

WORKSHOPS

2017 SOFT - TIAFT Joint Meeting Boca Raton, FL

1	Cannabis in DUID Investigations	Sunday	0800-1730	<p>This workshop is an official offering of the joint SOFT/TIAFT Drugs and Driving Committee. Cannabis use is a continuous challenge for Driving Under the Influence of Drugs (DUID) casework. More and more states are legalizing the drug, whether strictly for medicinal purposes or complete legalization, creating greater numbers of DUID cases. In addition to legalization, the concentration of the marijuana being sold today is much higher and more potent than in years past along with varying routes of administration. Interpreting a THC DUID case has its unique challenges such as the following: tolerance, presentation of impairment during the Standardized Field Sobriety Tests and the Drug Recognition Evaluation and the necessity for the toxicologists to understand the laws within their own state and how that applies to their casework. This workshop will address all of these issues and provide time at the end for a mock THC DUID trial with various case scenarios. <i>Chairs Colleen E. Scarneo and Amy Miles.</i></p>
2	When "It" Hits the Fan, Resolve it with Effective RCA	Sunday	0800-1730	<p>Root Cause Analysis (RCA) is a critical step for determining effective corrective actions following errors or non-conformities in our work. Unfortunately, many lack the training and understanding of how to properly conduct a RCA. This workshop will demonstrate different approaches forensic toxicology laboratories use in identifying effective solutions to problems that they have encountered; solutions that will realistically minimize the chance of future recurrence of the non-conformity. Discussions will focus on the importance of effective RCAs and important factors to consider such as the makeup of the RCA team, suggestions on how to create a blame-free environment, how to select the best solutions, guidance on making the RCA a true learning experience, general accreditation requirements, and an overview of the National Commission on Forensic Science's view on RCAs. A significant portion of the workshop will focus on group exercises to facilitate the learning process. <i>Chairs Marc LeBeau and Laurel Farrel.</i></p>
3	Different Approaches to Evaluate the Prevalence of NPS	Sunday	0800-1200	<p>In recent years, there has been a huge upsurge in new psychoactive substances (NPS), also known as "legal highs", "designer drugs", "herbal highs" or "research chemicals", finding a wide and efficient distribution through the "e-commerce" or specialized shops. The misuse of NPS often leads governments to prohibit them, but once these drugs have been banned, their chemical structure is slightly altered to create legal drugs with similar properties. This fast growth and structure variability has led to increasing challenges to forensic and clinical laboratories in the identification and quantification of new psychoactive substances. At present, most routine analyses do not include screening procedures for NPS, preventing clear knowledge of the real prevalence or consumption of these new drugs in the population. Furthermore, the potential connection between the use of new psychoactive substances and traffic or occupational accidents is so far largely unknown. Several approaches have been tried in the attempt of obtaining some preliminary information about the type of molecules present in different times in different countries, about the current diffusion of NPS among the population and on the characteristics of the users of these synthetic drugs. This workshop will explore different strategies that are used in the United States and Europe to investigate the diffusion of NPS in selected scenarios, such as workplace drug testing, electronic music festivals, young consumers, intoxication cases and driving relicensing. The workshop will also overview the methods for screening and monitoring the use of NPS in selected population, focusing on recent developments and challenges of the online monitoring of legal high products, the interpretation of hair samples results, the analysis of wastewaters and the combined use of surveys and biological testing. <i>Chairs Alberto Salomone and Kevin Shanks.</i></p>
4	Quantitative Clinical and Forensic Toxicological Analysis with LC HR-MS	Sunday	1330-1730	<p>Historically, high-resolution mass spectrometry (HRMS) has been associated with qualitative and research analysis and QQQ-MS with quantitative and routine analysis. High-resolution mass spectrometry, both based on time-of-flight (TOF) or Orbitrap-type instruments, is however increasingly used for quantitative analysis. It offers several advantages over QQQ-MS: easier method development (no need to infuse the standards), ease of adding compounds to an existing method without the need for re-validation of the compounds that were already in the method (for full-scan methods) and retrospective analysis for other compounds. Quantification can be based on high-resolution full-scan analysis, selected ion monitoring or multiple reaction monitoring. All the speakers at this workshop have extensive experience with quantitative analysis with high-resolution instruments. Examples will be given from forensic and clinical toxicology: drugs of abuse and pharmaceuticals in plasma and blood, anabolics, drugs of abuse and pharmaceuticals in hair, benzodiazepines and antidepressants in plasma, amphetamines in urine, ... One presentation will cover hyphenated HRMS in environmental sciences and the latest developments in wastewater NPS analysis. Method validation results will be presented. The possible pitfalls, e.g. co-eluting molecules with the same exact mass, interference by very close masses, ... will also be addressed. <i>Chairs Alain Verstraete and Markus Meyer.</i></p>
5	Making Your Leadership Meaningful and Productive-Part I: Fostering Open Communications and Team Building	Sunday	0800-1200	<p>Most of us assumed our roles in leadership and management based on our technical performance and our demonstrated leadership. But our continuous improvement requires refined knowledge and skills to be an effective leader. Part I** of <i>Making Your Leadership Meaningful and Productive</i> focuses on fostering open communications and building a cohesive, effective team. After all, we spend a lot of time in our work environment and we want to be comfortable, successful, and content. An open communication environment allows employees to trust one another to give honest feedback, to express ideas freely, and to offer a dissenting voice without judgment and reprisal. A team building environment allows employees to work together effectively and is designed to increase motivation and promote cooperation. While we may know that these are needed in the workplace, we may not know how best to achieve and sustain them as a leader. This workshop will provide concepts, research, and resources to better understand the meaning behind communication and team building. Interactive, practical exercises will focus on group activities to improve team building skills of open communications, building trust, problem/decision making, and adaptability/planning activities. Fostering these skills within your laboratory culture will improve productivity and employee morale and performance. As a leader, what more could you ask for? <i>Chairs Jeri Ropero-Miller and Eleuterio Umpierrez.</i></p>
6	Making Your Leadership Meaningful and Productive-Part II: Leadership within High-stakes Organizations	Sunday	1330-1730	<p>The National Institute of Justice (NIJ) Forensic Technology Center of Excellence (FTCoE; Award 2016-MUN-BX-K110) is committed to improving the practice of forensic science and strengthening its impact on public agencies dedicated to combating crime. The intent of Part II** of this FTCoE workshop, <i>Making Your Leadership Meaningful and Productive</i> is to advance best practices in leadership and management by teaching contemporary human resource management principles as they relate to leadership within high-stakes organizations such as forensic toxicology laboratories. High-stakes organizations are those where perfection is a cultural expectation placed on employees by both upper management and stakeholders. High-stakes environments create unique challenges for managers and employees. These may include reductions in efficiency and productivity, increases in laboratory turnaround times, increases in the frequency of personnel problems, reduced responsiveness, employee retention problems, increased use of sick leave, and elevated risks of error. These challenges can have a direct, adverse impact on law enforcement agencies that depend on these laboratories for reliable, timely forensic testing results. Yet these challenges can be overcome through competent human resource strategies that maximize effectiveness while raising employee morale. This workshop will present specific, actionable strategies that can be adopted by forensic toxicology laboratories to improve all aspects of operations and lower the frequency of behavioral and performance-related problems among laboratory personnel. <i>Chairs Jeri Ropero-Miller and Eleuterio Umpierrez.</i></p>

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7	Forensic Epidemiology: Integrating Forensic Medicine and Public Health	Sunday	0800-1200	<p>Forensic Epidemiology is the study of forensic casework to investigate trends, patterns and risk factors for disease, injury and death. It allows us to draw evidence-based conclusions linking a harmful exposure (e.g. drug use) to a specific outcome (e.g. addiction; fatal toxicity), at an individual or population level. This information ultimately has a huge impact on national public health policy and practice; the findings of Forensic Epidemiology studies globally have provided evidentiary support for toxicology issues to inform public health interventions, particularly with regards to drug scheduling and availability, adverse drug reactions, and drug-related death. Forensic Laboratories around the world systematically produce analytical toxicology data in death investigations, driving under the influence cases, drug facilitated assaults, workplace drug testing, human performance casework, and a range of other forensic cases. While the primary objective of the medico-legal death investigation is to determine the cause and manner of death, large sets of data are generated over time, providing an opportunity for research integrating Forensic Medicine and Public Health. This Workshop will provide attendees with an introduction to the use of Forensic Toxicology data in epidemiology and importantly, how it can be used to inform casework and benefit public health. Specifically, this workshop will explain what forensic epidemiology is; its uses, strengths and limitations in a forensic setting; and how it translates to public health policy and practice, with examples of previous forensic studies. Attendees will be shown how to perform basic forensic epidemiology research, including which study designs are most useful; common measures or outcomes used to best answer research questions; and understanding key data sources with the potential for data linkage. To demonstrate the process for epidemiology research in a forensic context, a step-by-step guide will be provided using a Forensic Toxicology example. In addition, instruction on the interpretation of papers with big data sets will be provided, including the challenges to correct interpretation of results, differentiating between association vs. causation, and identifying appropriate groups for comparison of results. <i>Chairs Jennifer L. Pilgrim and Luke Rodda.</i></p>
8	Strategies for the Detection of Synthetic Cannabinoids in Biological Specimens	Sunday	1330-1730	<p>Synthetic cannabinoid receptor agonists, commonly referred to as synthetic cannabinoids (SCs), constitute the largest group of new psychoactive substances (NPS). Although they are marketed as a "safe" and "legal" alternative to marijuana, many reports indicate that many of these compounds may produce serious adverse health effects. SCs were originally synthesized by research laboratories to investigate the endocannabinoid system or as potential therapeutic drugs because they interact with cannabinoid receptors. Currently, however, they have reappeared through the Internet as designer drugs, so-called "legal highs". The number of SCs, their chemical diversity, the rate at which they emerge and the lack of commercial availability of reference standards for (metabolites of) many compounds: all these factors make it particularly challenging for the toxicologist to keep up with the detection and monitoring of this group of compounds. Moreover, given the high potency of many SCs, they are only present at very low concentrations in biological matrices (typically low or even sub-ng/ml levels in blood or urine), adding further to the challenge. Approaches to detect SCs in biological matrices encompass immunoassays, targeted and untargeted (high resolution) mass spectrometry-based methods and, more recently, bio-assays. Recent developments will be presented in this workshop, which aims at providing the participant with insight into the possibilities and challenges of the different strategies that have been deployed for the detection of synthetic cannabinoids in biological matrices. <i>Chairs Volker Auwarter and Christophe Stove.</i></p>
9	Death Investigation: A Step by Step Guide to Postmortem Toxicology	Sunday	0800-1200	<p>The success of a forensic post-mortem investigation that is suspected to involve drugs or poisons depends on the toxicologist and pathologist/medical examiner working closely together as a team. The pathologist relies on the expertise and experience of the toxicologist and specialized, analytical skills of the toxicology laboratory to provide answers concerning the presence of drugs in autopsy specimens. In order for this to be successful, the toxicologist relies on the pathologist to provide appropriate specimens for analysis. Drugs and poisons are not uniformly distributed within the body and may redistribute after death as a consequence of post-mortem changes. It is widely acknowledged that post-mortem drug concentrations do not necessarily reflect concentrations at the time of death. The audience will be educated on the importance of appropriate autopsy sample collection, the analytical un-suitability of poor quality samples and the risks associated with offering an interpretation on such samples. The effects of poor quality samples and post-mortem redistribution will be highlighted through a series of real case examples, which will also highlight recent trends observed in deaths associated with illicit drug use, for example, fentanyl and associated analogs. The audience will be educated on the added value that multi-sample analysis can provide, for example: the use of vitreous fluid to confirm alcohol ingestion and increase the chances of detecting 6-acetylmorphine following heroin use, and the use of hair samples to investigate historic drug use. Finally, the audience will be educated on how the medical examiner coordinates the death investigation process, emphasizing the importance of the close working relationship between the medical examiner/pathologist, the death investigators and the forensic toxicologist. <i>Chairs Craig Chatterton and M. David Osselton.</i></p>
10	In the Cross Hairs with Forensic Toxicology and Hair Analysis	Sunday	1330-1730	<p>Hair testing for drugs is of growing interest in the forensic science community. The scope of testing ranges from long-term postmortem analysis, to the detection of analytes following a single exposure. Hair analysis has also been used for pre-employment screening, as well as for probationary reasons. Advantages of using hair to test for drugs include the ability to get a longer term picture of drug exposure and the non-invasive nature of sample collection. Disadvantages include a reduced number of laboratories that actively perform hair testing, and some disagreement in the community over the interpretation of results. Although hair testing for drugs has been performed globally for decades, it has not taken off in the United States as much as it has in some other countries. Reasons for this may include the fact that testing hair is more complicated than the analysis of traditional toxicology matrices and results of testing may be more challenging to interpret. <i>Chairs Madeline Montgomery and Roman Karas.</i></p>
11	Drug-Facilitated Crime in the 21st Century	Monday	0800-1730	<p>This workshop describes the update of a set of minimum analytical performance limits for the toxicological investigation of suspected Drug-Facilitated Crimes (DFC) as recommended by Society of Forensic Toxicologists (SOFT) Drug-Facilitated Crimes (DFC) committee and the Organization of Scientific Area Committees (OSAC). The workshop will provide examples of the methodologies used by laboratories performing DFC case work and how the performance limits are used to improve the laboratory capabilities in this crucial area of forensic toxicology. The workshop will educate the attendee about the broad scope of DFC cases with specific examples and information regarding the relationship between toxicology and human trafficking. The workshop also presents some of the latest research on ethanol and its effects on memory. <i>Chairs Teri Stockham and Lisa Reidy.</i></p>

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12	From the Street to the Lab, Updated Trends and Case Reports for NPS	Monday	0800-1730	Toxicologists are frequently called upon to determine whether or not substances played a role in an antemortem or postmortem case. The increased prevalence of Novel Psychoactive Substances (NPS) has increased the complexities of testing and interpretation of routine case-work. NPS are commonly used as alternatives to illegal substances or in an attempt to avoid detection in routine workplace testing and may be implicated in cases of impaired driving or drug facilitated crimes. There have been numerous reports of NPS disguised as legitimate pharmaceutical products leading to the possibility of overdosing as many people do not even know what they are taking, thereby complicating death investigations. Analysis can be tricky due to the constant change of drugs found on the streets. The emergence and widespread availability of many designer drugs over the last few years supports the need to continually expand our knowledge regarding not only the analytical techniques but also the pharmacology of these drugs. This workshop will start with talks about resources for identifying emerging drugs and trends throughout the USA and the world and a discussion on the analytical challenges faced by a laboratory interested in performing NPS testing. The workshop will then focus on the various classes of NPS including Synthetic Cannabinoids, Opiates, Hallucinogens and Stimulants. An overview of the pharmacology and case reports of each class will be presented. Finally, in recognition that many of these cases involve poly-drug use, there will be a discussion on cases involving combinations of NPS with common drugs of abuse, prescribed and over-the-counter medications. <i>Chairs Sherri Kacinko and Dani C. Mata.</i>
13	Screening by LC-MS/MS: Techniques, Trends and Limitations	Monday	0800-1730	From an experimental technique in the 1990 liquid chromatography (LC) coupled to tandem mass spectrometry (MS/MS) is nowadays widely used in clinical and forensic toxicology due to its high sensitivity especially for hydrophilic and thermolabile compounds. Several different LC-MS/MS screening concepts including targeted and untargeted analysis and low resolution and high resolution MS of different vendors became more and more imported during the last years. Different LC-MS/MS databased providing reference MS/MS spectra were available. However modern MS experiment types such as data independent acquisition in combination with wide(er) MS/MS precursor isolation are recent trends in LC-MS/MS screening. These new techniques provide additional benefits, such as even higher sensitivities and lessen common back draws of LC-MS/MS reference databases such as low inter instrument reproducibility. Additionally, modern peak matching algorithms provide better screening results especially with regard to inter instrument reproducibility. Aim of the workshop is to provide an overview on different recent low and high resolution LC-MS/MS screening concepts including LC-MS/MS reference databases. In addition to the benefits of the different LC-MS/MS screening approaches, limitations of the applied techniques is provided. Current trends in MS experiments such as data independent acquisition in combination with wide(er) MS/MS precursor isolation are critically discussed with regard to the screening result and inter instrument reproducibility. <i>Chairs Dirk K. Wissenbach and Herbert Oberacher.</i>
14	Where the Wild Things Are - Method Development	Monday	0800-1200	SWGTOX and SOFT have successfully promoted the method validation guidelines and have spread the know-how to do this well. However, what happens before validation is critical to smooth and successful validations. Method development is often poorly done or overlooked altogether, making the process much more challenging than is necessary. Whether new instrumentation or increased scope of testing, administrative, managerial and technical requirements must be thoroughly considered. Caseworking analysts tasked with research and designated research analysts share their contrasting experiences and insights. Instrumentation and methodology-specific developments will be discussed, highlighting the unique solutions to respective challenges. <i>Chairs Sue Pearring and Mark Burry .</i>
15	Avoiding Agitation with Method Validation	Monday	1330-1730	A number of authoritative organizations have proposed guidelines and standard practices for method validation in both clinical and forensic toxicology. This workshop is designed to compare and contrast some of these different approaches, as well as provide recommendations to streamline the validation of analytical methods. Emphasis will be made on how to develop a validation plan, as well as suggestions for addressing unique situations. Attendees will benefit from group exercises that will allow for open discussion as to how to handle a number of real-life situations when planning validation experiments within a toxicology laboratory. <i>Chairs Marc LeBeau and Frank Peters.</i>
16	SWGTOX, OSAC, AND ASB: How The Heck Do They Impact Me?	Monday	0800-1200	In recent years, a number of documents have been developed to standardize the field of forensic toxicology. Much of the work in this area in the United States has been done by three groups: the Scientific Working Group for Forensic Toxicology (SWGTOX); the Toxicology Subcommittee of the Organization of Scientific Area Committees (OSAC); and the Academy Standards Board (ASB) of the American Academy of Forensic Sciences. This workshop will give attendees a better understanding of the history of these organizations, the process they follow to develop standards and guidelines, and the planned "roadmap" for the groups. Overviews and the up-to-date status of draft documents on the following topics will be discussed: measurement traceability; uncertainty of measurement; method validation; quality control; minimum testing requirements; mass spectrometry data evaluation; identification criteria; breath alcohol measuring instrument calibration; opinions and testimony; as well as report content. <i>Chairs Marc LeBeau, Melissa Kennedy, and Fiona Cooper.</i>
17	Measurement Traceability and Measurement Uncertainty in Forensic Toxicology: An Overview	Monday	1330-1730	The Justice System relies on forensic evidence more today than ever before. It is therefore critical that forensic laboratories provide analytical results that are not only reliable and accurate, but also comparable. Reliability, uniformity, consistency, and comparability of forensic analytical results are a necessity and thus the fundamental reasons for establishing measurement traceability and measurement uncertainty. The workshop will focus on the impact of revisions to ISO/IEC 17025 and the work within the OSAC and the Academy Standards Board to establish documentary consensus standards for toxicology laboratories in the United States as it relates to these topics. Based on these documents, a review of Measurement Traceability and Measurement Uncertainty and their inextricable link will be provided. An overview of the basic process for establishing measurement traceability and estimating measurement uncertainty along with strategies for implementation and presentation in a court of law will be provided. <i>Chairs Tate Yeatman and Nick Tiscione.</i>