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183. Incorporating Quantitative Drug Analysis Into Non-Fatal Drug Overdose Surveillance: The Toxicology Investigators Consortium Drug Overdose Toxicology-Surveillance (DOTS) Reporting Program

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Background: While postmortem drug overdose evaluations typically measure quantitative drug concentrations to determine cause and manner of death, such granular laboratory data is uncommonly available in non-fatal drug overdose surveillance systems. Given that most overdoses are poly-drug exposures, understanding the contribution of these drugs to non-fatal drug overdoses is imperative to optimize clinical management and public health interventions.

Research Question: How can medical toxicologists implement a nationwide surveillance program to improve the understanding of polydrug overdoses.

Methods: Under Food and Drug Administration (FDA) Contract #75F40122D00028/75F40123F19002, the American College of Medical Toxicology's (ACMT) Toxicology Investigators Consortium (ToxIC) invited medical toxicology sites from around the United States to participate in the development of a surveillance system to enroll patients with severe opioid and stimulant overdoses through emergency departments. Since 2010, ToxIC has overseen a nationwide registry of patients seen by medical toxicologists at the bedside. A partnership was developed with the Center for Forensic Science Research and Education (CFSRE) to perform qualitative blood analysis employing a panel of > 1100 substances through liquid chromatography quadrupole time-of-flight mass spectrometry and quantitative measurements using liquid chromatography tandem quadrupole mass spectrometry. Chart review and patient interview forms were developed to collect clinical and behavioral data.

Results: Seventeen sites participated in the Drug Overdose Toxicology-Surveillance (DOTS) Reporting Program, which represented 9 of 10 U.S. federal regions including inner-city and rural areas. Blood samples were sent to the laboratory every 60 days. Interviews were conducted to understand the patient's acute and chronic substance use, which is critical to understanding quantitative toxicological results. From April 1, 2023, to October 6, 2023, a total of 905 patients were screened and 298 consented and enrolled.

Conclusion: In Spring 2023, a novel drug overdose reporting program was successfully launched at 17 sites nationwide through the ACMT ToxIC network and CFSRE.