

# TOXICOLOGY

## Wednesday

### Poster Session

7:30 PM – 9:00 PM	L1	<b>WITHDRAWN</b>
7:30 PM – 9:00 PM	L2	<b>The Quantitation of Five Benzodiazepines and Zolpidem in Whole Blood Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)</b> <i>Ivana Antunovic, MSc*; Sandra Mudrić, MSc; Tomislav Houra, MSc; Elizabeta Stojaković, MSc; Maja Jelena Čop, PhD</i>
7:30 PM – 9:00 PM	L3	<b>The Quantitation of Fentanyl, P-Fluorofentanyl, and Xylazine in Postmortem Blood by Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)</b> <i>Michael Truver, PhD*; Sara Brogan, BS; Amy Kinsey, MS; Jennifer Hoyer, MS; Chris Chronister, PhD; Bruce Goldberger, PhD</i>
7:30 PM – 9:00 PM	L4	<b>A New Approach for Identifying the Postmortem Formation of Ethanol: The Development and Validation of a Salt-Assisted Headspace/Gas Chromatograph/Flame Ionization Detector (HS/GC/FID) Method for the Determination of Ethanol in Vitreous Humor</b> <i>Giacomo Musile, PhD*; Nicola Pigaiani, MD; Emma Pasetto, BSc; Marco Ballotari, MSc; Federica Bortolotti, PhD; Franco Tagliaro, MD</i>
7:30 PM – 9:00 PM	L5	<b>Comparing Density Functional Theory (DFT) Calculations and Surface-Enhanced Raman Spectroscopy (SERS) Results to Differentiate Structurally Similar Fentanyl Analogs</b> <i>Sevde Dogruer Erkok, PhD*; Emily Hernandez, BS*; Bruce McCord, PhD</i>
7:30 PM – 9:00 PM	L6	<b>The Simultaneous Determination of 24 Designer Benzodiazepines in Hair Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)</b> <i>Jongsook Rhee, PhD*; Byungsook Cho, MS; Hyewon Baik, MS; Yujin Park, PhD; Ilchung Shin, PhD; Jihyun Kim, PhD; Sanggil Choe, PhD; Suncheun Kim, PhD; Eunmi Kim, PhD</i>
7:30 PM – 9:00 PM	L7	<b>Evaluating Cannabinoid Stability in Different Conditions and Validating THC-O and THC-P for Oral Fluid Analysis</b> <i>Cody Passeur, MSFS*; Curt Harper, PhD; Elizabeth Gardner, BS, PhD</i>
7:30 PM – 9:00 PM	L8	<b>Substance-Related Pediatric Deaths Examined at the West Tennessee Regional Forensic Center: An Analysis of the Past 16 Years</b> <i>Ibrahim Ortanca, MD*; Danielle Harrell, DO</i>
7:30 PM – 9:00 PM	L9	<b>Is a Subdural a Time Capsule?</b> <i>Brianna Smyth, BS*; Dina Swanson, MS; Julia Pearson, PhD</i>
7:30 PM – 9:00 PM	L10	<b>The Detection of Ethanol Consumption Markers and Drugs in Urine Samples From Inmates of Two German Prisons</b> <i>Vanessa Thoma, MD*; Anette Franz, MD; Laura Huppertz, BS; Volker Auwärter, MD; Annette Thierauf-Emberger, MD</i>
7:30 PM – 9:00 PM	L11	<b>Quantitative and Qualitative Analysis of Fentanyl and Its Analogs in Urine Using Disposable Pipette Extraction</b> <i>Dominic Minasi-Tapia, MS*; Ihouma Igwilo, MBBS, MSFS; G. Brent Dawson, PhD; Tara Arends, MS; Michael Baldwin, BA</i>

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- 7:30 PM – 9:00 PM    **L12**    **Machine Learning Approaches to Make Data Driven Decisions in Forensic Science Application by Using Fourier Transform Infrared (FTIR) Spectroscopy**  
*Bilkis Mitu, PhD\**; *Lenka Halamkova, PhD*
- 7:30 PM – 9:00 PM    **L13**    **The Analysis of Depressants and Psychedelic Drugs From Vitreous Humor Using Liquid-Liquid Extraction (LLE) and High-Performance Thin-Layer Chromatography (HTPLC) Plates**  
*Neha Afaria, PhD\**; *Ashok Kumar Jaiswal, PhD*
- 7:30 PM – 9:00 PM    **L14**    **Comparing the Performance of Liquid Chromatography/Triple Quadrupole/Mass Spectrometry (LC/QqQ/MS) vs. Liquid Chromatography/Quadrupole Time-Of-Flight/Mass Spectrometry (LC/QTOF/MS) for Targeted Analysis of NPS With a Test Mixture of 40 New Psychoactive**  
*Rebecca Smith, MS\**; *Anthony DeCaprio, PhD*; *Anamary Tarifa, PhD*
- 7:30 PM – 9:00 PM    **L15**    **Evaluating Cannabidiol (CBD) for Potential Interference in Six Commercial Homogeneous Cannabinoid Urine Screening Kits**  
*Ashley Pokhai, BA\**; *Justin Poklis, BS*; *Grace Williams, PhD*; *Carl Wolf, PhD, MS*
- 7:30 PM – 9:00 PM    **L16**    **The Revival of Opioids Among Young People: An Overview on Toxicological, Epidemiological, and Social Aspects**  
*Simona Nicoli, MD*; *Cristina Caterino, MD*; *Marcello Benevento, MD*; *Giampiero Bottari, MD*; *Francesco Clemente, MD*; *Francesco Carravetta, MD*; *Biagio Solarino, PhD\**
- 7:30 PM – 9:00 PM    **L17**    **A Combined Death by Food Aspiration and Acute Citalopram Intoxication**  
*Pietro Zuccarello, PhD\**; *Giulia Carnazza, Msc*; *Francesco Sessa, MS, PhD*; *Monica Salerno, MD, PhD*; *Cristoforo Pomara, MD*; *Nunziata Barbera, MD*
- 7:30 PM – 9:00 PM    **L18**    **Donepezil Concentrations in Postmortem Toxicology**  
*Jolene Bierly, MSFS\**
- 7:30 PM – 9:00 PM    **L19**    **The Development of an Extraction Method for the Analysis of Synthetic Opioids in Bone Samples Using the Bead Ruptor**  
*Kala Babb, BS\**; *David Cohen, MD*; *Justin Poklis, BS*; *Emanuele Alves, PhD*
- 7:30 PM – 9:00 PM    **L20**    **The Chemical Characterization of Cannabidiol-Based Products Using Attenuated Total Reflectance/Fourier Transform Infrared (ATR/FTIR), Gas Chromatography/Mass Spectrometry (GC/MS) and Gas Chromatography/Tandem Mass Spectrometry (GC/MS/MS)**  
*Eduardo De Campos, PhD\**; *Dehlia Lang, BS\**
- 7:30 PM – 9:00 PM    **L21**    **A Report of Isolated Para-Fluorofentanyl Deaths in Allegheny County, Pennsylvania**  
*Courtney Healy, DO\**; *Todd Luckasevic, DO*; *Jennifer Janssen, BS, MS*; *Ariel Goldschmidt, MD*; *Karl Williams, MD, NPH*
- 7:30 PM – 9:00 PM    **L22**    **Color Me Stable: Choosing an Adequate Blood Collection Tube for Venous Blood Toxicological Analyses**  
*Gabrielle Daigneault*; *Anabelle Carbonneau, BSc*; *Elizabeth Charron, BSc*; *Genevieve Dube, BSc*; *Stephanie Savard*; *Brigitte Desharnais, PhD*; *Edith Viel, BSc*; *Alexandra Doyon, MSc\**; *Souryvanh Nirasay, PhD*; *Pascal Mireault, MSc*
- 7:30 PM – 9:00 PM    **L23**    **Solid Phase Extraction of Novel Synthetic 2-Benzylbenzimidazole Opioid Compounds: "Nitazenes"**  
*Emily Eng, MSFS\**; *Stephanie Reichardt, MSFS\**

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- 7:30 PM – 9:00 PM    **L24**    **The Quantitative Analysis of Cadmium in Blood Using Flame Atomic Absorption Spectrometry (FAAS)**  
*Jatin Kumar Drall\**; Ashok Kumar Jaiswal, PhD; Ajay Kumar Kataria, MTech
- 7:30 PM – 9:00 PM    **L25**    **The Evaluation of Spontaneous Overtime Methaemoglobin Production in Postmortem Blood Samples From Real Cases in Critical Storage Conditions for an Application in Cases of Suspected Nitrate Poisoning**  
*Sara Gariglio, BS\**; Maria Chiara David, PhD; Alessandro Mattia, MS; Matteo Scopetti, MD; Alessandro Santurro, MD, PhD; Stefano D’Errico, MD, PhD
- 7:30 PM – 9:00 PM    **L26**    **A New Assay for Phosphatidylethanol (PEth) in Blood Via Gas Chromatography/Electron Impact/Mass Spectrometry (GC/EI/MS)**  
*James DeFrancesco, PhD\**
- 7:30 PM – 9:00 PM    **L27**    **Death Following the Accidental Ingestion of E-liquid**  
*Mihaela Georgieva, MD\**; Martin Angelov, MD; Kamen Peev, MD; Iliana Brainova, MD, PhD; Verzhiniya Stefanova, MD; Alexandar Alexandrov, MD, PhD; Metodi Goshev, MD, PhD; Biliana Mileva, MD; Lorenzo Gitto, MD; Vesela Ivanova, MD, PhD; Tihomir Dikov, MD; Vasil Atanasov, MD, PhD
- 7:30 PM – 9:00 PM    **L28**    **The Evaluation of the Cross-Reactivity of Cannabidiol (CBD), Delta-Tetrahydrocannabinols (Delta-THCs), Olivetol, and Metabolites in Whole Blood Using a THC Enzyme-Linked Immuno-Sorbent Assay (ELISA) Kit**  
*Carl E. Wolf, PhD\**; Jade Smith, BS; Grace Williams, PhD; Emanuele Alves, PhD; Justin Poklis, BS
- 7:30 PM – 9:00 PM    **L29**    **A Review of Illicit Substances Detected in Homicidal Deaths in Memphis, Tennessee, Over a Three-Year Period**  
*Latifah Ahmad, BS\**; Danielle Harrell, DO
- 7:30 PM – 9:00 PM    **L30**    **WITHDRAWN**
- 7:30 PM – 9:00 PM    **L31**    **The Development of New Solvent Systems for the Analysis of Clonazepam in Blood Using High-Performance Thin-Layer Chromatography (HPTLC) Plates**  
*Naagar Sunil, MD\**; Rohit Kanojia, PhDc
- 7:30 PM – 9:00 PM    **L32**    **The Analysis of Vitreous Humor: Enhanced Toxicological Testing Potential in Postmortem Examination**  
*Jennifer Vosters, BS\**; Noelle Fukuda, BS\*; Tiffany Hangse, BA\*; Rubie Villela, BS; Prentiss Jones, Jr., PhD
- 7:30 PM – 9:00 PM    **L33**    **The Generation of Methamphetamine From Amphetamine by N-Methyltransferase in Human Cytosol: Implications for Therapeutic Amphetamine Patients**  
*Abby Veaser, MSFS\**; Robert Powers, PhD
- 7:30 PM – 9:00 PM    **L34**    **Molecular Dynamics Simulations of Novel Synthetic Opiates Binding to the Opioid Receptors (ORs)**  
*Uzoma Okafor, PhD\**
- 7:30 PM – 9:00 PM    **L35**    **The Detection of  $\Delta^9$ -Tetrahydrocannabinol (THC) in Oral Fluid Using the Fast Blue BB (FBBB) Test**  
*Roberta Gorziza, PhD\**; Nicole Valdes, MS; Marilyn Tinoco, MS; Jose Almirall, PhD

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- 7:30 PM – 9:00 PM     **L36**     **The Elution and Recovery of Cannabinoids From an Impaction Filter Device**  
*Jennifer Berry, PhD\**; *Kavita Jeerage, PhD*; *Mary Gregg, PhD*; *Cheryle Beuning, PhD*
- 7:30 PM – 9:00 PM     **L37**     **The Characterization of Spice Products: Barely Legal, Voodoo Child, Brainstorm and Their Effects on Human A549 Lung Cells**  
*Oluseyi Vanderpuye, PhD\**; *Miron Gilbert, PhD*
- 7:30 PM – 9:00 PM     **L38**     **A Sip of Blue Wine: Fatal Intoxication by Dimethoate**  
*Andrea Costantino, MD\**; *Giacomo Visi, MD*; *Julia Lazzari, MD*; *Fabio Stefanelli, PhD*; *Silvio Chericoni, PhD*; *Marco Di Paolo, MD*

## Thursday

### Annual Lectureship in Toxicology

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8:15 AM – 8:30 AM     **Welcome and Introductions**

8:30 AM – 9:30 AM     **Annual Lectureship in Toxicology**  
*Karen McDonald, MS*  
*Lead for Toronto's Drug Checking Service*  
*Centre on Drug Policy and Evaluation*

*Moderator: Diane Boland*

*Co-Moderator: Dayong Lee*

9:30 AM – 10:00 AM     **L39**     **Standards Development Activities in Forensic Toxicology**  
*Marc LeBeau, PhD\**

10:00 AM – 10:15 AM     **L40**     **2021 National Forensic Laboratory Information System (NFLIS) Toxicology Laboratory Survey Findings**  
*DeMia Pressley, MS\**; *BeLinda Weimer, MS*; *David Heller, BS*; *Jeffrey Ancheta, BS*; *Neelima Kunta, BS*; *Kelly Keyes, BS*; *Megan Grabenauer, PhD*; *Katherine Bollinger, MS*; *Hope Smiley-McDonald, PhD*; *Jeri Roper-Miller, PhD*

10:15 AM – 10:30 AM     **BREAK**

### Novel Psychoactive Substances

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*Moderator: Alex Krotulski*

*Co-Moderator: Donna Papsun*

10:30 AM – 10:45 AM     **L41**     **The Continually Expanding World of Designer Benzodiazepines**  
*Donna Papsun, MS\**; *Alex Krotulski, PhD*; *Barry Logan, PhD*

10:45 AM – 11:00 AM     **L42**     **Mixed Intoxications Involving the Novel Synthetic Opioids Methoxyacetylfentanyl and U-47700: A Study of Three Cases**  
*Arianna Giorgetti, MD\**; *Giorgia Franchetti, MD*; *Rebecca Pircher-Berchtold, MD*; *Markus Große Perdekamp, MD*; *Stefan Pollak, MD*; *Susi Pelotti, MD*; *Volker Auwärter, MD*

11:00 AM – 11:15 AM     **L43**     **Phase I Metabolism of New Psychoactive Substances Via Alternative In Vitro Methods**  
*Leonardo Maya, MS\**; *Anthony DeCaprio, PhD*

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- 11:15 AM – 11:30 AM    **L44**    **N-Pyrrolidino Etonitazene: A Newly Emerging Nitazene Compound in the Synthetic Opioid Landscape**  
*Amanda Hersh, MD\**; *Meredith Frank, MD*; *James Caruso, MD*; *Ian Puffenberger, MD*;  
*Sterling McLaren, MD*; *Daniel Anderson, MS*
- 11:30 AM – 11:45 AM    **L45**    **Temperature and pH-Dependent Stability: Identifying Fentanyl Degradation Pathways**  
*Madison Schackmuth, BS\**; *Sarah Kerrigan, PhD*
- 11:45 AM – 1:00 PM                    **BREAK**

## Multidisciplinary Session: Pathology/Biology and Toxicology

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Moderator: *Tracy Halvorson*

Co-Moderator: *Kristin Kahl*

- 1:00 PM – 1:15 PM    **L46**    **An Unusual Case of Misrepresented Cocaine Powder That Resulted in Fatal and Non-Fatal Intoxications Involving the Novel Synthetic Opioid Etodesnitazene**  
*Alex Krotulski, PhD\**; *Stephany Fiore, MD*; *Daniel Anderson, MS*; *Sara Walton, MS*;  
*Brianna Peterson, PhD*; *Donna Papsun, MS*; *Joshua DeBord, PhD*; *Barry Logan, PhD*
- 1:15 PM – 1:30 PM    **L47**    **I Believe I Can Fly: Hallucinogenic/Psychedelic Drugs Found in Fall-From-Height Cases in Miami-Dade County, Florida**  
*Marissa Finkelstein, MS\**; *George Hime, MS*; *Diane Boland, PhD*
- 1:30 PM – 1:45 PM    **L48**    **Synthetic Cannabinoids Adulterated With Brodifacoum—Part II: The Florida Experience**  
*Robert Middleberg, PhD\**; *Justin Arnold, DO, MPH*; *Alexandra Funk, PharmD*
- 1:45 PM – 2:00 PM    **L49**    **Adverse Effects of Veterinary Pharmaceuticals as Toxic Adulterating Agents in Illicit Drug Deaths**  
*Barry Logan, PhD\**; *Alex Krotulski, PhD*; *Amanda Mohr, MS*; *Thom Browne, Jr., MA*
- 2:00 PM – 2:15 PM    **L50**    **A Compilation of Postmortem Vitreous Fluid Data for Pediatric Cases**  
*Breanne Vance, BA\**; *Kari Midthun, PhD*; *Jennifer Swatek, MS*; *Fabio Oldoni, PhD*
- 2:15 PM – 2:30 PM    **L51**    **Postmortem Formation of Ethanol: Is N-Propanol a Reliable Marker? A Proof-of-Concept Study Using a Real-Environment Experimental Set-Up**  
*Nicola Pigaiani, MD\**; *Giacomo Musile, PhD*; *Francesco Ausania, MD, PhD*; *Daniel Dye, MD*;  
*Gregory Davis, MD*; *Franco Tagliaro, MD*; *Antonio Oliva, MD, PhD*; *Federica Bortolotti, PhD*
- 2:30 PM – 2:45 PM    **L52**    **A Quantitative Analysis of Fentanyl and Major Metabolites From Empty Puparia and Adult Blow Flies Via QuEChERS Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) Analysis**  
*Joseph Cox, PhD\**; *Katherine Davis*; *Kylea Morris, BS*; *Rachel Mohr, PhD*; *Joseph DeTondo, DO*;  
*Luis Arroyo, PhD*
- 2:45 PM – 3:00 PM    **L53**    **Toxicology Laboratory Findings From the 2018 Census of Medical Examiner and Coroner Offices**  
*Jeri Roper-Miller, PhD\**; *Hope Smiley-McDonald, PhD*; *Katherine Bollinger, MS*
- 3:00 PM – 3:15 PM                    **BREAK**

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Moderator: Marissa Finkelstein

Co-Moderator: Susan Ely

- 3:15 PM – 3:30 PM **I71** **An Alleged Patricide by Americium-241 Poisoning**  
*Wendy Gunther, MD\**
- 3:30 PM – 3:45 PM **I72** **Fatal Butane Acute Intoxication in Custody—Pitfalls and Recommendations: An Analysis of Six Cases**  
*Michela Peruch, BS\*; Luigi Cipolloni, MD; Stefania De Simone, MD; Maria Chiara David, PhD; Monica Concato, BS; Martina Zanon, BS; Riccardo Addobbati, BS*
- 3:45 PM – 4:00 PM **I73** **Death as a Consequence of Cardiorespiratory Arrest Caused by a Cocaine-Induced Generalized Seizure: Toxicological Data in a Case Report**  
*Isabella Mercurio, MD\*; Laura Panata, MD; Michela Ferrara, MD; Mauro Bacci, MD; Cristina Gambelunghe, MD; Massimo Lancia, MD*
- 4:00 PM – 4:15 PM **I74** **Sodium Nitrite Poisoning: A Case Series of an Emerging Suicide Mechanism**  
*Ethan Blocher-Smith, MS, DO\*; Elizabeth Douglas, MD; Joseph Prahlow, MD*
- 4:15 PM – 4:30 PM **I75** **The Use of Over-the-Counter Tests to Detect Pregnancy in Postmortem Urine and Vitreous Fluid**  
*Marianne Hamel, MD, PhD\*; Andrew Falzon, DM*

## Friday

### Drugs and Driving Special Session

Moderator: Jennifer Limoges

Co-Moderator: Tim Rohrig

- 8:30 AM – 8:45 AM **L54** **Acute Psychotic Episodes in Impaired Driving Cases Involving Tetrahydrocannabinols ( $\Delta 8$  and  $\Delta 9$ )**  
*Nicholas Tiscione, MS\**
- 8:45 AM – 9:00 AM **L55** **Drug Testing and Traffic Safety: What You Need to Know**  
*Amy Berning, MA, PhDc\*; Ryan Smith, PhD; Kathryn Wochinger; Morgan Drexler, MPH*
- 9:00 AM – 9:15 AM **L56** **1,1-Difluoroethane in Driving Under the Influence (DUI) Cases—Intoximeter® DMT Dual Sensor and Draeger Alcotest 7110 Aiding Officers in Inhalant Cases**  
*Jasmine Maxwell, MSFS\*; Greg Turner, PhD; Curt Harper, PhD*
- 9:15 AM – 9:30 AM **L57** **A Standardized Method for Analyzing Toxicology Data in Drugged Driving Research**  
*Ryan Smith, PhD\*; Mary Pat McKay, MD, MPH; Jana Price, PhD*
- 9:30 AM – 9:45 AM **L58** **Impaired Driving Drug Trends and Stop Limit Testing Evaluation**  
*Grace Cieri, BS\*; Amanda Mohr, MS; Melissa Fogarty, MSFS; Barry Logan, PhD*
- 9:45 AM – 10:00 AM **L59**  **$\alpha$ -Pyrrolidinoisohexanophenone ( $\alpha$ -PiHP) in Driving Under the Influence (DUI) Cases**  
*Kristin Kahl, MS\*; Lisa Reidy, PhD*
- 10:00 AM – 10:15 AM **L60** **Blood Alcohol Concentration and Road Accidents—A Significant Underestimation Due to Delay in Blood Sampling: A Four-Year Retrospective Study in Rome**  
*Giovanni Aulino, MD\*; Nadia De Giovanni, PhD; Gianluca Lentini, MD; Giuseppe Vetrugno, MD; Sabina Strano-Rossi, MD; Marcello Covino, MD; Francesca Cittadini, MD*
- 10:15 AM – 10:30 AM **BREAK**

# TOXICOLOGY

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## General Toxicology

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Moderator: *Jasmine Maxwell*

Co-Moderator: *Michael Wagner*

- 10:30 AM – 10:45 AM    **L61**    **Oxycodone Pharmacokinetics in Whole Blood After a Single Dose of Immediate and Controlled Release Formulations**  
*Gerd Jakobsson, MSc\**; *Michael Truver, PhD*; *Maria Cherma, PhD*; *Madeleine Swortwood, PhD*; *Henrik Green, PhD*; *Robert Kronstrand, PhD*
- 10:45 AM – 11:00 AM    **L62**    **The Extraction and Quantification of Toxic Heavy Metals From Calliphoridae Larvae**  
*Daniela Bermeo Grajales\**; *Stephanie Urias*; *Cathleen Doherty, PhD*; *Denise Gemmellaro, PhD\**
- 11:00 AM – 11:15 AM    **L63**    **A Cost Benefit Analysis of High Resolution Mass Spectrometry (HRMS) -Based Drug Screening in Forensic Toxicology**  
*Jessica Ayala, PhD\**; *Sarah Kerrigan, PhD*
- 11:15 AM – 11:30 AM    **L64**    **Assessing Relative Levels of Ionic and Non-Ionic Binding of Drugs and Metabolites in Authentic Hair Reference Material (HRM)**  
*Brianna Spear, MS\**; *Anthony DeCaprio, PhD*
- 11:30 AM – 11:45 AM    **L65**    **Toxicological Surveillance of Clinical Patients Presenting to the Emergency Department After Suspected Opioid Overdoses: Geographical Trends and Impacts on Forensic Toxicology**  
*Sara Walton, MS\**; *Alex Krotulski, PhD*; *Alex Manini, MD, MS*; *Lindsey Domonoski, BS*; *Alyssa Reyes, BS*; *Barry Logan, PhD*
- 11:45 AM – 1:00 PM       **BREAK**

## Special Session—Pediatric Toxicology

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Moderator: *Robert Middleberg*

Co-Moderator: *Nikolas Lemos*

- 1:00 PM – 5:00 PM    **L66**    **The 22nd Annual Postmortem Pediatric Forensic Toxicology Session**  
*Robbert A. Middleberg, PhD\**; *Nikolas Lemos, PhD\**; *Andrew Baker, MD\**; *Christopher Milroy, MD, LLB\**; *Brianna Peterson, PhD\**; *Kari Midthun, PhD\**; *Jennifer Swatek, MS\**