Medical Toxicology and the Crisis of Addiction—Introduction to the Proceedings from the 2015 ACMT Addiction Academy

Timothy J. Wiegand¹ · Kavita M. Babu²

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Addiction and substance use disorders are the defining public health problems of the past decade. More than 25,000 Americans died from prescription medication overdose in 2014, representing a 242 % increase from 1999. Abuse of tobacco, alcohol, and drugs costs the USA more than \$700 billion annually related to crime, lost productivity, and in health care costs [1]. Health, policy, and government leadership have identified essential needs in order to address the addiction epidemic; one of the critical steps includes growth of a physician workforce with the requisite knowledge and skills to appropriately address this problem [2].

The last decade has also seen progress in our understanding of the mechanisms of addiction, as well as advances in addiction treatment. Disulfiram may be useful in patients with cocaine dependence, beyond its role in aversion therapy for alcohol. Gabapentin has shown promise in treatment of individuals with alcohol dependence, while varenicline has revolutionized tobacco cessation therapy and is (at least experimentally) showing promise for the treatment of addictive disorders beyond nicotine. Complementing the innovations in pharmacotherapy is the increasing acknowledgment that addiction is a disease with genetic, environmental, and individual factors

influencing the severity and response in any one given individual (not unlike diabetes or hypertension).

Addiction medicine is identified as one of six practice pathways/models comprising medical toxicology practice, and medical toxicologists have stepped up in a variety of roles to confront the dramatic increase in drug abuse, addiction, and associated deaths. In clinical settings, medical toxicologists have treated patients along the spectrum of substance use disorders. In research environments, our colleagues have obtained funding from the National Institute on Drug Abuse to advance the understanding of addiction and its treatment. In policy environments, we have provided expert support in the development of guidelines on safe opioid prescribing from the hospital and medical association level to the state governments. In novel psychoactive substance outbreaks (e.g., synthetic cathinone and cannabinoids), medical toxicologists have provided expertise in toxicosurveillance.

Recently, addiction medicine was granted recognition by the American Board of Medical Specialties as a multispecialty subspecialty sponsored by the American Board of Preventative Medicine. At the same time, the rapid progression of substance misuse disorders has outstripped treatment resources. Profound discrepancies exist between treatment slots and the number of patients with substance use disorders. There continues to be a shortage of specialists with the training and experience required for the treatment and prevention of addiction [3].

The collaboration between medical toxicology and addiction medicine is intuitive. Medical toxicologists already provide lectures at the American Society of Addiction Medicine (ASAM) Board Review Course, while several medical toxicology fellowship programs are looking to work more closely with addiction medicine programs in the education of trainees through shared rotations. Additionally, our research efforts in addiction medicine will continue to advance this specialty.

✉ Kavita M. Babu
kavitambabu@gmail.com

¹ URM and Strong Memorial Hospital, Box 321 at URM, 601 Elmwood Avenue, Rochester, NY 14642, USA

² University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655, USA

Medical toxicologists have an opportunity to become a critical resource as all of medicine responds to the crisis of addiction and substance abuse.

In response to the pressing problem of addiction and the potential increased role for medical toxicologists, the American College of Medical Toxicology held the Addiction Academy on March 26th, 2015, in Clearwater, Florida.

The Academy featured lectures from nationally-, and internationally-recognized addiction researchers and clinicians including Eliot L. Gardner, PhD, Chief of the Neuropsychopharmacology Section Intramural Research program, National Institute on Drug Abuse and the National Institutes of Health, Baltimore, Maryland. Dr. Gardner provided an eloquent and engaging description of the biologic basis for addiction, with specific examples illustrating his understanding through animal models of reinforcement, the underlying basis for craving and relapse, the role of brain circuitry, and the various neurotransmitters in play within this circuitry.

Petros Levounis, MD, MA, Chair of the Department of Psychiatry, Rutgers New Jersey Medical School, and the founder of one of the first ABAM-accredited addiction medicine fellowships in the USA, provided dynamic and entertaining guidance on the development of addiction therapies from the bench to the bedside, providing us with a background for the pharmacotherapies and cognitive behavioral treatment strategies that are the pillars of addiction treatment today.

The American College of Medical Toxicology's Addiction Academy Organizing Chair and Addiction Medicine Section Chair, Timothy Wiegand, MD, FACMT, provided a lecture on the use of buprenorphine for the treatment of opioid dependence, and discussed incorporating its use into a medical toxicology consultation- and clinic-based practice.

Ed Salsitz, MD, a prominent lecturer and nationally recognized expert in both addiction education and methadone maintenance therapy, provided several lectures. In his lecture "Chronic Pain, Chronic Opioids Addiction: A Complex Nexus," Dr. Salsitz reviewed the concept and importance of "hedonistic tone" and the role it plays in the perception of pain and suffering, as well as the interplay of pain and addiction. In a later session, Dr. Salsitz presented a history of methadone maintenance therapy, including the role that societal views and perceptions played in shaping policy related to methadone maintenance. He also discussed the stigma associated with methadone maintenance therapy, and the various factors at play in methadone treatment, including policy, law, and public perception.

The ACMT's Daniel Sudakin, MD, MPH, FACMT, the Director of Addiction Medicine, Pathways Northwest in Philomath, Oregon, provided the first afternoon lecture on the expanded use of naltrexone for alcohol abuse. In his lecture, he discussed the role of mu- receptor antagonists, and their effects on reinforcing drugs.

The afternoon also featured additional interactive sessions with another ACMT member JoAn Laes, MD, consulting toxicologist for Hennepin Regional Poison Center and addiction medicine faculty for Hennepin County Medical Center in Minneapolis, Minnesota, leading panel discussions on special issues in addiction treatment with other Addiction Academy faculty. These small group sessions tackled regulatory issues, special populations (including pregnancy, adolescents, and impaired physicians), and complexities with managing addiction and chronic pain.

Kevin Kunz, MD, Executive Vice President of the American Board of Addiction Medicine, provided an overview and history of addiction medicine training, ending with an update on the current state of affairs of the specialty and the anticipated acceptance of addiction medicine as a multispecialty subspecialty, sponsored by the American Board of Preventative Medicine, by the National Board of Medical Specialties by early 2016.

Finally, ACMT members JoAn Laes, Dan Sudakin, and Timothy Wiegand provided background and commentary on their current practice, and ways to incorporate addiction medicine activities into any medical toxicology career.

The success of the conference and subsequent interest in the topic of addiction medicine in medical toxicology led to this issue of the Journal of Medical Toxicology, which features a "Proceedings of the Addiction Medicine Academy," related to selected presentations from the 2015 ACMT meeting. We enjoyed working closely with the speakers in preparing their manuscripts, and hope that you will find their work a useful reference as you continue your efforts for patients with addiction.

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Compliance with Ethical Standard

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