



D31 A Review of Asphyxia Cases in the Lincoln, Nebraska Area From April 2003 to July 2006

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After attending this presentation, attendees will be provided an overview of: the epidemiology of asphyxia deaths in the Lincoln, Nebraska area, the importance of compiling a regional database among this type of death to aid death investigations, and the characteristic injury patterns from different types of asphyxia deaths.

This presentation will impact the forensic science community by using this regional compilation method to compare and help predict the epidemiology and demography of underlying factors affecting asphyxia deaths, increasing awareness of the different types of asphyxia cases, uncover risk factors in reference to SIDS (Sudden Infant Death Syndrome) deaths, as well as observing the epidemiological and demographic differences of asphyxia deaths between regions. This study can be utilized on a large scale for discovering regional differences to better understand different asphyxia deaths. The injury patterns will also allow death investigators to compare injuries found on a body of an asphyxiated decedent to injuries established from different causes of death. This will give investigators a cross-reference database to confirm findings in difficult or suspicious cases and possibly lead to conclusions that are more accurate.

Data was collected from autopsy reports and investigation supplements provided by the city of Lincoln's forensic pathologist, ranging from the dates April 2003 to July 2006. The 68 identified cases were then compiled and statistical tests were performed using a computer program in order to uncover the frequencies of different variables. The variables tested were: age, sex, ancestry, cause of death, manner of death, location, drug use, and injuries sustained related to the death. The seven types of asphyxia cases analyzed are: Sudden Infant Death Syndrome (SIDS), drowning, hanging, carbon monoxide poisoning, suffocation, and positional asphyxia. The collection of data from the forensic pathologists' records give an accurate depiction of what death investigators will find at the time a body is discovered.

The results illustrate most asphyxia deaths in the Lincoln area were predominately comprised of Caucasian males with a mean age of death at 27.7, and large drug usage. Natural death, more specifically SIDS, case results showed the majority of the decedents' deaths occurred in a crib, and half of the total number were ill. Cyanosis was also found to be present in a significant portion of the cases when the decedent was discovered. Two types of accidental deaths, suffocation and drowning, were established. Accidental suffocation cases showed a significant portion of deaths occurred in a bed with a large percentage of the victims being children. Accidental drowning victims were equally found in locations either in or around the immediate home, or a lake, and a significant amount of the victims had some form of cranial hemorrhage. Lastly, suicides were the most dominant manner of asphyxia, consisting of 35.29% of the total cases. The majority of suicidal hangings used an electrical cord, and an equal distribution of the cases used either an article of clothing or a rope as the next most common ligature choice. Neck abrasions from the ligatures were most commonly found, followed by contusions, then lacerations from the ligature. Cyanosis was found in a small percentage of the cases. Location data showed that the home was the most common place for a suicidal hanging to occur, followed by an outdoor location. An interesting injury pattern associated with suicidal hangings showed that those who used a nylon rope were the ones with a presence of petechiae, specifically in the larynx, trachea, and lungs. Lastly, suicidal carbon monoxide poisoning all occurred within the victim's car. Positional asphyxia cases were found to have inconclusive data because of the lack of a significant sample size.

According to the 2007 U.S. Census estimate, the demographics of the Lincoln, Nebraska area population leans towards a more dominant Caucasian population (89.25%), with 99.2 males to every 100 females, and the average age of residents being 31 (U.S. Census Bureau). These variables are examples of why regional databases need to be made, for they could change according to the demographic profile of the region. Death investigators could greatly profit from such a model, for similar cases could be cross-referenced and used to efficiently close a case.

Asphyxia, Epidemiology, Regional Model