



Pathology/Biology Section - 2015

H96 Jay Dix Memorial Bonus Day

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After attending this presentation, attendees will understand how and why deaths related to the previously specified topics 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.

A proper medicolegal death investigation is a multidisciplinary process that often involves non-medical personnel as well as medical professionals. This annual series of lectures is intended to provide the non-forensic pathologist forensic scientist a comprehensive basic review of selected topics in forensic pathology in order to increase familiarity, understanding, and enhance inter-discipline communication.

This year's lecturers will discuss: the investigation of sharp force trauma; infant deaths; deaths temporally related to apprehension by law enforcement personnel; deaths related to sports and recreation; and, asphyxial deaths.

Case 1: Sharp force injuries are one of the major categories of mechanical injury. They result from the mechanical division of tissues by sharp or pointed objects. Sharp force injuries include stab wounds, cuts (incised wounds), and chop wounds; the latter being caused by relatively heavy edged objects such as a machete or axe. Multiple mechanisms play a role in injury and deaths involving sharp force injuries. Understanding and evaluating injuries and deaths in which sharp force injuries may have played a role requires basic knowledge of injuries caused by sharp forces and how to distinguish them from other types of trauma, recognition of patterned injuries, and recognition of injury patterns (e.g., defensive wounds, "hesitation marks"). This lecture will provide a comprehensive review of these issues.

Case 2: 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 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 3: There are multiple causes, mechanisms, and contributory factors that can play a role in deaths that are temporally related to custody. The custody process can be divided into several stages — pre-custody, pre-incarceration, and incarceration. Particular diseases and injuries tend to occur and/or become manifest during each of these stages. This lecture will systematically review what diseases and injuries cause/contribute to death in the phases of custody related to apprehension and arrest, how they affect physiology and anatomy, when they are typically operative, and how they are manifest. Recognizing what occurs during the various stages of custody allows a systematic approach to assessing deaths that occur during the custody process. This lecture will review the conceptual and practical aspects of understanding and investigating deaths that are temporally related to the apprehension/arrest phases of custody.

Case 4: There are multiple causes, mechanisms, and contributory factors that can play a role in deaths that are temporally related to participating in and, occasionally, while being a spectator at sporting or other recreational activities. Understanding these deaths requires understanding of the physical requirements to perform particular activities, susceptibility of particular diseases to stresses associated with particular activities, effects of various chemical and/or biological agents that may be taken to enhance performance, and physical injuries associated with particular recreational activities. This lecture will provide a comprehensive review of these issues in the context of investigating deaths that occur in relation to sports/recreational events. Understanding factors that are involved in deaths occurring in these circumstances also helps in instituting appropriate safety measures to protect participants and spectators.



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Case 5: Human life requires the uptake and utilization of oxygen along with the release of metabolic waste. Failure of these processes leads to asphyxia. There are numerous entities — mechanical and chemical — that can cause asphyxia through a variety of mechanisms, present in a wide range of scenarios, and that can be associated with a broad range of physical findings. Proper evaluation of these deaths requires knowledge of the various entities that can cause asphyxia, mechanisms through which these agents affect physiological function, scenarios under which these deaths occur, and factors that contribute to these deaths. This lecture will comprehensively discuss the investigation of death in which asphyxia may have played a role.

Trauma, Infant Death, Asphyxial Deaths