H124 Developing "Real-Time" Surveillance for Drug Overdose Deaths in King County, Washington

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After attending this presentation, attendees will be able to explain why data from death certificates are not effective for "real-time" surveillance of drug overdose deaths and describe methods by which death investigations can be used more effectively in the face of ever-increasing drug overdose deaths.

This presentation will impact the forensic science community by describing methods by which death investigations can be part of "real-time" surveillance of drug overdose deaths.

Across the country, the opioid epidemic is rapidly evolving. In some regions, there has been a major shift in the type of opioids seen due to fentanyl-type drugs. Unfortunately, overdose data are generally available only after many months and represent a historical analysis rather than a useful surveillance tool. The present study was conducted to increase understanding of the delays in collecting and using overdose data and to develop a method by which information from drug overdose death investigations can be used as part of "real-time" surveillance.

Methods and Materials: Death investigation records and death certificates for drug overdose deaths reported by the King County Medical Examiner's Office (KCMEO) in Seattle, WA, from 2007 through 2016 were examined to evaluate for each case the time delays between when death occurred, when toxicology reports became available, when pathologists cleared the death certificate, and when the death certificates were referred to the Office of Vital Statistics. As a means of developing a "real-time" surveillance model, KCMEO pathologists maintained a daily tally of the overdose deaths, making predictions for each case of the drug(s) that were likely to be detected in the toxicology analyses, based on the scene and circumstances documented by the death investigators. Dialogue has been initiated with local law enforcement agencies to share investigative details regarding all potential overdoses, including predicted drugs. After the toxicology results were reported from the laboratory, the predicted drug(s) were compared with the detected drug(s), and the accuracy of the predictions was evaluated.

Results: Estimates from each of the time periods from death to certification were determined for 2,388 drug overdose cases. The number of days from death to final certification averaged 54 days, with a median of 50 days, ranging 3 to 217 days. Toxicology reports accounted for the greatest delay from death to certification, averaging 40 days, with a median of 44 days, ranging 5 to 519 days. In some cases, the pathologist called the laboratory for results and certified deaths before the reports were available, and in other cases, analyses continued long after the deaths were certified. Administrative functions comprised a minor proportion of the delay — usually less than one week. Comparing the accuracy of predicting what drug(s) might be identified in each drug overdose case, made when the case was initially examined, with the drug(s) subsequently reported by the toxicology laboratory found predictions to be at least partially correct in approximately 93% of cases. Cases in which predications were incorrect often involved deaths associated with white powders.

Discussion and Conclusions: Death certificates are useless for "real-time" surveillance of drug overdose deaths. In the present study, half of the death certificates were not completed until more than 50 days after the death. Not surprisingly, the major portion of the delay was the time required for toxicology results to be reported. This delay is not unique to one office; it is a universal barrier to using drug overdose data as a timely surveillance tool. In the extended period between death and final determination of cause of death, the investigation is essentially stalled. Information regarding drug source is frequently difficult to discover, and witnesses, often protected by Good Samaritan laws, are unlikely to provide valuable information; however, as the results of this study show, experienced death investigators and forensic pathologists, when presented with information gathered from the scene, are fairly accurate in their ability to predict the drugs responsible for death. Hopefully, in the future, rapid reporting of details regarding suspected overdose deaths to local law enforcement agencies will make "real-time" surveillance worthwhile for many different agencies.

Drug Overdose Investigation, Real-Time Surveillance, Toxicology

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