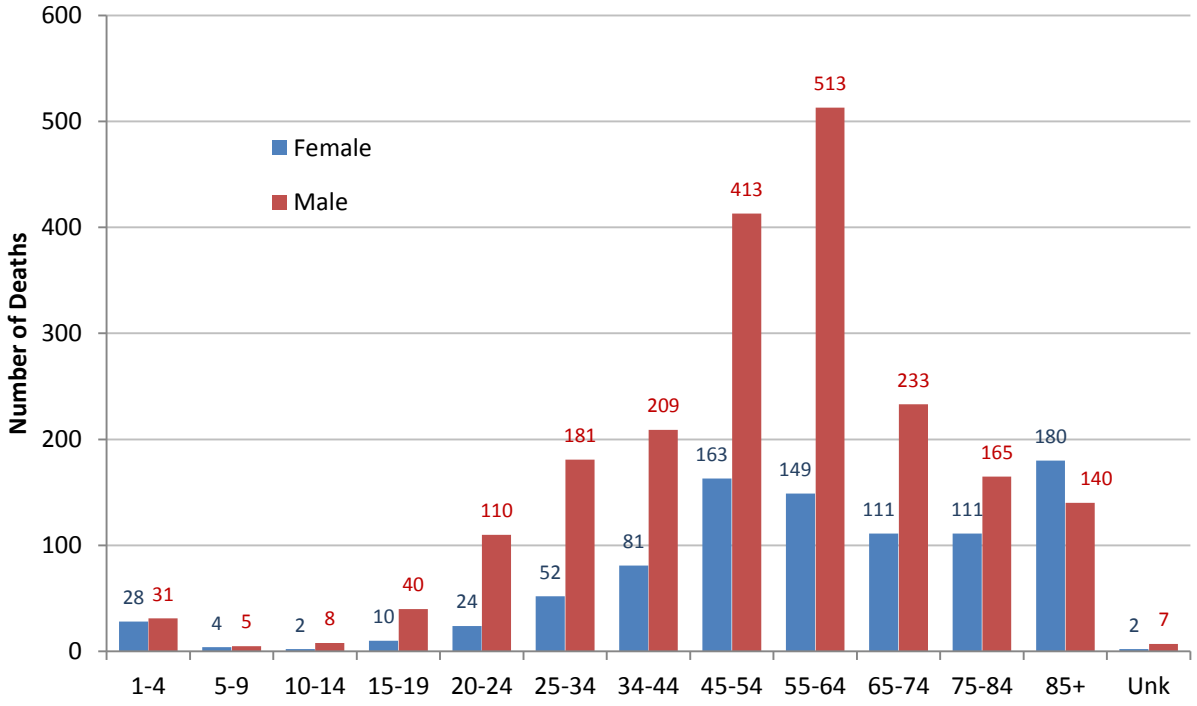
MANNER OF DEATH BY MONTH: 2013



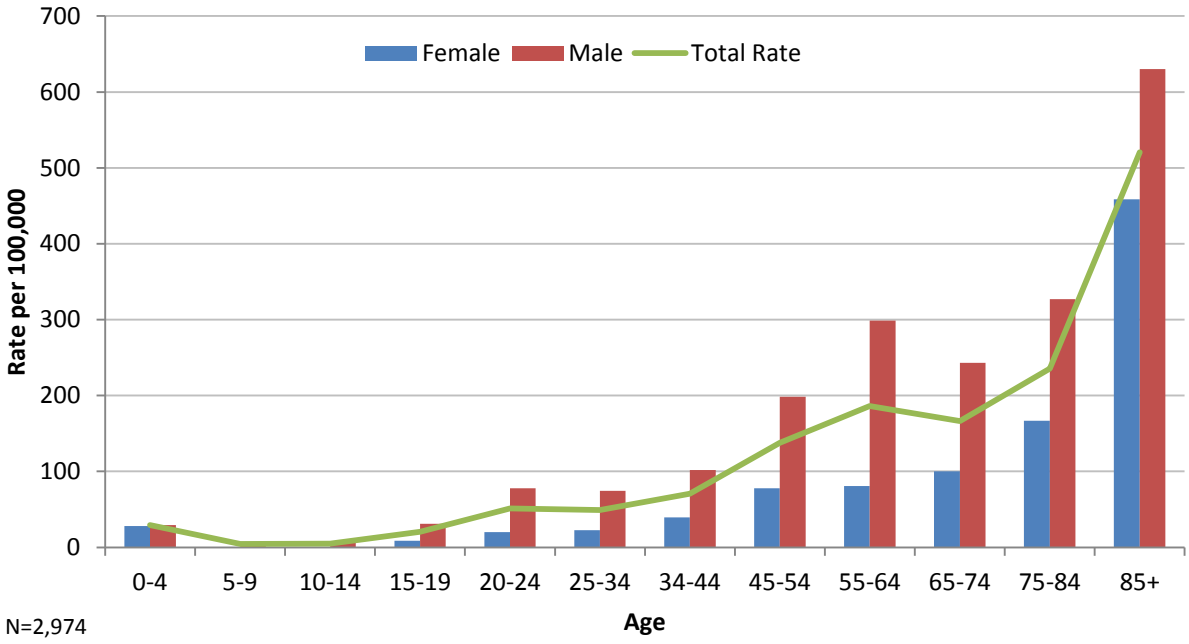
AGE DISTRIBUTION OF DECEDENTS, 2013



NUMBER OF DECEDENTS BY AGE AND SEX, 2013



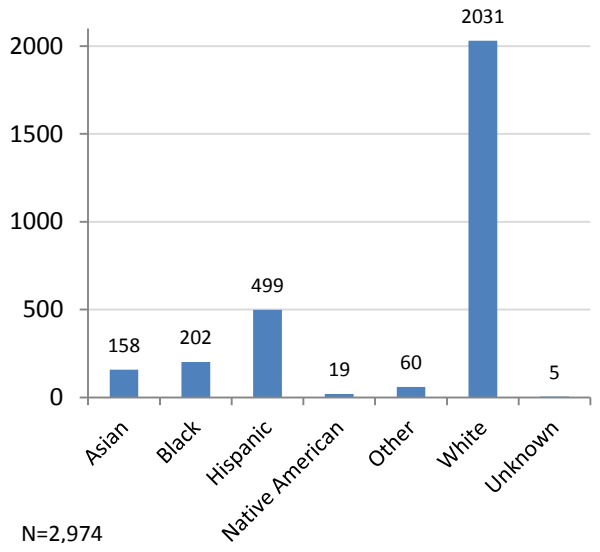
RATE PER 100,000 OF INVESTIGATIONS BY AGE AND SEX, 2013



N=2,974

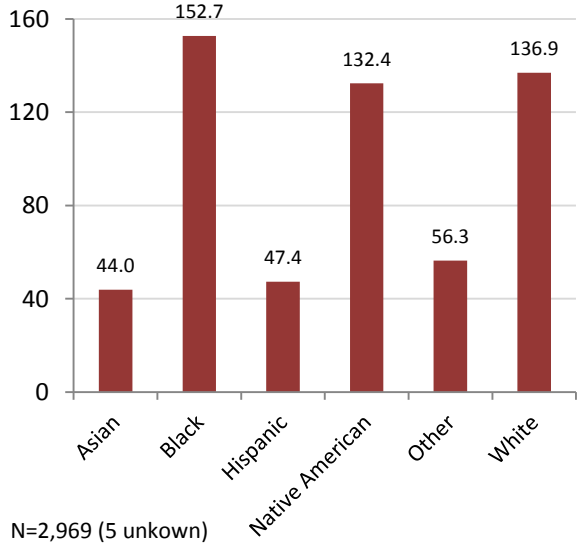
NUMBER AND RATE OF DEATHS BY RACE/ETHNICITY, 2013

NUMBER OF DEATHS



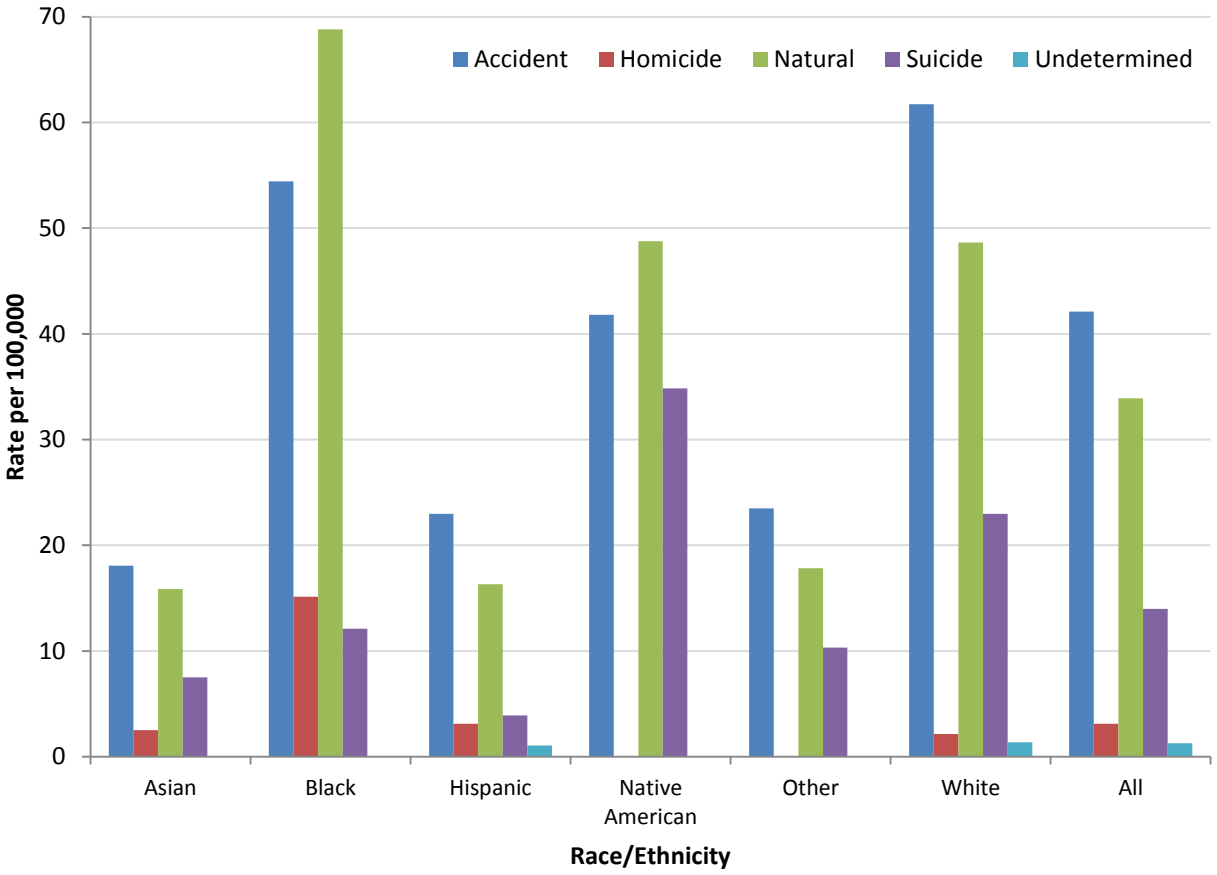
N=2,974

RATE OF DEATHS PER 100,000



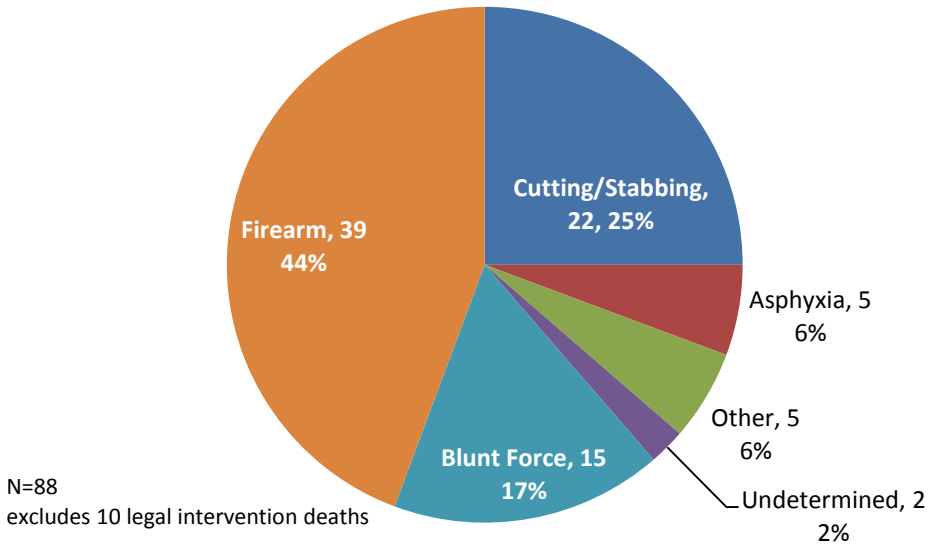
N=2,969 (5 unkown)

RATES OF MANNER BY RACE/ETHNICITY, 2013

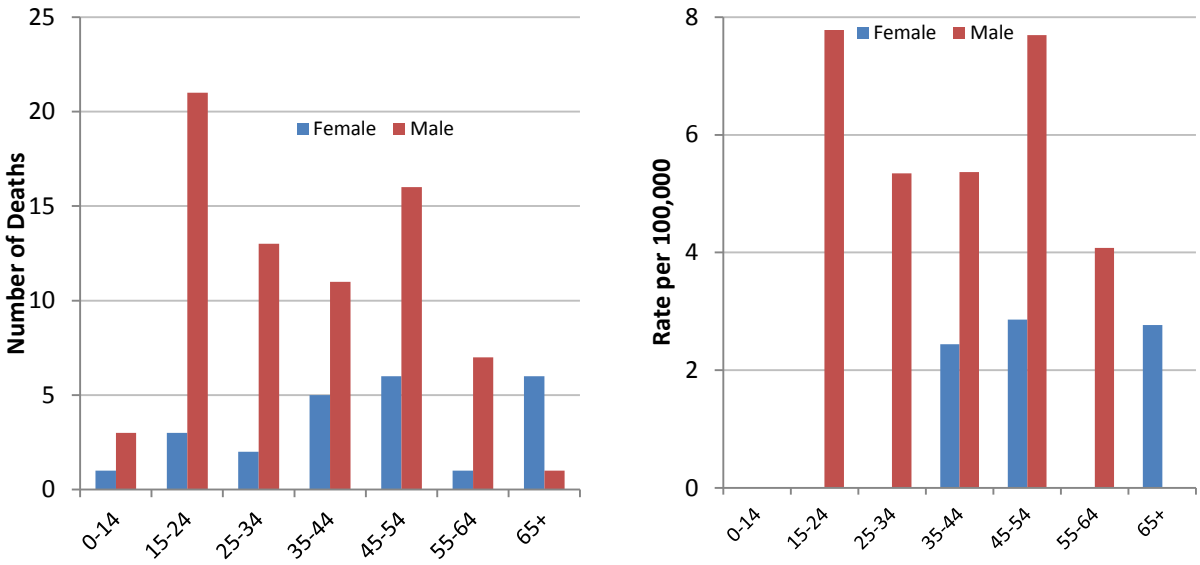


HOMICIDE

HOMICIDE METHODS: 2013

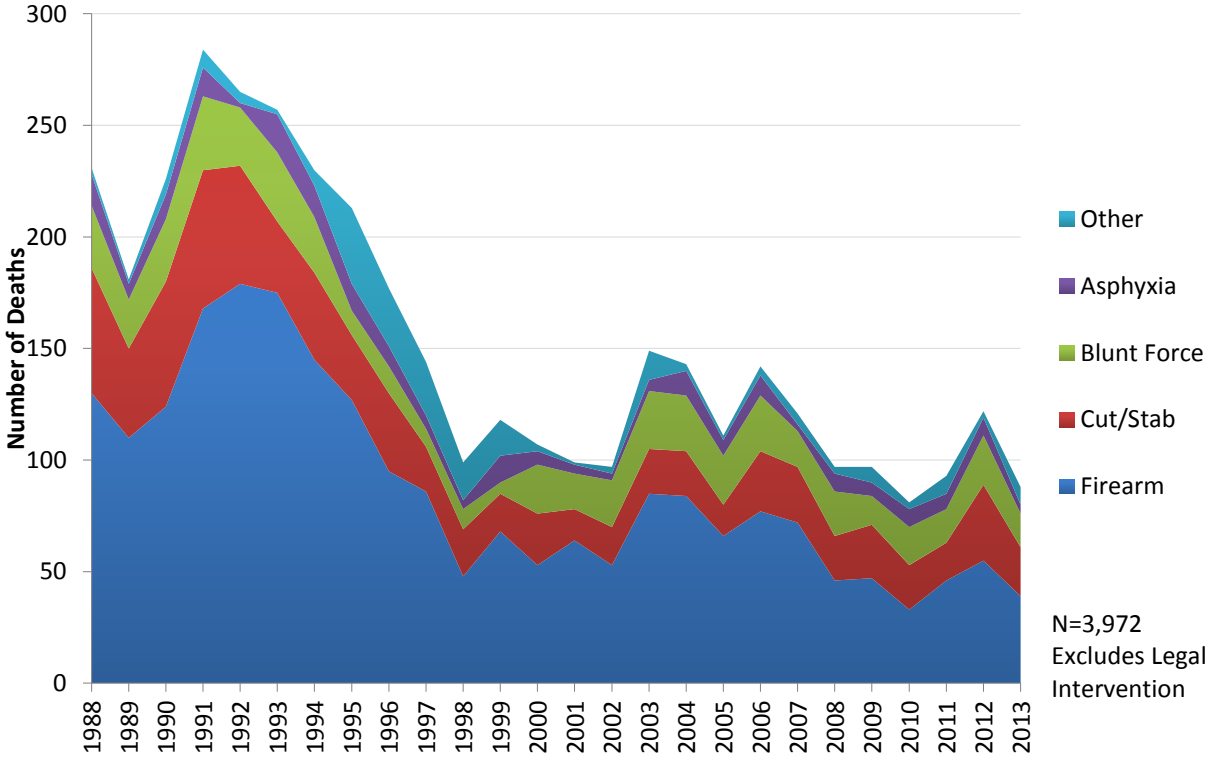


NUMBER AND RATE OF HOMICIDE VICTIMS BY AGE AND GENDER, 2013

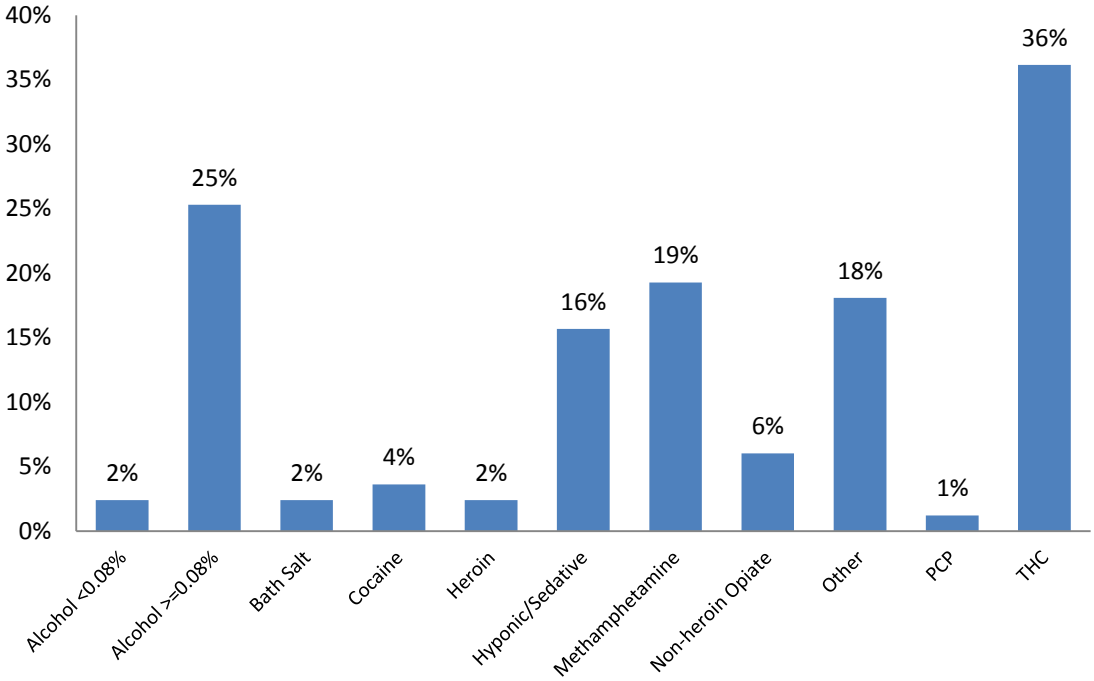


N=88, excludes 10 legal intervention deaths. Rates not calculated for fewer than 5 incidents

HOMICIDE METHOD BY YEAR: 1988 - 2013

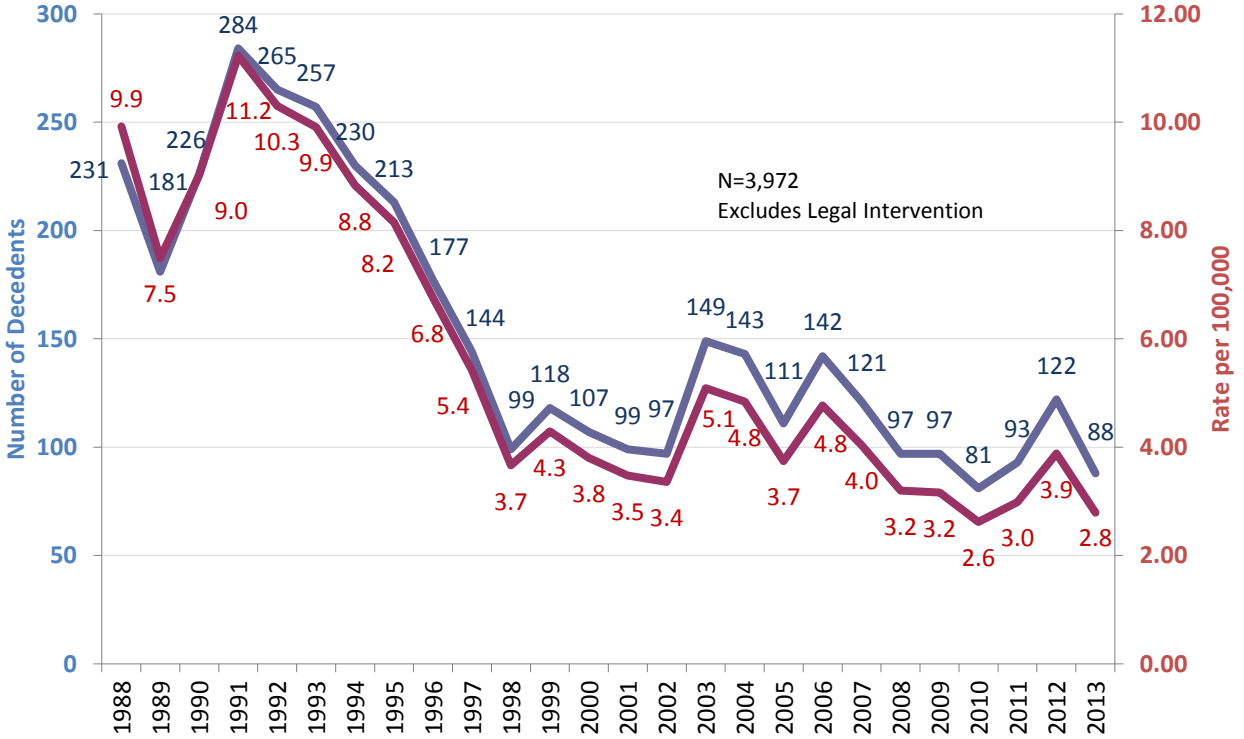


TOXICOLOGY RESULTS - PERCENT OF HOMICIDE: 2013



Percent of homicides in which testing was performed. Excludes legal intervention; N=83

HOMICIDE COUNT AND RATE BY YEAR, 1988 - 2013

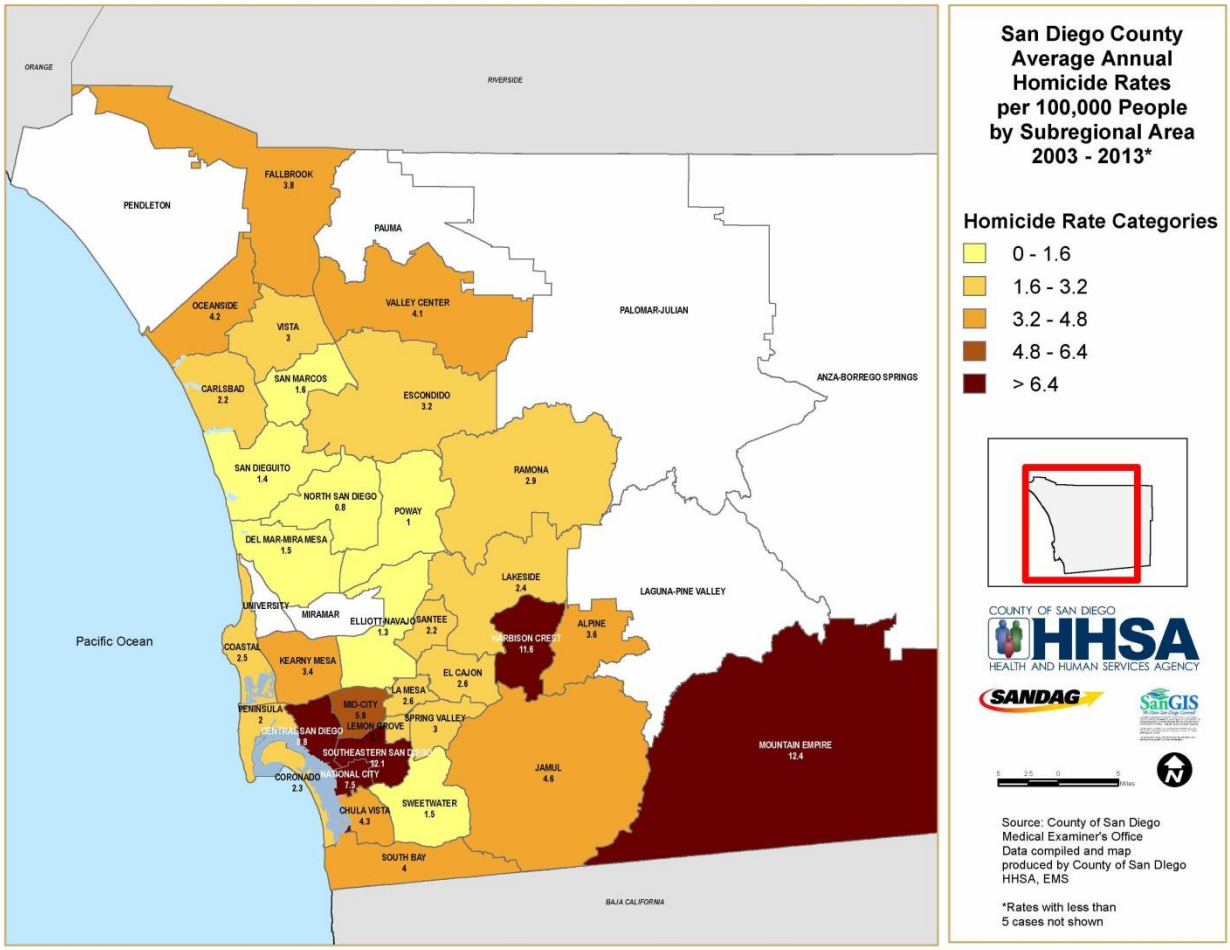


Year	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number	231	181	226	284	265	257	230	213	177	144	99	118
Rate per 100,000	9.9	7.5	9.0	11.2	10.3	9.9	8.8	8.2	6.8	5.4	3.7	4.3

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

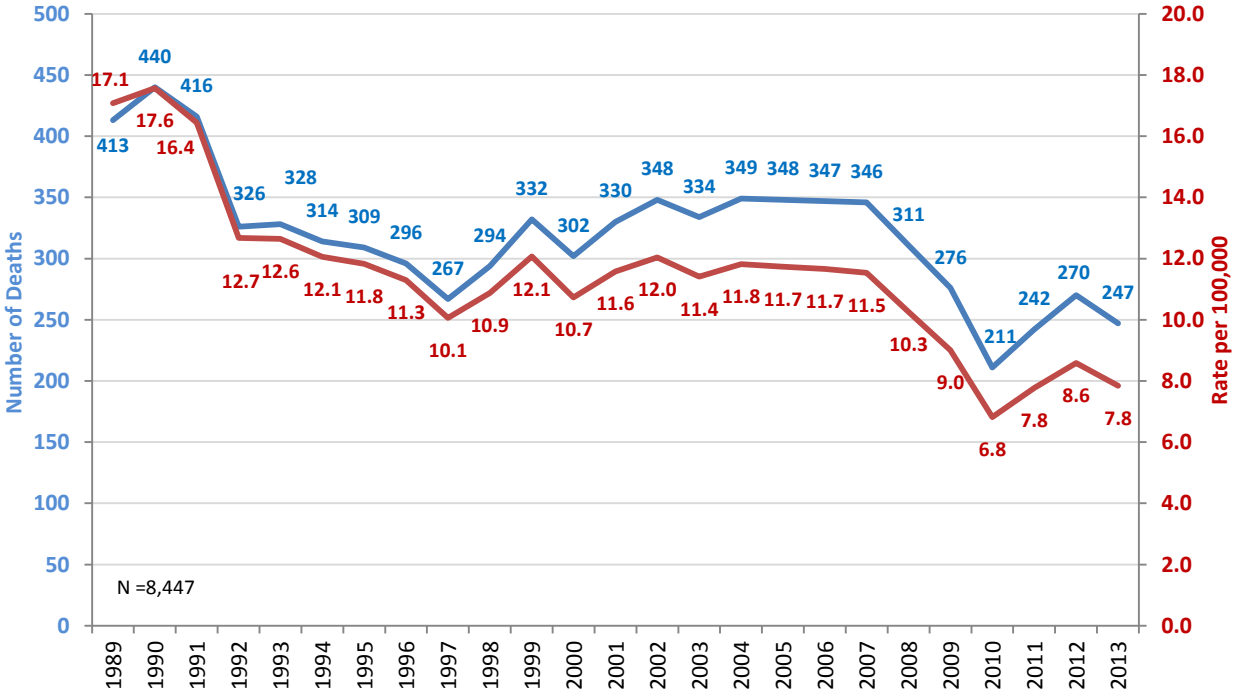
Year	2012	2013
Number	122	88
Rate per 100,000	3.9	2.8

HOMICIDE RATE PER 100,000 BY SUBREGIONAL AREA

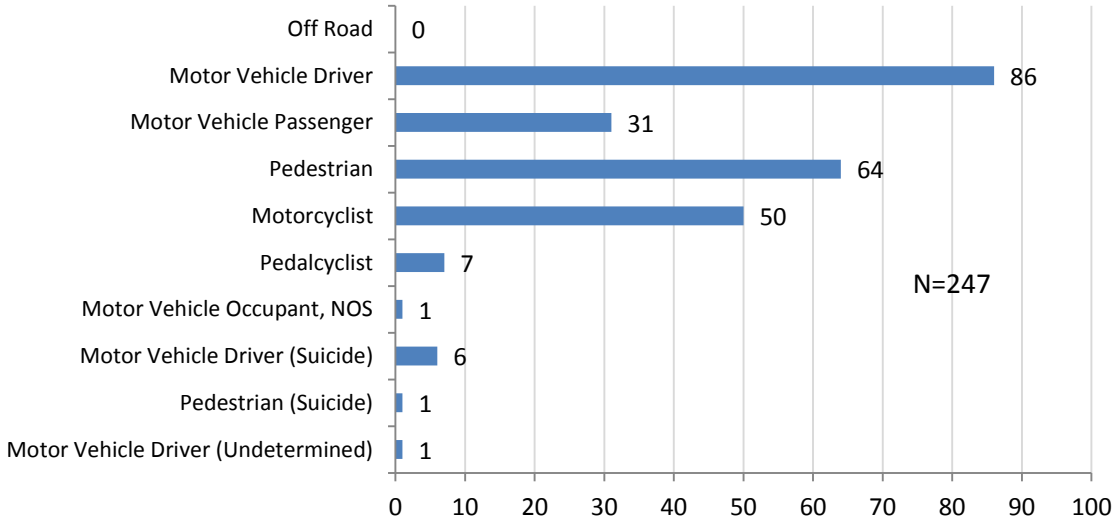


MOTOR VEHICLE FATALITIES

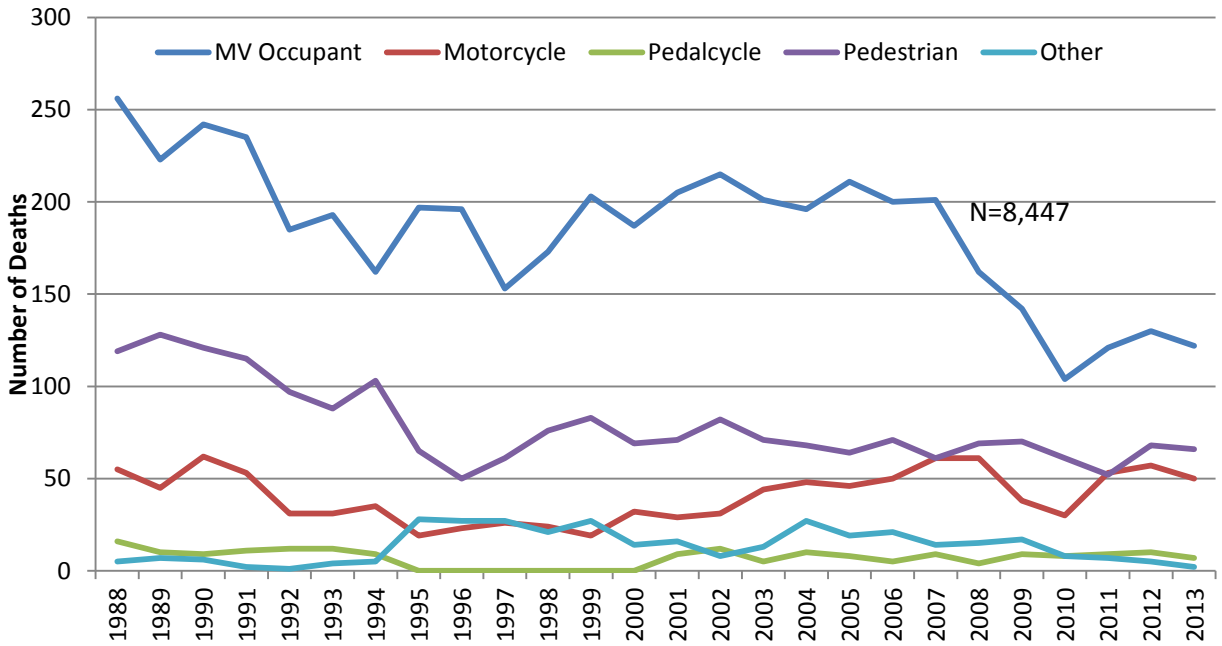
MOTOR VEHICLE RELATED FATALITIES: 1988 - 2013



MOTOR VEHICLE RELATED FATALITIES BY VICTIM TYPE: 2013



TRAFFIC-RELATED FATALITIES BY YEAR, 1988 - 2013

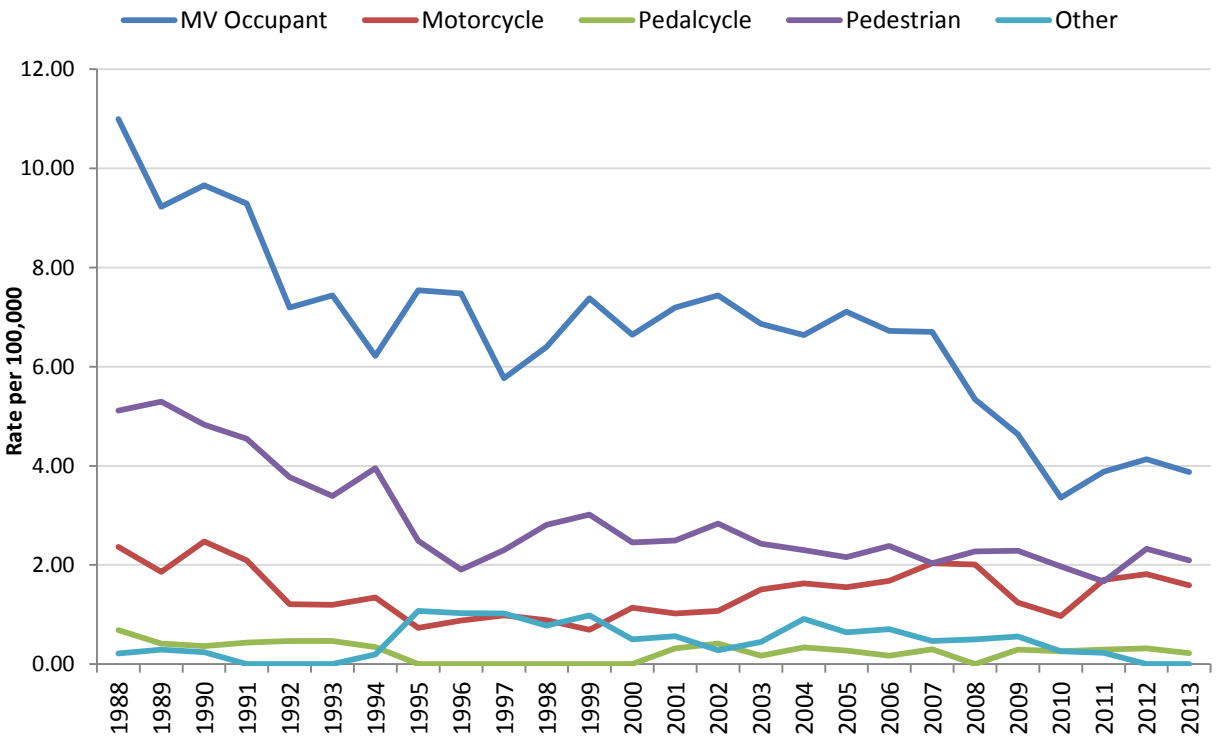


	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MV Occupant	**256**	**223**	**242**	**235**	**185**	**193**	**162**	**197**	**196**	**153**	**173**	**203**
Motorcycle	**55**	**45**	**62**	**53**	**31**	**31**	**35**	**19**	**23**	**26**	**24**	**19**
Pedalcycle	**16**	**10**	**9**	**11**	**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
MV Occupant	**130**	**122**
Motorcycle	**57**	**50**
Pedalcycle	**10**	**7**
Pedestrian	**68**	**66**
Other	**5**	**2**
Total	**270**	**247**

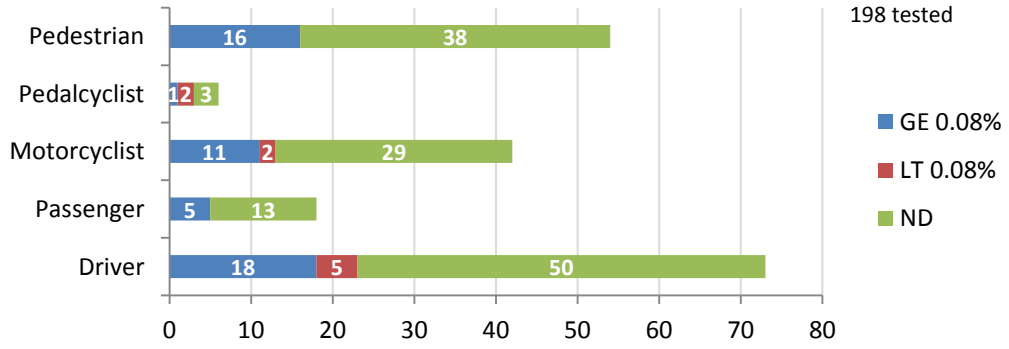
TRAFFIC-RELATED FATALITY RATE BY YEAR, 1988 - 2013



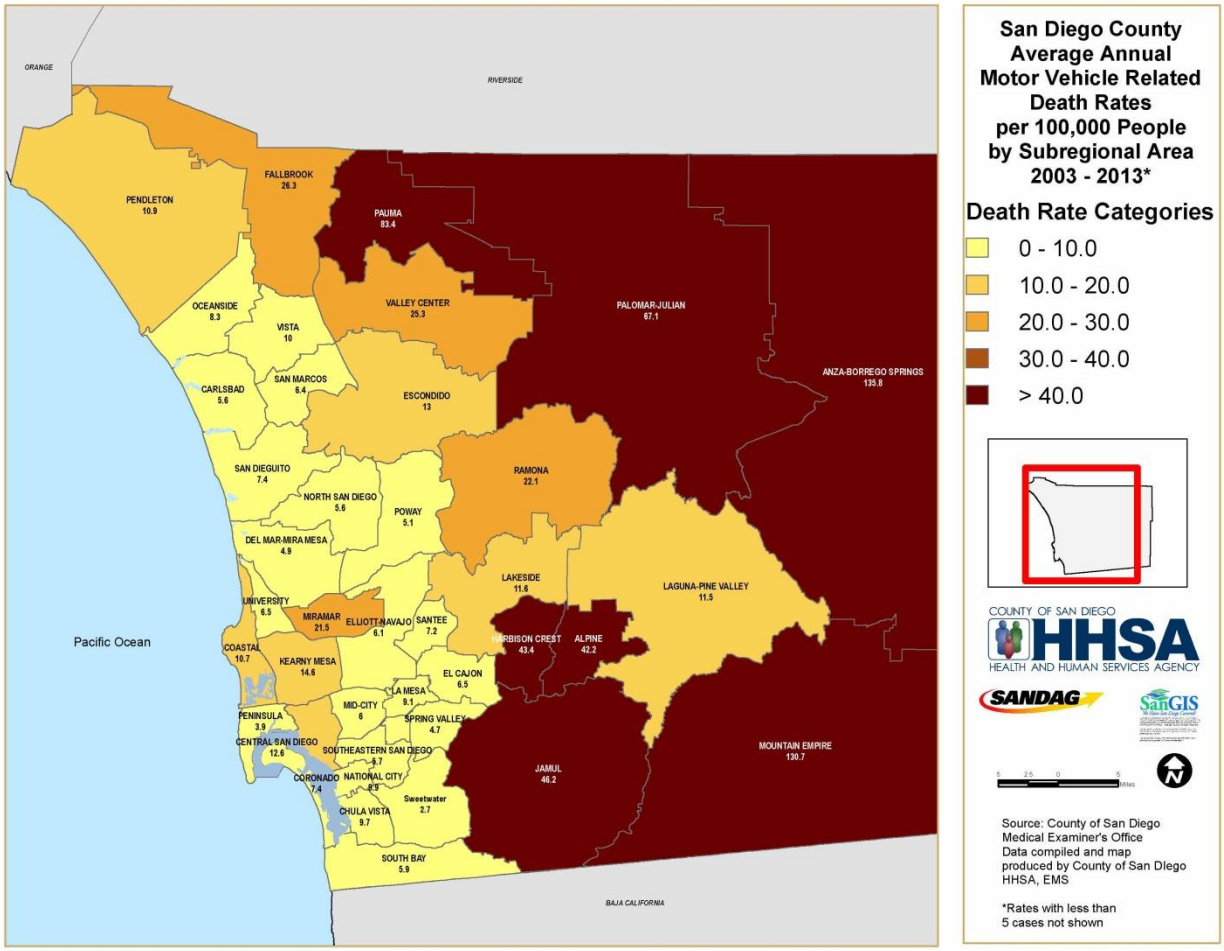
Motor vehicle occupant and pedestrian death rates have both dropped by more than half from the late 1980's to 2009, although motor vehicle occupants and motorcyclist deaths have increased in the last two years. Motorcyclist deaths saw a sharp decline from 1988 to the late 1990's, coinciding with the implementation of California's mandatory helmet law.

Alcohol is a major factor in fatal motor vehicle crashes. In 2013, however, fewer drivers, pedestrians, and motorcyclists killed and tested were positive for alcohol than in 2012.

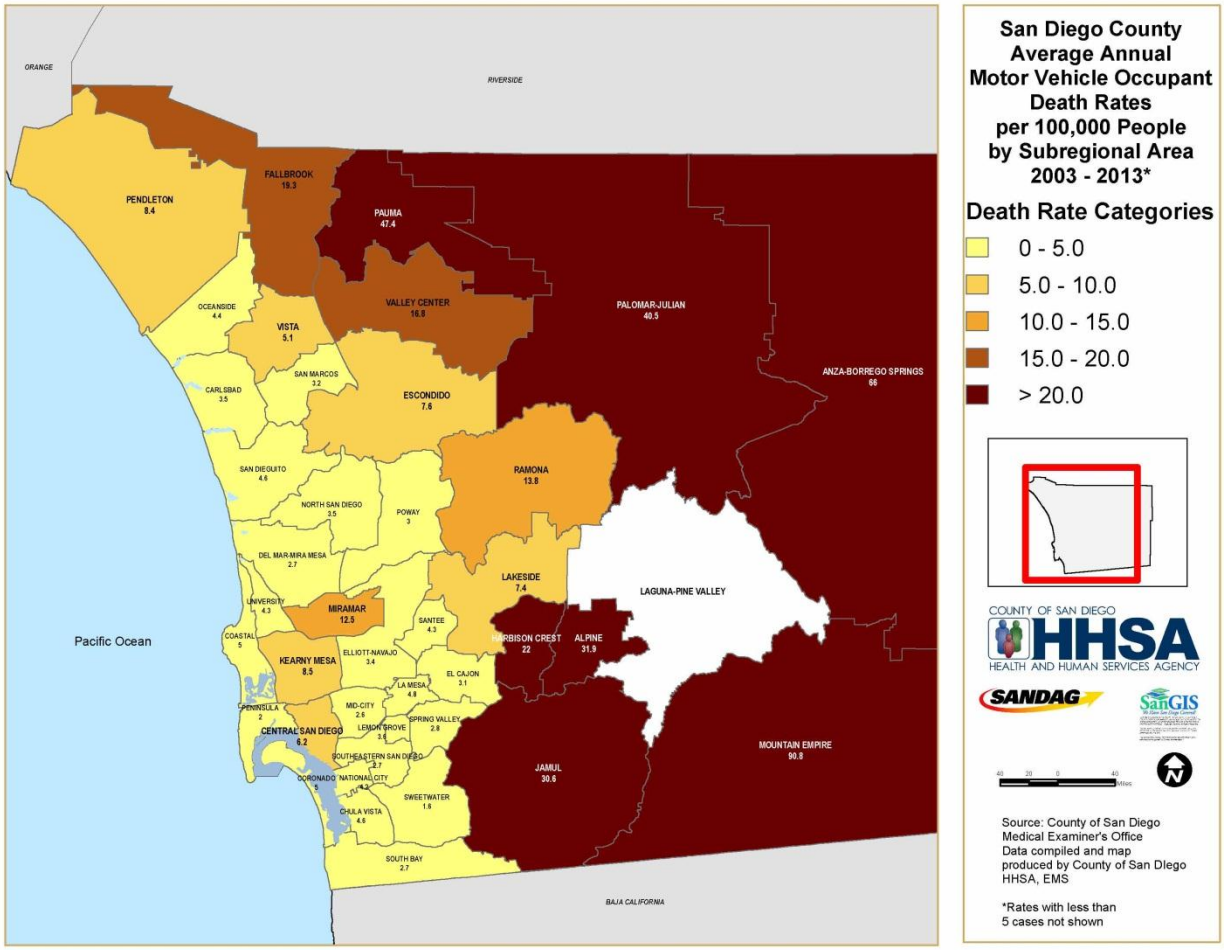
ALCOHOL TOXICOLOGY BY MOTOR VEHICLE VICTIM TYPE: 2013



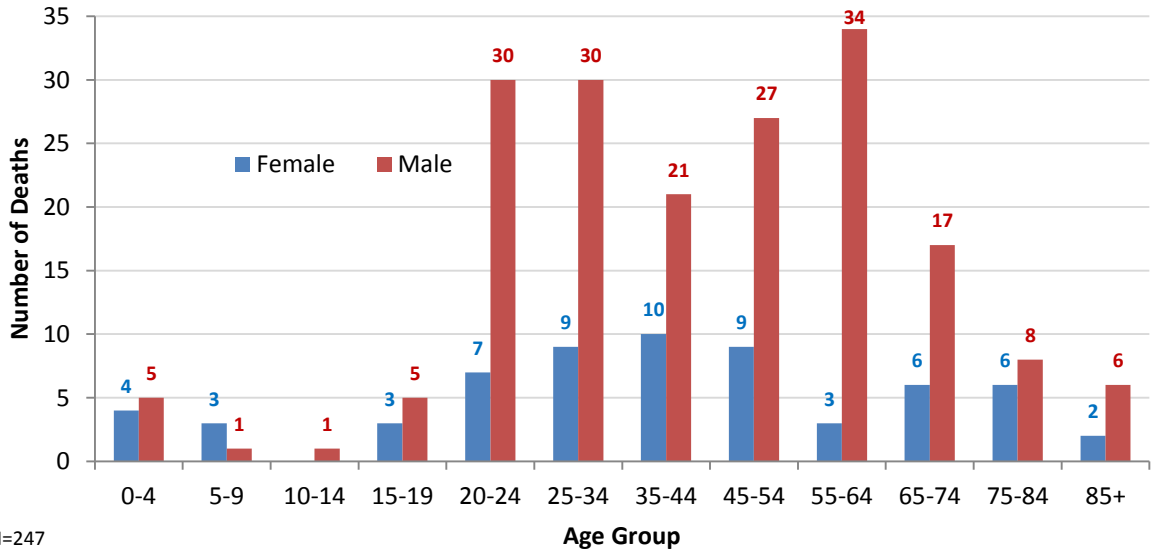
MOTOR VEHICLE RELATED DEATH RATES BY SUBREGIONAL AREA, 2003 – 2013



MOTOR VEHICLE OCCUPANT DEATH RATES BY SUBREGIONAL AREA, 2003 – 2013

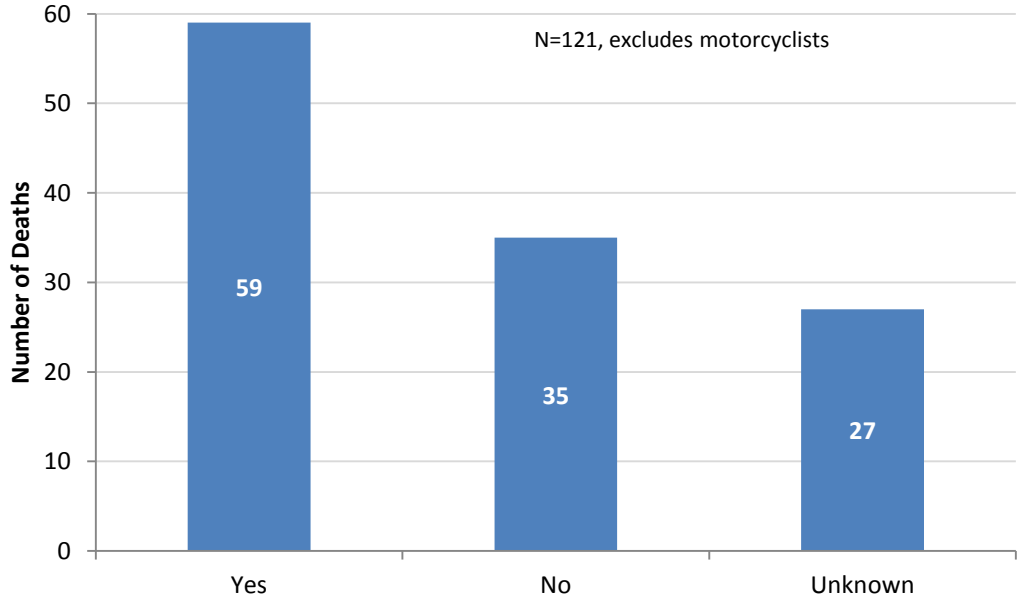


NUMBER OF MOTOR VEHICLE OCCUPANTS DEATHS BY AGE AND SEX, 2013

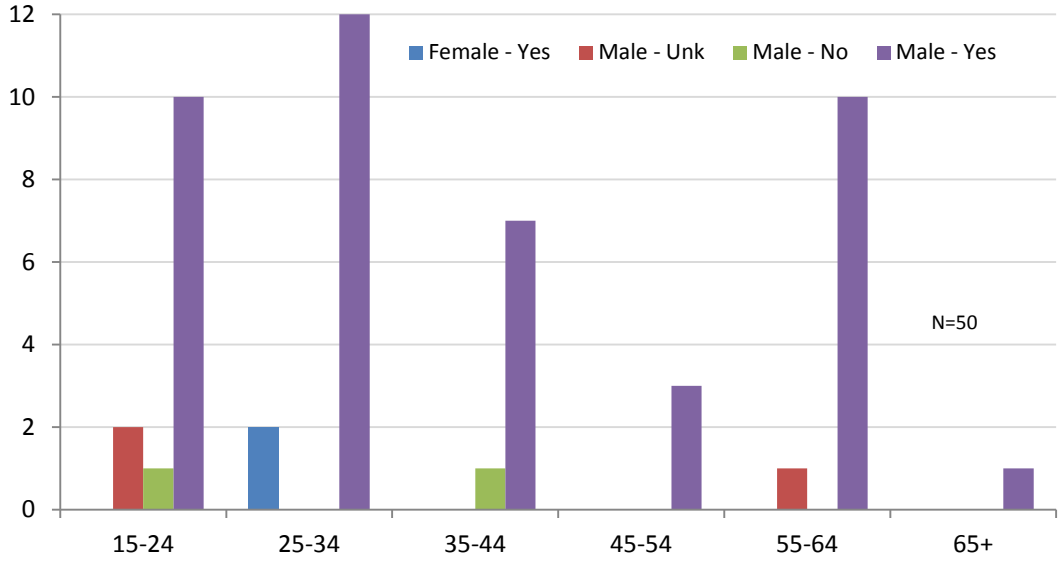


N=247

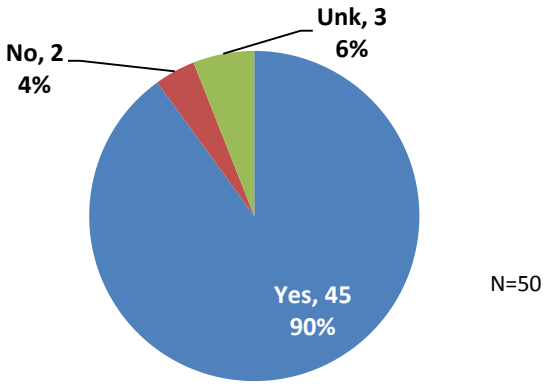
SEAT BELT USE: MOTOR VEHICLE OCCUPANTS, 2013



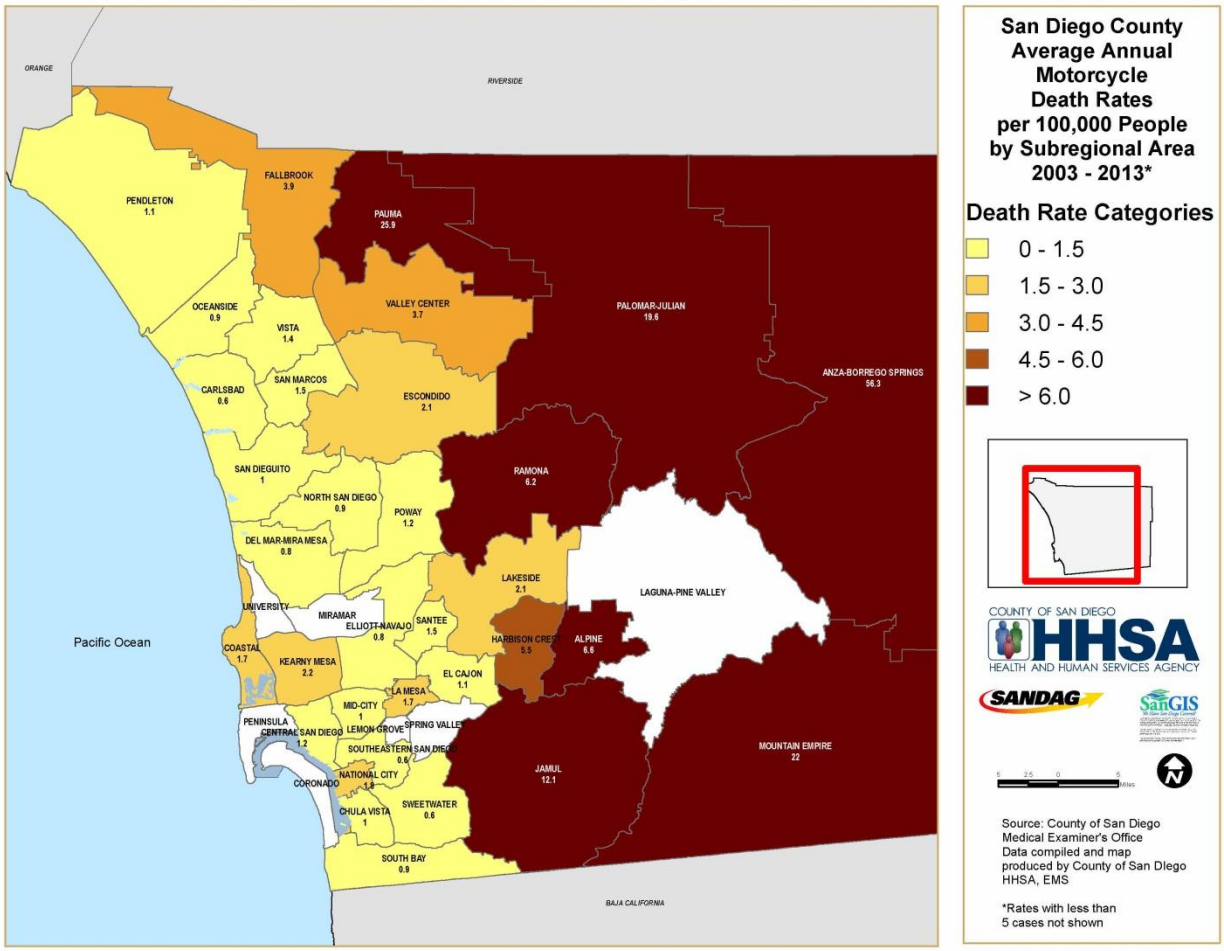
MOTORCYCLIST DEATHS BY AGE AND HELMET USE, 2013



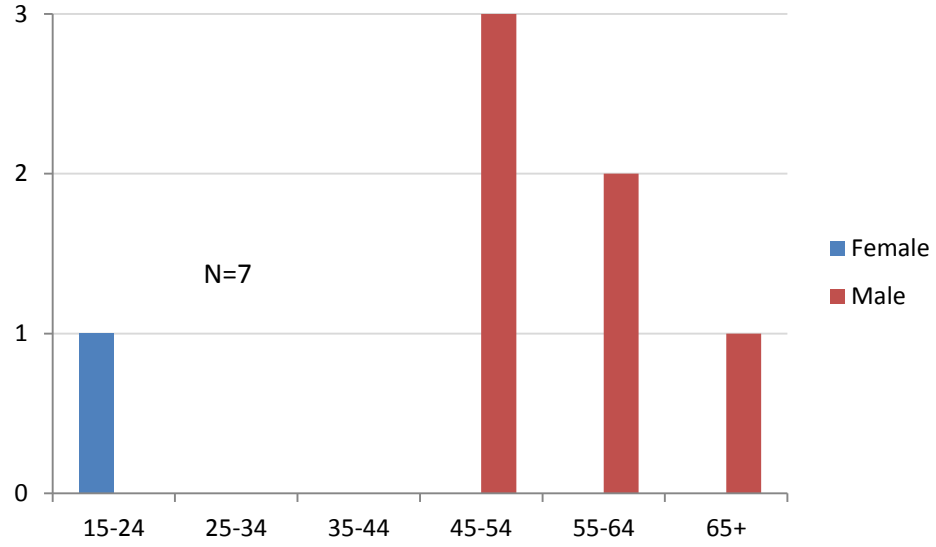
HELMET USE: MOTORCYCLISTS, 2013



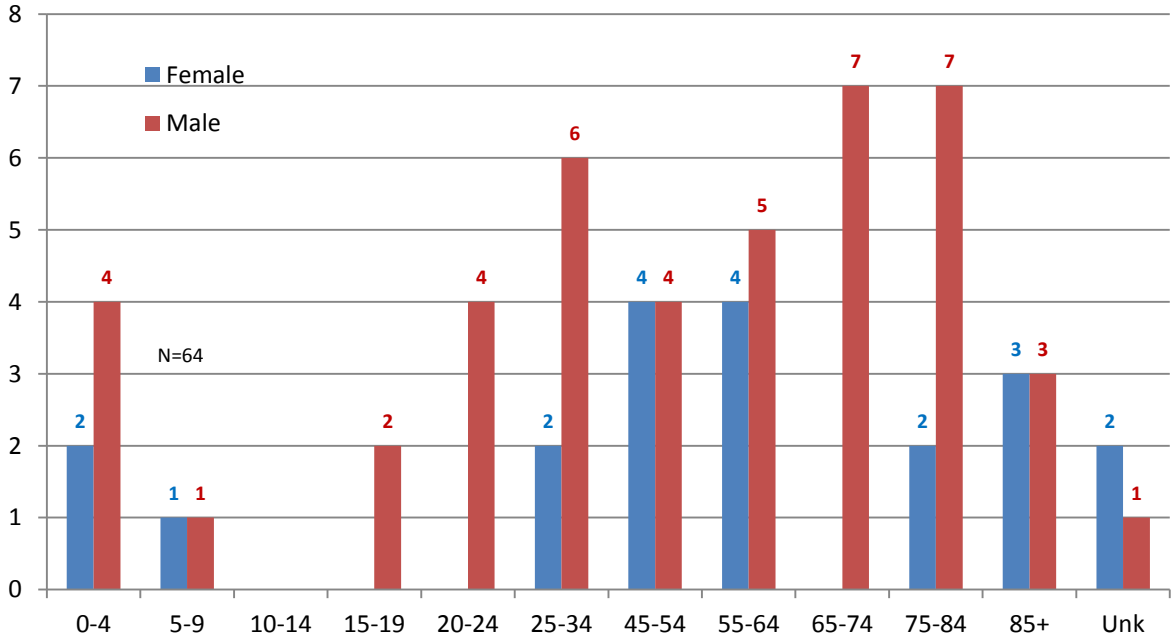
MOTORCYCLE DEATHS BY SUBREGIONAL AREA, 2003 – 2013



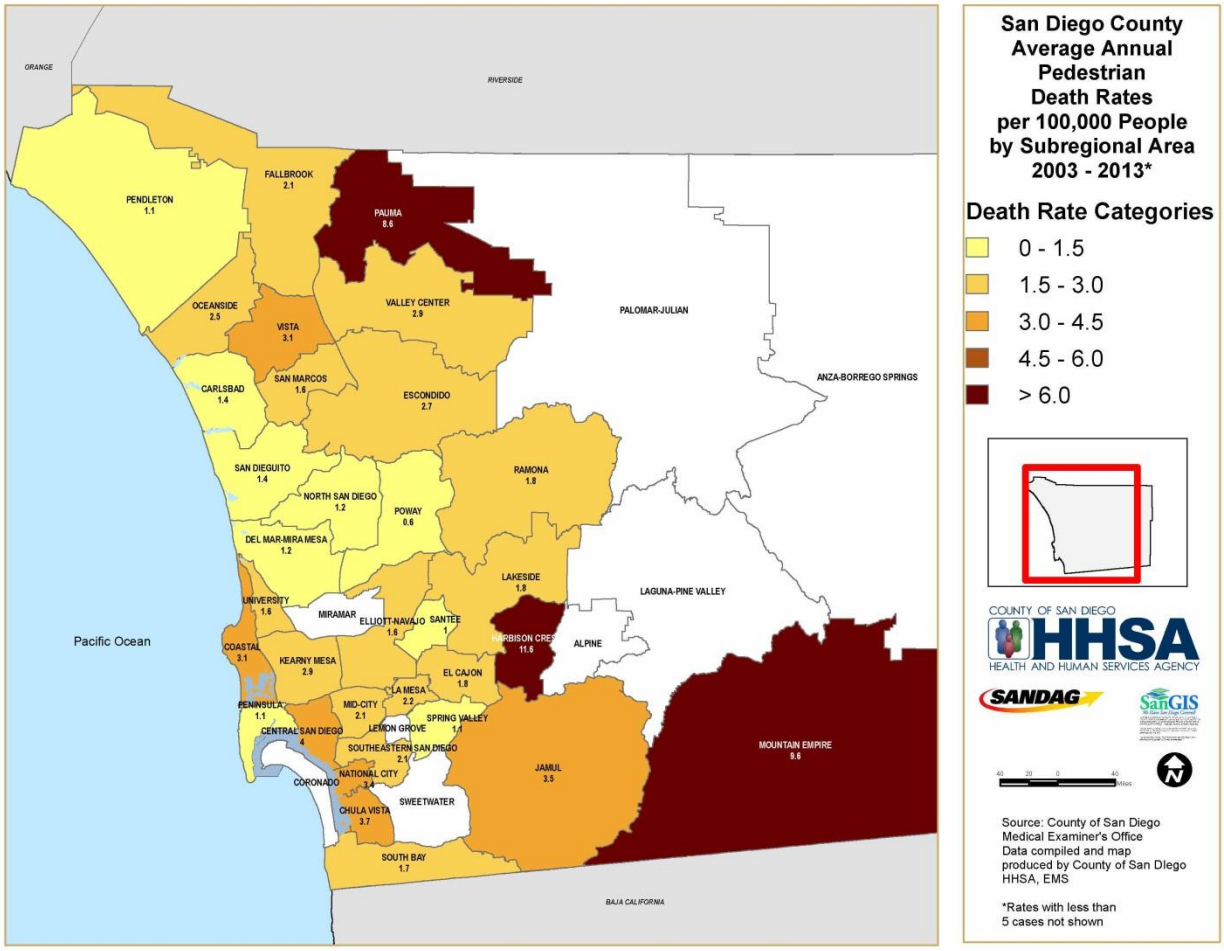
PEDALCYCLIST DEATHS BY AGE AND SEX, 2013



UNINTENTIONAL PEDESTRIAN DEATHS BY AGE AND SEX, 2013



PEDESTRIAN DEATHS PER 100,000 BY SUBREGIONAL AREA, 2003 – 2013



UNINTENTIONAL DEATHS DUE TO MEDICATIONS, ALCOHOL, AND ILLICIT DRUGS

The following graphs represent medications, alcohol, and prescription drugs that were either alone or in combination responsible for being the primary cause of death or contributing to the death. In other words, these substances were 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.

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 made 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 deaths were due to the 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. 2013 had a slight drop in the number of prescription related deaths, but levels are still the highest they have been in the last 14 years. The largest groups of medications are the narcotics (opiates and their derivatives), hypnotics, and sedatives.

2. Heroin has maintained the increase in frequency seen after 2006/2007 and was still the most common drugs/medication in those between 20 and 29 years of age.

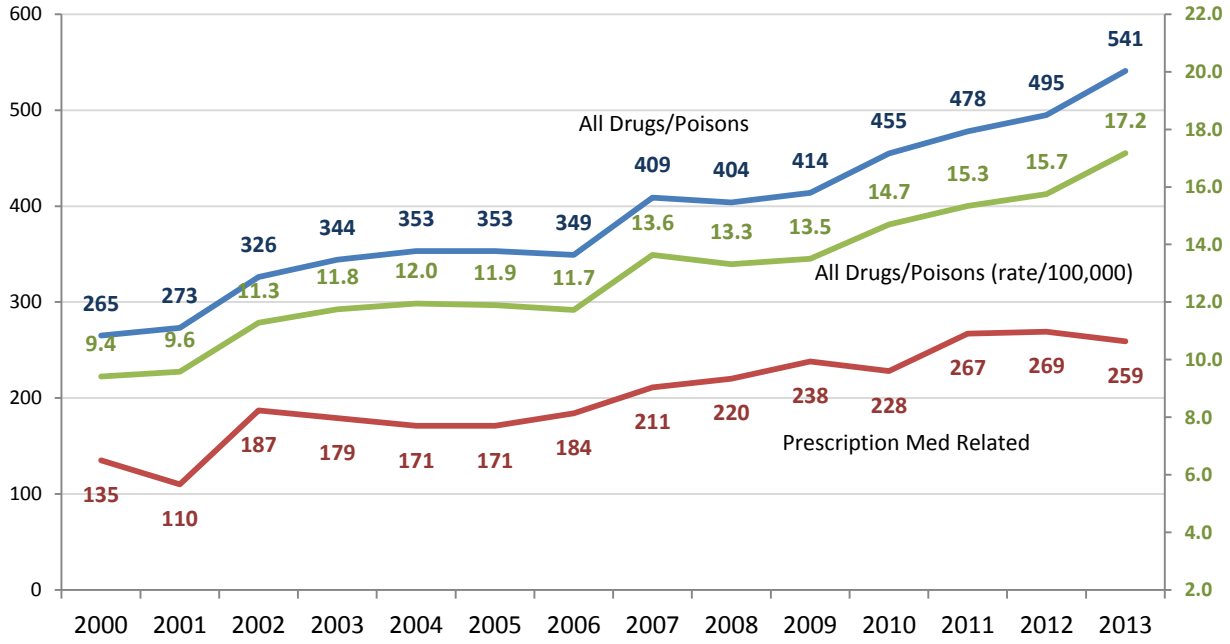
3. Methamphetamine was still the number one cause of drug/medication related deaths for the population as a whole, was at an all-time high number (190), and was the number one substance in those between 30 and 69 years of age.

4. Two deaths related to phencyclidine (PCP) appeared in 2013, with the last case being in 2009.

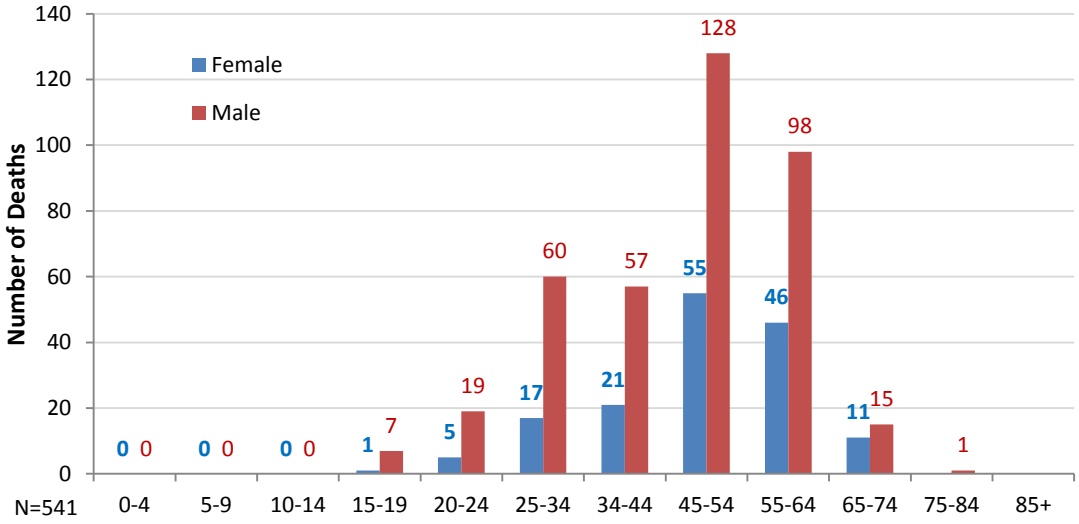
5. One case included two synthetic substances – methoxetamine (a derivative and ketamine) and something called AH-7921 (an opioid).

6. There was one death related to "Bath Salts" and two deaths related to ecstasy in 2013.

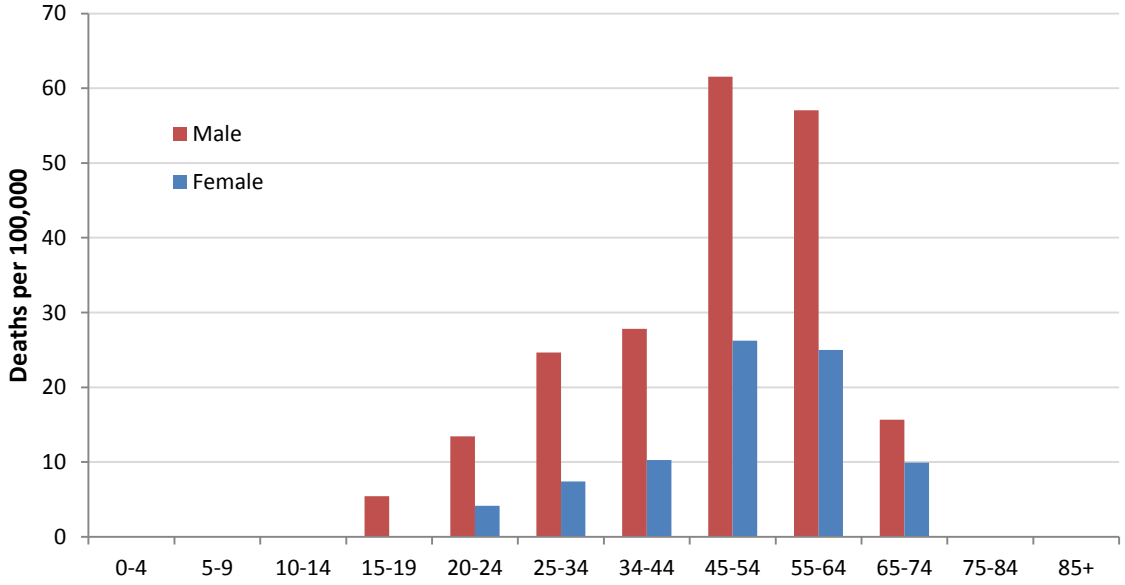
NUMBER OF UNINTENTIONAL DRUG/ALCOHOL RELATED DEATHS, 2000 – 2013



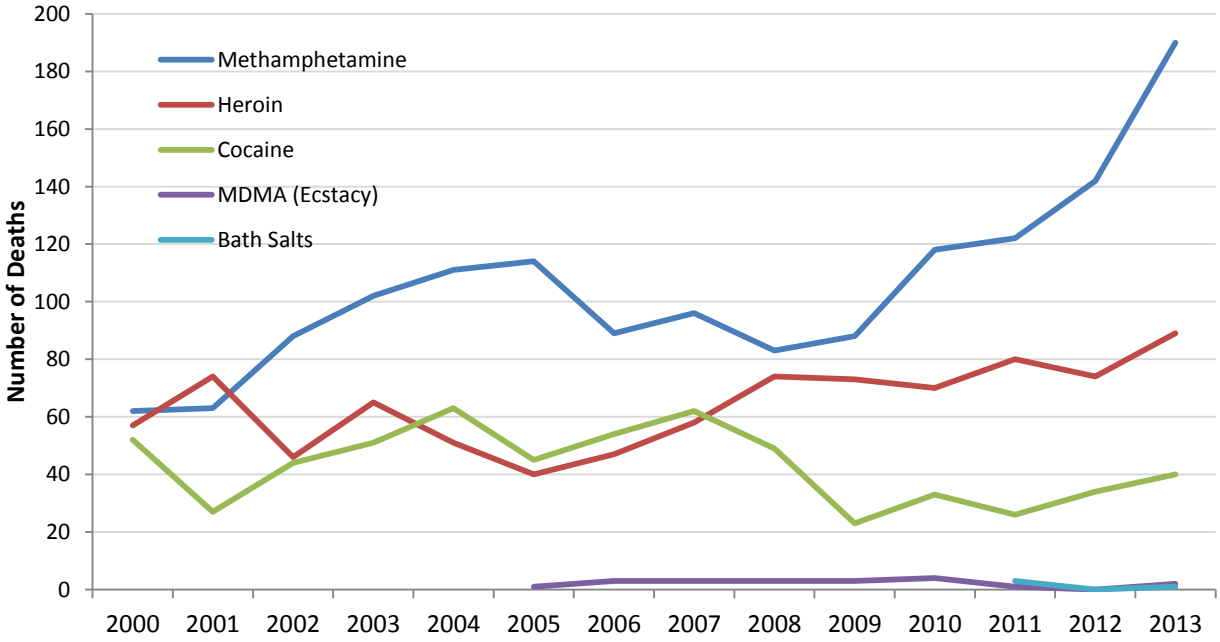
NUMBER OF DRUG/ALCOHOL OVERDOSE DEATHS BY AGE AND SEX, 2013



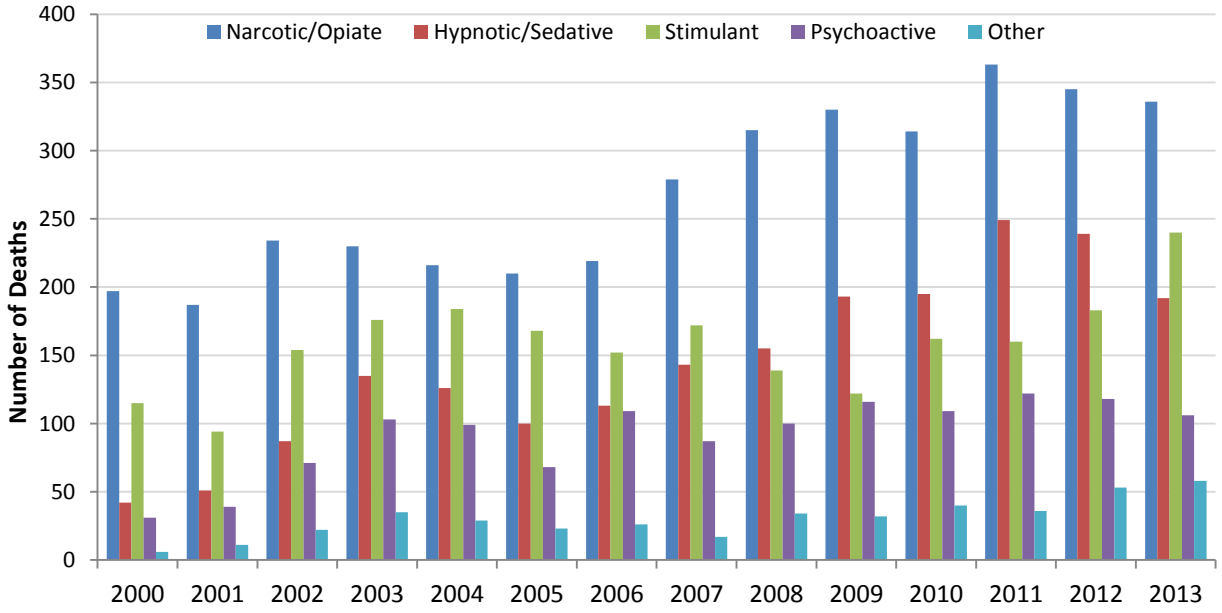
RATES OF DRUG/ALCOHOL OVERDOSE DEATHS BY AGE AND SEX, 2013



UNINTENTIONAL DEATHS RELATED TO ILLICIT DRUGS, 2000 – 2013



UNINTENTIONAL DEATHS DUE TO DRUG/MEDICATIONS, 2000 – 2013



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Narcotic/ Opiate	**197**	**187**	**234**	**230**	**216**	**210**	**219**	**279**	**315**	**330**	**314**	**363**	**345**	**336**
Hypnotic/ Sedative	**42**	**51**	**87**	**135**	**126**	**100**	**113**	**143**	**155**	**193**	**195**	**249**	**239**	**192**
Stimulant	**115**	**94**	**154**	**176**	**184**	**168**	**152**	**172**	**139**	**122**	**162**	**160**	**183**	**240**
Psychoactive	**31**	**39**	**71**	**103**	**99**	**68**	**109**	**87**	**100**	**116**	**109**	**122**	**118**	**106**
Other	**6**	**11**	**22**	**35**	**29**	**23**	**26**	**17**	**34**	**32**	**40**	**36**	**53**	**58**

UNINTENTIONAL DEATHS - SELECTED DRUGS & MEDICATIONS, 2000 – 2013

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Methamphetamine	62	63	88	102	111	114	89	96	83	88	118	122	142	190
Alcohol	63	80	61	45	58	64	81	84	95	127	132	124	142	127
Heroin	57	74	46	65	51	40	47	58	74	73	70	80	74	89
Morphine	69	38	81	52	40	45	37	49	33	48	37	38	57	45
Cocaine	52	27	44	51	63	45	54	62	49	23	33	26	34	40
Diazepam	16	18	34	38	36	28	35	46	50	47	48	40	59	35
Methadone	7	10	18	20	29	32	35	43	47	41	53	53	44	47
Oxycodone	8	17	21	16	16	19	17	45	52	43	48	65	59	49
Hydrocodone	10	14	23	23	26	21	32	28	34	44	37	52	49	48
Diphenhydramine	2	5	14	13	14	10	14	21	17	21	21	30	25	30
Alprazolam		5	1	7	6	15	13	13	15	23	28	52	55	27
Fentanyl	7	5	9	9	8	19	23	20	23	23	12	14	12	14
MDMA (Ecstasy)	1			1		1	3	3	3	3	5	1		2
Phencyclidine (PCP)										1				2
Bath Salts												3		1
Other Synthetics														1*

*includes one case with both methoxetamine (a derivative of ketamine) and AH-7921 (opioid)

UNINTENTIONAL DRUG/MED/ALCOHOL DEATHS BY COMBINATION, 2013

Illicit	208
Prescription	156
Alcohol	55
Prescription and Illicit	45
Prescription and Alcohol	39
Illicit and Alcohol	16
Prescription, Illicit and alcohol	10
Prescription and OTC	5
OTC	3
Prescription, alcohol and OTC	2
Prescription, Illicit, Alcohol and OTC	1
Prescription, Illicit 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, synthetics above. Prescription – medications *normally* obtained by prescription. OTC – over the counter medications.

RELATIVE FREQUENCY OF SUBSTANCES IN CAUSE OF DEATH BY AGE, 2013

	10-19	20-29	30-39	40-49	50-59	60-69
1	Oxycodone	Heroin	Methamphet	Methamphet	Methamphet	Methamphet
2	Methadone* Alprazolam* Heroin*	Alcohol	Heroin	Alcohol	Alcohol	Alcohol
3	Alcohol** m/ethylone (bath salt) Fentanyl Citalopram Clonazepam Diphenhydramine Hydromorphone	Methamphet	Alcohol	Hydrocodone Heroin	Heroin	Hydrocodone
4		Hydrocodone Methadone	Oxycodone	Morphine Oxycodone Gabapentin	Methadone	Morphine
5		Alprazolam* Cocaine*	Morphine Methadone Gabapentin	Cocaine	Cocaine Morphine	Heroin Oxycodone Gabapentin Methadone
6		Oxycodone* Tramadol*	Cocaine	Diazepam Quetiapine Methadone	Hydrocodone Diphenhydramine	Diazepam* Tramadol*

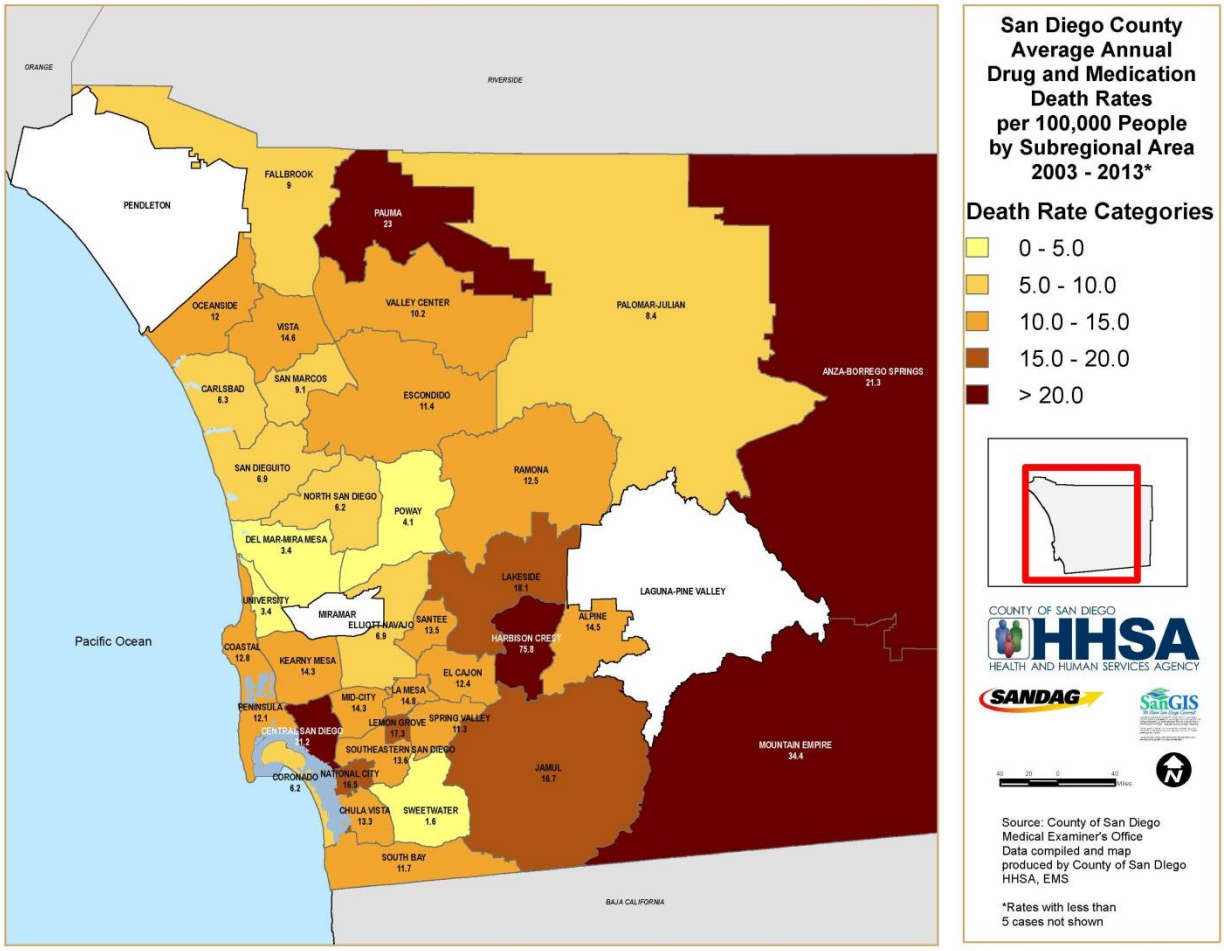
*Five or fewer cases **One case each

MOST FREQUENT DRUG/MEDICATION UNINTENTIONAL DEATHS BY AGE, 2013

Substance	15-19	20-24	25-34	34-44	45-54	55-64	65+	Total
Methamphetamine	1	1	22	34	80	48	4	190
Alcohol	1	4	17	15	53	28	9	127
Heroin	2	13	25	18	15	15	1	89
Oxycodone	3	2	6	7	18	10	3	49
Hydrocodone		1	5	8	16	13	5	48
Methadone	2	4	8	6	8	18	1	47
Morphine			9	7	14	13	2	45
Cocaine		1	8	1	15	14	1	40
Gabapentin			3	11	11	11	3	39
Diazepam		3	5	4	12	8	3	35
Diphenhydramine	1	2	4	3	10	8	2	30
Alprazolam	2	4	7	2	5	5	2	27
Quetiapine			5	3	9	7	0	24
Trazodone		2	3	2	6	5	2	20
Tramadol		1	2	3	5	7	1	19
Zolpidem			3	4	4	5	3	19
Citalopram	1		4	4	5	4	0	18
Chlordiazepoxide			2	3	6	4	0	15
Clonazepam	1	1	2	4	4	2	0	14
Fentanyl	1	1	2	1	1	7	1	14
Carisoprodol			3	3	1	2	1	10
Fluoxetine				1	4	4	1	10
Hydromorphone			1	2	3	3	0	9

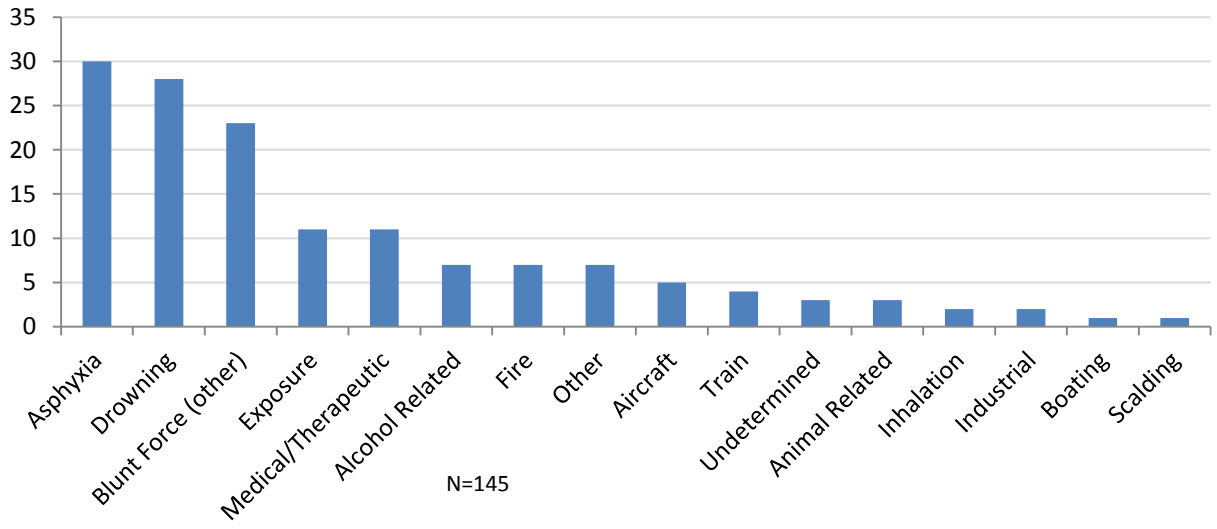
Note: Because an individual case may be due to a combination of medications, the medications are not mutually exclusive.

DRUG/MEDICATION RELATED DEATH RATES BY SUBREGIONAL AREA: 2003 – 2013

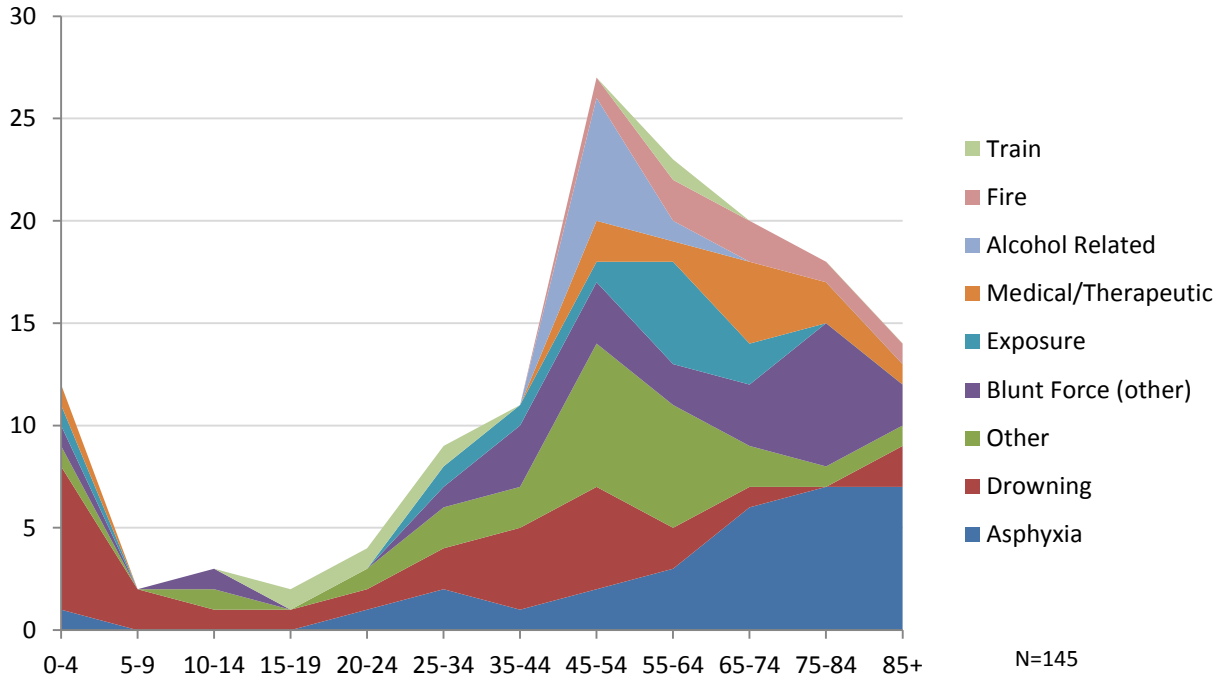


UNINTENTIONAL DEATHS, OTHERS

OTHER ACCIDENTAL MANNERS OF DEATH, 2013

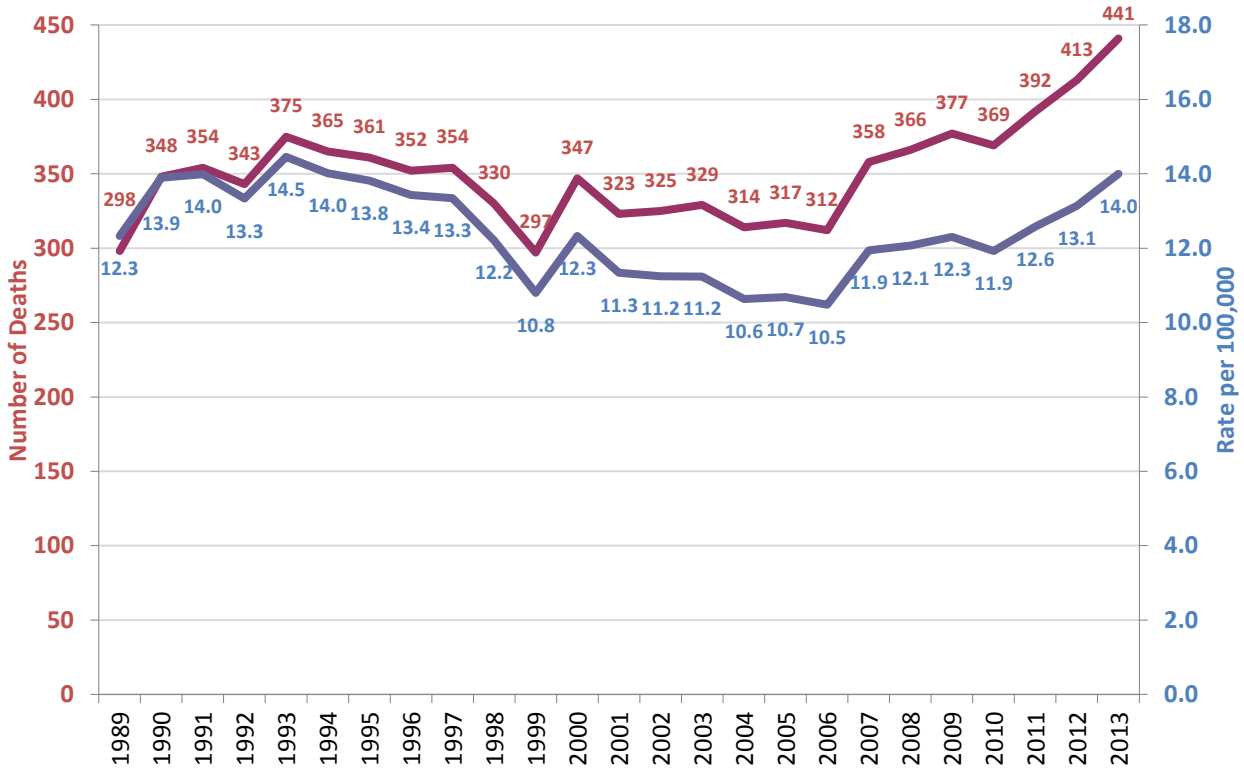


OTHER MECHANISMS OF ACCIDENTAL DEATH: AGE GROUP BY MECHANISM, 2013



SUICIDES

SUICIDES BY YEAR: 1988 – 2013



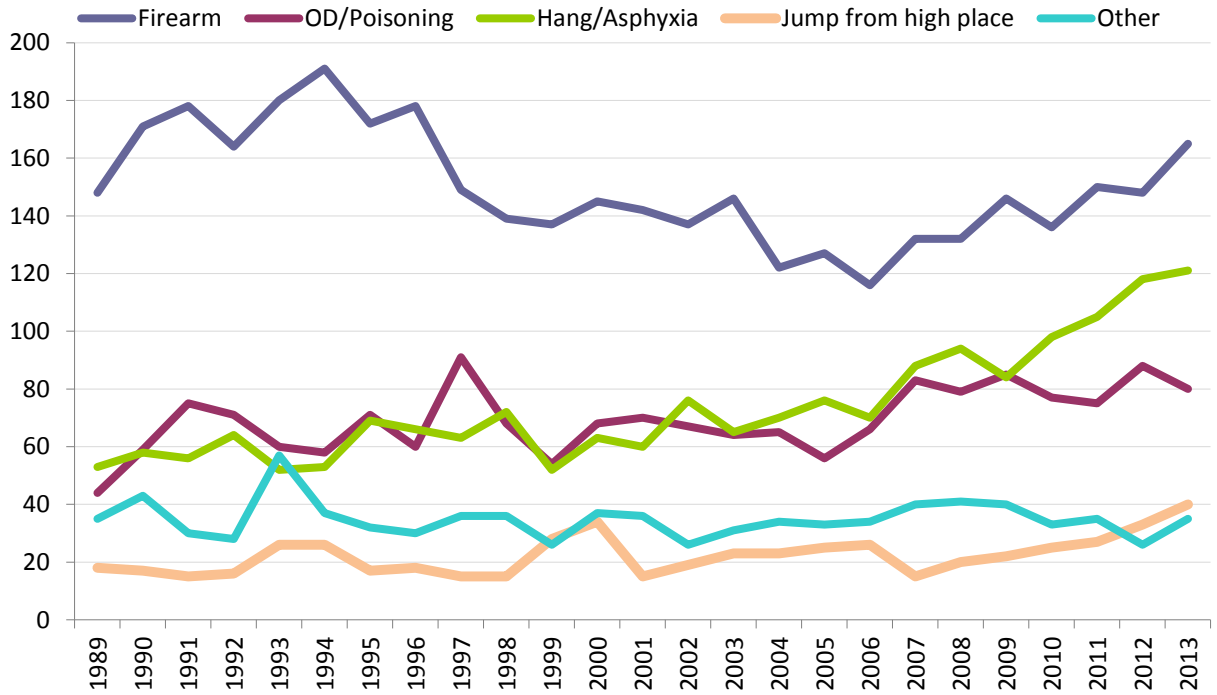
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number	**328**	**298**	**348**	**354**	**343**	**375**	**365**	**361**	**352**	**354**	**330**	**297**
Rate/100,000	**14.1**	**12.3**	**13.9**	**14.0**	**13.3**	**14.5**	**14.0**	**13.8**	**13.4**	**13.3**	**12.2**	**10.8**

	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
Number	**413**	**441**
Rate/100,000	**13.1**	**14.0**

In 2011 – the most recent data available from the Centers for Disease Control and Prevention (CDC) – the average national rate of suicide 12.3 per 100,000 people. In 2011, the rate of suicide in San Diego County was 12.6 per 100,000. In 2013, the rate in San Diego was 14.0 per 100,000. Although the number of suicides is at an all-time high, when corrected for population the rate is similar to what it was in 1994.

SUICIDE METHOD BY YEAR: 1988 - 2013

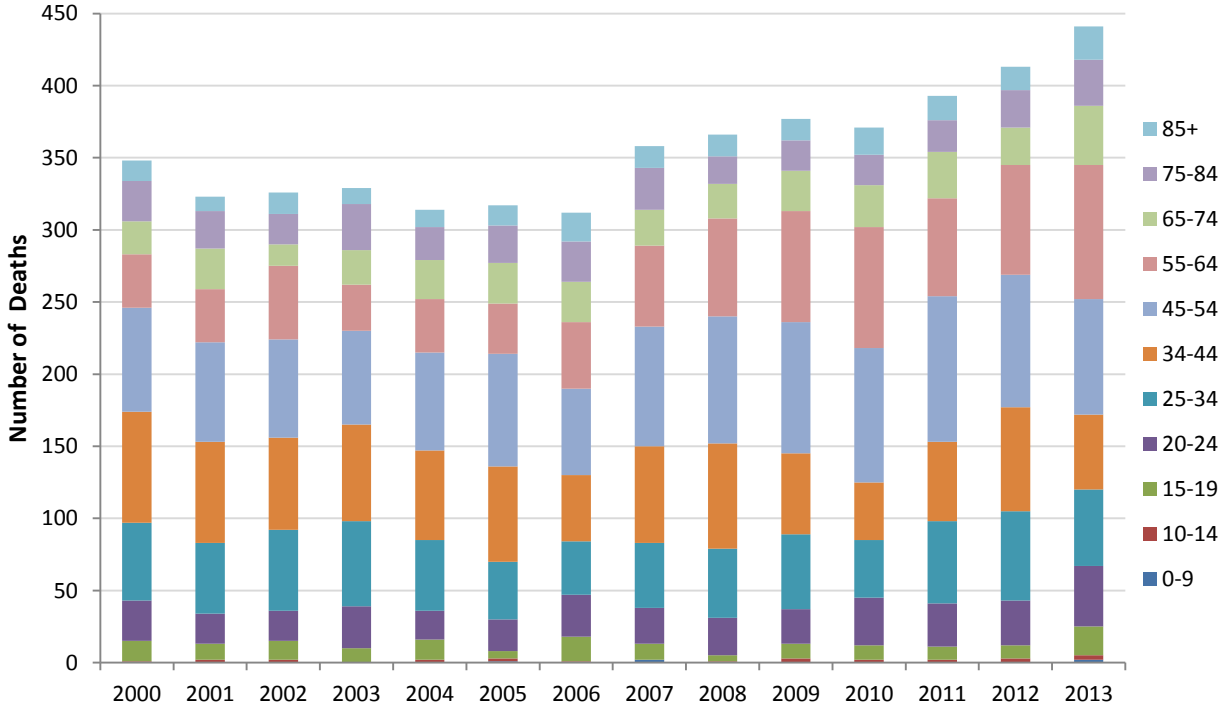


	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Firearm	**179**	**148**	**171**	**178**	**164**	**180**	**191**	**172**	**178**	**149**	**139**	**137**
OD/Poisoning	**42**	**44**	**59**	**75**	**71**	**60**	**58**	**71**	**60**	**91**	**68**	**54**
Hang/Asphyxia	**53**	**53**	**58**	**56**	**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**

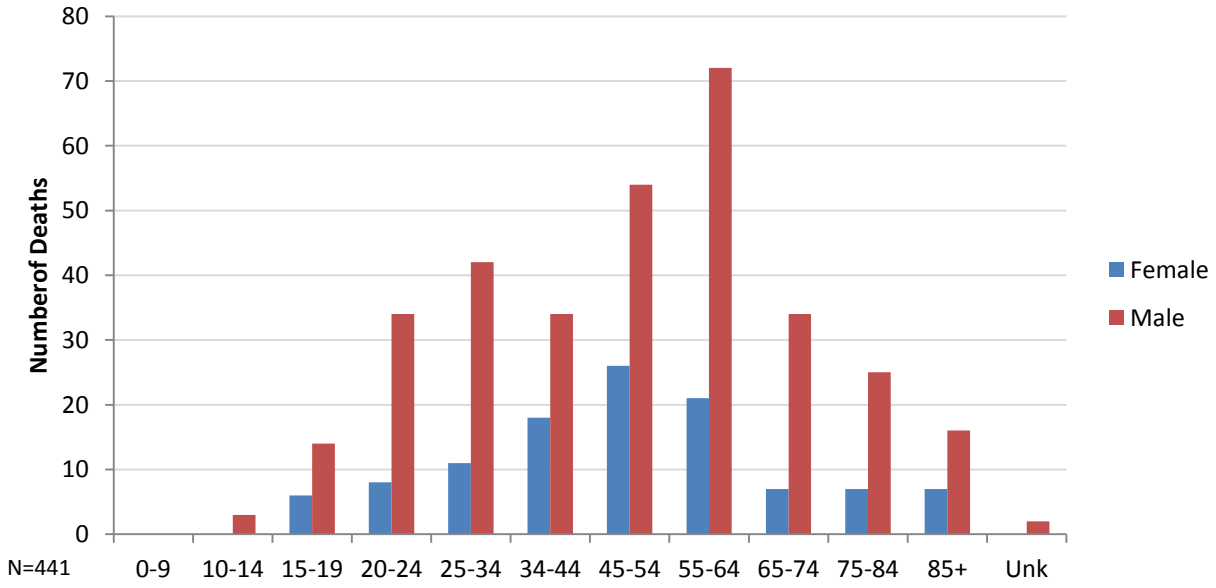
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Firearm	**145**	**142**	**137**	**146**	**122**	**127**	**116**	**132**	**132**	**146**	**136**	**150**
OD/Poisoning	**68**	**70**	**67**	**64**	**65**	**56**	**66**	**83**	**79**	**85**	**77**	**75**
Hang/Asphyxia	**63**	**60**	**76**	**65**	**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
Firearm	**148**	**165**
OD/Poisoning	**88**	**80**
Hang/Asphyxia	**118**	**121**
Jump	**33**	**40**
Other	**26**	**35**

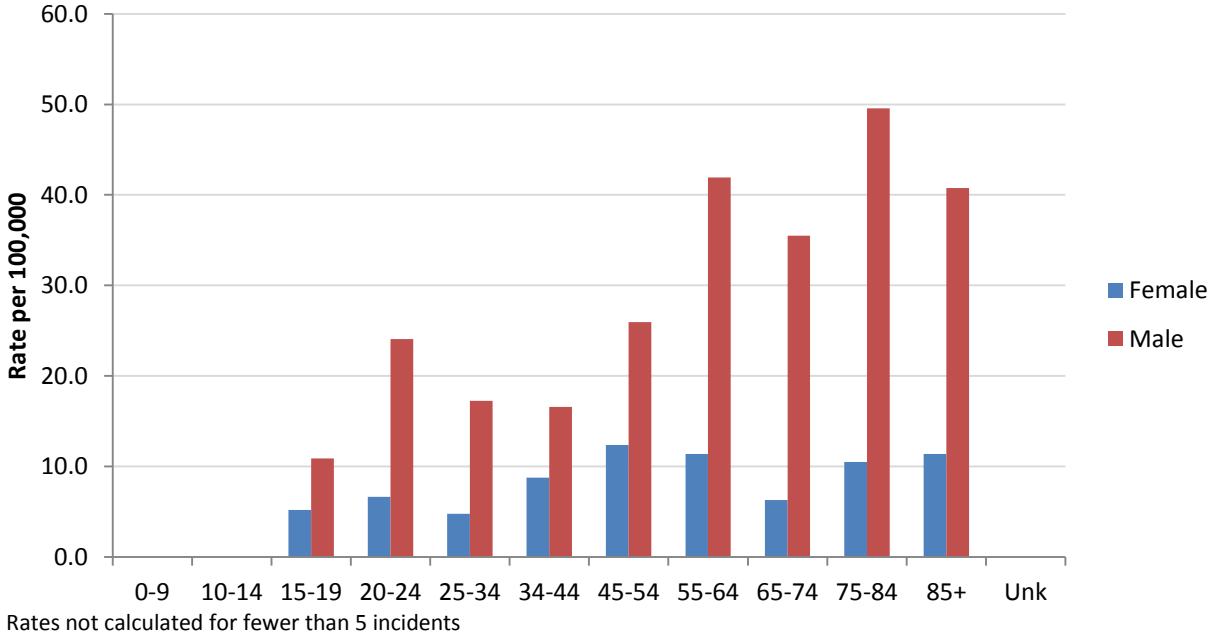
NUMBER OF SUICIDES BY AGE AND YEAR, 2000 – 2013



NUMBER OF SUICIDES INVESTIGATED BY AGE AND SEX, 2013



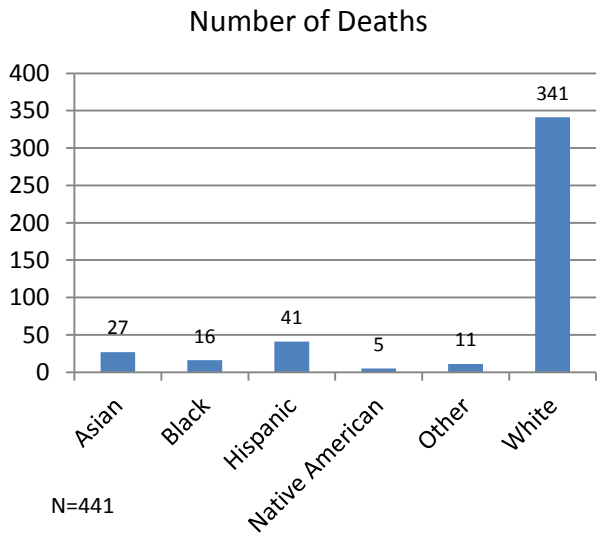
SUICIDE RATES BY AGE AND GENDER, 2013



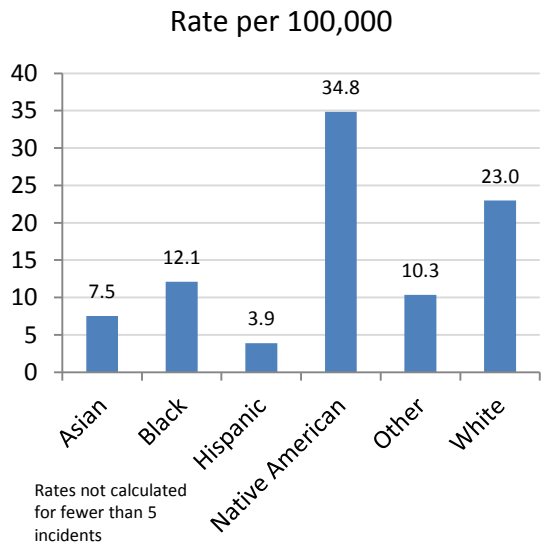
Rates not calculated for fewer than 5 incidents

Historically, the highest suicide rate has been among men 85 years and older. In 2013, men between 75 and 84 had the highest rate of suicide.

SUICIDE NUMBERS AND RATES BY ETHNICITY, 2013

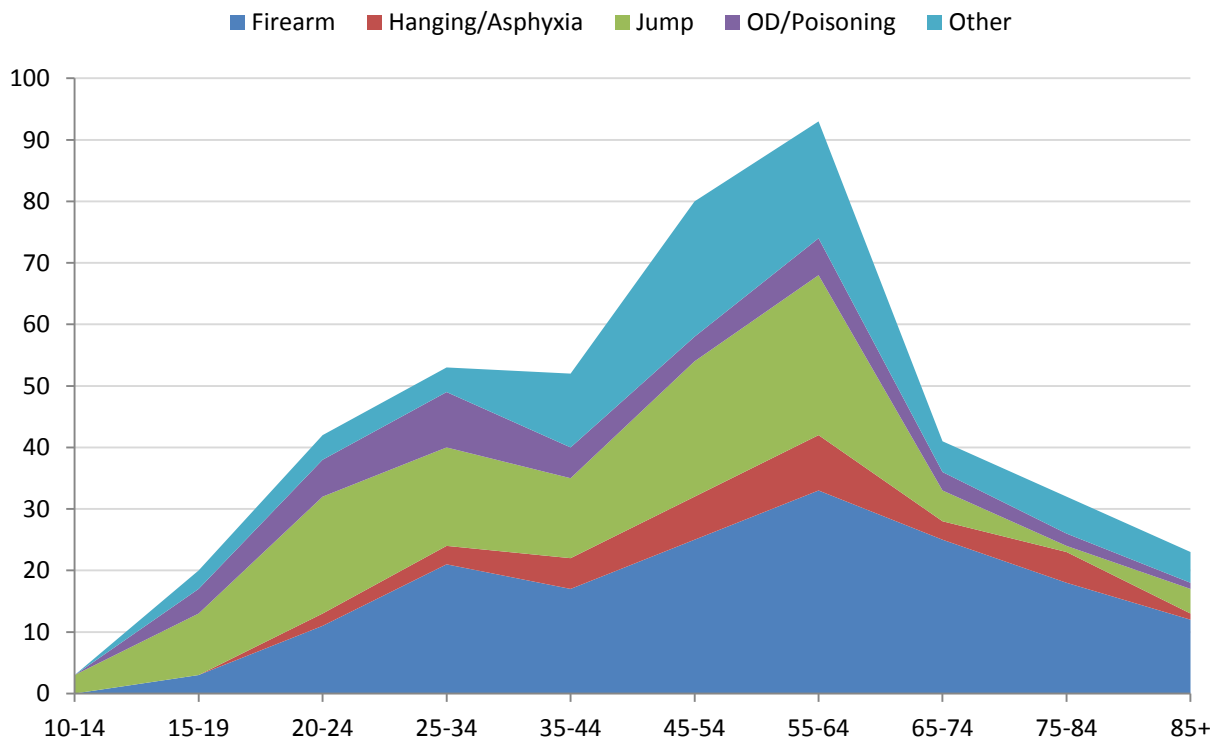


N=441



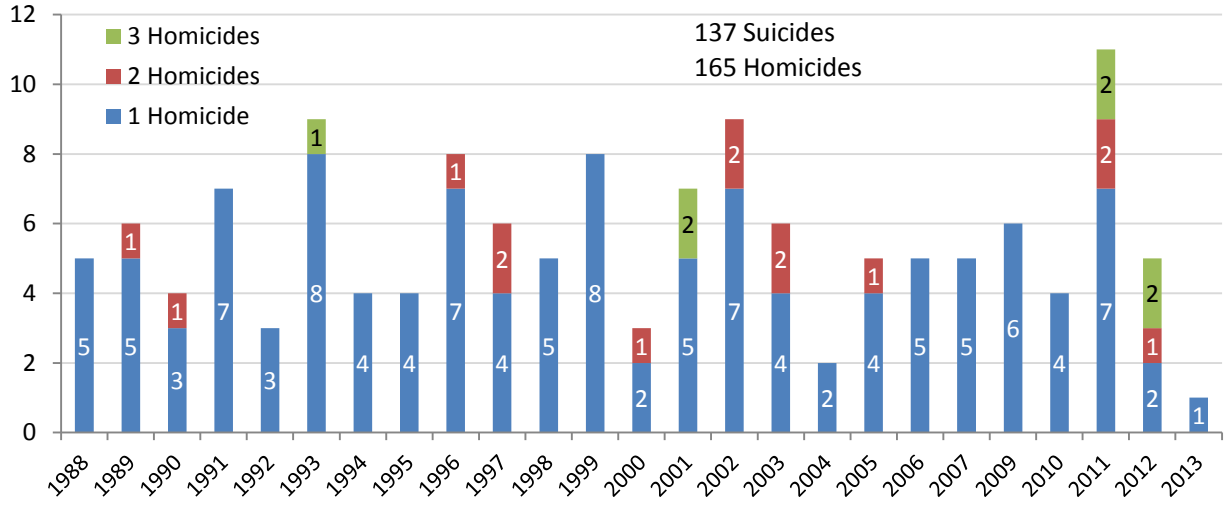
Rates not calculated for fewer than 5 incidents

SUICIDE DEATHS BY AGE AND MECHANISM, 2013

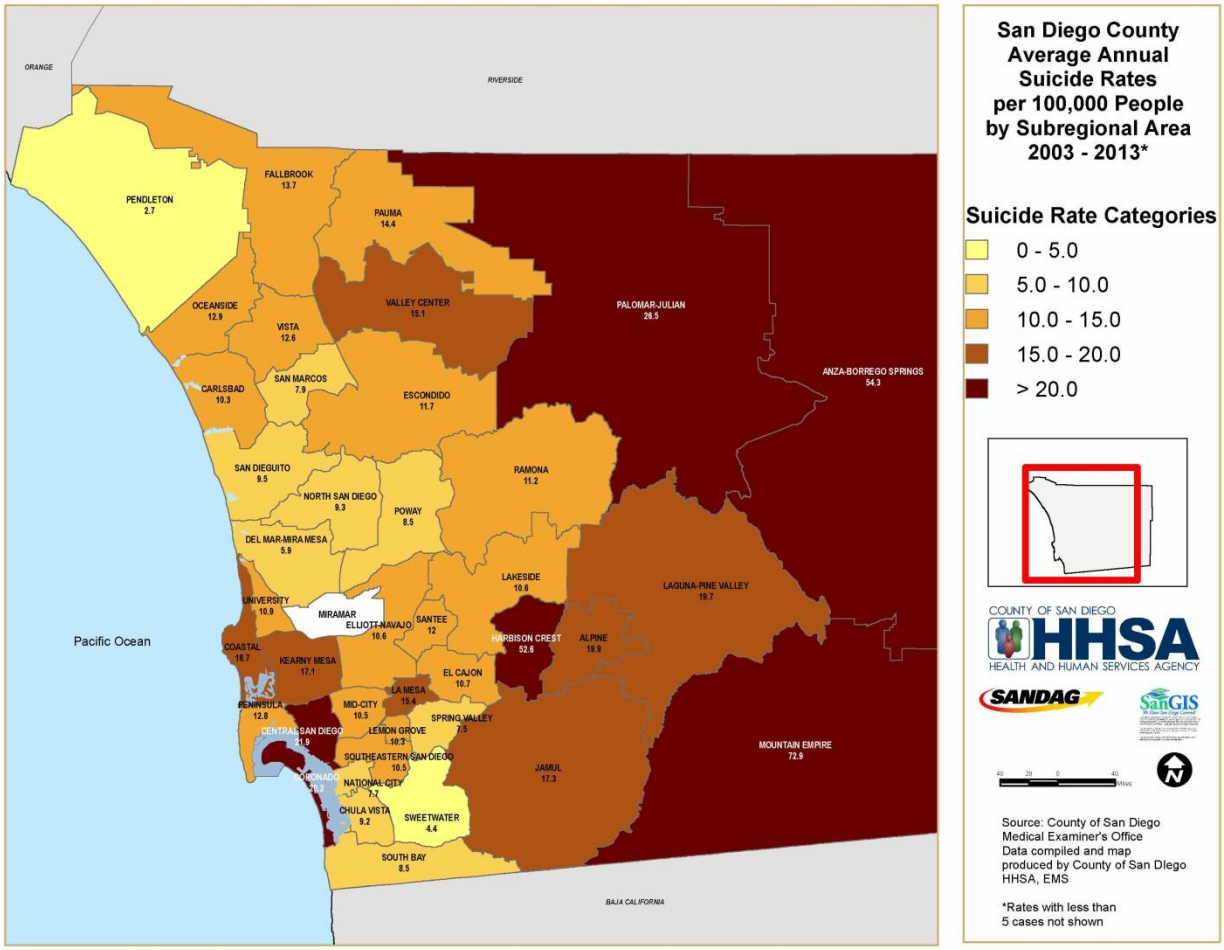


N=439
Does not include 2 unknown ages

HOMICIDE/SUICIDE EVENTS, 1988 – 2013

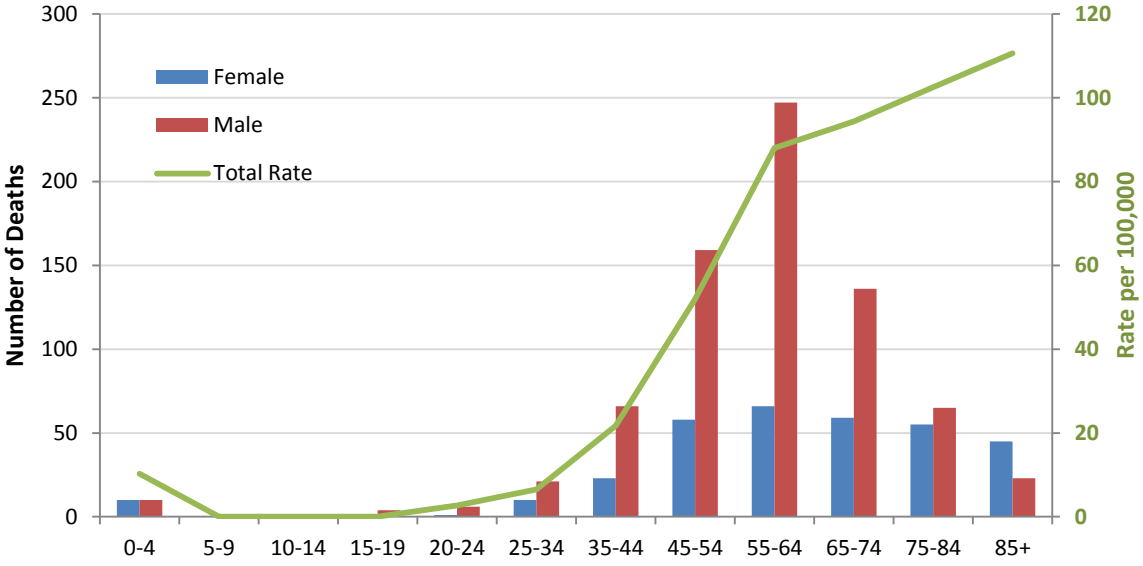


SUICIDE RATE PER 100,000 BY SUBREGIONAL AREA, 2003 – 2013



NATURAL DEATHS

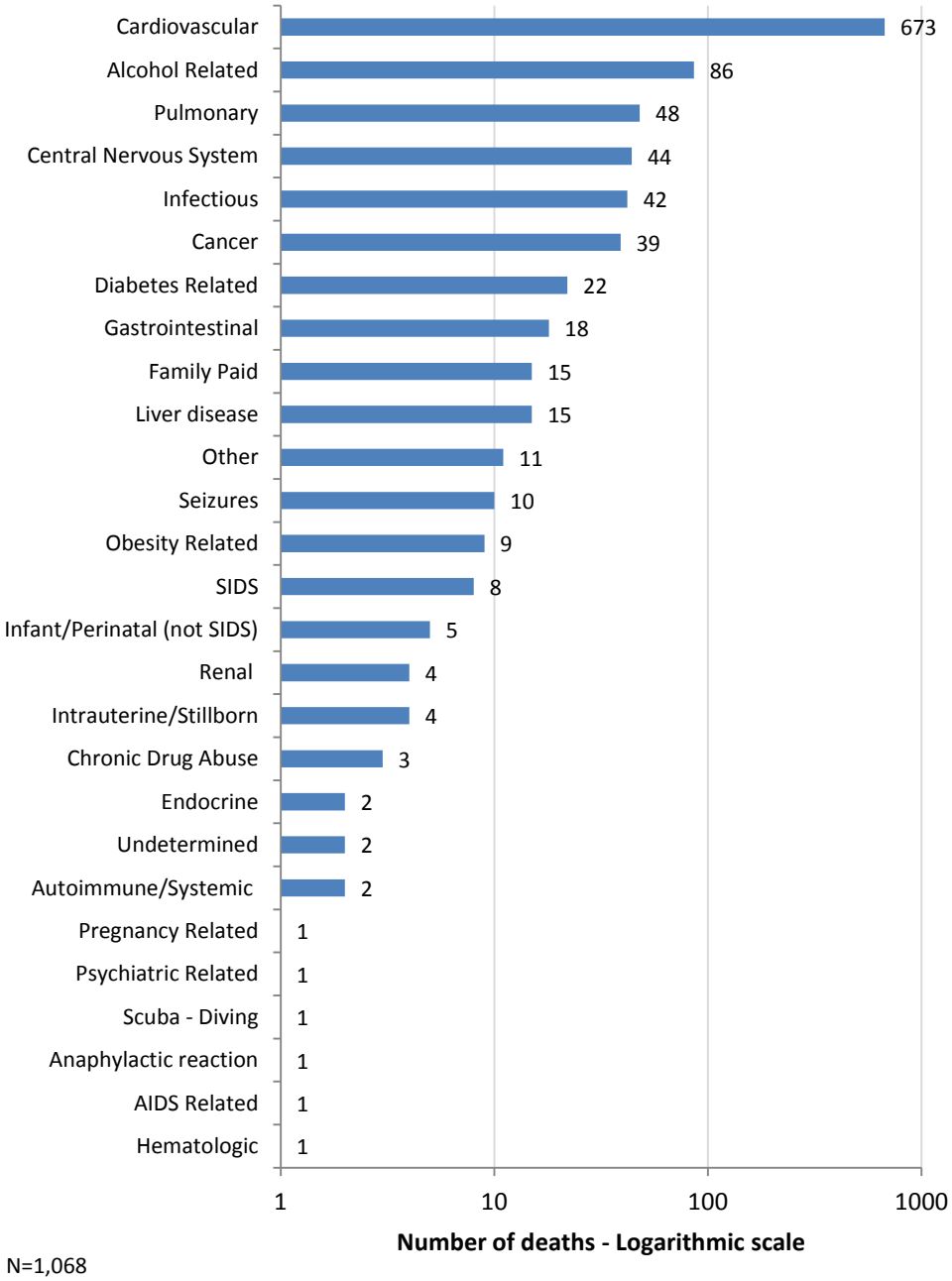
DEATHS DUE TO NATURAL CAUSES BY AGE AND SEX AND TOTAL RATE, 201



N=1,068; Rates not calculated for fewer than 5 incidents

The peak in rate in individuals between 55 and 64 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, 2013

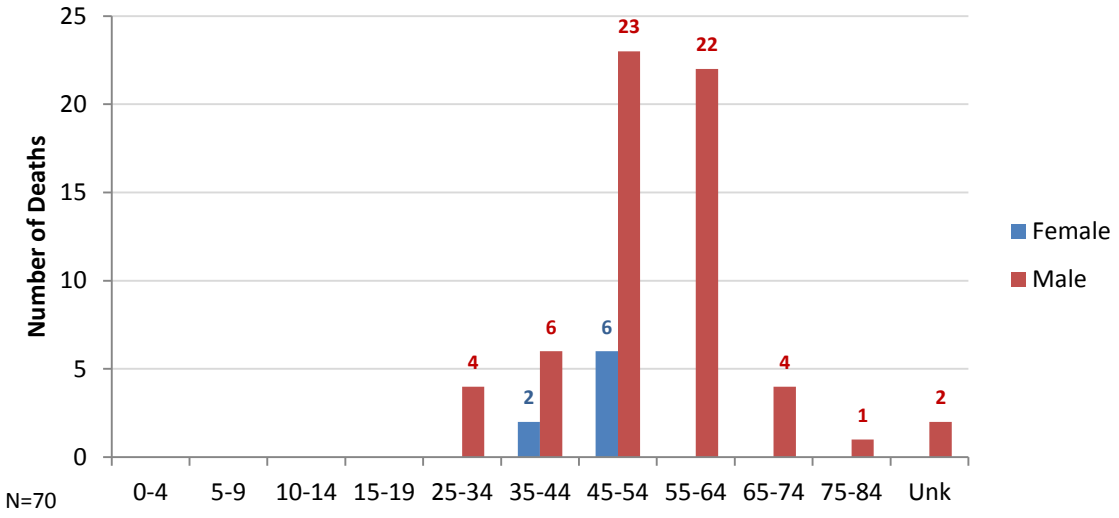


N=1,068

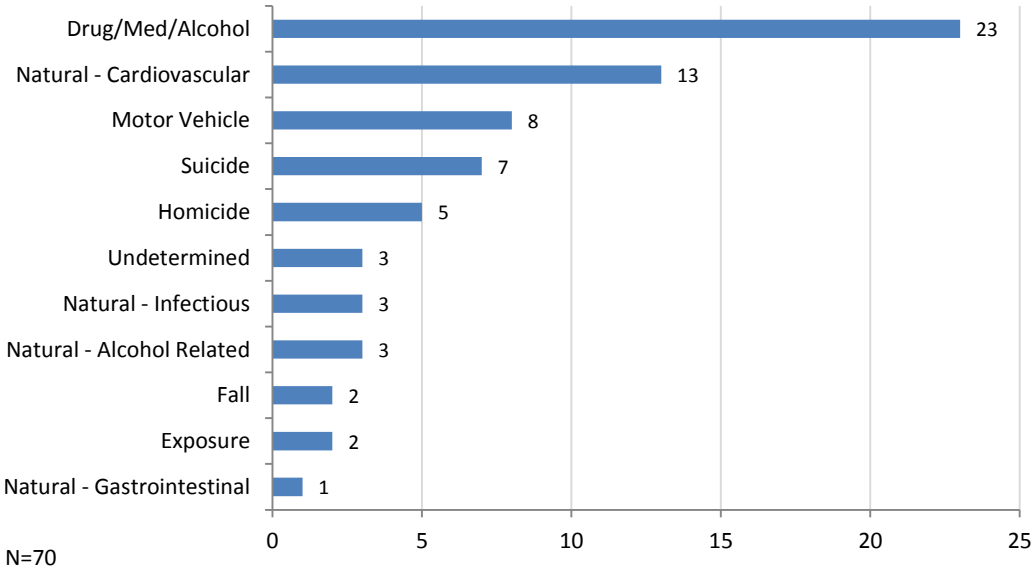
HOMELESS

According to the 2013 San Diego Regional Homeless Profile, nearly 8,900 homeless individuals were identified in the County by the point-in-time count conducted in January, 2013.

DEATHS IN THE HOMELESS BY AGE AND SEX, 2013



DEATHS IN THE HOMELESS, 2013



PEDIATRIC DEATHS & SIDS

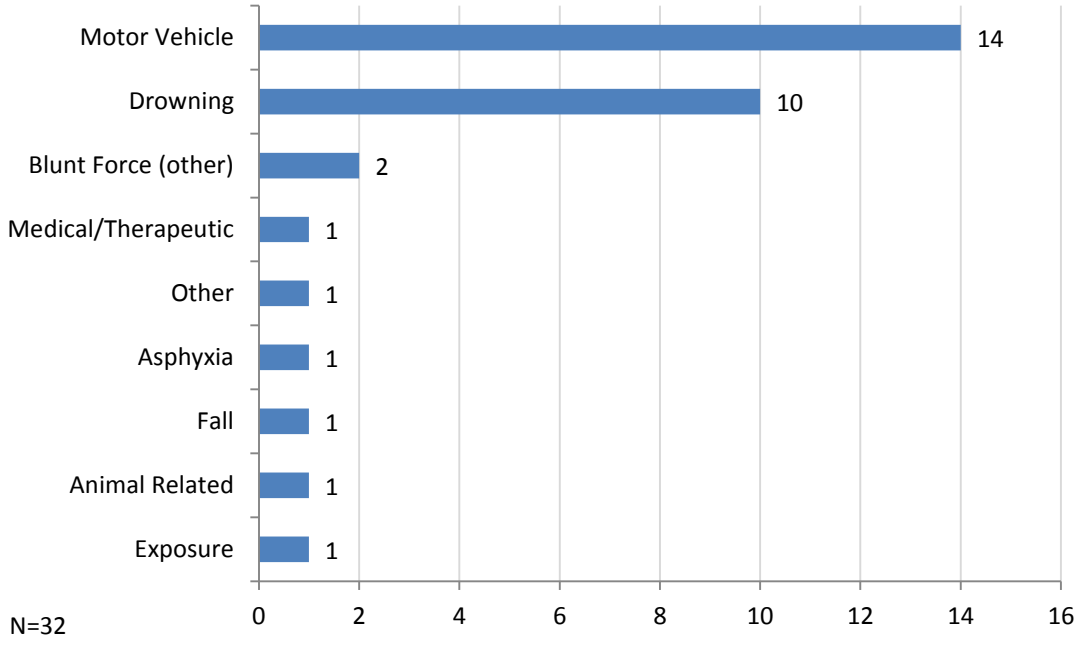
PEDIATRIC DEATHS BY AGE AND MANNER OF DEATH, 2013

Age	Accident	Homicide	SIDS	Other Natural	Suicide	Undetermined	Total
0	6	1	8	5		17*	37
1	6			1			7
2	2						2
3	3			1			4
4	4			2			6
5	3						3
6	1						1
7							0
8		1					1
9	3			1			4
10	3	1					4
11				1			1
12					1		1
13	1	1					2
14					2		2
15	1	1					2
16	2	1		2	4		9
17	1	1		2	2		6
Total	36	7	8	15	9	17	92

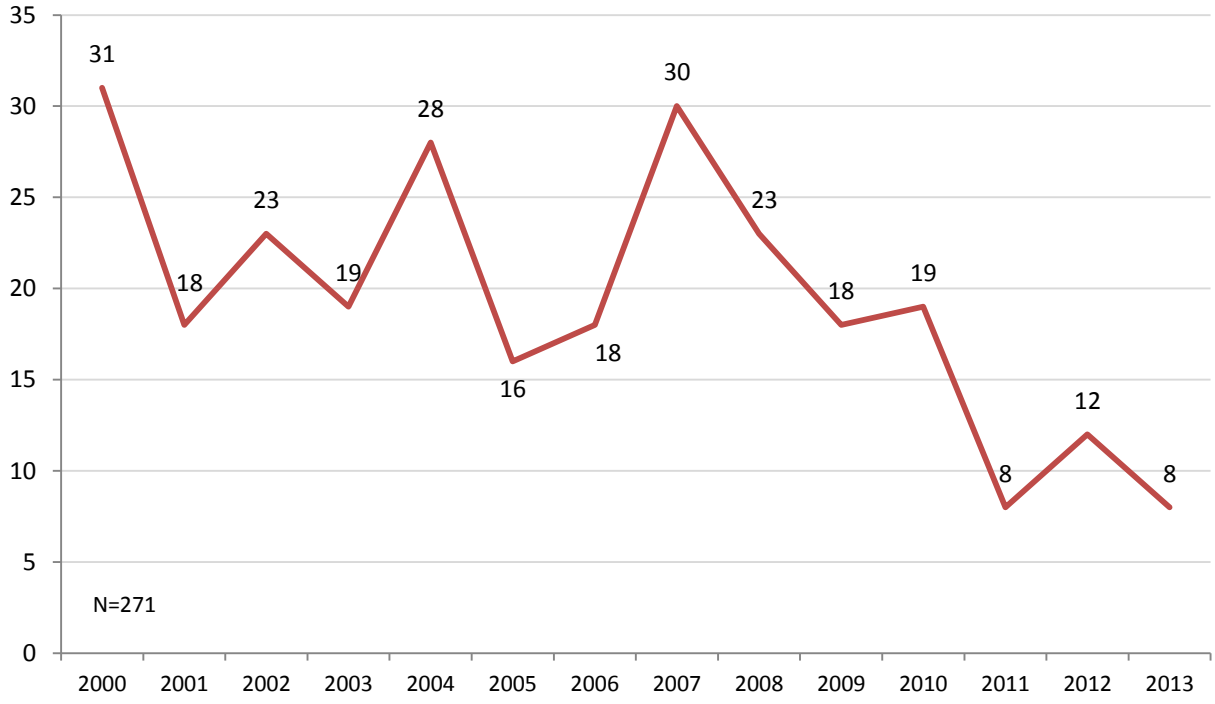
*There were 17 cases that were certified with a manner of undetermined. They are as follows:

Undetermined Type	Number
Bed sharing	9
Undetermined	3
Sudden unexplained infant death	3
Anatomical specimen	1
Bed sharing and methamphetamine	1

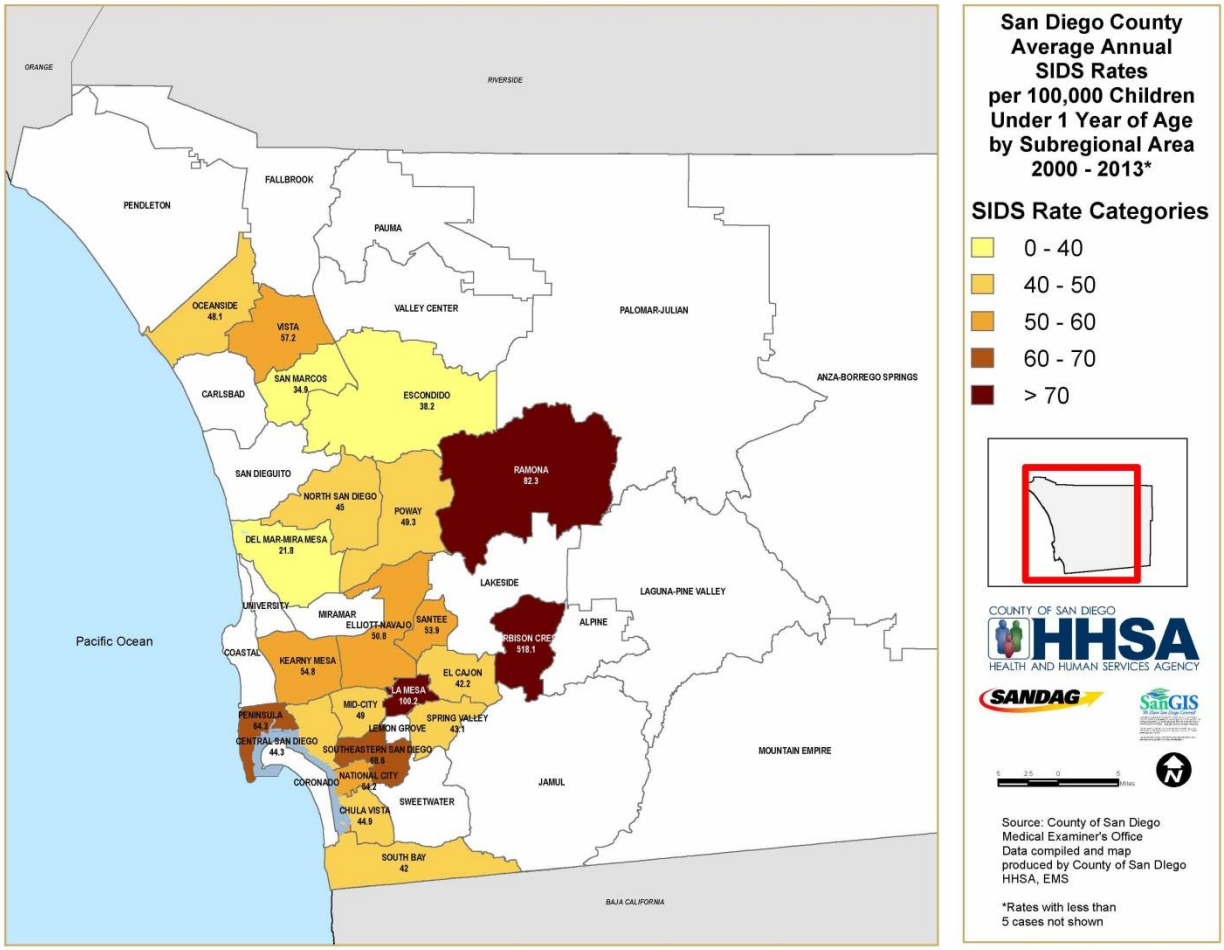
ACCIDENTAL DEATHS AGE 0 TO 13 BY MECHANISM, 2013



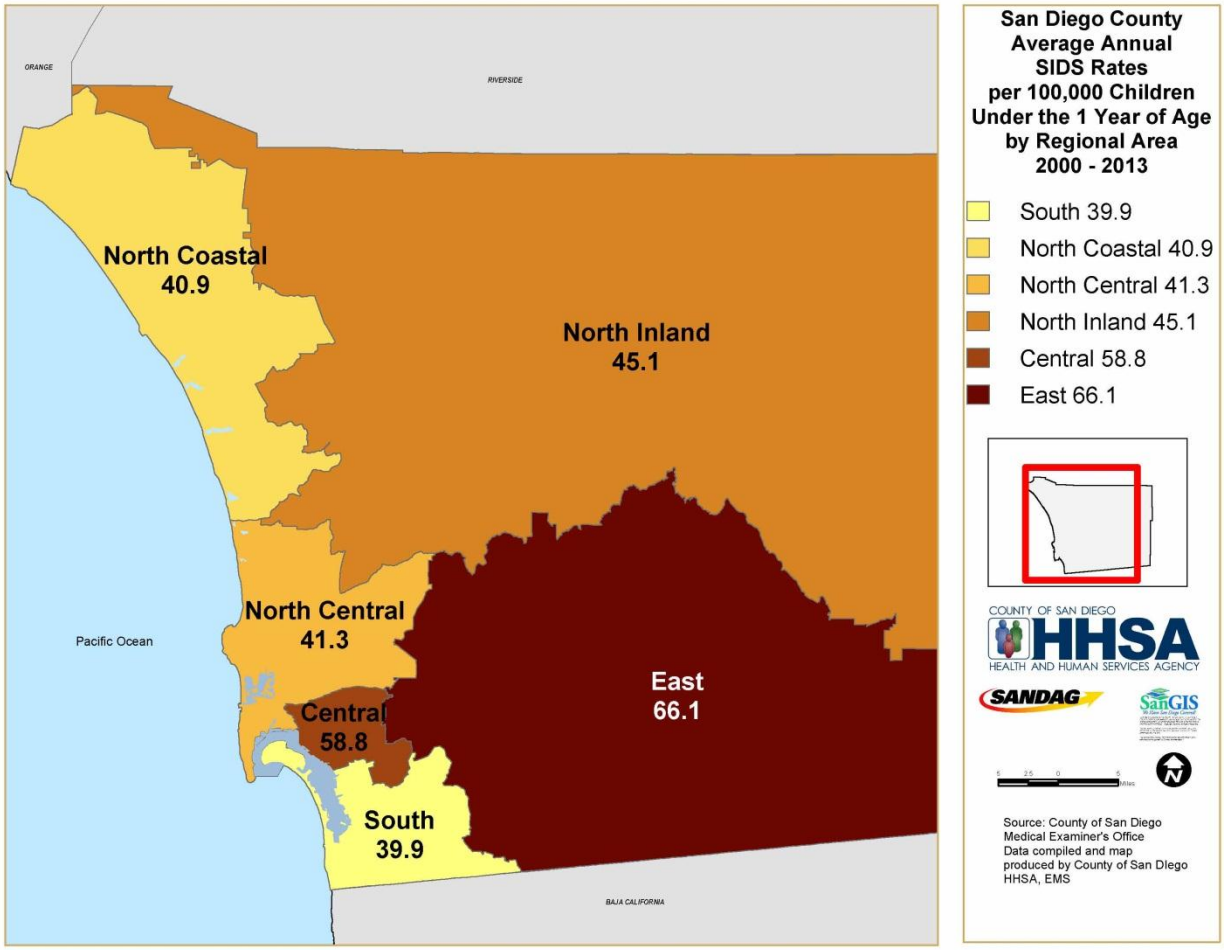
SIDS DEATHS BY YEAR, 2000 – 2013



SIDS DEATH RATES BY SUBREGIONAL AREA, 2000 – 2013

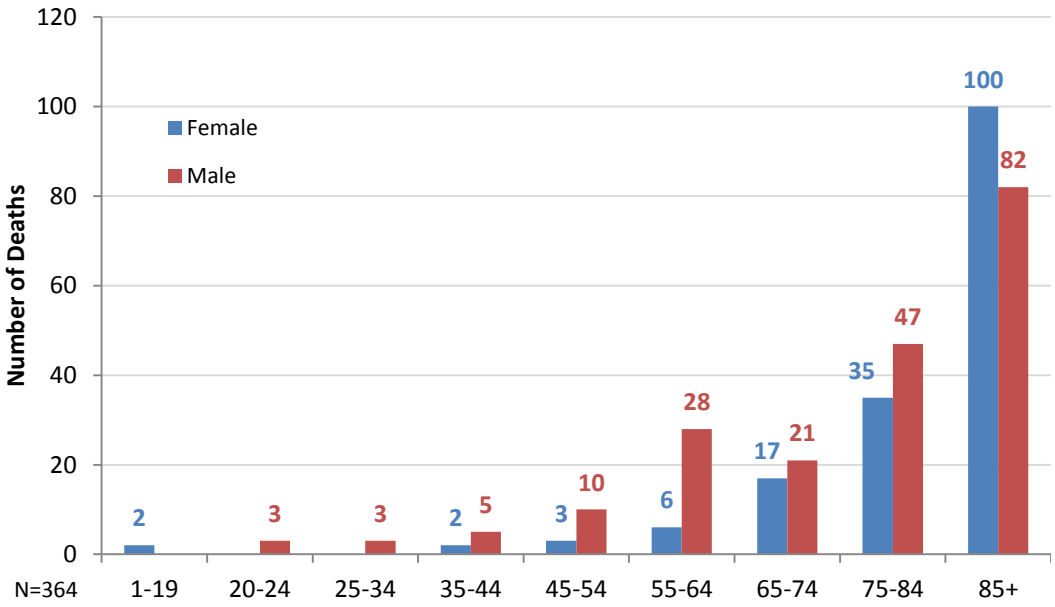


SIDS DEATH RATES BY REGIONAL AREA, 2000 – 2013

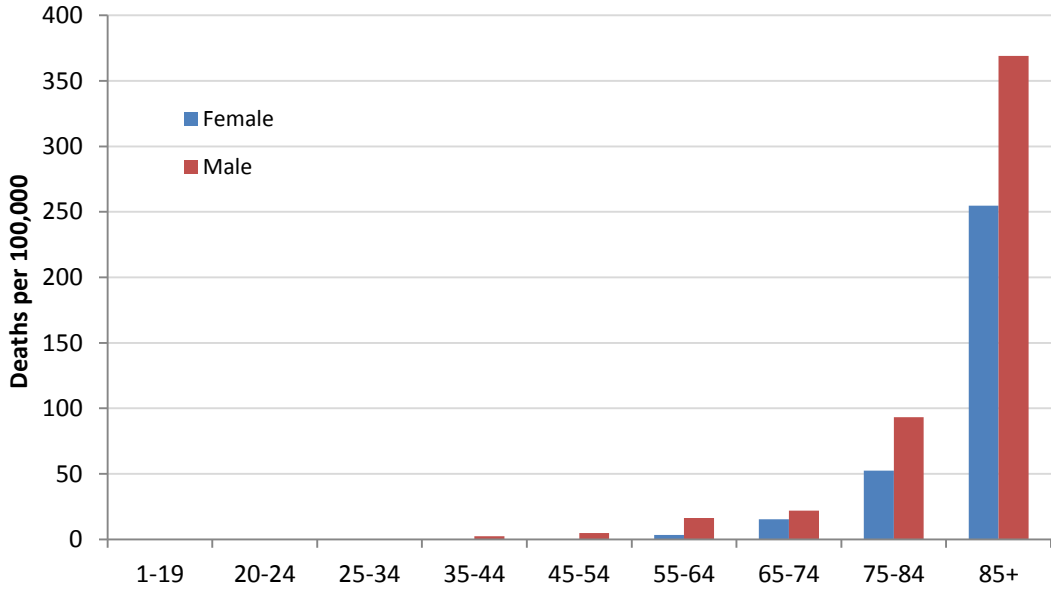


FALL-RELATED DEATHS

DEATHS FROM FALLS BY AGE AND SEX, 2013

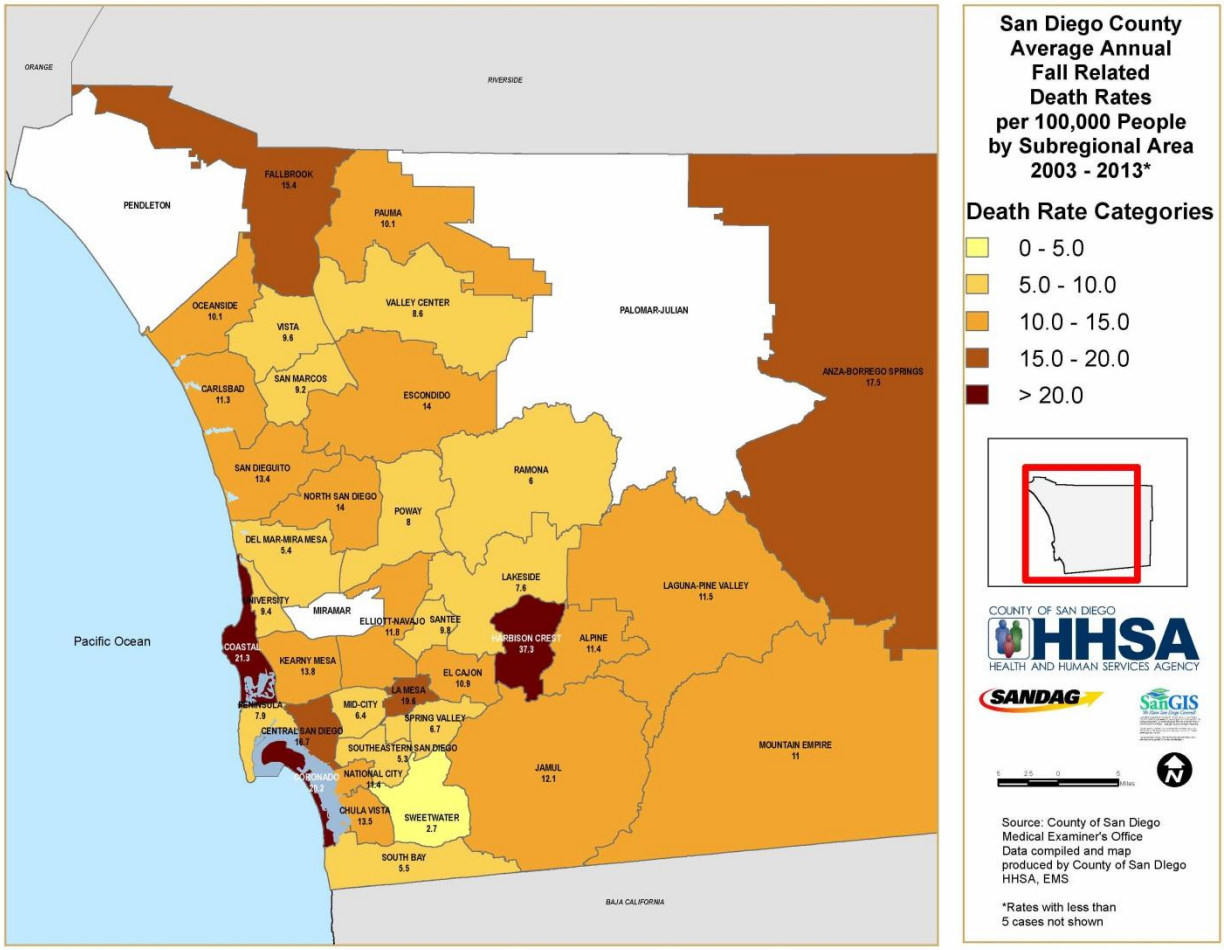


FALL-RELATED DEATH RATE BY AGE AND SEX, 2013



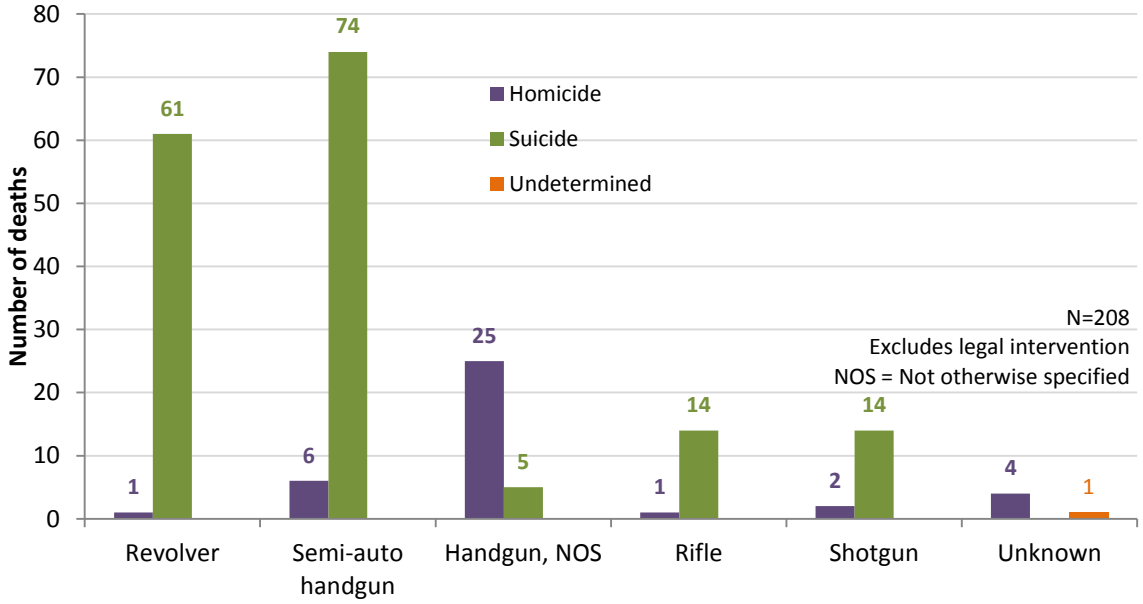
Rates not claculated for fewer than 5 incidents

FALL-RELATED DEATH RATES BY SUBREGIONAL AREA, 2003 – 2013

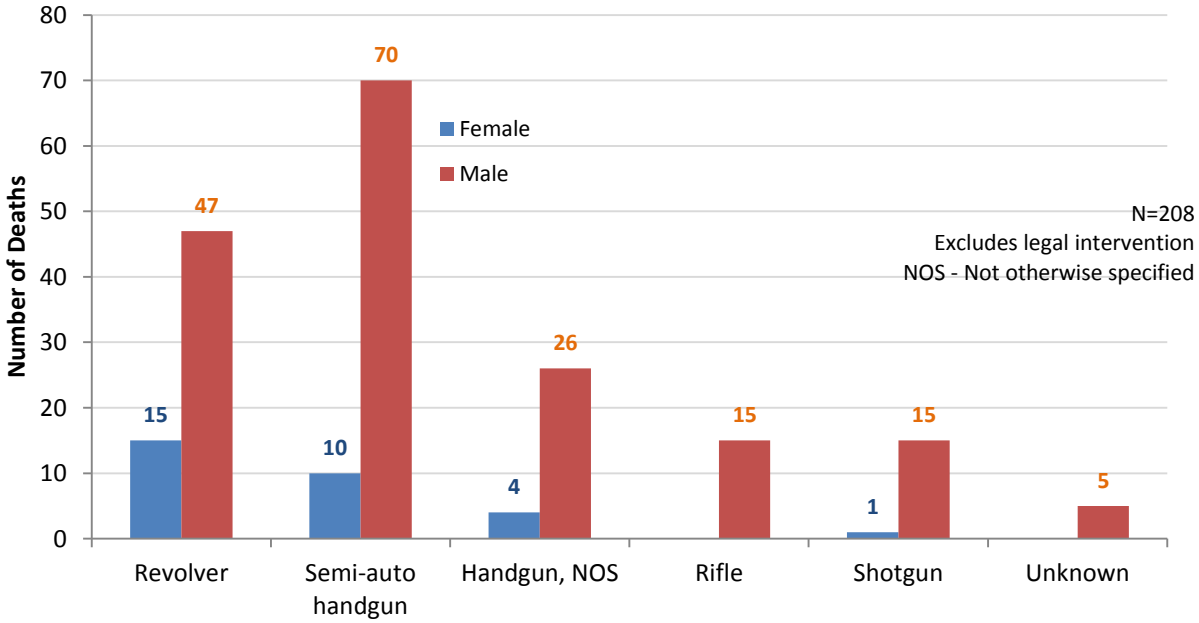


FIREARM RELATED DEATHS

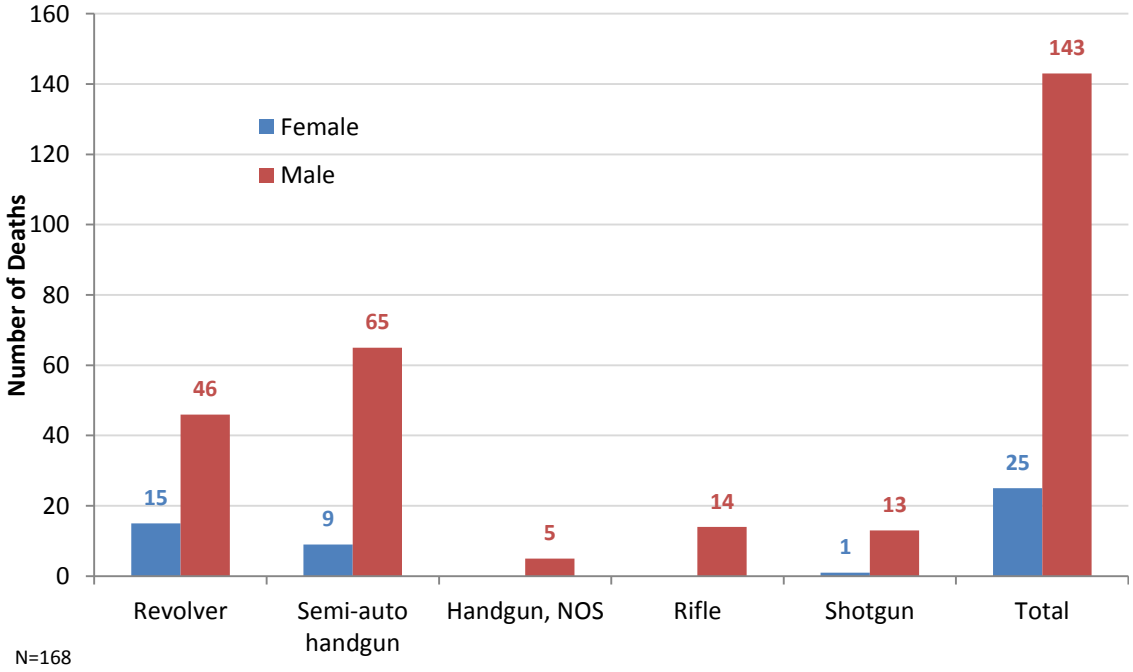
WEAPON TYPE BY MANNER (ALL MANNERS), 2013



WEAPON TYPE BY GENDER (ALL MANNERS), 2013

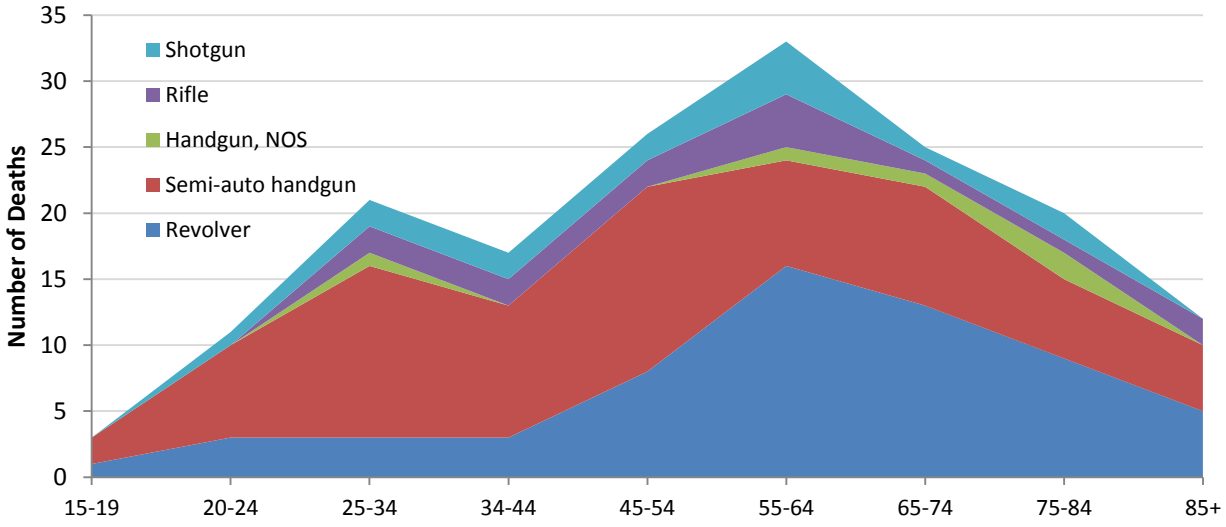


SUICIDE WEAPON TYPE BY GENDER, 2013



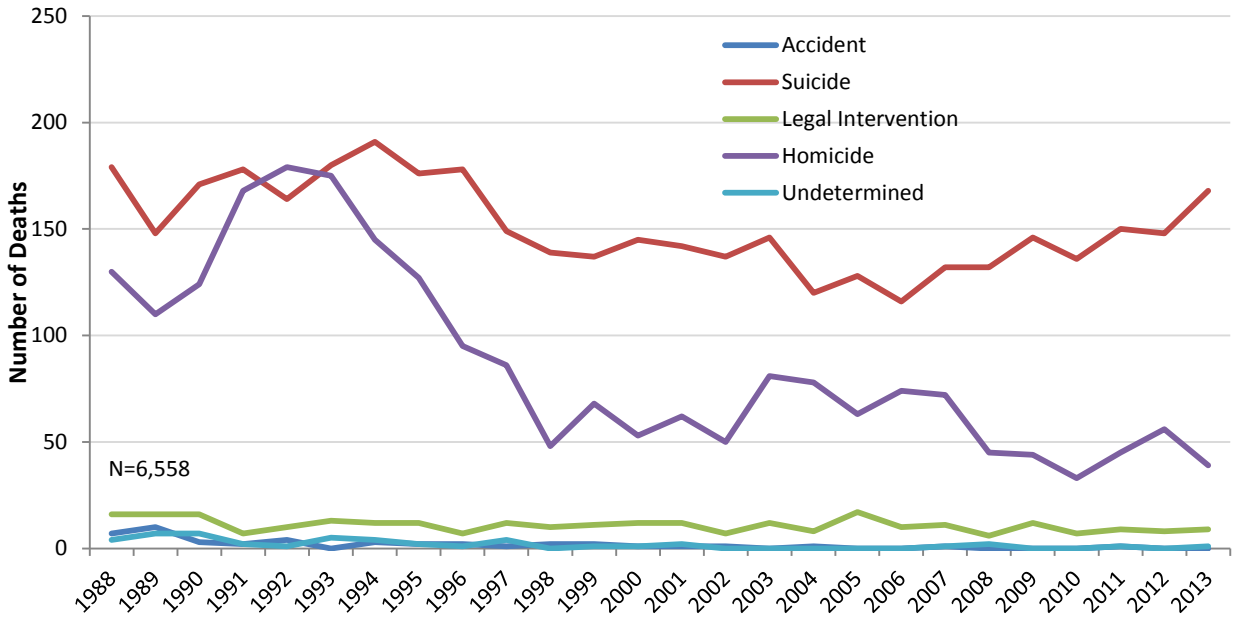
N=168

SUICIDE WEAPON TYPE BY AGE RANGE, 2013

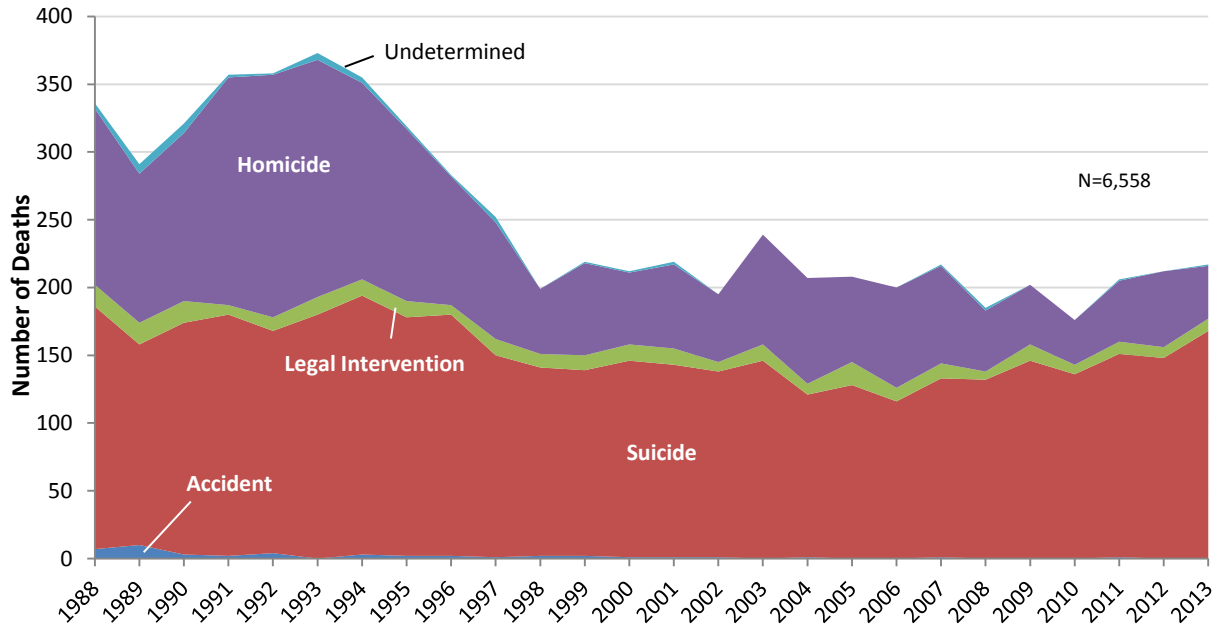


N=168

ALL FIREARM DEATHS BY MANNER, 1988 – 2013



CUMULATIVE FIREARM DEATHS BY MANNER, 1988-2013



Firearm deaths of all types reached a low in 2010 since 1988 (as far back as available data is available) and has been following a general decline since the mid-1990's. The decline in the number of homicides in recent years has been a major driver for this. Suicides by firearms – like suicides of all methods – have been rising over the last 7 years.

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