

Forensic Autopsy Protocol

Illinois Coroners and Medical Examiners Association



April 2005

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Background and Introduction

The annual meeting of the Illinois Coroners and Medical Examiners Association was held in November 2004 in Chicago, Illinois. During the meeting, a discussion was held noting that some national pathology organizations had developed practice guidelines and specific practice standards for the performance of forensic autopsies that would apply to Coroners and Medical Examiners in Illinois. Upon review, these documents were not necessarily specific or relevant to the practice of forensic pathology and performance of death investigation within the state of Illinois. Illinois is classified as a "mixed-system state" of 101 elected County Coroners each serving their own jurisdiction's death investigation needs, while utilizing trained coroner's pathologists for autopsies. This is contrasted to one appointed Chief Medical Examiner of Cook County with assistant medical examiner forensic pathologists, encompassing Chicago and its surrounding suburbs. Coroners are responsible for determining the manner of death after investigation and completion of the post mortem examination and may use the inquest jury. The medical examiner determines both cause and manner of death after investigation and autopsy without inquest.

Based on the jurisdictional differences within Illinois, and the fact that the Illinois Coroners Handbook had not been updated since its inception in the 1960's, it was decided that an ad hoc committee would be formed to develop consensus guidelines for the performance of forensic autopsies in the state of Illinois. The general agreement was that these guidelines, now a protocol, should be such that they aid and guide county coroners, coroner's forensic pathologists, and medical examiners of Illinois in proper procedures for forensic autopsies in conjunction with thorough death investigations, without resorting to mandatory formulas of rote performance.

In December of 2004, ICMEA President Coroner Jodeen Bernard of LaSalle County formed the ad hoc Forensic Autopsy Guidelines Committee. The President charged the committee consisting of Will County Coroner Patrick O'Neil, Kankakee County Coroner Bob Gessner, McLean County Coroner Beth Kimmerling, Morgan County Coroner Jeff Lair, J. Scott Denton, M.D., and Bryan Mitchell, M.D. to draft a document, present it for initial review to the ICMEA members, review the expected comments and concerns, revise the document accordingly, and then submit a final document for approval by the membership of guidelines for performance of an autopsy by an Illinois Coroner's Pathologist or Medical Examiner within Illinois.

It is important to note that this Illinois Autopsy Protocol is not meant as standards for the medical practice of an autopsy. A "standard" is defined as a universally accepted principal for investigation and examination of the deceased. A "standard" is by definition, rigid, and would not allow for any deviation, as may be required in a specific case. In other words, the use of judgment by the physician or coroner is not permitted. Conversely, this document contains a protocol or "guidelines", which are defined as recommendations, or "best practices" for forensic autopsy performance within the state of Illinois. This protocol importantly recognizes that every death investigation has unique characteristics and circumstances: that no two individuals are the same, either in personal, medical or family history. The performance of a postmortem examination is strongly driven by these investigative circumstances and medicolegal questions surrounding the death. These circumstances and questions frequently change and evolve as an investigation continues, necessitating flexibility in the autopsy approach. An autopsy practice

variation within this protocol is deemed reasonable if the end result is documentation and transmission of essential information from the post mortem examination in answering the important questions. It is important to note that an autopsy is the practice of medicine, requiring skills and judgment exercised by a specially trained physician-pathologist in a proper environment. This proper environment should be suitable or designed to properly accommodate the trained physician-pathologist and meet minimum specifications for autopsy. Illinois is a large state with very diverse size, population, and needs for each county within the state. Therefore, the facility for autopsy should be at the discretion of the individual county coroner and pathologist based on the individual needs of each case.

This protocol is not meant to interfere or conflict with any Illinois laws regarding the responsibilities and performance of the duties of coroners or medical examiners, but to guide Illinois coroners and pathologists in proper medicolegal death investigation (specifically 55 IL CS 5/1-3001, though 3044, et al). The Illinois Coroners and Medical Examiners Association strongly endorses this autopsy practice protocol and does not recognize guidelines, protocols and/or standards of other states or organizations.

SECTION I - Medicolegal Death Investigation

- A. These items are meant to ensure an objective and professional death investigation.
 - 1. The medicolegal coroner and medical examiner agencies should investigate cooperatively with, but also operate independently from, law enforcement agencies and prosecutors.
 - 2. A properly trained death investigator, such as the coroner, deputy coroner, medical examiner's death investigator, or police representative, shall investigate the circumstances surrounding all reported deaths, depending on local jurisdiction.
 - 3. Medicolegal death investigators assess each death reported to the office to determine whether it falls under their jurisdiction as outlined by statutes, rules, and regulations.
 - 4. The coroner or medical examiner agency involved should investigate all:
 - a. deaths due to violence.
 - b. known or suspected non-natural deaths.
 - c. unexpected or unexplained deaths when the decedent was in apparent good health.
 - d. unexpected or unexplained deaths of infants and children.
 - e. deaths occurring under unusual or suspicious circumstances.
 - f. deaths of persons in custody.

- g. deaths known or suspected to be caused by diseases constituting a threat to public health.
 - h. deaths unattended by a physician.
5. In cases of delayed death, the earliest admission hospital blood should be secured for toxicology testing.
6. An investigation into a death does not imply that an autopsy should be performed, or that the death be accepted by the coroner or medical examiner jurisdiction. The medical examiner or coroner's office makes these decisions based on criteria of that jurisdiction.

SECTION II - Forensic Autopsies

- A. Protocol for selecting deaths requiring autopsies and toxicology
1. A medical examiner or coroner's forensic pathologist should perform an autopsy when:
- a. the death is known or believed to have been caused by violent means, including self-inflicted injury.
 - b. the death is unexpected and unexplained in an infant or child.
 - c. the death is associated with police activity.
 - d. the death occurs while in the custody of a local, state, or federal institution to include hospitalized inmates.
 - e. the death is due to a workplace injury or occurs at work.
 - f. the death is caused by fire, smoke inhalation, or electrocution.
 - g. the death is suspected to be associated with intoxication by alcohol, drugs, or poisons.
 - h. the death is a suspected drowning or a body found in or near water.
 - i. the body is unidentified, skeletonized, or charred beyond recognition.
 - j. in motor vehicle collisions to validate the cause of death.
- B. The coroner's forensic pathologist and medical examiner should optimally be a Board Certified Forensic Pathologist.
1. Protocol for the pathologist's general responsibilities are that:

- a. the designated pathologist or supervised resident in pathology performs all autopsies
 - b. the pathologist personally and directly supervises all assistance rendered during postmortem examinations.
 - c. the pathologist performs all ex situ dissections, or directly supervises the pathology resident's dissection.
 - d. the medical examiner or coroner's forensic pathologist determines the need for special dissections or additional testing to determine the cause of death or answer anticipated medicolegal questions.
 - e. the medical examiner or coroner's forensic pathologist reviews and interprets all lab results.
 - f. the medical examiner or coroner's forensic pathologist reviews all ancillary and consultative reports.
 - g. the medical examiner or coroner's forensic pathologist determines cause of death.
 - h. in the coroners' jurisdiction, the coroner may hold an inquest to determine manner of death or determine the manner in consultation with the pathologist.
 - i. in the medical examiner jurisdiction, the medical examiner determines cause and manner of death.
 - j. the coroner's forensic pathologist or medical examiner assesses the sufficiency of presumptive identification.
 - k. the coroner's forensic pathologist, medical examiner pathologist or designee takes identification photographs with case number in photograph.
 - l. the coroner's forensic pathologist or medical examiner oversees the collection of specimens for toxicology, DNA or other laboratory studies.
- C. It is recommended that no forensic pathologist serving as Illinois Coroner's Physician shall conduct more than 400 autopsies per year for Illinois coroners. An exception can be granted for a short amount of time for special emergencies such as mass disasters, or the retirement, death or resignation of a forensic pathologist. It is recognized that the responsibilities for autopsies performed as a forensic pathologist are less than those under a medical examiner's system with fewer responsibilities for death investigation, follow up and contact with family, and administration, which fall to the coroner. The Chief Medical Examiner or Coroner of jurisdiction should ensure that the quality of the pathologist's work meets the jurisdictional needs.

- D. The Coroner's Forensic Pathologist certified after January 1, 2006 must participate in a Maintenance of Certification quality assurance program approved and mandated by the American Board of Pathology to maintain their Board Certification. The Coroner's Forensic Pathologist with a non-time limited certification issued before January 1, 2006 is strongly encouraged to participate in such a program.

SECTION III - Protocol for External Examinations

A. Initial examination procedures are that:

1. the coroner's forensic pathologist or medical examiner reviews the circumstances of death prior to autopsy.
2. the coroner's forensic pathologist, medical examiner or designee measures and records body length and weight.
3. the coroner's forensic pathologist or medical examiner examines and documents the external aspects of the body before internal examination.
4. the coroner's forensic pathologist, medical examiner or designee photographs the external body as necessary for documentation.
5. the coroner's forensic pathologist or medical examiner documents defects of clothing that may later be correlated with injuries on the body.
6. the coroner's forensic pathologist, medical examiner or designee identifies and collects trace evidence on clothing and body surfaces as necessary.
7. the coroner's forensic pathologist, medical examiner or designee removes clothing.
8. the coroner's forensic pathologist, medical examiner or designee generally documents clothing and personal effects verbally or photographically, photographing any traumatic defects.
9. the coroner's forensic pathologist or medical examiner documents the apparent age and gender.
10. the coroner's forensic pathologist or medical examiner describes the apparent race.
11. the coroner's forensic pathologist or medical examiner describes the head hair.
12. the coroner's forensic pathologist or medical examiner describes the eye color and any abnormalities.
13. the coroner's forensic pathologist or medical examiner describes the body habitus.

14. the coroner's forensic pathologist or medical examiner documents prominent scars, tattoos, skin lesions, and amputations.
15. the coroner's forensic pathologist or medical examiner documents presence or absence of dentition.
16. the coroner's forensic pathologist or medical examiner inspects and describes head and facial orifices.
17. the coroner's forensic pathologist or medical examiner inspects and generally describes the neck, thorax, abdomen, extremities, and hands.
18. the coroner's forensic pathologist or medical examiner inspects and describes posterior body surface, anus, and genitals.
19. the coroner's forensic pathologist or medical examiner documents evidence of medical or surgical intervention.
20. the coroner's pathologist or medical examiner describes any livor and rigor mortis.
21. the coroner's forensic pathologist or medical examiner describes any postmortem, embalming or predation artifacts.
22. the coroner's forensic pathologist or medical examiner describes the extent of any decomposition changes.

SECTION IV - Special Procedures for Suspected Sexual Assault

- A. In cases of suspected sexual assault, or with other selected cases, prior to the cleaning of the body or internal autopsy, the coroner's forensic pathologist, medical examiner or designee should, in cooperation with local law enforcement:
 1. collect swabs of oral, vaginal, and rectal cavities.
 2. collect pubic hair combings.
 3. collect fingernail scrapings or clippings.
 4. collect pubic and head hair standards.
 5. identify and collect foreign hairs, fibers, and biological stains.
 6. swab any suspected bite mark.
 7. ensure proper chain of custody documentation to the recipient legal agency or department.

SECTION V - Description and Documentation of Injuries

- A. Generally, the coroner's forensic pathologist or medical examiner will:
1. describe injury by type (i.e. gunshot wound, stab, laceration, abrasion, contusion)
 2. describe injury by location.
 3. describe injury by size.
 4. describe injury by shape.
 5. describe injury by pattern.
 6. obtain photographs of injuries so that images are clear, appropriately documented with a scale and useful for medicolegal purposes.
- B. In cases of Firearm Injuries, the coroner's forensic pathologist or medical examiner will:
1. measure entrance and exit wound defect sizes.
 2. locate cutaneous wounds of the head, neck, torso, or lower extremities by measuring from the top of the head, and from either the anterior or posterior midline.
 3. locate cutaneous wounds of the upper or lower extremities by measuring from anatomic landmarks (i.e. elbow, knee).
 4. describe presence or absence of soot and stippling around entrance wounds.
 5. describe presence of abrasion ring, searing, muzzle imprint, or lacerations.
 6. correlate internal injury to external injury.
 7. describe and document the path of the wound through the body, including involved organs, major blood vessels, and associated hemorrhage.
 8. describe and document the direction of wound through the body.
 9. recover, describe and document recovered firearm projectile(s).

- C. In cases of Sharp Force Injuries, the coroner's forensic pathologist or medical examiner will:
1. describe wound, and indicate if stab or incised, if appropriate.
 2. measure wound size.
 3. locate wound in anatomic region.
 4. correlate internal injury to external injury.
 5. describe and document the track of wound into the body, including any involved organs, blood vessels, or associated hemorrhage.
 6. describe and document the direction and estimated depth of the wound.
 7. recover, describe and document any foreign body recovered (i.e. broken blade).
- D. In cases of Blunt and Patterned Injuries, the coroner's forensic pathologist or medical examiner will:
1. measure injury size.
 2. describe location of injury.
 3. describe injury pattern.
 4. correlate internal injury to external injury.
 5. describe and document injuries to skeletal system.
 6. describe and document injuries to internal organs, structure, and soft tissue.
 7. photograph any significant patterned injury after cleaning with a scale.
- E. In Burn Injuries, the coroner's forensic pathologist or medical examiner should describe and document the appearance and distribution of the burn.

SECTION VI - Ancillary Radiographic Studies

Prior to the autopsy or internal examination, the coroner, coroner's forensic pathologist, medical examiner or assistant will:

1. obtain total body radiographs on all infants.
2. obtain total body radiographs on all explosion victims.
3. obtain necessary radiographs on all gunshot and sharp force injury victims.
4. obtain radiographs on all charred victims.

SECTION VII – Protocol for Performance of the Internal Examination

A. Upon examination of the thoracic and abdominal cavities, the coroner's forensic pathologist or medical examiner will:

1. examine internal organs in situ.
2. describe any fluids or adhesions.
3. describe and document any medical devices and any abnormal position of such.
4. describe evidence of surgery.

B. Upon removal and examination of the organs from the cranial, thoracic, abdominal, and pelvic cavities, the coroner's forensic pathologist, medical examiner, or carefully supervised resident and/or medical student, with the aid of an assistant will:

1. document the measured weights of internal organs.
2. dissect and describe organs.
3. inspect and describe the scalp, skull, and meninges.
4. describe and document any epidural, subdural, or subarachnoid hemorrhage.
5. inspect the brain in situ prior to removal and sectioning.
6. document any purulent material or abnormal fluids.
7. inspect the inner surface of the skull after the dura has been stripped.

8. examine in situ muscles and soft tissues of the anterior neck.
9. remove and examine the neck organs and airways.
10. if indicated, dissect the posterior neck.
11. if indicated, perform a layered anterior neck dissection.

SECTION VIII – Protocol for Collection of Toxicology Specimens

- A. Upon opening the body and prior to removal of the internal organs, the coroner's forensic pathologist, medical examiner or designee should:
 1. collect necessary and available specimens as required by the individual toxicology laboratory utilized by the coroner or medical examiner's office (i.e. blood, bile, urine, vitreous humor, liver, brain tissues, and gastric contents suggested).
 2. collect, label, and submit the toxicology specimens to the appropriate laboratory in appropriate containers.

SECTION IX – Protocol for the Use of Histology

- A. Histologic examination should be performed at the discretion of the coroner's forensic pathologist or medical examiner, most often in cases with no anatomic and or toxicological cause of death.

SECTION X – Protocol for use of Medicolegal Consultants

- A. Depending on the circumstances and necessity of the case, the coroner's forensic pathologist or medical examiner should utilize as necessary:
 1. a histology laboratory.
 2. a radiologist.
 3. an anthropologist.
 4. an odontologist.
 5. toxicology and clinical laboratory testing.
 6. radiographic equipment.
 7. body and organ scales.

SECTION XI – Protocol for the Autopsy Report

- A. The coroner's forensic pathologist or medical examiner will:
1. prepare a written report for each postmortem examination.
 2. include the date, place, and time of examination.
 3. include the name of deceased, if known.
 4. include the coroner or medical examiner case number.
 5. document observations of the external and internal examination.
 6. include a separate section on injuries with tabular listing.
 7. describe gunshot and sharp force injuries correlating the internal and external wounds.
 8. list any evidentiary items collected and their disposition.
 9. list specimens submitted for toxicology analysis or other laboratory studies.
 10. list the diagnoses in the autopsy report.
 11. state the cause of death.
 12. state the manner of death as appropriate to the medicolegal jurisdiction.
 13. include the name and title of each pathologist or resident involved with the case.
 14. sign and date each postmortem examination report upon completion.
 15. 95% of autopsy reports should be completed and submitted to the coroner within 60 days.

CLOSING

This forensic autopsy protocol has been compiled to aid county coroners, coroner's forensic pathologists and medical examiners in Illinois with proper procedures for forensic autopsies and complete death investigations. These are suggested protocols for the forensic autopsy and should be re-evaluated or re-examined periodically to recommend adjustments as needed. The end result is to provide answers to questions arising from a medicolegal death investigation through proper procedures and thorough death investigations.