



Forensic Autopsy Cadaver Demonstration Distance Learning Program

This guide is for students participating in AIMS Forensic Autopsy Cadaver Demonstration program through distance learning presented by an AIMS Anatomy Specialist. The program will discuss the basic procedure of a forensic autopsy, during which the principles of objectivity, scientific method and evidence gathering will be outlined. At the end of this document, you will find vocabulary review and pre/post tests for your students.

Preparation:

Please review forensic autopsy vocabulary with students in advance of the program. The presenter will take questions from the students about procedures and anatomy while the program is taking place.

Objectives:

After completing this AIMS videoconference, students will be able to:

1. **List the guidelines** for proper evidence gathering
2. **Recount the basic procedure** for the forensic autopsy
3. **Understand the postmortem processes** which assist in determining time and cause of death
3. **Be familiar** with nomenclature associated with autopsy procedures.

The demonstration meets the following standards.

National Science Education (NSE) content standards for grades 9-12:

- Systems order and organization
- personal and community health
- form and function
- matter, energy and organization of living systems
- evidence, models and explanation

Show Me Standards: (Science, and Health/Physical Education)

characteristics and interactions of living organisms
properties and principles of matter and energy
structures of, functions of, and relationships among human body systems
principles of movement and physical fitness
methods used to assess health, reduce risk factors, and avoid high risk behaviors
(such as violence, tobacco, alcohol and other drug use)
diseases and methods for prevention, treatment and control

Forensic Autopsy Cadaver Demonstration Vocabulary

Autopsy – from the Greek “to see for one’s self”. It is a postmortem assessment that consists of a thorough examination of a body to determine the cause and manner of death to evaluate any disease or injury that may be present.

Forensics – pertains to legal matters and incorporates the science of pathology and death scene analysis, to determine a cause of death.

Liver mortis (hypostasis) – process by which blood settles to the dependent portions of the body, causing a deep purple discoloration of the skin. Occurs within 2-4 hours and becomes “fixed” within 8-12 hours.

Rigor mortis – muscular rigidity which develops in a cadaver, usually from 4-10 hours after death and lasts 3-4 days.

Algor mortis – term used to describe the cooling of the body after death. Will vary depending on the multiple factors, including original body temperature, ambient temperature, clothing, and environmental conditions on site.

Putrefaction – the state of body decomposition.

Bloating – accumulation of gases under the skin, due to formation of gases by bacterial action and putrefaction of the internal tissues of the abdomen and the inside of the intestines.

Marbling – a characteristic of postmortem decomposition, as hemolyzed blood within the superficial veins mixes with hydrogen sulfide and turns a black color. Reveals a weblike pattern of blood vessels in the face, chest, abdomen, and extremities.

Exsanguination – extensive loss of blood due to internal or external hemorrhage.

Asphyxia – a condition caused by the inadequate intake of oxygen.

Strangulation – inordinate compression of the neck that leads to unconsciousness or death, by causing an increased hypoxic state in the brain.

Cause of death – the disease process or injury responsible for initiating the train of events, brief or prolonged, which produces the fatal end result.

Mechanism of death – the physiological or biochemical derangement produced by the above cause, which is incompatible with life. (How the disease or injury leads to death)

Manner of death – the fashion in which the cause of death came into being. These are normally classified as *Natural, Accident, Homicide, Suicide, or Undetermined.*

Coroner – an appointed or elected position that formally requires no special medical or forensic skills.

Medical Examiner (ME) – a physician, licensed to practice medicine, usually trained in pathology, particularly forensic pathology.

Death Certificate – a legal document signed by a physician or other designated authority, that identifies the deceased, as well as declares the cause, date, time, and location of death.

Entomology – a branch of Zoology, that deals with the scientific study of insects. The forensic entomologist uses knowledge of the life cycles of flies and various other insects that feed on corpses to determine the approximate time of death, as well as to determine whether a body has been moved from one location to another.

Anthropology – a study of the origin and behavior of humans, as well as the physical, social, and cultural development of humans. The forensic anthropologist studies human skeletal remains to determine the age, sex, and race of the deceased, identify any illness or injury that he or she may have suffered, and to establish time of death. Also involved extensively in identifying victims of mass disasters and those interred in mass graves.

Odontology – the branch of medicine dealing with the anatomy, development, and diseases of the teeth. A forensic odontologist helps to identify unknown corpses by matching dental patterns with previous X-rays, dental casts, or photographs. They may also be called upon to match a suspects teeth with bite marks on a victim, or another pertinent object.

Serology – the branch of science that deals with the measurement and characterization of antibodies, antigens, and other immunological substances in body fluids (serum). The serologist conducts blood typing, paternity testing, and DNA profiling.

Toxicology – the study of drugs and poisons. The forensic toxicologist can determine whether drugs or poisons are present in the living or the deceased, in order to determine if those substances contributes to injury or death. Toxicologists also conduct test to determine alcohol intoxication or drug abuse.

Botany – the scientific study of plant life. The forensic botanist may examine plant fragments, pollen, and soil to determine if a body has been moved, or if a suspect was at a particular crime scene.

Pathology – the scientific study of the nature of disease and its causes, processes, development, and consequences. The forensic pathologist is a licenses physician with specialty training in pathology, as well as subspecialty training in forensic pathology. The forensic pathologist is in charge of the body and all evidence that is obtained from its examination.

AIMS
“Forensic Autopsy Cadaver Demonstration”
Pre/Post Test

1. This is an abnormal condition described as an accumulation of air in the chest cavity.

2. The _____ of death is described as the disease process or injury responsible for initiating the train of events, brief or prolonged, which produces the fatal end result.
3. _____ is the scientific study of the nature of disease and its causes, processes, development, and consequences.
4. Under normal circumstances, the first part of the body to develop rigor is the area around the _____.
5. A bone in the neck that is frequently broken with strangulation is the _____ bone.
6. Name the five “Manners of Death” as they are normally classified: _____ / _____ / _____ / _____ / _____
7. Liver Mortis, or the lividity that appears post-mortem, will usually become “fixed” in _____ hours.
8. The longer the post-mortem interval, the _____ precise the estimate of time of death.
9. Entomology is the scientific study of _____.
10. There are multiple factors that can affect the rate of cooling of a body post-mortem. Name three of them: _____ / _____ / _____
11. What type of bag is used to “bag” hands, and/or feet at a crime scene? _____
12. The autopsy of the body is just one part of the death investigation. Name the other two parts of the so-called “diagnostic triangle”. _____ & _____

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Forensic Autopsy Cadaver Demonstration
Pre/Post Test
Answer Sheet

1. pneumothorax
2. cause
3. pathology
4. face and neck
5. hyoid
6. natural / accidental / homicide / suicide / undetermined
7. 8-12
8. less
9. insects
10. ambient temperature, clothed vs. unclothed, weight of deceased, exposure of body to wind/breeze, temperature of body prior to death, exposed surface area
11. paper
12. history & scene