

ExpoCastDB: A Publicly Accessible Database for Observational Exposure Data

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The application of environmental informatics tools for human health risk assessment will require the development of advanced exposure information technology resources. Exposure data for chemicals is often not readily accessible. There is a pressing need for easily accessible, chemically-indexed exposure databases that can be linked with toxicity databases. The U.S. EPA Office of Research and Development has developed ExpoCastDB to capture results from observational studies measuring potential exposure to environmental chemicals. The general data model for ExpoCastDB was designed to be compatible with the exposure-science ontology (ExO) to encourage standardized reporting of observational exposure information. The prototype database was publicly released in April 2011 and is a collection of studies funded by the EPA. Data are collated to facilitate public access and cross study analyses. Exposure data currently available online come from the American Health Home Survey, the First National Environmental Health Survey of Child Care Centers and the Children's Total Exposure to Persistent Pesticides and Other Persistent Organic Pollutants (CTEPP) study. For these studies, ExpoCastDB provides access to data on chemical structure and levels of chemicals measured in environmental media including air, soil, house dust, food, drinking water, indoor surfaces, and levels of chemicals or metabolites measured in biological media including urine. ExpoCastDB users can obtain summary descriptive statistics and download data sets. In addition, ExpoCastDB integrates with ACToR (Aggregated Computational Toxicology Resource), enabling linkages to physicochemical properties data, public hazard information, and exposure and risk resources. The current prototype will be presented here and plans for future enhancements and data set additions will be discussed. *This abstract may not necessarily reflect U.S. EPA policy.*