



Pathology/Biology Section - 2015

H153 Death Scene Findings Associated With Accidental Toxicity Deaths in New Mexico, United States, From 2010 to 2011

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After attending this presentation, attendees will be able to identify specific scene findings that are directly associated with accidental toxicity deaths in New Mexico. In addition, attendees will have a better understanding of changes and current trends in toxicity deaths using an evidence-based approach of more than 576 actual cases.

This presentation will impact the forensic science community by presenting an evidence-based methodology in determining likely overdose cases based on scene findings.

Understanding the specific markers of toxicity will allow medicolegal death investigators and other death scene responders to more easily triage potential overdose cases in sudden, non-violent deaths in adulthood.

In accidental overdose deaths, toxicology will always be considered the final arbiter; however, before toxicology testing can ultimately confirm or expose the toxic nature of a death, these cases need to be appropriately flagged and triaged into the medicolegal system. Medical examiners/coroners depend on initial information and scene findings to determine the level of medicolegal scrutiny that cases will receive. The quality of this information and appropriate understanding of the findings themselves are integral to the process that ultimately leads to these cases being autopsied and toxicology testing being performed. The overwhelming majority of this information will come from observations and interviews conducted on scene.

The objective of this study was to identify common death scene indicators and catalog potential markers for toxicity found on accidental overdose scenes. Death scene reports and scene investigations in 578 unintentional toxicity deaths over a two-year period (2010-2011) in New Mexico were systematically reviewed to identify scene indicators and document patterns suggestive of toxicity. More than half (54%) of the deaths were due to prescription drugs and 10% were attributed to a mixture of prescription and illicit drugs. Women represented more than half (53%) of the prescription overdose deaths, but only 17% of illicit overdose deaths. Decedents dying of a prescription drug overdose were significantly more likely to be White, non-Hispanics ($p < 0.0001$) and were also significantly older than people dying from illicit substance overdoses ($p = 0.01$). Almost one-third (31%) of prescription overdoses were in people more than 49 years of age. More than half (56%) of these decedents had three or more prescriptions for pain medication, and 55% had medications with counts not within expected limits, making access to medication slightly more prevalent than tangible evidence of misuse. Decedents were found in a position of sleep in fewer than half (46%) of prescription overdose deaths more than 49 years of age, and evidence of tampering with the scene was found in 9% of overdoses more than 49 years of age, which was greater than in cases 49 and younger (6.9%).

It was also determined that there was a significant incidence of history of potentially lethal natural disease in prescription toxicity deaths in older persons (67% for ages 50 and over). Thus, the presence of natural disease should not be solely used as a disqualifier for autopsy or toxicology testing. Even in cases with natural disease and little evidence of substance abuse, particularly in decedents more than 49 years of age, investigators must maintain a high index of suspicion for prescription overdose deaths if access to potentially abused medications is present.

The landscape of toxicity is rapidly evolving and understanding how toxicity deaths present themselves on scene provides an opportunity to refine the triage process using an evidence-based approach for future cases, both for death-scene investigators and pathologists. This presentation will assist death-scene investigators and pathologists alike in recognizing and understanding the association between specific scene findings and accidental toxicity.

Overdose, Accidental, Scene