



MEMORANDUM

Date: March 14, 2013

To: The Honorable Chairman and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

A handwritten signature in black ink, appearing to read "CHH", is written over the printed name "C.H. Huckelberry".

Re: **Pima County Medical Examiner's 2012 Annual Report**

Attached please find the 2012 Annual Report for the Forensic Science Center prepared by Dr. Gregory Hess, Chief Medical Examiner.

As you will see from the report, the number of autopsies increased by 22 percent from 2011 (3,203 cases versus 2,628). Of this increase, 385 cases were in Pima County, and 135 cases were out-of-county.

With the addition of Cochise County on July 1, 2012, the County's FSC now provides autopsy and death investigation services for Pima and 10 other Arizona counties. The evolution of our FSC to a regional forensic services center is a revenue source for the County; however, the current FSC physical plant is not adequate to meet the demands on the facility.

Dr. Hess estimates the number of FSC cases in 2013 will increase to 3,500 to 3,600, and current FSC facilities cannot accept cases beyond this projection. Therefore, I am proposing bond funding for appropriate expanded and/or new facilities for the FSC. It is critical that the FSC has appropriate space and equipment to carry out its mission in a scientific and respectful manner.

CHH/mjk

Attachment

c: Dr. Gregory Hess, Chief Medical Examiner
Nicole Fyffe, Executive Assistant to the County Administrator
Diana Durazo, Special Staff Assistant to the County Administrator

PIMA COUNTY OFFICE OF THE MEDICAL EXAMINER FORENSIC SCIENCE CENTER

2825 East District
Tucson, Arizona 85714



Gregory L. Hess, M.D.
Chief Medical Examiner
Department Director



Phone (520) 243-8600
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March 12, 2013

To: CH Huckleberry
County Administrator

Re: 2012 Annual Report, 2012 highlights and looking ahead at 2013

2012 Annual Report

Attached is the 2012 Annual Report for the Pima County Forensic Science Center (FSC). This is the third calendar year in which I have produced a report detailing some of the activities of the office and the number and types of deaths examined at the FSC. This year's report is the same length as 2011 although the unclaimed decedents portion of the report from previous years was eliminated as many of the storage issues involved with migrant remains have resolved due to a combination of public fiduciary assistance and storage fees adopted via Pima County Ordinance No. 2011-84.

As expected, the number of autopsies performed on out-of-county deaths increased by 100 in 2012 in comparison to 2011 (223 increase from 2010 – 2012) with the addition of one-half a year of Cochise County case work. The total number of all cases in 2012 (3,203) increased significantly from 2011 (2,628). This increase was due to a combination of an increase in Pima County cases, from 2,138 in 2011 to 2,523 in 2012, and out-of-county cases, 482 in 2011 to 617 in 2012.

2012 Highlights

In January 2012, the FSC began referring all deaths reported to the office to Donor Network of Arizona (DNA) for their consideration concerning organ or tissue donation and DNA began tissue procurement at our facility. As a result of these changes, the FSC was involved in 24 organ donations, 188 cornea transplantations, 16 heart valve transplantations, 29 vascular tissue transplantations and numerous bone and tissue grafts that would otherwise likely not have taken place if the deaths had not been reported to DNA by the FSC.

Secondary to an increased number of cases, both in and out-of-county, the FSC transitioned to a 'multiple table' system in September 2012 which increased our weekly capacity from a maximum of 35 autopsy examinations/week to 55 examinations/week.

This transition required scheduling modifications for the physician staff and the addition of one Pathologist Assistant position, but has not otherwise significantly altered the operational costs for the facility beyond the addition of the Pathologist Assistant FTE.

The storage of decedents, long a serious problem at this facility, has improved with the approval of the Pima County Ordinance No. 2011-84 Forensic Science Fee Schedule in the fall of 2011 and with transition at the helm of the Pima County Public Fiduciary Office, also in 2011. At the end of 2010, 320 remains were in storage at our facility. By the end of December 2011 the remains in storage had decreased to 194. Today, as I author this memo, 121 remains are in storage at the FSC. Clearly this demonstrates significant continued improvement and likely now represents a storage plateau that I do not project will change barring alteration of migration patterns into the United States through the southern Arizona deserts.

We began a Postdoctoral Fellowship in Forensic Anthropology in February 2012, the only position of its kind in the United States. This Fellowship has been an outstanding success with our first fellow completing 115 anthropology examinations and numerous other duties for us in 2012.

2013

Our position as a regional forensic facility to serve Arizona will continue. The FSC assumed the position of Medical Examiner for Cochise County beginning July 1, 2012. I projected (in last year's cover letter) the mantle of Cochise County Medical Examiner to result in an increase of approximately 150 autopsies out of a total of 300-400 projected cases reported to us annually. This projection proved, thus far, true with 76 autopsies and 151 deaths reported over a six month period from Cochise County.

As I discussed in an April 2012 memo (attached), the Forensic Science Center physical plant is inadequate to continue to meet the needs of Pima County and the additional regions of Arizona that we now serve. As previously stated within this 2012 Annual Report cover letter, total cases in 2012 increased by 575 in comparison to 2011 (from 2,628 cases in 2011 to 3,203 cases in 2012). I project the office will reach 3,500-3,600 cases in 2013 and we do not have the capacity to accept cases beyond this projection in our current facility, effectively capping our ability to generate new revenue.

Thank you for your continued support and please contact me with any questions or concerns. A bound copy of the annual report will follow this electronic version in the coming days.

Very Respectfully,



Gregory L. Hess, MD
Chief Medical Examiner

PIMA COUNTY OFFICE OF THE MEDICAL EXAMINER FORENSIC SCIENCE CENTER

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April 27, 2012

To: CH Huckleberry
County Administrator

Re: Forensic Science Center Physical Plant

As we have discussed in recent meetings, the Pima County Forensic Science Center (FSC) has become a regional center providing autopsy and death investigation services for Pima County and 9 additional counties in Arizona. The aging morgue facilities of the FSC physical plant are stretched to overcapacity by the current workload. Additionally, the administrative facilities are inadequate and have been for some time, despite the temporizing modifications to the physical plant designed and implemented between 2001 and 2005. On July 1, 2012, the FSC will begin accepting cases from a 10th additional county, Cochise County, which will increase our workload by an estimated 10-20% annually. Although providing services for outside counties further decreases the FSC's impact to the general fund, it does stress FSC facilities even further.

The norm in offices that deal with sensitive information is to separate the general public from the working environment. FSC personnel meet on-site with families, attorneys, law enforcement, and other interested parties on a regular basis. Additionally, many public groups, including the Child Fatality Review committee, victim witness representatives, various school classes, and those with an interest in border issues, use the FSC administrative building for meetings, seminars and discussions with our pathologists and FSC staff. Currently, any meeting requires admitting the general public into the working environment, creating security and privacy problems for FSC staff members as well as increasing the risk that sensitive information will be seen or heard by those not related to the particular case. Small conference rooms used for consoling and educating families of decedents, meeting with attorneys for deposition and pretrial interviews, discussing cases with law enforcement, and interacting with funeral home staff should be located adjacent to a main lobby, outside of the secure administrative offices, along with restroom facilities and a larger conference space adequate for presentations and larger meetings.

The morgue operations area of the facility is cramped and antiquated. The autopsy suite has capacity for only two examinations at a time; whereas four to six examination

stations are required to efficiently process the work load and to handle multiple-fatality incidents. The anthropology laboratory processes more unidentified skeletal remains on an annual basis than anywhere else in the country. Unfortunately, there is space sufficient to examine only a single set of remains at a time, resulting in an overflow of specimens into the autopsy suite and examination areas. As imaging technology has advanced and become less costly over time, many modern medical examiners offices have incorporated CT scanning in addition to radiographs to document injuries and provide evidentiary and identification information. Several recently renovated offices across the country routinely incorporate CT scanning into their routine work flow. The current FSC radiology suite has only a digital radiograph processor for x-rays, which is outdated and in need of replacement; there is insufficient space for more advanced imaging modalities such as CT scanning.

Refrigerated storage of remains is, as you know, also an issue. Considerable time and expense have gone into storing remains of foreign nationals who have died in the Sonoran desert since 2001. Temporary storage and additional fixed storage are very expensive. Additionally, the life expectancy of our main cooling unit is, unfortunately, near its end, requiring frequent costly and time-consuming repairs. A single larger, modern cooler would be much more cost-effective than our current cooler configuration.

Lastly, the location of the current FSC facility is inconvenient. Frequent, often daily commutes downtown from our office are necessary to testify in court, meet with attorneys, and for many other administrative tasks. Attorneys and law enforcement personnel must travel from downtown to our office for interviews and depositions and to witness autopsies. If a suitable downtown location can be found that satisfies our needs it would result in decreased transportation costs and increased productivity for all parties involved.

In summary, the FSC physical plant is in year 11 of a 10-year renovation plan that began in 2001. Factors unforeseen in 2001 (increase in migrant deaths, development of the FSC into a regional facility through the rapid expansion of out-of-county work) have caused the FSC workload to exceed the capacity of its facilities, necessitating consideration for a new physical plant.

Very Respectfully,

 4/30/12
Gregory Hess, MD
Chief Medical Examiner

**PIMA COUNTY FORENSIC SCIENCE CENTER
OFFICE OF THE MEDICAL EXAMINER**

ANNUAL REPORT 2012



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INTRODUCTION

The Pima County Forensic Science Center (FSC) investigates any death in Pima County that is sudden, violent, unexpected, or in which the cause of death is unknown. In 2012 there were 9,742 deaths in Pima County; of these 2,523 (26%) were reported to the FSC for investigation. This annual report consists of two main sections. The first is an overview of the activities and notable events of the office over the course of the report year. The second is a statistical review of the types of cases processed by the office over the same time period.

OVERVIEW

The FSC was fully accredited by the National Association of Medical Examiner's (NAME) following a two day inspection in October 2011. This accreditation is effective October 24, 2011 through October 24, 2016 and requires annual accreditation verification. NAME accredited offices represent the highest quality of death investigation systems. The FSC has the distinction of being the sole accredited office in Arizona and one of 69 offices across the United States, a distinction for which we are proud.

Reportable Deaths

Arizona statute §11-593 delineates ten circumstances in which a death is reportable to the OME.

1. Death when not under the current care of a physician or nurse practitioner for a potentially fatal illness or when an attending physician or nurse practitioner is unavailable to sign the death certificate.
2. Death resulting from violence.
3. Death occurring suddenly when in apparent good health.
4. Death occurring in a prison.
5. Death of a prisoner.
6. Death occurring in a suspicious, unusual or unnatural manner.
7. Death from disease or accident believed to be related to the deceased's occupation or employment.
8. Death believed to present a public health hazard.
9. Death occurring during, in association with or as a result of anesthetic or surgical procedures.
10. Unidentifiable bodies.

Investigations

Our 11 medical investigators processed 2,523 reports of deaths from Pima County and 680 reports from 10 additional Arizona counties in 2012. Jurisdiction was declined in 809 of these cases. A total of 2,098 decedents were transported to the FSC for examination or storage in 2012.

Examinations

Pima County forensic pathologists and anthropologists performed 1,470 autopsies, 448 external examinations, 296 death certifications, 161 anthropologic examinations and reviewed 5,704 cremations in 2012.

Education, Training and Activities

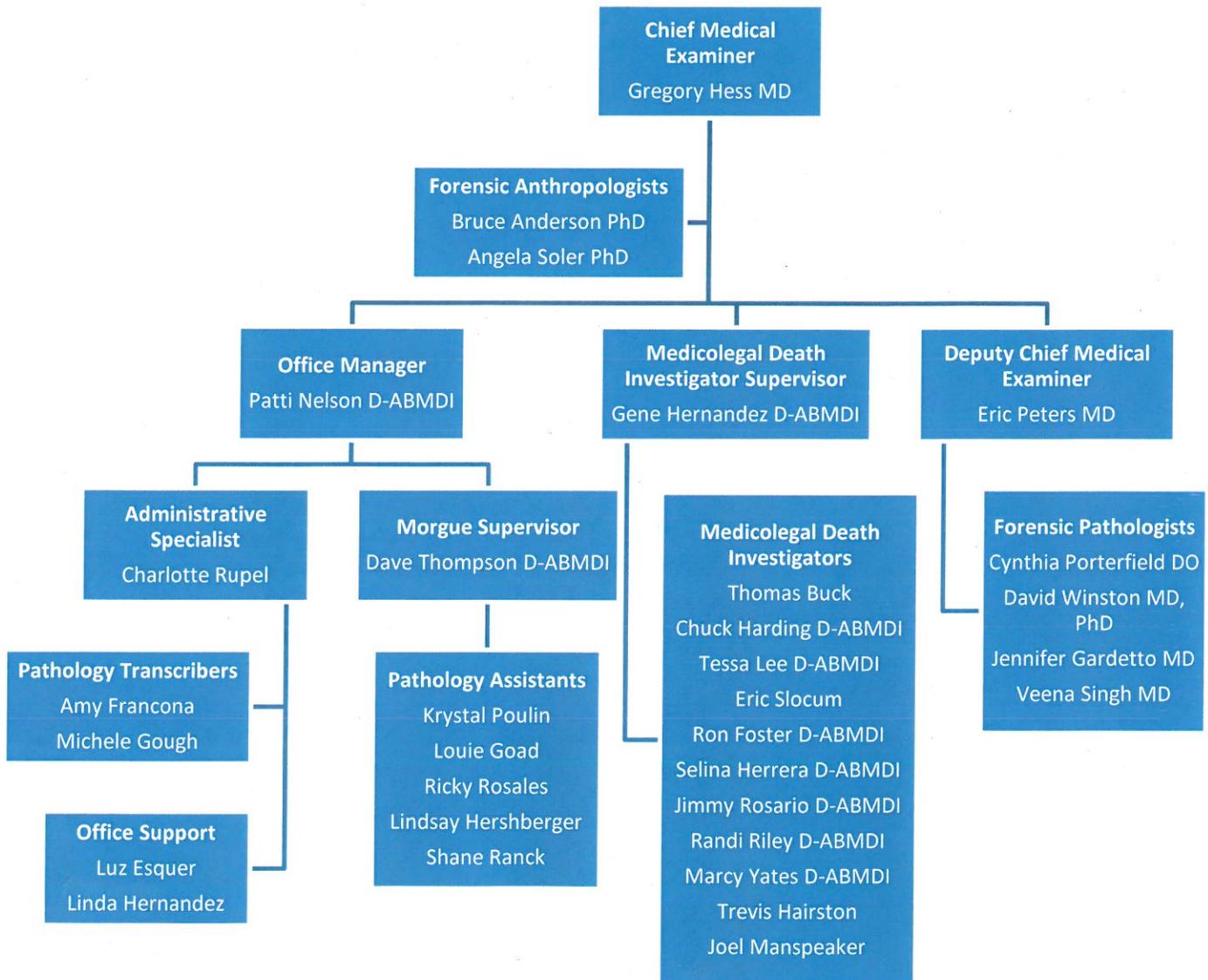
- 1) *Medicolegal Death Investigators*
Calendar year 2012 saw a transition from the term Forensic Medical Investigator (FMI) to Medicolegal Death Investigator (MDI) for our 11 MDIs in keeping with national norms. Seven MDIs, our MDI Supervisor, Morgue Supervisor and Office Manager are certified by the American Board of Medicolegal Death Investigators to provide competent medicolegal death investigations. FSC Forensic Pathologists lecture to the MDIs on varying topics monthly, 10% of cases are pathologist reviewed monthly and 10% of cases are peer reviewed quarterly in accordance with our MDI quality assurance and performance improvement program.
- 2) *Community education, presentations and media interviews*
The FSC receives numerous requests from various groups, organizations, individuals and schools for presentations regarding a host of forensic issues annually. Not all requests can be honored due to time and personnel constraints, but examples of educational activities include but are not limited to: presentations at local primary and secondary schools; lectures at various institutions and departments at the University of Arizona; presentations and tours for humanitarian organizations; and the teaching of a 3-credit-hour death investigation class at Pima Community College. The Chief Medical Examiner participated in 157 media interviews, emails and phone calls, many involving migrant issues. Pima County's Forensic Anthropologist and Postdoctoral Fellow gave numerous platform and poster presentations to various organizations and at national anthropologic and forensic conferences.
- 3) *University of Arizona College of Medicine, Department of Pathology and School of Anthropology*
FSC Forensic Pathologists hold clinical appointments with the Department of Pathology at the University of Arizona, College of Medicine, where they are involved with pathology resident and medical student teaching. Four pathology residents, five medical students and three pathology post-sophomore fellows rotated through the FSC for month-long rotations in 2012. Our Forensic Anthropologist also holds an academic appointment at the University of Arizona and six anthropology interns trained at our facility in 2012.

Law Enforcement and Legal System

The availability of our pathologists to assist or advise law enforcement personnel in their investigations and the legal system in its proceedings is an important function of the FSC. Pima County law enforcement agencies requested the assistance of a pathologist in a number of scene investigations. Involvement of the FSC in the legal system generally consists of pretrial interviews, depositions and courtroom testimony. In 2012, the office's six forensic pathologists and two anthropologists participated in approximately 50 pretrial interviews, 30 depositions and 55 jury trials.

Organ and Tissue Donation

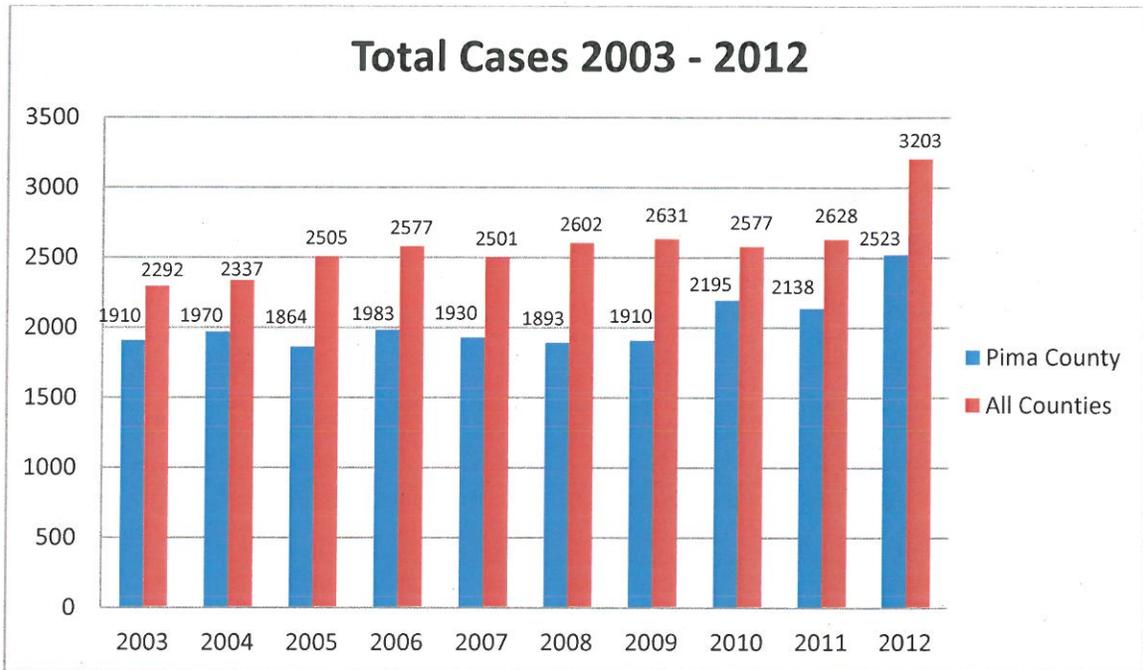
In January 2012, the FSC began referring all cases reported to the office to Donor Network of Arizona (DNA) and DNA began performing tissue recoveries at the FSC. As a result of these changes, the FSC was involved in 24 organ donations, 188 cornea transplantations, 16 heart valve transplantations, 29 vascular tissue transplantations and numerous bone and tissue grafts.



**OFFICE OF THE MEDICAL EXAMINER
ORGANIZATIONAL CHART AS OF DECEMBER 2012**

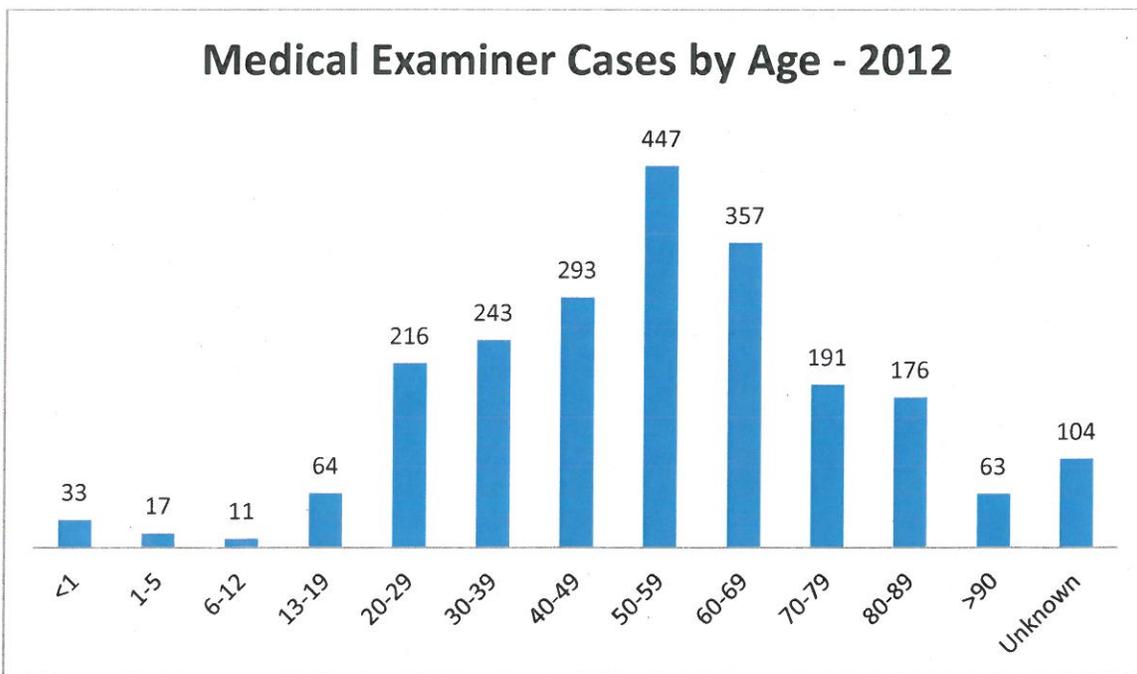
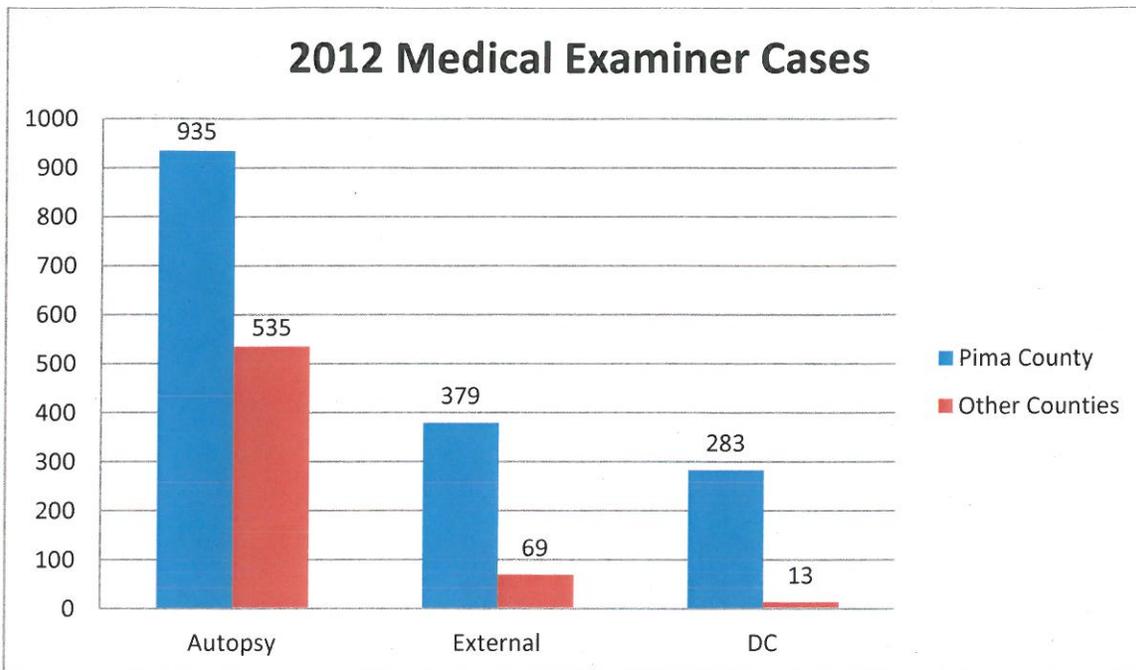
TOTAL CASES

The total cases handled by the FSC in a given year are the sum of the medical examiner (ME) cases (autopsies, external examinations, and death certificate cases), cases in which jurisdiction was declined, and the number of cases stored at our facility during the calendar year (storage cases). ‘All Counties’ includes cases examined at the FSC from Apache, Cochise (effective 7/1/12), Gila, Graham, Greenlee, La Paz, Navajo, Pinal, Santa Cruz and Yuma counties in addition to Pima County.

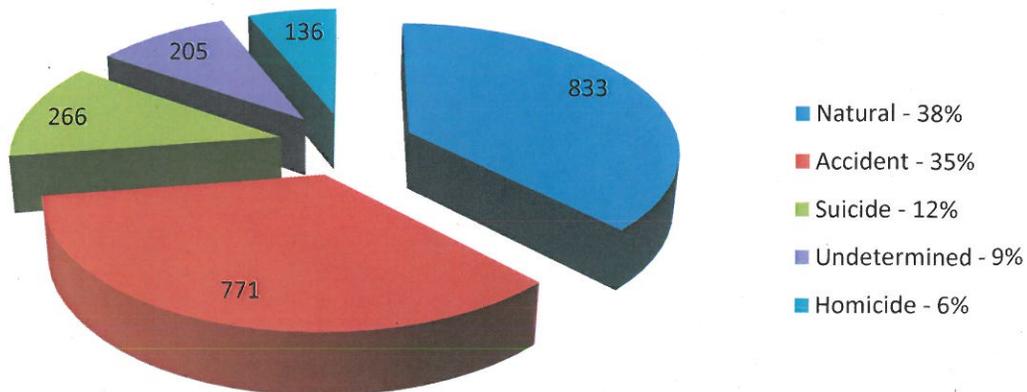


MEDICAL EXAMINER CASES

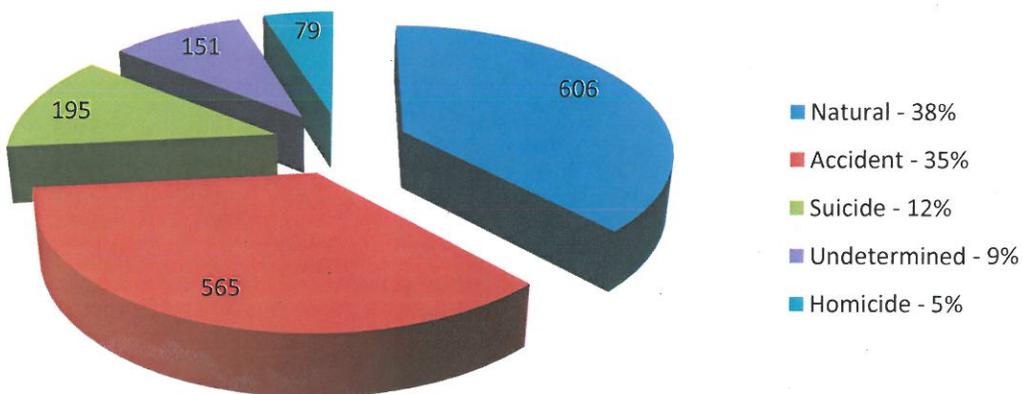
The Pima County FSC considers all cases in which the cause and manner of death are determined by this office as “medical examiner cases.” Those cases include autopsies, external examinations and death certificate (DC) cases. Autopsies are examinations where a decedent is examined both externally and internally for evidence of injury or natural disease which may have caused or contributed to the individual’s death. External examinations consist of an external examination of the body without the internal examination. A DC case involves review of the medical records, law enforcement reports and any other information that may be necessary to determine the cause and manner of death without physical examination of the decedent. In 2012, for Pima and all other counties listed above, 1470 autopsies, 448 external examinations and 296 DC cases were performed at the FSC. Pima County alone accounted for 935 autopsies, 379 external examinations and 283 DC cases.



ME Cases by Manner of Death - 2012



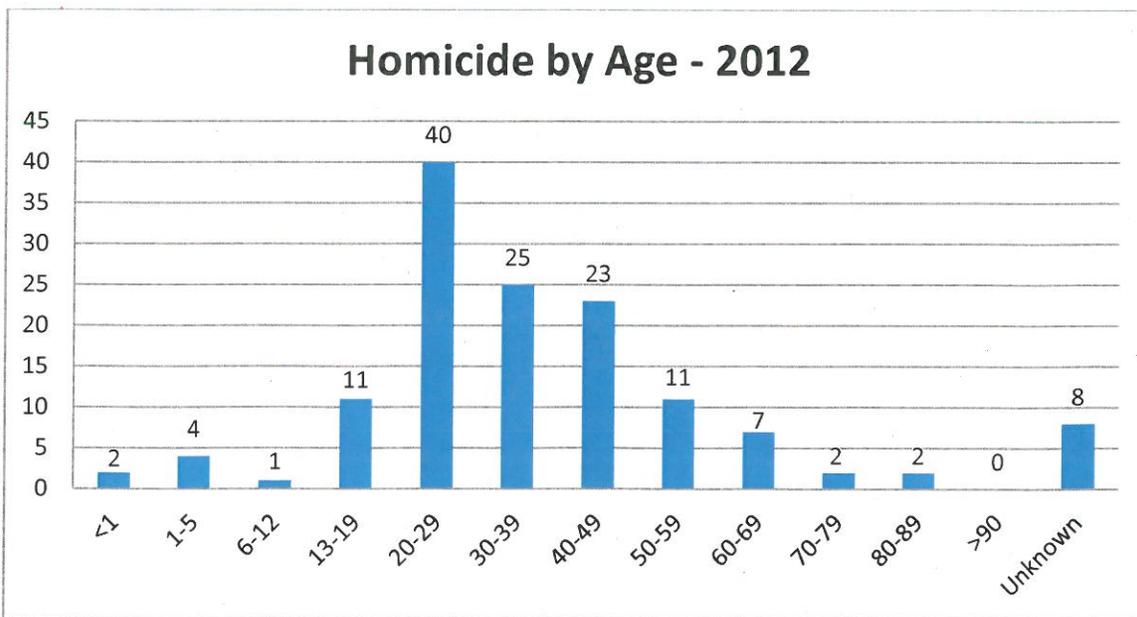
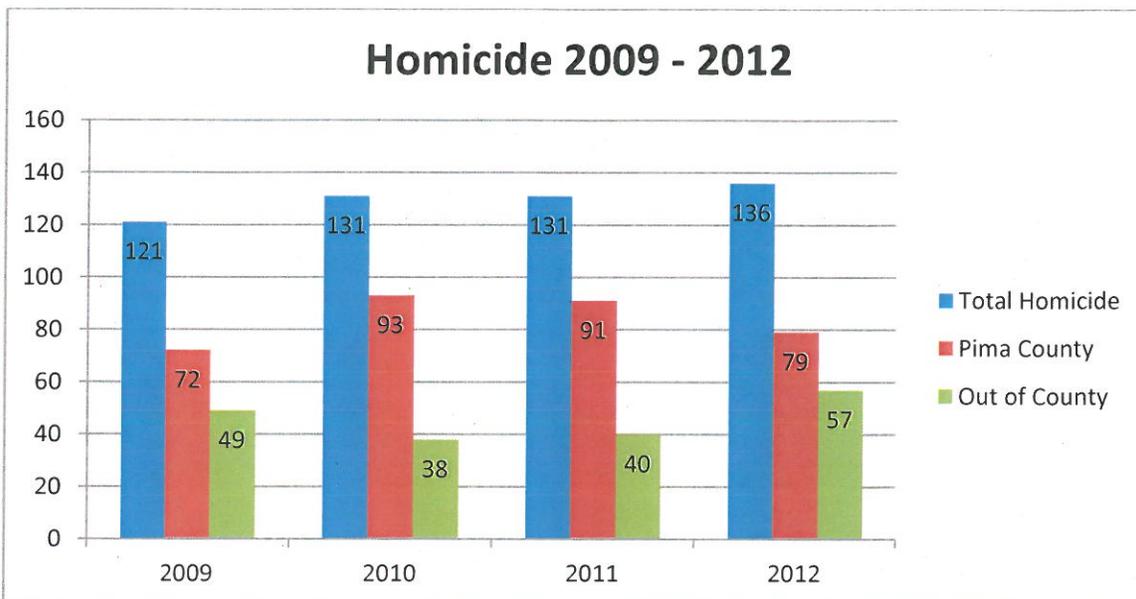
Pima County ME Cases by Manner of Death - 2012



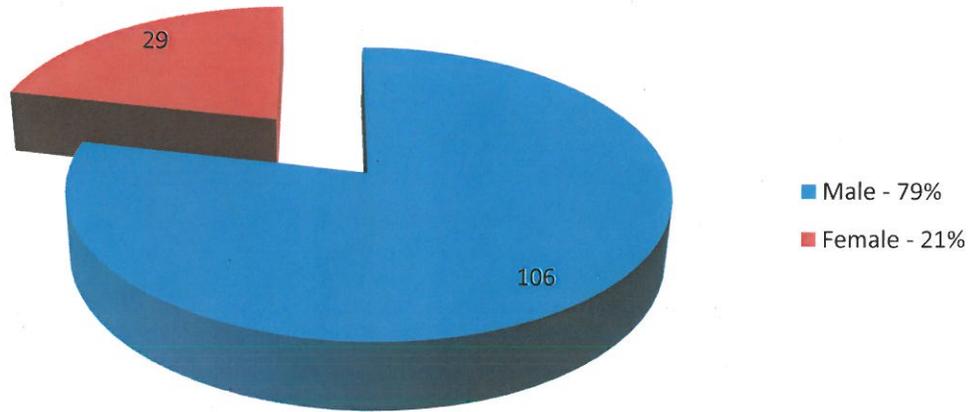
HOMICIDE DEATHS

This office examined 136 homicides in 2012, 79 from Pima County and 57 from other counties. Homicide rates from 2009 – 2012 are compared below.

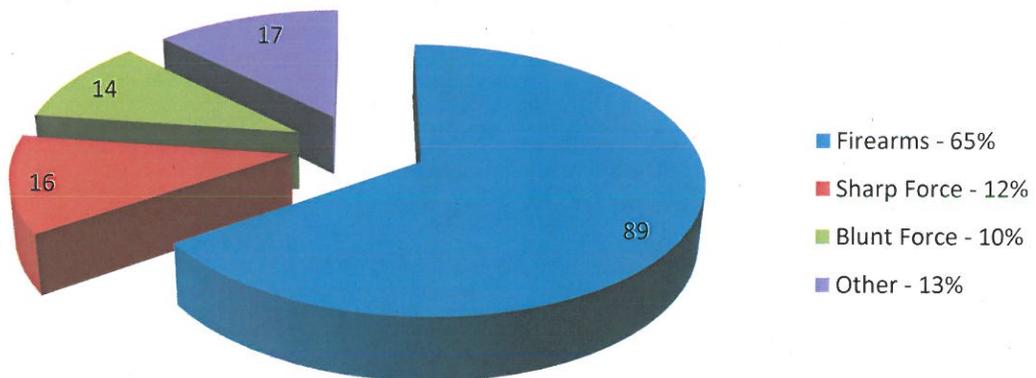
Homicide deaths from all counties increased by 11% from 2009 to 2012, although homicide deaths in Pima County alone have decreased by 13% from 2011 to 2012. Homicide victims were most frequently male (79%), between 20-29 years of age (29%) and died as the result of firearms (65%).



Homicide by Gender - 2012

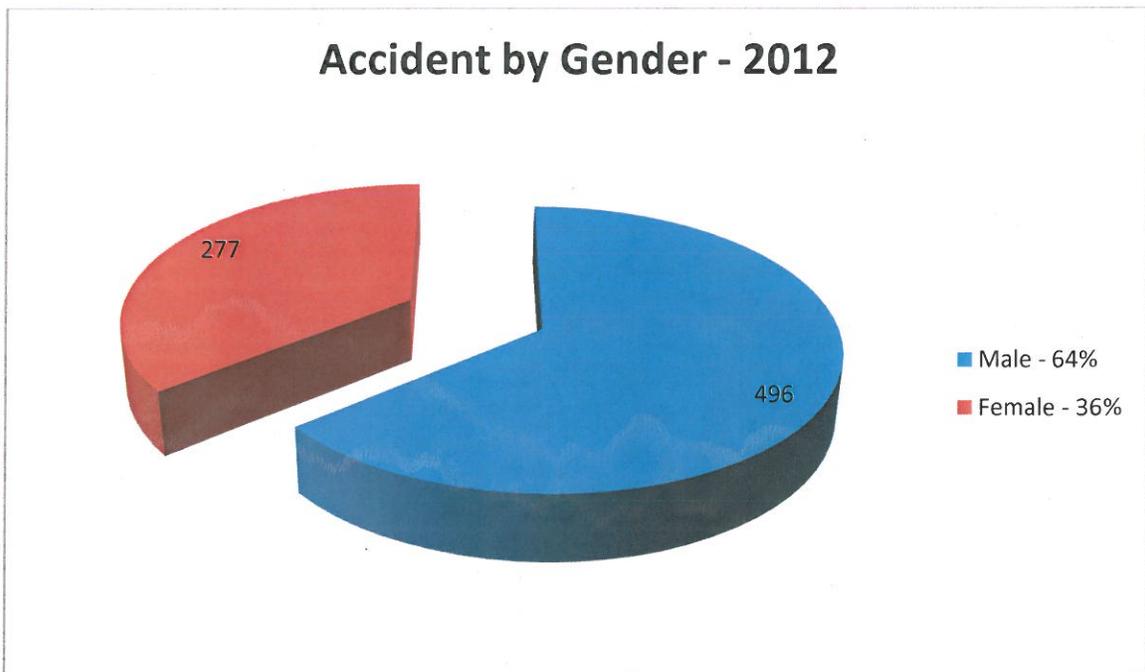
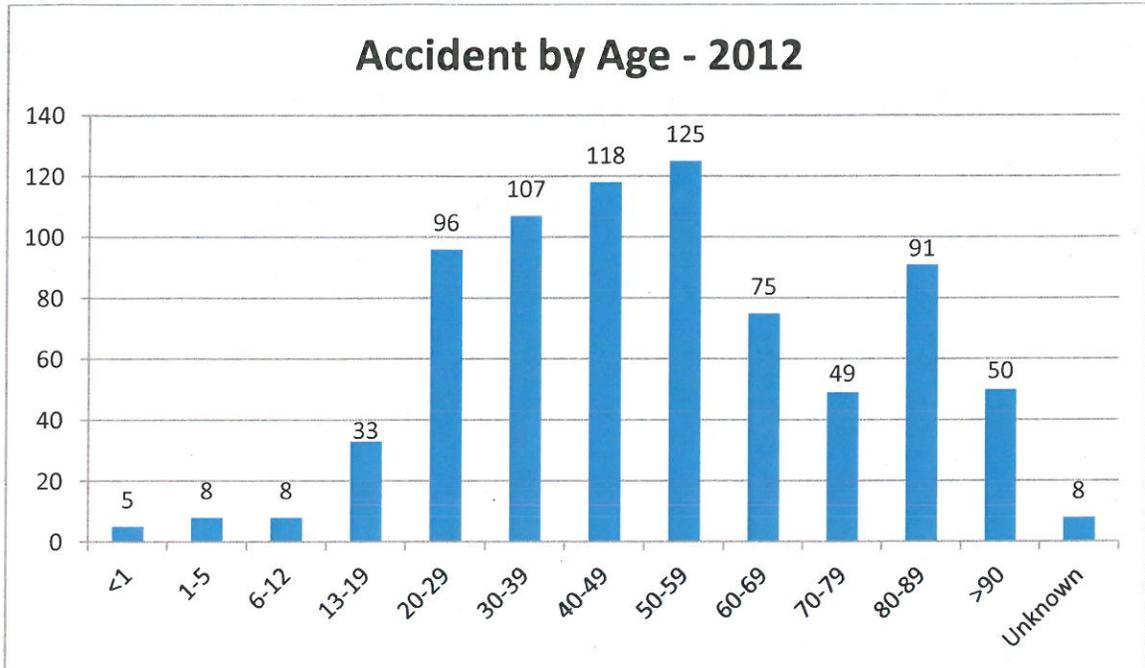


Homicide by Cause - 2012

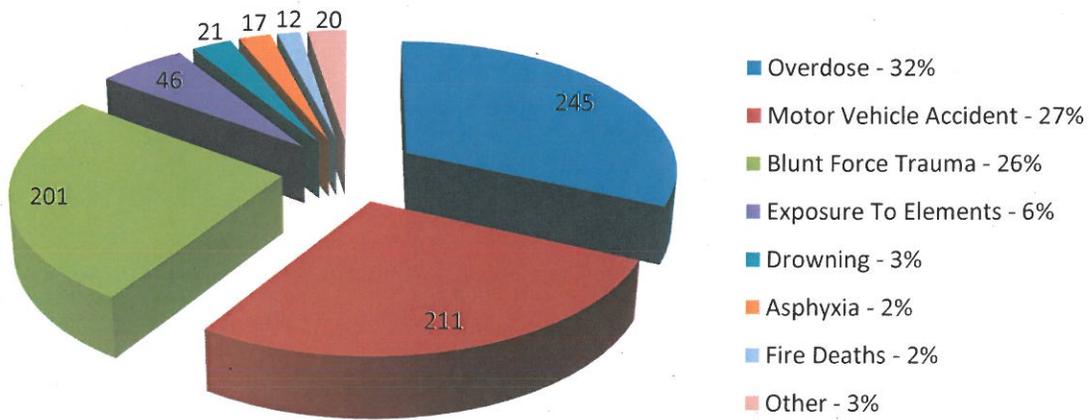


ACCIDENTAL DEATHS

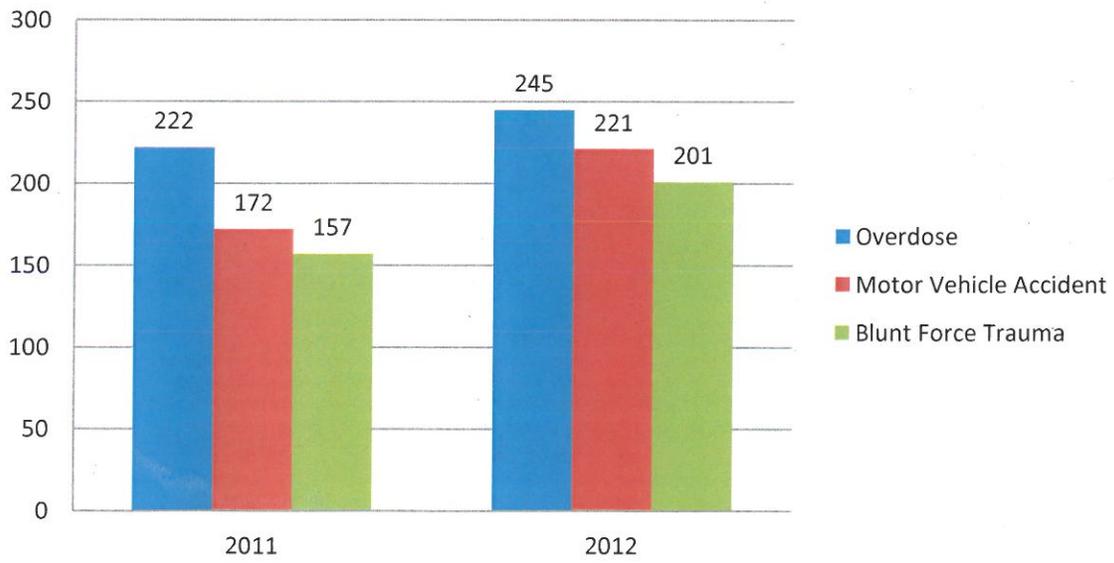
Deaths due to accidents accounted for 35% of the ME deaths investigated by the FSC in 2012. Accident victims were most frequently males (64%), between 50-59 years of age (16%) and died as the result of an overdose (32%).



Accident by Cause - 2012

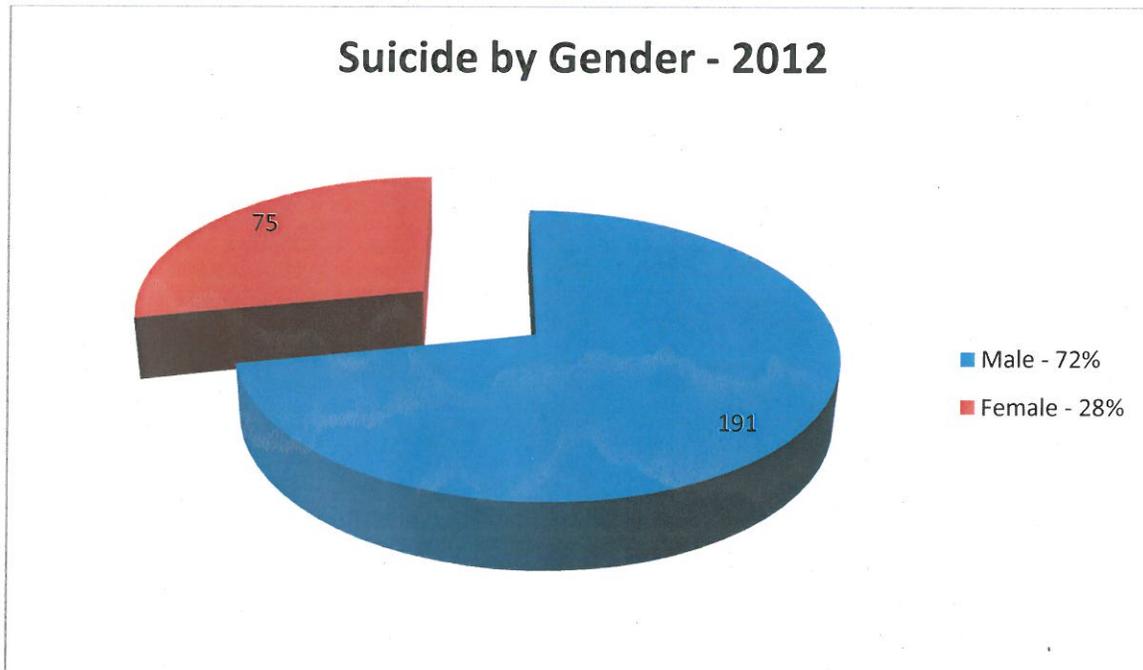
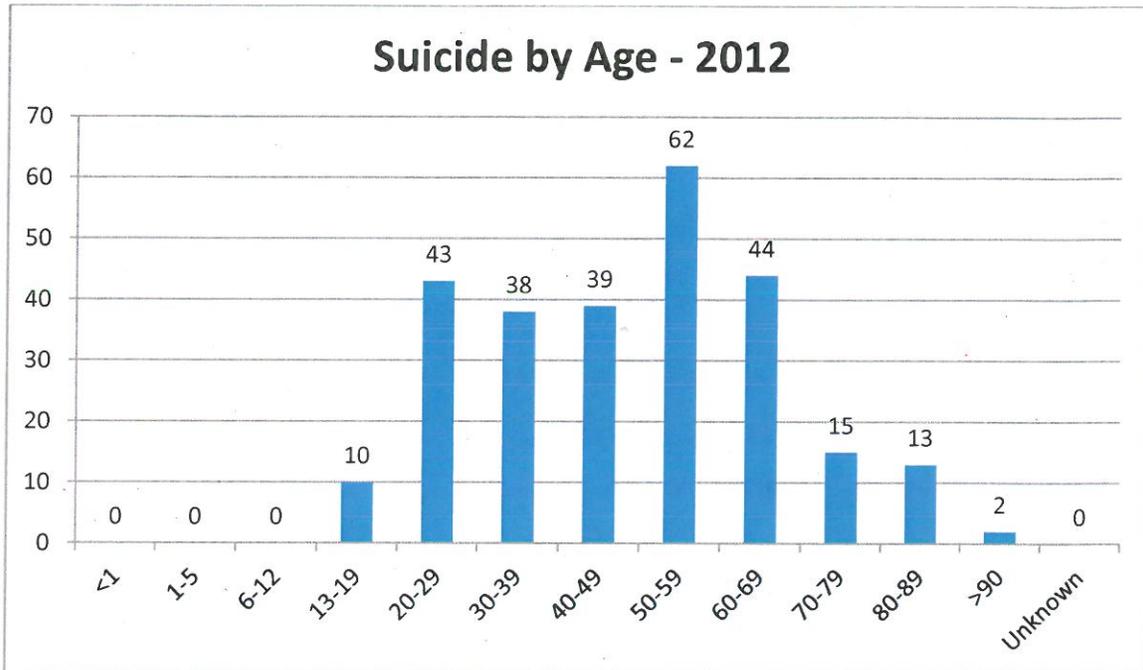


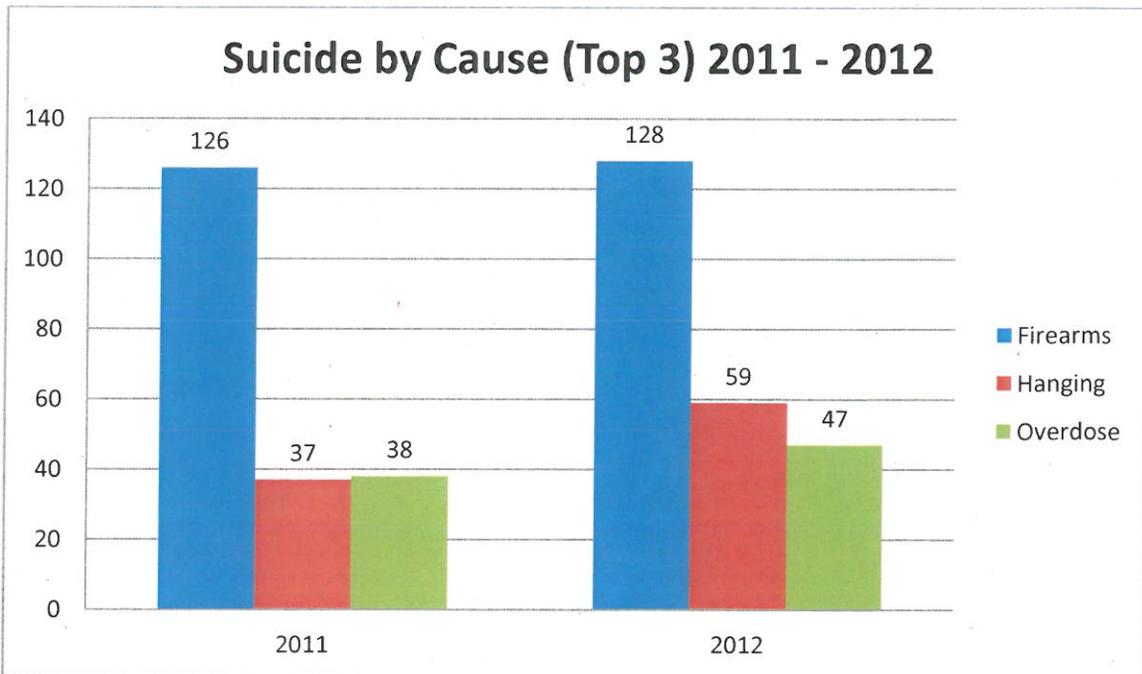
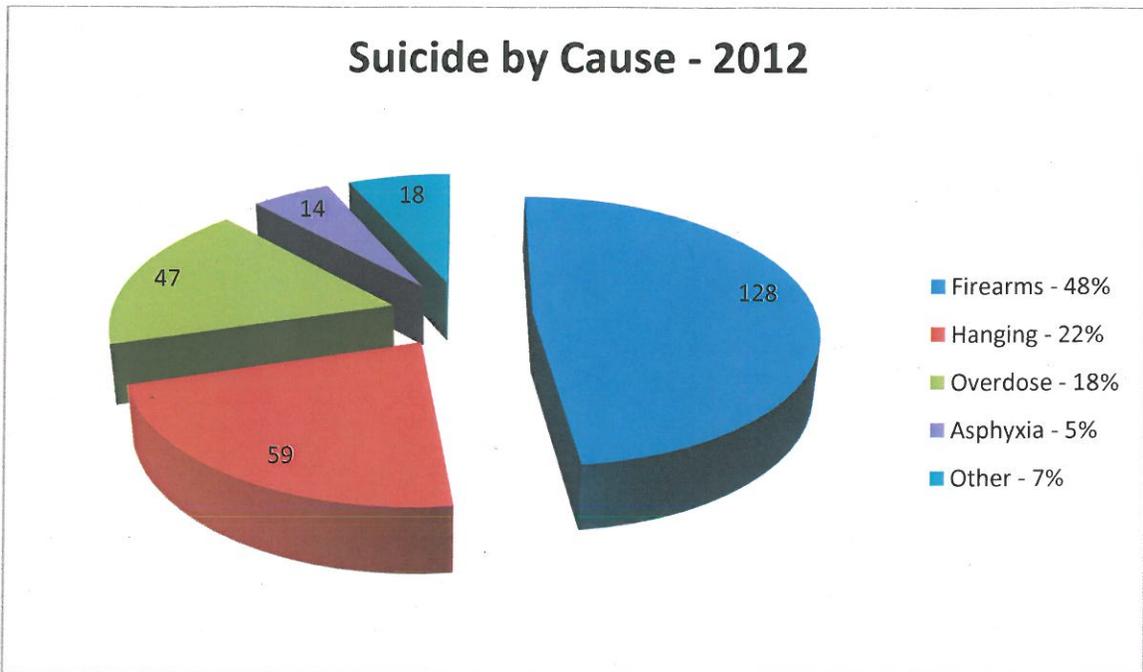
Accident by Cause (Top 3) 2011 - 2012



SUICIDE DEATHS

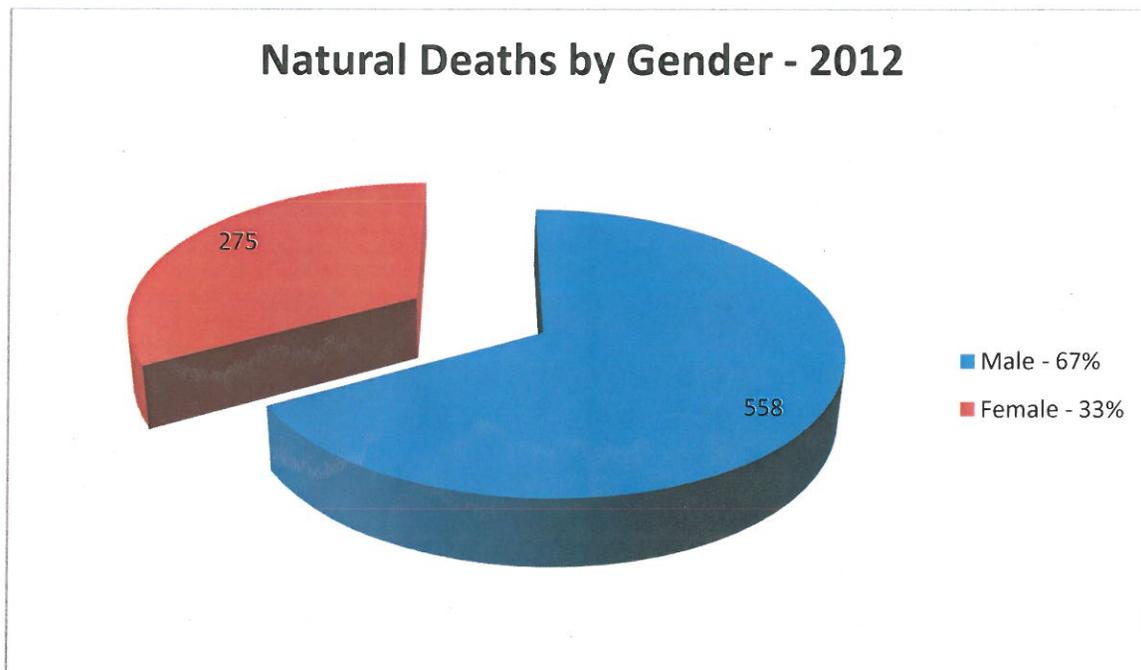
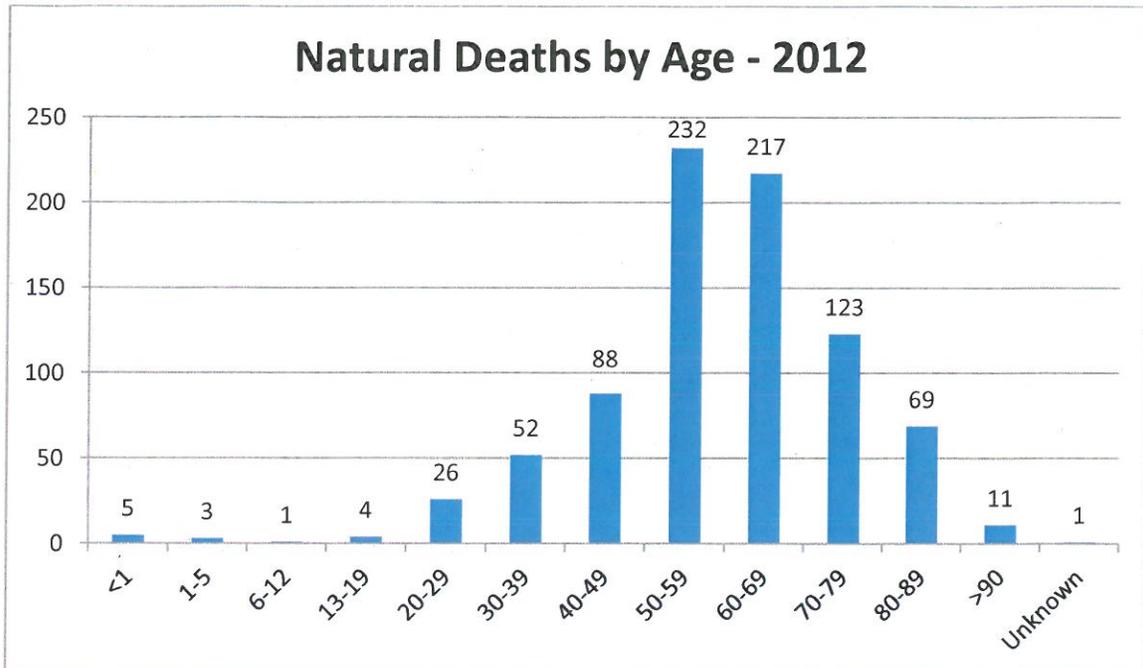
Suicide deaths accounted for 12% of the ME deaths investigated by the FSC in 2012. Suicide victims were most frequently males (72%), between 50-59 years of age (23%) and died as the result of firearms (48%).



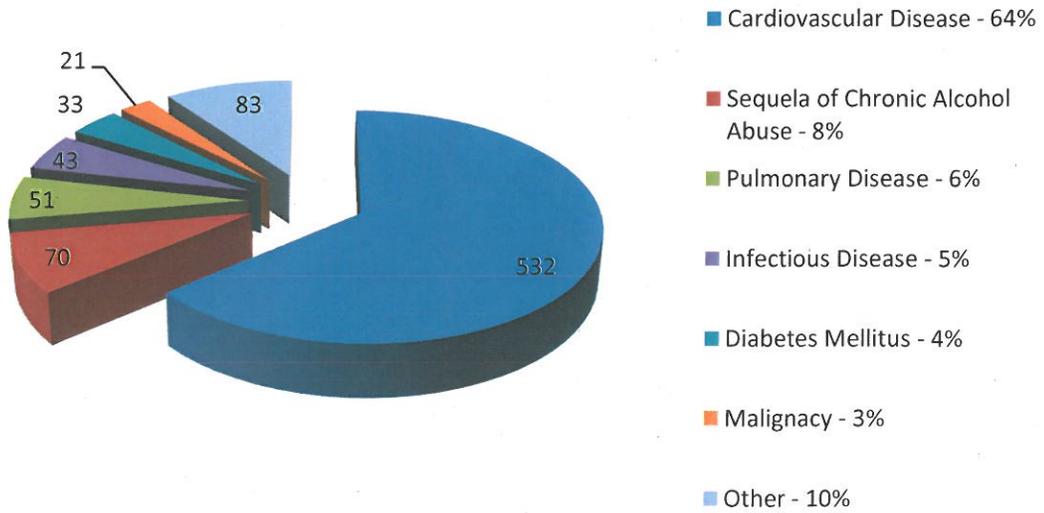


NATURAL DEATHS

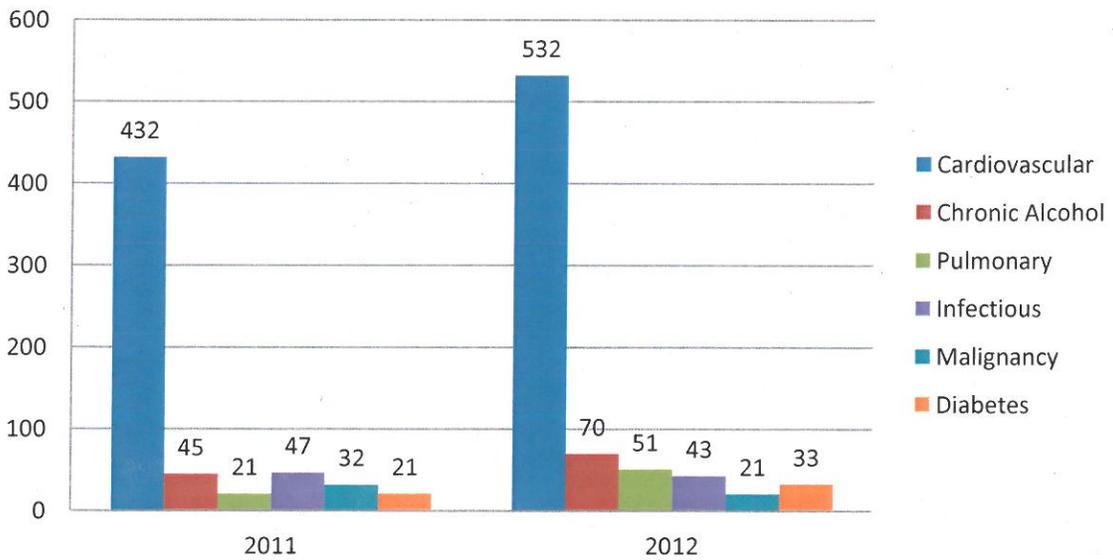
Natural deaths accounted for 38% of the ME deaths investigated by the FSC in 2012. Individuals who died from natural causes were most frequently males (67%), between 50-59 years of age (28%) and died as the result of cardiovascular disease (64%).



Natural Deaths by Cause - 2012

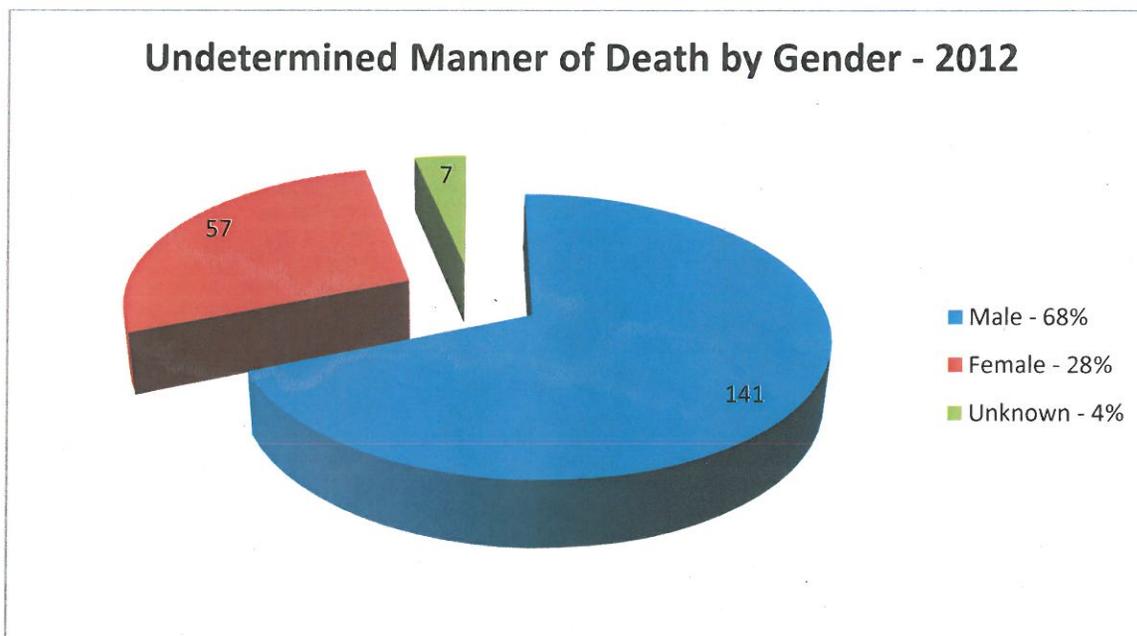
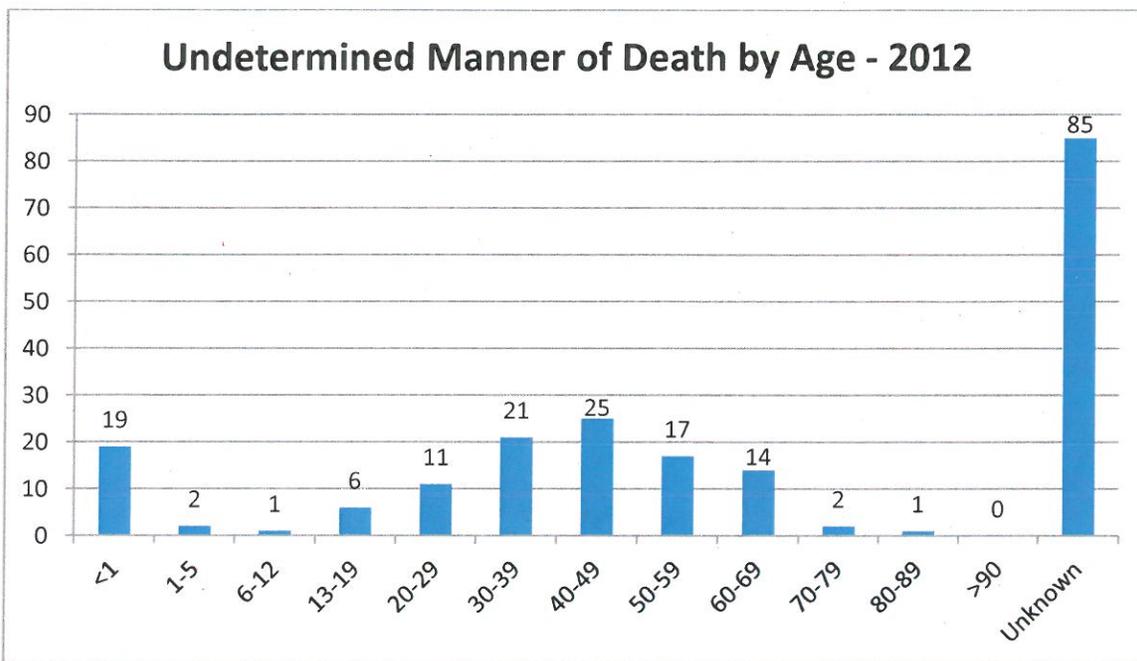


Natural Death by Cause 2011 - 2012

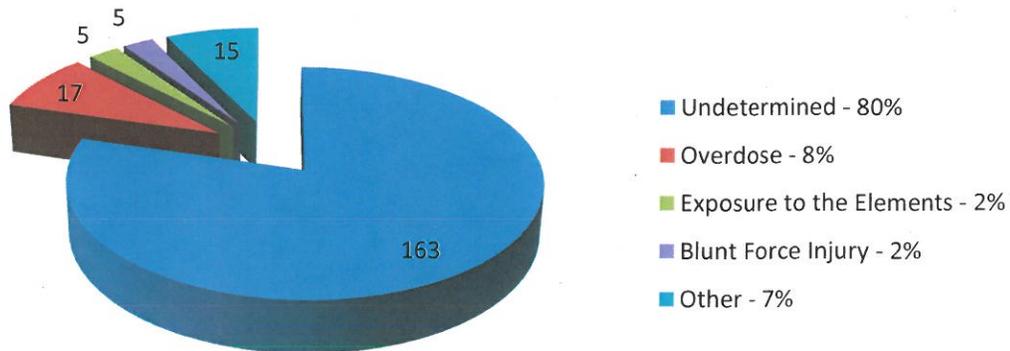


UNDETERMINED MANNER OF DEATH

Deaths in which the manner of death was undetermined accounted for 9% of the ME deaths investigated by the FSC in 2012. Individuals who died with an undetermined manner were most frequently males (68%), of unknown age (42%) and died from undetermined causes (80%). Many of these deaths represent skeletal remains of presumed migrants who died in the deserts of southern Arizona.



Undetermined Manner of Death by Cause - 2012



OVERDOSE DEATHS

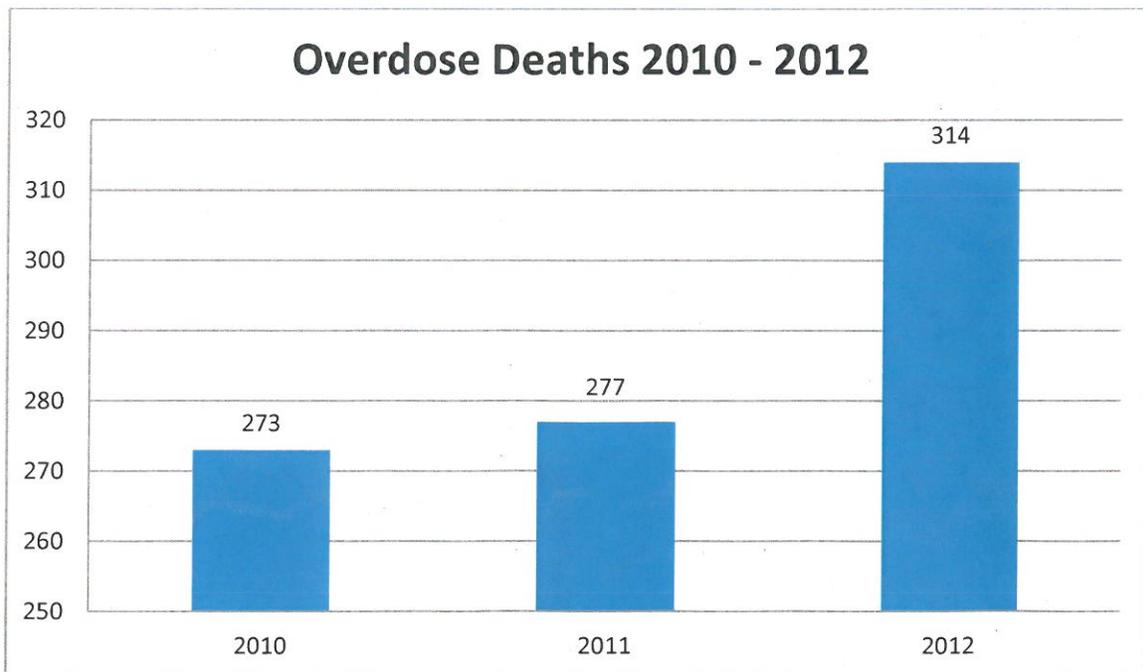
There were 314 deaths attributed to an overdose of either a single drug (160 deaths, 51%) or a combination of drugs (154 deaths, 49%) in 2012. Overdose deaths commonly involved males (57%) between the ages of 40-49 (28%). The majority of these deaths were classified as accidents (78%).

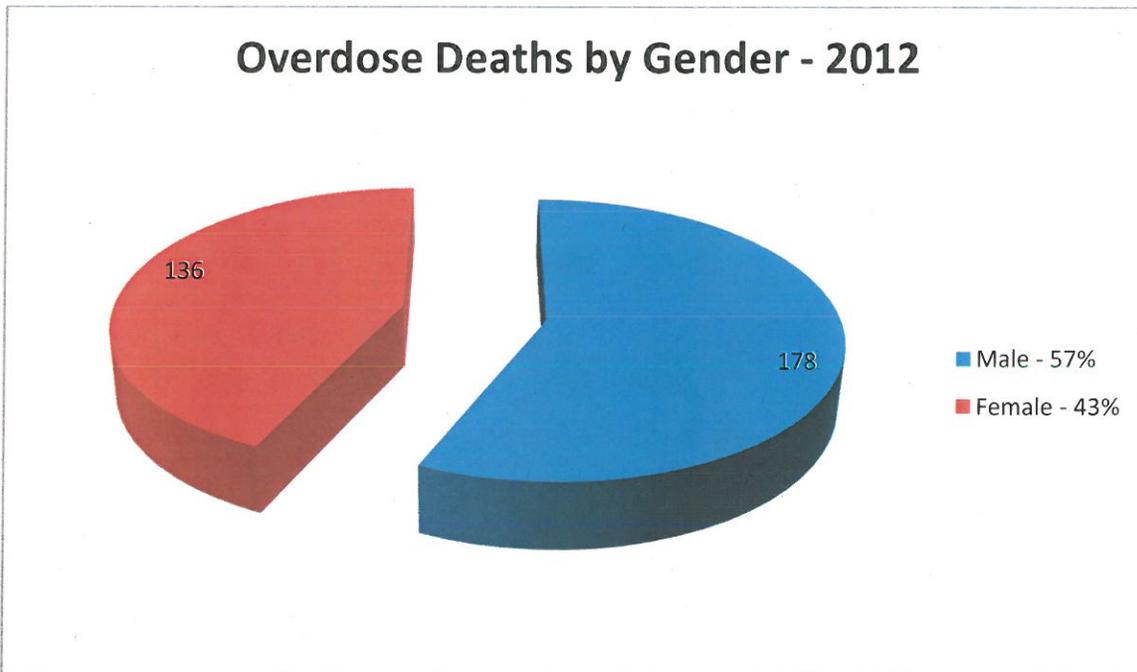
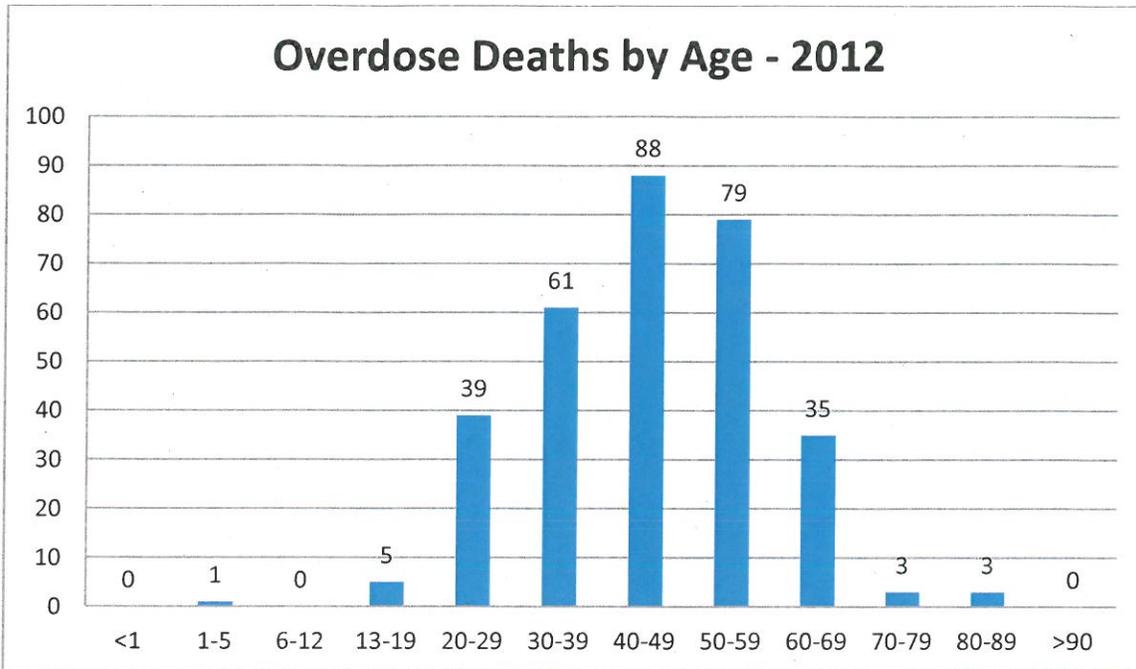
Opiate drugs (heroin, oxycodone, methadone, hydrocodone, morphine, opiate unspecified) and fentanyl (a synthetic opioid narcotic) accounted for the majority of overdose deaths, either as a single drug or a component of a poly-drug overdose. The most common drugs found as a component of poly-drug overdoses are oxycodone followed by morphine and alcohol.

The number of heroin deaths is likely underreported as heroin is rapidly metabolized to morphine by the body and if the parent compound indicative for heroin (6-monoacetylmorphine) is not present on the toxicology report these deaths may be classified as either morphine intoxication or “opiate” intoxication.

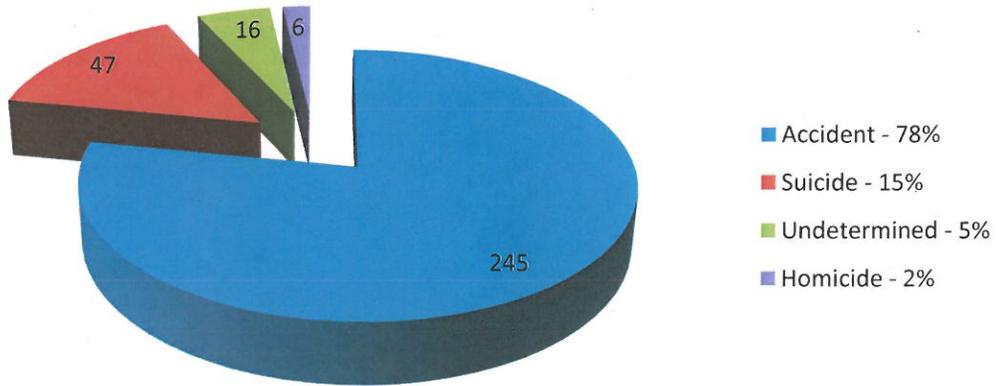
Alcohol intoxication alone accounted for 13 (4%) deaths in 2012.

There were six judicial executions by injection of pentobarbital examined at the FSC in 2012.

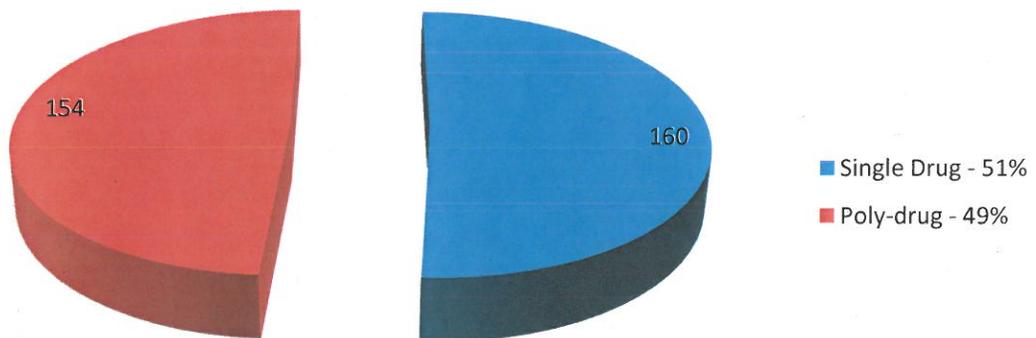


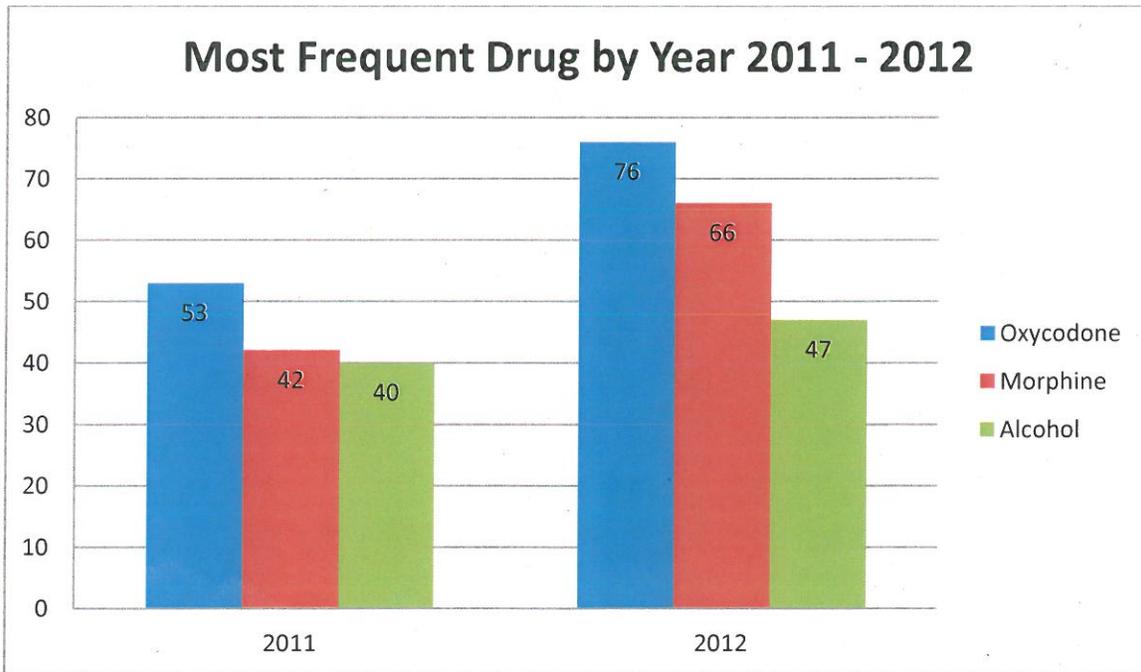
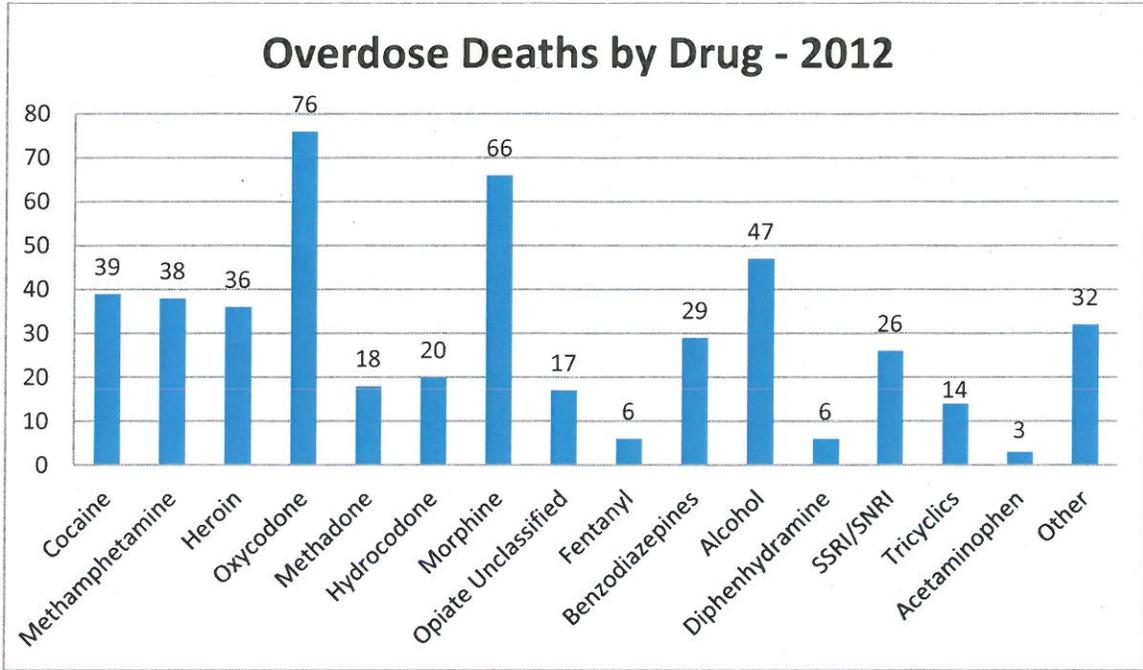


Overdose Deaths by Manner - 2012



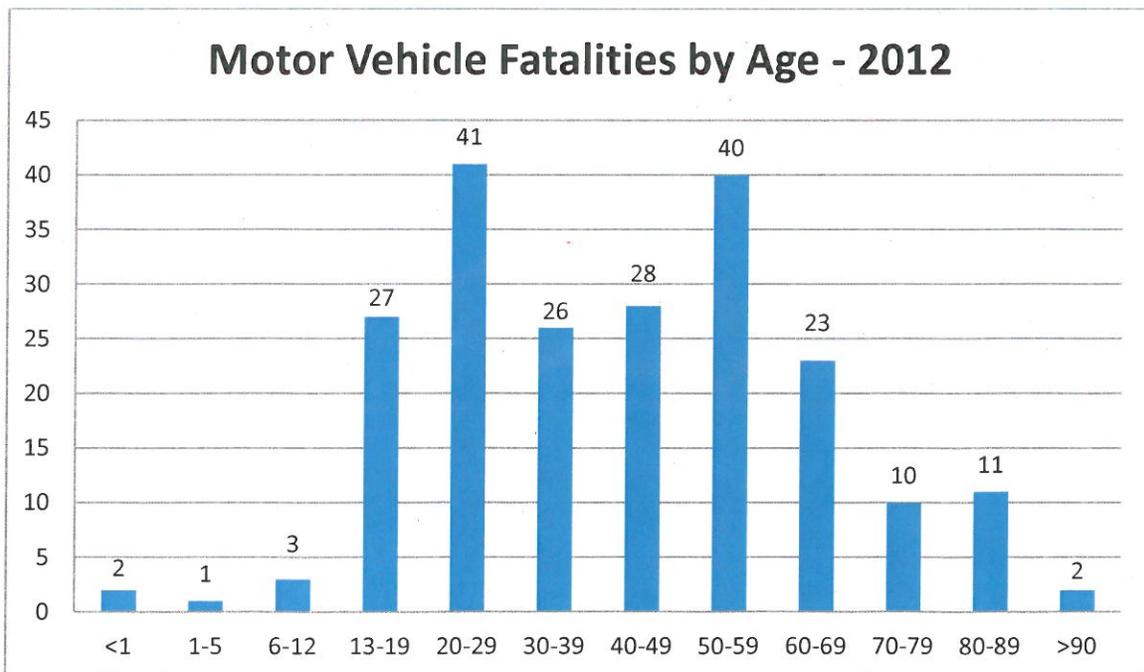
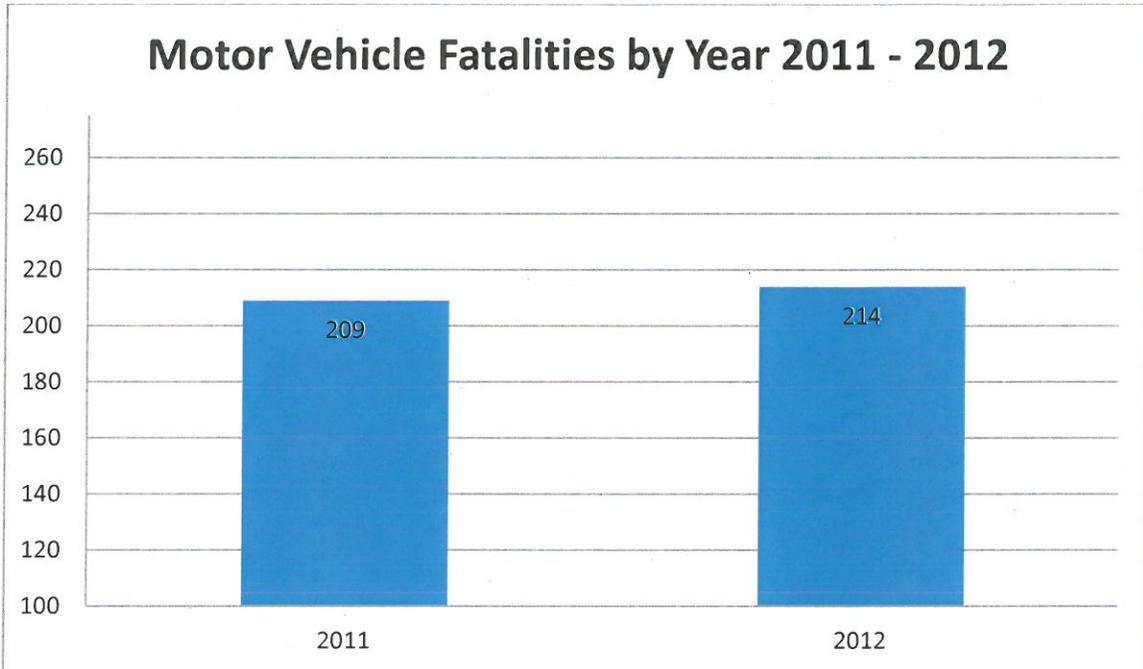
Single vs Poly-drug Overdose - 2012



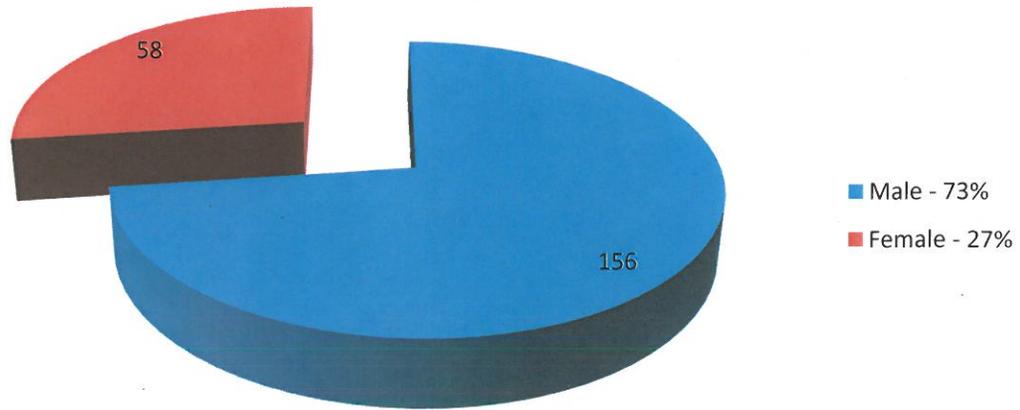


MOTOR VEHICLE RELATED FATALITIES

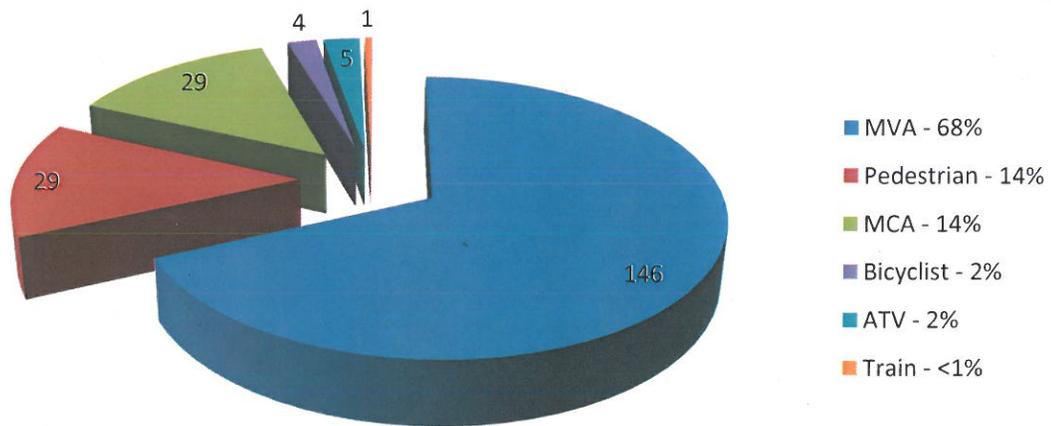
Motor vehicle related fatalities accounted for 214 total deaths in 2012. The majority, 146 deaths, were occupants of a motor vehicle involved in an accident (MVA). Of the remaining, 29 were motorcycle accidents (MCA), 5 were all-terrain vehicles (ATV), 33 were pedestrians or bicyclists struck by vehicles, and one was a vehicle struck by a train. Individuals who died from motor vehicle related fatalities were most frequently males (73%) and between 20-29 years of age (19%).



Motor Vehicle Fatalities by Gender - 2012



Motor Vehicle Fatalities by Type - 2012





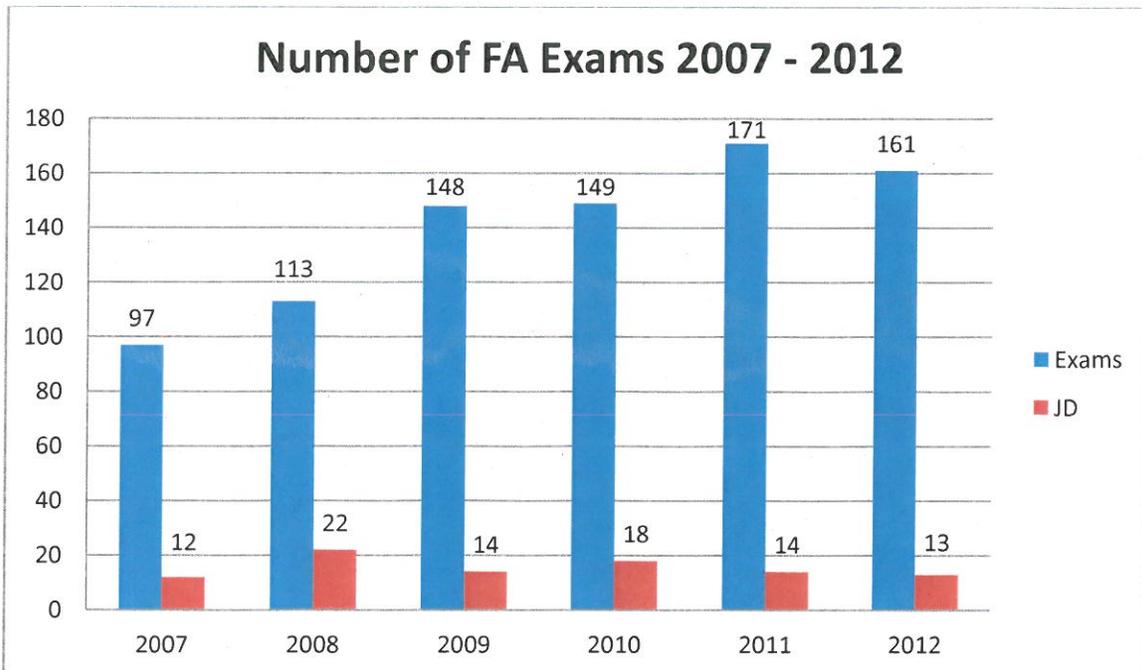
W.H. BIRKBY FORENSIC ANTHROPOLOGY LABORATORY

Forensic Anthropologists at the W.H. Birkby Forensic Anthropology

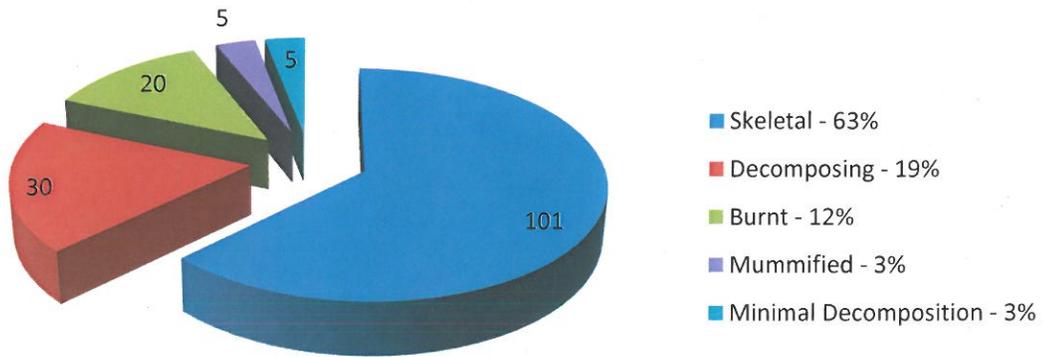
Laboratory within the FSC performed 161 examinations (biological profiles, trauma evaluations, dental examinations and examinations for identification) in 2012 on human remains of forensic significance. An additional 13 examinations were performed on remains ultimately deemed non-human, prehistoric or otherwise not forensically significant and jurisdiction of the remains was declined (JD) in those cases.

The extent of postmortem decomposition of a particular set of remains is important when performing a Forensic Anthropology (FA) examination. Remains examined by Forensic Anthropologists were categorized as minimally decomposed, decomposing, mummified, skeletal or burnt. In 2012, skeletal remains comprised 63% of FA examinations. Four main types of exams are performed; biologic profiles, dental, trauma and identification examinations.

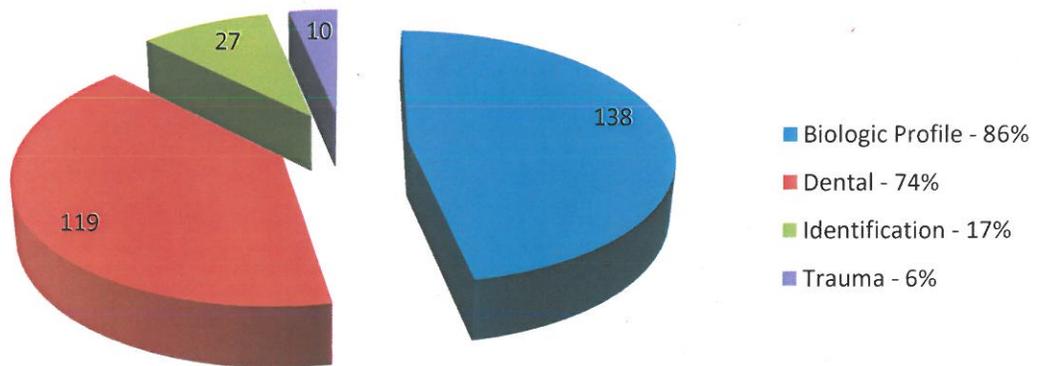
Biological profiles refer to charting, measurements, descriptions, radiographs and photographs taken to estimate sex, age, ancestry, stature and postmortem interval of a set of remains. Dental and identification examinations entail charting, descriptions, radiographs and photographs in an effort to identify an unknown individual or confirm a suspected identity. Trauma examinations entail charting, measurements, descriptions, radiographs and photographs to characterize the nature of an injury, implement used to cause injury to the bone, age of injury, etc. It is common for a particular set of remains to receive more than one type of examination. Most (86%) FA exams include a biological profile with dental examination (74%) when applicable. Less common are examinations for identification (17%) and trauma (13%) evaluations with or without biological profiles and dental examinations.



FA Exam by Condition of Remains - 2012



FA Examination by Type - 2012



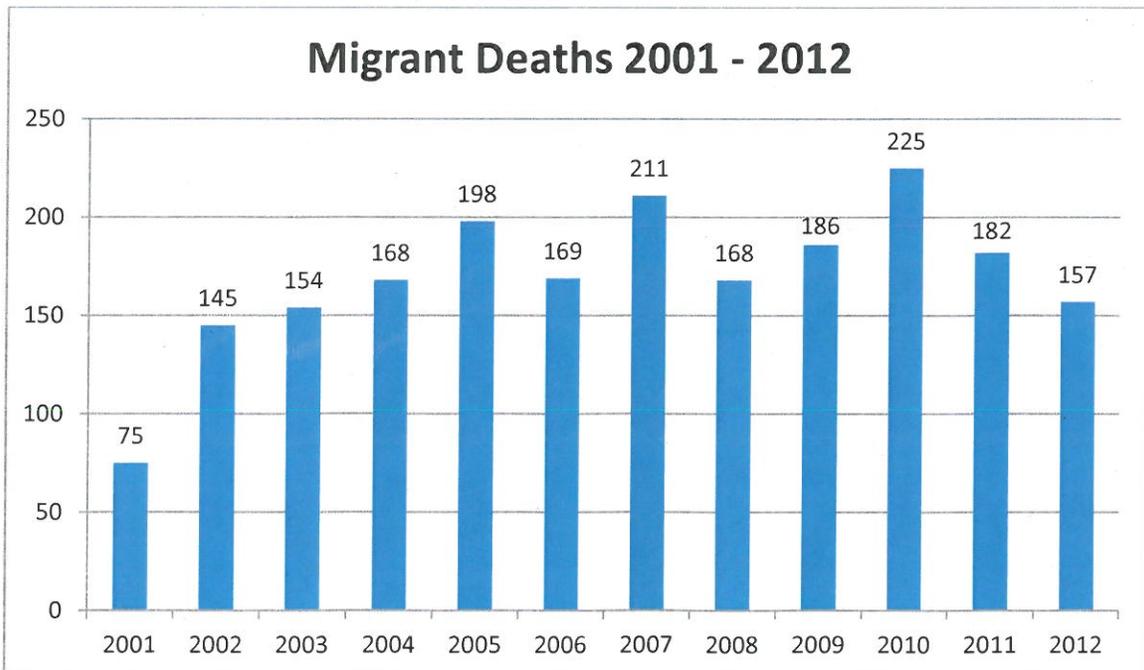
MIGRANT DEATHS

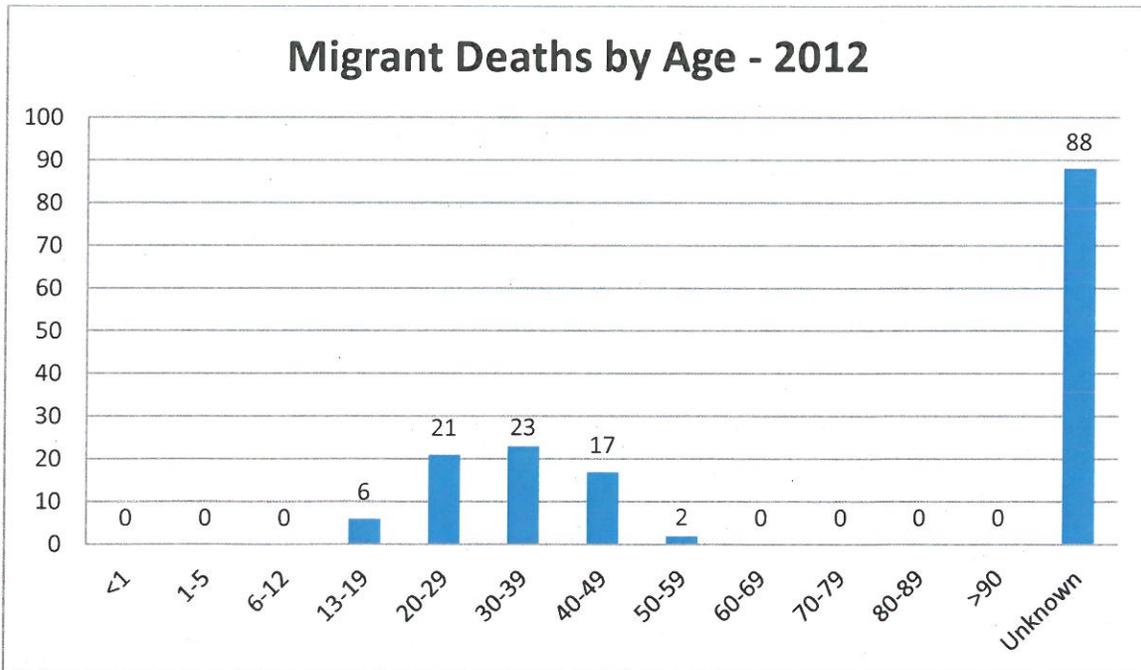
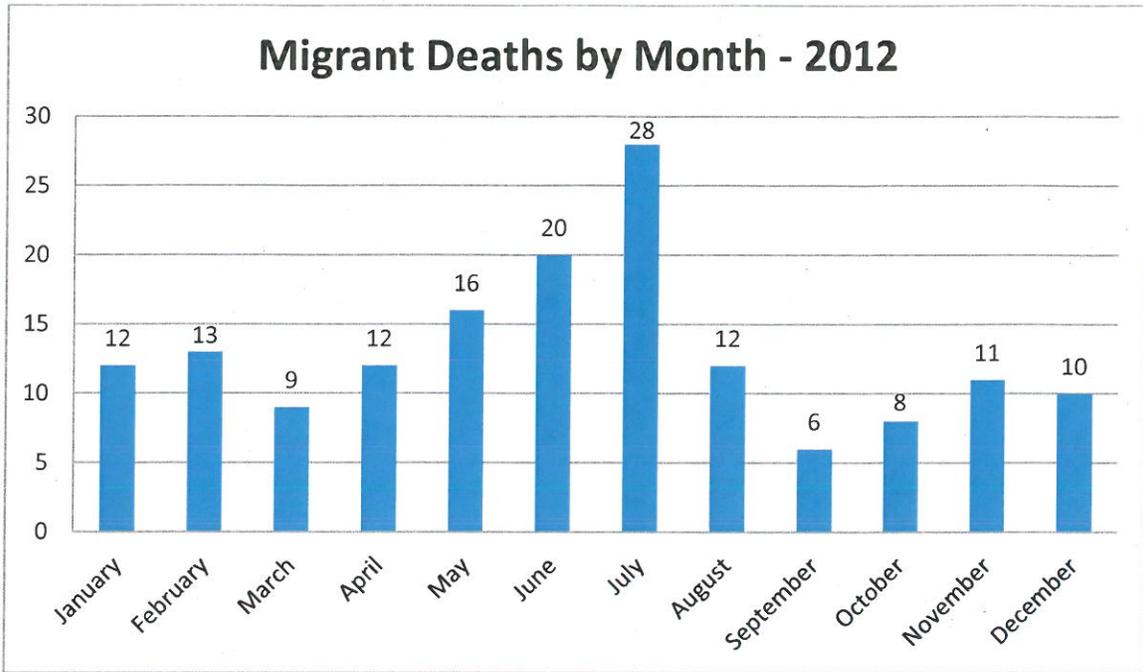
Migrant deaths are defined as deaths of foreign nationals who die attempting to cross the southern Arizona desert. Calendar year 2010 saw the highest number of migrant deaths (225) recorded at the FSC while 2012 (157 deaths) saw a drop below average (178 deaths on average from 2002 - 2012). The FSC has recorded 2,037 migrant deaths since 2001. The deaths per year are adjusted annually to account for identification of remains initially thought to be those of a migrant that are not, and association of remains found months or years apart later discovered to be that of the same individual.

As is the historic norm, migrant deaths peaked during the summer months (June-August) with 60 deaths (38% of total for year) in 2012. Many remains are not identifiable due to postmortem changes and efforts by migrants to obscure their identities. Of the decedents who were identified, 28% (44 deaths) were between 20-39 years of age and 85% (134) were males. Skeletal or significantly decomposed remains accounted for 107 (68%) of the 157 migrant deaths in 2012.

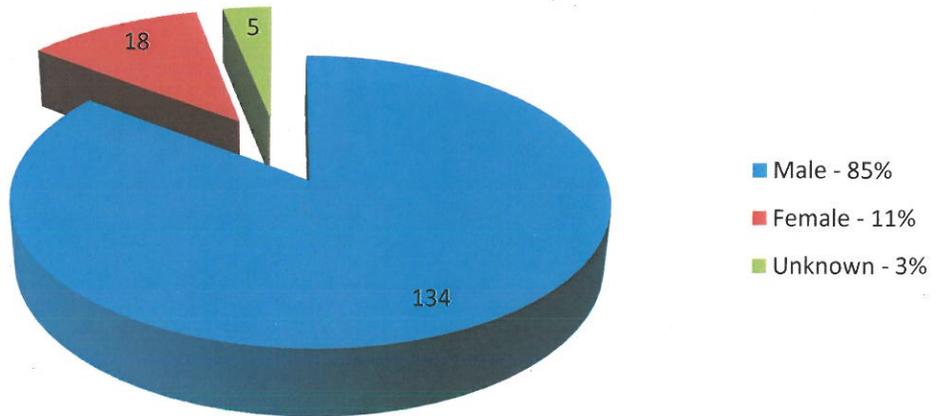
The cause of death was undetermined in 68% of cases, primarily due to limitations of examination of decomposed and skeletal remains. Of the remainder, environmental exposure to extremes in heat or cold combined with dehydration comprised 23% of deaths. Other, less frequent, causes of death included gunshot wound injuries (7 cases), blunt force injuries from falls or motor vehicle accidents (6), drowning (3) and a natural death (1).

In 2012, 76% (53) of identified migrants were of Mexican nationality, followed by Guatemalans (17%, 12) and Ecuadorians (4%, 3). Since 2001, identified migrants of Mexican nationality have been the most numerous (86%, 1,126), followed by Guatemalans (7%, 94) and Salvadorans (2%, 30). Of the 2,037 migrants since 2001, 64% (1,303) have been identified, 14% (176) by DNA comparison to a family or law enforcement reference sample. As of December 31, 2012, 734 decedents remain unidentified.

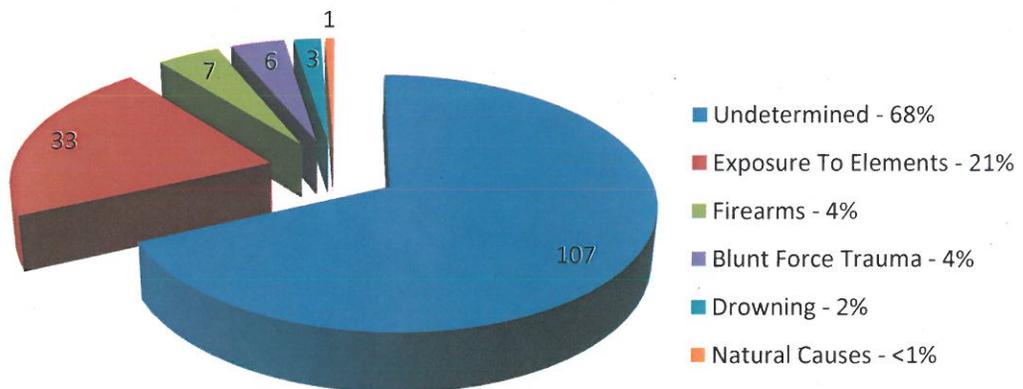




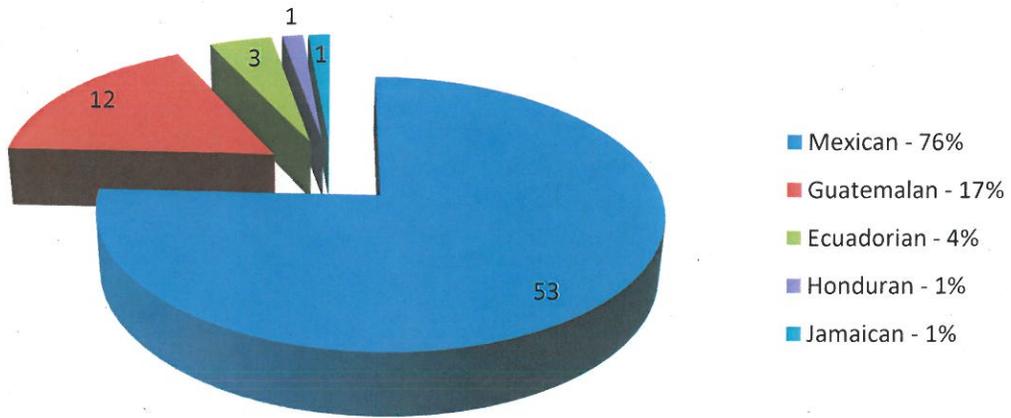
Migrant Deaths by Gender - 2012



Migrant Deaths by Cause - 2012



Migrant Deaths by Nationality - 2012



Migrant Deaths by Nationality 2001 - 2012

