



K2 The Effect of Drugs and Alcohol on Autopsy Cases Performed at the William L. Jenkins Forensic Center From 2003-2009

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After attending this presentation, attendees will have an appreciation of the effect of drugs and alcohol in the autopsy cases for Upper East Tennessee performed at the William L. Jenkins Forensic Center from 2003 through 2009.

This presentation will impact the forensic science community by providing descriptive statistics on the impact of alcohol and/or drugs and determining whether any exist in the autopsies performed from 2003 through 2009.

The William L. Jenkins Forensic Center has performed autopsies on questionable and medico-legal deaths which occurred in the eight counties of the First Tennessee Development District from 2003 through 2009. The purpose of this research was to compile descriptive statistics on the impact of alcohol and/or drugs, and determine whether any trends exist in the autopsies performed from 2003 through 2009. Toxicological evaluations of specimens collected at autopsy were used to determine if drugs and/or alcohol were involved in the deaths. A descriptive database was established defining all parameters and data pertinent in each case (age, sex, cause/manner of death, and toxicological results). Specimens (blood, gastric contents, urine, and vitreous humor) from the autopsies were analyzed for drugs and alcohol using multiple analytical toxicological procedures including: colorimetric, thin layer chromatography (TLC), immunochemistry, gas chromatography (GC), gas chromatography mass spectroscopy (GCMS), and liquid chromatography mass spectroscopy (LCMS). Toxicological results were compiled in an electronic database to allow for analysis and interpretation. Case number per year ranged from a minimum of 226 (2004) to a maximum of 306 (2009) with a general increase in the number of cases per year over the period. Results indicate that the impact of alcohol and drugs as a percentage of cases ranged as follows: positive for drugs from 76% (2009) to 87% (2003), positive for drugs and alcohol from 19% (2009) to 33% (2003), and positive for alcohol alone from 22% (2009) to 36% (2004). Acute drug overdose was the cause of death in 22% (2009) to 35% (2007) of cases per year. While the percentages of cases with drugs, drugs and alcohol, and alcohol alone varied from year to year, the proportionality of these groups to one another remained relatively constant over the years analyzed. In the range of years studied, drugs appeared in a greater percentage of cases than drugs and alcohol, which appeared in a greater percentage of cases than alcohol alone. The most prevalent groups of drugs present at autopsy, other than alcohol, were opiates and benzodiazepines. These drugs were present in ranges from 14% (2005) to 26% (2007). Other major drugs, or classes of drugs present (as a percentage of case per year) were: cocaine from 6% (2009) to 15% (2005), methadone from 6% (2003 and 2009) to 12% (2006 and 2007), stimulants from 7% (2003 and 2009) to 16% (2005 and 2006), and sedatives from 5% (2004) to 12% (2003 and 2006). There was an increased prevalence of opiates and benzodiazepines in our forensic cases from 2005 through 2009, as well as an increase in the number of autopsy cases in which these drugs were found in combination. This increase may reflect the amplified clinical use of these drugs in our region, misuse of prescription drugs, or increased diversion of prescription medications.

Toxicology, Alcohol, Autopsy