WORKSHOPS

Pre-Registration Required—$275

W1 Pediatric Fracture Healing in Cases of Suspected Non-Accidental Trauma: Clinical, Radiographic, Anthropological, and Histological Perspectives and New Technologies

Monday, February 17, 2025   8:30 am – 5:00 pm   CE Hours: 6.0

Program Description: Physical abuse in children results in >500 deaths in the United States each year.[1] Patterned and repetitive skeletal fracture is often observed in these decedents, reflecting the typically serial nature of pediatric NAI. Accurate estimation of TSI for antemortem fractures is critical for identification, evaluation, and adjudication of fatal pediatric NAI.

However, TSI estimation has been described as an "inexact science," due to lack of recognition, understanding, and scientific validation of existing TSI methods.[2,3] These methods derive from a variety of inter-disciplinary sources with unknown accuracy, reliability, consistency, and limited understanding of variables that impact fracture healing. This has necessitated extreme caution in use of TSI estimations in the adjudication of fatal pediatric NAI.

Multidisciplinary approaches to understanding pediatric fracture healing that focus on scientifically validated methodologies are imperative for developing best practice recommendations and standards for forensic pediatric skeletal trauma analysis in pediatric death investigations.

This workshop provides a multidisciplinary approach for understanding and estimating pediatric fracture TSI. Best practice recommendations for analysis and interpretation of pediatric skeletal fracture and its timing are presented using interdisciplinary technologies involving imaging (Computed Tomography [CT], radiology), microscopy (light microscopy, histology), and machine learning. The scientific foundation for pediatric fracture repair and its timing is considered, as is application of these methods to the broader context of pediatric case adjudication and public health. Hands-on examination of case study examples allows participants to put topics covered into practice with a focus on interdisciplinary collaboration.

Educational Objectives: After attending this workshop, participants will understand how antemortem skeletal fractures can be used to help interpret, document, and adjudicate medicolegal cases of Non-Accidental Injury (NAI) in pediatric deaths. Attendees will learn the anatomical basis for and variables affecting pediatric skeletal fracture, repair, and timing (i.e., Time Since Injury or TSI). Using multidisciplinary technology, including histology, light microscopy, radiology, and machine learning, they will learn to critically evaluate current methodological approaches for evaluating pediatric fracture healing and estimating TSI. Applications of pediatric antemortem fracture data toward public health (including advocacy for children's health) will be explored.

Impact Statement: This workshop will impact the forensic community by providing multidisciplinary perspectives and methodological training for critically evaluating and interpreting skeletal fracture and its timing in pediatric death investigations. This training will help the forensic community determine best practice approaches to pediatric fracture interpretations that are scientifically based, legally defensible, and applicable to public health efforts toward prevention of non-accidental child injury.

Target Audience: Anthropology, Forensic Nursing Science, General, Jurisprudence, Pathology/Biology

Knowledge Level Required: Intermediate

Chair:
Diana Messer, PhD
West Tennessee Regional Forensic Center
Memphis, TN

Co-Chair:
Donna C. Boyd, PhD
Radford University
Radford, VA

Presenters:
Bradley J. Adams
Office of the Chief Medical Examiner
New York, NY

Andrew Baker, MD
Hennepin County
Medical Examiner's Office
Minnetonka, MN

Farah W. Brink, MD
Nationwide Children's Hospital
Columbus, OH

Jered B. Cornelison, PhD
Western Michigan University
Homer Stryker MD School of Medicine
Kalamazoo, MI

Carolyn V. Isaac, PhD
Michigan State University
East Lansing, MI

Andy Tsai, MD, PhD
Boston Children's Hospital
Harvard Medical School
Boston, MA

WORKSHOPS

W1   **Pediatric Fracture Healing in Cases of Suspected Non-Accidental Trauma: Clinical, Radiographic, Anthropological, and Histological Perspectives and New Technologies**

Program:

8:30 am − 8:45 am	**Introduction: Pediatric Fatal Death Investigations, Skeletal Fracture, and Its Timing** *Diana Messer, PhD; Donna Boyd, PhD*
8:45 am − 9:15 am	**Infant Fracture Dating: Leveraging Histology, Radiology, and AI** *Andy Tsai, MD*
9:15 am − 10:15 am	**Gross and Microscopic Evaluation of Pediatric Fractures at Autopsy** *Andrew Baker, MD*
10:15 am − 10:45 am	**BREAK/Individual Case Study Assessment Time**
10:45 am − 11:15 am	**Light Microscopy of Pediatric Healing Fractures** *Donna Boyd, PhD*
11:15 am − 12:00 pm	**A Histomorphological Approach to Fracture Age Estimation** *Jered Cornelison, PhD; Carolyn Isaac, PhD*
12:00 pm − 1:30 pm	**BREAK/Individual Case Study Assessment Time**
1:30 pm − 2:00 pm	**Protocol and Best Practices for Documenting and Analyzing Pediatric Healing Fractures at the New York City Office of the Medical Examiner** *Bradley Adams, PhD*
2:00 pm − 2:30 pm	**Assessing the Scientific Validity of TSI Estimation** *Diana Messer, PhD; Donna Boyd, PhD*
2:30 pm − 3:00 pm	**Using Deep Learning to Estimate Time-Since-Injury of Healing Fractures** *Farah Brink, MD; Diana Messer, PhD*
3:00 pm − 3:30 pm	**BREAK/Individual Case Study Assessment Time**
3:30 pm − 4:00 pm	**Clinical Approach to Fracture Healing in Cases of Suspected Child Physical Abuse** *Farah Brink, MD*
4:00 pm − 4:30 pm	**Pediatric Skeletal Trauma Analysis in Broader Legal and Public Health Context: Adjudicating and Preventing Child Deaths** *Donna Boyd, PhD, Diana Messer, PhD*
4:30 pm − 5:00 pm	**Interactive Case Study Discussion and Wrap-Up** *Donna Boyd, PhD; Diana Messer, PhD*

All times are in the U.S. Eastern Time Zone

WORKSHOPS

W3   A Military Criminal Investigative Organization and the Boon and Bane of Technology

Monday, February 17, 2025	**8:30 am – 5:30 pm**	**CE Hours: 6.75**

Program Description: The attendees will be provided with an understanding of military-specific investigations, how we utilize technology to assist us in solving our investigations, as well as the problems technology has presented over the past ten years. There will be multiple case studies of deaths, child sexual abuse material, and other felony level crimes demonstrating the benefits and risks associated with our reliance on technology. There will be information pertaining to our newly established Cold Case Unit, which has assisted in numerous cold cases and has current cold cases they are investigating. There will also be a capabilities brief of what we as an MCIO can assist outside agencies with.

Educational Objectives: The attendees will learn how a Military Criminal Investigative Organization (MCIO) has applied technology to the investigative process and what has assisted them, as well as how it has hindered the investigative process. There will be discussions concerning death investigations, cold case investigations, and military resources to our partner agencies, challenges of Closed Circuit Television, and challenges during armed conflicts.

Impact Statement: This presentation will impact the forensic science community by providing examples of best practices with inter-agency partnerships, differing ways technology can be used to solve investigations, being a resource to assist with cold cases that may have a Department of Defense nexus, and how technology can be used in austere environments to solve investigations.

Target Audience: Digital & Multimedia Sciences, General, Jurisprudence

Knowledge Level Required: Basic

Workshop Chair:
Vanessa R. Neff, MFS
Department of the Army
Criminal Investigation Division
Woodbridge, VA

Co-Chair:
Matt Geniuk, MSc
Department of the Army
Criminal Investigation Division
Fort Sam Houston, TX

Presenters:
Chris Adams, MFS
Department of the Army
Criminal Investigation Division
Quantico, VA

Tim Bartman, BAS
Department of the Army
Criminal Investigation Division
Fort Moore, GA

Ethan Dodson, MSFS
Central Texas Field Office
Department of the Army
Criminal Investigation Division
Fort Cavazos, TX

Michael Allen Easter, Jr., MSFS
Department of the Army
Criminal Investigation Division
Fredericksburg, VA

Pedro Hernandez, Jr., MFS
Department of the Army
Criminal Investigation Division
El Paso, TX

Dale Sajdak, MSFS
Department of the Army
Criminal Investigation Division
Stedman, NC

Jessica A. Veltri, MS
Department of the Army
Criminal Investigation Division
Stafford, VA

Bryce Wolford, MA
Department of the Army
Criminal Investigation Division
Quantico, VA

WORKSHOPS

W3   **A Military Criminal Investigative Organization and the Boon and Bane of Technology**

Program:

8:30 am – 8:45 am   **Introduction**
Matt Geniuk, MS

8:45 am – 10:15 am   **Military Resources for Cold Case Investigations**
Jessica A. Veltri, MS; Chris Adams, MFS

10:15 am – 11:00 am   **Bridging The Gap: Law Enforcement and the Digital Divide**
Pedro Hernandez, Jr., MFS

11:00 am – 11:15 am   **BREAK**

11:15 am – 12:00 pm   **Dowsing Rods: Bane or Boone?**
Michael Allen Easter, Jr., MSFS

12:00 pm – 1:00 pm   **BREAK**

1:00 pm – 1:45 pm   **Benefits of Facial Recognition in CSAM Investigations**
Bryce Wolford, MA

1:45 pm – 2:30 pm   **Overreliance on Technology and the Pitfalls**
Dale Sajdak, MSFS

2:30 pm – 3:15 pm   **Challenges of Excavating Human Remains in a Combat Zone**
Ethan Dodson, MSFS

3:15 pm – 3:30 pm   **BREAK**

3:30 pm – 4:15 pm   **CCTV and the Challenges it Brings**
Tim Bartman, BAS

4:15 pm – 5:00 pm   **Limits of Technology in a Missing Soldier Investigation**
Vanessa R. Neff, MFS

5:00 pm – 5:30 pm   **Final Wrap-Up and Questions**
Matt Geniuk, MS

WORKSHOPS

Pre-Registration Required—$275

W4   Forensic Science Adaptation to Artificial Intelligence

Monday, February 17, 2025   8:30 am – 4:35 pm   CE Hours: 6.25

Program Description: This workshop was developed by the Forensic Science Foundation (FSF) Educational Committee. The workshop will explore the transformative potential of Artificial Intelligence (AI) in forensic science. It will delve into the basics of AI analyses, discuss strategies for implementing AI-enabled tools in pattern evidence, and present innovative biometrics solutions for digital forensics. The workshop will also evaluate novel approaches to media authentication in the age of AI-generated content, apply AI in fire debris analysis and forensic DNA analysis, and discuss the use of generative AI for rapid detection of novel drugs in toxicology samples. Last, it will provide a historical perspective on the development of AI and discuss its challenges in forensic science. Attendees will gain insights into the state of AI in forensic science, learn about current tools, and understand the considerations in the development and evaluation of AI-based techniques in the field.

Educational Objectives: The proposed presentations are poised to significantly impact the forensic science community by integrating AI into various aspects of forensic analysis. They aim to enhance understanding of AI principles, propose strategies for implementing AI-enabled tools in pattern evidence analysis, and explore innovative biometrics solutions. They also seek to evaluate novel approaches to media authentication in the face of AI-generated content, apply AI in fire debris analysis and forensic DNA analysis, and use generative AI for rapid detection of novel drugs in toxicology samples. Last, they provide a historical perspective on the development of AI and discuss its challenges in forensic science. Collectively, these presentations could lead to more accurate, efficient, and objective forensic analyses, ultimately contributing to a more effective criminal justice system.

Impact Statement: This presentation will impact the forensic science community by providing examples of best practices with inter-agency partnerships, differing ways technology can be used to solve investigations, be a resource to assist with cold cases that may have a Department of Defense nexus, and how technology can be used in austere environments to solve investigations.

Target Audience: All Sections

Knowledge Level Required: Basic

Chair:
Gina Londino-Smolar, EdD
IU Indianapolis
Indianapolis, IN

Co-Chair:
JCU Downs, MD
forensX, LLC
Johns Island, SC

Presenters:
Carole E. Chaski, PhD
Institute for Linguistic Evidence
Georgetown, DE

Brandon Epstein, MS
Medex Forensics
Madison, WI

Ting-Yu Huang, PhD
Taipei City, Taiwan

Michael A. Marciano, PhD
Syracuse University
Syracuse, NY

David Pienkowski, MBA, PhD
University of Kentucky
Lexington, KY

Kathryn C. Seigfried-Spellar, PhD
Purdue University
West Lafayette, IN

Aaron M. Shaprio, PhD
Provincial Health Services
Authority of British Columbia
Vancouver, BC, Canada

Henry Swofford, PhD
National Institute of Standards
  and Technology
Gaithersburg, MD

Jorn Yu, PhD
Sam Houston State University
Huntsville, TX

WORKSHOPS

W4   **Forensic Science Adaptation to Artificial Intelligence**

Program:

8:30 am − 8:35 am   **Welcome**
Gina Londino-Smolar, EdD

8:35 am − 8:50 am   **Introduction**
David Pienkowski, MBA, PhD

8:50 am − 9:35 am   **The Impact of Artificial Intelligence on Forensic DNA Analysis**
Michael A. Marciano, PhD

9:35 am − 10:20 am   **A New Horizon in Digital Forensics Through Knuckle and Fingernail Bed Biometrics**
Kathryn C. Seigfried-Spellar, PhD

10:20 am − 10:30 am   **BREAK**

10:30 am − 11:15 am   **Evaluating Novel Approaches to Media Authentication in the Age of AI-Generated Content**
Brandon Epstein, MS

11:15 am − 12:00 pm   **Transfer Learning of Data Classification for Fire Debris Analysis**
Jorn Yu, PhD; Ting-Yu Huang, PhD

12:00 pm − 1:00 pm   **BREAK**

1:00 pm − 1:45 pm   **Navigating Implementation of AI-Enabled Tools in Pattern Evidence**
Henry Swofford, PhD

1:45 pm − 2:30 pm   **The Search for the Unknown: Using Generative AI to Detect Novel Drugs in Toxicology Samples**
Aaron M. Shaprio, PhD

2:30 pm − 2:45 pm   **BREAK**

2:45 pm − 3:30 pm   **Forensic Computational Linguistics: History, Examples, and Challenges of Artificial Intelligence in Forensic Science**
Carole E. Chaski, PhD

3:30 pm − 4:30 pm   **Questions and Answers Panel Session**
All Presenters

4:30 pm − 4:35 pm   **Closing Remarks**
Gina Londino-Smolar, EdD

Proceeds from this workshop will benefit the Forensic Sciences Foundation

All times are in the U.S. Eastern Time Zone

WORKSHOPS

W5   The Sherry Black Investigation—A Journey for Justice

Monday, February 17, 2025   **8:30 am – 4:00 pm**   **CE Hours: 5.5**

Program Description: This program will take the attendees through the high-profile, 10-year investigation of the murder of Sherry Black. She was murdered in her small bookstore located on her property in South Salt Lake City, UT, on November 30, 2010. The program will start with the initial call to the South Salt Lake City Police Department and the processing of the crime scene by the Utah Bureau of Forensic Services Laboratory System. The evidence recovered at the scene and the impact the evidence had on the investigation will be discussed. The presentation will show the initial forensic testing and the results of the analysis. The Behavioral Analysis conducted on both the crime and offender will be reviewed with the attendees, and the evidence-based conclusions will be explained. Investigative Genetic Genealogy has become a critical tool in identifying unknown remains and unknown offenders in many violent crimes. We will discuss how this was used during the investigation, and how the offender was eventually identified. The attendees will learn the proper way to obtain reference samples to ensure that any results will not be questioned. This presentation will describe the prosecutorial process from the time of the offender's arrest through his sentencing. We will discuss considerations when prosecuting cold case homicides. Finally, the attendees will learn the steps that were taken to pass Utah SB156, also known as the "Sherry Black Bill." This legislative act introduces a more structured framework for law enforcement's utilization of optional genetic testing databases when investigating violent crimes.

Educational Objectives: After attending this presentation, attendees will gain a working knowledge of the process of violent crime investigation. Attendees will recognize: (1) the initial crime scene and evidence collection; (2) forensic analysis of the evidence; (3) crime acene assessment and behavior analysis; (4) Investigative Genetic Genealogy; (5) prosecutorial considerations and the impact on families.

Impact Statement: This presentation will impact the forensic science community by exploring a violent homicide from the initial investigation through the ten years of investigation, culminating in the identification and conviction of the offender. During this investigation, many forensics sciences disciplines were involved; this presentation discusses these practices and their application to homicide investigation.

Target Audience: General, Jurisprudence, Psychiatry & Behavioral Science

Knowledge Level Required: Basic

Chair:
Katherine M. Brown, PhD
Tarleton State University
College Station, TX

Co-Chair:
Kelsie Bryand, MS
Sam Houston State University
Huntsville, TX

Presenters:
Heidi Miller
Founder
Sherry Black Foundation
Sandy, UT

Erin BE Ryan, BS
Director
Sherry Black Foundation
Midway, UT

Patrick J. Zirpoli
Sr. Investigative Consultant
Sherry Black Foundation
Milanville, PA

WORKSHOPS

W5   **The Sherry Black Investigation—A Journey for Justice**

Program:

8:30 am – 8:45 am   **Introduction**
Heidi Miller

8:45 am – 10:00 am   **The Initial Investigation**
Patrick J. Zirpoli

10:00 am – 10:15 am   **BREAK**

10:15 am – 11:00 am   **Assessing Criminal Behavior: An Introduction**
Patrick J. Zirpoli

11:00 am – 12:00 pm   **Criminal Behavior Assessment of the Sherry Black Murder**
Patrick J. Zirpoli

12:00 pm – 1:00 pm   **BREAK**

1:00 pm – 2:15 pm   **Utilizing Investigative Genetic Genealogy**
Patrick J. Zirpoli

2:15 pm – 2:45 pm   **Prosecutorial Considerations and Impacts on Families**
Patrick J. Zirpoli; Erin BE Ryan, BS; Heidi Miller

2:45 pm – 3:00 pm   **BREAK**

3:00 pm – 3:45 pm   **Utah SB156 "Sherry Black Bill"**
Erin BE Ryan, BS

3:45 pm – 4:00 pm   **Closing Remarks**
Heidi Miller

WORKSHOPS

W6   NIST/MSP Hypergeometric Sampling Software for Seized-Drug Analysis

Monday, February 17, 2025   8:00 am – 5:00 pm   **CE Hours: 6.75**

Program Description: This full-day workshop will present a new statistical sampling app developed by the National Institute of Standards and Technology (NIST) and the MSP to apply hypergeometric sampling to seized-drug evidence. The theory behind the calculations in the app will be thoroughly discussed, along with tools and techniques for both conceptualizing and deploying statistical sampling plans in seized-drug laboratories. Topics covered will include sample size selection, uncertainty quantification, generation of appropriate population inferences for net weight and identification purposes, and appropriate reporting language for net weight, unit count, and extrapolation scenarios.

Educational Objectives: After attending this workshop, the attendees will understand how different hypergeometric sampling tools can be used in a forensic laboratory to improve the information provided about the population of drugs submitted.

Impact Statement: This workshop will impact the forensic science community by providing an alternative to the sampling tools currently available on the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) website. The presenters will highlight the reasons why Maryland State Police (MSP) decided to provide statistical data for evidence submitted with a possession with intent to distribute charge. One of the current challenges of statistical sampling of seized-drug evidence is that the complex mixtures of street samples do not always have the same controlled substances reported for each specimen tested. This sampling app will allow a statistical statement to be more easily made in more situations than the hypothesis testing approach.

Target Audience: Criminalistics

Knowledge Level Required: Basic

Chair:
Sandra E. Rodriguez-Cruz, PhD
Drug Enforcement Administration
Dulles, VA

Co-Chair:
Catherine Savage, MS
Maryland State Police
Forensic Sciences Division
Pikesville, MD

Presenters:
Laurel Bobka, MSFS
Maryland State Police
Walkersville, MD

William Guthrie, MS
National Institute of Standards and Technology
Gaithersburg, MD

Jack Prothero, PhD
National Institute of Standards and Technology
Westminster, CO

Joshua Smith, BS
Charles County Sheriff's Office
Windsor Mill, MD

WORKSHOPS

W6   NIST/MSP Hypergeometric Sampling Software for Seized-Drug Analysis

Program:

8:00 am − 10:00 am   **Welcome and Presentation of the Hypergeometric Sampling App for Seized-Drug Analysis**
Jack Prothero, PhD; Laurel Bobka, MSFS

10:00 am − 11:00 am   **Histories and Components of Sampling Plans**
Sandra E. Rodriguez-Cruz, PhD; Laurel Bobka, MSFS

11:00 am − 12:00 pm   **Mathematics Underlying Hypergeometric Sampling and Tool Demos**
Jack Prothero, PhD; Sandra E. Rodriguez-Cruz, PhD

12:00 pm − 1:00 pm   **BREAK**

1:00 pm − 4:00 pm   **Hands-On Exercises: Comparison of Hypergeometric Sampling App to SWGDRUG SD6 and ENFSI Calculators**
Joshua Smith, BS; Catherine Savage, MS

4:00 pm − 4:30 pm   **Discussion of Estimated Net Weight and Tablet Count Estimations, Including Estimation of Uncertainty of Measurement for Weight Measurements**
Joshua Smith, BS

4:30 pm − 5:00 pm   **FAQs: "What Do I Say if a Lawyer Asks X?"**
All Presenters

WORKSHOPS

Pre-Registration Required—$275

W7 *DSM* Demystified: Medical Disorders in the Courtroom

Monday, February 17, 2025   8:30 am – 6:00 pm   CE Hours: 7.5

Program Description: This presentation is designed to equip legal professionals with the knowledge to confidently discuss the mental health in court proceedings, explore alternative diagnostic options, and understand the crucial distinctions between legal and medical definitions of disorders. Participants will delve into real case examples to see theory in action and gain practical insights into challenging opposing experts and selecting the right expert witnesses.

Interactive elements will include engaging group discussions and role-playing scenarios to enhance learning and retention. Role-playing in this session will involve analyzing various case scenarios from jurisdictions with different legal standards and tests. Participants will engage in mini mock trials with forensic evaluations where they will apply their understanding of the *DSM*'s authority, forensic limitations, and the distinction between legal and medical definitions of disorders. By attending this session, you will not only enhance your ability to navigate forensic evaluations but also ensure ethical and accurate representations of mental health in legal contexts. Join us to transform your courtroom strategies and become a more effective advocate for your clients.

Educational Objectives: The goals of this workshop are to:

• Understand and articulate the role of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) in legal settings.
• Analyze the limitations and challenges of relying on the *DSM* for legal determinations of mental health issues.
• Identify and compare alternative diagnostic manuals and systems used in mental health assessments.
• Differentiate between legal versus medical definitions of mental disorders in the assessment and testimony of mental health conditions.
• Acquire knowledge to effectively challenge the testimony and findings of opposing experts in court.
• Learn to identify potential weaknesses or biases in expert evaluations and testimonies.
• Evaluate the credentials, experience, and methodology of potential expert witnesses.
• Review landmark cases that have significantly influenced mental health law and discuss their impact on current legal standards and practices.

Impact Statement: By achieving these learning objectives, participants will gain a comprehensive understanding of the interplay between mental health and legal systems, particularly the role and authority of the *DSM* in court. They will be equipped with the knowledge to critically evaluate and challenge forensic limitations, alternative diagnostic options, and the legal versus medical definitions of disorders. Through case examples and practical strategies, attendees will enhance their ability to select and prepare expert witnesses, ensuring robust and credible testimonies. This training will empower legal professionals to effectively navigate the complexities of forensic mental health evaluations, ultimately improving the quality and fairness of judicial outcomes.

Target Audience: Jurisprudence, Psychiatry & Behavioral Science

Knowledge Level Required: Basic

Chair:
Corina Freitas, MD
Freitas and Associates LLC
Alexandria, VA

Co-Chair:
Donna Coleman, JD
Office of the Public Defender
Mental Health Division
Towson, MD

WORKSHOPS

W7   *DSM* **Demystified: Medical Disorders in the Courtroom**

Program:

8:30 am −   8:35 am   **Welcome and Introductions**
Corina Freitas, MD

8:35 am −   9:00 am   **Overview of Different Mental Health Experts and Their Differences**
Corina Freitas, MD

9:00 am −   9:15 pm   **Forensic Mental Health Professional Ethics Guidelines**
Corina Freitas, MD

9:15 am − 10:00 am   **History of Classification of Mental Ilness, the *DSM* With Its Forensic Application Caution and Beyond**
Corina Freitas, MD

10:00 am − 10:15 am   **BREAK**

10:15 am − 11:00 am   **What is a Mental Disorder in Forensic Mental Health?—Where Medicine Meets the Law**
Corina Freitas, MD; Donna Coleman, JD

11:00 am − 12:00 pm   **Review of Mental Health Landmark Cases and Legal Standards**
Donna Coleman, JD

12:00 pm −   1:00 pm   **BREAK**

1:00 pm −   3:00 pm   **Mini Mock Trial on Sanity**
Donna Coleman, JD

3:00 pm −   5:00 pm   **Mini Mock Trial on Competemce**
Donna Coleman, JD

5:00 pm −   6:00 pm   **Q&A and Mini Mock Trial Debrief**
Corina Freitas, MD; Donna Coleman, JD

WORKSHOPS

W8   Forensic Postmortem Radiology and Medicolegal Death Investigations

Monday, February 17, 2025   8:30 pm – 4:45 pm   CE Hours: 5.75

Program Description: Forensic postmortem radiology is an essential element of a comprehensive medicolegal death investigation. State-of-the-art techniques and procedures will be discussed through case presentations and interactive interpretations of radiology images.

Educational Objectives: After attending this workshop, attendees will: (1) appreciate the evolution of forensic imaging: (2) develop an understanding the fundamentals of Postmortem Computed Tomography (PMCT), including interpretation; (3) gain insights regarding the applications of Postmortem Computed Tomography (PMCT), with a particular focus on its role during the opioid epidemic; (4) identify unique considerations for pediatric forensic imaging, and (5) discuss current advances, collaboration, and potential resources available to interested practitioners.

Impact Statement: This presentation will impact the forensic science community by providing attendees with expertise on best practices, interpretation of radiology imaging, and incorporation of forensic postmortem radiology into medicolegal death investigations.

Target Audience: Anthropology, Forensic Nursing Science, General, Jurisprudence, Odontology, Pathology/Biology

Knowledge Level: Basic

Chair:
Summer J. Decker, PhD
University of Southern California
Keck School of Medicine
Los Angeles, CA

Co-Chair:
Edward Mazuchowski, MD, PhD
HNL Lab Medicine
Breiningsville, PA

Presenters:
Natalie L. Adolphi, PhD
University of New Mexico
Albuquerque, NM

Fabrice Dedouit, MD, PhD
Rangueil-Larrey Toulouse Hospital
Toulouse, France

Jamie M. Elifritz, MD
Forensic Radiology Group
Albuquerque, NM

Howard T. Harcke, MD
Thomas Jefferson University
Wilmington, DE

Heather S. Jarrell, MD
Office of the Medical Investigator
Albuquerque, NM

Michael J. Thali
University of Zurich
Zurich, Switzerland

Program:

8:30 am – 8:45 am   **Introductions and Overview and Historical Perspective**
Edward L. Mazuchowski, MD, PhD; Summer J. Decker, PhD

8:45 am – 9:15 am   **Natural Disease, Postmortem Changes, and Artifacts**
Jamie Elifritz, MD

9:15 am – 9:45 am   **Traumatic Injuries**
Edward L. Mazuchowski, MD, PhD

9:45 am – 10:15 am   **Incorporating Forensic Imaging Into to Day-to-Day Practice in a Medical Examiner Office During the Opioid Crisis**
Heather Jarrell, MD

10:15 am – 10:30 am   **BREAK**

WORKSHOPS

W8   **Forensic Postmortem Radiology and Medicolegal Death Investigations**

Program cont.

10:30 am − 11:00 am   **Cardiac Imaging and Postmortem Angiography**
Fabrice Dedouit, MD, PhD

11:00 am − 11:30 am   **Pediatric Forensic Radiology**
Howard T. Harcke, MD

11:30 am − 12:00 pm   **Current State of Forensic Radiology in Medicolegal Jurisdictions**
Natalie Adophi, MS, PhD

12:00 pm −   1:00 pm   **BREAK**

 1:00 pm −   1:30 pm   **Postmortem Imaging: International Perspective**
Michael Thali, MD

 1:30 pm −   2:00 pm   **Visualization and Court Presentation**
Summer Decker, PhD

 2:00 pm −   2:30 pm   **Emerging Technologies in Forensic Imaging**
Summer Decker, PhD

 2:30 pm −   2:45 pm   **BREAK**

 2:45 pm −   4:15 pm   **Interactive Cases**
All Presenters

 4:15 pm −   4:45 pm   **Panel Discussion With Audience Participation**
All Presenters

WORKSHOPS

W9   Statistical Thinking for Forensic Science: From Probability to Black Box Studies to Likelihood Ratios

Monday, February 17, 2025	8:30 am – 4:30 pm	CE Hours: 5.75

Program Description: This workshop provides an introduction to key concepts in probability and statistics by linking them to key topics that are currently impacting the forensic science community. The target audience is anyone (e.g., practitioners, lawyers, judges, educators, and stakeholders) with a desire to better understand ongoing conversations about validation studies, error rates, inconclusive findings, likelihood ratios, and general concepts in statistics and probability.

Educational Objectives: The workshop is intended to review basic concepts from probability and statistical inference and demonstrate their relevance in the current discussions regarding the assessment and interpretation of impression, pattern, and trace evidence. Participants will:

• Become familiar with the language and key concepts of probability, including the role of populations and sample, laws of probability, dependence/independence of events, conditional probability and Bayes' rule, and the likelihood ratio.
• Become familiar with the language and key concepts of statistical inference, including the role of data collection, measurement, error rates, reliability, and validity.
• Understand issues associated with the design, execution, and interpretation of black box studies.
• Understand statistical hypothesis testing and its relevance for the two-stage approach for analyzing forensic evidence.
• Understand the likelihood ratio/Bayes factor-approach to assessing forensic evidence along with its strengths and weaknesses.

Impact Statement: Understanding the applications of statistics by the forensic science community will assist practitioners, attorneys, and jurists in evaluating evidence and opinions. The workshop is intended to leave participants in a position to better understand and engage in ongoing discussions (in the Organization of Scientific Area Committees [OSAC] and other places) about appropriate approaches to assessing forensic evidence and reporting forensic conclusions.

Target Audience: All Sections

Knowledge Level Required: Basic

Chair:	*Co-Chair:*	*Presenter:*
Michael J. Salyards, PhD	**Linton Mohammed, PhD**	**Hal S. Stern, PhD**
CSAFE	Forensic Science Consultants, Inc.	University of California, Irvine
Tucson, AZ	Poway, CA	Irvine, CA

Program:

8:30 am – 10:00 am   **Introduction and Probability Concepts**
Michael J. Salyards, PhD; Hal S. Stern, PhD

10:00 am – 10:30 am   **BREAK**

10:30 am – 12:00 pm   **Forensic Science Results, Opinions, and Interpretations/Statistical Methods and the Two-Stage Approach to Forensic Inference**
Michael J. Salyards, PhD; Hal S. Stern, PhD

12:00 pm – 1:00 pm   **BREAK**

1:00 pm – 2:30 pm   **Validation Studies**
Michael J. Salyards, PhD; Hal S. Stern, PhD

2:30 pm – 3:00 pm   **BREAK**

3:00 pm – 4:30 pm   **The Likelihood Ratio in Forensic Science**
Michael J. Salyards, PhD; Hal S. Stern, PhD

WORKSHOPS

Pre-Registration Required—$150

W10   Alcohol Calculations and Expert Testimony: How ANSI/ASB BPR 122 and 037 Can Be Applied in Forensic Toxicology Cases

Monday, February 17, 2025	**8:30 am – 12:00 pm**	**CE Hours: 3.0**

Program Description: Forensic toxicologists are frequently asked to perform calculations related to alcohol in a wide variety of situations. ANSI/ASB BPR 122 Best Practice Recommendation for Performing Alcohol Calculations in Forensic Toxicology, First Edition, 2024, outlines a scientific approach to improve the quality and consistency of this type of work. Those calculations can then serve as the basis for expert opinion in matters related to motor vehicle investigations, drug-facilitated crimes, workplace injury inquiries, and other criminal and civil cases. Performing the calculations in a standardized manner can also assist experts in meeting the recommendations of ANSI/ASB BPR 037 Guidelines for Opinions and Testimony in Forensic Toxicology, First Edition, 2019.

This workshop will review the alcohol calculation best practices and expert opinion guidelines, then demonstrate how the calculations can be applied to a variety of real-world case scenarios. Experts will also share how those calculations are then presented in court as part of their expert opinion testimony.

Educational Objectives: Attendees will be able to use the alcohol calculation guidelines in a wide variety of forensic case types. They will learn how different toxicologists apply those calculations to expert opinion testimony.

Impact Statement: This workshop will impact the forensic toxicology and criminal justice community by educating stakeholders in how the principles of American National Standards Institute/Academy Standards Board Best Practice Recommendation (ANSI/ASB BPR) 122 and ANSI/ASB BPR 037 can be applied to a variety of forensic case types involving alcohol calculations.

Target Audience: Jurisprudence, Toxicology

Knowledge Level Required: Intermediate

Chair:
Jennifer F. Limoges, MS
New York State Police
Forensic Investigation Center
Albany, NY

Co-Chair:
Laura Liddicoat, BA
Liddicoat Consulting
Fitchburg, WI

Presenters:
Patrick M. Harding, BS
Robert F. Borkenstein Courses
Madison, WI

Chris Heartsill, BSc
SOFT/NHTSA
Farmers Branch, TX

Marc A. LeBeau, PhD
LeBeau Forensic Toxicology Consulting, LLC
Fairfax, VA

Karen Wittman, JD
ABA Judicial Outreach Liaison
Municipal Court
Kansas City, KS

WORKSHOPS

W10   **Alcohol Calculations and Expert Testimony: How ANSI/ASB BPR 122 and 037 Can Be Applied in Forensic Toxicology Cases**

Program:

8:30 am − 8:35 am	**Opening and Introductions**	
	Jennifer F. Limoges, MS; Laura Liddicoat, BA	

8:30 am − 8:35 am **Opening and Introductions**
Jennifer F. Limoges, MS; Laura Liddicoat, BA

8:35 am − 8:50 am **BAC Calculations in the Courtroom**
Karen Wittman, JD

8:50 am − 9:20 am **ANSI/ASB BPR 122 and BPR 037 Overview**
Jennifer F. Limoges, MS

9:20 am − 9:40 am **Case 1: Dram Shop**
Patrick M. Harding, BS

9:40 am − 10:00 am **Case 2: Workplace Injury**
Chris Heartsill, BSc

10:00 am − 10:30 am **BREAK**

10:30 am − 10:50 am **Case 3: FMVA**
Jennifer F. Limoges, MS

10:50 am − 11:10 am **Case 4: DFC**
Marc A. LeBeau, PhD

11:10 am − 11:30 am **Case 5: Hospital Serum Civil Case**
Laura Liddicoat, BA

11:30 am − 12:00 pm **Panel Discussion**
All Presenters

WORKSHOPS

W11   Sequencing 101

Monday, February 17, 2025   **8:30 am – 12:00 pm**   **CE Hours: 3.5**

Learning Overview: What is a library? If it is whole genome sequencing, why don't I get the whole genome? This workshop is designed to be a crash course in all things sequencing. Existing commercial and custom panels for autosomal Short Tandem Repeat (STR), X-STR, Y-STR, mitochondrial, and Single Nucleotide Polymorphism (SNP) testing will be discussed. Additionally, the differences between targeted sequencing, shotgun sequencing, amplicon versus ligation-based libraries, and additional sequencing methods will be compared. Whether or not bioinformatics is required based on the sequencing method will be explored as well as the types of bioinformatic processes that may be employed, including imputation. With any new technology comes the introduction of this procedure in the courtroom as well as the inevitable court challenges. Successfully presented expert witness testimony will be previewed as well as a look at ongoing court challenges. Finally, cases where sequencing has been utilized will be highlighted. The presenters of this workshop will span industry experts, a bioinformatician, and active casework users of sequencing technologies.

Educational Objectives: The goal of this workshop is for attendees to walk away with a better baseline knowledge of sequencing and to provide a foundation for informed decision-making for those considering deploying sequencing in their laboratory.

Impact Statement: Sequencing can be intimidating for those that are used to the existing DNA technologies that have been available over the past several decades. This workshop will broaden that knowledge.

Target Audience: Criminalistics, Digital & Multimedia Sciences, General, Jurisprudence, Pathology/Biology

Knowledge Level: Basic

Chair:
Rachel H. Oefelein, MSc
DNA Labs international
Deerfield Beach, FL

Co-Chair:
Marybeth Sciarretta, MS
DNA Labs international
Deerfield Beach, FL

Presenters:
Laurence Devesse, PhD
Qiagen
Zurich, Switzerland

Danny Hellwig, MS
DNA Labs international
Deerfield Beach, FL

Kevin Lord
DNA Labs international
Deerfield Beach, FL

Mandi S. Van Buren, MS
DNA Labs International
Deerfield Beach, FL

Program:

8:30 am – 8:45 am	**Welcome/Introductions**	
	Rachel H. Oefelein, MSc	
8:45 am – 9:15 am	**What is Sequencing?**	
	Laurence Devesse, PhD	
9:15 am – 9:45 am	**Sequencing for STRs, mtDNA, and More**	
	Marybeth Sciarretta, MS	
9:45 am – 10:15 am	**Sequencing for FIGG**	
	Patrick M. Harding, BS	
10:15 am – 10:30 am	**BREAK**	
10:30 am – 11:00 am	**Sequencing in the Courtroom**	
	Mandi S. Van Buren, MS	
11:00 am – 11:30 am	**Bioinformatics**	
	Kevin Lord	
11:30 am – 12:00 pm	**Casework Successes**	
	Rachel H. Oefelein, MSc	

WORKSHOPS

Pre-Registration Required—$150

W12   **Can Human Remains Detection Canine Teams Detect Residual Odor?**
Results of Odor Recognition Tests and Chemical Analysis

Monday, February 17, 2025   1:00 pm – 4:30 pm   **CE Hours: 3.5**

Program Description: Dogs have keen olfactory senses and are deployed for a number of forensic purposes in criminal investigations. HRD canines (a.k.a. cadaver dogs) are trained to detect the odor of human remains, which is comprised of Volatile Organic Compounds (VOCs) that emanate from a deceased body. Despite their widespread use, the reliability of HRD canines is complicated and understudied.

Here, residual odor refers to the odor from a deceased human that remains after it is removed from its resting place, including transient places or objects a body touched. Little is known about deceased residual odor except that its VOCs degrade over time. However, canine alerts are being treated as scientifically valid indicators that an intact decedent was present at one time, even when no physical or corroborating (e.g., chemical) evidence exists, and without regard for the level of training, certification, or proficiency of the canine.

A study of 35 HRD canine teams (handler and dog) tested on residual odor from both deceased and living individuals provides the data and results presented in this workshop. The presenters will describe the development of a standardized, double-blind ORT for canine teams and discuss the accuracy of the canine teams in detecting deceased human residual odor. The presenters will explain the chemical characterization of the VOCs from the odor samples used in the ORTs. Finally, the presenters will utilize select video and audio recordings of the canine team participants from the ORT to contextualize the results and discuss implications of the study.

Educational Objectives: Residual odor is an odor that persists after the target is removed. This workshop addresses canine detection of residual odor of humans, both deceased and alive. After attending this workshop, attendees will understand: (1) if Human Remains Detection (HRD) canine teams reliably detect residual odor of human remains; (2) if these canines differentiate between residual odors of deceased human remains and live human scent; (3) if analytical chemistry methods detect and differentiate residual odor of living and deceased individuals; and (4) how the integrated results of chemistry and canine behavior analysis help us understand if and how residual odor training can be improved.

Impact Statement: The legal threshold for admitting canine evidence relies on the experience of the handler and their description of the canine's training, neither of which provide the errors associated with the technique required by standard rules of evidence. This workshop will assist attorneys and judges in assessing the probative value of canine alerts that may be detection of residual odor and thus considered evidence by providing results of a coupled canine-analytical chemistry analysis of intact decedent residual odor study. In addition, the standardized Odor Recognition Test (ORT) design will establish guidelines for canine training and testing to improve Human Remains Detection (HRD) certification efforts.

Target Audience: Anthropology, Criminalistics, General, Jurisprudence, Pathology/Biology, Psychiatry & Behavioral Science, Toxicology

Knowledge Level: Basic

Chair:
Dawnie W. Steadman, PhD
University of Tennessee
Knoxville, TN

Co-Chair:
Mary E. Cablk, PhD
University of Tennessee Knoxville
Reno, NV

Presenters:
Shawn R. Campagna, PhD
University of Tennessee
Knoxville, TN

Mary Davis, MSc
University of Tennessee
Knoxville, TN

James C. Ha, PhD
University of Tennessee
Knoxville, TN

All times are in the U.S. Eastern Time Zone   19

WORKSHOPS

W12   **Can Human Remains Detection Canine Teams Detect Residual Odor? Results of Odor Recognition Tests and Chemical Analysis**

Program:

1:00 pm – 1:10 pm   **Welcome and Introductions**
Dawnie W. Steadman, PhD

1:10 pm – 1:30 pm   **Human Remains Detection Dogs (HRD), Residual Odor, and the Courts: The Need for Scientific Evaluation**
Dawnie W. Steadman, PhD

1:30 pm – 2:30 pm   **Designing and Deploying the Odor Recognition Test (ORT)**
Dawnie W. Steadman, PhD; Mary E. Cablk, PhD; Mary Davis, MSc; James C. Ha, PhD

2:30 pm – 2:40 pm   **BREAK**

2:40 pm – 3:10 pm   **Chemical Analysis of Residual Odor Samples**
Shawn R. Campagna, PhD

3:10 pm – 4:00 pm   **Accuracy of HRD to Detect Residual Odors**
James C. Ha, PhD; Mary E. Cablk, PhD; Dawnie W. Steadman, PhD

4:00 pm – 4:30 pm   **Discussion and Questions**
All Presenters