



Newsletter

The Clinical and Translational Toxicology Specialty Section Business Meeting and Reception will be held on 14 March 2012 at 18.00 (6 pm) at the Marriott Marquis Hotel, San Francisco



Please make a note of the date, time and location of the first CTTSS business meeting. Please plan to be there to support your Specialty Section and to be involved in discussions regarding the Section's future

development. Further details will follow.

Do you know SOT members who might be interested in joining the new Specialty Section for Clinical and Translational Toxicology? If so, please pass this Newsletter on to them.

All SOT members are invited to join the new Clinical and Translational Toxicology Specialty Section (CTTSS). The CTTSS will provide a forum within the SOT where members interested in the impact of pharmaceuticals, chemicals, plants, fungi, toxic terrestrial and marine animals on human health can share their state-of-the-art knowledge and propose new approaches for the treatment of these exposures, based on an understanding of their mechanisms of toxicity.

The CTTSS is committed to improving the management of human poisoning by using a translational approach that links molecular mechanisms to rational therapy and then stimulates clinicians to make novel observations about the nature of poisoning, which in turn will lead to further molecular or cellular studies. In addition, the CTTSS will stimulate discussion on the optimal regimens for treatment based on a detailed understanding of the

toxicokinetics and toxicodynamics of the agent involved and the pharmacology and adverse effects of the proposed treatment.

The CTTSS will provide a unique nexus at the SOT meetings for presentations and discussions on human toxicology. The SS also will strive to assist the Society in giving voice to those issues in human toxicology that are deemed to deserve greater recognition and attention among the collective membership and beyond.

The objectives of the CTTSS are to:

1. To serve as the focal point for the interaction of SOT members interested in clinical and translational toxicology and to stimulate new interest among SOT members in all aspects of human toxicology.
2. To increase awareness among Society members of the impact of acute and chronic poisoning as seen in clinical practice; to highlight shortfalls in the available diagnostic and treatment methods, especially therapeutic interventions; to identify uncertainty in regards to the pathogenic processes in some intoxications, and to stimulate research that will enhance the diagnosis and treatment of patients with acute or chronic poisoning.
3. To act as a resource for the Society in the area of human toxicology.
4. To develop, propose, and sponsor state-of-the-art symposia, workshops, and continuing education courses at the SOT Annual Meeting in order to emphasize the latest developments

and issues in clinical and translational toxicology.

Meet our CTTSS Interim Officers

Allister Vale, Interim President



Allister Vale has been the Director of the National Poisons Information Service [NPIS] (Birmingham Unit) and the West Midlands Poisons Unit, which are based at the City Hospital, Birmingham, UK, since 1982. The NPIS offers expert advice only to medical doctors and other health care workers. He is also responsible for providing direct clinical care for patients who are poisoned acutely or chronically with drugs and those exposed to chemicals occupationally or environmentally. He also cares for patients withdrawing from alcohol and other substances of abuse.

He holds professorial appointments in the School of Biosciences (where he co-organizes the MSc (Toxicology)) and in the College of Medical and Dental Sciences in the University of Birmingham. He has served as President of the British Toxicology Society and of the European Association of Poisons Centres and Clinical Toxicologists and was a Trustee of the American Academy of Clinical Toxicology for six years. He was given the Academy's Lifetime Achievement Award in 2009. He chairs

the UK Ministry of Defence Research Ethics Committee.

Tell us about your undergraduate and postgraduate training

I received my undergraduate education at Guy's Hospital, London (MB BS). On qualification, I began my formal training in internal medicine, clinical pharmacology and clinical toxicology (sometimes called medical toxicology) which lasted 14 years (not an unusual length for training in the UK at that time!). My MD thesis was on the role of charcoal hemoperfusion in acute poisoning. Subsequently, I developed an interest in occupational toxicology, particularly heavy metals and pesticides.

What got you interested in clinical toxicology, what led you to this field?

I was one of two medical students hired in 1964 to staff the newly established NPIS in the evenings and at weekends. This was very exciting as so little was known about the impact of drugs and chemicals on the human body. At that time there were only three books on acute poisoning which contained very limited data! In order to provide optimal advice it was necessary to extrapolate from experimental studies and then to monitor closely the clinical course of the patient about whom the enquiry had been made to ensure that the features described and the management proposed by the Service were correct.

Can you tell us a little about what has been one of the most exciting or rewarding projects you have worked on in your career?

I have been so fortunate in my career that there are several! I will choose

one non-toxicological and one toxicological example!

For 25 years I was responsible for coordinating the higher medical examination for physicians [MRCP(UK) Examination] in the UK and 27 other countries (equivalent to the ABIM examinations in the US). Initially my role covered only the academic aspects but my remit was extended to cover policy, strategy and finance. In this role I introduced the Examination to many countries which was very stimulating academically and professionally.

A toxicological example would be the writing with colleagues (Alex Proudfoot, Sally Bradberry and Tim Marrs) of a book on the *Clinical Toxicology of Pesticides*, which we have almost completed. We have endeavored to demonstrate the relationship between the mechanisms of toxicity of the pesticide and the features resulting from exposure and then to propose treatment based on that mechanistic understanding.

I believe the SOT, and the new CTTSS in particular, has a great opportunity to support such translational understanding at its Congresses.

What advice would you give to students who may be interested in entering the field of clinical toxicology today?

I believe strongly that clinical toxicology is an attractive specialty with a bright clinical and scientific future for those who are trained comprehensively. I would tell those considering a career in clinical toxicology that once trained they will be clinically responsible for those exposed to drugs and other chemicals,

deliberately, occupationally and environmentally.

I would explain that as toxicology has been placed on the political agenda, nationally and internationally, advice to Governments and regulatory and international bodies will be an important role, particularly because of the increased public awareness and concern regarding the potential effects of pesticides and other chemicals. In addition, I would inform them that they may be involved in the development of strategies for the management of major chemical disasters, including the chemical contamination of drinking water, the evaluation of antidotes used against chemical warfare agents and in the assessment of the adverse effects of pesticides whether resulting from a single exposure or chronic low-level exposure.

What non-medical interests do you have?

My professional life is very busy but late at night I can be found reading biographies, often political ones, or the history of a country I am about to visit.

Ken McMartin Interim Vice-President



Health Sciences Center-Shreveport. He started his training in Chemistry at Coe College in Cedar Rapids, Iowa, followed by his PhD in the Toxicology

Ken McMartin is Professor in the Department of Pharmacology, Toxicology and Neuroscience at the Louisiana State University

Center of the Department of Pharmacology at the University of Iowa. He was a post-doctoral fellow at the Karolinska Institute in Sweden and then at the University of Iowa before obtaining his first real job in Shreveport.

What are your research interests?
My research focuses on determining the mechanism by which a substance is toxic in order to use the mechanistic information to develop improved therapies for poisonings. In relation to our specialty section, I am more interested in substances that are primarily of clinical concern than in abstract environmental toxicants. For example, my laboratory researched and developed fomepizole for the antidotal treatment of methanol and ethylene glycol poisonings. For this translational work, I am honored to have received the Translational Impact Award from SOT in 2010.

Any new projects underway?

One current project began as a study of how ethylene glycol produces acute renal failure, but has evolved to potentially impact therapy of kidney stone disease. We have shown that kidney damage from ethylene glycol results from renal tissue accumulation of calcium oxalate crystals.

Calcium oxalate crystals bind to and are endocytosed by renal tubular cells; inside the cell, calcium oxalate inhibits mitochondrial function, which can lead to cell death. Calcium oxalate crystals also accumulate in kidney stone disease and current therapy does not target the adherence of crystals to tubular cells. We have shown that aluminum citrate, uniquely among common citrate salts, blocks the toxicity of calcium oxalate by

preventing attachment to the tubular cell membrane.

We just completed a study that has shown that aluminum citrate, by itself, markedly decreases the kidney damage from acute ethylene glycol poisoning. Thus, utilizing a novel molecular targeted approach, we may be able to improve the treatment of the kidney injury that occurs in late-diagnosed poisonings (where metabolic inhibition is not helpful) and possibly in other diseases involving hyperoxaluria.

Diethylene glycol (DEG) has unfortunately led to repeated mass poisonings world-wide when it has been mistakenly used as a solvent in liquid drug formulations. The mechanism by which DEG produces acute kidney failure is not known and there is no accepted treatment. Our initial studies demonstrated convincingly that DEG must be metabolized to produce kidney toxicity.

Recently we have shown that a heretofore unknown metabolite of DEG, diglycolic acid (DGA), is the likely metabolite responsible for damaging the kidney. Now we are studying the mechanism for the toxicity of DGA in order to develop information that can then be used to design new therapies for DEG poisonings.

What non-medical interests do you have?

As one can tell from my photograph, a regular passion is long distance running. I have now completed eight marathons and numerous half-marathons. A good story about the photo – I was invited to speak at the European Association of Poisons Centres and Clinical Toxicologists that was held in Stockholm in 2009. I

discovered that the Stockholm marathon was to be held the week after the meeting, so naturally I had to participate. I am already scoping out runs in the San Francisco area for March 2012. I like other outdoor activities such as bicycling, hiking and travelling to exotic locations.

John G. Benitez, Interim Secretary-Treasurer



John Benitez is Managing Director of the Tennessee Poison Center and Associate Professor of Clinical Medicine (Medical Toxicology) at Vanderbilt University. He has worked with the Intox Project, a project by the World Health Organization to create poisons databases for third world countries. He is a member and Fellow of the American Academy of Clinical Toxicology, the American College of Medical Toxicology, and the American College of Preventive Medicine.

Tell us about your background
I received my undergraduate chemistry degree from Southern Illinois University at Edwardsville and my medical degree from Southern Illinois University in Springfield. My medical toxicology fellowship training was at Vanderbilt University. While working at the University of Pittsburgh I obtained my MPH degree. I was asked to be the director of the multidisciplinary MPH program for several years before I went to the University of Rochester. I moved back to Vanderbilt University in 2008. I am board certified in Medical Toxicology,

Occupational Medicine, and Emergency Medicine.

What are your daily activities?

I am very busy with the poison center. The Tennessee Poison Center provides advice and help in managing acute and chronic poisoning to all of the State of Tennessee. This includes the public, healthcare professionals, industry and governmental agencies. In addition we consult on patients admitted to the Vanderbilt University Medical Center (adult and pediatric) and we have an active outpatient medical toxicology clinic. In addition, I have to supervise and provide for quality assurance activities of the poison center staff (specialists in poison information). I also give frequent lectures to residents, fellows, attending physicians, other healthcare workers, at Vanderbilt, and to numerous facilities across Tennessee. Part of our mission at the Center is to provide professional medical toxicology education in our state.

What non-medical interests do you have?

I keep active with many interests. I do a lot of outdoor activities such as sea kayaking, backpacking, mountain climbing, scuba diving, bicycling, and to tie it all together I do nature photography.

Officers meet

Interim President, Allister Vale, called a meeting of the Officers on September 24th, 2011, during the North American Congress of Clinical Toxicology in Washington, DC. Issues discussed included CTSS membership recruitment, the launching of the new CTSS website, planning for the 2012 SOT Congress, and the CTTSS Business meeting.

CTTSS website

This can be found at:

www.toxicology.org/isot/ss/CTTSS/index.asp

CTSS banner

The background is a photomicrograph of calcium oxalate crystals found in ethylene glycol poisoning. The chemical structure is the antidote fomepizole (4-methylpyrazole). The stethoscope implies the translational application of research into the clinical realm.

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