UNC SRP trainee develops chemical risk assessment interface

By Sara Mishamandani

Andy Shapiro, a Master of Science in Public Health student at the University of North Carolina at Chapel Hill (UNC), recently presented a series of webinars on the Health Assessment Workplace Collaborative *(https://hawcproject.org/)* (HAWC), an online workspace designed to simplify the complex process of conducting chemical risk assessments.

Shapiro developed the content management system under the guidance of NIEHS-funded Superfund Research Program (SRP) grantee Ivan Rusyn, M.D., Ph.D., *(http://www.rusynlab.com/)* a professor of environmental sciences and engineering at the UNC Gillings School of Global Public Health.

Shapiro, right, meets with Rusyn, left, to discuss how to demonstrate the features of HAWC and its value to chemical risk assessors. (Photo courtesy of Ivan Rusyn)

"HAWC is a Web-based workspace to create, store, share, and display data and analyses conducted in the process of preparing human health assessments of chemicals," said Shapiro. "By creating integrated modules for capturing key steps in the process of conducting an assessment, HAWC is aimed at a variety of potential users and types of human health assessments."

Data sharing and integration

"A number of recent National Research Council committees weighed in on the need for regulatory agencies that conduct human health assessments," said Rusyn. "There was a need to increase transparency of the process, to implement best practices of the systematic review, and to improve data integration and visualization, so that the end users, from risk managers to the general public, would better understand how the decisions are made."

A human health risk assessment typically involves several individuals and organizations working together to review assessments, with multiple rounds of both internal and external review.

HAWC is designed to make this process easier, by integrating, into an online interface, existing information about chemicals, tools to evaluate how the chemicals affect health risk, and current guidance and approaches to assessing risk. The workspace facilitates the risk assessment process, by grouping many of the key components into easy-to-follow modules with multiple user access. HAWC also allows for a more transparent health assessment process, with track changes and version control features.

Linked Video

Listen to a recording of Shapiro's HAWC tutorial. (42:01)

Reaching international stakeholders

In late January, Shapiro presented the first two webinars, including an overview and tutorial on HAWC, to more than 100 callers. Participants called in from a variety of state, federal, and international government agencies, academic institutions, chemical goods manufacturers, and consulting companies.

Two additional webinars were held in February with the International Agency for Research on Cancer, European Food Safety Authority, and Food Standards Agency, which represented international and European interests.

According to Rusyn, the webinars reached several hundred participants and resulted in active sign-ups and use of the website.

"We are making use of the latest technology to move the process into the cloud, so that the transparency and communication goals are met, as well as an attempt to make updates to existing assessments easier in the future," said Shapiro. "This enables stakeholders to engage, participate, and dive into the details."

The project is funded in part by the UNC SRP, with additional funding from the UNC Graduate School, U.S. Environmental Protection Agency (EPA), and National Toxicology Program (NTP).

(Sara Mishamandani is a research and communication specialist for MDB Inc., a contractor for the NIEHS Superfund Research

Program and Division of Extramural Research and Training.)
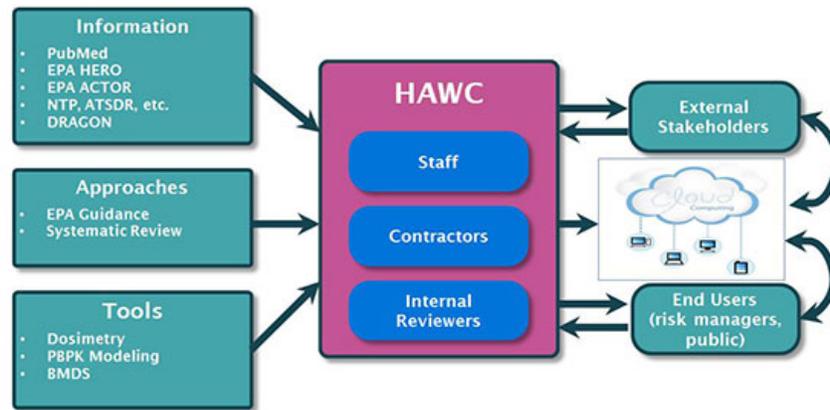
The webinars explained how HAWC fits into the human health assessment process, and how it facilitates data storage, analysis, and visualization into a pipeline that is easier to review and interpret. Shapiro conducted a live demonstration of several key features of HAWC, including literature search, tagging for inclusion or exclusion, data extraction, and dose-response analysis using the benchmark dose modeling. (Photo courtesy of Andy Shapiro)