W5 Novel Psychoactive Substance (NPS) Surveillance, Detection, and Intelligence for Use by Forensic Laboratories, Public Health, and Public Safety

Alex J. Krotulski, MS, Center for Forensic Science Research & Education, Willow Grove, PA 19090; Barry K. Logan, PhD*, NMS Labs/Center for Forensic Science Research & Education, Willow Grove, PA 19090; Jason A. Bordelon*, Drug Enforcement Agency, Springfield, VA 22152; Francis X. Diamond, BS*, Willow Grove, PA 19090; Donna M. Papsun, MS*, NMS Labs, Willow Grove, PA 19030; Andrew Stolbach, MD*, The Johns Hopkins University Medical School, Baltimore, MD 21205; Rudolph C. Johnson, PhD*, Center for Disease Control and Prevention, Atlanta, GA 30341; Eric D. Wish, PhD*, Center for Substance Abuse Research, College Park, MD 20740-3210; Jae W. Chung, BS*, Drug Enforcement Agency, Springfield, VA 22152; Jeffrey Lai, MD*, University of Massachusetts Medical School, Department of Emergency Medicine, Worcester, MA 01655; Elizabeth Young Laanemets, MSc, Canada Border Services Agency, Ottawa, ON, CANADA K1A 0L8; Jason M. Piotrowski, BA*, New Jersey Regional Operations & Intelligence Center, West Trenton, NJ 08628; M.J. Menendez, JD*, Organized Crime Drug Enforcement Task Force, Washington, DC 20530;*

Learning Overview: After attending this presentation, attendees will be able to: (1) understand approaches for the surveillance and initial detection of NPS; (2) describe methods for the analysis of case evidence for characterization of emerging or unknown NPS; (3) assess analytical and clinical findings of NPS in casework and intoxications; and (4) demonstrate manners for which data can be used to track or monitor trends and overall NPS intelligence.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing real-time information on NPS detection and emergence, the opioid epidemic, clinical treatment strategies, and large data dissemination tactics. Presentations will cover a variety of NPS classes, with specific focus on fentanyl analogues and novel opioids, detected and identified in recent casework. Additionally, the presentations in this workshop will showcase the multidisciplinary efforts being conducted to detect NPS and report their presence in seized materials or biological fluids.

Identification and characterization of NPS has become critical among forensic, clinical, public health, and public safety communities. Proliferation of new drugs and illicit substances has increased the challenges associated with typical or routine testing procedures, law enforcement efforts, and treatment workflows. Most notably, the current expansion of novel opioids in the street drug supply, consisting of a vast variety of fentanyl analogues and U-series derivatives, has resulted in a skyrocketing number of adverse events, including death, in recent years. It has become clear that combating the opioid epidemic and NPS proliferations are not singularly on one scientific field or government agency, but rather a multidisciplinary effort among law enforcement, forensic scientists, clinicians, public health officials, and other pertinent communities. Interdiction and intervention are not possible without full support and commitment from all agencies and communities, as this has been demonstrated by organizations showcased during this workshop. Detection and characterization of newly emerging substances is key to remaining at the forefront of this ever-evolving issue. Identifications fuel intelligence efforts for monitoring trend information, developing emergence data, and notifying respective communities. Notifications allow for surveillance of NPS and novel opioids through tracking of shipments, migration of drug supplies, and monitoring of new or suspicious activities. Surveillance leads to the acquisition of packages, drug supplies, and/or biological fluids that feed into laboratories for analysis. All three of these aspects work in unison and create a cycle of information sharing.

This workshop will provide information related to the sale and acquisition of NPS, the migration of NPS to the point of initial identification and subsequent detections, and the end use of the information for intelligence or surveillance purposes. Analytical methods and tools for NPS detection in forensic chemistry and forensic toxicology will be discussed, in addition to timely results from analysis of casework specimens, including seized materials and biological fluids. Additional topics included in the program will focus on clinical approaches to the identification of NPS and appropriate dissemination of results, as well as methodologies for the compilation and distribution of data and findings, specially relating to large population sets with all-encompassing information.

Novel Psychoactive Substances, Novel Opioids, Surveillance