



Utah Office of the Medical Examiner (OME)

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Assistant Medical Examiner

Before we begin

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Have a death? Don't know what to do?

- <https://ome.utah.gov>
- (801) 816-3850

Overview

- **About us**
- OME Jurisdiction
- OME Process
 - Investigation
 - Examination
 - Determination: cause and manner

About us

- Established in 1972, the Utah OME is a statewide system for the investigation of deaths that occur unexpectedly, violently, or where the cause of death is unknown
- Housed within the **Utah Department of Health & Human Services**
- A death certificate is generated that lists **cause of death** and **manner of death** for each case under OME jurisdiction



About Us

Chief Medical Examiner

Deirdre Amaro, MD

Deputy Chief Medical Examiner

Lily Marsden, MD

Assistant Medical Examiners

Michael Belenky, MD

Kacy Krehbiel, MD

Andrew Guajardo, MD

Brent Davis, MD

Amanda Ho, MD

Ben Murie, DO

Neil Haycocks, MD, PhD

Justin Lohmann, DO

Overview

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- **OME Jurisdiction**
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OME Jurisdiction (26B-8-2)

- 1) Was by violence, gunshot, suicide, or accident
- 2) Was sudden death while in apparent good health
- 3) Occurred unattended
- 4) Occurred under suspicious or unusual circumstances
- 5) Resulted from poisoning or overdose of drugs
- 6) Resulted from a disease that may constitute a threat to public health
- 7) Resulted from disease, injury, toxic effect, or unusual exertion incurred within the scope of the decedent's employment
- 8) Was due to sudden infant death syndrome
- 9) Occurred while the decedent was in prison, jail, police custody, state hospital, etc.
- 10) Resulted directly from the actions of a law enforcement officer
- 11) Was associated with diagnostic or therapeutic procedures
- 12) When request is made by a county or district attorney or law enforcement agency

OME Jurisdiction

- 26B-8-2 (1): Deaths due to violence, gunshot, suicide or accident



OME Jurisdiction

- 26B-8-2 (1): Deaths due to violence, gunshot, suicide or accident



- Suicide: *death caused by an intentional and voluntary act of a person who understands the physical nature of the act and intends to accomplish self-destruction*

OME Jurisdiction

- 26B-8-2 (1): Deaths due to violence, gunshot, suicide or accident



OME Jurisdiction

- 26B-8-2 (2): Sudden death while in apparent good health



- Large proportion of cases investigated by OME
- Instantaneous death without obvious natural cause
- Death following unexplained syncope or coma
- Acute, rapidly fatal illness without known cause

OME Jurisdiction

- 26B-8-2 (3): Deaths that occurred unattended
 - “Unattended” defined as death of a person who has not been seen by a physician within 365 days of date of death.
 - Majority of cases reported under this provision are released to attending physician for certification.

OME Jurisdiction

- 26B-8-2 (4): Unusual or suspicious circumstances



- No specific definition of what constitutes “unusual or suspicious”
- Clinical uncertainty concerning pathophysiologic cause of death no sufficient
- Evaluated by OME on case-by-case basis

OME Jurisdiction

- 26B-8-2 (5): Poisoning or overdose of drugs



- Fastest growing category of deaths investigated
- Reflects nationwide trends in deaths due to abuse of prescription and/or illicit drugs

OME Jurisdiction

- 26B-8-2 (6): Disease that may constitute a threat to public health



- Diseases where there is potential to spread through casual contact
- Bioterrorist attack

OME Jurisdiction

- 26B-8-2 (7) Disease, injury, toxic effect, or unusual exertion incurred within the scope of employment



- Does not include deaths that occur during work hours from natural disease not related to employment

OME Jurisdiction

- 26B-8-2 (8): Due to Sudden Infant Death Syndrome
 - Usually called SUID now
 - Requires autopsy and investigation



OME Jurisdiction

- 26B-8-2 (8): Due to Sudden Infant Death Syndrome
 - No external or internal findings
 - Cannot exclude suffocation homicide (diagnosed by confession)

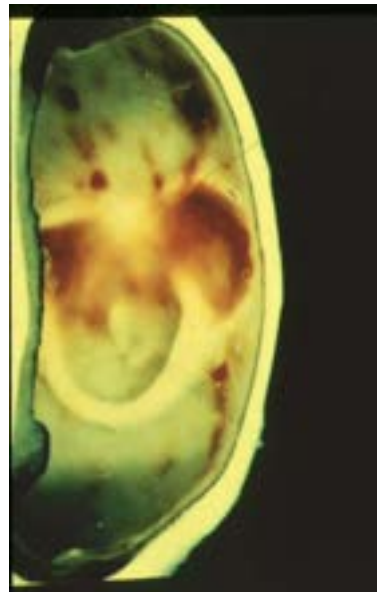


OME Jurisdiction

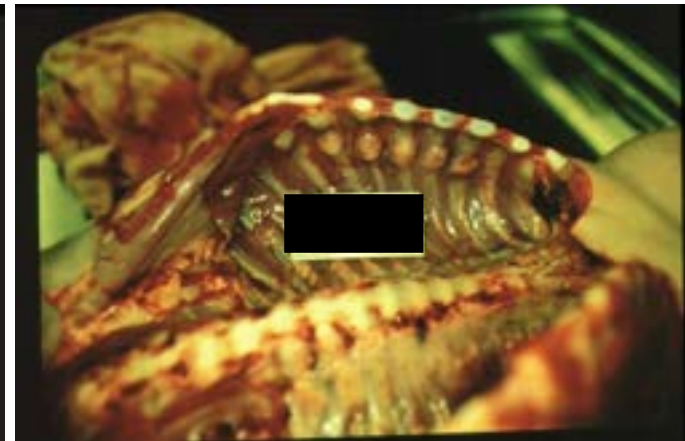
- 26B-8-2 (8): Due to Sudden Infant Death Syndrome
 - Violent deaths may have no external signs of lethal injuries



Cerebral edema and
subdural hemorrhage



Retinal hemorrhage



Healing rib fractures

OME Jurisdiction

- 26B-8-2 (9): While in prison, jail, police custody, state hospital, or in a medical or detention facility operated for the treatment of the mentally ill or emotionally disturbed or delinquent persons



OME Jurisdiction

- 26B-8-2 (10): Resulted directly from the actions of a law enforcement officer



OME Jurisdiction

- 26B-8-2 (11): Associated with diagnostic or therapeutic procedures



- Death from unknown or unforeseen complication of procedure
- Complications of known risks not under OME jurisdiction
- Threat of civil litigation not grounds for OME involvement

OME Jurisdiction

- 26B-8-2 (12): Requested by county or district attorney or law enforcement agency in connection with a potential homicide

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 - **Determination: cause and manner**

OME Process

- Types of cases:
 - **Regular** – under OME jurisdiction, body is examined by ME
 - **Designated representative** – under OME jurisdiction, examination would not add value, death certificated signed by outside physician
 - **Inquiry** – not under OME jurisdiction
 - **Absentia** – ME signs death certificate after review of medical records

OME Process

- Investigation
 - Circumstances surrounding death
- Examination
 - Autopsy
 - Toxicology
 - Histology
 - Microbiology
 - Genetics
- Determination
 - Cause
 - Manner



OME Investigations

- The eyes and ears of the OME
- Investigators available 24/7/365 to take calls and go to death scenes
 - 9 full-time
 - 17 part-time
 - 90+ vendor
- Investigators collect information about:
 - Circumstances surrounding death
 - Scene findings
 - Medical and psychosocial history
 - Other pertinent history and findings

OME Investigations



- Scene findings may be crucial to understanding how a death happened
- OME pathologists may respond to homicide scenes in Salt Lake County

OME Investigations



- Alteration of scenes by first responders, law enforcement personnel, and others may compromise the ME's ability to offer opinions
- Preservation and documentation of initial conditions is critical

Six Basic Questions

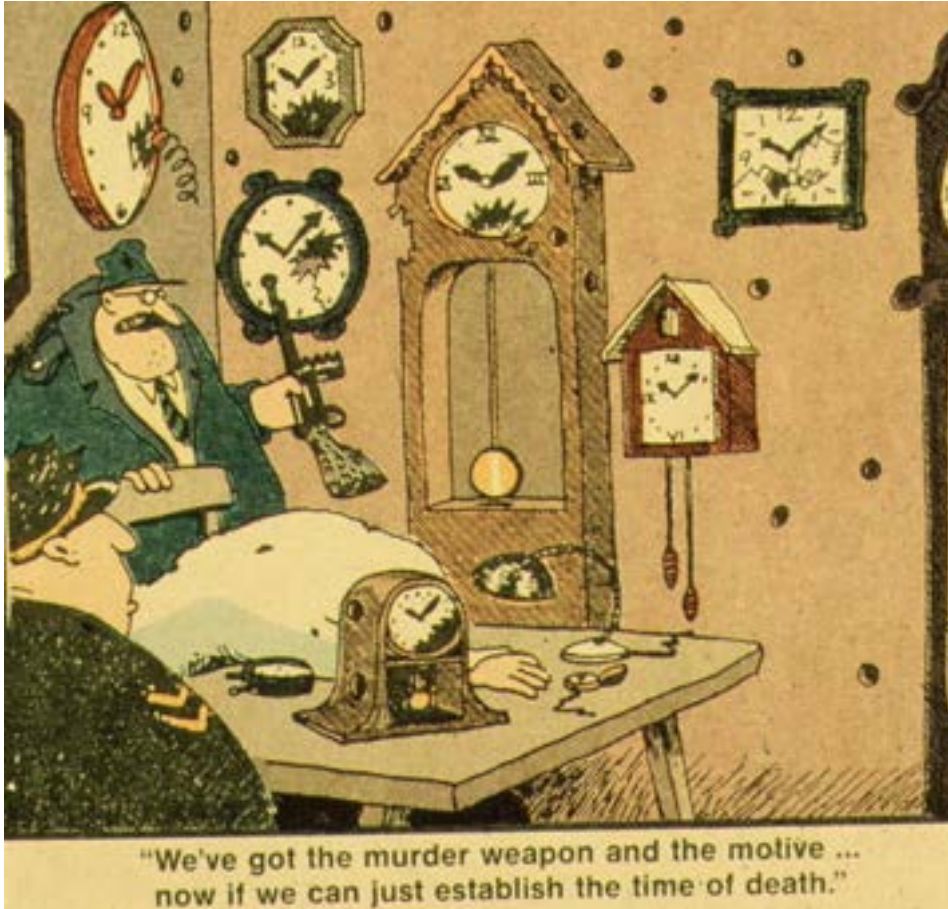
- 1) **Who are you?** – Identification
- 2) **When did you die?** – Time of death
- 3) **Where did you die?** – Location of death
- 4) **What was your cause of death?** – Medicolegal autopsy to determine cause of death
- 5) **How did your death occur?** – Manner of death
- 6) **If there was foul play, is there evidence that would link your death to the perpetrator(s)?**

1. Identification



- Visual
 - Confirmation by known associates
 - Government issued ID
 - Distinctive tattoos, scars, etc.
- Circumstantial
 - Recluse found in locked house
 - Burned body wearing distinctive clothing found in vehicle wreckage
- Scientific
 - Implanted hardware
 - Dental comparison
 - Fingerprints
 - DNA

2. Time of death



- Person must have died between being last known alive and being found
- Everything else is an estimate
- Circumstantial evidence often the most helpful

2. Time of death



- Rigor mortis: stiffening of the body after death
 - First apparent in small muscles
 - Eventually dissipates, leaving body limp
 - Sometimes useful if body has been moved

2. Time of death



- Livor mortis: settling of blood due to gravity
 - Initially “blanchable”
 - Eventually becomes fixed
 - Sometimes useful if body has been moved

2. Time of death



- Much has been tried over the years
 - Algor mortis: change in body temperature after death
 - Vitreous electrolyte levels (potassium, magnesium, etc.)
 - Examination of stomach contents
 - Forensic entomology
- Unfortunately, no “deathometer” exists

3. Location of death



- Found location may or may not be the same as death location
- Requires close examination of rigor mortis, livor mortis, blood stains/drips/spatter, etc.

3. Location of death



- Special circumstances
 - Bodies in water
 - Decomposed bodies
- Discrepancies and inconsistencies
 - Violent death but undisturbed scene
 - May reflect attempt to mask homicide or otherwise stage a scene

4. Medicolegal Autopsy

- 26B-8-213: Autopsies – When authorized
 - 1) The medical examiner shall perform an autopsy to:
 - a) Aid in the discovery and prosecution of a crime;
 - b) Protect an innocent person accused of a crime; and
 - c) Disclose hazards to public health



4. Medicolegal Autopsy



- Background investigation
 - Historical events
 - Reports and records
 - Scene inspection
 - Photographs and diagrams
- Examination of clothing

4. Medicolegal Autopsy



- Detailed external examination
 - Identification
 - Injuries
- Complete autopsy (internal examination)
- Necessary special studies
 - Toxicology
 - Radiographs
 - Microbiology
 - Histology

4. Medicolegal Autopsy



- Preliminary photography: document the body as received
- Pattern of blood staining on body may be crucial to understand events surrounding death
- Clothing is removed, examined, and photographed if necessary
- May be preserved as evidence

4. Medicolegal Autopsy



- Postmortem radiographs
 - Presence/absence and location of projectiles or foreign bodies
 - Assist in retrieval of projectiles
 - Aid in identification
 - Document natural disease and/or injuries



4. Medicolegal Autopsy



- Collection of trace evidence
 - Fingernail scrapings
 - Gunshot residue
 - Sexual assault kit
 - Hairs, fibers
 - Fingerprints
 - Alternate light exam

4. Medicolegal Autopsy



- Body should be photographed in undressed state prior to washing
- Injuries should be photographed again after cleaning and/or shaving

4. Medicolegal Autopsy



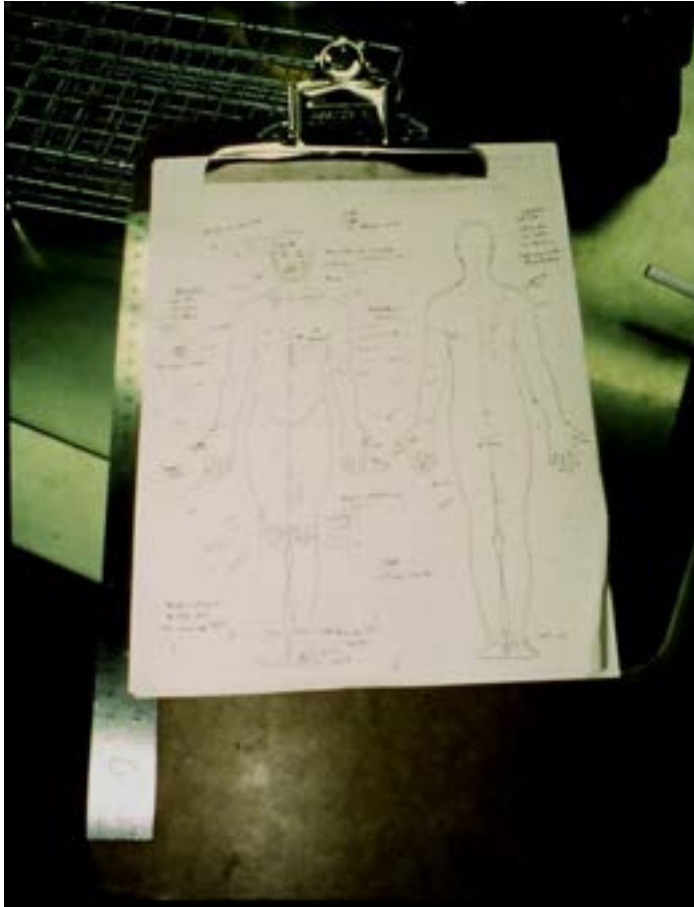
- Internal examination
- Body opened with Y-shaped incision
- Organs removed individually or en bloc
- Internal injuries and disease processes documented
- Relevant findings photographed

4. Medicolegal Autopsy



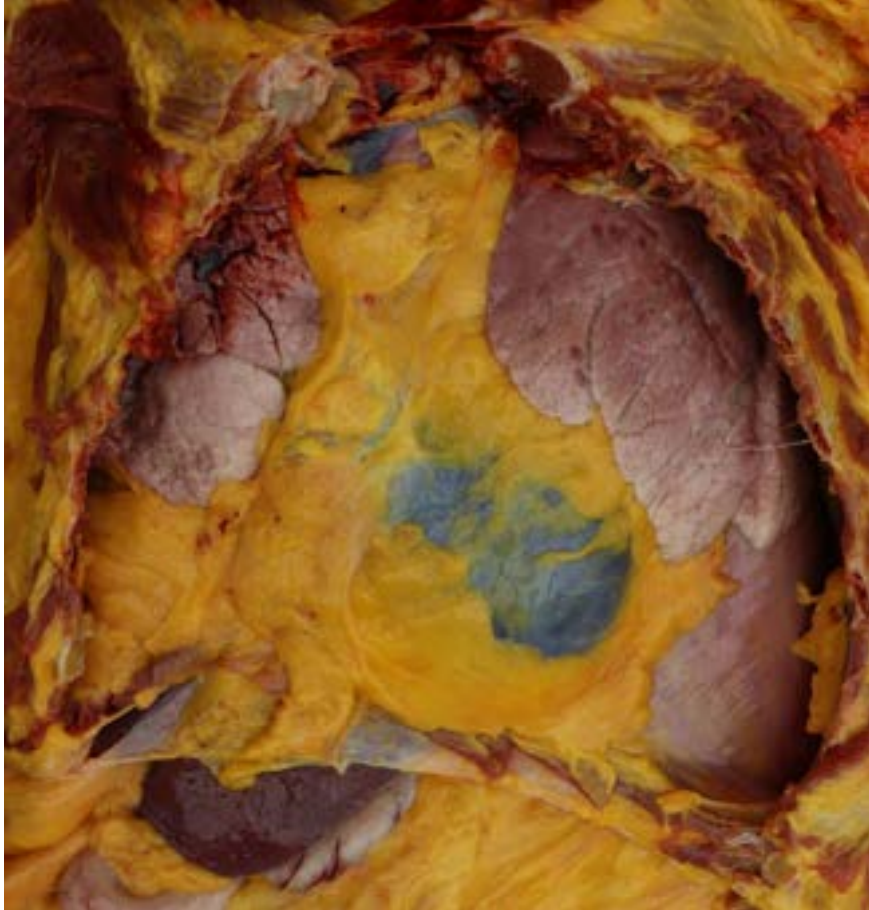
- Toxicology
 - Routine samples: blood, urine, bile, vitreous, liver, gastric
 - Additional as needed (brain, fat muscle, kidney spleen, etc.)
 - In some cases only cavity blood is available

4. Medicolegal Autopsy



- Autopsy findings documented on body diagrams
- Serve as backup to photography
- Useful for courtroom presentations of findings and evidence

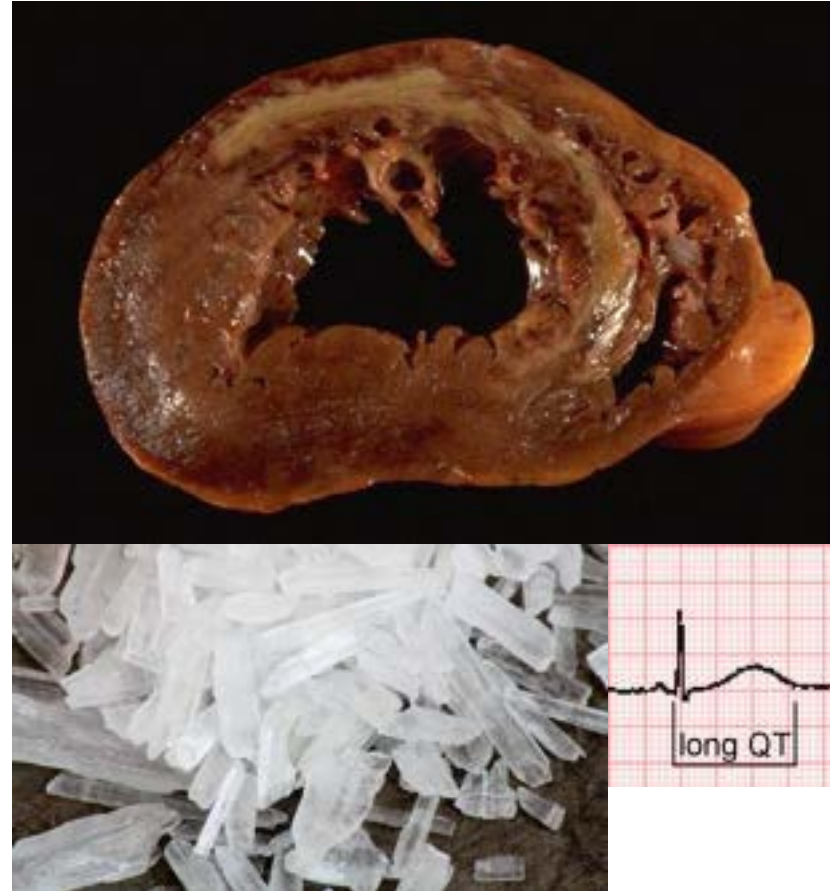
4. Cause of Death



- The injury or disease the produced the physiologic derangement resulting in death
- Examples:
 - Gunshot wound of head
 - Hanging
 - Blunt force injuries
 - Hypertensive and atherosclerotic cardiovascular disease
 - Metastatic cancer
- May be established with varying degrees of certainty

Mechanism of Death

- The physiologic derangement produced by the cause of death that results in death
- Examples:
 - Hemorrhage
 - Sepsis
 - Cardiac arrhythmia
 - Asphyxiation
 - Cerebral hypoxia
 - Disseminated intravascular coagulation



5. Manner of Death

- How the death came about
- Five options:
 - Natural
 - Accident
 - Suicide
 - Homicide
 - Could not be determined



6. Who did it?

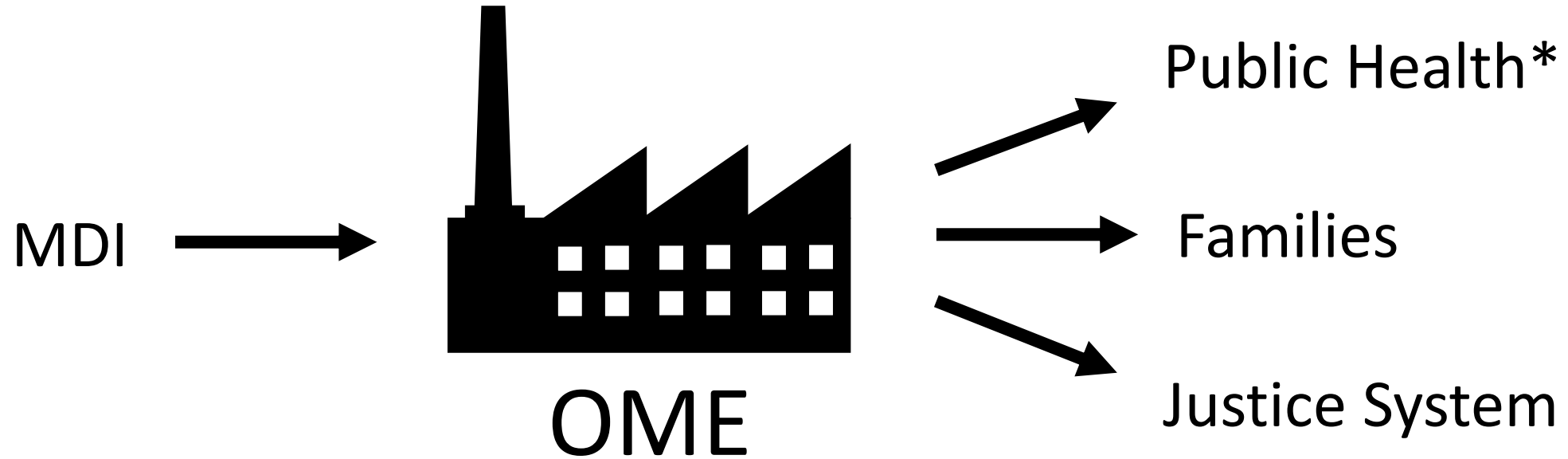
- Three basic types of homicide evidence:
 - Injury patterns – lethal vs. nonlethal
 - Weapon – related to injury patterns
 - Trace evidence on body (fluids, fibers, etc.)
- A given case may have any or all three
- Identifying an unknown perpetrator relies on coordinated efforts by law enforcement, OME, the crime lab, and others



Closing the circle

- An **autopsy report** is generated for each case where an examination is performed
- Like a death certificate, an autopsy report lists the cause and manner of death
- The report contains factual data derived from the examination and ancillary studies
- An **opinion** summarizes and interprets, to varying extents, the pertinent information related to the case

Autopsy reports are useful



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Questions?

