HAWC (Health assessment workspace collaborative): A modular, web-based interface to facilitate development of human health assessments of chemicals.

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Abstract: Regulatory and scientific research institutions frequently conduct literature-based assessments of the potential for chemicals to pose a threat to human health. Such assessments typically consist of a critical review of a literature corpus to identify adverse health effects, and to characterize exposure-response relationships from literature. In addition to extraction of exposure-response data, systematic review of potential bias in literature, as well as documentation of the literature search strategy, are important steps in these reviews. A clear and detailed presentation of analysis and outputs, as well as intermediate decisions, are critical to ensure transparency of the process. The HAWC (Health Assessment Workspace Collaborative, https://hawcproject.org/), addresses these challenges by creating a modular, web-based content-management system to synthesize multiple data sources into overall human health assessments of chemicals. This free, open-source web-application integrates and documents the overall workflow from literature search and review, to data extraction, dose-response analysis using benchmark dose modeling software (BMDS), customizable visualizations of evidence and risk of bias, and data exports. User access is assessment-specific; project-managers can create public or private assessments, and can share with their team during development and ultimately release publicly as supplemental information to final reports. Crucial benefits of such a system include improved integrity of the data and analysis results, greater transparency, standardization and consistency in data collection and presentation. To date, nearly 400 assessments have been created by users, and has been adopted for use by groups such as the US EPA NCEA, National Toxicology Program (NTP), and the World Health Organization's International Agency for Research on Cancer (IARC) monographs program. Disclaimer: The views expressed in this abstract are those of the authors and do not necessarily represent the views or policies of the U.S. Environmental Protection Agency.