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# ToxTalk

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**JUNE 1997** 

EDITOR: Joseph R. Monforte, PhD, DABFT

EDITORIAL BOARD: H. Chip Walls, B.S., Jim Wigmore, B.Sc., Carl Selavka, Ph.D., Daniel Isenschmid, Ph.D. PUBLISHER: Patricia Mohn-Monforte

## IN THIS ISSUE

REGULAR FEATURES: Journal Club & Professional Calendar & Career Opportunities & Blutalkoholkonzentration & From the Editor's Desk & Elmer Gordon & Internet "Sitings"

TECHNICAL NOTES: CASE NOTES: A Fatality Due to the Inhalation of Butane (Kucmanic)

OF SPECIAL INTEREST: 1997 Salary Survey & In Memoriam: Walter Matusiak

INSERTS: 1997 SOFT Meeting Materials & NLCP Workshop Information & 1997 SOFT Directory (members only)

# FROM THE EDITOR'S DESK . . . Joseph R. Monforte, Ph.D., DABFT

We expect to be (finally) moving sometime in June. My address and contact numbers as listed in ToxTalk and in the SOFT Directory will be somewhat inaccurate. That location will, once again, be our summer retreat cabin. Once we have moved, the new contact information will be on a recording at 520-717-0617, or contact the SOFT Administrative Office for the new address or phone and fax numbers. The e-mail address remains monfortej@juno.com.

Would you consider being a regular contributor to ToxTalk? I need to identify a person who will continue the "Drugs in the News" column. Anyone interested in being responsible for collecting materials and writing this article should contact me.

I have had limited success obtaining anticipated materials for this issue. Again, I am actively encouraging all members to consider submitting materials to ToxTalk.

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 to the ToxTalk Editor.

All members and others are encouraged to contribute to ToxTalk. For mailing instructions, please call the SOFT Administrative Office contact:

Joseph R. Monforte, Ph.D., DABFT, ToxTalk Editor Telephone: 520-717-0617 (after 11 a.m. E.S.T.)

E-mail: monfortej@juno.com

A new mailing address and phone and fax numbers will be listed in the next issue of **ToxTalk**.

DEADLINES: Feb. 1, May 1, Aug. 1, and Nov. 1. NEXT DEADLINE: August 1, 1997

SOFT is a supporting organization of the American Board of Forensic Toxicology

# TREA\$URY NOTE\$

Submitted by J. Robert Zettl, SOFT Treasurer

The office of the SOFT Treasurer has moved to a new location with a new message center phone number, to number, e-mail, and mailing address:

> J. Robert Zettl, SOFT Treasurer 1500 East Mineral Place, Littleton, CO 80122-2911

Phone and Fax: 303-795-1654 E-mail: JRZettl@ECentral.com

SOFT officers strive to manage your money wisely, and in this endeavor we placed your money into three separate interest-bearing accounts: ERA funds are in a 63K one-year maturing Treasury Bill. Other funds are in two 50K money market accounts; one matures in 182 days at 5.4% interest and the other matures in 1 year at 5.73% interest.

The ERA interest generally covers all ERA awards, and the money markets are contingency accounts should a

disaster occur and we have to cover all of our annual conference expenses.

Just a reminder - if you have not yet paid your 1997 dues you are in arrears. Please submit your check in the amount of \$55.00.

See you in Utah!! &

# INTERNET "SITINGS"

Visit the Society of Forensic Toxicologists on the world Wide Web at: www.soft-tox.org E-mail your comments to Bruce Goldberger at: soft-tox@gnv.fdt.net

Arthur McBay reports a bibliography containing about 400 references on hair drug testing can be downloaded from the Internet at the following address: http://big.stpt.usf.edu/~journal/volume1

## SEND WEBSITE INFORMATION TO TOXTALK

# '97 UTAH MEETING - EXHIBITOR/SPONSOR UPDATE

Submitted by Lisa O'Dell

A very BIG "thank you" is gratefully extended to the following companies who have already selected booths for this year's SOFT annual meeting: Andwin Scientific, ANSYS, Biochemical Diagnostics, Capitol Vial, Chimera R & C, Diacon Diagnostix, Diagnostic Reagents, FITZCO, Hamilton, Isotec, Preston Publications, Lipomed, Lynn Peavey, Radian, Restek, Roche, STC Technologies, United Chemical Technologies, UTAK, and Varian.

In addition, these companies have generously given financial support for key events throughout the week: Andwin Scientific, Capitol Vial, Chimera R & C, Diacon, Diagnostic Reagents, Preston Publications, Radian, Roche, and STC Technologies.

We look forward to seeing all of our corporate sponsors' smiling faces as well as the new products, applications, instruments, accessories and other materials that they work so hard to develop to fit our toxicology needs.

Companies interested in participating in the SOFT Annual Meeting should contact Lisa O'Dell at 303-477-5976 (fax 303-477-7048)

STUMP THE TOXICOLOGISTS: In the last issue of ToxTalk, Laureen Marinetti-Sheff submitted GC/MS data on an unidentified compound detected in a Michigan State Police case. Karla Moore, AFIP, whose Ph.D. resear involved methamphetamine synthesis, suggests that the unknown substance is either an impurity resulting from methamphetamine synthesis or perhaps a new precursor used in methamphetamine synthesis, since bulk ephedrine and diphenyl-2-propanone are now DEA controlled substances.

Additional thoughts will be appreciated. Laureen can be contacted at 517-336-6191 (phone) or 517-336-6511 (fax).

# 1997 S.O.F.T. SALARY SURVEY

Submitted by: Bradford Hepler, Ph.D., DABFT, and Daniel Isenschmid, Ph.D., DFTCB Wayne County Medical Examiner's Office, 1300 E. Warren, Detroit, MI 48207

We received a total of 19 responses, 15 from government laboratories and 4 from non-government agencies. Unfortunately, this represents a smaller response than that received in 1992's survey. Information on salary ranges is presented regardless of total "n" values, although some of these "n" values are quite small. In each category reported, each laboratory is only represented by one value. If more than 1 individual filled a given position description, an institutional "average" for that position was determined and utilized in the subsequent tabulations in order to maintain equivalent institutional weights.

The absolute "Low and High values" for salary ranges in each category are reported, along with the average value for the Low and High range limits (in parenthesis) on Tables 1 and 2. These ranges reflect what salaries are available within the profession based on the data returned. The "average" (current) figures are the average of the actual current salaries reported.

Table 1: 1997 Tabulated Summary of Government Laboratory Findings.

N	POSITION	LOW END (AVG.)	HIGH END (AVG.)	AVERAGE CURRENT SALARY	AVG.# YEARS	%PM¹ TOX	%HP² TOX	%WP³
6	Laboratory Director	40000 (64053)	80000 (68577)	68577	10.00	73	20	0
8	Chief Toxicologist	37044 (55389)	78000 (65557)	63278	5.25	75	33	0
11	Toxicology Supervisor	27622 (39755)	71508 (47810)	45560	11.78	63	35	0
3	Certifying Scientist	29094 (37054)	55884 (43590)	43590	8.00	23	77	0
10	Analyst	23600 (26889)	66300 (39892)	29747	4.04	74	23	0
5	Laboratory Aide	14316 (18964)	30472 (23458)	19362	1.00	90	05	0

Table 2: 1997 Tabulated Summary of Non-Government Laboratory Findings.

N	POSITION	LOW END (AVG.)	HIGH END (AVG.)	AVERAGE CURRENT SALARY	AVG.# YEARS	%PM¹* TOX	%HP² TOX	%WP³ TOX
4	Laboratory Director	60000 (61250)	109000 (82250)	72333	10.33	15	30	55
2	Chief Toxicologist	45000 (47500)	60000 (60000)	53500	20.00	13	30	58
3	Toxicology Supervisor	30000 (32500)	45000 (44833)	39750	5.50	12	28	60
4	Certifying Scientist	27000 (31250)	45000 (39000)	35333	5.67	14	20	66
3	Analyst	22000 (25667)	40500 (33167)	32250	3.00	12	22	67
3	Laboratory Aide	14000 (16333)	30000 (23500)	21000	3.50	15	20	65

<sup>1.</sup> PM = PostMortem

<sup>2.</sup> HP = Human Performance

<sup>3.</sup> WP = WorkPlace

As in 1992, we have contrasted the averaged salaries between salary survey years 1989, 1992, and 1997 on Tables 3 and 4, as well as on the two figures presented for the "Government" and "Non-government" categories.

Table 3: 1989-1997 Salary Survey Comparisons; Government Laboratories.

LABORATORY POSITION	1989 SURVEY AVERAGE	1992 SURVEY AVERAGE	1997 SURVEY AVERAGE
Laboratory Director	59000	68617	68577
Chief Toxicologist	49000	56034	63278
Laboratory Supervisor	44000	43365	45560
Certifying Scientist	N/A <sup>1</sup>	35957	43590
Analyst	33000	30956	29747
Laboratory Aide	N/A	N/A	19362

1. N/A; No data available.



## PLAN AHEAD FOR SOFT '97

Cliff Lodge, Snowbird, Utah

October 5-6 (Sunday-Monday) - Workshops

October 7-9 (Tuesday - Thursday) - Scientific Sessions

Hosts: Dennis Crouch and David Moody Ph: 801-581-5117 Fax: 801-581-5034 E-mail: //lysine.pharm.utah.edu/~dcrouch/soft97.html

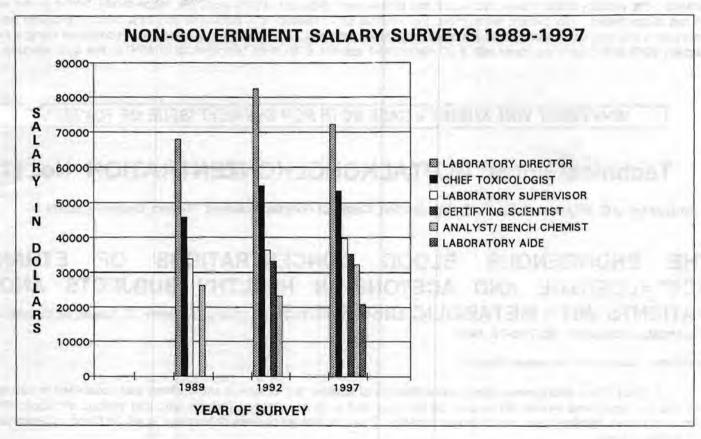
Meeting materials are included with this ToxTalk mailing.

We thank all who were willing to take their time to complete a form on behalf of their institution and send it to ToxTalk. Ultimately, it is efforts such as this that assist each of us to better represent the fair market price of operational expenses relative to staffing costs and directly/indirectly justify these costs.

Table 4: 1989-1997 Salary Survey Comparisons; Non-Government Laboratories.

LABORATORY POSITION	1989 SURVEY AVERAGE	1992 SURVEY AVERAGE	1997 SURVEY AVERAGE
Laboratory Director	68000	82458	72333
Chief Toxicologist	46000	55000	53500
Laboratory Supervisor	33900	36452	39750
Certifying Scientist	N/A¹	33307	35333
Analyst	26400	23303	32250
Laboratory Aide	N/A	N/A	21000

1. N/A; No data available.



# CALL FOR CASE NOTES

Your case note should be about 1/2 page in length, no more than a full page. Material or a disk (preferably using Microsoft Works/Word 2.0) may be mailed or faxed to: Joseph R. Monforte, Ph.D., DABFT, ToxTalk Editor. IMPORTANT NOTICE: . Monforte will be relocating in June. Call 520-717-0617 or the SOFT Administrative Office for address and fax/phone numbers. New direct mailing address and contact numbers will be published in the next issue of ToxTalk. The e-mail will remain the same: monfortej@juno.com

Other items of interest to SOFT members are also welcome.

Next deadline: AUGUST 1, 1997

Case Notes: Daniel Isenschmid, Ph.D., ToxTalk Staff

# A Fatality Due to the Inhalation of Butane

Submitted by: John Kucmanic, Ph.S., Lake County Reginal Forensic Laboratory, 235 Fairgrounds Rd, Painesville, OH 4407/

Two days before Christmas, a seventeen-year-old male was found at the bottom of the basement stairs at his parents' house. Under him was a large can labeled as butane fuel. Further investigation of his room found ten disposable lighters and another, but empty, can of butane. The teenager had worked at a catering company where the butane was used to fuel food warmers. Friends had stated that they had seen him "huffing" or "glading" once before. The coroner collected tracheal air samples, blood, urine, and lung tissue from various sites.

The MSDS sheet for the butane fuel indicated that it was composed of 0.5% propane, 68% n-butane, 31% isobutane, and 1% pentane. A qualitative standard was prepared by spraying the butane fuel found at the scene into a headspace tube and injecting the headspace on a GC equipped with a flame ionization detector and a carbowax column at an oven temperature of 85°C. At this temperature all the components in the butane fuel co-eluted. However, by reducing the oven temperature to 40°C, the four gases could be resolved. The undiluted butane fuel specimen was found to contain 29% isobutane, 69% butane and 1.4% propane. Pentane was < 1% of the total areas. The abundance of these gases, however, was greatly in excess of the case specimens. To obtain a similar concentration, a serial dilution of the reference material was performed until the detector response was similar to that of the case specimens. At this dilute concentration, propane and pentane were virtually undetectable. Isobutane and butane were detected at 28% and 72%, respectively, based on the areas of the two major peaks. By pattern recognition, the tracheal air contained 16% isobutane and 84% butane. Butanes were also identified in the lung tissue and blood. No other drugs were detected. The presence of butane was confirmed using a Hewlett-Packard 5989 MS Engine equipped with a 30 meter DB-1 column at an oven temperature of 45°C in the split injection mode.

WHY DON'T YOU SUBMIT A CASE NOTE FOR THE NEXT ISSUE OF TOXTALK?

# Technical Notes: BLUTALKOHOLKONZENTRATION No. 17

Submitted by: J.G. Wigmore, B.Sc., Toxicology Section, Centre of Forensic Sciences, Toronto, Ontario, Canada

# THE ENDOGENOUS BLOOD CONCENTRATIONS OF ETHANOL, ACETALDEHYDE AND ACETONE IN HEALTHY SUBJECTS AND IN PATIENTS WITH METABOLIC DISORDERS R. Sprung, W. Bonte, E. Rudell, M. Domke, and C.

Frauenrath, Blutalkohol 18(2):65-70, 1981.

German title: Zum Problem des endogen Alkohols

A study of the endogenous blood concentrations of ethanol, acetaldehyde and acetone was conducted in 130 subjects who had not consumed alcohol for at least 24 hrs prior and in 30 hospitalized patients who had various metabolic disorders such as diabetes, alcoholic liver cirrhosis and hepatitis. The concentrations were determined in whole blood by headspace GC with a dual column.

The endogenous blood ethanol concentrations were between 0.0056 and 0.074 mg/100mL for healthy subjects and between 0.0062 and 0.052 mg/100mL for the patients with metabolic disorders. There were no statistically significant differences between the two groups.

The blood acetaldehyde concentrations were between 0.06 and 0.51 mg /100mL for both groups, and again there were no statistically significant differences.

The blood acetone concentrations were between 0.03 and 0.21 mg/100mL for healthy subjects. As expected, the blood acetone concentrations were higher for the 30 hospitalized patients (some with diabetes) and ranged between 0.05 and 0.6 mg/100mL. The diabetic patients in this study received treatment, and untreated diabetes would be expected to he considerably higher blood acetone concentrations.

The authors conclude that metabolic diseases, including diabetes, and alcoholic liver cirrhosis do not increase the endogenous blood ethanol or acetaldehyde concentrations.

# JOURNAL CLUB submitted by H. Chip Walls

- Lemoine, P. and Ohayon, M. [Abuse of psychotropic drugs during driving]. [Review] [39 refs] [French] Encephale 22 : 1-6 1996
- Alt, A. and Reinhardt, G. [The accuracy of blood alcohol determination with head-space GC, ADH and REA ethanol assay for the AXSYM system—a comparison of the methods] Blutalkohol 33 (4): 209-214 1996
- Swanson, J. R. and Krasselt, W. G. An acetonitrile-related death. [Review] [18 refs] Journal of Forensic Sciences 39 (1): 271-279 1994
- Berg-Johnsen, J. [Action mechanisms of intravenous anesthetics]. [Review] [52 refs] [Norwegian] Tidsskrift for Den Norske Laegeforening 113 (5): 565-568 1993
- Lamminpaa, A. Acute alcohol intoxication among children and adolescents European Journal of Pediatrics 153 (12): 868-872 1994
- Taylor, J. L., Dolhert, N., Morrow, D., Friedman, L. and Yesavage, J. A. Acute and 8-hour effects of alcohol (0.08% BAC) on younger and older pilots' simulator performance. Aviation Space & Environmental Medicine 65 (8): 718-725 1994
- Chait, L. D. and Perry, J. L. Acute and residual effects of alcohol and marijuana, alone and in combination, on mood and performance Psychopharmacology 115 (3): 340-349 1994
- Broering-Ramey, B. Acute ethylene glycol poisoning Journal of Emergency Nursing 19 (2): 86-88 1993
- Breslow, R. E., Klinger, B. I. and Erickson, B. J. Acute intoxication and substance abuse among patients presenting to a psychiatric emergency service. General Hospital Psychiatry 18 (3): 183-191 1996
- Pach, J., Pach, K., Targosz, D., Winnik, L. and Obara, M. Acute poisonings with drugs of abuse Przeglad Lekarski 52 (5): 275-280 1995
- Gamier, R., Guerault, E., Muzard, D., Azoyan, P., Chaumet-Riffaud, A. E. and Efthymiou, M. L. Acute zolpidem poisoning alysis of 344 cases Journal of Toxicology - Clinical Toxicology 32 (4): 391-404 1994
- Wong, S. H. Advances in chromatography for clinical drug analysis: supercritical fluid chromatography, capillary electrophoresis, and selected high-performance liquid chromatography techniques. [Review] [32 refs] Therapeutic Drug Monitoring 15 (6): 576-580 1993
- Holubowycz, O. T., Kloeden, C. N. and McLean, A. J. Age, sex, and blood alcohol concentration of killed and injured drivers, riders, and passengers. Accident Analysis & Prevention 26 (4): 483-492 1994
- Jones, A. W. and Neri, A. Age-related differences in the effects of ethanol on performance and behaviour in healthy men. Alcohol & Alcoholism 29 (2): 171-179 1994
- Glucksman, E. Alcohol and accidents British Medical Bulletin 50 (1): 76-84 1994
- Schuckit, M. A. Alcohol and depression: a clinical perspective Acta Psychiatrica Scandinavica, Supplementum 377 : 28-32 1994
- Sigurdsson, J. F. and Gudjonsson, G. H. Alcohol and drug intoxication during police interrogation and the reasons why suspects confess to the police Addiction 89 (8): 985-997 1994
- Stoduto, G., Vingilis, E., Kapur, B. M., Sheu, W. J., McLellan, B. A. and Liban, C. B. Alcohol and drug use among motor vehicle collision victims admitted to a regional trauma unit: demographic, injury, and crash characteristics. Accident Analysis & Prevention 25 (4): 411-420 1993
- Hansen, A. C., Kristensen, I. B., Dragsholt, C. and Brangstrup, V. J. P. Alcohol and drugs (medical and illicit) in fatal road accidents in a city of 300,000 inhabitants. Forensic Science International 79 (1): 49-52 1996
- Streufert, S., Pogash, R., Roache, J., Severs, W., Gingrich, D., Landis, R. Alcohol and managerial performance Journal of Studies on Alcohol 55 (2): 230-238 1994
- oderstrom, C. A., Dailey, J. T. and Kerns, T. J. Alcohol and other drugs: an assessment of testing and clinical practices in U.S. trauma centers. Journal of Trauma 36 (1): 68-73 1994

### JOURNAL CLUB continued

- Muller-Wickop, J., Sandner-Lambert, S. and Lohr-Schwaab, S. [Alcohol at the wheel-medical psychological expert assessment. Laboratory data and abstinence--prognosis--responsibilities of the family physician] Fortschritte der Medizin 114 (29): 374-376 1996
- Taylor, J. L., Dolhert, N., Friedman, L., Mumenthaler, M. and Yesavage, J. A. Alcohol elimination and simulator performance of male and female aviators: a preliminary report Aviation Space & Environmental Medicine 67 (5): 407-413 1996
- Streufert, S., Pogash, R., Braig, D., Gingrich, D., Kantner, A., Landis, R. Alcohol hangover and managerial effectiveness Alcoholism, Clinical & Experimental Research 19 (5): 1141-1146 1995
- Cherpitel, C. J. Alcohol in fatal and nonfatal injuries: a comparison of coroner and emergency room data from the same county. Alcoholism, Clinical & Experimental Research 20 (2): 338-342 1996
- Zobeck, T. S., Grant, B. F., Stinson, F. S. and Bertolucci, D. Alcohol involvement in fatal traffic crashes in the United States: 1979-90 Addiction 89 (2): 227-233 1994
- Tupler, L. A., Hege, S. and Ellinwood, E. H., Jr. Alcohol pharmacodynamics in young-elderly adults contrasted with young and middle-aged subjects Psychopharmacology 118 (4): 460-470 1995.
- Soderstrom, C. A., Dischinger, P. C. and Kerns, T. J. Alcohol use among injured sets of drivers and passengers Accident Analysis & Prevention 28 (1): 111-114 1996
- Peek-Asa, C. and Kraus, J. F. Alcohol use, driver, and crash characteristics among injured motorcycle drivers Journal of Trauma 41 (6): 989-993 1996
- Mercer, G. W. and Jeffery, W. K. Alcohol, drugs, and impairment in fatal traffic accidents in British Columbia Accident Analysis & Prevention 27 (3): 335-343 1995
- Nutt, D. J. and Peters, T. J. Alcohol: the drug British Medical Bulletin 50 (1): 5-17 1994
- Lowenfels, A. B. Alcohol-related automobile crashes New England Journal of Medicine 332 (13): 893 1995
- Mann, R. E., Smart, R. G. and Anglin, L. Alcohol-related measures as factors in traffic fatalities. Journal of Studies on Alcohol 57 (6): 646-651 1996
- Rossow, I. Alcohol-related violence: the impact of drinking pattern and drinking context. Addiction 91 (11): 1651-1661 1996
- Mumford, G. K., Evans, S. M., Fleishaker, J. C. and Griffiths, R. R. Alprazolam absorption kinetics affects abuse liability Clinical Pharmacology & Therapeutics 57 (3): 356-365 1995
- Snow, D. H. Anabolic steroids. [Review] [42 refs] Veterinary Clinics of North America Equine Practice 9 (3): 563-576 1993
- Catapano, M. S. The analgesic efficacy of ketorolac for acute pain. [Review] [101 refs] Journal of Emergency Medicine 14 (1): 67-75 1996
- Sosnoff, C. S., Ann, Q., Bernert, J. T., Jr., Powell, M. K., Miller, B. B., Henderson, L. O. Analysis of benzoylecgonine in dried blood spots by liquid chromatography—atmospheric pressure chemical ionization tandem mass spectrometry Journal of Analytical Toxicology 20 (3): 179-184 1996
- Crouch, D. J., Alburges, M. E., Spanbauer, A. C., Rollins, D. E. and Moody, D. E. Analysis of cocaine and its metabolites from biological specimens using solid-phase extraction and positive ion chemical ionization mass spectrometry Journal of Analytical Toxicology 19 (6): 352-358 1995
- Clauwaert, K. M., Van Bocxlaer, J. F., Lambert, W. E. and De Leenheer, A. P. Analysis of cocaine, benzoylecgonine, and cocaethylene in urine by HPLC with diode array detection Analytical Chemistry 68 (17): 3021-3028 1996
- Logan, B. K., Friel, P. N., Peterson, K. L. and Predmore, D. B. Analysis of ketorolac in postmortem blood Journal of Analytical Toxicology 19 (2): 61-64 1995
- Akerman, K. K., Jolkkonen, J., Parviainen, M. and Penttila, I. Analysis of low-dose benzodiazepines by HPLC with automated solid-phase extraction. Clinical Chemistry 42 (9): 1412-1416 1996
- Sautou, V., Constant, H., Bonnefous, J. L., Chopineau, J. and Aulagner, G. [Analysis of opiates in the urine of children with gas chromatography coupled to mass spectrometry]. [French] Journal de Pharmacie de Belgique 49 (5): 383-389 1994

## JOURNAL CLUB continued

- Logan, B. K., Friel, P. N. and Case, G. A. Analysis of sertraline (Zoloft) and its major metabolite in postmortem specimens by gas and liquid chromatography Journal of Analytical Toxicology 18 (3): 139-142 1994
- Rruns, A. D., Zieske, L. A. and Jacobs, A. J. Analysis of the cocaine metabolite in the urine of patients and physicians ring clinical use. [Review] [9 refs] Otolaryngology Head & Neck Surgery 111 (6): 722-726 1994
- Xu, Y. X., Xu, Y. Q., Zhang, C. J. and Shen, L. [Analysis of tramadol and its metabolites in human urine]. [Chinese] Yao Hsueh Hsueh Pao Acta Pharmaceutica Sinica 28 (5): 379-383 1993
- Black, D. A., Clark, G. D., Haver, V. M., Garbin, J. A. and Saxon, A. J. Analysis of urinary benzodiazepines using solidphase extraction and gas chromatography-mass spectrometry [see comments] Journal of Analytical Toxicology 18 (4): 185-188 1994
- Dasgupta, A., Saldana, S., Kinnaman, G., Smith, M. and Johansen, K. Analytical performance evaluation of EMIT II monoclonal amphetamine/methamphetamine assay: more specificity than EMIT d.a.u. monoclonal amphetamine/methamphetamine assay Clinical Chemistry 39 (1): 104-108 1993
- Black, R. M., Clarke, R. J., Read, R. W. and Reid, M. T. Application of gas chromatography-mass spectrometry and gas chromatography-tandem mass spectrometry to the analysis of chemical warfare samples, found to contain residues of the nerve agent sarin, sulphur mustard and their degradation products. Journal of Chromatography A 662 (2): 301-321 1994
- Higuchi, T., Kogawa, H., Satoh, M., Tatsuno, M. and Tsuchihashi, H. Application of high-performance liquid chromatography/mass spectrometry to drug screening. American Journal of Forensic Medicine & Pathology 17 (1): 21-23 1996
- Moriya, F. and Hashimoto, Y. Application of the Triage panel for drugs of abuse to forensic blood samples Nippon Hoigaku Zasshi Japanese Journal of Legal Medicine 50 (2): 50-56 1996
- Kleemann, W. J., Seibert, M., Tempka, A., Wolf, M., Weller, J. P. and Troger, H. D. [Arterial and venous alcohol elimination in 10 polytrauma patients] Blutalkohol 32 (3): 162-173 1995
- Obson, R. L., Kelm, G. R. and Neal, D. M. Automated gas chromatography/tandem mass spectrometry assay for bufelone and a 13C,(18)O-labeled analog in plasma: applicabilityto absolute bioavailability determination Biological Mass Spectrometry 23 (2): 75-81 1994
- Cardenas, S., Gallego, M. and Valcarcel, M. An automated preconcentration-derivatization system for the determination of cocaine and its metabolites in urine and illicit cocaine samples by gas chromatography/mass spectrometry Rapid Communications in Mass Spectrometry 10 (6): 631-636 1996
- Ericsson, H. R., Holmgren, P., Jakobsson, S. W., Lafolie, P. and De Rees, B. [Benzodiazepine findings in autopsy material. A study shows interacting factors in fatal cases]. [Swedish] Lakartidningen 90 (45): 3954-3957 1993
- Meatherall, R. Benzodiazepine screening using EMIT II and TDx: urine hydrolysis pretreatment required Journal of Analytical Toxicology 18 (7): 385-390 1994
- Vgontzas, A. N., Kales, A. and Bixler, E. O. Benzodiazepine side effects: role of pharmacokinetics and pharmacodynamics. [Review] [196 refs] Pharmacology 51 (4): 205-223 1995
- Ulrich, L. [Benzodiazepines in blood samples of alcohol intoxicated drivers]. [German] Blutalkohol 31 (3): 165-177 1994
- Muck, W. and Bode, H. Bioanalytics of nimodipine—an overview of methods. [Review] [34 refs] Pharmazie 49 (2-3): 130-139 1994
- Hailes, A. M. and Bruce, N. C. Biological synthesis of the analgesic hydromorphone, an intermediate in the metabolism of morphine, by Pseudomonas putida M10 Applied & Environmental Microbiology 59 (7): 2166-2170 1993
- Wang, G., Maranelli, G., Perbellini, L., Raineri, E. and Brugnone, F. **Blood acetone concentration in "normal people" and in exposed workers 16 h after the end of the workshift** International Archives of Occupational & Environmental Health 65 (5): 285-289 1994
- ajola, W. J. Blood alcohol testing in the clinical laboratory: problems and suggested remedies. Clinical Chemistry 39 (3): 377-379 1993
- Buchholtz, U. [Blood methanol as a marker of alcoholism. A diagnostic component within the scope of expert assessment of driving competence in alcoholic intoxication] Blutalkohol 30 (1): 43-51 1993

### JOURNAL CLUB continued

- Lee, J. J. and Rubin, A. P. Breast feeding and anaesthesia. [Review] [110 refs] Anaesthesia 48 (7): 616-625 1993
- Spiller, H. A., Ramoska, E. A., Krenzelok, E. P., Sheen, S. R., Borys, D. J., Villalobos, D. Bupropion overdose: a 3-year multi-center retrospective analysis American Journal of Emergency Medicine 12 (1): 43-45 1994
- Thormann, W., Zhang, C. X. and Schmutz, A. Capillary electrophoresis for drug analysis in body fluids Therapeutic Drug Monitoring 18 (4): 506-520 1996
- Wu, A. H., Forte, E., Casella, G., Sun, K., Hemphill, G., Foery, R. CEDIA for screening drugs of abuse in urine and the effect of adulterants. Journal of Forensic Sciences 40 (4): 614-618 1995
- Mroszczak, E., Combs, D., Chaplin, M., Tsina, I., Tarnowski, T., Rocha, C. Chiral kinetics and dynamics of ketorolac Journal of Clinical Pharmacology 36 (6): 521-539 1996
- Hunter, A. P. and Games, D. E. Chromatographic and mass spectrometric methods for the identification of phosphorylation sites in phosphoproteins Rapid Communications in Mass Spectrometry 8 (7): 559-570 1994
- Ito, K., Yamada, Y., Nakamura, K., Sawada, Y. and Iga, T. Classification of benzodiazepine hypnotics in humans based on receptor occupancy theory. Journal of Pharmacokinetics & Biopharmaceutics 21 (1): 31-41 1993
- Gonzalez Gigosos, P., Fente Sampayo, C. A., Vazquez Belda, B., Franco Abuin, C. and Cepeda Saez, A. Clenbuterol extraction by diphasic-dialysis and determination in bovine urine by GC-MS [letter] Rapid Communications in Mass Spectrometry: S210-212 1995
- Watson, W. A., Wilson, B. D. and Roberts, D. K. Clinical interpretation of urine cocaine and metabolites in emergency department patients [letter] Annals of Pharmacotherapy 29 (1): 82 1995
- Bailey, L., Ward, M. and Musa, M. N. Clinical pharmacokinetics of benzodiazipines. [Review] [39 refs] Journal of Clinical Pharmacology 34 (8): 804-811 1994
- Brookoff, D., Rotondo, M. F., Shaw, L. M., Campbell, E. A. and Fields, L. Coacaethylene levels in patients who test positive for cocaine Annals of Emergency Medicine 27 (3): 316-320 1996
- Jatlow, P. Cocaethylene: pharmacologic activity and clinical significance. [Review] [23 refs] Therapeutic Drug Monitoring 15 (6): 533-536 1993
- Strano-Rossi, S., Chiarotti, M., Fiori, A., Auriti, C. and Seganti, G. Cocaine abuse in pregnancy: its evaluation through hair analysis of pathological new-borns Life Sciences 59 (22): 1909-1915 1996
- Giroud, C., Colassis, T., Rivier, L. and Ottinger, E. [Cocaine and alcohol: an explosive cocktail:]. [French] Schweizerische Rundschau fur Medizin Praxis 82 (15): 441-446 1993
- Cone, E. J., Kato, K. and Hillsgrove, M. Cocaine excretion in the semen of drug users [letter] Journal of Analytical Toxicology 20 (2): 139-140 1996
- Perucca, E., Poitou, P. and Pifferi, G. Comparative pharmacokinetics and bioavailability of two oral formulations of thiocolchicoside, a GABA-mimetic muscle relaxant drug, in normal volunteers European Journal of Drug Metabolism & Pharmacokinetics 20 (4): 301-305 1995
- Becker, J., Correll, A., Koepf, W. and Rittner, C. Comparative studies on the detection of benzodiazepines in serum by means of immunoassays (FPIA) Journal of Analytical Toxicology 17 (2): 103-108 1993
- Carreras, D., Imaz, C., Navajas, R., Garcia, M. A., Rodriguez, C., Rodriguez, A. F. Comparison of derivatization procedures for the determination of diuretics in urine by gas chromatography-mass spectrometry Journal of Chromatography A 683 (1): 195-202 1994
- Dial, S. M., Thrall, M. A. and Hamar, D. W. Comparison of ethanol and 4-methylpyrazole as treatments for ethylene glycol intoxication in cats [published erratum appears in Am J Vet Res 1995 Jun;56(6):825] American Journal of Veterinary Research 55 (12): 1771-1782 1994
- Lydy, M. J., Carter, D. S. and Crawford, C. G. Comparison of gas chromatography/mass spectrometry and immunoassay techniques on concentrations of atrazine in storm runoff Archives of Environmental Contamination & Toxicology 31 (3): 378-385 1996
- De Brabander, H. F., Batjoens, P., Courtheyn, D., Vercammen, J. and De Wasch, K. Comparison of the possibilities of gas chromatography-mass spectrometry and tandem mass spectrometry systems for the analysis of anabolics in biological material. Journal of Chromatography A 750 (1-2): 105-114 1996.

## ABFT NEWS

The Centers for Disease Control and Prevention (CDC) has reviewed the documentation submitted by the American Board of Forensic Toxicology, Inc. to be considered as an approved certification board in certain personnel requirements der CLIA. The CDC has determined that the certification requirements for ABFT are comparable to the requirements of use boards currently recognized under personnel standards in the Clinical Laboratory Improvement Amendments (CLIA). The Center for Laboratories of the Health Care Financing Administration concurs with CDC's determination. Certification by ABFT is now recognized under CLIA as a means of qualifying individuals as clinical consultants and directors of high complexity testing.

The ABFT Laboratory Accreditation Progam is now in process. To receive specific information, please contact the

ABFT Administrative Office.

Forensic toxicologists with a doctorate or masters degree who are interested in certification by the American Board of Forensic Toxicology should contact:

ABFT Administrative Office, P.O. Box 669, Colorado Springs, CO 80901-0669 (Telephone: 719-636-1100) \$

# A.A.F.S. 50th ANNIVERSARY MEETING

Submitted by Marilyn Huestis, Ph.D., AAFS Toxicology Section Program Chair

The 1998 Toxicology Section program is going to be interesting and informative so plan to submit your abstract by August 1 and make your arrangements to attend the 50th Annual Meeting of the American Academy of Forensic Sciences now!

Three great workshops will be presented on Monday and Tuesday, February 9th and 10th, starting off with a timely workshop on Laborabory Accreditation with presentations from the ABFT, ASCLAD, CAP, SAMHSA, and new York State accreditation programs, coordinated by Ashraf Mozyani and Halle Weingarten. Michael Corbett has organized a multidisciplinary workshop for Monday afternoon on Alcohol in Forensic Science with speakers including a medical examiner, pathologist, toxicologist, psychiatrist and judge to address such diverse topics as pathological mechanisms, physiological and biochemical changes following alcohol abuse, impairment, intoxication and tolerance, effects of alcohol on mental processes,

d prosecution of alcohol cases. Tuesday will feature an all-day workshop on Methamphetamine: Synthesis, Pharmacology, according to a considering the recent increase in

methamphetamine abuse across the U.S.

The Toxicology Section has arranged a Welcoming Reception and Poster Session for Tuesday evening. This is a great chance for individuals who come early in the week to attend the workshop to also present a poster of their interesting cases, research, methods, etc. Everyone is encouraged to make this a strong and exciting scientific meeting and present a platform and/or poster presentation on Thursday and/or Friday.

Thursday evening the Toxicology Section will host its traditional and highly popular Open Forum. Bring your questions and expertise to this informal discussion of our discipline. The Annual Lectureship in Toxicology has not yet been finalized; details will be forthcoming. In addition, on Friday afternoon we will have a very special session entitled "Murder by Poison." John Trestrail, who presented this popular workshop at the FBI Academy, first addresses homicide investigation of criminal poisoning and then famous poisoners throughout history. Plan to stay through Friday so you won't miss this interesting event!

The usual Tuesday and Thursday evening events will be replaced with a special banquet on Wednesday evening to celebrate the Academy's 50th Anniversary. The SOFT Hospitality Suite is planned for Wednesday night following the banquet.

If your schedule allows, attend the California Association of Toxicologists (CAT) quarterly meeting on Saturday, February 13th. The CAT meetings are always interesting and friendly, and this gathering will be held at the same hotel as the Academy meeting (the Hilton near Union Square). We cordially invite our CAT colleagues to join us for the entire week or for a one-day registration fee - come on Friday and enjoy the "Murder by Poison" workshop.

As you can see, the Toxicology Section has a full scientific and social program, and we sincerely hope that you will be

able to attend.

# AAFS HONORS SOFT MEMBERS

Congratulations to the following SOFT members who were honored at the 1997 meeting of the American Academy of Forensic Sciences:

Jesse Bidanset, Ph.D., DABFT - Rolla Harger Award for outstanding contributions to forensic toxicology

Gary Kunsman, Ph.D., DABFT - Irving Sunshine Award for outstanding research in forensic toxicology by a young investigator 
Theodore Siek, Ph.D., DABFT - Raymond Abemethy Award for outstanding forensic toxicology practioner at the bench 
Marina Stajic, Ph.D., DABFT - A. O. Gettler Award for outstanding analytical achievement in forensic toxicology

# **ELMER GORDON OPEN FORUM**

## AN OPPORTUNITY FOR INFORMAL DIALOGUE

IN MEMORIAM: WALTER MATUSIAK, M.S.

submitted by Leo DalCortivo, Ph.D., DAI

We are deeply saddened to learn of the death of our colleague, Walter Matusiak this past April. Walter received mis BS in chemistry from St. Peter's College in New Jersey and his MS from Fordham University in New York City. He joined the Office of the Chief Medical Examiner, New York City, in 1956, first as a research associate and later as a toxicologist. While there, he came under the tutelage of Drs. C.J. Umberger and A.O. Gettler. In 1962, Walter accepted an appointment as a senior toxicologist in the Office of the Medical Examiner, Nassau County, New York, where his immediate supervisor was Dr. A. Freireich. Some ten years later he was appointed Chief Toxicologist for Broward County, Florida, a position he held until his retirement.

During his tenure in Nassau County, Walter proposed that a loosely structured meeting of toxicologists would prove useful as a forum for the free exchange of ideas and for unfettered discussions on analytical methods, results and interpretations. This resulted in the first "Interim Meeting in Toxicology" in 1970, hosted by the Nassau County office. These meetings became an annual occurrence and from which grew the Society of Forensic Toxicologists.

We knew Walter to be a thoroughly dedicated toxicologist who made important contributions to our field via publications in areas ranging from heavy metals to cocaine intoxications. He was a competent practicioner who went about his work effectively, yet modestly. We shall miss him greatly and extend to his family, especially his wife, Diane, our heartfelt feelings of sympathy.

## 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 information is confirmed by the person who submitted it.

ENTRY LEVEL TOXICOLOGIST POSITION Virginia Dept of Criminal Justice Services, Div of Forensic Science, is looking for a recent Ph.D. in chemistry or related science to assist primarily in postmortem forensic toxicology in Roanoke, VA. Salary \$30,752 - \$47,730. Contact Dale Carpenter, Ph.D, at 540-561-6600 for more information.

TOXICOLOGIST for FUDT lab, Ph.D. or M.S. with 6 yrs analytical experience. GC/MS experience necessary. Contact Leo Serrano, West Tennessee Healthcare, 708 W Forest Ave, Jackson, TN 38301 Ph: 901-425-6050.

TOXICOLOGIST, GS-13, Ph.D in toxicology or chemistry highly desirable, DoD, Brooks AFB, TX. Testify at military boards and court actions, certify all drug test results, and provide forensic support on scientific data, procedures, and operation of analytical equipment. You must electronically file with the Office of Personnel Management, (912) 757-3100, Vacancy Announcement No: DS-6-11-0487-BP, Opening Date: 5 Dec 96, Closing Date: Until Filled. Leave your name and mailing address on the voice recording and an application package will be mailed directly to you.

## PROFESSIONAL CALENDAR

American Academy of Forensic Sciences (AAFS) annual meeting: February 9-14, 1998, San Francisco. Contact Brenda Papke, 719-636-1100.

SOFT Annual Meeting: Oct. 5-9, 1997, Snowbird, Utah, Dennis Crouch & David Moody, Co-Hosts.

FUTURE SOFT MEETINGS: 1998 Albuquerque, NM, NGS Rao & Ronald Backer, Co-Hosts (Joint with TIAFT)

5th International Congress of Therapeutic Drug Monitoring and Clinical Toxicology: Nov. 11-14, 1997, Vancouver, British Columbia. Contact 5th International Congress, Events & Management Plus Inc., P O Box 1570, 190 Railway St, Kingston, Ontario, Canada K7L 5C8 (Tel: 613-531-9210, Fax: 613-531-0626) \$

## **REMINDER - S.O.F.T. CONTACT INFORMATION:**

- O VOICE MAIL & FAX 602-839-9106
- MAILING ADDRESS P.O. Box 5543, Mesa, AZ 85211-5543

## 1997 S.O.F.T. SALARY SURVEY

Submitted by: Bradford Hepler, Ph.D., DABFT, and Daniel Isenschmid, Ph.D., DFTCB Wayne County Medical Examiner's Office, 1300 E. Warren, Detroit, MI 48207

We received a total of 19 responses, 15 from government laboratories and 4 from non-government agencies. Unfortunately, this represents a smaller response than that received in 1992's survey. Information on salary ranges is presented regardless of total "n" values, although some of these "n" values are quite small. In each category reported, each laboratory is only represented by one value. If more than 1 individual filled a given position description, an institutional "average" for that position was determined and utilized in the subsequent tabulations in order to maintain equivalent institutional weights.

The absolute "Low and High values" for salary ranges in each category are reported, along with the average value for the Low and High range limits (in parenthesis) on Tables 1 and 2. These ranges reflect what salaries are available within the profession based on the data returned. The "average" (current) figures are the average of the actual current salaries reported.

Table 1: 1997 Tabulated Summary of Government Laboratory Findings.

N	POSITION	LOW END (AVG.)	HIGH END (AVG.)	AVERAGE CURRENT SALARY	AVG.# YEARS	%PM¹ TOX	%HP² TOX	%WP³ TOX
6	Laboratory Director	40000 (64053)	80000 (68577)	68577	10.00	73	20	0
8	Chief Toxicologist	37044 (55389)	78000 (65557)	63278	5.25	75	33	0
11	Toxicology Supervisor	27622 (39755)	71508 (47810)	45560	11.78	63	35	0
3	Certifying Scientist	29094 (37054)	55884 (43590)	43590	8.00	23	77	0
10	Analyst	23600 (26889)	66300 (39892)	29747	4.04	74	23	0
5	Laboratory Aide	14316 (18964)	30472 (23458)	19362	1.00	90	05	0

Table 2: 1997 Tabulated Summary of Non-Government Laboratory Findings.

N	POSITION	LOW END (AVG.)	HIGH END (AVG.)	AVERAGE CURRENT SALARY	AVG.# YEARS	%PM¹ <sup>e</sup> TOX	%HP <sup>2</sup> TOX	%WP³ TOX
4	Laboratory Director	60000 (61250)	109000 (82250)	72333	10.33	15	30	55
2	Chief Toxicologist	45000 (47500)	60000 (60000)	53500	20.00	13	30	58
3	Toxicology Supervisor	30000 (32500)	45000 (44833)	39750	5.50	12	28	60
4	Certifying Scientist	27000 (31250)	45000 (39000)	35333	5.67	14	20	66
3	Analyst	22000 (25667)	40500 (33167)	32250	3,00	12	22	67
3	Laboratory Aide	14000 (16333)	30000 (23500)	21000	3.50	15	20	65

<sup>1.</sup> PM = PostMortem

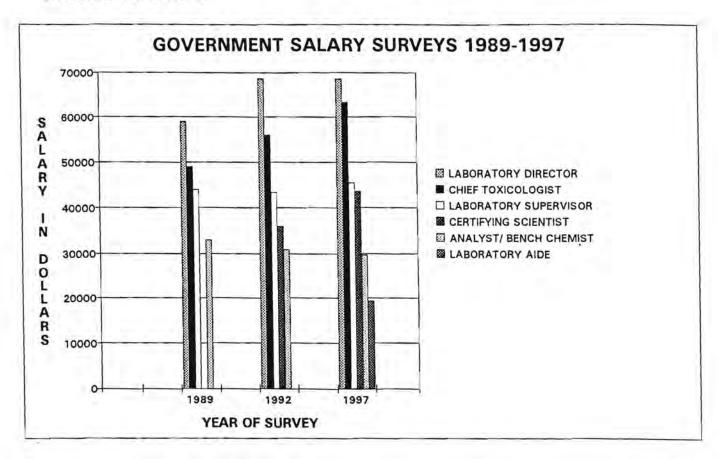
<sup>2.</sup> HP = Human Performance

As in 1992, we have contrasted the averaged salaries between salary survey years 1989, 1992, and 1997 on Tables 3 and 4, as well as on the two figures presented for the "Government" and "Non-government" categories.

Table 3: 1989-1997 Salary Survey Comparisons; Government Laboratories.

LABORATORY POSITION	1989 SURVEY AVERAGE	1992 SURVEY AVERAGE	1997 SURVEY AVERAGE
Laboratory Director	59000	68617	68577
Chief Toxicologist	49000	56034	63278
Laboratory Supervisor	44000	43365	45560
Certifying Scientist	N/A¹	35957	43590
Analyst	33000	30956	29747
Laboratory Aide	N/A	N/A	19362

1. N/A; No data available.



## PLAN AHEAD FOR SOFT '97

Cliff Lodge, Snowbird, Utah

October 5-6 (Sunday-Monday) - Workshops

October 7-9 (Tuesday - Thursday) - Scientific Sessions

Hosts: Dennis Crouch and David Moody Ph: 801-581-5117 Fax: 801-581-5034 E-mail: //lysine.pharm.utah.edu/~dcrouch/soft97.html

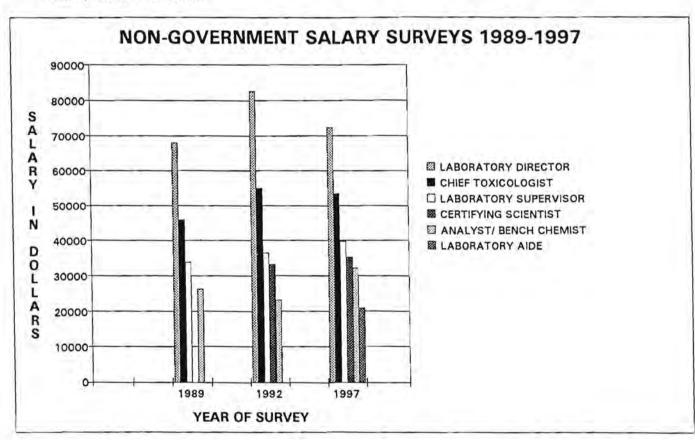
Meeting materials are included with this ToxTalk mailing.

We thank all who were willing to take their time to complete a form on behalf of their institution and send it to ToxTalk. Ultimately, it is efforts such as this that assist each of us to better represent the fair market price of operational expenses relative to staffing costs and directly/indirectly justify these costs.

Table 4: 1989-1997 Salary Survey Comparisons; Non-Government Laboratories.

LABORATORY POSITION	1989 SURVEY AVERAGE	1992 SURVEY AVERAGE	1997 SURVEY AVERAGE
Laboratory Director	68000	82458	72333
Chief Toxicologist	46000	55000	* 53500
Laboratory Supervisor	33900	36452	39750
Certifying Scientist	N/A¹	33307	35333
Analyst	26400	23303	32250
Laboratory Aide	N/A	N/A	21000

1. N/A; No data available.



# CALL FOR CASE NOTES

Your case note should be about 1/2 page in length, no more than a full page. Material or a disk (preferably using Microsoft Works/Word 2.0) may be mailed or faxed to: Joseph R. Monforte, Ph.D., DABFT, ToxTalk Editor. IMPORTANT NOTICE: Dr. Monforte will be relocating in June. Call 520-717-0617 or the SOFT Administrative Office for address and fax/phone numbers. New direct mailing address and contact numbers will be published in the next issue of ToxTalk. The e-mail will remain the same: monfortej@juno.com

Other items of interest to SOFT members are also welcome.

Next deadline: AUGUST 1, 1997



# A National Laboratory Certification Program Workshop November 21-23, 1997

in Research Triangle Park, NC

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The purpose of this 2½ day workshop is to provide detailed information on the National Laboratory Certification Program (NLCP) practices and procedures, focusing on the performance testing and inspection programs.

Primary focus of the workshop is the Revised Mandatory Guidelines, the NLCP Inspection Checklist, the NLCP Guidance Document, the NLCP Program documents, and a number of current issues in forensic drug testing.

Workshop faculty represents numerous areas of expertise within the NLCP and forensic drug testing.

The workshop tuition is \$1,200. This includes registration for the 21/2 day workshop, all workshop materials, 3 Continental breakfasts, 2 afternoon breaks and an evening banquet.

✓ For additional information contact Becke Harden, NLCP Workshop Coordinator, at (919) 541-7235

Presented by Research Triangle Institute





# **COURSE BENEFITS**

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	Inderstand the practices, procedures and technical criteria of the NLCP earn about the NLCP inspection and performance testing programs
□ R	leview the essential components of laboratory SOP Manuals
	Inderstand the complexity of handling forensic specimens and chain of ustody procedures
	earn how to evaluate and review initial immunoassay and confirmatory GC/MS data
	Gain knowledge about state-of-the-art instrumentation and difficult assays
D L	earn about substances that may interfere with drug analyses
	articipate in discussions on laboratory Quality Control and method alidation
	mprove your ability to perform drug testing in today's challenging nvironment
	earn about the future for drug testing with on-site drug testing devices nd the analysis of alternate matrices
	Gain knowledge on the current status of the medical use of marijuana as relates to the drug testing laboratory
	nteract with the faculty in workshop discussion groups and draw upon heir unique experience in the field of workplace drug testing

# Workshop Faculty

Mr. Kenneth Davis, Jr., RTI

Dr. Michael Baylor, RTI Dr. John Mitchell, RTI

Dr. Paula Childs, LabCorp, RTP

Dr. Marilyn Huestis, Addiction Research Center, NIDA

Dr. Diana Wilkins, Center for Human Toxicology, (University of Utah)

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Dr. Robert Willette, DUO Research

Dr. Donna Bush, DWP, SAMHSA

Mr. Ted Shults, Quadrangle Research, LLD

Ms. Susan Crumpton, RTI

Ms. Deborah Denson, RTI

Mr. Andy McDaniel, RTI

Mr. Frank Wallace, RTI