



Pathology Biology Section - 2012

G57 Jay Dix Memorial Bonus Day

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After attending this presentation, attendees will learn how and why deaths temporally related to custody; related to sports and recreational activities; related to the environment; and, related to substance abuse occur. Attendees will learn a systematic approach to investigate these types of deaths. Attendees will learn about rare causes of death and how to evaluate difficult cases.

This presentation will impact the forensic science community by providing a comprehensive review of what causes and contributes to deaths involving custody, the environment, substance abuse, sports and recreation, and rare and difficult to evaluate entities. Attendees' knowledge in these areas will be expanded and focused and attendees will better be able to systematically evaluate these types of deaths when encountered in the attendees' 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 and understanding and enhance inter-discipline communication.

This year's lecturers will discuss deaths related to custody, the environment, sports and recreation, less common drugs of abuse and rare and difficult entities.

Although there are myriad diseases and injuries that can cause sudden unexpected deaths, most of these are familiar to experienced death investigators and fall into familiar scenarios. However, there are a number of rare entities that cause death and a number of entities that rarely cause death. If these entities are not properly recognized and assessed, deaths in which they are involved may be erroneously certified. In other deaths, a variety of factors may lead to difficulty in case assessment and/or certification. This lecture will comprehensively and systematically delineate and discuss rare entities leading to death, deaths due to entities that rarely cause death and "hard cases."

There are multiple causes, mechanisms, and contributory factors that can play a role in deaths that are related to the environment. To understand and appropriately assess these deaths, the normal relationship between a person and the environment must be considered. In addition, physiologic changes that occur in response to changes in the environment must be recognized. Diseases, injuries and/or drugs (therapeutic and recreational) and alcohol can play significant roles in the interaction between a person and the environment. This lecture will comprehensively review human and environmental factors that potentially affect a person's ability to survive under a variety of environmental conditions. What constitutes "hostile" environmental conditions, how humans attempt to adapt to changes in the environment and what prevents successful adaptation to changing environmental conditions will be discussed. There will be discussion of how humans get into hostile environments, how they attempt to adapt to these conditions and what factors prevent adaptation and/or escape from inhospitable environments. Deaths caused or contributed to by cold, heat, altitude, drowning, animals and lightning will be among the topics discussed.

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.

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 custody process, 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 custody-related deaths.

The last three decades have seen an impressive expansion in the range of drugs available for abuse. The psychedelic revolution of the 60's spilled over into the 70's and 80's with the advent of "designer drugs" like Ecstasy (MDMA), joined in the 90's and 00's by the increased abuse of psychoactive drugs like ketamine and GHB, typically in nightclub and rave



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settings. A second pattern of expanded drug use involves increase in consumption in rural areas poorly served by the traditional distribution network for cocaine and heroin. The heartland of America has seen explosive growth in the use of methamphetamine, whether prescribed, homegrown or cartel-distributed, and in diversion and abuse of prescription medication. These other substances are commonly used in characteristic scenarios and have somewhat stereotypical death scenarios. Recognition of the patterns of abuse of these agents helps in assessing the role, if any, of these agents in particular deaths. This lecture will provide a comprehensive review of both increasingly and infrequently encountered agents in the context of investigating deaths.

Jay Dix, Death Investigation, Forensic Pathology