## Society of Forensic Toxicologists, Inc.

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## **TOXTALK**<sup>®</sup>

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PRESIDENT'S MESSAGE "IT WILL NOT ALWAYS BE SUMMER; BUILD BARNS", HESOID Submitted by Ruth Winecker, Ph.D., F-ABFT

community.

It's June and I hope you are all tasks. I am pleased to announce planning many delightful summer that Ann Marie Gordon has agreed entertainments. I fully intend to in- to chair the new committee. For the dulge in a vacation this summer my- past several years, Ann Marie has self and while I don't plan to build a worked tirelessly to learn all there is barn there is still much to be done to know about ACCENT® CE and so I am taking a moment to let you to build a system to provide CE know about recent developments in credits for the annual meeting and SOFT and the forensic toxicology is well positioned to lead the committee in furtherance of this goal.

Committee Changes:

In my last President's message I mentioned that there would be additional changes to some committees and I am happy to announce that work has been accomplished. A new committee has been formed from members of the Continuina Education Committee. The new committee, descriptively named the Continuing Education Credit Committee, will focus exclusively on the job of providing continuing education credits for the annual meeting, regional workshops and in conjunction with the Publications committee, JAT articles. This is a huge and important service that SOFT provides its membership and meeting attendees and the BOD felt the job was big enough to warrant its own committee to accomplish these

To help the committee build a system that more easily provides certificates, the BOD approved funds to upgrade the meeting registration database to automate many of the activities that they were doing manually, including email delivery of the certificates. Further, the Meeting Committee has procured the services of a new meeting "app" to help with the collection of the surveys as well as perform other meeting functions. Still, the committee's

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### TOXTALK®

## **PRESIDENT'S MESSAGE** (CONTINUED)

work cannot be completely automated. You can help them by completing your surveys in a timely manner and making sure you don't accidentally complete surveys for workshops that overlap. If you would like to help the committee by becoming a member please let me or Ann Marie know. I'm sure they could use all the help that is offered. The original Continuing Education Committee will retain its focus on promoting annual and regional workshops and will be ably chaired by Jayne Thatcher. Much thanks to Javne for taking this on and many, many kudos to Ann Marie for her work as past chair!

News from Washington, DC:

The CFSO has been very busy this spring as they have a new chair and the focus has been on the FY2016 budget appropriations sessions. To that aim, SOFT and CFSO have written support letters asking that relevant forensic science projects be fully funded. Further, SOFT has made an effort to keep the membership informed of opportunities to contact their legislature about pending budget or legislation issues through the judicious use of blast emails. For more information regarding CFSO activities see the CFSO website http://www.thecfso.org/.

SOFT is well represented on the NIST, FSSB, OSAC and its subcommittees and their work is ongoing. Be on the lookout for updates from these groups in the months to come. One goal of successful setting of practice standards is a rigorous public comment Annual Meeting: process. It is expected that the SOFT membership will participate, as always, at a high level. For further information check out the SOFT webpage for information on SOFT members appointed to the various NIST groups or go to http:// www.nist.gov/forensics/osac.cfm. The SOFT BOD will keep you informed about activities needing member input.

Speaking of needing member input; SAMHSA/HHS has published notices regarding changes to the Federal Workplace drug testing programs for oral fluid and urine in the May 15<sup>th</sup>, 2015 Federal Register. The documents are now available for public comment and can be found here:

http://www.gpo.gov/fdsys/pkg/FR-2015-05-15/pdf/2015-11523.pdf and here:

http://www.gpo.gov/fdsys/pkg/FR-2015-05-15/pdf/2015-11524.pdf. Comments must be submitted on or before July 14<sup>th</sup>, 2015.

The National Commission on Forensic Science met this spring. More information about the Commission can be found here: http://www.justice.gov/ncfs. There were several work products available for public comment that were due May 15<sup>th</sup>. It is only through public comment that the Commission is educated about the impact of these documents. SOFT sent its membership notice regarding this public comment period. I hope by offering these blast email messages we keep you informed about issues that may affect your work and that you have an opportunity to participate in the process.

The committee, headed up by Robert Sears and Lisa Holt, is busy this summer "building the barn". The workshop chairs have assembled a great workshop program for you. The deadline for submissions has passed, and from what little I've seen by way of abstracts assigned to me for peer review, the scientific sessions will be filled with interesting platform presentations and posters. I am so pleased to see the meeting taking shape and am looking forward to seeing you all there. For more information, check out the annual meeting materials included in this issue of ToxTalk® or go to the SOFT Website.

Finally, did you know that the 2020 annual meeting will be the 50<sup>th</sup> anniversary of SOFT? Where would you like to see this meeting held? Please contact the BOD to offer your suggestions!

Ruth E. Winecker Ph.D., F-ABFT



## SOFT 2015 Atlanta Update October 18th-23rd, 2015

Committee Co-Chairs: Robert Sears and Lisa Holt



Welcome from the sunny south, home of SOFT 2015. Members of the SOFT 2015 organizing committee are actively working to ensure that SOFT 2015 proves to be an exciting and educational

meeting. A total of 13 workshops (two sponsored by the Continuing Education Committee) were accepted for inclusion in the 2015 program. Workshops covering a variety of topics from postmortem toxicology to benzodiazepines' role in driving under the influence of drugs are offered. We are certain that every attendee can find one or more workshops of interest irrespective of your level of experience in the field.

The Scientific Program co-chairs received a total of 189 abstracts for consideration as platform or poster presentations. The evaluation of abstracts is ongoing and promises to be a difficult task with so many worthy abstracts submitted. Thanks to all of you that submitted an abstract for consideration.



In keeping with the meeting's theme of "developing the leaders of tomorrow", we have invited David Krug, to open our plenary session on Wednesday. Mr. Krug is a management consultant and acclaimed author; having published several books on leadership with his most recent publication entitled *The Missing Piece of Leadership: How to create the future you want.* Thursday's plenary session will open with a presentation from Dr. Roy Gerona of UC San Francisco School of Medicine on the epidemiology of emerging designer drugs. We hope everyone will join us as we welcome both of these excellent speakers to SOFT 2015.



Wednesday's night at the Georgia Aquarium promises to be an unforgettable event. We will begin our evening event with the Dolphin show sponsored by Thermo Scientific. A signature drink and popcorn are included with your admittance to the show. At the conclusion of the Dolphin show, we will continue into the main area of the aquarium to visit the fabulous exhibits, taste test special treats prepared by Wolfgang Puck Catering and dance to the cool sounds of the Voltage Brothers.

In keeping with tradition, Thursday evening will conclude with the President's Banquet. This is a great opportunity to recognize the hard work of the many volunteers who have assisted in putting on this event and the dedication and commitment of the outgoing members of the SOFT Board of Directors. In addition, the President's Banquet provides a chance for us to meet and socialize with fellow toxicologists from around the world. For those who love to dance, entertainment for the banquet will be provided by Mr. Potato Head.

We look forward to seeing you in Atlanta in October!

Lisa and Robert





### Sunday, October 18, 2015

- Registration Opens (8:00am-6:00pm)
- NSC-ADID Meeting (8:00am-12:00pm)
- NLCP Inspector Training (2:00pm-6:00pm)
- YFT Symposium (5:00pm-9:00pm)
- Dinner On Your Own
- Immunalysis Hosted Reception (6:00pm-9:00pm)

### Monday, October 19, 2015

- Continental Breakfast (7:00am-8:30am)
- Registration (7:00am-6:00pm)
- ABFT Exam Committee (8:00am-5:00pm)
- Student Enrichment Progr. (8:00am-5:00pm)
- SOFT Workshops (8:00am-5:30pm)
- ABFT Lab. Accred. Comm. (8:00am-5:00pm)
- Lunch On Your Own
- ABFT Exec. Comm. Meet (12:00pm-5:00pm)
- SOFT-AAFS Drugs & Driving (5:30pm-7:00pm)
- Dinner On Your Own

### Tuesday, October 20, 2015

- Continental Breakfast (7:00am-8:30am)
- Registration (7:00am-6:00pm)
- SOFT Board Meeting (7:00am-12:00pm)
- SOFT Workshops (8:00am-5:30pm)
- ABFT Exam (8:00am-12:00pm)
- ABFT Lab. Accred. Comm. (8:00am-12:00pm)
- ABFT Board Meeting (12:00pm-5:00pm)
- Welcome Recep.w/Exhibits (6:30pm-9:00pm)
- Sunshine/Rieders Auction (6:30pm-8:00pm)
- Professional Develop. Fair (6:30pm-8:00pm)
- Elmer Gordon Forum (8:00pm-9:30pm)
- Cerilliant Hosted Reception, (9:30pm-mid)

### EXHIBITS OPEN



Tuesday — 6:30pm-9:00pm Wednesday — 7:00am-5:00pm Thursday — 7:00am-3:30pm

Updated – April 6, 2015

### Wednesday, October 21, 2015

- Registration (7:00am-5:00pm)
- Exhibit Hall/Auction Open (7:00am-5:00pm)
- Poster Session #1 (7:30am-3:30pm/ Authors Present 12:30pm-1:30pm & 3:00pm-3:30pm)
- Breakfast with Exhibitors (7:00am-8:30am)
- JAT/OUP Breakfast Meeting (7:00am-8:00am)
- Opening Ceremony (Plenary) (8:00am-9:00am)
- Scientific Session #1 (9:00am-10:00am)
- Refreshment Break (10:00am-10:30am)
- Scientific Session #2 (10:30am-12:00pm)
- Lunch with Exhibitors (12:00pm-1:30pm)
- Scientific Session #3 (1:30pm-3:00pm)
- Refreshment Break (3:00pm-3:30pm)
- Scientific Session #4 (3:30pm-5:00pm)
- Short Walk to Georgia Aquarium, Opens to SOFT at 6:00pm for seating within Dolphin Arena
- Thermo Hosted Dolphin Show (6:30pm-7:00pm)
- Dinner / Dancing / Explore Georgia Aquarium (7:00pm-10:00pm)

### Thursday, October 22, 2015

- Registration (7:00am-5:00pm)
- Karla Moore Fun Run/Walk (6:30am-8:00am)
- Breakfast with Exhibitors (7:00am-8:30am)
- AAFS Steering Committee (7:00am-9:00am)
- Exhibit Hall Open (7:00am-3:30pm)
- Poster Session #2 (7:30am-3:30pm /Authors Present 12:30pm-1:30pm & 3:00pm-3:30pm)
- Silent Auction Last Day (7:00am 1:30pm)
- Exhibitor Feedback Meeting (8:00am-9:30am)
- OSAC Update (8:00am-8:30am)
- Scientific Session #5 (8:30am-10:00am)
- Refreshment Break (10:00am-10:30am)
- Scientific Session #6 (10:30am-12:00pm)
- Lunch with Exhibitors (12:00pm-1:30pm)
- DFC Committee (12:30pm-1:30pm)
- Scientific Session #7 (1:30pm-3:00pm)
- Refreshment Break (3:00pm-3:30pm)
- Silent Auction Pay/Pick-Up (3:00pm-3:30pm)
- SOFT Business Meeting (3:30pm-5:00pm)
- ABFT Certificate Reception (5:00pm-6:00pm)
- Happy Hour (5:00pm-6:00pm)
- President's Reception & Dance (6:00pm-10:00pm)

### Friday, October 23, 2015

- Continental Breakfast (7:00am-8:30am)
- Scientific Session #8 (8:00am-10:00am)
- Refreshment Break (10:00am-10:30am)
- Scientific Session #9 (10:30am-12:00pm)
- Closing Ceremony (12:00pm-12:30pm)

# **Workshop Abstracts-October 19 and 20, 2015** FOR MORE INFORMATION CONTACT Workshop Coordinators Demi Garvin (<u>dgarvin@rcsd.net</u>) and Deb Denson (<u>Ddenson1@nc.rr.com</u>)

Revised 5-20-15

#	Title	Abstract	Co-Chairs	Date
1	Postmortem Toxicology: From Autopsy to Interpretation (SOFT Continuing Education Committee Workshop) Knowledge Level: Basic	This SOFT Continuing Education Committee sponsored workshop will provide a review of all aspects of postmortem toxicology testing, starting with the autopsy and progressing through specimen collection, analytical considerations, and interpretation of results. Specific interpretation topics will include pre-analytical implications, postmortem redistribution, pharmacogenomics and drug interactions, and special populations. The workshop will end with an interactive discussion of cases selected for presentation by the Continuing Education Committee. Attendees are also encouraged to submit their own cases for discussion. While toxicologists with several years' experience are the target audience, more experienced analysts looking for a broad review may also find the workshop helpful.	Erin A. Spargo, Ph.D. Jennifer M. Colby, Ph.D.	Monday Full Day
2	Statistical Methods for Forensic Decision-Making in Toxicology (National Institute of Justice (NIJ) Forensic Technology Center of Excellence (FTCoE) Workshop) and (SOFT Continuing Education Committee Workshop) Knowledge Level: Basic	Let's face it, many of us panic when it comes to statistical decision making in our professional practice as we do not see ourselves as statisticians. Yet critical to forensic toxicology is a fundamental understanding of how statistical concepts are applied. This workshop covers an introduction to basic statistics and hypothesis testing for analytical chemical measurements in toxicology, including calibration, limits of detection, validation, uncertainty estimation and statistical quality control. To facilitate mastery of learning objectives, the workshop uses simulations to illustrate statistical principles without lengthy derivations, and statistical applications in analytical toxicology. Students can expect to learn the fundamentals that enable use of statistics packages in context with scientific hypotheses under investigation. This goal involves understanding of the fundamental nature and meaning of statistical methods and how to apply them to real-world problems. Learning to interpret the output of a computer program for statistics is usually not obtained by just reading the manual-the understanding necessary to use most programs is achieved only by acquiring profound knowledge of the underlying calculations and their limitations. Several examples will be presented using commercial statistics software such as JMP <sup>®</sup> (SAS Institute, Cary, NC), Minitab <sup>®</sup> (Minitab, Inc., State College, PA), and SYSTAT <sup>®</sup> (Systat Software, Inc., San Jose, CA). Difficulties with use of Microsoft Excel <sup>®</sup> for statistics will also be discussed. <b>NOTE: Pre- Workshop practice modules will be provided. Attendees are required to bring a scientific calculator to the workshop. Class size is limited to 75 participants.</b>	Jeri D. Ropero- Miller, Ph.D. Frances J. Scott, Ph.D.	Monday Full Day
3	Pharmacology and Toxicology of Synthetic Cathinones and Phenylethylamines Knowledge Level: Intermediate	New psychoactive substances (NPS) are a range of different chemical compounds commonly sold through internet sites as legal substitutes for classical drugs of abuse. Looking back, NPS were mostly central stimulants in the phenylethylamine group but in the late 2000's, the range of NPS began to be more diverse with many substances from the group synthetic cannabinoids. In 2014, synthetic cathinones were the most common group of new substances encountered in the European Union with thirty-one (31) new compounds detected. Adverse effects and deaths related to these compounds are also increasingly being reported in the United States. The rapid increase in NPS is a growing concern and sets new challenges for societies not only in drug prevention and legislation, but also in clinical and forensic toxicology. There is a need for evidence-based treatments of acute intoxications as well as demand for new strategies to analyze these compounds in clinical and forensic cases. Some drugs seem to have severe adverse effects and it is not uncommon that they are detected in cases of suspected overdose deaths. However, there is a dearth in the knowledge of NPS pharmacology and toxicology posing interpretive challenges for medical examiners and forensic toxicologists. This workshop focuses on synthetic cathinones and phenylethylamines and highlights some of the compounds shown	Robert Kronstrand, Ph.D. Sumandeep Rana, Ph.D.	Monday Morning

#	Title	Abstract	Co-Chairs	Date
		to have dangerous acute adverse effects. Attendees will receive an in-depth knowledge of the pharmacology and toxicology of these substances through the latest research concerning pharmacological mechanisms and effects with a comprehensive overview of how the latter relate to clinical and postmortem toxicology.		
4	The Role of Benzodiazepines in DUID (SOFT/AAFS Drugs and Driving Committee Workshop) Knowledge Level: Basic	This SOFT/AAFS jointly-sponsored workshop will present a detailed explanation of benzodiazepine pharmacology, along with case studies and effects as related to Driving Under the Influence of Drugs (DUID). Current analytical approaches to benzodiazepines in drivers will be provided, followed by a panel discussion related to the problem of benzodiazepines in DUID cases.	Amy Miles, B.S. Jarrad R. Wagner, Ph.D.	Monday Morning
5	Quality in Laboratories, Finding the Balance Knowledge Level: Advanced	The requirements for laboratories to enhance their quality assurance programs have become a priority within the forensic toxicology community. There are many different resources that dictate the criteria and regulations that must be met. However, as laboratories work towards achieving or maintaining accreditation that meets international standards, there becomes a distinct struggle to balance the needs of the accrediting body, the laboratory and the shareholders. The struggle exists in the laboratory's ability to effectively meet accreditation criteria, fulfill the mission and goals of its shareholders, produce timely results with minimal funding and staffing, and maintain the highest degree of forensic defensibility in the results produced. As quality managers, the challenge is one of finding the right balance in the most efficient and effective way and gaining "buy in" from upper management without sacrificing the needs of clients. This workshop will provide a review of the major accrediting body requirements and serve as an outlet to hear several approaches to effectively meeting these requirements. Most importantly, the workshop will provide an open forum among quality personnel to encourage discussion of the challenges faced while trying to meet accreditation requirements regarding: process improvement, establishing traceability and corrective and preventive actions-all in an effort to learn from laboratories already accredited and assist those who are seeking it.	Jennifer L. Brown, B.S. Colleen A. Moore, B.S.	Monday Afternoon
6	Management Practices in Forensic Toxicology: A Panel Discussion Knowledge Level: Intermediate	This workshop is designed with a panel format. The goal is to ultimately create a summary of management practices in key areas as they relate to improving forensic toxicology laboratory operations across organizations with different levels of available resources. This panel is only available to laboratory directors/managers for an open discussion of issues inherent to forensic toxicology organizations. Material generated from the panel discussion will be summarized, presented and made available to SOFT members. Materials will not include the names of specific laboratories or individuals in order to maintain anonymity. <b>Note:</b> <b>Class size is limited to 40 participants; managers and organizational leaders.</b>	Lucas W. Zarwell, M.F.S. Scott J. Larson, M.S.	Monday Afternoon
7	Sample Preparation in Forensic Toxicology: Back to the Past and a Look into the Future Knowledge Level: Basic- Intermediate	Correct sample preparation procedures are critical in forensic toxicology in order to ensure that the most viable results are obtained. This is of particular importance due to the complex nature of the matrices involved. With advances in instrumentation resulting in better sensitivity, we are far removed from the large volume liquid-liquid extractions of the past. This workshop will provide an overview of the importance of sample preparation including: still valid historical concepts and practices, the most popular current techniques and a look at what the future might hold. Note: Participants will be asked to complete a pre- workshop questionnaire describing their experiences with sample preparation and have an opportunity to submit troubleshooting scenarios to the workshop panel.	Karen S. Scott, Ph.D. Sabra Botch-Jones, M.S., M.A.	Monday Afternoon

#	Title	Abstract	Co-Chairs	Date
8	Managing a Forensic Toxicology Laboratory: A New Mindset and Approach Knowledge Level: Intermediate- Advanced	For the last two decades, most labs have faced shrinking financial budgets and substantial backlogs. Many laboratories have accepted this situation as the reality of working in government that cannot be changed. Well-entrenched concepts of reality are hard to dispel. However, there is evidence that these obstacles can be overcome. Changing the current course and improving backlogs are possible by employing new practices and strategies. Managing a modern forensic toxicology laboratory requires knowledge, skills and abilities that go well beyond the science of analytical chemistry	Curt E. Harper, Ph.D. Justin E. Sanders, M.F.S.	Tuesday Full Day
		and toxicology. In order to overcome obstacles and succeed, laboratories must adopt a new mindset. The modern lab must focus on concepts such as leadership and culture to implement creative solutions so that casework is effectively managed. This, in turn, will lead to decreased backlogs, improved audit performance, stronger courtroom defensibility, and improved employee morale. This workshop will discuss strategies such as: system analysis, Lean Six Sigma, Pareto principle, A-game analysis, and professional development. It will also highlight teachings from Dave Ramsey, John Maxwell, John Miller and Daniel Pink. Success is dependent on accepting that change must occur and then taking a holistic approach to improvement. Management and staff must look beyond the pure science of forensic toxicology to begin tackling the persistent problems. With an engaged staff, objective data, reasonable goals, a well-defined quality system, and relentless pursuit-it is possible to succeed. Laboratory managers,		
		trainees and bench-level toxicologists will benefit. Note: The topic of financial budgets is outside the scope of this workshop.		
9	Pharmacognosy for the Forensic Toxicologist	The current landscape of novel recreational drugs is dominated by synthetic compounds; however, there is a rising popularity of	Barry K. Logan, Ph.D.	Tuesday Full Day
	Knowledge Level: Intermediate	recreational abuse of "natural" highs, with internet forums and blogs dedicated to organic alternatives such as <i>Kratom</i> and <i>Ayahuasca</i> . The use of naturally derived substances for recreational abuse is not a modern concept, and the field of pharmacognosy is dedicated to the study of medicines derived from natural sources. Many of the natural highs have a place in history as use in ritualistic traditions, but are finding new popularity with those seeking an alternative high while evading routine drug screening; other substances such as "magic mushrooms" or "locoweed" have consistently had a place in forensic toxicology casework. Besides traditional means of highs from plant material, animal venoms also challenge our capabilities in analytical and interpretative toxicology. Other unexpected substances that may play a role in forensic investigations include herbal supplements, which may either be contaminated with hazardous substances or may interact with an individual's pharmaceutical regimen and cause adverse consequences. This workshop will detail the pharmacology of different natural highs, from psychoactive plant compounds to animal toxins, considering analytical approaches and case histories. Even though forensic toxicology casework is dominated by routine therapeutic drugs and drugs of abuse such as opiates and marijuana, it is important for forensic toxicologists to be able to identify when lesser known natural substances play a role in possible intoxication or poisoning for successful case resolution.	Donna M. Papsun, M.S.	Threadau
10	Toxicology in the Forensic Laboratory: How Will It Look in 2020? Knowledge Level: Intermediate	The field of forensic toxicology continues to evolve. The material presented in this workshop seeks to assist the forensic scientist in identifying potential trends over the next five years. Specific changes associated with analytical laboratory work may include: 1) implementation of OSAC guidelines and standards; 2) identification of geographically relevant new compounds; 3) analysis of drugs in alternative matrices; and 4) balancing older technologies with new screening and confirmatory instrumentation. Workshop faculty currently involved in these differing aspects of forensic toxicology will discuss trends likely to emerge in our field over the next five years.	Christine M. Moore, Ph.D., D. Sc. Cynthia A. Coulter, B.S.	Tuesday Morning

#	Title	Abstract	Co-Chairs	Date
11	Analysis & Interpretation of GHB in Traditional and Alternate Matrices Knowledge Level: Basic	Gamma-hydroxybutyrate (GHB) and gamma-butyrolactone (GBL) both occur naturally in the body but may also be ingested. Illicit use of GHB and GBL has been associated with the club-scene, drug-facilitated crime and deaths due to intoxication. Interpretation is challenging due to the presence of GHB as an endogenous compound in biological samples. This is further compromised due to issues of stability and production of GHB in postmortem blood. This workshop aims to provide: 1) comprehensive review of the challenges associated with GHB interpretation in a range of biological matrices and 2) strategies for approaching different case types.	Gail A.A. Cooper, Ph.D. Karen S. Scott, Ph.D.	Tuesday Morning
12	Expert Testimony: How to be Comfortable in an Uncomfortable Situation-The Basics (SOFT Young Forensic Toxicologists Committee Workshop) Knowledge Level: Basic	In this YFT-sponsored workshop, participants will experience a mock court session to understand basic trial proceedings. Presentations will include: preparing for court, converting your training to effective testimony, distilling complex scientific information into easily understandable testimony, dealing with common issues, and differences encountered when testifying for the prosecution and the defense. Participants will also have an opportunity to ask the faculty questions-legal and forensic toxicology subject matter experts.	Sarah S. Urfer, M.S. Nathalie A. Desrosiers, Ph.D.	Tuesday Aflernoon
13	Military Drug Testing: Random Urinalysis to Postmortem Toxicology Knowledge Level: Basic	The origins of the military drug testing program began at the end of the Vietnam era as reports circulated that over 25% of the force was addicted to heroin. President Nixon authorized drug testing to identify drug users in order to provide substance abuse treatment prior to their return to the United States. The program remained focused on treatment and rehabilitation until the 1981 aircraft accident aboard the USS Nimitz Aircraft Carrier when: fourteen (14) service members were killed and forty-eight (48) injured, seven (7) planes were destroyed and over \$150 million in damages occurred. Post-accident investigation revealed significant marijuana use among those killed as well as the crew. This prompted the Department of Defense to change its drug testing policy to one that authorized punitive actions for drug use-a policy that continues to this day. The military was the first organization to implement large-scale random drug testing for its workforce. Drug use is considered a threat to readiness and safety of the Total Force. This workshop will provide a comprehensive review of the military's drug testing program to include: a brief program history, summary of recent drug testing data, how the program is governed and regulated, overarching quality assurance efforts, innovations- such as electronic medical review, surveillance and prevalence testing initiatives, instrument evaluations, and real-world case studies.	Thomas M. Martin, Ph.D. Eric R. Welsh, Ph.D.	Tuesday Afternoon

FOR MORE INFORMATION CONTACT Workshop Coordinators: Demi Garvin (<u>dgarvin@rcsd.net</u>) and Deb Denson (<u>Ddenson1@nc.rr.com</u>)





## **Congratulations 2015 ERA-YSMA Awardees**

The SOFT Award Committee, Chaired by Erin Spargo, has announced the following ERA (Educational Research Award) and YSMA (Young Scientist Meeting Award) winners for 2015. These three Awardees (listed below) will present their research during one of the Scientific Sessions at the October annual meeting in Atlanta.

The ERA was established in 1980 to encourage academic training and research in areas of forensic toxicology. The YSMA was established in 2003 to recognize bench level scientists. Both awards allow for a complimentary registration to the annual meeting, PLUS a financial stipend of \$2,000 each. These three awardees will each be presented with an honorary plaque during the annual SOFT Business Meeting on October 22, 2015.

The SOFT website (www.soft-tox.org) has a link for eligibility and application information. ALL SOFT MEM-BERS are urged to "encourage" co-workers, interns, or students to apply for these prestigious recognition awards. The Award Committee members are Erin Spargo, Michele Merves, Jessica Smith, Rusty Lewis, Betsy Spratt, and the 2015 Scientific Program Chairs, Madeline Montgomery and Diane Boland.

### ERA

Marissa Finkelstein University of Florida

Advisor: Dr. Bruce Goldberger

Abstract Title: <u>Analysis of Acetyl Fentanyl in Postmortem Blood and Urine Speci-</u> mens by Gas Chromatography-Mass Spectrometry

### ERA

Matthew Newmeyer National Institute on Drug Abuse

Advisor: Dr. Marilyn Huestis

Abstract Title: <u>Direct Quantification of Cannabinoids</u>, <u>Metabolites and Glucuronides in</u> <u>Blood by Disposable Pipette Extraction and Liquid Chromatography Tandem Mass</u> <u>Spectrometry</u>

**YSMA** Erin Ehrlinger Office of the Chief Medical Examiner, State of Maryland

Supervisor: Dr. Rebecca Jufer Phipps

Abstract Title: Tissue Distribution of Lamotrigine in Postmortem Cases







## Young Forensic Toxicologists—Atlanta 2015 Submitted by Sarah Urfer, M.S., D-ABFT-FT

The YFT Committee was founded in 2009 to promote education, networking and interaction among young forensic toxicology practitioners. The YFT Committee will host four activities at the SOFT 2015 annual meeting in Atlanta, GA (October 18-23, 2015). Questions or comments regarding the SOFT YFT events can be emailed to softyft@gmail.com or by visiting our Facebook page <u>https://</u> www.facebook.com/SOFTYFT.

The Young Forensic Toxicologists (YFT) Symposium, Sunday Evening (October 18) 5pm -**9pm.** The YFT Symposium begins with a social hour where hors d'oeuvres will be served and networking will be encouraged. Next in the agenda are research updates from winners of the 2014 awards and a keynote YFT speaker Dr. Dana Boyd Barr. Dr. Barr is currently a research professor at Emory University's School of Public Health, Department of Environmental Health and was formerly with the Center of Disease Control and Prevention (CDC). Following the presentations the floor will be open to the audience for a friendly discussion of professional experiences and an opportunity to ask questions of fellow toxicologists. We invite all young forensic toxicologists to participate and extend a special welcome to those who may be attending their first SOFT meeting. The YFT Symposium is free to those pre-registering to attend this event during their meeting registration on-line. All attendees to the YFT Symposium must be 41 years of age or under.

The Student Enrichment Program (SEP), Monday (October 19) 8am - 5pm. The YFT Committee hosts a day long Student Enrichment Program (SEP) targeting undergraduates and graduate students interested in forensic toxicology. Students will learn about various disciplines within forensic toxicology and what knowledge and skills are necessary for this career path from practicing forensic toxicologists. The program is free of charge, but space is limited. Interested students must apply BE-FORE September 18, 2015. application Download at http://www.softtox.org/files/SEP/2015 SEP applic ation.pdf. Applicants will be notified of acceptance by September 25, 2015. If you are interested in sharing your experience and expertise with the students, please contact us at softyft@gmail.com and include "SEP" in the subject line.

Third Annual Professional Development Fair, Tuesday (October 20) 6:30pm-8pm in Exhibit Hall during the Welcome Reception. This 28 booth gathering will have representatives of various accreditation and certifying agencies, graduate programs and laboratories providing information about:

- Board Certification
- Continuing Education
- Professional Training
- Academic Programs
- Advanced Degree Programs
- Career Opportunities

All meeting attendees are encouraged to attend the Professional Development Fair to learn more about the professional development opportunities available to forensic toxicologists. Organizations representing programs offering professional development opportunities may reserve a "no cost" booth for this one night fair by contacting t h e Y F T C o m m i t t e e (<u>softyft@gmail.com</u>) or calling the SOFT Office at 480-839-9106.

The Leo Dal Cortivo Award. Wednesday thru Fridav (October 21-23). The Leo Dal Cortivo Memorial Fund allows the YFT committee to present two awards, each with a cash prize of \$1000 in addition to free registration at a future SOFT meeting. One award will be presented to the best poster presentation and the other for the best oral presentation. To be considered for these awards, the presenting author should mark the box on the abstract submission form that they are eligible for the YFT Award. The eligible abstracts with the highest scores, as determined by the YFT committee, will be chosen as candidates for the awards. For additional information on Dr. Leo Dal Cortivo, please visit the following website created and updated by his nephew Vincent Fusaro (http://www.leodalcortivo.com).



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## American Academy of Forensic Sciences Meeting—Viva Las Vegas! Submitted by Fiona Couper/Nikolas Lemos (Toxicology Program Chairs)

Preparations for an exciting program are already underway for the 2016 AAFS annual meeting in Las Vegas, NV, where the chosen theme is *Transformation: Embracing Change*.

We are looking forward to a vast array of workshops, scientific sessions, and breakfasts next year and the Toxicology Section will also continue the traditional special sessions on **Drugs and Driving**, **Postmortem Pediatric Toxicology** and our joint session with the **Pathology/Biology** Section. New for this year, the Academy will be including a workshop on the value of diversity, inclusion and equality which ties in nicely with the theme of the 2016 annual meeting.

So begin working on your scientific abstracts and workshop proposals

– now is definitely the time to start! Abstracts for all papers, posters and special sessions must be submitted online. The August 1 deadline will rapidly approach and is strictly enforced, so don't delay in contacting the Program Chairs Fiona Couper or Nikolas Lemos with any questions, proposals, or overall program ideas (fiona.couper@wsp.wa.gov or <u>Ni-</u> kolas.Lemos@sfgov.org). If you are planning on submitting a workshop proposal, contact Fiona or Nik as soon as possible - these proposals take time to put together and they can guide you through the process so everything runs smoothly.

Please remember that nominations for section awards are also due **August 1**. These awards are a great way to recognize your fellow colleagues for their dedication to our field. Contact **Graham Jones**, Chair of the Toxicology Section Awards and Scholarship Committee, with your nominations (<u>graham.jones@gov.ab.ca</u>).

One final reminder – moderators and volunteers play an important role in the success of the annual meeting, and both count as service to the academy come promotion time! Volunteering is an excellent way for newcomers to get engaged and meet people, so encourage your colleagues and students to participate. Again, contact **Fiona** or **Nik** for details or to volunteer.

So mark your calendars now for the AAFS 68<sup>th</sup> Annual Scientific Meeting, February 22-27, 2016 in Las Vegas, Nevada. Viva Las Vegas!

## 2016 Young Forensic Scientists Forum (YFSF) Special Session

The Young Forensic Scientists Forum (YFSF) is actively planning the 2016 YFSF Special Session. We are excited to update all the section chairs as to our progress thus far.

The YFSF Special Session is pleased to announce the theme for the 2016 special session "Viva La Forensics!" The theme is to have speakers from each section of the academy present cases that were resolved due to the forensic evidence collected. The special session will have speakers and presenters finalized by July 20<sup>th</sup>.

The YFSF Financial Liaison is currently working on contacting past contributors and will reach out again in September. If you know of someone who would like to contribute to the YFSF please have them contact either myself Lara Newell at (<u>lafra86@gmail.com</u>) or Lindsay Saylors, the YFSF Financial Liaison (<u>lindsaysaylors@gmail.com</u>).

The YFSF Bring Your Own Slides committee members are currently working on a BYOS flyer to send out to colleges/universities letting them know of the available opportunity. The YFSF Bring Your Own Poster committee members are also currently working on creating correspondence to send out to colleges/universities.

The YFSF Breakfast Committee members are changing things up

this year! We still plan on having the resume review panel but instead of having one or two set speakers we will have speakers from various sections participate in a round table discussion with YFSF participants.

And lastly, the secretaries are keeping all the committee members in line for our newsletter submissions.

We are already excited about next year's activities and hope you all are, too!

Lara Newell YFSF President



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CASE NOTES Send interesting "Case Notes" to Section Editor Matthew Barnhill, Ph.D., F-ABFT mbarnhilljr@gmail.com

### **Suicides Using Pentobarbital**

Submitted by Cindie Hathaway<sup>1</sup>, Laura Hair<sup>2</sup>, Charles Massucci<sup>3</sup>, Michele Merves<sup>2</sup> and Julia Pearson<sup>2</sup>\*

University of Tampa Department of Chemistry and Physics<sup>1</sup>, Hillsborough County Medical Examiner Department<sup>2</sup> and Tampa Police Department<sup>3</sup> Tampa, FL \*Author to whom correspondence should be addressed. Email: pearsonjm@hillsboroughcounty.org

### Introduction

Pentobarbital (Nembutal, Pisabental) is a short acting barbiturate first developed in the 1930's and used clinically as a sedative hypnotic and as an adjunct to anesthesia. Pentobarbital is also used in veterinary euthanasia as well as lethal injections in capital punishment cases in the United States. The use of barbiturates has declined over time as they have been replaced by benzodiazepines, which have a greater margin of safety.

Three cases of young individuals committing suicide with pentobarbital are presented. These cases are unusual because pentobarbital is not routinely seen in casework anymore.

### Case Histories

Case 1

A 21 year old man checked into a motel and, when he did not check out, a manager knocked on his door. After no response, the manager opened the door and found the man deceased in bed. A laptop was located next to the body with the battery drained. Two bottles of liquid were on the nightstand next to the deceased. One bottle was labeled Pisabental. The other bottle had the label partially torn off but indicated it was a veterinary medication used in Mexico for animal anesthesia. A pack of Dirpasid pills, also from Mexico, and a 32 ounce alcoholic beverage were present on the nightstand as well. According to the individual's mother, he had a history of depression and anxiety but no history of alcohol or drug abuse. She did note, however, that he had stopped taking his psychiatric medications two days prior to his death. At autopsy, no extrinsic disease was noted.

According to law enforcement, the FBI had put the decedent on a watch list since he had recently purchased a potential terrorism poison from Mexico according to the Antiterrorism Task Force. Pisabental is Mexico's form of pentobarbital for animal anesthesia and euthanasia. Dirpasid is the Mexican form of metoclopramide. A photograph of the Pisabental bottle was taken at the scene (see Figure 1).



**Figure 1:** Pisabental bottle on nightstand next to deceased in Case 1.

### Case 2

A 19 year old male was found unconscious by his roommate on the floor of his dorm room. A bottle of Pisabental was located beside him. Paramedics were called and upon arrival, the man was found in asystole. Advanced cardiac life support was initiated, and he was transported to the emergency room where he was pronounced dead. He had a past history of alcohol and drug abuse as well as depression. His mother stated he had been diagnosed with bipolar disorder in the past, but she was unsure if he was currently being treated with any medications. He

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## **Suicides Using Pentobarbital** (CONTINUED)

had a past history of suicidal ideations but had no prior suicide attempts. At autopsy, no extrinsic disease was noted.

### Case 3

A 23 year old paraplegic male was at home watching a movie with his grandmother and decided to go to bed shortly thereafter. The next morning he was discovered in bed unresponsive. He was pronounced dead at the scene by paramedics. A suicide note was found nearby indicating he did not want to live the rest of his life with paralysis. According to family members, he had been depressed lately but there was no expression of suicidal ideations or alcohol and drug abuse. Law enforcement found an email confirmation that the deceased had recently purchased Nembutal from India. At autopsy, no extrinsic disease was noted.

### Results

Routine drug screening was performed for volatiles by head space gas chromatography, drugs of abuse bγ immunoassav (acetaminophen, barbiturates, benzodiazepines, cannabinoids, carisoprodol/meprobamate, benzoylecgonine, fentanyl, methadone, methamphetamine/MDMA, opiates, oxycodone, and salicylates) and alkaline extractable drugs by gas chromatography mass spectrometry (GCMS). In all three cases, the immunoassay screens were presumptive positive for barbiturates and subsequent targeted analyses for barbiturates were conducted by GCMS. Metoclopramide and sertraline were identified by GCMS. The sertraline was quantified by GCMS and metoclopramide was reported qualita-

tively only. The results for all three case are reported in Table 1.

### Discussion

These cases were unusual since they were all relatively young individuals and pentobarbital is not very common or readily available in the United States. In all three cases, the deceased had purchased the drug from Mexico or India.

A simple internet search on pentobarbital and suicide yields dozens of websites and chatrooms recommending pentobarbital as an efficient drug of choice when committing suicide. Websites such as lostallhope.com lists the pros and cons of the various suicide techniques as well as the efficacy of each of them. Sites like this give detailed explanations as to how to perform different types of suicides. When discussing suicide by overdose, one website even called pentobarbital the "suicide holy grail". Many of these sites list links and references as to where pentobarbital can be purchased from other countries. Several websites even suggest taking an antiemetic medication such as metoclopramide a couple hours prior to the overdose to help prevent nausea and vomiting.

Currently in states such as Oregon, Washington and Vermont, where physician- assisted suicide is allowed, secobarbital is the medication most commonly prescribed followed by pentobarbital. Patients receiving the lethal dose of secobarbital or pentobarbital are also instructed by their physician to take an antiemetic such as metoclopramide approximately one hour before ingesting the barbiturate. In

lethal injections in capital punishment cases prior to 2012, many states often used a three drug cocktail consisting of pancuronium bromide, sodium thiopental and potassium chloride. However, recently pentobarbital has been used in lethal injections as a substitution.

Based on the history and circumstances of each of the three cases, the causes of death were intoxication with pentobarbital and the manners of death were suicides.

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## Suicides Using Pentobarbital (CONTINUED)

**Table 1:** Pentobarbital concentrations and other toxicology findings in the three presented case studies

Case	Pentobarbital Peripheral Blood Concentrations	Other Substances Present
1	33 mg/L	Metoclopramide
2	19 mg/L	Sertraline 0.15 mg/L, Caffeine
3	4.3 mg/L	Metoclopramide



### From the Toxicology Literature

Submitted by Kevin G. Shanks, M.S., D-ABFT-FT kshanks@aitlabs.com AIT Laboratories, Indianapolis, IN

Clinical Toxicology (Philadelphia) February 2015 Volume 53, Issue 2 Prevalence of Use and Acute Toxicity Associated with the use of NBOMe Drugs

In this review, Wood et al. discussed the epidemiology and acute toxicity of the NBOMe family of substances. The authors found 29 cases published in literature discussing acute toxicity after use of an NBOMe substance. Common adverse effects included tachycardia, hypertension, agitation, aggression, seizures, and hyperthermia. Acute kidney injury had also been reported in multiple cases. 25I-NBOMe has been associated with eight fatalities. One of those fatalities included the detection of 25C-NBOMe. The authors conclude that NBOMe drugs are associated with both serotonin syndrome and sympathomimetic toxicity, much like MDMA, various other amphetamines, and mephedrone.

Journal of Analytical Toxicology March 2015 Volume 39, Issue 2 Determination of Designer Drug Cross-Reactivity on Five Commercial Immunoassay Screening Kits

Regester et al. reported results of a study of drug cross reactivity on five different available immunoassay reagent kits spanning 94 different substances of the substituted amphetamine, 2C phenethylamine, tryptamine, substituted cathinone, and piperazine classes. The kits were Microgenics DRI Ecstasy enzyme assay, Microgenics DRI Phencyclidine enzyme assay, Lin-Zhi Methamphetamine enzyme immunoassay, Siemens/Syva EMIT II Plus Amphetamines assay, and **CEDIA DAU Amphetamine/Ecstasy** assay. Of the 94 drugs individually tested at 100 mcg/mL for crossreactivity, only 14 substances produced a negative response for all kits; 80 substances produced a positive result for at least one of the test kits. No substance tested pro-

duced a positive result for all kits. The authors reason that the results from the study will be useful for laboratories to determine the feasibility of detecting these new substances using their current screening technologies, but further study is needed.

### Journal of Analytical Toxicology March 2015 Volume 39, Issue 2 Mitragynine 'Kratom' Related Fatality: A Case Report with Postmortem Concentrations

McIntyre *et al.* reported the death of a 24 year old male who was found unresponsive in bed. Pulmonary edema and congestion were the only findings in an otherwise unremarkable autopsy. Peripheral blood was positive for mitragynine (230 ng/mL), central blood (190 ng/mL), liver (430 ng/ g), vitreous humor (<50 ng/mL), and urine (370 ng/mL). Other relevant toxicology findings included venlafaxine, diphenhydramine, mirtazapine, and ethanol (0.02%).

## FROM THE TOXICOLOGY LITERATURE (CONTINUED)

The cause of death was certified as mixed drug intoxication – primarily mitragynine.

### Journal of Forensic Sciences March 2015 Volume 60, Issue 2 Investigation of Postmortem Absorption and Redistribution after the Application of a Fentanyl Patch

Wu et al. reported a single case study in which they applied an unused 100 mcg/hour fentanyl patch on the lower abdomen of a deceased individual who had no reported antemortem exposure to fentanyl. Blood, urine, and vitreous humor were collected before placement of the fentanyl patch. The body was refrigerated for 23 hours and then autopsied. Specimens were collected during autopsy and analyzed for the presence of fentanyl. No fentanyl was detected in any specimen. Even though no fentanyl was observed to be absorbed, the authors recommend that any patches be removed after receipt of a body and before the autopsy is started.

### Case Reports in Psychiatry March 2015 Synthetic Cannabis-Induced Mania

Fatih Ustungdag *et al.* report the case of an 18 year old male who was admitted to a psychiatric unit by his family after noticing drastic change in behavior over the last few months, including an increase in self-talking and self-laughing, an increase in spending money, an increase in interest religion, and a belief that he was an angel, a de-

mon, and a prophet. Upon admittance, he was irritable and euphoric with "mystical and grandiose delusions". Drug use described by the family included the use of volatiles substances, cannabis "powder", and "synthetic cannabis" over the past 4 years, with heavy synthetic cannabinoid use over the previous 6 months. He was diagnosed with substance-induced bipolar disorder and treated with antipsychotic and sedative medication. By the 30<sup>th</sup> day of inpatient treatment, the delusions had significantly decreased and he was discharged. Routine urine toxicology testing was negative upon admittance. No synthetic cannabinoid analyses were undertaken.

### Forensic Science International April 2015 Volume 249 25I-NBOMe Related Death in Australia: A Case Report

Kueppers and Cooke report the death of a 23 year old Australian woman who insufflated a white powdery substance purported to be "synthetic LSD". Agitated and strange behavior followed the consumption of drug, including yelling random words, before she vomited, seized, collapsed, and became unresponsive. Resuscitation was attempted but was unsuccessful. Bruises and abrasions were noted on her body upon autopsy. The lungs were heavy and congested. Postmortem blood was positive for 25C-NBOMe (0.7 ng/mL), 25H-NBOMe (1 ng/mL), 25I-NBOMe (28 ng/mL), THC (3.4 ng/mL), and methamphetamine (390 ng/mL). Cause of death was certified as combined drug toxicity.

Journal of Analytical Toxicology April 2015 Volume 39, Issue 3 Acute 3,4-Methylenedioxy-N-Ethylcathinone (Ethylone) Intoxication and Related Fatality: A Case Report with Postmortem Concentrations

McIntyre et al. reported the death of a 30 year old male who had consumed pills and illicit drugs with a female friend. After falling asleep, the male was found deceased by the female. Needles and a spoon with tarry substance were found at the scene. Findings at autopsy included puncture sites on the elbow and foot. Pulmonary edema and congestion, along with urinary retention was observed. Ethylone was detected in postmortem peripheral blood (390 ng/mL), central blood (380 ng/mL), liver (1400 ng/g), vitreous humor (580 ng/mL), urine (20,000 ng/mL), and gastric contents (12 mg). Other compounds of toxicological interest identified in the peripheral blood specimen were morphine (50 ng/mL), alprazolam (<50 ng/ mL), THC (<1 ng/mL), THC-COOH (3.6 ng/mL), and naproxen (<5,000 ng/mL). The urine specimen was positive for 6acetylmorphine, codeine, and sildenafil. The cause and manner of death was certified as accidental mixed ethylone, heroin, and alprazolam intoxication.



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