

NTP shares new toxicology approaches with international colleagues

By Robin Mackar

It's not every day scientists get invited to give a presentation in the same place where the Nobel Prize in Physiology or Medicine has been chosen since 1901, but three NTP members did exactly that this fall at the Advancing Risk Assessment of Environmental Agents Conference.

At the request of the [Karolinska Institutet](http://ki.se/?l=en) (<http://ki.se/?l=en>)

in Sweden, NTP Associate Director [John Bucher, Ph.D.](#), delivered the keynote lecture Nov. 20 on new approaches in toxicology research and testing and how they are being applied to advance the health risk assessment process in the U.S.

Bucher's talk nicely set the tone for the next session led by two other NTP invited guests, [Kristina Thayer, Ph.D.](#), director of the NTP Office of Health Assessment and Translation (OHAT), and [Andrew Rooney, Ph.D.](#), OHAT deputy director, who discussed the NTP framework for systematic review.

All of the talks were given in the new state-of-the-art lecture hall, [Aula Medica](http://ki.se/ki/jsp/polopoly.jsp?d=42232&l=en), (<http://ki.se/ki/jsp/polopoly.jsp?d=42232&l=en>) which, as of Dec. 7, became the venue for scientific presentations by all Nobel laureates in physiology or medicine, before receiving their medals from the King of Sweden. "A very impressive, if not intimidating, environment to give a science talk in," Bucher noted upon his return.

Linked Video

[Take a self-paced virtual tour of the new Hall of Medicine at the Karolinska Institutet.](#)

Advancing Risk Assessment

The two day conference, "Advancing Risk Assessment of Environmental Agents," was hosted by the [Institute of Environmental Medicine](http://ki.se/ki/jsp/polopoly.jsp?d=1666&l=en) (<http://ki.se/ki/jsp/polopoly.jsp?d=1666&l=en>) (Institutet for Miljomedicin or IMM), an interdisciplinary research department at the Karolinska Institutet. The IMM invited leading researchers from the U.S., Italy, Holland, and Sweden, to discuss how to take research findings and modern technologies and apply them to advance the health risk assessment process.

[Anders Ahlbom, Ph.D.](#),

(<http://ki.se/ki/jsp/polopoly.jsp?l=en&d=5665>)

director and chair of IMM, kicked off the meeting by welcoming the international speakers, presenting them with a brief overview of health risk assessment at IMM, and laying out some of the major challenges that all government agencies face when conducting environmental health risk assessments. One of the major goals of the conference was to figure out how to move forward with the integration of toxicological, epidemiological, and mechanistic research studies into the risk assessment process.

Bucher's talk focused on the proactive approach by NTP to address challenges in environmental health. He discussed the progress made since the release of the NTP [Roadmap](http://ntp.niehs.nih.gov/NTP/About_NTP/NTPVision/NTPRoadmap_508.pdf) (http://ntp.niehs.nih.gov/NTP/About_NTP/NTPVision/NTPRoadmap_508.pdf) in 2005, along with recent advances in toxicology testing and analysis approaches.

His discussion set the stage for Thayer and Rooney to illustrate how Roadmap progress has helped NTP establish a systematic review process for health assessments that focuses on the integration of data. OHAT develops literature-based evaluations to frame its investigations of potential human health hazards and examine the state of the science.



Under Bucher's leadership, NTP has forged several new partnerships, internationally and domestically, including the [Tox21](http://ntp.niehs.nih.gov/?objectid=05F80E15-F1F6-975E-77DDEDBDF3B941CD) (<http://ntp.niehs.nih.gov/?objectid=05F80E15-F1F6-975E-77DDEDBDF3B941CD>) interagency consortium. (Photo courtesy of Steve McCaw)



Thayer leads OHAT efforts to examine emerging issues in toxicology, such as obesity and diabetes, that may be triggered by exposures to endocrine-disrupting chemicals (see [story](#)). She also contributes to the NTP and NIEHS green chemistry initiative, which evaluates and compares the relative toxicity of chemicals proposed as safer replacements for other toxic chemicals. (Photo courtesy of Steve McCaw)

Learning from one another

Thayer talked about steps 1-4 of the OHAT framework for systematic review, which focuses on the critical aspects of developing the protocol, managing data, and assessing study quality. Thayer also dazzled the 200 attendees with the data entry and analysis tools that NTP is using to conduct the evaluations. All the tools will eventually be made available to the public free of charge.

Rooney focused on steps 5-7, which guide the integration of epidemiological, toxicological, and other relevant data. "There was a lot of interest in the methods we're sharing," Rooney said. "They liked the clear, step-by-step process of how we are integrating different lines of evidence to develop conclusions."

Attendees were especially interested in the data entry tools and the possibility of holding training sessions, so others can use the NTP process, and everyone can begin entering and storing information in the same way, Thayer noted.

"No one has the resources to keep reinventing the wheel," Thayer said. "Other agencies, nationally and internationally, are looking to the NTP to take an active role in developing and evaluating approaches for bringing systematic review methods into environmental health science."

(Robin Mackar is news director in the NIEHS Office of Communications and Public Liaison, and a frequent contributor to the Environmental Factor.)



In addition to his work on the theoretical framework of systematic review, Rooney was instrumental in the OHAT evaluation of literature on the potential health effects of low-level exposures to lead (see [story](#)) in 2011. (Photo courtesy of Steve McCaw)

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