H37 SIDS, SUID, and Sudden Death in the Young: Where Do We Stand Today?

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After attending this presentation, attendees will: (1) recognize factors from scene investigation, history, and autopsy which may help in identifying subsets of Sudden Unexpected (or Unexplained) Infant Death/Sudden Infant Death Syndrome (SUID/SIDS) in which the cause and manner of death can be given definitively; (2) understand subsets in which death certification contains uncertainty; and, (3) look forward to research and public health measures which may reduce the incidence of sudden unexpected death in infancy and increase understanding of the cause and manner in some infant deaths.

This presentation will impact the forensic science community by increasing understanding of the reasons behind the historical definition and changing evaluation of SIDS and SUID deaths. Attendees will look forward to future developments in understanding sudden death in the young and in certifying infant deaths.

This presentation briefly reviews the history of forensic medical opinion, and possible future developments, in the cause and manner of death in sudden unexpected deaths in infancy.

SIDS ("crib death") has been under investigation for more than 40 years. During the decades of active research, numerous mechanisms of death have been proposed, many of which did not translate into clinical success in prevention. The most successful strategy, since its proposal by the American Academy of Pediatrics Task Force on Infant Sleep in 1992, has been supine positioning ("Back to Sleep"). Although the mechanism of underlying vulnerability in the triple-risk model is not understood, it is now universally agreed that babies are less likely to die suddenly and unpredictably in the first months of life if laid face up to sleep.

The advent of doll-scene reenactment provided startling evidence that some of the decrease in death rates was due to prevention of accidental suffocation in unsafe infant sleep conditions. As this was acknowledged in the forensic medical community, particularly after the Centers of Disease Control and Prevention (CDC) began to train death scene investigators in doll-scene reenactment, part of the ongoing decline in SIDS incidence was due to reclassification of many infant deaths as due to either asphyxia from accidental suffocation or SUID. SUID, often with the manner undetermined, is certified in infant deaths in which scene factors may play a role but the role cannot be determined definitively. This may include deaths during bed sharing with siblings, parents, and others; deaths in soft bedding which may result in suffocatation; and deaths on sleep surfaces that are unsafe for small infants, such as couches, air mattresses, and beds intended for adults. The CDC now considers SIDS to be a subset of SUID.

Analysis of consecutive cases of SIDS/SUID examined over a two-year period in the Tidewater District branch of the Office of the Chief Medical Examiner reveals a continuum of cases ranging from unquestionable accidental suffocation, through suspected but unproven suffocation, to clear SIDS. Review of these cases suggests a considerable component of accidental suffocation in the majority of these infant deaths. Examination of the occurrence rate of SIDS/SUID in the different health districts of Virginia suggests that prenatal and postnatal training in safe sleep may have a significant effect on the incidence of SUID/SIDS.

Deaths in which parental training makes no difference may be those in which the mechanism of death is not related to suffocation. Despite research into brainstem receptors, ion channel abnormalities (some with long QT interval), defects in normal arousal systems, and different genetic alleles for metabolizing nicotine, the mechanism of death, if it is not accidental suffocation, is still not understood. The role of accidental suffocation, except in the most obvious deaths, remains unclear. At this time, often the best medical judgment is used to give parents whatever answers are available, without sufficient data to feel certain of the diagnosis.

The involvement of the CDC in the development of a Sudden Death in the Young database offers the possibility of separating out subsets of SUID, defined by testing, which would give definitive postmortem diagnoses. The database is still in its earliest stages and is still reliant on medical judgment in an area where judgment alone may not always be sufficient. As data accumulates and is analyzed, hopefully the future may see further decreases in deaths in infancy and more accurate certification of the deaths that do occur.

SIDS/SUID, Death Certification, Sudden Death in the Young