H70 Jay Dix Memorial Lecture Series

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After attending this presentation, attendees will better understand how and why deaths related to the topics listed in the lecture series occur. Attendees will learn a systematic approach to the evaluation of such deaths that can easily be implemented in their daily practices.

This presentation will impact the forensic science community by presenting a comprehensive review of what causes and contributes to deaths related to the previously specific topics. Attendees will be able to systematically evaluate deaths in which the previously specified topics may have played a role that they encounter in their daily practices.

Case 1: Electricity is a ubiquitous entity in our daily lives. Some of it is intentionally generated to provide power and some of it originates as a force of nature (lightning). Interaction between humans and electricity is common and typically has no untoward effects; however, under some conditions this interaction may result in morbidity and/or mortality. Multiple causes, mechanisms, and contributory factors play a role in injury and deaths involving electricity. Understanding and evaluating injuries and deaths in which electricity may have played a role requires a basic knowledge of electricity and how it affects various biological vital functions. Recognition of injuries and deaths caused by electricity is particularly important because of implications regarding the safety of others. This lecture will provide a comprehensive review of these issues.

Case 2: Blunt force injury is one of the major categories of mechanical injury. Blunt force injuries are among the most common injuries sustained by persons. These injuries include abrasions (scrapes), contusions (bruises), and lacerations (tears). Blunt force is also a substantial component of chop wounds, injuries caused by relatively heavy-edged objects such as a machete or axe. Multiple factors and mechanisms are involved in injuries and deaths involving blunt forces. Understanding and evaluating injuries and deaths in which blunt force injuries may have played a role requires basic knowledge of injuries caused by blunt forces and how to distinguish them from other types of trauma; recognition of patterned injuries; and, recognition of injury patterns (e.g., pattern of falling versus pattern of being struck by an object). This lecture will provide a comprehensive review of these issues.

Case 3: Following cessation of life, the human body undergoes a variety of progressive changes leading to its ultimate breakdown. Intrinsic (autolysis and putrefaction) and extrinsic (environmental conditions, animal/insect activity, and funeral/burial procedures) factors affect the time course of this process and the appearance of the body/tissue. Proper evaluation of postmortem changes may be helpful in estimating the time since death and evaluating accuracy and reliability of other investigative information. Postmortem changes must be distinguished from antemortem disease/injury, may mask or obliterate pre-existing disease/injury, and may affect the performance, reliability, and interpretation of laboratory analyses. This lecture will review the postmortem changes, their causes and appearances, their proper recognition, their significance, and the usefulness and limitations of utilizing this information in a medicolegal death investigation.

Case 4: The death of an apparently healthy infant is a devastating event for the infant's survivors and is accorded significant attention by society. Infant death may be the caused by a wide variety of diseases and injuries, involve a variety of mechanisms, and can be natural, accidental, or homicidal. External and/or internal evidence of disease or injury may be lacking. Accurate recognition of the cause, mechanism, and manner of death has important implications for the survivors, other interested investigative and health agencies, and society in general. Recognition of factors involved in sudden unexpected infant deaths can help in enhancing the safety of other family members and serve as a basis for formulating death prevention strategies. This lecture will discuss the investigation and interpretation of findings in sudden unexpected deaths involving infants.

Case 5: Head injury is a common cause of trauma-related morbidity and mortality among children. Childhood head injury is not simply a smaller version of adult head injury because of significant differences between adults and children. Findings in serious head injury depend on the mechanisms of injury, duration of survival, age of the child, and, in some cases, co-morbid conditions. Proper evaluation of pediatric head injury is important in recognizing how an injury was sustained, excluding various potential or alleged mechanisms, evaluating accuracy and reliability of witness accounts, and aid in identifying the perpetrator in those cases involving inflicted injury. This lecture reviews the features of the pediatric head, mechanisms of injury, manifestations of head injury, and the interpretation of anatomic and clinical findings in the context of a medicolegal death investigation and quality of evidence in the literature.

Forensic Pathology, Death Investigation, Forensic Examination