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ONLINE TOXICOLOGY RESOURCES IN SUPPORT OF RISK ASSESSMENT FROM THE U.S. NATIONAL LIBRARY OF MEDICINE

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The U.S. National Library of Medicine (NLM), a component of the National Institutes of Health (NIH), is the world's largest biomedical library. NLM's Specialized Information Services division houses the Toxicology and Environmental Health Information Program (TEHIP), established in 1967, pre-dating the U.S. Environmental Protection Agency. TEHIP builds databases related to toxicology and makes them, and others created external to NLM, available on the Web. It creates other Web-based resources and tools, collaborates with government agencies, universities, and NGOs, and has active public training and outreach programs. TEHIP and its databases are accessible on the Web at <http://sis.nlm.nih.gov/enviro.html>.

Although, historically, TEHIP's services were geared strictly to the scientific community, they have expanded to include a spectrum of users from the technically oriented professional to the general public. These users include toxicologists and other researchers and scientists, health care professionals, lawyers and regulators, journalists, environmental advocates, librarians and other information science professionals, emergency responders, students, and educators. Increasingly, projects are being geared to the international community.

TEHIP's primary suite of databases is known as TOXNET. These include ChemIDplus, an extensive chemical dictionary/directory; HSDB (Hazardous Substances Data Bank), a peer-reviewed databank of over 4000 chemicals with some 150 fields of data in areas such as chemical/physical properties, human and animal toxicity, environmental fate, emergency medical treatment etc.; CCRIS (Chemical Carcinogenesis Research Information System); GENE-TOX (on genetic toxicology); LactMed (on drugs and lactation); TOXLINE (a bibliographic file of over three and one-half million citations to the technical literature); Household Products database; databases on toxic releases to the environment (TRI) and occupational safety and health and (HazMap). More recently, a Dietary Supplements Labels database and a Drug Information Portal have been released. Other TEHIP resources include WISER (Wireless Information System for Emergency Response), REMM (Radiation Event Medical Management), TOXSEEK (a meta search engine and clustering tool), ToxTown and ToxMystery (designed for kids), and online toxicology tutorial, a glossary of terms used in toxicology, and more.

Although a number of the above resources, particularly HSDB and TOXLINE are especially relevant to risk assessment, the following additional TOXNET databases focus on the topic:

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IRIS (Integrated Risk Information System) is the U.S. EPA's (Environmental Protection Agency) database on official government risk values and includes oral and inhalation risk values (as well as summaries and references used to derive them) for carcinogens and non-carcinogens.; ITER (International Toxicity Estimates for Risk) is a product of the Cincinnati-based TERA (Toxicology Excellence for Risk Assessment), and presents, in tabular form, peer-reviewed, risk values from EPA's IRIS, as well as other groups, including Health Canada, ATSDR (Agency for Toxic Substances and Disease Registry), IARC (International Agency for Research on Cancer), the Dutch RIVM (its National Institute of Public Health and the Environment), NSF International, values derived via TERA's own ITER Peer Review Process, and Independently Reviewed Peer Review Values derived by independent parties and outside the TERA peer review process. ITER thus provides a one-stop agency by agency comparison of risk values.

NLM is also a partner in the newly formed ARA (Alliance for Risk Assessment), and an NLM representative serves on its Steering Committee. ARA is a collaborative effort of organizations dedicated to supporting public health protection by improving the process and efficiency of risk assessment, and increasing the capacity for developing risk information to meet growing demand. In the near future, in collaboration with ARA, NLM will be adding the RiskIE (Risk Information Exchange) database to its risk assessment arsenal, to supplement IRIS and ITER. The RiskIE system will coordinate work on chemical risk value and methodology documents that are under development or revision. It will provide a platform for notification of human health risk assessment projects. Identification of groups working on a chemical or issue of interest will allow stakeholders (e.g., other States, provinces, tribes, industry, public interest groups, or Federal agency stakeholders) an opportunity to provide input on ongoing assessments or develop collaborations with document authors

More online resources with potential application to toxicology and risk assessment are under development at NLM. Work is progressing on a database to be known as TOXREF, which will contain data on therapeutic/normal, toxic, and lethal levels of chemicals in biological samples. Finally, the World Library of Toxicology, Chemical Safety, and Environmental Health (WLT), is being created by a network of Country Correspondents and is designed to link to multi-lingual global resources at both the individual country and multi-lateral levels.