DEATH INVESTIGATION CONCEPTS FOR MEDICAL PROFESSIONALS

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WHAT DO YOU NEED TO KNOW ABOUT THIS SUBJECT?

- WHEN TO NOTIFY THE M.E. OR CORONER IN YOUR AREA
- HOW TO PRESERVE (OR AT LEAST NOT NEEDLESSLY DESTROY) EVIDENCE
  - INCLUDES MEDICAL RECORDS
- HOW TO HANDLE A DEATH
  - HOW TO REPORT A CASE
  - HOW TO FILL OUT A DEATH CERTIFICATE

M.E.'s AND CORONERS

- NOT PART OF LAW ENFORCEMENT
- NOT A PARTY TO EITHER SIDE IN COURT
- NOT SCIENTISTS, BUT PHYSICIANS
- NOT PARTICULARLY HIGH-TECH
- YOU WON'T FIND REALITY ON T.V. OR IN THE MOVIES
- C.S.I. EFFECT
WHY INVESTIGATE DEATH?

- Legal Issues (Criminal or Civil)
- Public Health
- Family Closure
- Medical Quality Assurance
- Insurance
- Statistics

WHO DOES THE INVESTIGATIONS?

- State, not federal, responsibility
- The U.S. is a real patchwork of different systems
- Most can be divided into either Coroner or Medical Examiner jurisdictions
- Both types my co-exist in the same state

FORENSIC PATHOLOGY

- Forensic Pathology is a medical subspecialty of pathology
- The terms “Medical Examiner” and “Coroner” are not medical titles. They are elected or appointed government positions, so definitions vary.
CORNER SYSTEMS

- HISTORY GOES BACK TO FEUDAL ENGLAND
- ELECTED POSITION IN THE U.S.
- USUALLY NO MEDICAL EXPERIENCE REQUIRED
- OCCASIONALLY REQUIRED TO BE A PHYSICIAN, RARELY A FORENSIC PATHOLOGIST
- MORE INDEPENDENT (AT LEAST IN THEORY)
  - BUT THIS IS OUTWEIGHED BY LACK OF EXPERTISE
  - CONFLICTS OF INTEREST??

MEDICAL EXAMINER SYSTEMS

- FORMED IN EARLY 20TH CENTURY TO ADDRESS SHORTCOMINGS OF CORONER SYSTEM
- MEDICAL EXAMINER IS APPOINTED PHYSICIAN, NOT AN ELECTED LAY PERSON
  - CHIEF M.E. AND DEPUTIES SHOULD BE BOARD CERTIFIED FORENSIC PATHOLOGISTS TODAY
- FULLY INDEPENDENT
  - CIVIL SERVICE PROTECTION ASSURES THIS
- M.E. HAS JURISDICTION OVER ALL TYPES OF CASES AND IS IN ULTIMATE CHARGE OF OFFICE
- REPORT DIRECTLY TO LOCAL EXECUTIVE

CREDENTIALS

- THE NATIONAL ASSOCIATION OF MEDICAL EXAMINERS (N.A.M.E.) ACCREDIT M.E. AND CORONER OFFICES, BUT THIS IS NOT MANDATORY
- THE AMERICAN BOARD OF PATHOLOGY CERTIFIES FORENSIC PATHOLOGISTS
- EACH STATE ALSO HAS MEDICAL LICENSURE REQUIREMENTS FOR PHYSICIANS
- PUBLISHED PRACTICE STANDARDS, BUT NOT REALLY BINDING
- CERTIFICATION MILLS EXIST
**DEATH CERTIFICATION**

- DEMOGRAPHICS (WHO ARE YOU?)
- CAUSE OF DEATH (WHY DID YOU DIE?)
- MANNER OF DEATH (HOW DID YOU DIE?)
- DATE PRONOUNCED OR FOUND (WHEN DID WE DISCOVER YOU WERE DEAD?)
- A BUNCH OF OTHER EXTRANEOUS STUFF INCLUDING PREGNANCY HISTORY, SMOKING, ETC.

**CAUSE OF DEATH**

- THAT CONDITION OR THING BUT FOR WHICH DEATH WOULD NOT HAVE OCCURRED
- NO TIME LIMIT ON INTERVAL BETWEEN “EVENT” OR INJURY AND DEATH
- FOR INSTANCE:
  - YOU BECOME QUADRIPLEGIC FROM A GUNSHOT WOUND OF THE BACK SUSTAINED IN A ROBBERY
  - 20 YEARS LATER YOU DEVELOP SEPSIS AND DIE FROM A URINARY TRACT INFECTION FROM YOUR NEUROGENIC BLADDER
- WHAT IS YOUR CAUSE AND MANNER OF DEATH?

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- WHAT IS YOUR CAUSE AND MANNER OF DEATH? GUNSHOT WOUND OF BACK/HOMICIDE
NEVER USE THESE AS A CAUSE OF DEATH

- CARDIOPULMONARY ARREST
- RESPIRATORY ARREST OR FAILURE
- ANOXIC ENCEPHALOPATHY
- SEPSIS

- THAT IS, UNLESS YOU QUALIFY THEM WITH AN APPROPRIATE “DUE TO.......”

MANNER OF DEATH

- CLASSICAL M.O.D.
  - HOMICIDE
  - SUICIDE
  - ACCIDENT
  - NATURAL
  - UNDETERMINED

- THESE ARE STATISTICAL, NOT LEGAL, CATEGORIES

HOMICIDE

- DEATH DUE TO INTENTIONAL (FORESEEABLE?) ACT OF ANOTHER PERSON
  - MVA DEATHS NOT USUALLY INCLUDED, BUT...
    - SOME JURISDICTIONS CALL ALCOHOL RELATED TRAFFIC DEATHS HOMICIDE
    - SOME CERTIFY HIT-AND-RUN DEATHS AS HOMICIDE
  - INTENT TO KILL THE VICTIM NOT REQUIRED, ONLY THAT ACT WAS INTENTIONAL
  - HOMICIDE DOES NOT NECESSARILY = MURDER
SUICIDE

- DEATH BY OWN HANDS
  - INTENT TO CAUSE DEATH NOT REQUIRED; ONLY THAT DEATH WAS REASONABLY FORSEEABLE ("RUSSIAN ROULETTE")
  - FOLKS ARGUE ABOUT THIS A GREAT DEAL
  - OFTEN DIFFICULT TO PROVE ANY TYPE OF INTENT
  - MOST TROUBLESOME DECISION IN MANNER OF DEATH CERTIFICATION

ACCIDENT

- DEATH WITH "SIGNIFICANT" CONTRIBUTION BY NON-NATURAL CONDITIONS
  - FALLS, MOTOR VEHICLE COLLISIONS, ELECTROCUTION, DROWNING, DRUG OVERDOSES, ETC.
  - JUST HOW MUCH CONTRIBUTION IS CONSIDERED "SIGNIFICANT" IS OPEN FOR DEBATE
- INJURY SHOULD BE UNANTICIPATED AND UNINTENTIONAL

EXAMPLE

- 80 YEAR OLD MAN WITH HISTORY OF:
  - CABG, DIABETES, COPD, AND STAGE 4 PROSTATE CA
  - BUT AMBULATORY AND RELATIVELY SELF-SUFFICIENT
- TRIPS, FALLS AND FRACTURES FEMUR
  - SUBSEQUENTLY BEDRIDDEN AFTER ORIF
  - DIES 4 DAYS AFTER SURGICAL REPAIR
- WHAT IS THE MANNER OF DEATH?
- IF THE FRACTURE OCCURRED AT THE SITE OF A LYtic LESION ON RADIOGRAPH, WHAT MIGHT THE MANNER BE?
EXAMPLE

- 80 year old man with history of:
  - CABG, diabetes, COPD, and stage 4 prostate CA
  - But ambulatory and relatively self-sufficient
- Falls and fractures his femur
  - Subsequently bedridden after ORIF
  - Dies of bronchopneumonia 4 days after surgical repair
- What is the manner of death? ACCIDENT
- If the fracture occurred at the site of a lytic lesion on radiograph, what might the manner be? MAY BE NATURAL

NATURAL

- Death due solely to natural disease
  - Heart disease
  - Cancer
  - Strokes
  - Infectious disease
  - ETC., ETC.
- No contribution by any traumatic injury and none listed anywhere on death certificate
- No drug intoxication

UNDETERMINED

- "We don’t know"
- 3-5% of cases
- Either M.O.D. or C.O.D. may be undetermined
- A measure of honesty
  - The autopsy and investigation are not crystal balls
- Sometimes we know precisely what happened, but none of the M.O.D. categories fit
STANDARD OF PROOF

- THE STANDARD FOR CAUSE AND MANNER OF DEATH IS “MOST LIKELY”
- NOT A GUARANTEE; JUST A DIFFERENTIAL DIAGNOSIS
- THE TERM “BEYOND A REASONABLE DOUBT” HAS NO PLACE IN MEDICAL OPINION
- “REASONABLE MEDICAL CERTAINTY” IS NOT MUCH BETTER

M.E. JURISDICTION

- ANY DEATH DUE TO OTHER THAN NATURAL CAUSES
- CASES IN WHICH CAUSE AND MANNER ARE NOT APPARENT
- SUDDEN AND UNEXPECTED NATURAL DEATH
  - NOT UNDER PHYSICIAN CARE, NOT ELDERLY, NO MEDICAL HISTORY
  - ANY PHYSICIAN “HAVING KNOWLEDGE” OF THE PATIENT MAY CERTIFY DEATH IN CASES OF NATURAL DEATH
- UNIDENTIFIED BODIES

WHO CAN SIGN A D.C.?

- A registered nurse or physician’s assistant may pronounce death if the deceased was not on life support systems and it is permitted under the written policies of the licensed health care facility, institution, or other entity providing services to that person [HSC 671.001(d)]. However, a registered nurse or physician’s assistant may not certify to the cause and manner of death on the death certificate. Only a licensed physician, medical examiner, or justice of the peace may sign as the certifier of cause of death.
TIME OF DEATH

☑️ FOR CERTIFICATION PURPOSES, USE TIME BODY FOUND OR WHEN PATIENT WAS PRONOUNCED.
☒️ M.E.’s DO NOT ACTUALLY DETERMINE A “TIME OF DEATH”. THIS IS A HOLLYWOOD FABRICATION.
☒️ GROSS ESTIMATES ARE POSSIBLE, RECOGNIZING THAT THERE ARE ALWAYS OUTLIERS.
☒️ WE TRY TO AVOID OPINING ON THIS SUBJECT.

RIGOR MORTIS

LIVOR MORTIS
M.E. ORGANIZATION

- INVESTIGATION
- MEDICAL
- AUTOPSY-MORGUE
- CLERICAL
- TOXICOLOGY
- ADMINISTRATIVE

INVESTIGATION

- "THE BEST AUTOPSY IS NO BETTER THAN THE WORST SCENE INVESTIGATION"
- CRITICALLY IMPORTANT TO OUR JOB
- WE CAN USE INFORMATION FROM ANY AND ALL SOURCES
- SEPARATE FROM POLICE INVESTIGATION, BUT OFTEN PARALLEL
- MEDICALLY TRAINED PERSONNEL MAKE EXCELLENT INVESTIGATORS

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MEDICAL

- Examinations should be by a board certified (American Board of Pathology) forensic pathologist
  - Doctors in other specialties are quite unqualified to do this type of work
- N.A.M.E. Standards address autopsy performance
- Consultants:
  - Odontology
  - Anthropology
  - Neuropathology
  - Etc.

AUTOPSY-MORGUE

- Assistants are trained O.J.T. to assist forensic pathologists
  - But only under direct supervision
- Evisceration of bodies
- Toxicology specimen collection
- Radiography
- Admission and release of decedents
- Evidence and personal effects handling
CLERICAL

- OUR WORK PRODUCES VOLUMINOUS DOCUMENTATION
- IN SOME STATES, M.E. REPORTS ARE PUBLIC RECORD
- Q.A. VERY IMPORTANT AS DOCUMENTS WILL OFTEN END UP IN COURTROOM
- ALSO ONE OF OUR PRIMARY INTERFACES WITH THE PUBLIC

TOXICOLOGY

- MOST EXAMINATIONS WILL INCLUDE A COMPREHENSIVE TOXICOLOGIC ANALYSIS OF BLOOD AND POSSIBLY OTHER SUBSTRATES
- INCLUDES ALCOHOLS, ALKALINE SCREEN, ACID-NEUTRAL SCREEN, COCAINE-OPiate SCREEN, AND POTENTIALLY OTHER CLASSES OF DRUGS
- ANY SIGNIFICANT DRUG FOUND WILL BE CONFIRMED AND QUANTITATED
- SUPERVISED BY PH.D. FORENSIC TOXICOLOGIST
- HOSPITAL TOXICOLOGY INADEQUATE IN THIS FIELD
ADMINISTRATION

- OFFICE SHOULD BE UNDER ULTIMATE DIRECTION OF AN EXPERIENCED, BOARD CERTIFIED FORENSIC PATHOLOGIST
  - BUDGET AND FISCAL MATTERS
  - H.R.
  - STRATEGIC PLANNING
- REQUIRE GOOD SUPPORT AND FUNDING FROM POLITICAL OFFICIALS

PROCESS

- CASES REPORTED TO INVESTIGATOR (24/7)
- DECISION MADE WHETHER OR NOT TO TAKE CASE UNDER JURISDICTION
- IF SO, BODY BROUGHT TO M.E. OFFICE
- INVESTIGATOR OBTAINS AS MUCH INFORMATION AS POSSIBLE, AND MAY VISIT DEATH SCENE
- EXAMINATION BY FORENSIC PATHOLOGIST/M.E.
- FOLLOW-UP INVESTIGATION AS NECESSARY
PROCESS (CONT.)
- Identification confirmed as necessary
- Toxicologic testing
- Consultation as needed
- M.E. puts it all together and determines cause and manner of death
- Report of findings and opinion dictated and signed
- Q.A. procedures
- Possible court appearance in some cases

VEHICULAR MISHAP

NATURAL DEATHS
- The most common type of death we see
- Heart disease
- Strokes
- Cancer
- Infections
- Diabetes
- Etc.
NATURAL DISEASE

- MOST NATURAL DEATHS DO NOT FALL UNDER M.E. LAW
- ONLY IF:
  - NOT UNDER MEDICAL CARE
  - NO PHYSICIAN TO SIGN D.C.
  - NOT PREVIOUSLY DIAGNOSED
  - SUDDEN AND UNEXPECTED
- IF A PERSON IS ELDERLY OR HAS WELL DOCUMENTED POTENTIALLY FATAL DISEASE, WE WILL TYPICALLY NOT PERFORM AN AUTOPSY

GUNSHOT WOUNDS

- WHAT CAN WE TELL?
  - RANGE OF FIRE
  - TRAJECTORY
  - INJURY
  - POSSIBLY CALIBER AND WEAPON

DRUG INTOXICATION

- MOST POPULAR DRUGS IN SAN ANTONIO
  - ETHANOL
  - HEROIN
  - COCAINE
  - METHAMPHETAMINE
- ACUTE INTOXICATION USUALLY ACCIDENT
- CHRONIC EFFECTS OF THESE DRUGS ARE CONSIDERED “NATURAL”
- Rx DRUG ABUSE VERY COMMON
ALCOHOL IS THE MOST DANGEROUS DRUG

NEEDLE TRACKS

INFANT OR CHILD DEATHS

- S.U.D.I....ESSENTIALLY MEANS “WE HAVE NO IDEA”
  - MOST ARE PROBABLY DUE TO OVERLAY ASPHYXIA
  - TRAUMA
  - ASPHYXIA
  - ACCIDENTAL DEATHS (TRAFFIC, DROWNING, ETC.)
  - INTOXICATIONS: FAIRLY RARE
  - NATURAL DISEASES...USUALLY NOT M.E. CASES
INFANT ENTRAPMENT/ POSITIONAL ASPHYXIA

INFANTS: ENTRAPMENT

BLUNT FORCE INJURIES
- BEATINGS
- FALLS
- M.V.A.'S
- CRUSH INJURIES
- TYPES OF INJURIES
  - CONTUSIONS (BRUISES)
  - ABRASIONS (SCRAPES)
  - LACERATIONS (SKIN SPLITS)
  - FRACTURES
- MAY BE PATTERNED
SUBDURAL HEMATOMA

PROPER TERMINOLOGY

LACERATION INCISED WOUND OR CUT

SHARP FORCE

- STAB WOUNDS
- INCISED (CUT OR SLASH) WOUNDS
  - THESE ARE NOT "LACERATIONS"!!
- CHOP-TYPE INJURIES
  - MACHETE
  - AX
- MAY BE HOMICIDE, SUICIDE, ACCIDENT
ASPHYXIA

- Anything that deprives the body of oxygen
  - Strangulation-Hanging
  - Suffocation
  - Smothering
  - Choking
  - Drowning
  - Chemical (CO, Cyanide)

ENVIRONMENTAL DEATHS

- Drowning
- Electrocution
- Lightning Strikes
- Heat Stroke
- Hypothermia (Yes, it happens even in South Texas!!)
- Envenomations
  - Insects, Snakes, etc.

ELECTROCUTION...
The clue is usually at the scene
DROWNING SCENE

SUICIDES
- MOST COMMON METHOD IS G.S.W.
- NEXT IS HANGING
- ALMOST ANY OTHER MECHANISM YOU CAN IMAGINE IS ALSO SEEN
  - SHARP FORCE
  - CO POISONING
- MOST DO NOT LEAVE A NOTE
- NON-DOMINANT HAND IS OFTEN USED
- MANY DO NOT SEEM DEPRESSED
- ULTIMATE ACT OF IRRATIONALITY

HANGING
DECOMPOSED/SKELETAL

- Identification is often a problem
  - Fingerprints
  - Dental
  - DNA
  - Anthropology
  - X-ray, medical device, etc.
- Many diseases and injuries will still be visible, but more difficult to see.
- In skeletal case, natural disease may be impossible to identify; only bony trauma may be visible.

SO WHAT CAN YOU DO TO FACILITATE THIS PROCESS?

- First of all, call us!
- Don't alter body
  - Don't tie the wrists, pack the mouth, etc.
  - Don't remove any links or devices (but please don't leave expensive equipment on the body)
- Gather up any admission blood specimens and send with the body to the M.E.
- Do not cancel any cultures that have been sent to the lab
- Help us get meaningful medical records
- Urge physicians to sign the D.C.’s in natural deaths

QUESTIONS?

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