



H142 The Utilization of Preliminary Urine Drug Screens in Heroin- and Fentanyl-Related Deaths

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Learning Overview: The goal of this presentation is to show how to use preliminary urine drug screens in routine drug-related deaths to help rapidly and accurately determine a reasonable initial cause of death.

Impact on the Forensic Science Community: Pending every drug-related death causes undue difficulties for families of decedents. This presentation will impact the forensic science community by demonstrating how to use preliminary drug screens to create a cause of death on a death certificate. Follow-up and amendments can be made after final toxicology is received.

Positive urine drug screens rapidly and accurately predict findings in postmortem confirmatory toxicology and avoid pending cases.

An examination of 200 consecutive heroin- and fentanyl-related deaths shows a very strong correlation between preliminary urine screen for heroin (opiates). Fentanyl, because of the very rapid respiratory depression, often may not be present in urine screens. However, using a “cheat” with minimally diluted cardiac blood often shows fentanyl positivity. When drug-related deaths have negative results on preliminary screens, novel fentanyl analogs are often present and frequently require more extensive toxicologic testing. Although a urine drug screen is not a substitute for postmortem blood toxicology, it is a very good tool for rapid guidance in determining cause of death.

Cocaine, methamphetamine, methadone, and benzodiazepines, such as alprazolam, clonazepam, and diazepam, were not considered for this presentation. They clearly contribute to cause of death either directly or indirectly. The screen that was used will detect cocaine metabolite, methamphetamine, opiates, and benzodiazepines. A separate screen is used for fentanyl. Cocaine is often seen in combination with all of the above. A separate presentation will be made in regard to combination drug deaths in the future. It should be noted that there is no therapeutic level of heroin, cocaine, or fentanyl when used in non-medical circumstances.

When death certificates are pending, this causes stress to families who have already lost a loved one. Waiting for final toxicology to be received can take weeks to months depending upon jurisdiction. This prevents families from receiving death benefits, funeral directors from being paid, and children of decedents from receiving needed money. Using preliminary drug screens, when positive, to create an initial cause of death such as “Adverse Effect of Drugs” on a death certificate, followed up by a more precise cause of death by listing all the responsible agents is a reasonable alternative to universally “pending” every and all drug deaths at time of autopsy. This also simplifies amendments by allowing only one line to be changed, the cause line, as opposed to all other items in amendment such as how, where, when did injury occur.

Preliminary Drug Screen, Heroin, Fentanyl