

PROJECT ECHO: OD-FIT

Overdose Fatality Investigation Techniques

Forensic Autopsy and Drug Poisoning Deaths

An autopsy is a systematic evaluation of a dead body, including the external surface, viscera, appearance of tissues under the microscope, and a variety of laboratory studies, including toxicology. Autopsies should always be performed in the context of circumstantial history, death scene findings, and medical history. Doing so allows the pathologist to generate hypotheses about what they expect to find and confirm, refute, or expand those hypotheses through a strategic approach to dissection, laboratory specimen procurement, and lab test selection. Ultimately, observations from circumstantial investigation, autopsy, and laboratory studies are used to generate conclusions about the cause and manner of death.

Relevant Terminology

- CT: Computed tomography

Key Takeaways

- A full autopsy is an approach recommended by the National Association of Medical Examiners (NAME) in all potential drug-related deaths. Doing so fosters accurate conclusions about the cause and manner of death necessary to support public health and safety needs.
- Examining the viscera in a full autopsy can exclude trauma, ascertain potential comorbidities, characterize fatal secondary consequences of drug use, recognize findings that assist with accurately determining the manner of death, foster obtaining adequate specimens for toxicologic analysis, and identify the direct pathologic effects of certain drugs.
- Some research shows that CT might be used to supplant an autopsy for potential drug poisoning deaths involving individuals less than 50 years of age.
- Research also shows that point-of-care rapid urine drug screens are valuable for case triage and real-time surveillance but lack sensitivity and specificity in recognizing key drugs unless they are coupled with confirmatory laboratory-based testing.

To learn more about forensic autopsy and drug poisoning deaths, check out the [session recording](#) and [slides](#) or email odfitecho@astho.org for more information.

References

- Nashelsky M, Lawrence C. "Accuracy of cause of death determination without forensic autopsy examination." AM J Forensic Med Pathol. 2003. 24: 313-319. Available at <https://pubmed.ncbi.nlm.nih.gov/14634467/>.
- Dye D, et al. "Correctly Identifying Deaths Due to Drug Toxicity Without a Forensic Autopsy." AM J Forensic Med Pathol. 2019. 40:99-101. Available at <https://pubmed.ncbi.nlm.nih.gov/30789365/>
- Lathrop SL, Nolte KB. "Utility of Postmortem X-ray Computed Tomography (CT) in Supplanting or Supplementing Medicolegal Autopsies." Final Report, National Institute of Justice Award 2010-DN-BX-K205, 2016. Available at <https://www.ojp.gov/pdffiles1/nij/grants/249949.pdf>

This project and publication were supported by the cooperative agreement number, CDC-RFA-OT18-1802, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

- National Institute of Justice. “Use of rapid toxicology screening tools in medical examiner/coroner offices.” Available at <https://www.ojp.gov/library/publications/use-rapid-toxicology-screening-tools-medical-examiner-coroner-offices>

About the Presenter: Kurt B. Nolte, MD, is a forensic pathologist currently serving as a University of New Mexico (UNM) Distinguished Professor of Pathology and Radiology. He is the former Chief Medical Investigator (Examiner) for the New Mexico Office of the Medical Investigator. Dr. Nolte has also served as the Executive Vice President for the National Association of Medical Examiners, the Assistant Dean/Vice President for Research for the UNM Health Sciences Center, and the founding Director of the Radiology-Pathology Center for Forensic Imaging at the UNM School of Medicine. His career and research efforts have focused on the intersection between forensic pathology and public health, including drug overdose deaths.



This project and publication were supported by the cooperative agreement number, CDC-RFA-OT18-1802, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.