

## **Bucher keynotes at meeting of hazardous waste specialists**

*By Eddy Ball*

NTP Associate Director John Bucher, Ph.D., took the mission of NIEHS and NTP to the grass roots Sept. 25, with his keynote address at a meeting in St. Paul, Minn., outlining "Current Issues and New Approaches in Environmental Health Research at NIEHS and NTP."

Bucher spoke to members of the North American Hazardous Materials Management Association (NAHMMA), during the group's [2013 annual conference](https://m360.nahmma.org/event.aspx?eventID=82964), (<https://m360.nahmma.org/event.aspx?eventID=82964>) organized around the theme "Upstream Stewardship, Downstream Sustainability."

As NAHMMA vice president and meeting organizer Jennifer Volkman explained in her invitation to Bucher, "Most of the attendees have a connection to household hazardous waste. They collect it and they educate consumers on alternatives, safe use, storage, and disposal of household products." According to Volkman, NAHMMA members strive to provide the public with meaningful messages about hazardous household waste management, grounded in the best research available on environmental and health issues.

As a senior leader of the interagency group coordinating toxicological testing programs within the U.S. Department of Health and Human Services, Bucher is well-positioned to help NAHMMA members better understand how the research performed and coordinated by NIEHS and NTP relates to issues people may face on a daily basis in their own homes. For many of the attendees, Bucher's talk was their first introduction to NIEHS and NTP and their roles in promoting public health.

### **Showcasing the role of toxicology testing and research in public health**

Following his overview of the mission and vision of NIEHS and NTP, Bucher moved into a discussion of key current concepts in environmental health science research. These topics included the Institute's emphases on the interactions of genes and the environment, the presumed involvement of epigenetic modifications in many environmentally associated diseases and dysfunctions, low-dose effects of some environmental exposures, and the developmental origins of disease.

Bucher pointed out that the prevalence of many diseases has increased much more quickly than would be predicted, based on evolutionary changes in DNA sequence. He then outlined possible ways epigenetic regulation of gene expression could be influenced by environmental exposures, as well as some of the tools to study these processes under development at NIEHS. Bucher discussed the findings from the 2011 workshop on "Environmental Chemicals in the Development of Diabetes and Obesity," sponsored by the NIEHS Office of Health Assessment and Translation, as examples of emerging areas of study. He also highlighted the extensive Institute-sponsored studies on understanding the potential human health effects of exposures to bisphenol A, a chemical that plays into many of the Institute's focus areas.

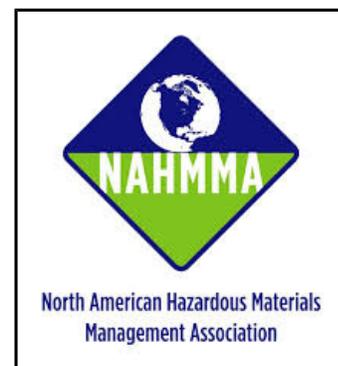
While NTP is probably best known for its gold-standard rodent assays and the rigorous methodology of its literature analysis programs, it has also established extensive interagency and cross-divisional collaborations. As an example, Bucher pointed to the current NTP polycyclic aromatic hydrocarbon (PAH) research program, as a subset of the Institute's larger extramural-funded research on PAH exposures and children's health, as well as the Gulf STUDY of health effects associated with oil spill clean-up.

Bucher emphasized the broad range of NTP Good Laboratory Practices-compliant research and testing programs - from complex occupational exposures, and food and drinking water contaminants, to nanoscale materials, persistent environmental contaminants, and radiofrequency radiation. He touched on activities, such as the Tox21 high throughput screening program, and the use of the diversity outbred mouse, as examples of how NTP is working to provide new and useful information in a more timely manner.

Bucher concluded his talk with a slide on "A New Vision for NIEHS and NTP," which includes increased emphasis on partnering



*Bucher leads a staff of highly qualified toxicologists and pathologists, and oversees studies conducted by contractors and in-house researchers. He is a Diplomate of the American Board of Toxicology, one of the top credentials in the field. (Photo courtesy of Steve McCaw)*



*NAHMMA has 10 regional chapters, more than 400 members, and hosts an annual conference. The association conducts specialized training for hazardous materials managers and technicians at its annual conference and through its regional chapters.*

with sister research agencies and regulatory bodies, improved integration across research disciplines, and utilization of the best individual and team science to address complex diseases and complex environmental impacts.

As Bucher told the audience at the end of his talk, "We are working to improve our translation and communication of basic science findings into human health protection." This theme dominated a lengthy discussion period following his talk, as NAHMMA members are involved, daily, in deciding what are hazardous materials, how best to handle and dispose of them, and how to communicate this information to the public.

Distinct test articles	2553
Chronic rodent bioassays	616
Genetically modified mice-cancer	13
Genetic toxicity	2236
Immunotoxicity	112
Reproductive/developmental	242
General and other toxicity	838
Tox21 high throughput screening	8307
TOTAL	14917

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