



ToxTalk

The official publication of the SOCIETY OF FORENSIC TOXICOLOGISTS, INC.

VOLUME 28 No. 2

JUNE 2004

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AUGUST 28 - SEPTEMBER 3, 2004 WASHINGTON, DC
JW Marriott Hotel on Pennsylvania Avenue

ToxTalk is mailed quarterly (bulk mail) to members of the Society of Forensic Toxicologists, Inc. It is each member's responsibility to report changes of address to the SOFT mailing address (Mesa, AZ - above). Non-members may now receive ToxTalk for \$15 per calendar year. Make your check payable to SOFT and mail it directly to the ToxTalk Editor.

MODIFIED DEADLINES: Feb. 1, June 1, Sept. 15, and Nov. 1

NEXT DEADLINE: SEPTEMBER 15, 2004



PRESIDENT'S MESSAGE

Daniel Isenschmid, Ph.D., DABFT

It is hard to believe that the annual meeting of SOFT, in conjunction with TIAFT and the FBI symposium, is just 3 months away! As I indicated in my last message, this meeting could be the largest forum of forensic toxicologists ever assembled. Well, that is now confirmed! As anyone who has read the meeting brochure has probably noticed, organizing a meeting of this magnitude involves *many* people. I would especially like to recognize the efforts of the Planning Committee –

Marc LeBeau (chair), Madeline Montgomery (co-chair), Marilyn Huestis (co-chair), Rebecca Jufer-Phipps (co-chair), Deborah Wang (secretary), Laurel Farrell (treasurer), Vina Spiehler (proceedings editor) and Lisa O'Dell (exhibitor liaison). Please be sure to visit and thank all the exhibitors – without their support a meeting of this size and quality would quickly be cost-prohibitive. Thanks also to Larry Broussard, Fiona Couper, Pamela Reynolds, Peter Stout and Eileen Waninger for their additional support on the planning committee.

As you will soon find out, in addition to a record attendance, there will be a record number of scientific presentations – over 300 abstracts have been submitted!!! This is great news indeed, but has also created an unprecedented amount of work for the Scientific Program Committee. This Committee is comprised of over 50 people who are hard at work ensuring that we have an excellent scientific program. I would particularly like to thank the chairs of each program: Donna Bush (Alternative Matrices), Buddha Paul (Analytical Methods), Marilyn Huestis (Behavioral Toxicology), Alphonse Poklis (Clinical and Environmental Toxicology), Anthony Costantino (Forensic Urine Drug Testing and Adulteration) and Barry Levine (Postmortem Toxicology). **THANKS TO ALL!**

Many SOFT members may have attended previous joint meetings with TIAFT (1994 in Tampa, 1998 in Albuquerque) or may have attended a TIAFT meeting outside of the United States. For those who have never been to a meeting with TIAFT, you are "in for a treat" and a great experience. It is easy to become preoccupied with issues facing forensic toxicology in the United States and consequently missing out on developments in our profession elsewhere in the world. Attending this meeting will be an opportunity to experience first-hand the practice of forensic toxicology from a global perspective. More importantly, it is an opportunity to make new friends and interact with toxicologists from all over the world. I would encourage all SOFT members to make an effort to greet someone you have not met. I am confident you will enjoy the meeting even more if you do.

I am extremely pleased to announce that there will be 8 SOFT award recipients this year. The Awards Committee has identified 4 young investigators who will receive the Educational Research Award and 4 young practitioners who will receive the Young Scientists Meeting Award. Their names and presentations appear elsewhere in this issue of **ToxTalk**. Each award includes a complimentary meeting registration and a \$1,000 stipend to offset the cost of coming to the SOFT meeting to make their presentation. Congratulations to all the award winners!

Finally, I would like to draw your attention to the report of the Nominating Committee and a proposed change to the SOFT Bylaws presented in this issue of **ToxTalk**. The proposed Bylaws change would make the SOFT webmaster an *ex officio* (non-voting) member of the Board of Directors in addition to the Past President and **ToxTalk** editor. Thanks to the Bylaws Committee for proposing this needed change and to the Nominating Committee for an excellent slate of nominees.

I look forward to seeing everyone in Washington, D.C. in August!

NEW TOXTALK EDITOR CONTACT INFORMATION

Dr. Joseph R. Monforte, SOFT **ToxTalk** Editor, has joined the staff at Ameritox Laboratories. It is recommended that materials for **ToxTalk** be sent via e-mail. If you must send items by mail, send to:

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Please continue to send material to **ToxTalk** directly to the Editorial Staff as follows:

"New Drugs": Daniel Anderson at
Danderson@lacoroner.org

"Drugs in the News": Dr. Andrew Mason at
forn6tox@aol.com

"Case Reports": Dr. Matthew "Barney" Barnhill at
mbarnhilljr@worldnet.att.net

The 2004 FBI Laboratory Symposium on Forensic Toxicology and Joint Meeting of the Society of Forensic Toxicologists (SOFT) & International Association of Forensic Toxicologists (TIAFT)



Washington, DC, United States of America
August 28 – September 3, 2004

The Planning Committee has posted detailed meeting information on the SOFT website (www.soft-tox.org). Please read them carefully and pay particular attention to the stated deadlines. You will not want to miss this unique professional opportunity.

To reserve your room at the JW Marriott Hotel on Pennsylvania Avenue for the symposium and joint meeting, visit the [JW Marriott website](http://marriott.com/property/propertyPage/WASJW) (<http://marriott.com/property/propertyPage/WASJW>) and "Reserve a Room". Enter your dates of arrival and departure. At the bottom of the screen type "fbifbia" in the "Group Code" box. Then click "Check Rates & Availability" and proceed through the rest of the reservation process.

Some Key Dates **Aug. 1:** On-line registration closes
 Aug. 6: Discounted rate at conference hotel ends

All accepted abstracts for the 2004 Joint Meeting of the Society of Forensic Toxicologists and The International Association of Forensic Toxicologists will be published in *Forensic Science Communications (FSC)*. FSC is a peer-reviewed journal published quarterly on the FBI Internet site. The journal is a means of communication between international forensic scientists. It may be viewed at www.fbi.gov.

Online registrations will only be allowed until August 1, 2004. The presenting authors of all posters and presentations will be required to register for the meeting. ☹

Attention FBI Laboratory Symposium Selectees:

If you have been selected to attend the 2004 FBI Laboratory Symposium on Forensic Toxicology to be held August 29-30, 2004, in Washington, DC., you have already been notified. Complete details can be found at the SOFT website (www.soft-tox.org). If you have not already done so, you are strongly encouraged to make your Marriott reservations now (www.marriott.com, group name "fbifbia").

If you have not completed the required Symposium Attendee Information Form by now, you have missed the deadline. If you have not submitted your Direct Deposit Form, bring it with you to the symposium. Attendees may contact Marc LeBeau at MLeBeau@FBI.gov, phone 703-632-7408, fax 703-632-7411. ☹



FUN RUN 2004

Complete and mail in the 2004 Fun Run registration form if you wish to participate in this year's event. All levels of ability are welcome. Enthusiastic cheerleaders are also permitted to enter.

MEMBERS' DUES RECORDS UNDER REVIEW

YOUR COURTESY NOTICE – DON'T SAY WE DIDN'T WARN YOU

SOFT Administrative Assistant Bonnie Fulmer is busy updating the roster and removing those members whose dues are in arrears. Persons removed from the roster lose all membership privileges, including **ToxTalk**. Only SOFT members qualify for reduced rates at SOFT meetings. Final notices have probably been mailed by the time you receive this issue. If you are unsure of your status, contact the SOFT Administrative Office NOW! ☹

NOMINATING COMMITTEE PRESENTS 2005 SLATE

submitted by Amanda Jenkins, Ph.D.

The 2004 SOFT Nominating Committee, consisting of Amanda Jenkins (Chair), Robert Osiewicz, and Vickie Watts, respectfully submits the following slate for consideration by the membership for 2005.

For the Office of PRESIDENT (1-yr term)

Graham R. Jones, Ph.D., DABFT

Dr. Graham Jones is Chief Toxicologist for the Alberta Office of the Chief Medical Examiner in Edmonton, Canada. He originally qualified as a Pharmacist in the U.K. and later earned his Ph.D. degree in Pharmaceutical Chemistry (Drug Metabolism) from Chelsea College at the University of London. Dr. Jones subsequently moved to Canada to take up a fellowship at the University of Alberta, later joining the University of Alberta Hospital as a Senior Scientist / Clinical Toxicologist. In 1981 he joined the Alberta Medical Examiner's Office as director of the new forensic toxicology laboratory.

Dr. Jones has been very active in SOFT, as well as the profession in general. Dr. Jones has served on the SOFT/AAFS Guidelines Committee since its inception in 1988 and has been chair since 1993. He has served as a Director on the SOFT Board from 1999 - 2001, as Secretary 2002-2003, and is currently SOFT Vice President. In addition, Dr. Jones is a Past-President of the American Academy of Forensic Sciences, current President of the Forensic Specialties Accreditation Board, and Chair of the Laboratory Accreditation Program of the American Board of Forensic Toxicology. He is also a member of the editorial boards of the *Journal of Analytical Toxicology* and the *Journal of Forensic Sciences*. Dr. Jones is the recipient of the Alexander O. Gettler Award from the AAFS and the Doug Lucas Award from the Canadian Society of Forensic Science.

For the office of VICE PRESIDENT (1-yr term)

Timothy P. Rohrig, Ph.D., DABFT

Dr. Rohrig is currently Director, Forensic Science Laboratories, and Chief Toxicologist at the Regional Forensic Science Center, Sedgwick County, Kansas. Prior to joining the Center he was Director of Laboratories at the Center for Forensic Sciences, Onondaga County, NY. Dr. Rohrig was previously Vice President - Director of Toxicology of Osborn Laboratories, and Chief Toxicologist - Laboratory Director for the Office of the Chief Medical Examiner, State of Oklahoma. During his tenure in Oklahoma, he was a consultant to the Oklahoma State Bureau of Investigation Crime Laboratory. Other previous positions include Toxicologist for the Office of the Chief Medical Examiner, State of West Virginia and Chief Toxicologist for the Kansas Bureau of Investigation's Forensic Science Laboratory.

Dr. Rohrig holds the academic position of Clinical Assistant Professor of Pathology at the University of Kansas School of Medicine-Wichita and Adjunct Professor of Criminal Justice and Forensic Science at Wichita State University. He was previously a Clinical Assistant Professor of Pathology at SUNY Health Science Center at Syracuse, NY and an Adjunct Assistant Professor of Pharmacology and Toxicology at the University of Oklahoma, Health Sciences Center-College of Pharmacy.

Dr. Rohrig holds a Bachelor of Science degree in Chemistry, a Doctorate with an emphasis in Pharmacology/Toxicology, and is board certified by the American Board of Forensic Toxicology. Dr. Rohrig also holds a New York State Laboratory Director License. He serves as a Laboratory Inspector and Team Leader for the U.S. Government's National Laboratory Certification Program. He is also an inspector for the College of American Pathologists' Forensic Urine Drug Testing program. Dr. Rohrig has authored over fifteen peer-reviewed articles and given numerous scientific oral presentations in the field of toxicology.

Dr. Rohrig is a Fellow of the American Academy of Forensic Sciences and is currently the Toxicology Section Secretary. He is also a member of several other professional organizations including the International Association of Forensic Toxicologists, Society of Forensic Toxicologists [SOFT]. Dr. Rohrig is currently the Treasurer and a past member of the Board of Directors of SOFT and is a member of the Wichita Area SANE/SART Steering Committee. He also is a member of SOFT's Drug Facilitated Sexual Assault Committee. Dr. Rohrig was previously a member and Vice Chair of the New York Crime Laboratory Advisory Committee.

Dr. Rohrig's current research interests include postmortem distribution of drugs, interpretive postmortem toxicology and the effects of drugs on human performance.

For the Office of TREASURER (2-yr term)

Christine Moore, Ph.D., DABCC

Since 1994, Christine Moore has been the Associate Scientific Director and Laboratory Director of U.S. Drug Testing Laboratories, IL, a company specializing in the analysis of drugs in biological tissues including meconium and hair. In addition, she is currently an Adjunct Associate Professor in the Department of Biopharmaceutical Sciences at the University of Illinois at Chicago. Christine is Board Certified in Toxicological Chemistry by the American Board of Clinical Chemistry (DABCC) and is a Fellow of the Royal

Society of Chemistry and the American Academy of Forensic Sciences.

Dr. Moore has a Bachelor of Science (Honours) degree in Applied Chemistry from the University of Salford, England (1985), a Master of Science degree in Forensic Science from the University of Strathclyde, Scotland (1986), and a Ph.D. in Forensic Toxicology from the University of Glasgow, Scotland (1989). Following a post-doctoral year at the University of Nagoya, Japan, Christine served as a Research Associate at the University of Illinois at Chicago. From 1992 to 1994 she was employed by United Chemical Technologies as Technical Services Manager.

Dr. Moore is currently a Director on the Board for the Society of Forensic Toxicologists (SOFT). She is a past chair of JCETT and served on the SOFT Continuing Education committee. Since 1993 she has presented her research at the annual SOFT meetings, especially in the areas of solid phase extraction and the analysis of meconium and hair for drugs of abuse. In addition, Christine has given talks in several SOFT workshops and co-chaired 2 workshops (CI-MS 1998, Automation of Micro-Plate Enzyme Immunoassay 2000).

Dr. Moore also sits on the Board of the Society of Hair Testing (SOHT). She is a member of the International Association of Forensic Toxicologists (TIAFT), the American Association of Clinical Chemistry (AACC), the Research Society on Alcoholism (RSA), the American Academy of Clinical Toxicology (AACT), the California Association of Toxicologists (CAT) and the American Chemical Society (ACS). She is an Affiliate Member of the International Council on Alcohol, Drugs and Traffic Safety (ICADTS). Additionally, she is Past-President of the Mid-West Association for Toxicology and Therapeutic Drug Monitoring (MATT) and immediate Past-Chair of the Toxicology Section of the American Academy of Forensic Sciences. She currently has over 60 peer-reviewed publications regarding the analysis of drugs in biological matrices.

For Director (3-yr term)

Barry Logan, Ph.D., DABFT

Dr. Logan is Director of the Forensic Laboratory Services Bureau of the Washington State Patrol, and State Toxicologist for the State of Washington. He has over seventy peer reviewed publications in the field of forensic toxicology and drug analysis, and has made over two hundred presentations to professional groups. He is Board Certified by the American Board of Forensic Toxicology, and serves on their Board of Directors. He also serves on the Boards of the National Safety Council's Committee on Alcohol and Other Drugs, the International Council on Alcohol, Drugs, and Traffic Safety (ICADTS), and the editorial boards of the *Journal of Forensic Sciences*, and the *Journal of Analytical Toxicology*. He is a Fellow of the American Academy of Forensic Sciences and an active member of the International Association of Forensic Toxicologists (TIAFT) and the Society of Forensic Toxicologists (SOFT). Dr. Logan was the recipient of

TIAFT's 2003 mid-career achievement award for excellence in forensic toxicology.

While chair of the AAFS toxicology section committee in 2000 he merged the SOFT and AAFS drugs and driving working groups, and refocused their efforts on education and research. Dr. Logan has attended SOFT meetings since 1993 and has been a member since 1995. He has participated as a presenter in a number of SOFT workshops, and has been an author on approximately 40 abstracts from SOFT programs over the last ten years, presenting over half of these himself. He has encouraged his staff to make presentations at meetings, and has sponsored at least ten membership applications. He recently co-chaired the scientific program for the 2003 SOFT meeting in Portland, OR.

For Director (3-yr term)

Philip Kemp, Ph.D., DABFT

Dr. Phil Kemp is currently the Chief Forensic Toxicologist for the Office of the Chief Medical Examiner for the state of Oklahoma. From 1981 to 1991, Dr. Kemp served as chemist for the Dallas County (Texas) Medical Examiner's Office. In 1991, Dr. Kemp and his family moved to Shreveport, LA, to begin graduate studies under Drs. Joe and Barbara Manno at LSU. Dr. Kemp's research focused on the correlation of cannabinoid concentrations with EEG changes following marijuana smoking. He presented his research at SOFT, earning the Educational Research Award in 1992. He received his doctorate in pharmacology from LSU in 1994 then moved to Oklahoma in October of 1994 to take his current position.

Dr. Kemp continues to support SOFT through participation at annual meetings and at least 2 submissions to ToxTalk. Since 1990 he has presented his research at the annual SOFT meetings, especially in the areas of cannabinoids, postmortem toxicology and validation of ELISA technology. In addition, Phil has given talks in several SOFT workshops and co-chaired 1 workshop (Marijuana, 2000). In 2003, he obtained grant funding to send 5 of his employees to the annual SOFT meeting in Portland. Dr. Kemp has served on, and is the current chair of the Educational Research Award committee for SOFT. In 2009 he shall be hosting the SOFT annual meeting in Oklahoma City.

In 1999, he was awarded the Irving Sunshine Award by the Toxicology Section of the American Academy of Forensic Sciences for outstanding research in the field of forensic toxicology by a young investigator. He has served on the Board of Directors of the Southwestern Association of Toxicologists (2002-2003) and is currently President-elect of that organization.

NOTE: Dr. Moore's election as treasurer would vacate her position as Director, a 3-yr term. In accordance with the bylaws (Chapter 3, Section 8, Item C), the SOFT Board of Directions will elect a person to fulfill the remaining 1 year or her 3-yr term (2004). ♀

ERA AND YSMA AWARDEES ANNOUNCED

The Awards Committee, chaired by Dr. Phil Kemp, announces the Educational Research Award and Young Scientist Meeting Award recipients for 2004 are:

Educational Research Award (ERA):

Dawn Parker, National University, "Postmortem Quetiapine: Therapeutic or Toxic Concentrations?"

Robin Choo, NIDA, "Neonatal Abstinence Syndrome in Methadone-Exposed Infants Is Altered By the Level of Prenatal Tobacco Exposure"

Danyel Tacker, University of Texas Medical Branch-Galveston, "Cocaethylene: A Potentially Lethal Toxicant"

David Burrows, East Tennessee State University, "Papain, A Novel Urine Adulterant"

Each recipient will receive \$1,000 to offset travel expenses to the 2004 SOFT Annual Meeting and complimentary basic SOFT meeting registration. Their papers have been accepted as oral presentations for the 2004 meeting.

Young Scientist Meeting Award (YSMA):

Yan Chang, Ph.D., University of Utah, "Novel Aspects of *in vitro* Metabolism of Buprenorphine"

Michelle Sandberg, Los Angeles Dept. of Coroner, "Interpreting Antihistamine Levels in Postmortem Blood: Establishing Incidental and Contributory Ranges for Evaluation Purposes"

Kelly McGrath, Cuyahoga County Coroner's Office, "Analysis of Postmortem Bone/Bone Marrow Specimens for Drugs of Importance in Forensic Toxicology"

Shawn Vorce, Division of Forensic Toxicology, Office of the Armed Forces Medical Examiner, Armed Forces Institute of Pathology, "A General Screening and Confirmation Approach to the Analysis of Designer Tryptamines and Phenethylamines in Blood and Urine Using GC/EI-MS and HPLC/Electrospray-MS"

Information on these awards and application instructions can be found on the SOFT website (www.soft-tox.org). ☺

NOTICE TO MEMBERSHIP: PROPOSED BYLAWS AMMENDMENT

submitted by Yale H. Caplan, Ph.D., Chair, Bylaws Committee

The purpose of this amendment is to add the Webmaster to the Board of Directors. The concept has been approved by the Board of Directors and will be presented for vote at the annual meeting in Washington, D.C. The current bylaws were effective 10/3/01. (Note : Text added is in *italics*.)

SOFT BYLAWS AMMENDMENT

Chapter II **Officers and Board of Directors**

Section 2. Board of Directors

"The Board of Directors shall consist of nine (9) voting members, four (4) of whom must be elected officers of SOFT. Directors shall be elected for a term of three (3) years beginning January 1. The immediate Past President, *the Webmaster*, and the Newsletter Editor shall serve as non-voting members of the Board."

Rationale: The Webmaster is now an integral part of the Society. The Webmaster maintains information exchange and handles Society finances as they are managed electronically. Adding the Webmaster to the Board of Directors as an ex-officio, non-voting member will facilitate the communication necessary for the Webmaster to effectively maintain the web site. Additionally, since much of the Society's business is conducted via the web, the Webmaster's input to the Board during formative closed session meetings is now essential to maintaining the Society's goals as the Society matures and grows. ☺

"ON DECK" 2005 SOFT MEETING: NASHVILLE October 16-21
Sunday – Inspector workshops. Monday and Tuesday –Workshops.
Wednesday to Friday noon-ish – general session. (All information preliminary only.)

SOFT CELEBRATES 2003 MEETING IN PORLAND, OREGON



JUNE TOXTALK FEATURES CASE REPORTS

Editorial Staff: Matthew "Barney" Barnhill, Ph.D., at mbarnhilljr@worldnet.att.net

These titles represent the Case Reports printed in this issue of **ToxTalk**. The key words () indicate the diversity in the field of forensic toxicology.

(Topiramate) **A Case Report of Fatal Topiramate Toxicity.** Elizabeth R. Kiely, B.S., Russell L. Uptegrove, M.D., Lauren J. Marinetti, Ph.D., Montgomery County Coroner's Office, Dayton, OH 45402

(Lorazepam) **A DUI Case involving Lorazepam.** John Musselman, Phoenix Police Department Crime Laboratory, Phoenix, AZ, 85003.

(Estazolam) **A Non-fatal Estazolam Overdose.** Robert Johnson, Ph.D., Warde Medical Laboratory, 5025 Venture Dr., Ann Arbor, MI 48108

(Methamphetamine) **Status Epilepticus Following Ingestion of a Tampered Multivitamin Preparation Intended for Smuggling Methamphetamine.** Bolaton MCR*, Dionisio ARD, Maramba NPC, *National Poison Control and Information Service, University of the Philippines- Philippine General Hospital, Manila, Philippines

(Etomidate and Atracurium) **Commission of a Homicide Using Etomidate and Atracurium.** Thomas S. Pittman, MS DFTCB, Section Chief – Toxicology, Mississippi Crime Laboratory, Jackson, MS 39216

(Heavy Metal) **Clinical and Heavy Metal Profile of Eight Individuals Living in a Mining Disaster Area.** Bolaton MCTR*, Makalinao IR*, Castillo ES*, Maramba NPC, *National Poison Control and Information Service, University of the Philippines- Philippine General Hospital, Manila, Philippines

(Mescaline) **Gas Chromatography Mass Spectroscopy for the Identification and Quantitation of Mescaline in Urine.** Shawn P. Vorce, Office of the Armed Forces Medical Examiner, Division of Forensic Toxicology, Armed Forces Institute of Pathology, 1413 Research Boulevard, Building 102, Rockville, Maryland 20850-3125

(GHB, Methamphetamine) **Driving with GHB and Methamphetamine On Board: A new trend in Miami-Dade County, Florida?** H. Chip Walls, Technical Director, Forensic Toxicology Laboratory, Dept. of Pathology, University of Miami School of Medicine, Miami, FL 33177

(Domoic) **An Incident of Marine Toxin Poisoning Following Ingestion of Seaweed (Kulot) in an Island in Northern Philippines: A Probable Domoic Acid Poisoning.** Bolaton MCTR, National Poison Control and Information Service, University of the Philippines- Philippine General Hospital, Manila, Philippines

(Nicotine) **An Unusually High Level of Nicotine in a Fatal Traffic Accident.** Brenda K. Jay, Alabama Department of Forensic Sciences, Mobile, AL 36617

(MDMA) **An Unusually High Level of 3, 4-Methylenedioxymethamphetamine (MDMA) in an Overdose Fatality.** Jack R. Kalin, Kelly M. Wood, Karen D. Hart, Melissa M. Bailey, Lisa K. O'Neal, Dotsie F. Tate and Joseph H. Embry, Alabama Department of Forensic Sciences, Birmingham, AL ☪

FROM THE EDITOR'S DESK

Joseph R. Monforte, Ph.D., DABFT



Anyone who has attended a SOFT business meeting has heard me encourage members to submit material to **ToxTalk**. You may not realize how difficult it is to get members to do that. My congratulations to our Editorial Staff! I particularly want to recognize Dr. Matthew Barnhill for soliciting *Case Reports* for this issue. No easy task! I think Barney is preparing for a second career – he said something about “pulling teeth.” Dan Anderson has highlighted two more *New Drugs*. With all the media attention drugs get, it's easy to send clips or short recaps to Andy Mason for *Drugs In The News*. I also wish to thank those who submitted material to this issue and encourage them, as well as all SOFT members, to continue to submit Case Notes. **ToxTalk** is for its members and by its members.

As noted on page 2, I have joined the staff of Ameritox Laboratories. The contact information is also noted there, but I strongly encourage you to send items by email since our publisher is actually the person who initially collects all material. ☪

A Case Report of Fatal Topiramate Toxicity

submitted by Elizabeth R. Kiely, B.S., Russell L. Uptegrove, M.D., Laureen J. Marinetti, Ph.D., Montgomery County Coroner's Office, Dayton, OH 45402

Case History: The decedent, a 13-year-old black female, was bi-polar with a history of attention deficit hyperactivity disorder, depression, and a prior overdose incident. At 10:00 PM, the decedent advised her grandmother she had taken eighteen 200 mg Topamax (topiramate) tablets, but her grandmother thought her to be joking. The decedent had a doctor's appointment the next morning and her mother let her sleep in. Upon attempting to wake her about 11:00 AM, her mother found her cold and unresponsive. Police and EMS responded to the 911 call and the decedent was pronounced at 11:16 AM.

Autopsy Findings: Autopsy findings included obesity (236 lbs) and prominent pulmonary froth in the airways. Histological examination of the tissues showed congestion in the lungs and spleen.

Postmortem Toxicology: Peripheral blood was analyzed for volatile compounds, drugs of abuse by immunoassay, acidic and basic drugs by GC/MS, and salicylic acid by color screen. Topiramate and topiramate metabolites were detected by GC/MS. Topiramate was confirmed and quantitated in various matrices by GC/FID; results can be found in the table below. No other acidic or basic drugs were detected.

Specimen	Topiramate Concentration ($\mu\text{g/mL}$, $^*\mu\text{g/g}$)
Blood, Peripheral	166
Brain*	157
Cerebral Spinal Fluid	141
Liver*	234
Vitreous Humor	118

Severe metabolic acidosis can result from topiramate overdose. Overdoses of topiramate have been reported, but most deaths have been after poly-drug overdoses involving topiramate. A tentative therapeutic range for topiramate in blood is 5.1-20 $\mu\text{g/mL}$, with potential toxicity at levels greater than 25 $\mu\text{g/mL}$ (1,2). A 44-year-old female's death was attributed to topiramate overdose. Ethanol, phenobarbital, and methotrimeprazine were also detected, but not in quantities sufficient to contribute to the cause of death. Biological fluids and tissues were analyzed with the following results: blood (central) 170 mg/L, liver 140 mg/kg, stomach contents greater than 300 mg, and vitreous fluid 65 mg/L (3). A patient who ingested a dose between 96 and 110 g of topiramate was admitted to hospital with coma lasting 20-24 hours followed by full recovery after 3 to 4 days (2). In the case reported here, the decedent stated she ingested approximately 3.6 g of topiramate. Although the decedent's blood concentration was much greater than the toxic level, she may have recovered had she been discovered sooner and taken to a hospital for the appropriate treatment.

References:

1. S.I. Johannessen, et al. *Therapeutic drug monitoring of the newer antiepileptic drugs. Therapeutic Drug Monitoring*, 25:347-363, 2003.
2. Ortho-McNeil – (2003) Topamax package insert – 02T10718-12/03.
3. L.J. Langman, et al. *Fatal acute topiramate toxicity. Journal of Analytical Toxicology*, 27(5):323-4, 2003. 3

SEND YOUR CASE REPORT TO:

Matthew "Barney" Barnhill, Ph.D., at mbarnhilljr@worldnet.att.net

A DUID CASE INVOLVING LORAZEPAM

submitted by John Musselman, Phoenix Police Department Crime Laboratory, Phoenix, AZ , 85003

On August 27, 2003, at 17:40 an officer responded to a rear-end collision with injuries at a typical intersection with traffic lights. Prior to the collision, two witnesses' observed the suspect swerving from lane #1 to the curb lane and then to the left-hand turn lane, cutting one witness off and finally, colliding into the rear of a van. Paramedics at the scene referred to the suspect as impaired. The officer at the scene noticed an absence of alcohol on breath, watery and bloodshot eyes, and slurred speech. The suspect was admitted to the hospital and agreed to a blood draw (19:39).

No field sobriety tests were performed. The blood tubes were submitted to the Phoenix Crime Laboratory with a request for blood alcohol determination. In the absence of an accompanying "Alcohol Influence Report"(AIR), this sample was tested for alcohol with a negative result. The AIR obtained after the case was completed indicated the subject admitted taking Lorazepam for depression approximately six hours prior to the collision.

Subsequently the blood sample was screened by enzyme multiplication immunoassay technique (EMIT[®]) on a SYVA[®] ETS[®] Plus chemistry analyzer for seven classes of drugs following a modified acetone precipitation extraction^{1,2}, using blood(B) and urine(U) calibrators at the following concentrations: benzodiazepines(B) (50 ng/ml), amphetamine class(B) (50 ng/ml), barbiturates(B) (50 ng/ml), opiates(B) (50 ng/ml), cocaine metabolite(B) (50 ng/ml), cannabinoids(U) (20 ng/ml), and phencyclidine(U) (25 ng/ml). The sample tested positive for benzodiazepines and negative for the other drug classes. Interestingly, the cross-reactivity of lorazepam with the SYVA[®] EMIT[®] DAU[®] benzodiazepine kit is 5x weaker than oxazepam³. Had a urine specimen been collected, lorazepam might have been easily missed, since the cross reactivity of the primary metabolite found in urine⁴, lorazepam glucuronide is 50x weaker than oxazepam.

Confirmation of lorazepam was performed on an Agilent 5890/5973 GC/MS system in selective ion monitoring (SIM) mode. Extraction, including calibrators at 25 and 50 ng/ml (ion ratios set at 50 ng/ml) a negative control and positive control at 60 ng/ml, as well as other case samples were extracted by solid phase extraction⁵, and compared to a stored calibration curve (25-500 ng/ml). Our method currently is set up to identify 19 different compounds/metabolites, including lorazepam. More specifically for lorazepam, d5-oxazepam (one of three internal standards in the SIM method) was used as the internal standard. The confirmation of lorazepam at a concentration of 525 ng/ml is unusually high in DUID cases, compared to results reported by the Washington State Toxicology Laboratory⁶ (10 to 320 ng/ml, n=14). Our results on confirmation agreed well with the aforementioned screening result (>250 ng/ml) and showed no other benzodiazepine present to account for the positive EIA result.

Therapeutic concentrations for lorazepam, a CNS depressant, range anywhere from 25 to 250 ng/ml⁴. It can be concluded that this individual had at least more than 50% of the maximum therapeutic amount of drug circulating in his system. This concentration of drug was very likely a contributor in the inability of the suspect to operate a motor vehicle safely.

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A NON-FATAL ESTAZOLAM OVERDOSE

submitted by Robert Johnson, Ph D., Warde Medical Laboratory, 5025 Venture Dr., Ann Arbor, MI 48108

A serum sample from a patient in an area hospital screened strongly positive for benzodiazepines by immunoassay, but subsequent analysis by HPLC produced a large peak that did not match any of the thirteen drugs in our routine benzodiazepine screening panel. The unknown peak had a two-wavelength absorbance very similar to alprazolam, but the retention time was a bit earlier on the reverse-phase column. A check of the PDR showed that estazolam is alprazolam with a ring methyl group removed. An estazolam standard, obtained by coincidence the previous day from Cerilliant, had the same retention time as the unknown peak. A call to the medical facility revealed that the patient claimed to have taken about 20 Prosam (estazolam) tablets. The serum concentration was 1050 ng/ml. A therapeutic level would have been less than 100 ng/ml. Alcohol may also have been involved, but this information was not provided. The patient recovered. The Microgenics High Sensitivity Benzodiazepine assay was used for the initial screen. HPLC utilized a Phenomenex Luna C18(2) column, 15cmx4.6mm with 3 micron particles. The isocratic mobile phase was 30% acetonitrile, 18% methanol and 52% phosphate buffer (about 0.01 mM), pH 7.0. ☞

STATUS EPILEPTICUS FOLLOWING INGESTION OF A TAMPERED MULTIVITAMIN PREPARATION INTENDED FOR SMUGGLING METHAMPHETAMINE

submitted by Bolaton MCR, Dionisio ARD, Maramba NPC, National Poison Control and Information Service, University of the Philippines- Philippine General Hospital, Manila, Philippines

Background: Methamphetamine intoxication among in-patients ranks number one among the cases being managed at the UP-PGH Poison Control Unit (PCIU) but the least among the telephone referrals. One of the active roles of the UP-PGH Poison Center aside from the actual management of clinically poisoned patients is toxicovigilance especially on methamphetamine use. Smuggling techniques involving methamphetamine through tampered multivitamin syrup preparation has not been reported in the literature. We report a telephone referral case of severe methamphetamine toxicity from ingestion of a multivitamin, Tiki-tiki Star^R which is one of the most commonly used multivitamin preparations in the Philippines.

Case report: Two previously well children, 3 and 7 years old, respectively, presented at the ED in Pampanga with generalized tonic clonic seizures 30 minutes after ingestion of 5 ml each of Tiki-tiki Star multivitamins. ABGs showed severe metabolic acidosis for the younger child and respiratory acidosis for the older child. Both went into status epilepticus not responding to diazepam. A call to the UP-PGH Poison Control and information Unit (PCIU) was made. Considering that tuberculosis remains the most common infectious disease among Filipino children, INH poisoning was initially suspected. Thus administration of pyridoxine, 100 mg/kg each, was advised, as well as immediate retrieval of the container. However, the patients did not respond to pyridoxine. Other CNS stimulants suspected were cyanide, and methamphetamine. The neurology service gave Midazolam drip to both and maintained the younger child on phenobarbital and the seizure resolved. The leftover multivitamins showed a colorless, odorless agent. Qualitative urine methamphetamine was positive. The older child became combative, feverish, dry, with dilated pupils and hallucinations. Multiple doses of activated charcoal and acidification of urine were done, and on the 5th day the child improved. The younger child, however, never regained consciousness, developed pulmonary edema and acute renal failure, and eventually died on the third day. The urine samples revealed >8,000 ng/ml each of methamphetamine by immunofluorescence assay. (The agents submitted to the laboratory crystallized.) It was later discovered that several bottles of the Tiki-tiki multivitamins were being distributed to friends and relatives by somebody who failed to bring along several boxes of the multivitamins when she left for Guam. The sample agent, as well as the other boxes, were immediately turned over to the Philippine Drug Enforcement Agency (PDEA) for further investigation.

Conclusion: There is a need to educate health professionals, especially from hot spot regions, to be vigilant and have a high index of suspicion involving patients with undifferentiated clinical presentations such as described in this report. ☞

COMMISSION OF A HOMICIDE USING ETOMIDATE AND ATRACURIUM

submitted by: Thomas S. Pittman, MS DFTCB, Section Chief – Toxicology, Mississippi Crime Laboratory, Jackson, MS 39216 tpittman@mcl.state.ms.us

Etomidate (Amidate®) is classified as a hypnotic drug without analgesic properties often used in combination with other drugs for general anesthesia during surgery or in Intensive Care Units. Onset of action is usually within one to two minutes of IV dosing.

Atracurium (Tracrium®) is a nondepolarizing, skeletal muscle relaxant that acts by blocking the action of acetylcholine at neuromuscular junctions. Patients placed on ventilators during surgery or while in ICU are basically paralyzed with this drug to prevent unwanted movements or attempts to remove ventilator tubes. While atracurium does inhibit the muscles responsible for respiration it does not affect cardiac muscle.

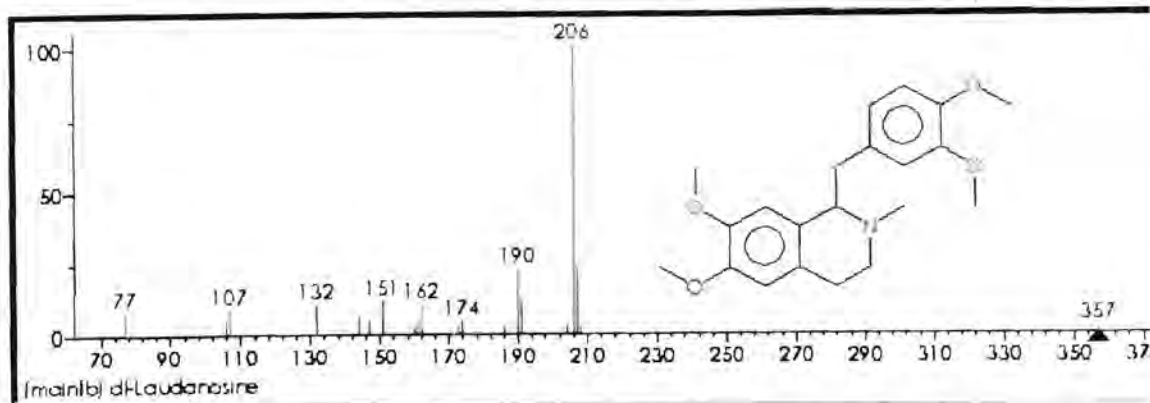
The victim in this particular case was a cardiac surgeon that died at home unexpectedly. He was a diabetic suffering with Hepatitis C and was on a transplant list to receive a new liver. An insulin pump with tubing had recently been inserted to help control his diabetes and he was in the period of fine tuning the delivery of insulin from the pump for the most effective dosage. The victim's wife was a nurse with experience in ICU.

Originally the case was submitted as a routine toxicology screen to just "make sure all bases were covered for insurance purposes". Only 3 ml of whole blood were received for testing purposes. A volatile analysis was run which proved to be negative. Due to the limited amount of sample, a decision was made to perform a general basic extraction, pH 9.5 using n-butylchloride as the extraction solvent, taking into account the medication the victim was taking. The extracted sample was analyzed by GC-NPD and GC/MS. Etomidate and Laudanosine (a breakdown product of Atracurium) were identified along with several other drugs the victim had been taking for his diabetic condition. By the time the drug analysis was completed, the victim had been embalmed and buried and there was insufficient sample volume remaining for confirmation or quantitation of the identified drugs. Ty syringes and the tubing from the insulin pump found at the scene were secured for analysis. All proved to be negative for the two drugs in question.

The local law enforcement agency next filed for an exhumation of the victim and an autopsy was performed and liver, kidney and dermal tissue from around the insulin pump tubing were collected. Analysis of the liver and dermal tissue confirmed the presence of both drugs. A portion of the dermal tissue was sent to a reference laboratory and approximately 17,000 ng/g of Laudanosine was found present in the dermal tissue.

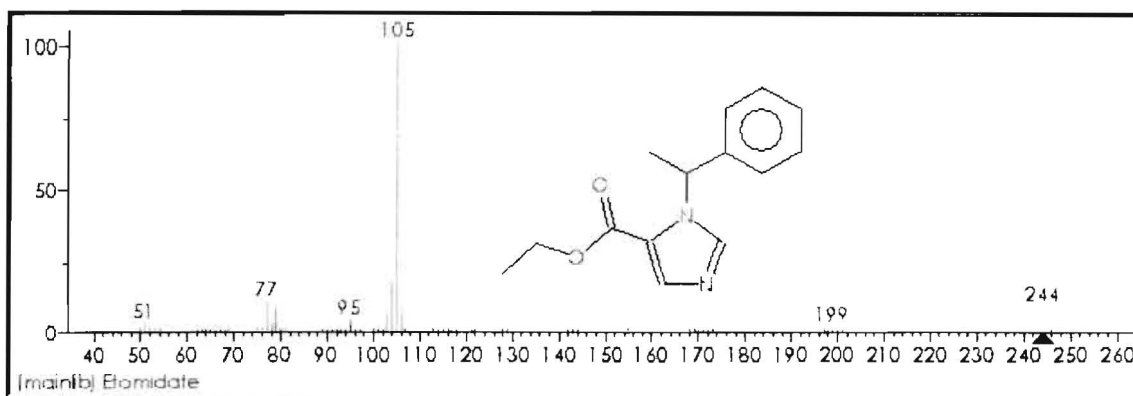
Based on the types of drugs found, suicide was ruled out, although it was offered as a defense. It was discounted mainly because no items found at the scene, other than the victim, and the deceased had the two drugs present.

#1



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#2



SPACE IN ToxTalk HAS BEEN RESERVED FOR YOUR CASE NOTE. Send to
Editorial Staff: Matthew "Barney" Barnhill, Ph.D, at mbarnhilljr@worldnet.att.net

CLINICAL AND HEAVY METAL PROFILE OF EIGHT INDIVIDUALS LIVING IN A MINING DISASTER AREA

submitted by Bolaton MCTR*, Makalinao IR*, Castillo ES*, Maramba NPC,* *National Poison Control and Information Service, University of the Philippines- Philippine General Hospital, Manila, Philippines

Background: In 1975, one of the biggest mining corporations started its operation in the southern island of the Philippines called Marinduque. In 1996, there was a disastrous tailing spill into the Boac River. Initial health assessment done in 1996 revealed malnutrition, anemia, and elevated blood zinc, copper and lead levels.

Case series: Eight individuals from Boac, Marinduque were admitted at the University of the Philippines- Philippine General Hospital for further work-up. Demographic data showed 3 pediatric patients, 2 females and 1 male, ages 9, 15, and 15, respectively. The 5 adults consisted of 3 females and 2 males, ages 36, 46, 56, 60, and 61, respectively. Distribution of patients except for 2 patients who live beyond 15 km from the river, are within 3 kilometers along the Boac River. The 9 year old patient with Chronic Myelogenous Leukemia (CML) showed a blood lead level (BLL) of 8 ug/dl*, a blood arsenic level (BAL) of 13 ug/dl**, a urine arsenic level (UAL) of 6 ug/L***, and a normal electromyography-nerve conduction velocity test (EMG-NCV). One 15 year-old patient with skin lesions had histopathologic findings consistent with early arsenic keratosis and a

BLL of 11 ug/dl, a BAL of 7 ug/L, and a UAL of 25 ug/L. The other 15 year- old patient had a BLL of 11 ug/dl, a non-detectable BAL and UAL and a normal EMG-NCV. Four of the five adults had skin lesions consistent with early arsenic keratosis. Four of the five adults had BLLs of 14, 16, 19, 19 and 21 ug/dl; BALs of 26, 29, 58, and 70 ug/L; and UALs of 35, 44, 61, and 91 ug/dl. Four of the 5 adults had abnormal EMG-NCV findings. A 61 year-old female had non-detectable blood and arsenic levels; however, the histopathologic findings of her skin lesions were consistent with arsenical keratosis, her BLL was 19 ug/dl, and her EMG-NCV revealed findings indicative of axonal dysfunction.

Conclusion and recommendation: These are signal cases that warrant a more systematic case investigation in the area.

*BLL (Blood lead level): ug/dl
** BAL (Blood arsenic level) : ug/L
*** UAL (Urin Arsnic level): ug/dl

Gas Chromatography Mass Spectroscopy for the Identification and Quantitation of Mescaline in Urine

submitted by Shawn P. Vorce, Office of the Armed Forces Medical Examiner, Division of Forensic Toxicology, Armed Forces Institute of Pathology, 1413 Research Boulevard, Building 102, Rockville, Maryland 20850-3125

Mescaline (3,4,5 trimethoxyphenethylamine) is a hallucinogenic alkaloid obtained from the peyote cactus (*Lophophora williamsii*). It is a Schedule I drug which certain Native American Indian tribes in their religious and spiritual rituals use. The typical dose of between 200 and 500 mg (10-20 buttons) will cause hallucinogenic effects for up to 12 hours. (1) The peak plasma concentration occurs within 1-3 hours post consumption, with the half-life estimated at 6 hours. 55-60% of mescaline is excreted unchanged in the urine, with the major metabolite, 3,4,5-trimethoxybenzoic acid constituting 25-30% of the excreted dose. (1) Military drug testing facilities do not routinely test for mescaline but recently there has been an increase in requests for mescaline analysis. The detection window for mescaline in urine is 1-3 days. Therefore, a quantitative method using a solid phase extraction (SPE) technique and gas chromatography mass spectrometry (GC/MS) analysis was developed for the forensic toxicology division, AFIP.

Mescaline was obtained from Sigma Chemicals (St. Louis, MO) and d9-mescaline was obtained from Cerilliant (Round Rock, Texas). Two milliliters of pH 6.0 phosphate buffer were added to a 1.0 mL aliquot of urine. The samples were extracted using CLEAN SCREEN[®] ZCDAU020 columns (United Chemical Technology, Inc) (2). Each column was conditioned with 3 mL of methanol, 3 mL of deionized water, and 1 mL of pH 6.0-phosphate buffer. The sample was loaded onto the column and allowed to flow gravimetrically. The columns were washed with 3 mL of deionized water, 1 mL of 100 mM acetic acid, and 3 mL of methanol before drying them for 5 minutes. Mescaline was eluted with 3 mL of methylene chloride/isopropanol/ammonium hydroxide (80:20:2). The eluant was evaporated under nitrogen at 40°C following the addition of 100 uL of 1% HCl in methanol. Derivatization was performed with the addition of 50 uL of ethyl acetate and 50 uL of pentafluoropropionic anhydride (PFPA) at 65°C for 15 minutes. The derivatized extract was evaporated under nitrogen at 40°C and reconstituted in 50 uL of ethyl acetate.

The derivatized samples were analyzed on an Agilent 6890 GC equipped with a 5973N MSD operating in the EI mode, and a J&W DB-5 15 m x 0.25 mm x 0.25 um capillary column. One microliter was injected in split mode (10:1) at 250°C. The oven temperature was initially set to 80°C and held for 1 minute, ramped 40°C/min to 180°C, then ramped 30°C/min to a final temperature of 280°C and held for 1.50 minutes. The MSD was operated in SIM mode, monitoring ions 181*, 179, and 357 for mescaline and ions 190* and 366 for d9-mescaline (* denotes the quantitation ion).

The method was linear from 0.1-100 mg/L with a correlation coefficient of 0.9977. Recovery was determined to be 85% at a concentration of 5.0 mg/L. Interday precision was evaluated at three concentrations with five replicates of each. The interday precision coefficient of variance was < 2%. The between day precision was evaluated over five days at three concentrations with a coefficient of variance < 7% at the high concentration and < 4% at the mid and low concentrations. Accuracy was measured to be between 3-12% of the theoretical values at three spiked concentrations.

Acknowledgement

This work was funded in part by the American Registry of Pathology, Washington, D.C. 20306-6000.

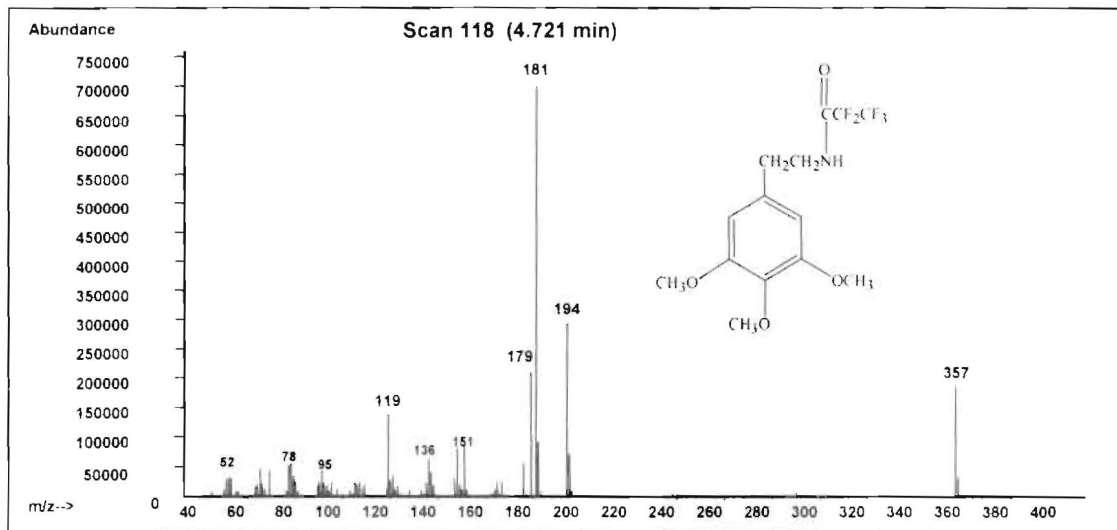
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2. **Clean Screen[®] Extraction Columns Application Manual**. United Chemical Technologies, Inc. Revision number 691070. Amphetamine in Urine

(continued next page)

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Full scan of a 10-ng/mL PFFA derivative of mescaline extracted from urine and analyzed using an Agilent 5973N MSD.



The opinions contained herein are not to be construed as official or as reflecting the views of the Department of Defense. ☞

READ A NEWSPAPER TODAY?

Fax an interesting drug-related article to Dr. Andrew Mason's attention at 828-265-3506

Driving with GHB and Methamphetamine on Board: A New Trend in Miami-Dade County, Florida?

submitted by H. Chip Walls, Technical Director, Forensic Toxicology Laboratory, Dept. of Pathology, University of Miami School of Medicine, Miami, FL 33177

In the last several months, we have confirmed GHB and methamphetamine in 3 urine specimens, 1 blood sample and a blood-urine pair, all from suspected DUI cases. The urine concentrations of GHB ranged from 237-609 mg/L. The blood-only GHB concentration was 235 mg/L, and for the blood-urine pair the GHB concentration in the blood was 147 mg/L and the GHB urine concentration was 484 mg/L.

All the above cases involved young white males ranging in age from 24 – 32 years old, arrested in Miami Beach in the early hours of the morning (midnight – 6am), except for the blood-only case in which the defendant was arrested at 10:30am. No alcohol was detected in any of the subjects in either the blood samples or by breath alcohol testing.

The case in which both blood and urine samples were submitted, involved erratic driving, going up and over the curb, almost running down pedestrians and refusing to stop for law enforcement officers. Once stopped and out of the car the officers observed a completely incoherent white male with "babbling" speech, sweating profusely and who was described as "flopping around". FSTs were attempted, but due to his condition could not be completed. Subject was transported to the police station and, upon subsequent evaluation by DRE officers and paramedics, the subject was immediately transported to the emergency room.

This makes an unusual combination of depressant and stimulant drugs, but not surprising in light of the number of cases positive for cocaine and Alprazolam. ☞

AN INCIDENT OF MARINE TOXIN POISONING FOLLOWING INGESTION OF SEAWEED (KULOT) IN AN ISLAND IN NORTHERN PHILIPPINES: A PROBABLE DOMOIC ACID POISONING

submitted by Bolaton MCTR, National Poison Control and Information Service, University of the Philippines- Philippine General Hospital, Manila, Philippines

Background: A disease outbreak apparently secondary to marine toxin poisoning occurred in an island in Pangasinan, a northern province of the Philippines. A total of eleven people were affected in this incident after eating a certain seaweed identified as *Acanthopora specifera*.

Case: On April 26, 2002, eleven persons, 8 males and 3 females, from four households suffered from signs and symptoms of poisoning after consuming a certain seaweed (*kulot*) for dinner. The earliest symptom was a pricking sensation of arms and back (8/11) and the most common was chills (9/11). Other symptoms included body malaise (6/11), abdominal pain (4/11) soft stool (4/11), warm feeling (3/11) specifically at the face, and diaphoresis (3/11). There were three persons who subsequently died, and these three fatalities exhibited several signs and symptoms not seen in the other cases, including headache (3/3), restlessness (3/3), hallucinations (3/3), mutism (3/3), numbness of extremities (2/3), dizziness (2/3), vomiting (2/3) and dyspnea (3/3) which developed later. This combination of symptoms has not previously been observed in seafood poisoning in the Philippines.

Six cases available for follow-up were examined 10 days post-exposure. Physical, neurologic, and mental status examinations done were essentially normal. CBC, BUN, creatinine, SGPT, SGOT, and alkaline phosphatase all revealed essentially normal results. The University of the Philippines- Marine Science Institute (UP-MSI) Laboratory did mouse bioassay of fresh extracts showing predominance of excitatory symptoms (neuroexcitatory toxins) and the NOAA (National Oceanography, USA) did further analysis of the seaweed which tested positive for domoic acid (RBA) and a cytotoxicity test using GH4 cells. Postmortem urine specimen tested positive for Domoic acid but not at a level considered high enough to be fatal to humans.

Conclusion and Recommendation: In summary, the disease outbreak occurred in a geographically limited area with no apparent propagation of the disease, pointing to a common-source exposure, most probably the ingestion of the seaweed. The attack rate (AR) based on limited information gathered from health workers and from the cases is estimated to be AR= 10/11, approximately 91%. The median incubation period is apparently 2 hours. The case fatality rate (CFR) is apparently CFR= 3/11 or 27%. It has been recommended that it would be prudent to ban the harvest and consumption of crabs and seaweeds in the area until the specific pathogen is established; to continue toxicovigilance on possible new cases; to further investigate possible toxins; and to further investigate the possible relationship of toxic algal blooms to the proliferation of fish pens near the area. ☒

AN UNUSUALLY HIGH LEVEL OF NICOTINE IN A FATAL TRAFFIC ACCIDENT

submitted by Brenda K. Jay, Alabama Department of Forensic Sciences, Mobile, AL 36617

An adult male driver of unspecified age was hit by a train while hauling a trailer-load of freshly harvested cotton. He was ejected, resulting in presumed fatal head injuries. An autopsy was not performed, but blood (central) and urine samples were taken by the coroner for routine toxicological analysis.

The urine was screened negative by ELISA for opiates, amphetamines, barbiturates, benzodiazepines, cocaine and cannabinoids. ToxiLab revealed only nicotine and cotinine, both confirmed by GC/MS. The blood was negative for alcohol and other volatiles. Screening for basic drugs by gas chromatography following n-butylchloride extraction revealed only a very large nicotine peak, confirmed by GC/MS. The sample was sent to a reference laboratory for quantitation of nicotine and cotinine.

The results were nicotine, 3200 ng/ml, and cotinine, 650 ng/ml. According to the reference laboratory's experience, nicotine levels of 3-63 ng/ml and cotinine levels of 20-700 ng/ml are commonly seen in habitual smokers. According to the victim's wife, he was a long-time heavy smoker, but had switched from cigarettes to cigars. Nicotine-based pesticides are not currently in use by cotton growers in this area. This laboratory has never encountered a nicotine level of this magnitude in any previous case involving traumatic injury. ☒

An Unusually High Level of 3, 4-Methylenedioxymethamphetamine (MDMA) in an Overdose Fatality

submitted by Jack R. Kalin, Kelly M. Wood, Karen D. Hart, Melissa M. Bailey, Lisa K. O'Neal, Dotsie F. Tate and Joseph H. Embry, Alabama Department of Forensic Sciences, Birmingham, AL

A 29-year-old female was attending a rock concert where she allegedly consumed an unknown dose of powdered Ecstasy along with other unidentified drugs. Later during the concert the subject consumed a second unknown dose of Ecstasy and shortly thereafter collapsed into convulsions. Paramedics attempted resuscitation at the scene, and then transported her to a local hospital emergency department where she was pronounced dead. An autopsy was conducted and revealed the presence of pulmonary edema and visceral congestion. Toxicological findings revealed the presence of a remarkably high concentration of 3, 4-methylenedioxymethamphetamine (MDMA), summarized below. Methylenedioxyamphetamine (MDA) was also detected in specimens but not quantified. Also detected in blood and urine were atropine and cyclobenzaprine as well as alprazolam in urine. The cause of death was determined to be MDMA intoxication, the manner of death was determined to be accidental.

<u>Specimen</u>	<u>MDMA</u>
Blood, femoral	16 mg/L
Blood, cardiac	16 mg/L
Vitreous Humor	7.5 mg/L
Urine	250 mg/L
Gastric Contents	78 mg total
Liver	36 mg/kg
Kidney	28 mg/kg
Lung	46 mg/kg
Brain	23 mg/kg

Discussions with local law enforcement present at the scene revealed a history of illegal drug use by attendees of concerts by this band. This particular performance comprised several shows at an outside amphitheater over two days. Of several thousand attendees, three, including the decedent, were transported to a local hospital for drug overdoses. There were 134 drug-related arrests with the most common contrabands being marijuana, ecstasy and various mushrooms. During similar events in the two prior years, there were 169 and 170 arrests, respectively.



CALL FOR CASE NOTES

Your case note should be about 1/2 page in length, no more than a full page is necessary. Material (arial font, size 10, Microsoft Word preferred) should be submitted to:

Dr. Matthew "Barney" Barnhill at mbarnhilljr@worldnet.att.net

Please note: Due to the meeting dates, the deadline for the next issue has been extended to September 15th.

Other items of interest to SOFT members are also welcome and should be submitted to the appropriate Editorial Board member or Joseph R. Monforte, Ph.D., DABFT, **ToxTalk** Editor, at DrMonforte@aol.com

NEXT DEADLINE: SEPTEMBER 15th

2003 SOFT PHOTO JOURNAL





DRUGS IN THE NEWS

ToxTalk editorial staff: Andrew P. Mason, Ph.D., DABFT, DABCC-T

Cannabis Poisoning Fatality Reported in the UK *submitted by Ashraf Mozayani, Ph.D., Harris County Medical Examiners Office, Houston, TX. Based on an article written by Richard Saville and published in the Daily Telegraph (London, UK), on January 20, 2004*

A coroner's inquest determined that a 36-year old West Wales man is believed to be the first person in Britain to die directly from cannabis toxicity. The decedent was reported to have smoked six cannabis cigarettes a day for 11 years. He complained of a headache and was found dead the next morning. The Coroner said that the man was free from disease and had not consumed alcohol for at least 48 hours. He recorded a verdict of death by misadventure because the deceased had died while taking part in an illegal activity. The death led to new warnings about the increased strength of cannabis in Britain, where cannabis is to be reduced from a Class B to a Class C drug (less dangerous) on January 29, 2004.

New Pharmaceutical Cannabis Preparation – A Forensic Toxicology Concern? *submitted by Vincent Papa, PhD, Brooks City-Base, Texas 78235*

Testing for the 11 nor-9-carboxy-THC (THCC) metabolite of THC is a common part of drug testing protocols in many forensic toxicology laboratories. Over the years, there have been reports of drugs interfering with tests for cannabinoids. For example, in the mid to late 1980's ibuprofen was reported to interfere with common THCC immunoassays. In the late 1990's, many researchers reported that the consumption of products containing hemp oil would result in a positive GC/MS confirmation test result for THC or THCC. Additionally, Marinol® contains THC, and it is used therapeutically to treat cancer and AIDS patients. Consumption of Marinol® has been shown to result in confirmed THC and THCC positive test result.

A cannabis based medicine (Savitex) will be available by summer in England for the treatment of symptoms associated with multiple sclerosis. Anecdotal evidence suggests that MS sufferers use cannabis to help alleviate the pain, muscle spasm and shaking from the disease. Three routes of administration have been developed for this product: (1) oral tablets, (2) a sublingual spray and (3) nebulizer. Forensic toxicologists and medical review officers should be aware of these pharmaceutical products when interpreting a THC or THCC positive drug test result.

Ed. Note: Several press reports indicate the following: "Savitex has been treated so that its users will not experience a 'high'." I have not found information regarding the nature of the material contained in "Savitex", its structure(s), the nature of the "treatment" if any, its potential cross-reactivity with common immunoassay screening tests, or its potential for interference with GC/MS confirmation tests for either THC or THCC. Caveat emptor! (A. Mason). ☹

Send your media items of interest to Dr. Mason at forn6tox@aol.com



NEW DRUGS

Editorial Staff: Dan Anderson, Los Angeles County Dept. of Coroner,
1104 N. Mission Road, Los Angeles, CA 90033 Danderson@lacoroner.org

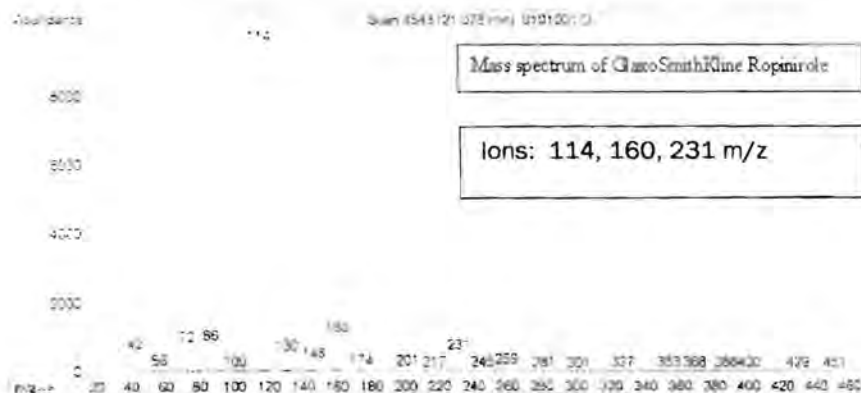
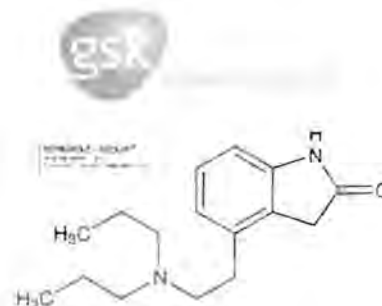
NEW DRUGS: Ropinirole or ReQuip®

submitted by Jay Vargas, Maricopa County Forensic Science Center, 701 W. Jefferson Phoenix, AZ 85007-2908
jvargas@mail.maricopa.gov

Ropinirole is an orally administered anti-Parkinsonian drug distributed by GlaxoSmithKline. It is prescribed in pentagonal film-coated tablets 0.25 mg, 0.50 mg, 1, 2, 3, 4, or 5 mg. Although Ropinirole was approved by the FDA in 1997, this will be the first documentation about this drug being detected in a forensic setting.

Chemical Properties

- 4-[2-(dipropylamino)ethyl]-1,3-dihydro-2H-indol-2-one monohydrochloride.
- $C_{16}H_{24}N_2O \cdot HCl$
- Molecular weight 260.38
- Formula weight 296.84
- Ropinirole is a basic drug that can be extracted with an n-butylchloride liquid/liquid extraction and can be detected after an acid back extraction.
- Detection of Ropinirole is possible on either a GC/NPD or GC/MS



Elution Order: Doxepin (Cis), Nortriptyline, Trimipramine, **ROPINIROLE**, Imipramine, Doxepin (trans), Procainamide

Case Study

- 73-year old man was found unresponsive by the pool at his residence. He then fell into the pool when a family member attempted to help him up.
- Cause of death:
 - Complications of blunt force head trauma due to past falls
 - Parkinson's Disease.
- Mode of death: Accident. ☠

NEW DRUGS: Galantamine HBr or Reminyl®

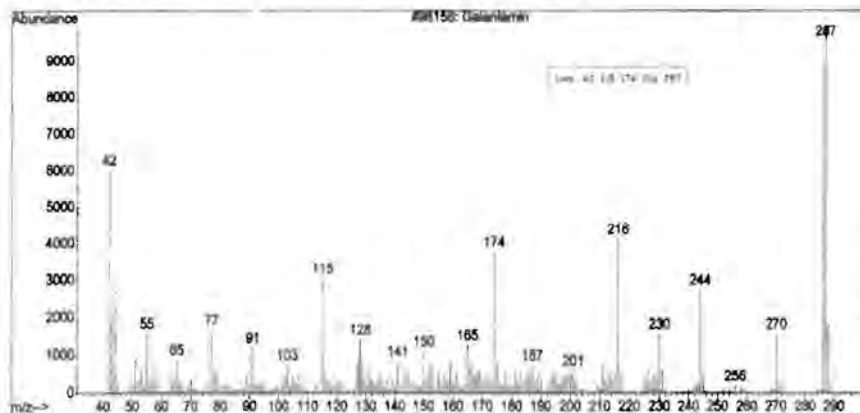
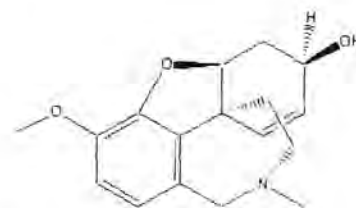
submitted by Sara Kegler, Los Angeles County Dept of Coroner, 1104 N. Mission Rd, Los Angeles, CA, 90033
skegler@coroner.co.la.ca.us

Reminyl® (galantamine HBr) is an orally administered reversible, competitive acetylcholinesterase inhibitor that is prescribed as an anti-Alzheimer drug and distributed by Janssen. It is prescribed in circular biconvex film-coated tablets of 4, 8 and 12mg, or a 4mg/mL oral solution.



Chemical Properties:

- (4a*S*, 6*R*, 8a*S*)-4a, 5,9,10,11,12-hexahydro-3-methoxy-11-methyl-6*H*-benzofuro[3*a*,3'-*ef*] [2]benzazepin-6-ol hydrobromide
- C₁₇H₂₁NO₃•HBr
- Molecular Weight 368.27
- Formula Weight 449.17
- Galantamine is a drug that can be extracted with an n-butylchloride liquid/liquid extraction and can be detected after an acid back extraction.
- Detection of Galantamine is possible on either GC/NPD or GC/MS



Elution Order: Norchlorcyclizine, Promethazine, Benztropine, **GALANTAMINE**, Norsertraline, Sertraline, Citalopram

Discussion: Recently, a case came into the Los Angeles County Dept. of Coroner Toxicology Laboratory involving a 46-year-old female who expired suddenly and, reportedly, for no apparent reason. She had a history of alcohol abuse and an altered state of consciousness. At this time, cause of death is still pending toxicology results. However, Galantamine was detected in a central blood source using an n-butylchloride liquid/liquid extraction, and it appears to be the first reported instance of a forensic case involving this particular drug. ☹

AAFS TOXICOLOGY SECTION HONOREES

Congratulations to the following SOFT members who were presented with the American Academy of Forensic Sciences Toxicology Section awards during the AAFS annual meeting last February.

Michael I. Schaffer, Ph.D., DABFT - *Alexander O. Gettler Award – 2003*

Naresh C. Jain, Ph.D., DABFT - *Alexander O. Gettler Award – 2004*

Vina R. Spiehler, Ph.D., DABFT - *Rolla N. Harger Award*

Rebecca A. Jufer, Ph.D. - *Irving Sunshine Young Scientist Award*

AMERICAN BOARD OF FORENSIC TOXICOLOGY NEWS

submitted by Yale Caplan, Ph.D., DABFT, ABFT President

ANNUAL BREAKFAST: The 12th Annual ABFT Breakfast will be held during the SOFT/TIAFT meeting in Washington, D.C., on Thursday, September 2, 2004, at 7:00 AM. The registration fee is \$25.00. Your check (no cash or credit card please) should be made out to "A.B.F.T." and mailed to: Bruce A. Goldberger, Ph.D., DABFT, University of Florida, Rocky Point Labs, 4800 S.W. 35th Drive, Gainesville, Florida 32608. There is no combined registration with the annual SOFT meeting this year.

LABORATORY ACCREDITATION: Fifteen laboratories have successfully completed the ABFT accreditation process. The most recent laboratory accredited in 2004 is Bioaeronautical Sciences Laboratory, Civil Aerospace Medical Institute, Oklahoma City, Oklahoma.

NEW DIPLOMATES CERTIFIED IN 2004: John Wyman, Ph.D., DABFT, Diana Garside, Ph.D., DABFT, Jeri Roper-Miller, Ph.D., DABFT, and Ruth Winecker, Ph.D., DABFT. Presently, there are 138 Diplomates, 19 Forensic

Toxicology Specialists, and 25 Emeritus Diplomates recognized by the Board.

DIRECTORS ELECTED: Four directors nominated by the nominating committee were reelected as directors: Frederick Fochtman, Ph.D., DABFT, J. Rod McCutcheon, B.S., DABFT, Robert A. Middleberg, Ph.D., DABFT, and Marina Stajic, Ph.D., DABFT. The Board also elected its first public director – Theodore Shults, M.S., J.D. All are for three year terms.

OFFICERS ELECTED: The officers reelected for a 1 year term were: Yale H. Caplan, Ph.D., DABFT, President, Marina Stajic, Ph.D., DABFT, Vice President, Daniel Isenschmid, Ph.D., DABFT, Secretary, and Bruce Goldberger, Ph.D., DABFT, Treasurer.

REMINDER: The NEW continuing education requirement begins next year with activities documented from January 1, 2004. More information to follow later this year. ☞

EXTRAPOLATIONS: *Submitted by Irving Sunshine, Ph.D., DABFT*

XIX Congress of International Association of Legal Medicine (IALM), Milan, Italy, September, 2004

POSTMORTEM ETHYL ALCOHOL CONCENTRATIONS IN VENOUS AND ARTERIAL CIRCULATION

R. Stucchi, R. Zoja, L. Molendini, M. Calgara, L. Sironi, Institute of Legal Medicine, Milan, Italy.

Introduction: The first discussion concerning postmortem site-dependent differences of ethyl alcohol concentrations dates back to 1943; nevertheless, despite the multitude of research performed in this field, the reliability of postmortem alcohol values in criminal and civil trials has still to be verified. In order to elaborate the effects of its eventual postmortem gastric diffusion, guidelines suggest one should collect the blood sample from a peripheral vessel, such as the femoral. Since the phenomenon of postmortem circulation are known, the authors have evaluated if differences between venous and arterial blood do exist.

Material and methods: In all autopsies with positive or suspected medical history for consumption of alcohol beverages, blood samples were collected from the right and left heart chambers and from the femoral artery and vein. Hospitalization and severe putrefactive changes were criteria for exclusion. Sixty-two cases were collected and analyzed for ethyl alcohol by headspace gas chromatography.

Results: Of all cases, 17 showed alcohol concentrations higher than 0.10 g/L in all the samples collected. By comparing the values obtained from the different sites within the same case, a great variability was observed with concentrations that ranged as follows: 0-0.86 g/L between right and left heart blood (mean value 0.23 g/L); 0-1.23 g/L between venous and arterial femoral blood (m.v. 0.42 g/L); 0-0.71 g/L between right heart and venous blood (m.v. 0.25 g/L); 0-1.55 g/L between left heart and arterial blood (m.v. 0.43 g/L). In cases with high alcohol concentrations, the differences between venous and arterial peripheral blood seemed to increase (mean value of the ranges 0.58 g/L). Further statistical analyses are being performed in order to evaluate if site-dependent alcohol concentration meaningfully correlates with death-autopsy time interval and with putrefactive changes.

Conclusions: The evidence of postmortem diffusion of ethyl alcohol from the stomach has always led forensic pathologists to collect peripheral blood samples, without particular attention paid to the precise site of sampling. The present study shows great differences of alcohol concentrations between arterial and venous femoral blood; moreover, by comparing the mean value of the concentration ranges observed between the central blood samples and the peripheral samples, the alcohol concentrations obtained from femoral blood seem to be less reliable. ☞

CAREER OPPORTUNITIES

Positions available are listed for the consideration of SOFT members. There is no fee for this service. The information will be repeated in the next issue only if the person who submitted it confirms the information. If you have a job position available, e-mail ToxTalk Editor Monforte at DrMonforte@aol.com.

Division of Workplace Programs, SAMHSA: Salary range is \$72,108.00 - \$ 110,775.00 (includes locality pay), and is commensurate with qualifications and experience. Workplace Drug Testing Duties, Basic Qualification Requirements, Knowledge, Skills & Abilities, and How to Apply are detailed at the website noted below. If unable to access this site, or for additional information, telephone 301-443-3201, e-mail: psc_staffing@psc.gov or fax: 301-480-3864. <http://jobsearch.usajobs.opm.gov/getjob.asp?JobID=22362525&AVSDM=2004%2D05%2D27+08%3A06%3A21&Logo=0&col=dltc&cy=&brd=3876&lid=456&fn=&q=> Closing date 6/25/04

Toxicologist for private biotech firm to identify, evaluate and monitor internal and external scientific administration of new study protocols and tox issues for the discovery and preclinical phases of biopharmaceutical development. Ph.D. with 5-10 yrs pharmaceutical industry experience, board certified in tox or tox/path education considered. Competency in drug metabolism and kinetics and working knowledge and understanding of FCA and ICH regulations/guidelines required. Contact recruiter Alex Bakhmatch at 416-515-2939x533 (Toronto, Ontario, Canada) or Alex@MSGROUP.COM or www.msgroup.net (reference code: PCR-2004-0) ☛

PROFESSIONAL CALENDAR

SOFT MEETINGS:

2004 Washington, D.C. – Marc LeBeau et al August 28 – September 3

2005 Nashville, TN – Louis Kuykendall October 16 – 21, 2005

2006 Austin, TX – Rod McCutcheon

2007 Chapel Hill, NC – Ruth Winecker

2008 Phoenix, AZ – Vickie Watts

2009 Oklahoma City, OK – Phil Kemp

September 19-24: Joint Meeting of the Southern Association of Forensic Scientists (SAFS), the Midwestern Association of Forensic Scientists (MAFS), the Mid-Atlantic Association of forensic Scientists (MAAFS), and the Canadian Society of Forensic Science (CSFS), Walt Disney World Resort, Lake Buena Vista, FL. Contact David Baer at 407-650-5152 or davidb7818@aol.com or www.southernforensic.org.

September 20-22: R. F. Borkenstein course on *DUID: The Effects of Drugs on Human Performance and Behavior*, Indiana University, Bloomington, IN. Contact Darlena Lindsay at 812-855-1783 or dlindsay@indiana.edu

September 29-October 2: Northeastern Association of Forensic Scientists, 30th anniversary meeting, Mystic, CT. Contact Tammi Jacobs Shulman at 914-231-1630 or tj1@westchestergov.com.

October 11-15: Southwestern Association of Forensic Scientists 2004 Training Conference and Meeting, Oklahoma City, OK. Contact Brandy Reese at 405-425-3857 or www.swafs.us.

October 19-22: Canadian Society of Forensic Science 52nd Annual Meeting, Calgary, Alberta, Canada. Contact Malcolm Gutfriend at 780-451-7401.

October 25-29: California Association of Criminalists, Ventura, CA. This 2-day Drugs and Driving Workshop will be of interest to both new and experienced toxicologists. Segments include DUI detection, Drug Recognition Evaluation, Impairment, Courtroom Issues between incident reports and toxicological findings, Standardized Field Sobriety Tests, case studies, and a controlled study of alcohol-dosed subjects. Go to www.cacnews.org or contact Lisa Flaherty at (805) 477-7250. ☛

pat 6/12/04