



Overview

- Purpose of it all
- Brief history of death investigation in US
 - Coroner, Medical Examiner, Forensic Pathologist
 - Death investigation systems
- Arizona death investigation
- Statistics – Cause & Manner of Death
- Interaction with LE
- Examples

Purpose of the Medical Examiner's Office

- Determines cause and manner of death of decedents that fall under jurisdiction of ME
- Types of deaths that require reporting
 - Death when not under current care of a physician
 - Violence
 - Sudden and unexpected
 - Threat to public health
 - Prisoner or in a prison
 - Suspicious, unusual, unnatural
 - Related to occupation
 - Related to medical procedure
 - Unidentified

Purpose of the Medical Examiner's Office

- Public health
 - Report deaths due to communicable disease
 - Authorize cremation
 - Tissue and organ donation
 - Vital statistics
- Assist families
 - Answer questions
 - Timely death certification for funeral arrangements

Purpose of the Medical Examiner's Office

- Aid justice system
 - Collect evidence
 - Testify
 - Interpret injury
 - Estimate postmortem interval

What's The Difference?

- Coroner
- Medical Examiner
- Forensic Pathologist

Coroner

- Often elected, term limit
- Qualification specified by local law
- May not have any medical background
- Concept from England
- Minimal practical modern use

Medical Examiner

- Often appointed by government without term limit
- Often a physician (can be any kind)
 - May be appointed non-physician
- May not be a Forensic Pathologist

Forensic Pathologist

- Physician (pathologist)
- Additional training in forensics
- Work in larger population centers
- Criminal case work and testimony

Death Investigation Systems: 2014

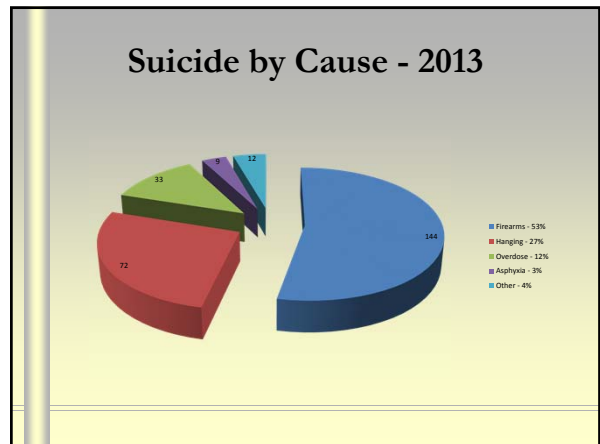
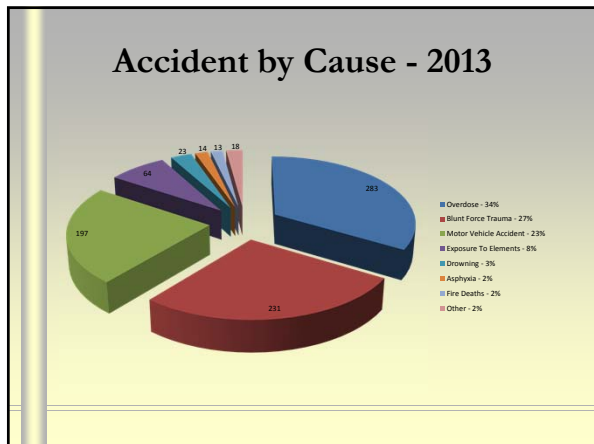
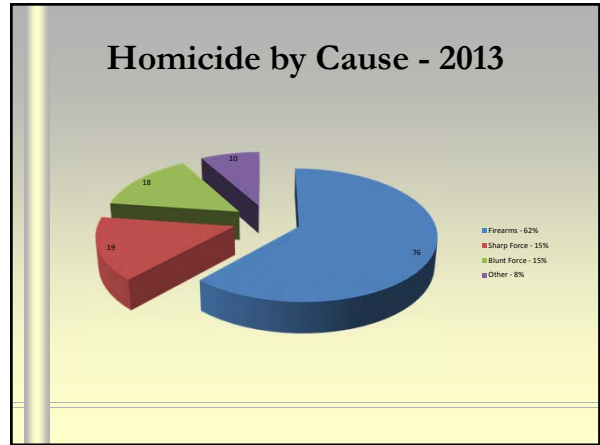
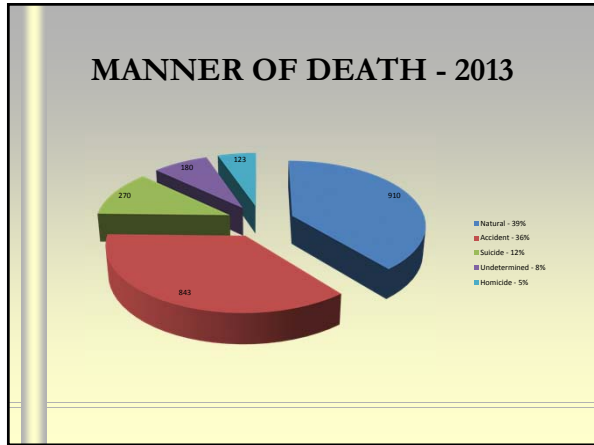
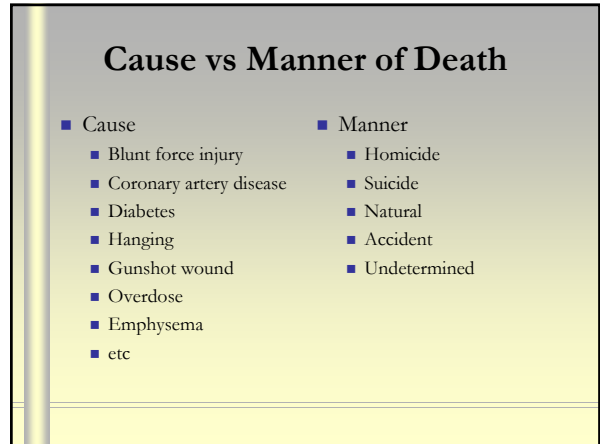
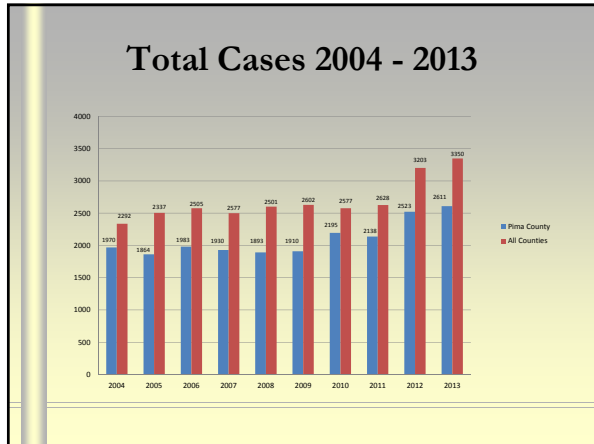


- Some counties have a medical examiner and many or most have a coroner.
- State Medical Examiner with coroners in each county
- State Medical Examiner with various types of non-coroner regional or local assistance
- State Medical Examiner assisting coroners in most counties, at least one autonomous county medical examiner
- District Medical Examiners (FL). ○ Mostly state-funded district offices assisting coroners in most counties (AL).
- Medical Examiner (physician) in each county.
- Coroner in each county
- Regional offices administratively (but not operationally) overseen by person with title of State Medical Examiner (NJ, TN)

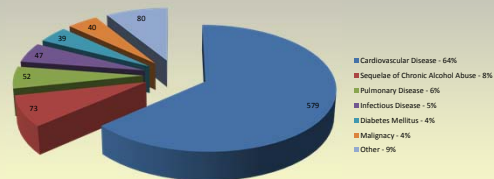
Arizona

- 9 Counties in Arizona run a Forensic Pathologist managed death investigation system
- Medical Examiner = Forensic Pathologist
- Alternate Medical Examiner = Non-FP physician
- No coroners in Arizona, only ME's and alternate ME's

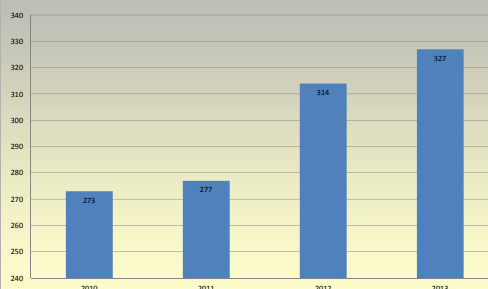




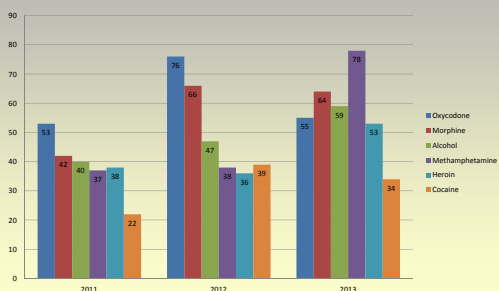
Natural Deaths by Cause - 2013



Overdose Deaths 2010 - 2013



Select Drugs by Year 2011-2013



ME and the Judicial System

- Frequently consulted in criminal prosecution and civil litigation
- Most criminal investigations involve homicides followed by accidents (MVA)
- Most commonly called to testify by the prosecution as neutral expert witness
- Guilt is determined by the court

What information we provide

- Estimate postmortem interval
- Document and characterize injury
 - Firearms, Sharp force, Blunt force, Asphyxia, etc
- Presence/absence of natural disease or other conditions
- Survivability
- Distinguish between artifact and injury
- Collect evidence

Components of Examination

- Review of information
 - Scene, demographic, medical history, comments from law enforcement, families, others
- External Examination
 - Clothing, height, weight, injuries, natural disease, scars, tattoos, medical intervention, evidence collection
- Internal Examination
 - Injuries, natural disease, medical intervention, evidence collection

Components of Examination

- Toxicology
 - Illicit drugs, prescription medications, poisons
- Radiographs
 - Projectiles, dental examination for ID, hardware
- Histology
 - Infections, cancer, natural disease
- Other
 - Cultures, DNA, special tests

Postmortem Interval

- Rigor Mortis
- Livor Mortis
- Algor Mortis
- Amount of decomposition
- VERY environmentally dependent
- Last seen alive
- Mail, paper, cell phone, etc

Postmortem Change Questions

- Are the finding consistent with story “X”?
- Postmortem movement of the body?
- Environment – temperature, air flow, clothing, body habitus, humidity, insect activity, animal scavenging

GSW Questions

- Range of fire?
 - Contact
 - Intermediate
 - Distant
- Entrance/Exit?
- If multiple injuries which is most serious?
- Same weapon?
- Handgun, shotgun, rifle, etc.?

Sharp Force Injury Questions

- Stab or incised wound?
- Length of blade?
- Depth of penetration?
- If multiple wounds which is most serious?
- Direction of wound?
- Sharp or blunt edges?
- Consistent with weapon “X”?

Blunt Force Injury Questions

- Contusion, abrasion or laceration?
- All injuries same age?
- If multiple which is most serious?
- Consistent with being produced by weapon “X”?
- Pattern to injury?

Natural Death Questions

- Often involve sudden deaths or deaths of individuals who did not see a doctor
 - How did they die?
 - Could I have done something sooner?
 - Does this run in the family?

CHARGE Syndrome

- Coloboma of the eye
- Heart defects
- Atresia of the choanae
- Retardation of growth or development
- Genital/urinary abnormalities
- Ear abnormalities or deafness