Introduction to Special Issue: At the Precipice of Quality Health Care: The Role of the Toxicologist in Enhancing Patient and Medication Safety

At the Precipice of Quality Health Care: The Role of the Toxicologist in Enhancing Patient and Medication Safety. Venue: 2014 North American Congress of Clinical Toxicology. ACMT Pre-Meeting Symposium, New Orleans, LA

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In October 2014, the American College of Medical Toxicology's (ACMT's) Pre-Meeting Symposium at the North American Congress of Clinical Toxicology confronted a challenge that has been recognized as plaguing US health systems for over a decade [1]. "At the precipice of quality health care: the role of the toxicologist in enhancing patient and medication safety" focused on patient safety, quality, and medical error. This full-day symposium aimed to introduce providers to patient safety, medication safety, and systems safety concepts; to provide an overview of various organizational responses and approaches to these issues; to introduce tools promoting team communication, integrative behaviors, and training; and to invigorate participants to engage in patient safety efforts leveraging their (potentially unrealized) extant skills. A diverse group of speakers from national organizations to practicing physicians with patient safety expertise within ACMT's membership supported this educational endeavor.

The discipline of toxicology frequently cares for patients either harmed by or at risk for harm from adverse drug events, including medication errors and inadvertent exposures. The

human morbidity and mortality and financial costs of such errors are immense. Millions of preventable errors occur annually in the USA, leading to billions of wasted dollars [2]. Toxicology also has a long history of commitment to the safety of populations through a myriad of poison prevention activities. In learning specific concepts from patient safety and quality, medical toxicologists can better approach error identification, interdiction, mitigation, and resolution and aim proactively to prevent errors in their organizations and the populations they serve.

Silas Smith, MD, a medical toxicologist and Chief of the Emergency Department's Section on Quality, Safety, and Practice Innovation at the New York University School of Medicine, introduced the session with a historical perspective of the case for patient safety in medicine. Highlighting the risks of misadministration of anesthetic gasses and other challenges in the safe delivery of surgical anesthesia, he identified various efforts taken by diverse specialties such as anesthesia, medicine, surgery, and obstetrics to improve patients' care.

Keynote speaker Robin Hemphill, MD, the Veteran's Health Affairs Chief Safety and Risk Management Officer and Director of the Veteran Health Administrations (VHA)'s National Center for Patient Safety, addressed the significant role of Safety Culture and Just Culture in healthcare organizations. Dr. Hemphill provided multiple examples of human error, at-risk behavior, and issues related to provider accountability. She reviewed cognitive structures to understand error, organizational systems drift, and complexity as key components in the approach to addressing error.

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and at the Rocky Mountain Poison and Drug Center, discussed high reliability organizations (HROs) and how HROs relate to patient safety and healthcare. He provided examples from the aviation industry and other HROs, comparing and contrasting with healthcare. Crew resource management (CRM) principles were introduced as adaptable communication models that are urgently needed in medicine's high-risk operating environment. CRM and similar strategies aim to eliminate silos and hierarchies so that all team members feel confident in verbalizing critical information and potential threats early.

Experts from the Institute of Safe Medication Practices and the Food and Drug Administration provided their perspectives of medication safety at the national level and how each of their organizations approach medication management and work to reduce patient risk. Allen Vaida, PharmD, Executive Vice President, Institute for Safe Medication Practices (ISMP), discussed ISMP's mission to improve medication safety globally. He reviewed event reporting, how ISMP aids in investigations of medication errors, ISMP's outreach to educate providers throughout the nation about issues it has investigated and uncovered, and its recommendations for error reduction strategies. Keith Burkhart, MD, Senior Advisor for Medical Toxicology at the FDA's Center for Drug Evaluation and Research, in the Office of Translational Sciences and the Office of Clinical Pharmacology presented some of the molecular aspects of drug development, databases, and tools that the FDA is evaluating to improve medication safety throughout the drug life cycle from an IND (Investigational New Drug), to an NDA (New Drug Application), and through post-market pharmacovigilance.

Alfred Aleguas Jr., PharmD, Director of the Florida Poison Information Center—Tampa, discussed the critical role of surveillance of medication events provided by Poison Control Centers. He reviewed the unique aspects of how Poison Control Centers manage medication events from diverse caller levels.

The authors then led an interactive session involving audience and group participation, role-playing, low-fidelity simulation, and videos of high-fidelity simulations. These allowed audience members to utilize the communication tools introduced to improve communication and teamwork and presented the concept of deliberate practice in a safe space. The tools focused on specific words and methods of nonthreatening verbal escalation and cues to alert individuals and teams to active or latent safety threats that could lead to patient harm.

Brenna Farmer, MD, Director of Patient Safety in the Weill-Cornell Medical Center, Division of Emergency Medicine, illustrated the importance of drawing upon numerous talents, communication tools, and abilities to create multidisciplinary teams. She exemplified how safety rounds in clinical areas with these teams can provide novel insights and improve medication safety.

After a day of introducing these important concepts and organizational approaches, actual cases involving medication errors drawn from the authors' experience were discussed by an expert panel to illustrate approaches to investigating errors, contributing systems failures, and structured approach to reforms. Finally, following this interactive session, a panel of ACMT Fellows provided practical advice, experience, and alternative pathways to integrate patient safety, quality, and medication safety and management in their practice and careers. The panel discussed on-the-job learning strategies; seeking mentors in patient and medication safety; online institutional and organizational courses and learning; and certifications or fellowship pathways through different organizations such as ISMP, VHA, and the National Patient Safety Foundation, as well as higher education degrees such as Masters Degrees in Patient Safety and Healthcare Quality.

This issue JMT provides much of the core content of this symposium. The authors have sought to emphasize their key learning objectives and the role of medical toxicology in furthering patient and medication safety. Their work supports and furthers ACMT's mission "to advance quality care of poisoned patients and public health..." and ACMT's organizational commitment to medication management and safety systems [3]. We hope you enjoy the dedicated efforts of our participants.

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References

1. Institute of Medicine (IOM), Committee on quality of health care in America. Crossing the quality chasm: a new health system for the 21st century. Washington DC: The National Academies Press; 2001.
2. Institute of Medicine (IOM), Committee on identifying and preventing medication errors. Preventing medication errors. Washington DC: The National Academies Press; 2006.
3. American College of Medical Toxicology. Position Statement. Medical Toxicologist Participation in Medication Management and Safety Systems. http://acmt.net/cgi/page.cgi/zine_service.html?aid=4129&zine=show. Accessed 28 Jan 2015.