



E38 Lack of Death Scene Investigations: The Potential Misdiagnosis of Sudden Infant Death Syndrome (SIDS), and Accidental Asphyxiation in Stockholm, Sweden

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After attending this presentation, attendees will better understand of the importance of Death Scene Investigation (DSI) in all infant deaths, not merely homicides, as well as an appreciation of how information gathered at death scenes must be taken into account when distinguishing between a diagnosis of SIDS and accidental asphyxiation.

This presentation will impact the forensic science by illustrating how a lack of DSI and poor information gathering regarding the infant's sleeping environment may skew data in favor of a borderline SIDS diagnosis, while failing to consider a diagnosis of accidental asphyxiation affects epidemiological studies and public health guidelines.

SIDS is a syndrome and, as such, is potentially the result of several pathologies. It is a diagnosis of exclusion and should only be applied when all other causes of death have been discarded. Further knowledge in the field of SIDS research led to a recent fall in the rate of SIDS diagnoses. This is partly due to an increasing reluctance among forensic pathologists to use the diagnosis in cases in which a possible unsafe sleeping environment may pose a risk for asphyxiation.¹ As per the San Diego Criteria introduced in 2004, a SIDS diagnosis should only be applied in cases of sudden infant deaths which remain “unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical histor.”; however, in Stockholm over the past ten-year period, no cases of accidental asphyxiation as a primary cause of death were recorded with the National Board of Health and Welfare, Socialstyrelsen (the Board).²

All deaths in Sweden are registered with the National Board of Health and Welfare. In accordance with Swedish law, all infant deaths undergo a thorough review of clinical history as well as a forensic autopsy, including toxicology screening, histology, and neuropathology investigations and genetic analysis; however, there is currently no mandate or legislation enforcing mandatory DSI.

A review of all infant deaths under one year of age in Stockholm during 2005-2014 revealed a total of 111 cases, without any listing asphyxiation as a primary cause of death with the Board. All of the available information for each death, including death certificates, autopsy reports, police notes, and interviews with family members, were reviewed. Three cases were diagnosed as asphyxiation or covering of the airway, but only as a secondary diagnosis and thus were not registered with the Board. In total, out of the 111 cases, 33 were diagnosed as SIDS. A total of 20 cases were noted to exhibit aspects of potential asphyxiation when the additional information regarding the death scene and the sleeping environment were taken into account. Out of these, eight were recorded as SIDS/borderline SIDS, due to a lack of death scene investigations. These exhibited aspects of unsafe sleeping environments, such as being caught between the back of a sofa and a sleeping parent, sleeping between parents, or being found underneath a sleeping mother during breastfeeding. A further three cases were recorded as unknown cause of death, *causa*



mortis ignota. Five cases were recorded as pneumonia and two as anoxic brain injury. Multiple organ failure secondary to anoxic brain injury and heat was recorded in two cases.

As is the case in Sweden, a lack of DSI precludes a true SIDS 1A diagnosis, according to the San Diego Criteria. This research also demonstrates that DSI is crucial in distinguishing between accidental asphyxiation and SIDS as it is a distinction which cannot be made based solely on autopsy findings and thus continues to pose a challenge for forensic pathologists.

Reference(s):

1. Brad BR et al. (2009). A practical classification schema incorporating consideration of possible asphyxia in cases of sudden unexpected death infant death. *Forensic Sci Med Pathol.* 5 (4), 254-260. DOI:10.1007/s12024-009-9083-y
2. Krous HF et al. (2004). Sudden Infant Death Syndrome and Unclassified Sudden Infant Deaths: A Definition and Diagnostic Approach. *Pediatrics.* 114 (1), 234-238. DOI:10,1542/peds.114,1,234

Accidental Asphyxiation, SIDS, Death Scene Investigation