



Office of the Medical Examiner

2016 Annual Report

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Agency Mission, Vision, and Core Values

Mission

The Mission of the Medical Examiner is to provide professional medicolegal death investigations of individuals dying under statutorily defined circumstances, the results of which are communicated independently to relevant agencies, industries, and members of the public so they can receive accurate, timely, and effective communications that enhance the public's safety and health.

Vision

To be recognized as a trustworthy source of accurate, scientifically based assessments of deaths in our community by having certified practitioners perform industry-standard professional death investigations, in an industry-accredited organization.

Core Values

Service - We hold service to be the highest of values. We commit to effective, positive, ethical, and compassionate service to all members of the public and to one another.

Integrity - We commit to being professional and courteous in all our interactions, both with the public we serve and with each other. We commit to being honest, ethical, and diligent -- to do our best. We commit to being personally accountable for our words and actions and to help cultivate an organization of integrity by expecting the same of others. We do the right thing, even when no one is watching.

Compassion - We commit to being empathetic, both to the public we serve and to one another, to be mindful of our speech and actions and how they may affect others. We recognize that honest, kind communication, even in the face of conflict, is an act of compassion.

Positivity - We recognize that our perspective is critical to our attitude and that realistic assessments do not require negativity. We commit to approaching challenges with a positive attitude.

Adaptability - We recognize that nothing is constant. We commit to seeing the positive in change, that it is an opportunity for improvement.

Teamwork - We recognize the critical importance of other members of our department and of those outside our department with whom we work – we all have a role to play on the team. We commit to cultivating a positive, collaborative, service and solutions-oriented environment by working together.

Boundaries - We recognize that we must speak and act within certain bounds, that in order to be effective as a team we must focus on doing our best in our role on the team. We commit to working diligently within the bounds of our roles, being mindful not to attempt to take on inappropriate roles or to judge or undermine those in other roles.

Introduction

The Maricopa County Office of the Medical Examiner (OME) is a statutorily required county agency that provides medicolegal death investigations to help protect the public's health and safety. A medicolegal death investigation is a medical investigation of a death that is required under law. Each state has its own criteria defining which deaths must be evaluated by its medicolegal death investigation system. Arizona's system, like many others in the United States, is based around the Model Postmortem Examinations Act of 1954, which listed circumstances of death that should be investigated in order to best protect the public's interest. These circumstances are generally deaths that are non-natural, violent, and/or sudden and unexpected in healthy individuals.

Arizona's medicolegal death investigation system is county-based and is a Medical Examiner (ME) system. Each county is required to appoint either a County Medical Examiner or Alternate Medical Examiner. A County Medical Examiner must be a Forensic Pathologist, a licensed physician who is trained in evaluating individual deaths for the determination of cause of death and answers to other anticipated questions. If a Forensic Pathologist is not available to serve a county in such a fashion, the county may appoint an Alternate Medical Examiner who does not have to be a Forensic Pathologist, but must be a licensed physician; this type of Medical Examiner can direct the death investigation, but cannot perform forensic autopsies.

Medicolegal death investigations follow a medical model wherein a physician collects a history of events; medical, social, surgical, and occupational histories; and combines these historical data with observations from the scene of death and a postmortem examination of the body, typically an autopsy, to form conclusions about what injuries and/or diseases significantly contributed to the death. After examination, laboratory testing is frequently ordered to answer targeted questions, particularly those around drug use. At the conclusion of the investigation, a Medical Examiner Report is authored that details the observations and findings.

In cases requiring investigation, the Medical Examiners are also responsible for certifying the cause and manner of death on the death certificate (DC). This is typically done on the day of the examination. The death certificate contains valuable data for public health statisticians to compile and analyze for trends. These analyses support public health and safety interventions by agencies and institutions working within many different societal systems including healthcare, transportation safety, occupational safety, and public health. If a cause or manner of death conclusion cannot be reached at the time of examination, the Medical Examiner may list them as "pending" and amend the death certificate once additional investigation has been concluded and the results analyzed.

In addition to answers that are provided to the family of the deceased, many agencies use the results of the medicolegal death investigation in order to guide their own missions. The Medical Examiners and other OME staff are frequently called to testify in criminal and civil litigations. They share data with partners in the Public Health System so patterns can be identified and interventions can be implemented. They report deaths to safety agencies so they may assess the safety of means of transportation, occupations, and consumer products.

The work done by our staff is challenging and we are grateful for the dedicated people who do it, day in and day out.

Accomplishments

The Maricopa County Office the Medical Examiner achieved provisional accreditation from the National Association of Medical Examiners (NAME) in March, 2016. This was the first time since 1991 that the office had been inspected by NAME. Accreditation ensures that facilities, processes, personnel, and resources are appropriate to provide industry standard medicolegal death investigations.

Organization of the Office of the Medical Examiner

The Office of the Medical Examiner (OME) is divided into Departmental Sections based on services:

Medical Examiner – Includes the Forensic Pathologist Medical Examiners (MEs), a Forensic Anthropologist, and a Forensic Odontologist

Investigations – The team of American Board of Medicolegal Death Investigators (ABMDI) certified Medicolegal Death Investigators (MDIs) who conduct interviews, collect records and histories, and evaluate scenes. They are the eyes and ears of the MEs and are most often the face of the agency, interacting with other agency partners and the public.

Examinations – Forensic Technicians (FTs) provide technical support for the examination of bodies admitted to OME's facility, performing radiographs, taking photographs, and aiding in autopsy dissections.

Photography – Forensic Photographers provide technical photography on a large subset of cases including homicides and those cases needing alternate light source and other specialized photography. They also train other staff who take photographs in the course of their duties.

Laboratory – OME is supported by an in-house, American Board of Forensic Toxicology (ABFT) accredited toxicology laboratory, in-house histology for preparation of microscopic slides, and specimen handling in collaboration with outside labs for microbiology, serology, and other special testing.

Admitting – Case Information Specialists (CISs) admit and release bodies from the facility, perform data entry and validation for the case management database and electronic Death Certificates.

Administration and Administration Support – Provide business support, reception, scheduling, records management, transcription services, and data entry and validation for the electronic Death Certificate.

Organizational Chart



Jurisdiction of the Medical Examiner

Not all deaths that occur in Maricopa County require reporting to the Medical Examiner. The majority of natural deaths are certified by the individual's healthcare provider. Arizona Revised Statutes (A.R.S.) require deaths falling under certain circumstances to be reported to the Office of the Medical Examiner (OME) by any individual knowing of the death. Upon a report of death, Medicolegal Death Investigators (MDIs) will make an initial inquiry to determine if the circumstances meet statutory requirements. If so, OME takes jurisdiction of the medical death investigation and responsibility for certifying the cause of death and manner of death on the Death Certificate. Cases in which jurisdiction is declined are released to healthcare providers to medically certify the death.

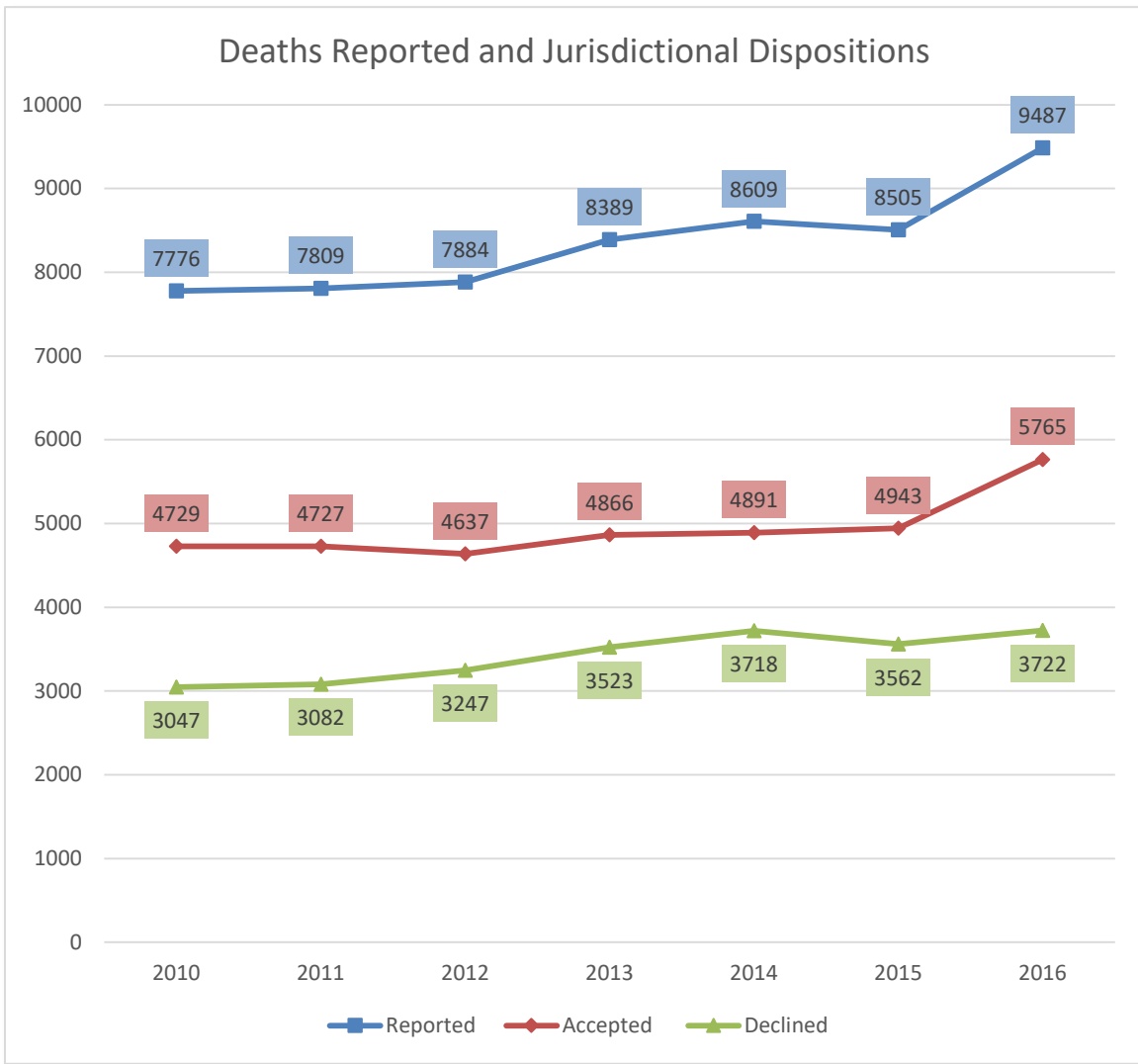
The circumstances under which death have to be reported were revised in 2016 to better align with national standards in forensic pathology. The circumstances are found in A.R.S. §11-593. B.:

1. Death when not under the current care of a health care provider as defined pursuant to section 36-301.
2. Death resulting from violence.
3. Unexpected or unexplained death.
4. Death of a person in a custodial agency as defined in section 13-4401.
5. Unexpected or unexplained death of an infant or child.
6. Death occurring in a suspicious, unusual or nonnatural manner, including death from an accident believed to be related to the deceased person's occupation or employment.
7. Death occurring as a result of anesthetic or surgical procedures.
8. Death suspected to be caused by a previously unreported or undiagnosed disease that constitutes a threat to public safety.
9. Death involving unidentifiable bodies.

Deaths Reported and Jurisdictional Dispositions

In 2016, 9,487 deaths were reported to OME. Of these, 5,765 (61%) met statutory jurisdictional criteria and were accepted as jurisdictional cases. In the remaining 3,722 deaths, jurisdiction was declined and the death certificate was medically certified by one of the individual’s healthcare providers.

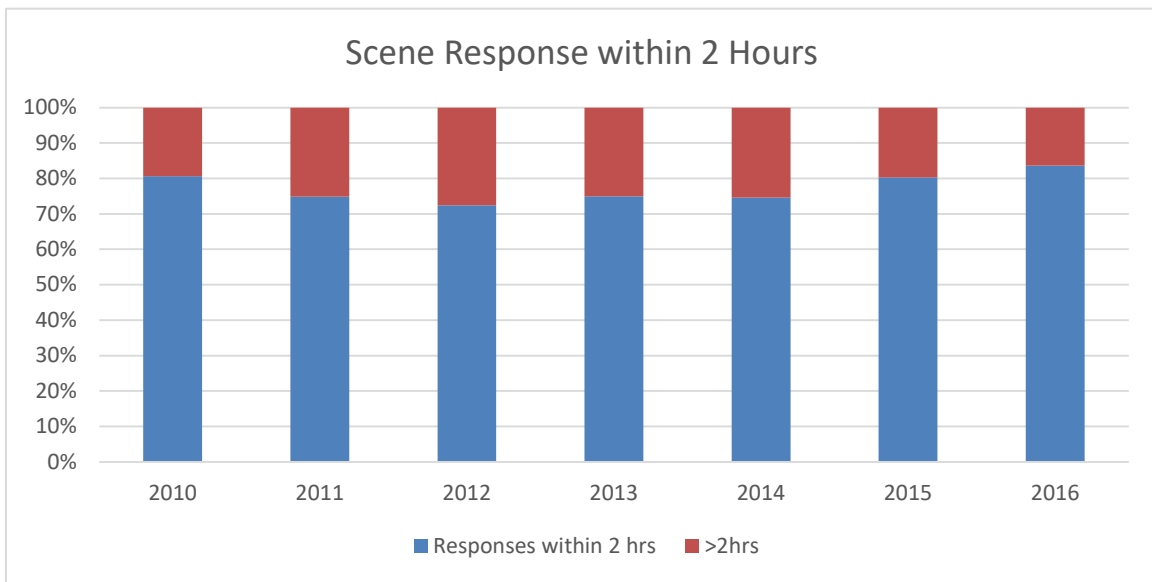
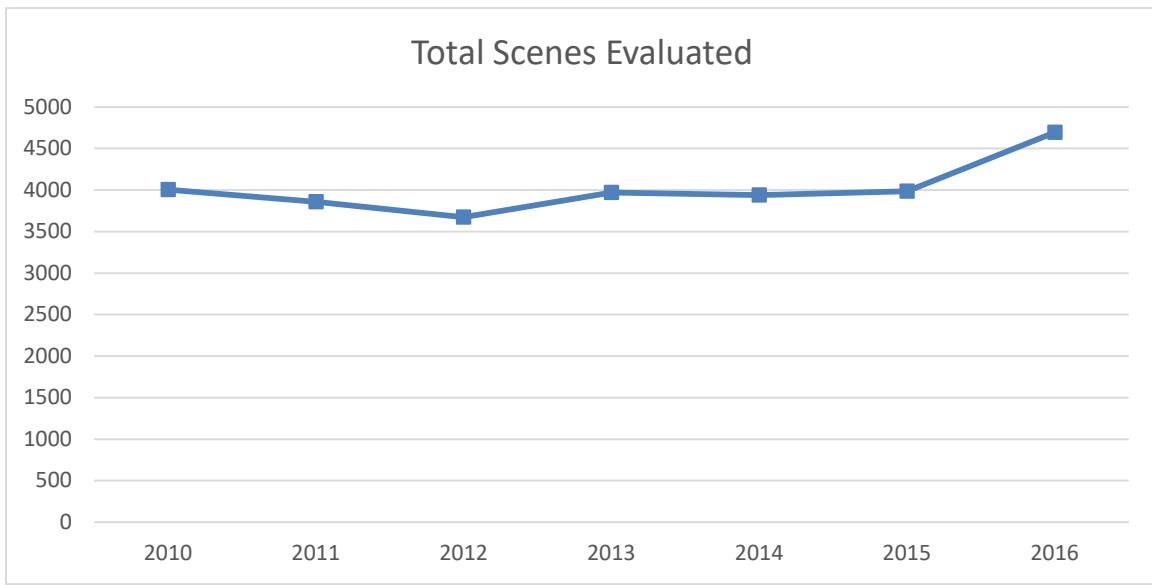
Typically, the number of jurisdictional cases grows by approximately 1% annually; however, in 2016, the jurisdictional caseload grew by 17%. This growth appears to have been multifactorial between an increase in population in Maricopa County and a larger proportion of drug-related deaths.

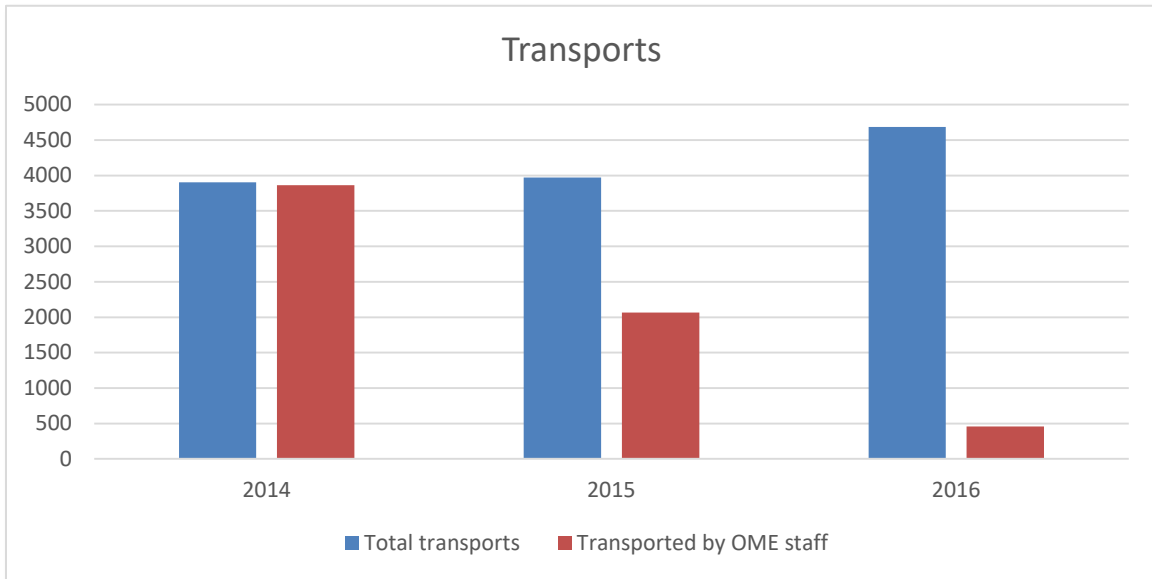


Scene Evaluations and Transportation

In order to accurately investigate a death, MDIs will conduct interviews, collect records, and often evaluate incident and/or death scenes.

In 2016, MDIs responded to 4,695 incident and/or death scenes for evaluation. Though the number of cases requiring scene evaluations grew by 18%, 84% of responses were within 2 hours, the highest percentage over the last 7 years thanks to process improvements and externalizing body transportation services.

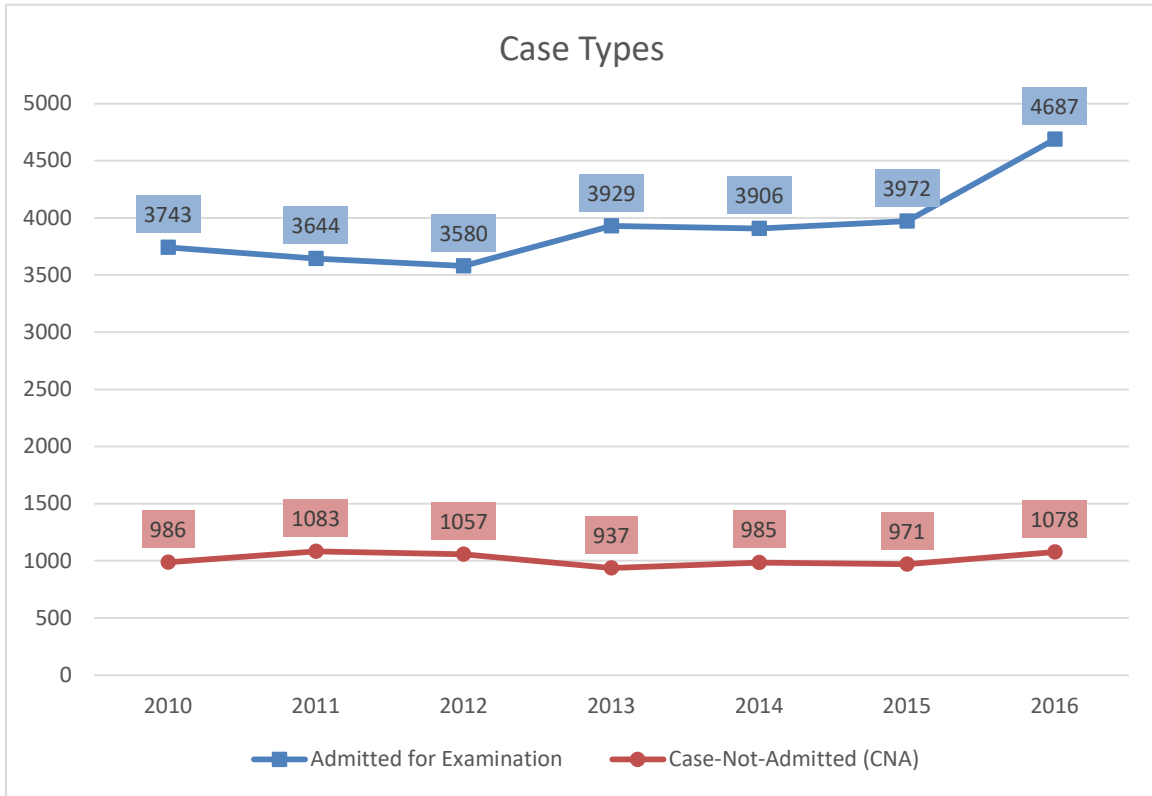




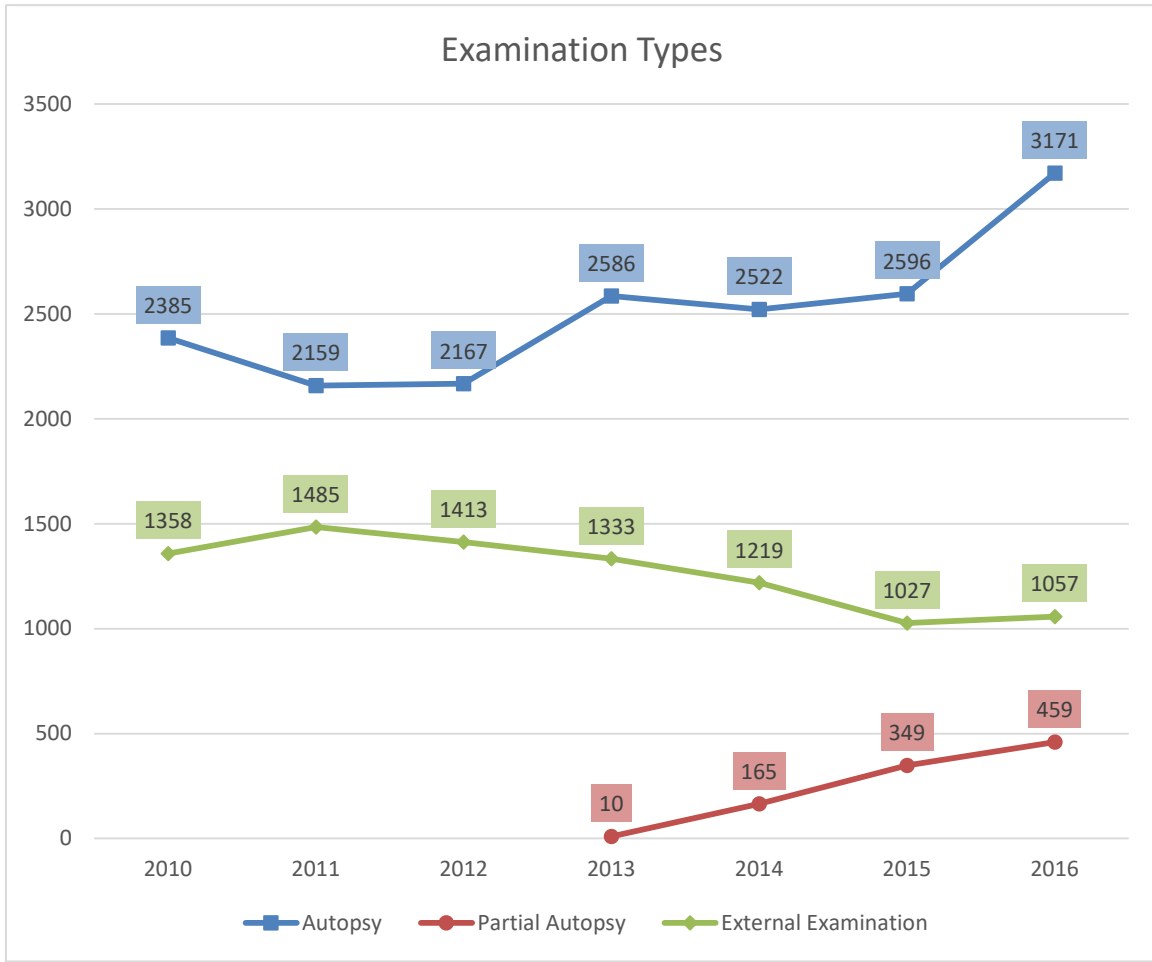
Case and Examination Types

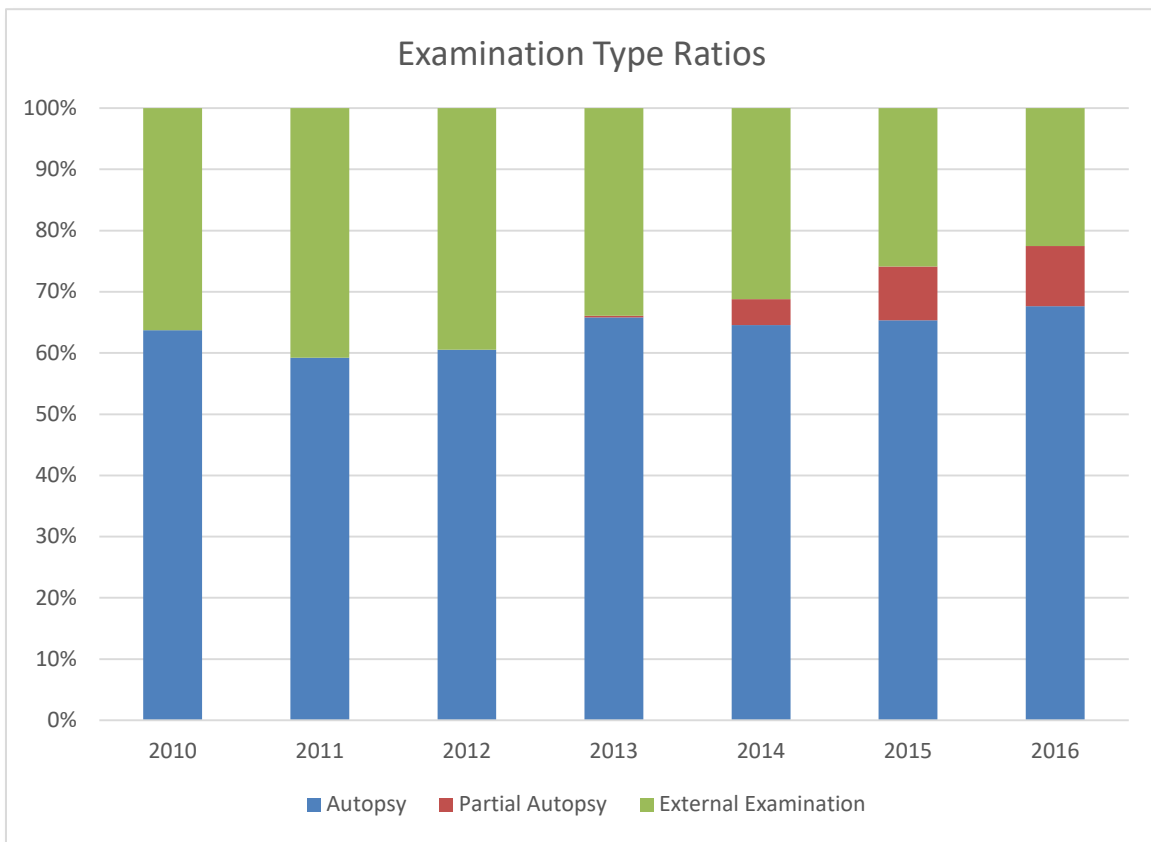
Medicolegal death investigations may involve only studying the history and circumstances surrounding the death or may also include examination of the body by a physician Medical Examiner. Those bodies that are admitted to the OME’s facility may undergo various types of examination depending on the needs of the investigation. The most common examination is a forensic autopsy which involves examining the external surfaces of the body and a detailed examination of the internal organs and tissues of the head, neck, and torso. Partial autopsies are typically those that limit the internal examination to the head. External examinations involve only examination of the external surfaces. In cases where examination of the body is unnecessary, the Medical Examiner will formulate conclusions based on a review of the records. These are designated Cases Not Admitted (CNAs).

In 2016, 4,687 bodies were admitted for postmortem examination and 1,078 cases were concluded through only record review (CNAs).



The types of postmortem examination and trends are summarized below. Note that OME’s database did not capture partial autopsies until sometime in 2013 and prior years’ autopsy counts include some unknown proportion of partial autopsies.

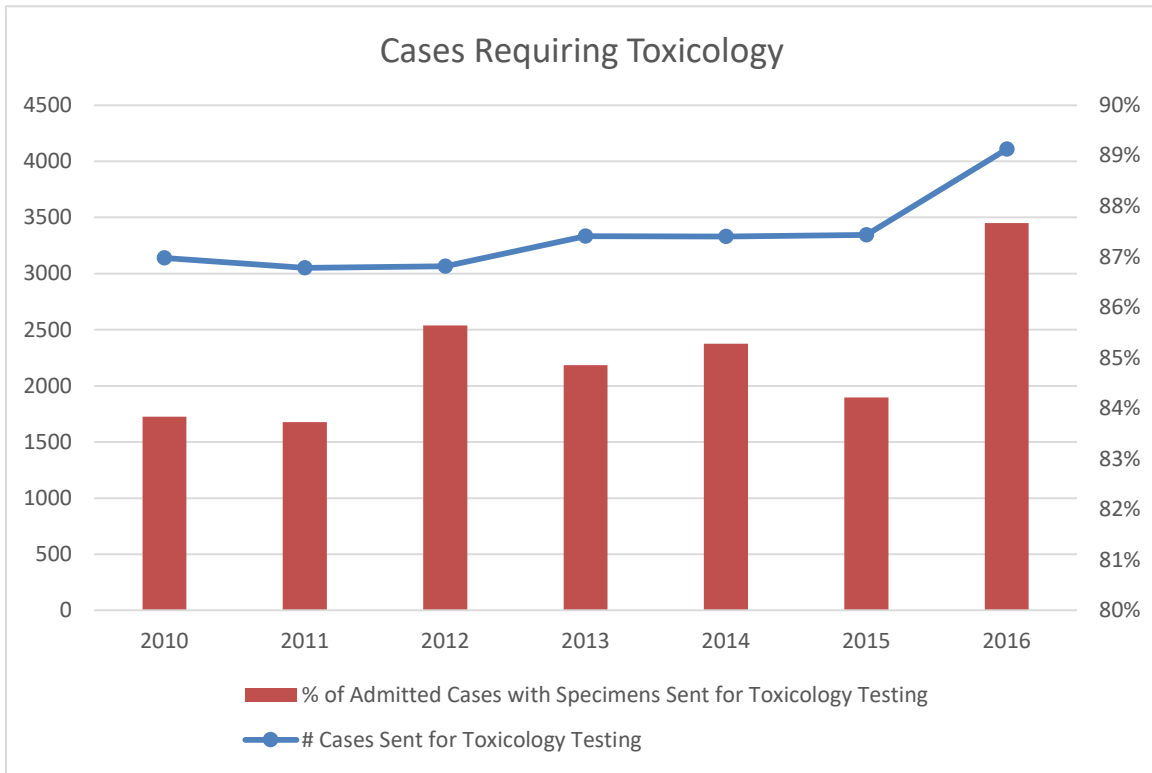




Toxicology Laboratory Testing

After the examination of the body, the Medical Examiner may order laboratory testing to aid in determining the cause of death or to answer anticipated questions surrounding the death. The most common laboratory test in medicolegal death investigations is toxicology -- testing for drugs and poisons. Forensic Toxicology, unlike most toxicology testing in the healthcare setting, extends beyond screening for the presence of drugs, adding confirmation and quantification of the drugs. Additionally, special care is required as samples taken after death are prone to issues that can confound the accurate interpretation of the toxicology results.

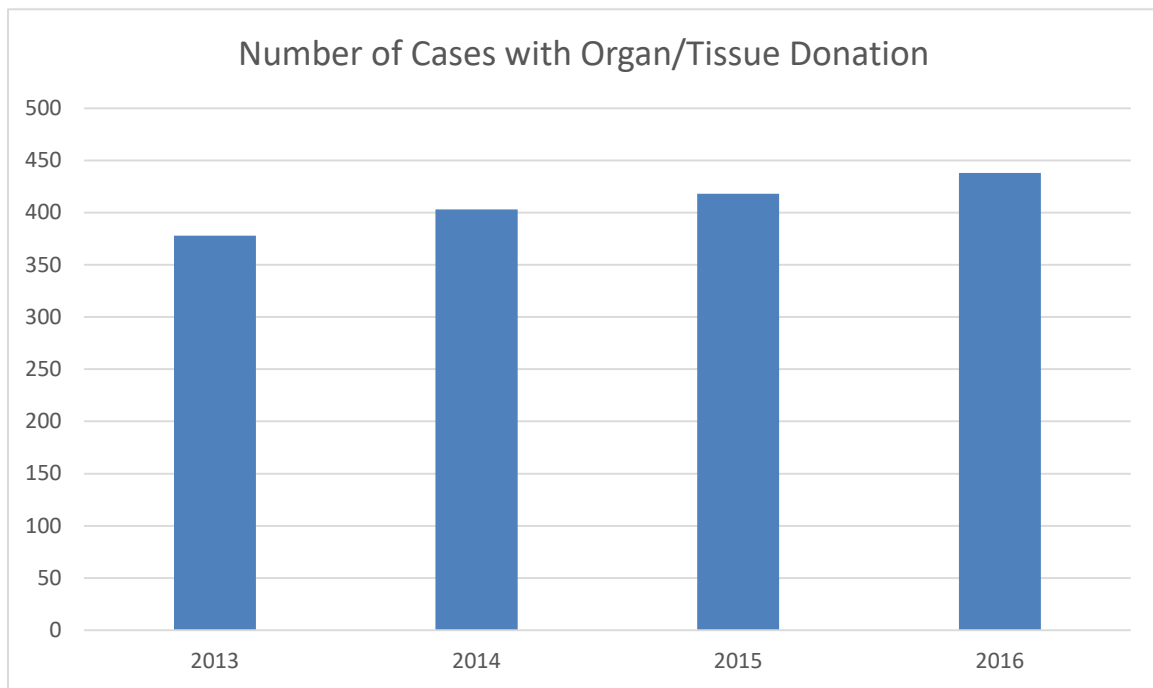
In 2016, 88% of cases undergoing postmortem examination had specimens submitted for toxicology testing.



Organ/Tissue Donation

In medical examiner cases where the deceased or his/her family wish to make an anatomical gift of organ or tissue donation, OME is required to review and authorize those requests, balancing the requirements of the medicolegal death investigation with the life-saving and life-enhancing opportunities that such donations provide.

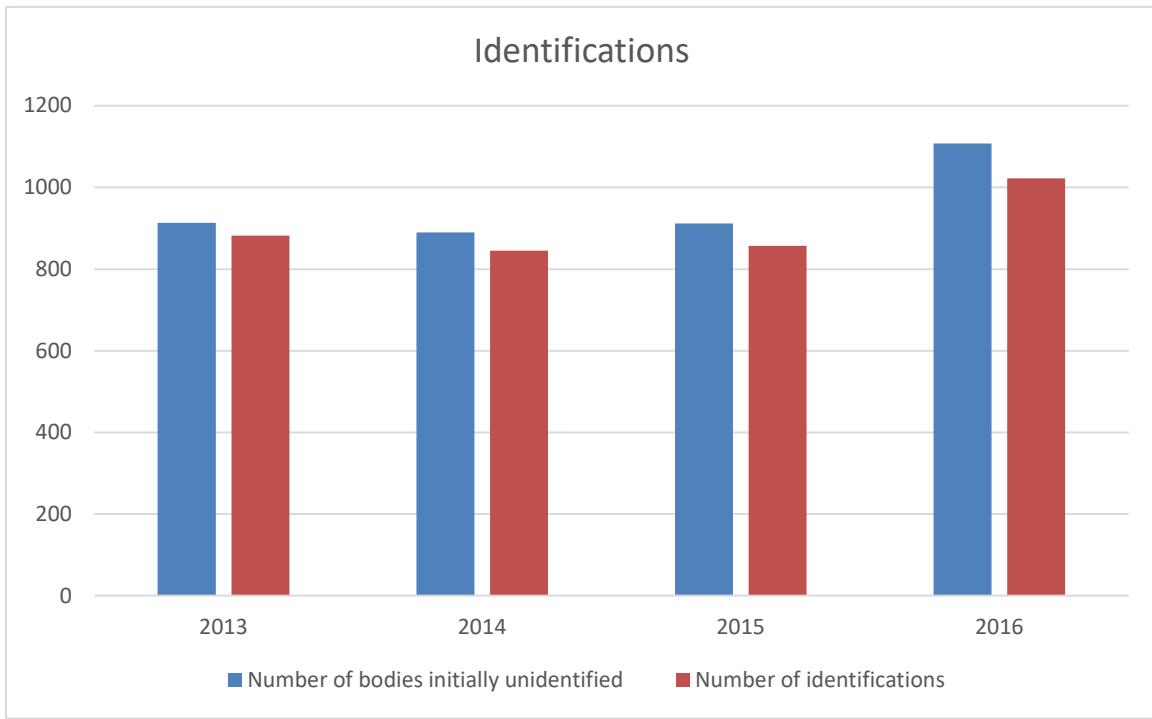
In 2016, 418 medical examiner cases had organ and/or tissue donations. This helped save the lives of 385 people through organ transplants and improve the quality of life for hundreds of others through cornea and tissue transplants.



Unidentified Remains

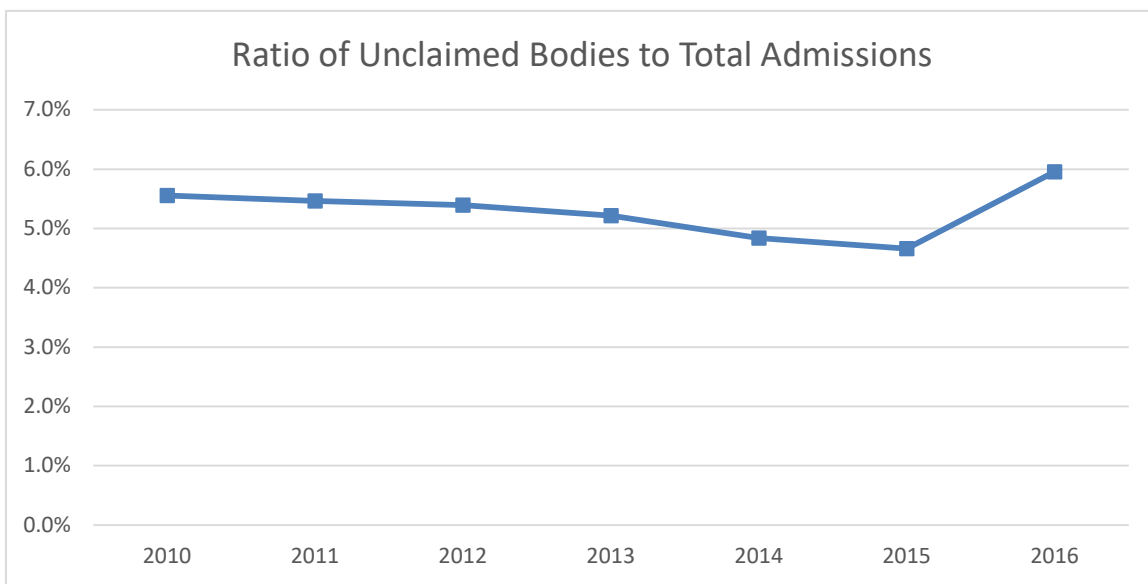
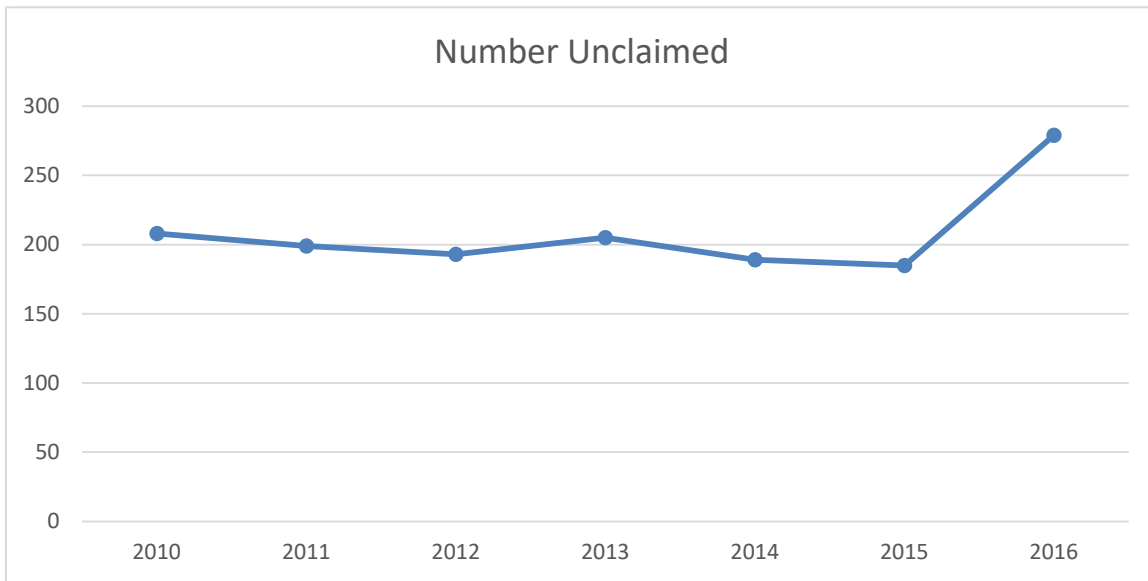
Determining identity of the remains is one of the first steps in a medicolegal death investigation. A variety of methods are used at OME to research and confirm a decedent’s identity. If the identification is in question at the time the body is admitted, a specialized team including a Senior MDI Identification Coordinator, Forensic Odontologist, Forensic Anthropologist, Forensic Technicians with advanced fingerprinting training, and the assigned Medical Examiner work together to verify the identity of the remains.

In 2016, 1,108 cases were admitted as unidentified and 1,022 cases were positively identified. Most identifications are resolved within days to weeks; however, in some cases no identification leads can be found and cases must be submitted to national missing persons databases such as The National Missing and Unidentified Persons System (NAMUS).



Unclaimed Bodies

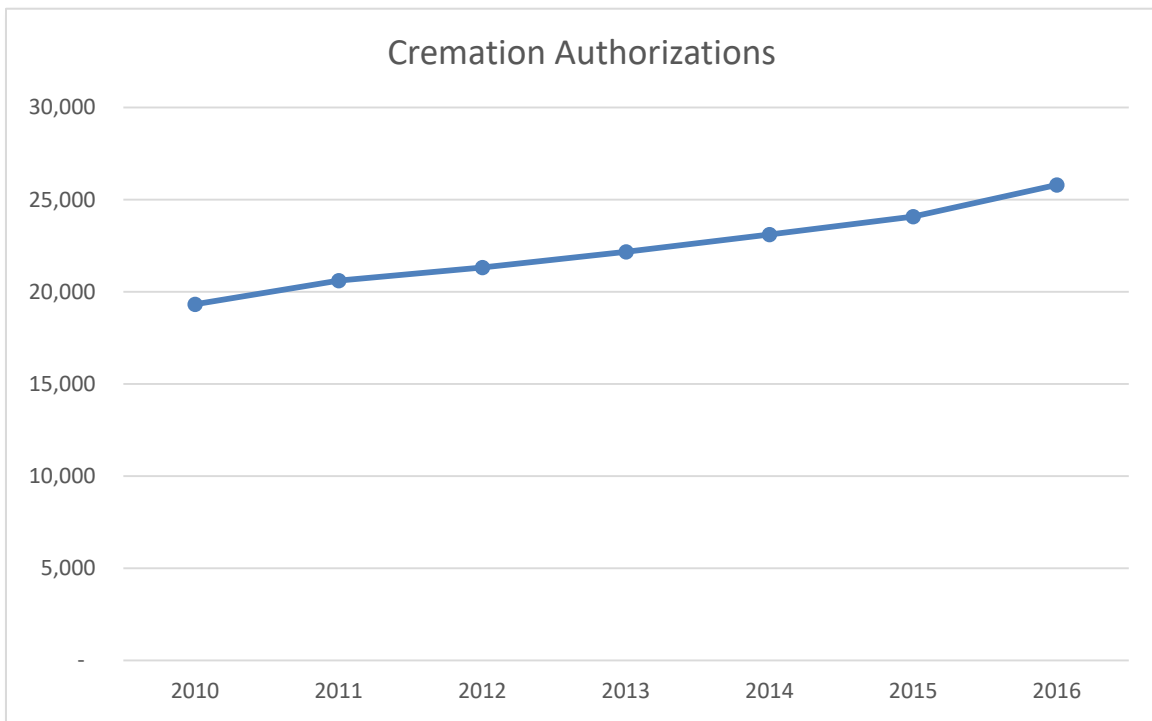
Each year, bodies may go unclaimed. The OME works with area Funeral Home partners to rotate release of those remains for final disposition in collaboration with Maricopa County Public Fiduciary.



Cremation Authorizations

In cases where the deceased or his/her family selects cremation of the remains, Arizona statute requires the death certificate be reviewed by the county medical examiner’s office. This aids in capturing medical examiner cases that may have inadvertently not been reported to the office. Each day, a physician Medical Examiner reviews the death certificates requiring cremation authorization and approves those that do not represent previously unreported medical examiner cases. Case counts of cremation approvals also include the medical examiner jurisdictional cases which all receive cremation pre-approval at the time the medical certification is completed.

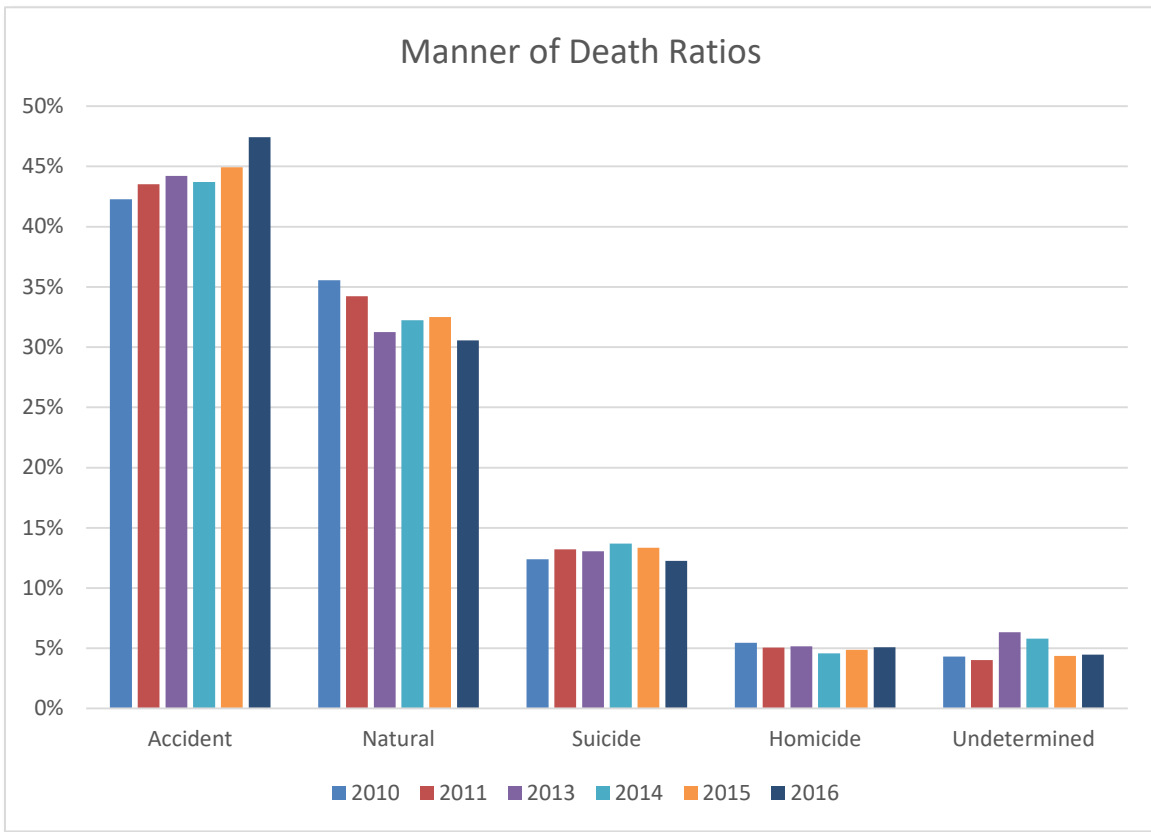
In 2016, OME authorized 25,801 cremation requests.



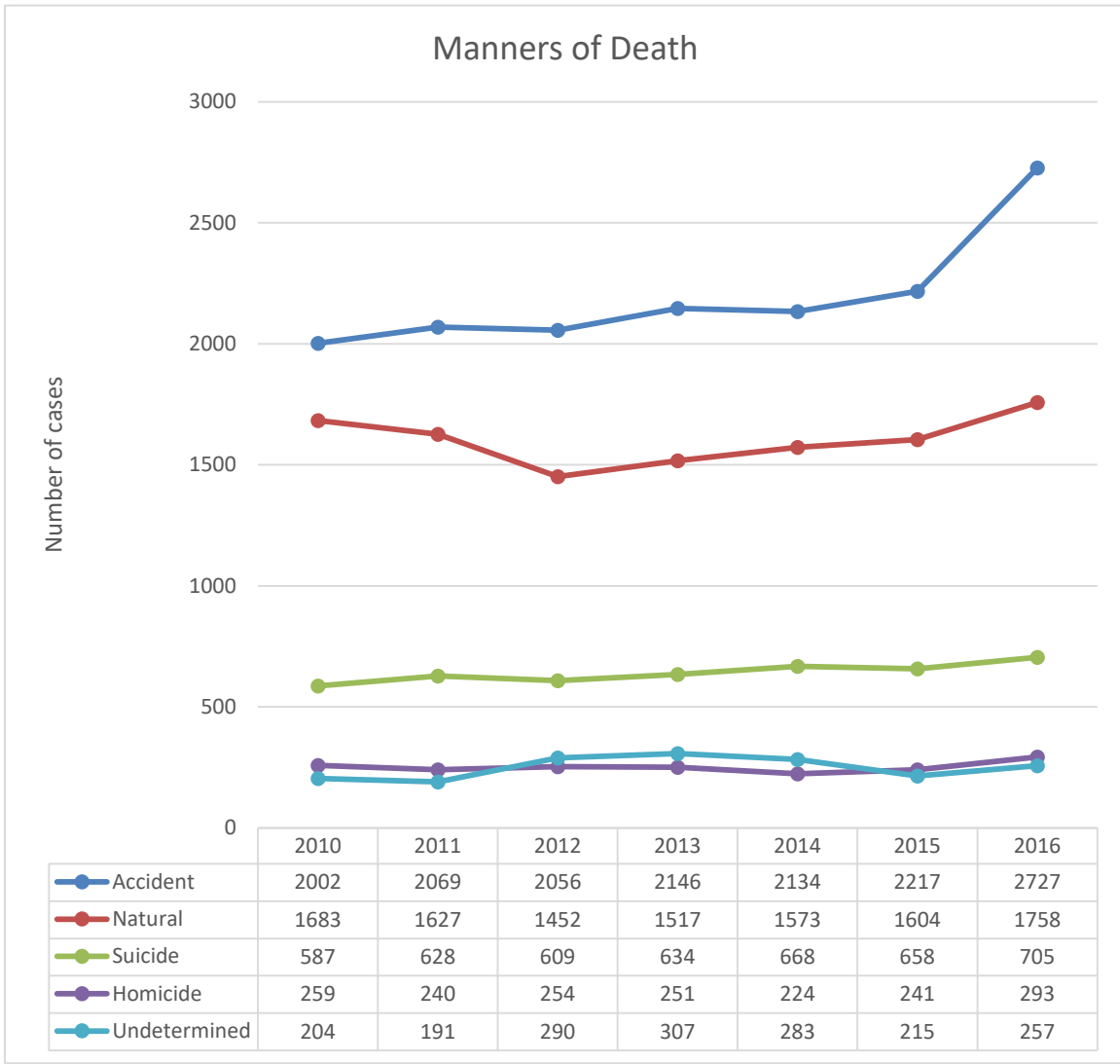
Manners of Death

At the conclusion of the medicolegal death investigation, the Medical Examiner will document her/his findings and conclusions in a Medical Examiner Report. The report includes the Cause of Death (COD) and Manner of Death (MOD) listed in the medical certification of death lines on the Death Certificate. Both the Cause of Death and Manner of Death are bound by certain rules so that vital statisticians can code the cause and compile accurate statistics about deaths. The Cause of Death is ultimately the underlying disease, injury, or combinations thereof that lead to death.

The Manner of Death is a vital statistical classification to group certain circumstances of death. The choices for Manner of Death are Homicide, Suicide, Accident, Natural, and Undetermined. These Manner of Death determinations are medical determinations and are not to be confused with similar legal terms used by the judicial system; for example, a Homicide Manner of Death in a medical certification simply means death at the hands of another individual with some reasonably inferable intent to do harm; this type of death may or may not be categorized as murder by criminal justice officials.

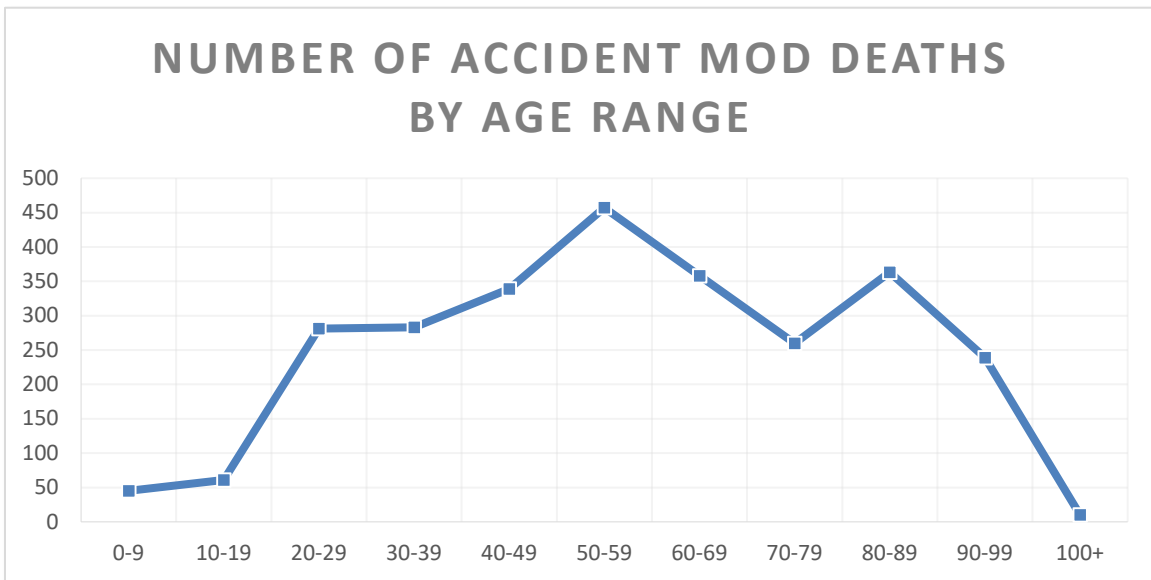
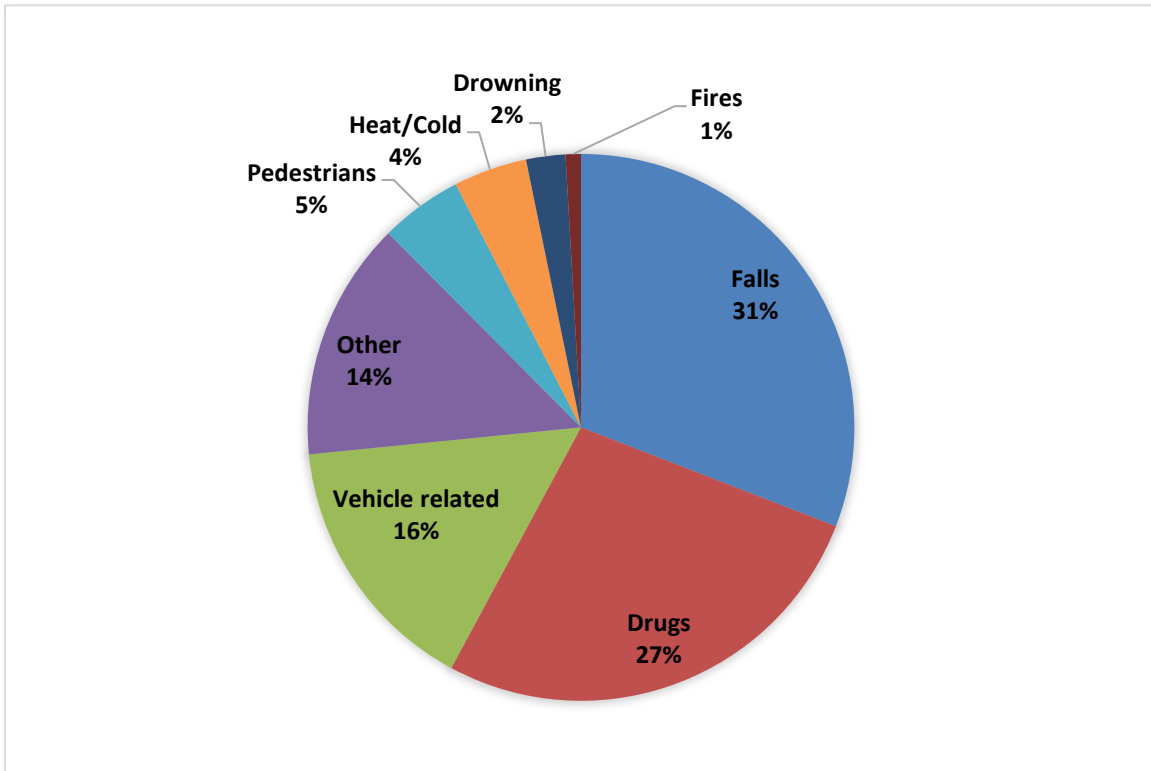


On average, for years 2010-2015, accidental deaths made up 44% of all jurisdictional cases. In 2016, that proportion rose precipitously to 47.4%; the majority of these additional cases appear to be drug-related deaths (see drug-related death section below).



Manner of Death: Accident

In 2016, the most common Manner of Death was accident with 2,727 deaths (47% of all ME cases). The majority were fall-related. The next largest category of accidental death was drug-related, followed by vehicle-related (car, motorcycle, and other vehicle crashes).



Manner of Death: Natural

Natural deaths are generally certified by community health care providers and are not required to be reported to the Medical Examiner; however, individuals without health care providers or deaths under certain circumstances (e.g. unidentifiable remains) are investigated and certified by OME.

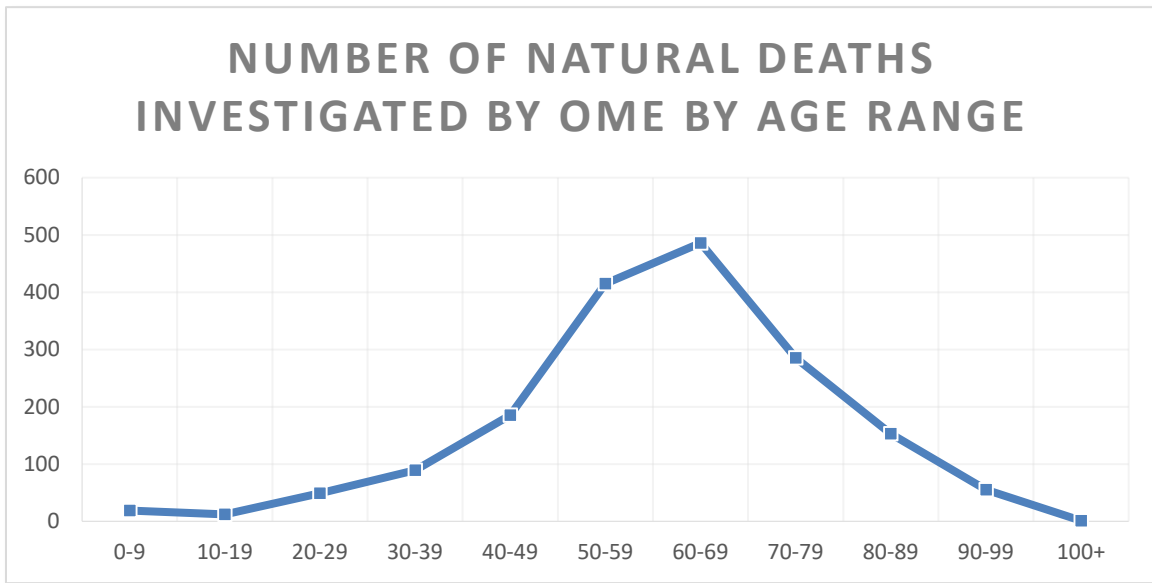
Natural was the second most common manner of death in 2016 (1,758 deaths). The Maricopa County Department of Public Health and Arizona Department of Health Services track health statistics that include collaborations with OME.

See the Maricopa County Department of Public Health website:

<http://www.maricopa.gov/2528/Health-Data>

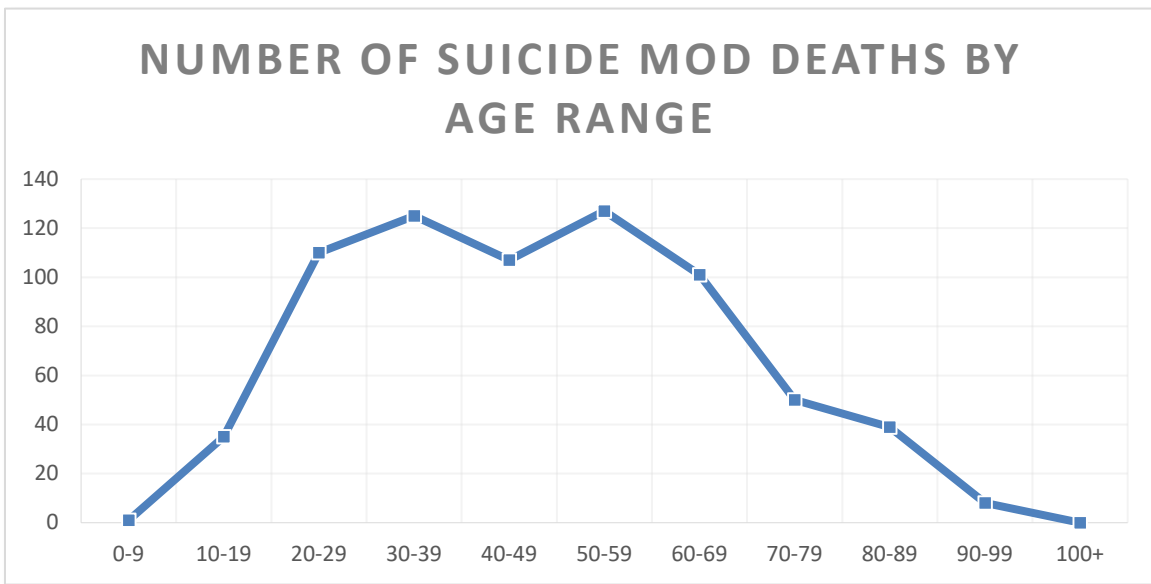
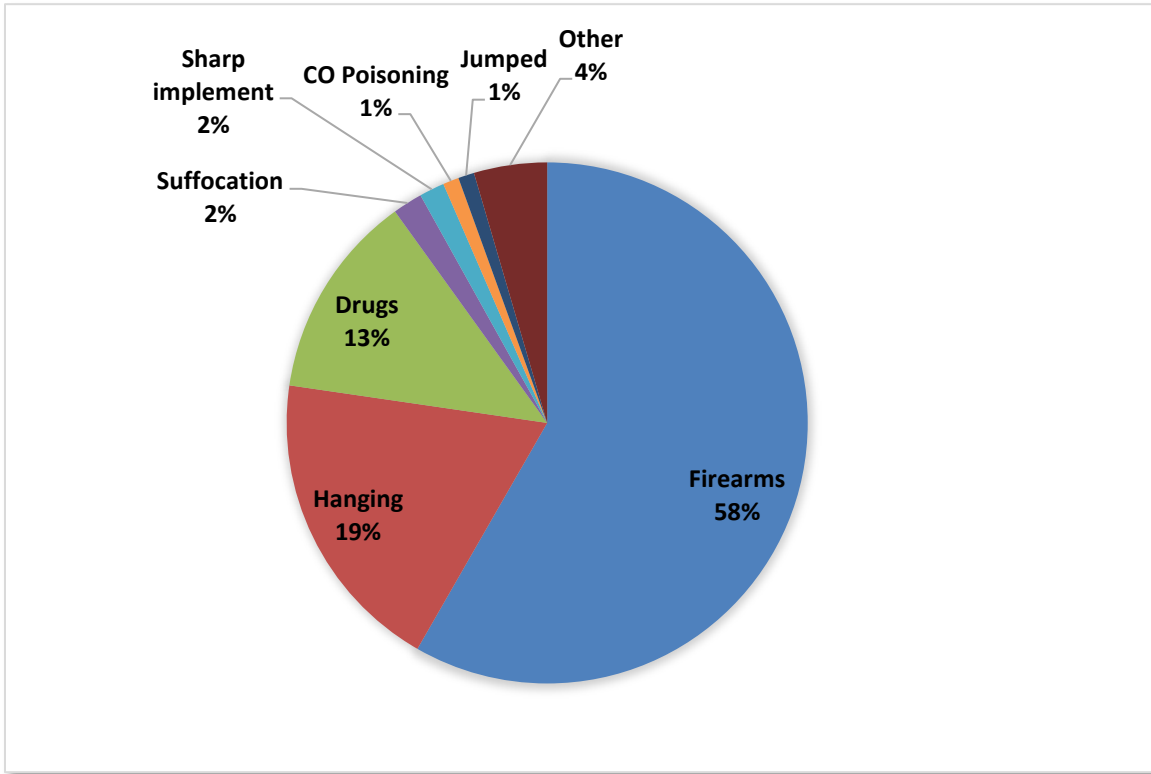
And the Arizona Department of Health Services website for details:

<http://pub.azdhs.gov/health-stats/index.php>



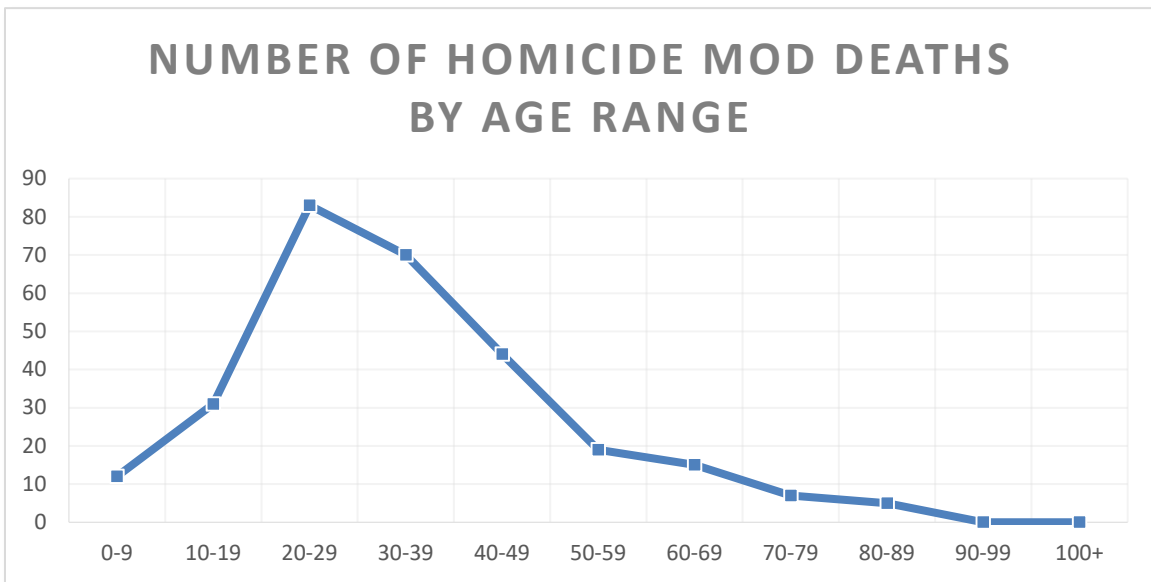
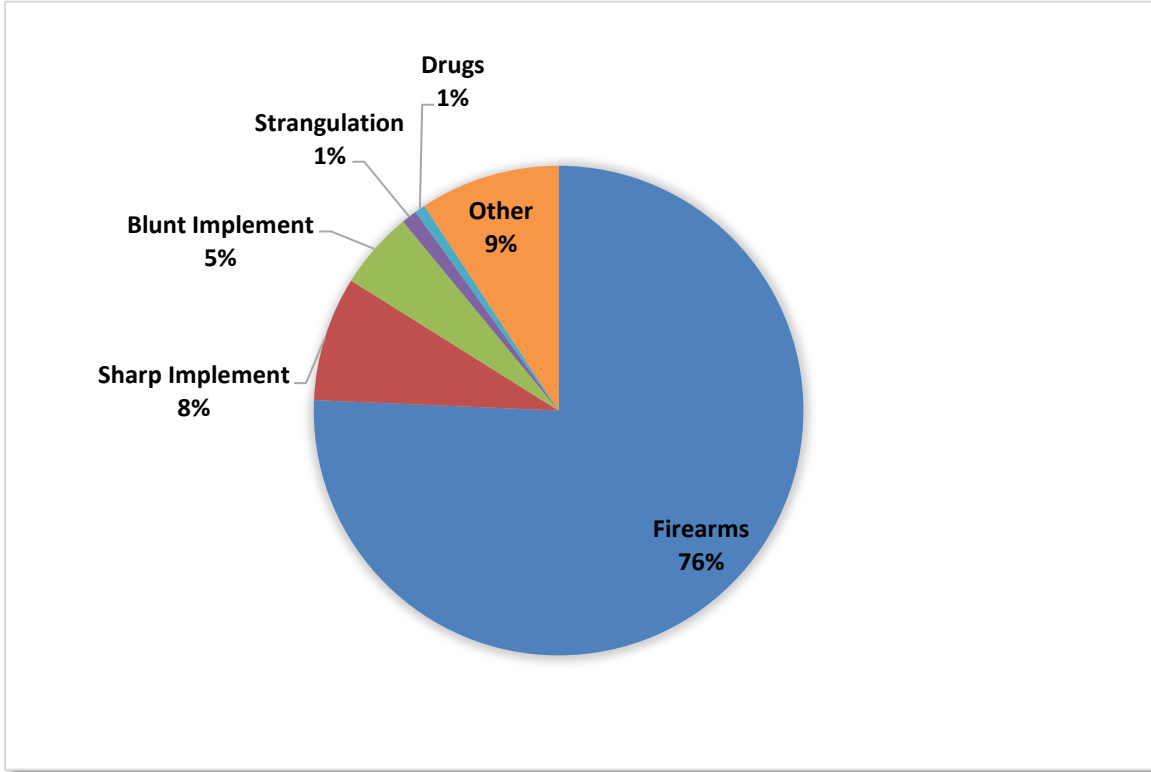
Manner of Death: Suicide

In 2016, 705 deaths were categorized as suicides. The majority were carried out with firearms.



Manner of Death: Homicide

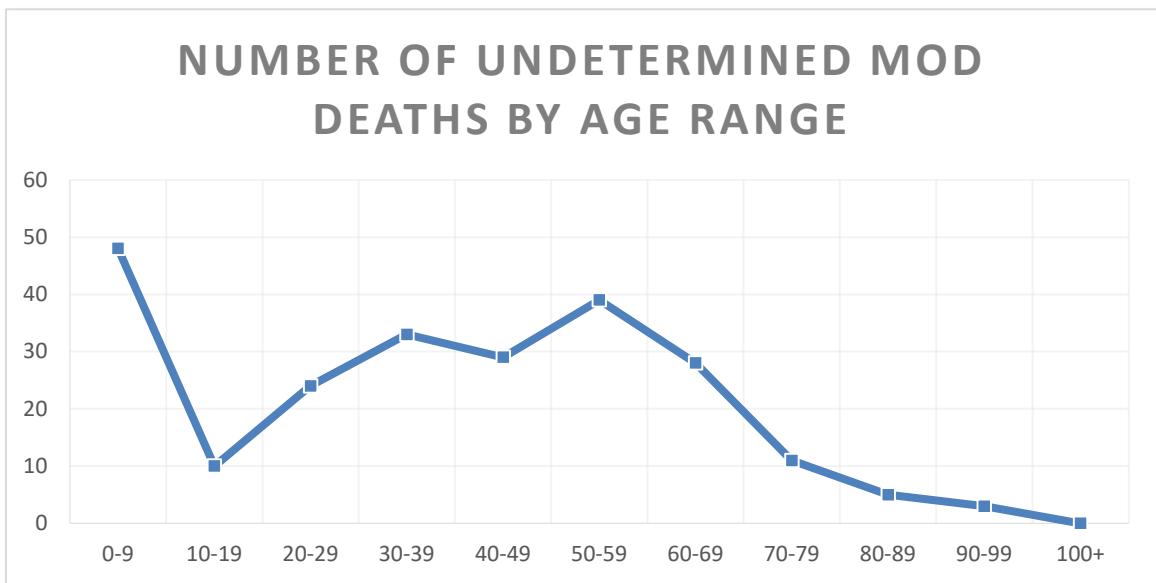
There were 293 deaths classified as Homicides in 2016. The vast majority of Homicides were by gunshot wounds.



Manner of Death: Undetermined

In some cases, a clear manner of death cannot be determined. This is typically due to a lack of available information (e.g. a drug intoxication death in an individual with past suicidal threats may be an accident or a suicide and there may not be enough information to arrive at a clear conclusion).

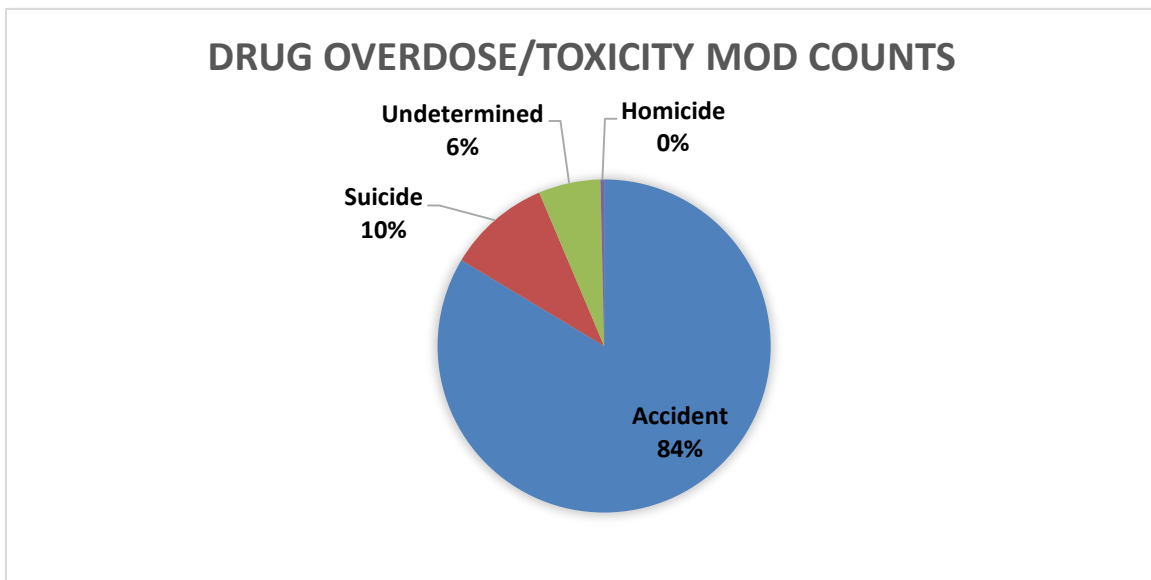
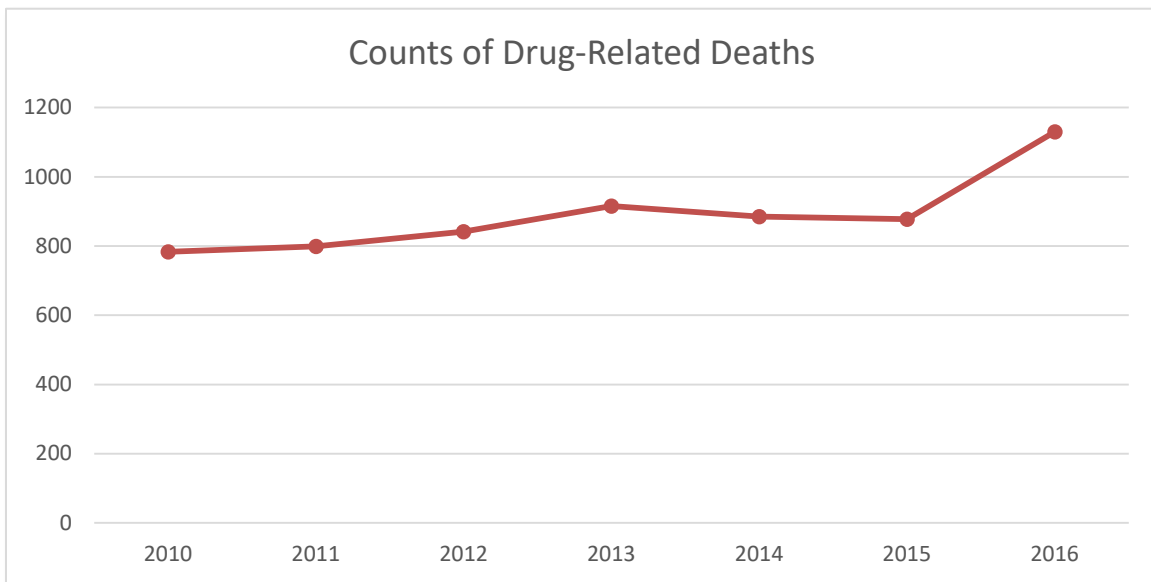
In 2016, two age groups had the most undetermined manners of death, 0-9 years and 50-59 years. The 50-59 year olds were predominantly drug-related deaths. In the 0-9 year-old age group (48 deaths), infants were most commonly represented; this is typical, as many infant deaths have no circumstantial, anatomic, laboratory, or scene findings to explain their deaths.



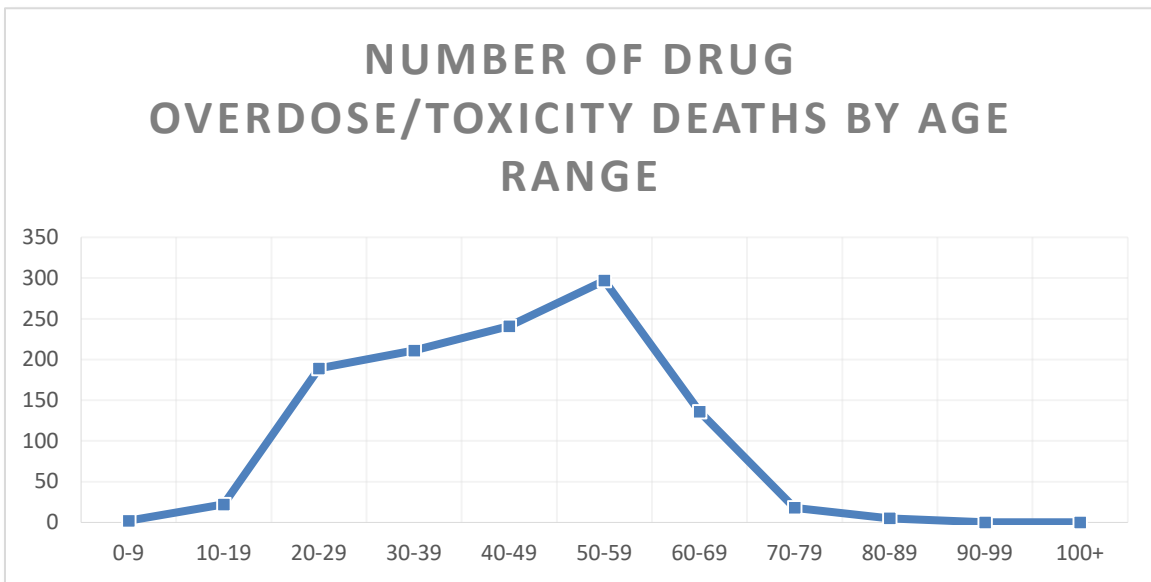
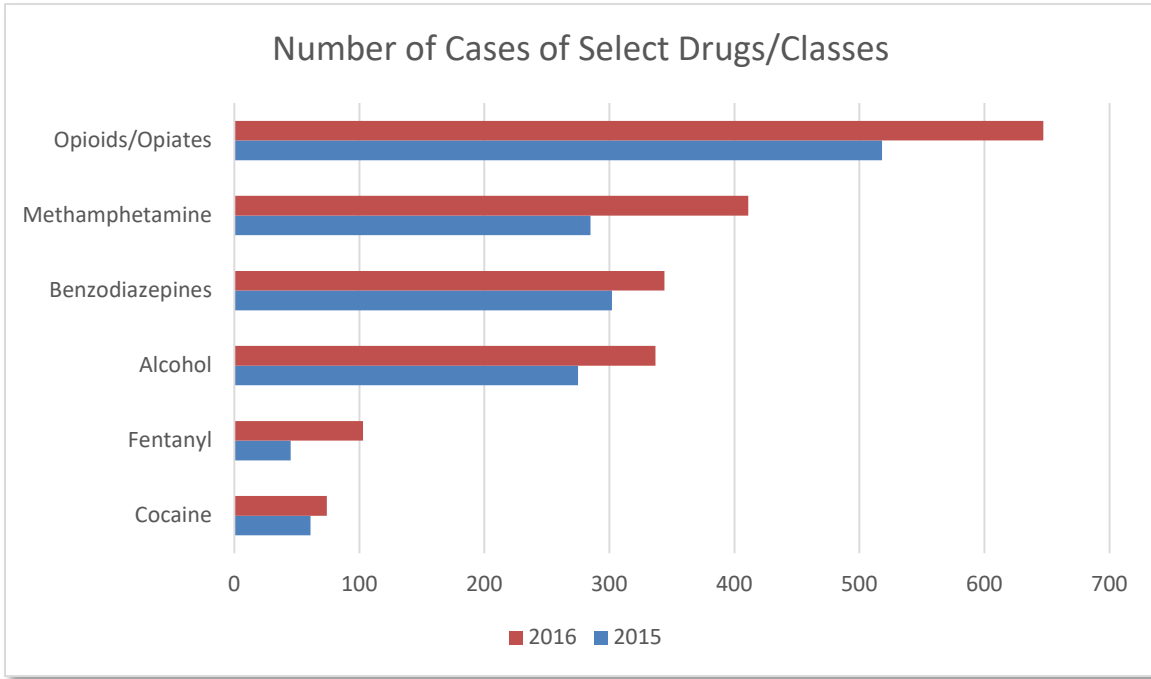
Drug Overdoses/Toxicity Deaths

Deaths are classified as drug overdose/toxicity deaths when they are caused directly by the acute effects of drugs or the acute effects of drugs directly contribute to the death; this excludes indirect effects of drugs (for example, an intoxicated driver who dies of traumatic injuries typically would not be classified as a drug toxicity death even though the intoxication indirectly contributed to the death) and chronic effects (for example, a long-term heavy user of alcohol who dies of alcoholic liver cirrhosis).

In 2016, there were 1,130 such drug overdoses; this was a 28.7% increase from the year prior. On average, the annual growth rate for years 2010-2015 was 2.4%. The vast majority of cases were unintentional (Accidental Manner of Death).



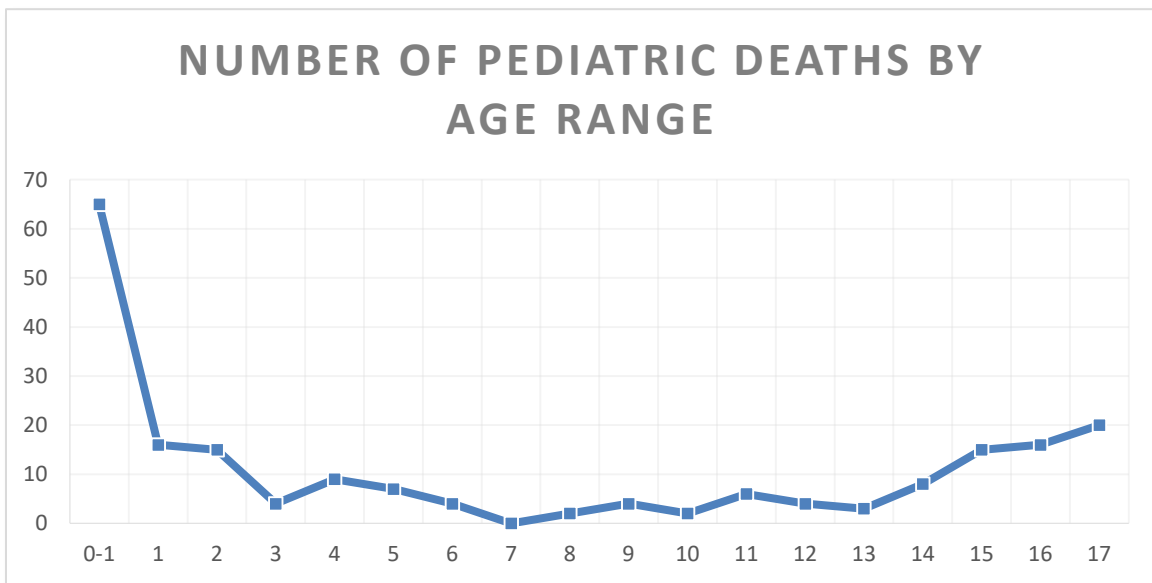
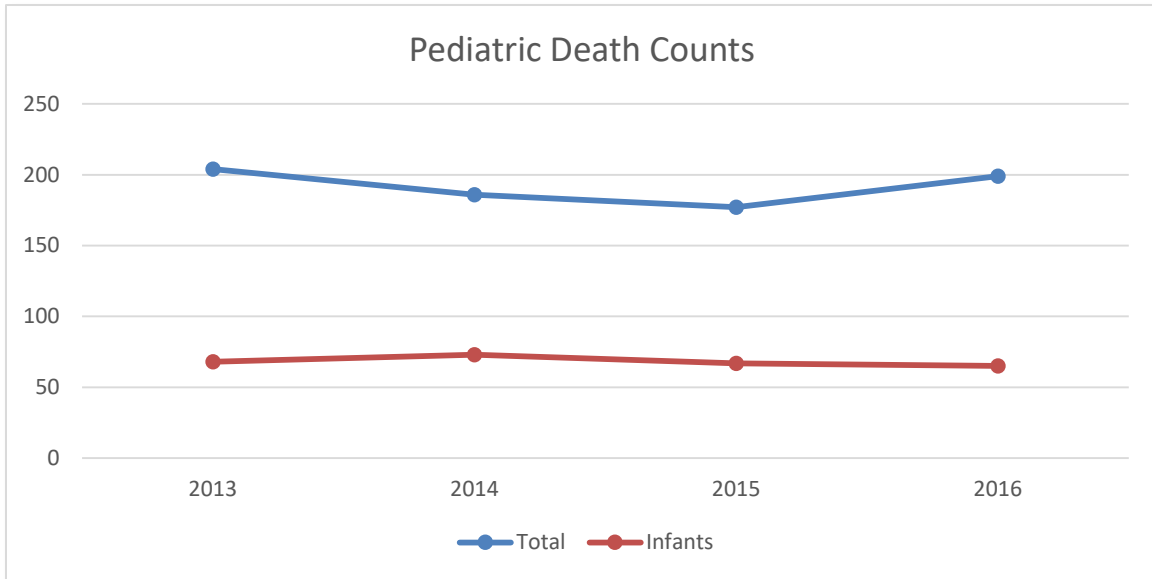
In most cases, deaths involved multiple drugs simultaneously. Below are case counts of major classes or specific drugs that were involved in deaths in 2016 – note: A single death may be counted in multiple drug classes if multiple drugs were involved. The number of fentanyl cases doubled in 2016 and 3 deaths were linked to fentanyl analogs.



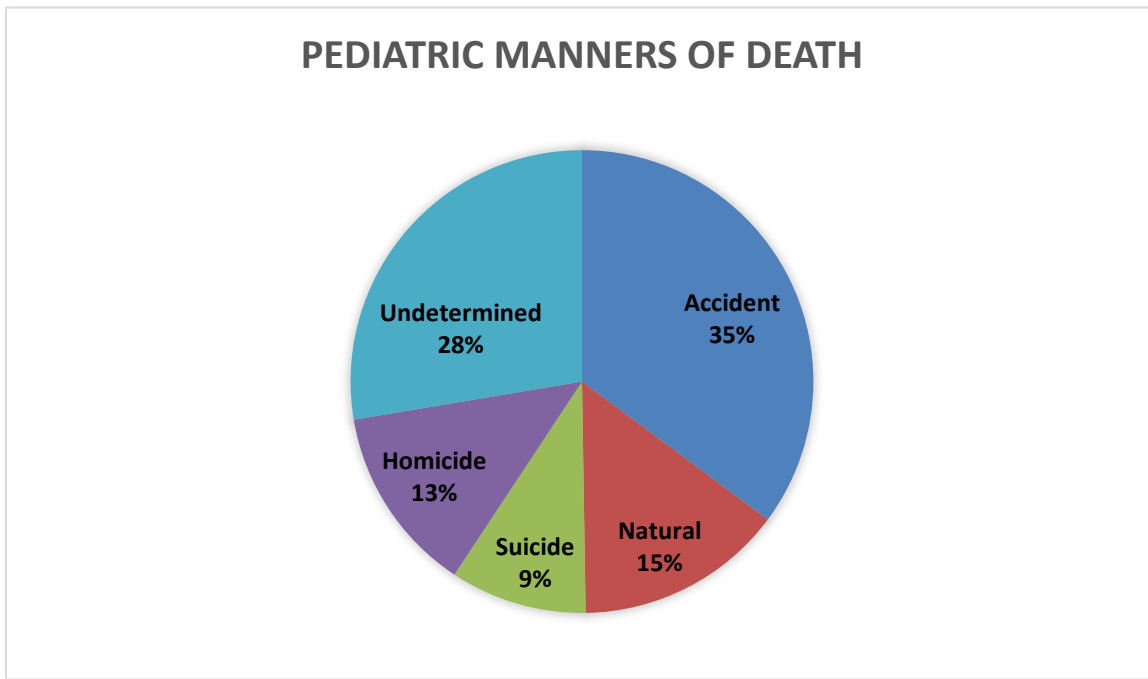
Pediatric Deaths

Deaths in childhood are uniquely tragic to our community. All pediatric deaths are reported to the Arizona Child Fatality Review Team for review, collation, and recommendations for future prevention efforts.

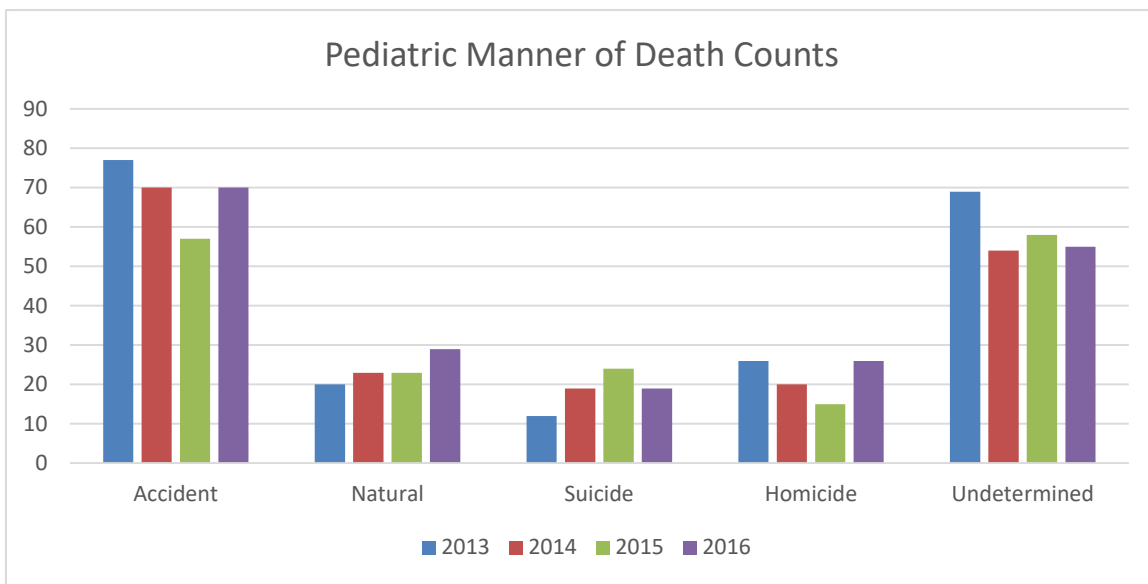
In 2016, OME investigated the deaths of 199 children (under the age of 18 years) including 65 infants (children under the age of 1 year).



Manner of death ratios in 2016:

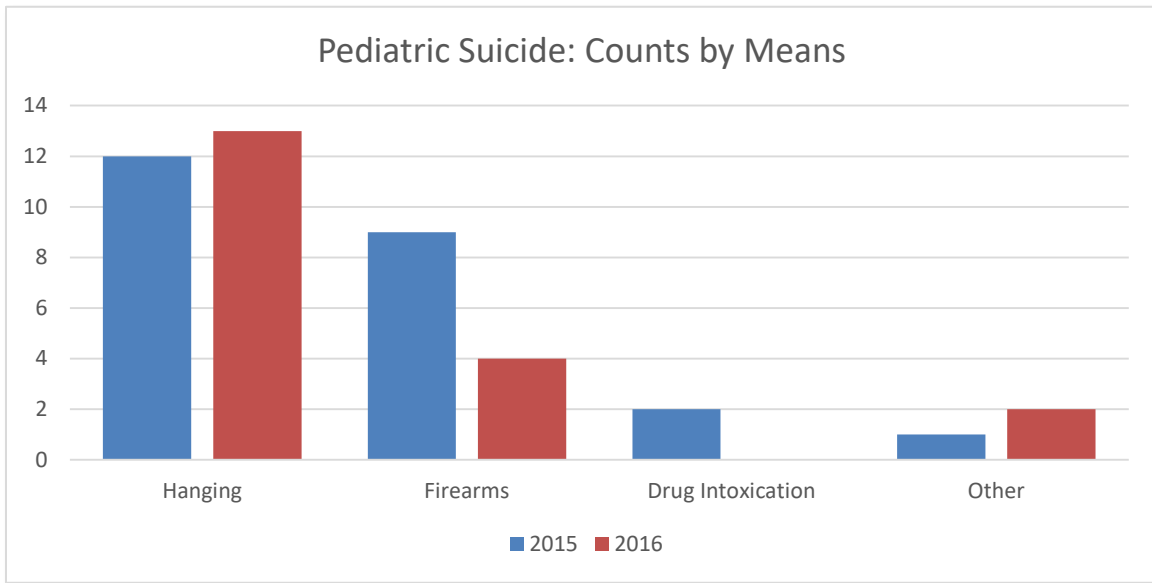


Manner of death trends for years 2013-2016:



Suicide:

In 2016, 19 children died from suicide ages 9-17 years, 7 girls and 12 boys; this was a reduction from the year prior (24 deaths). The two most frequent means were hanging and use of a firearm:



Infant Deaths:

In 2016, there were 65 deaths in children under the age of 1 year; 36 (55%) were due to or associated with unsafe sleep environments/positioning.

