

CURRICULUM VITAE

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EMPLOYMENT

- 1995- **Director. Toxicology Excellence for Risk Assessment (TERA).**
I founded *TERA* as a nonprofit corporation dedicated to the best use of toxicity data for estimating risk assessment values. *TERA*'s mission includes assessment, research and education in human and ecological health risk. *TERA* currently has 12 staff and a budget of 1.2 million dollars.
- 1991-94 **Chief. Systemic Toxicants Assessment Branch.**
Environmental Criteria and Assessment Office (ECAO), U.S. Environmental Protection Agency (EPA). I supervised scientists that prepared health assessment documentation and conducted risk assessment research for the EPA's Offices of Water, Solid Wastes and Air Quality Planning and Standards.
- 1990-91 **Associate Director. Environmental Criteria and Assessment Office.**
I directed scientific peer review, directed the development of research needs, coordinated ECAO's participation in research and development, and served as an expert in toxicology and risk assessment issues.
- 1989-90 **Chief. Pesticides and Toxics Team.**
Office of Technology Transfer and Regulatory Support, EPA. I supervised a group of scientists that supported the regulatory efforts of the EPA's Office of Pesticides and Toxic Substances.
- 1986-89 **Chief. Methods Evaluation and Development Staff.**
ECAO, EPA. I supervised a group that developed risk guidelines and EPA's Integrated Risk Information System (**IRIS**). I also served for two months each as a scientific advisor to the deputy administrator of EPA's Region 5, and as a scientific staffer in the policy office of the EPA's Office of Pesticide Programs.
- 1985 **Leader. Acceptable Daily Intake (ADI) Group.**
ECAO, EPA. I coordinated a group of scientists that developed health documentation for the EPA's interagency ADI Work Group.
- 1984-85 **Leader. Systemic Toxicant Assessment Group.**
ECAO, EPA. I coordinated a group of scientists that prepared health assessment documents for the EPA's Office of Water as per by Congressional legislation's.
- 1980-84 **Staff Toxicologist.**
ECAO, EPA. I prepared a variety of health assessment documentation. During part of this time I also coordinated the office's efforts to develop health documentation for the EPA's Office of Solid Waste and Emergency Response as mandated by Congressional legislation.
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EDUCATION

1988-89 **Executive Potential Program.**

This program, sponsored by the U.S. Office of Personnel Management, provided me a host of executive experiences. It consisted of 25 days of classes, 2 two-month developmental assignments (see a brief description under employment during 1986-89), a one-week shadow of a senior executive, 3 executive interviews and an independent study on the different motivation techniques for employee performance of 4 western countries.

1986-87 **Zenger Miller Supervision Course.**

This series of 25 training sessions taught me many useful techniques for my newly acquired task of managing and leading people.

1985 **Diplomate of the American Board of Toxicology.**

I am certified in general toxicology by the American Board of Toxicology, and recertified in 1990 & 1995.

1975-80 **University of Cincinnati, College of Medicine.**

I studied in the Toxicology Division of the Department of Environmental Health. I received a **Ph.D.** degree in toxicology in March of 1980.

1977-74 **Wittenberg University.**

As an undergraduate student I received a **B.A.** degree in biology in June of 1974. I passed my senior exam in biology with distinction.

During my education I also worked in **Liberia, West Africa** for 5 months with a missionary doctor on medical problems in that country and with the Peace Corps on growing experimental species of rice. In part from this experience, I decided to continue my professional education in the field of preventive medicine.

AWARDS (Selected)

2000 **Key Risk Award.** Environmental Studies Topic. Links2Go. *TERA's* International Toxicity Estimates for Risk (*ITER*) database won this award by being 7th most accessed environmental web site in the world. Award was based on a group effort.

1998 **Outstanding published paper** in risk assessment during 1997. Risk Assessment Specialty Section. Society of Toxicology. March.

1995 **In Appreciation.** An award for outstanding service and scientific contribution to the Environmental Protection Agency and to United States Government.

1994 **Special Achievement.** An award for noteworthy contribution as a member of the Risk Characterization Team towards an EPA-wide workshop on risk characterization.

1992 **Bronze Medal.** An award for outstanding service in the review of EPA's 503 Sludge Regulations

1992 **OHEA Peer Award for Scientific Achievement.** An annual peer award for scientific achievement in EPA's Office of Health and Environmental Assessment

- 1992 **RfD/RfC Work Group Appreciation Award.** For sustained superior leadership of and scientific contributions to EPA's Reference Dose/Reference Concentration Work Group.
- 1991 **Bronze Medal.** An award for outstanding service in the development of EPA's Integrated Risk Information System (IRIS)
- 1990 **Special Achievement.** An EPA award for ensuring ORD's successful involvement in regulatory support issues with EPA's Office of Pesticides and Toxic Substances.
- 1988 **Special Achievement.** An EPA award for resolution of generic issues associated with the minimum data base needed to estimate Reference Doses (RfDs).
- 1987 **Special Achievement.** An award for further development of the EPA's -- Integrated Risk Information System (IRIS).
- 1986 **Bronze Medal.** An EPA award "for outstanding service in the organization and review of Risk Reference Doses (Acceptable Daily Intakes) and the science from which they are derived."
- 1984 **Tribute of Appreciation.** An EPA award for the "Development of Risk Assessment Guidelines."
- 1984 **Special Achievement.** An EPA award for continued superior performance.
- 1983 **Special Achievement.** An EPA award for continued superior performance.
- 1980 **Bronze Medal and Special Achievement.** Two EPA awards recognizing "Outstanding dedication, completion of tasks and contributions to environmental protection in the development of Water Quality Criteria."

APPOINTMENTS OR ELECTIONS (Selected)

- 2000- **Temporary Advisor.**
World Health Organization for Consultation on Uncertainty and Variability:
BGVV, Berlin Germany. 9-11 May (and continuing)
- 1999- **Vice President Elect, Vice President and President.**
Society of Toxicology's Specialty Section on Risk Assessment.
- 1999- **Member.** Oversight Group for the EPA Cooperative Agreement. George Washington University.
- 1999- **Member and Vice Chair.** Health Advisory Board. National Sanitation Foundation (NSF).
- 1999 **Member.** Panel for the harmonization of cancer and non-cancer risk assessment. Society of Toxicology. November 1-3.
- 1998 - **Executive Director.**

Concordia Lutheran Church, Cincinnati, Ohio.

- 1995 - **Member.**
Editorial Board of the Journal "Regulatory Toxicology and Pharmacology."
- 1995 - **Scoutmaster, Assistant Scoutmaster.**
Troop 133 of Concordia Lutheran Church, Cincinnati, Ohio.
- 1994 - **Member.**
Editorial Board of the Journal "Human and Ecological Risk Assessment."
- 1994 - **Member.**
Editorial Board of the Journal "Human and Experimental Toxicology."
- 2000-1 **Advisor and Rapporteur.**
Food Safety in Europe: Risk assessment of chemicals in food and diet. ILSI: Barcelona, Spain 17019.
- 1996 - 98 **Member, FDA Science Board Subcommittee on Toxicology (1996).**
- 1995 - 99 **Member, Treasurer, Vice President, and President (1998).**
Board of Directors of the American Board of Toxicology.
- 1995 **Co-Guest Editor.**
EPA Uncertainty Factor Workshop. Human and Ecological Risk Assessment, 1(5):512-662.
- 1995 - 96 **President.**
Dose-Response Specialty Group, Society for Risk Analysis.
- 1994 - 95 **Director, Property Board.**
Concordia Lutheran Church, Cincinnati, Ohio.
- 1994 - 95 **Cubmaster.**
Pack 133 of Concordia Lutheran Church, Cincinnati, Ohio.
- 1986 - 94 **Charter Member.**
Risk Assessment Forum of the EPA.
- 1991 - 94 **President, President-Elect and Councilor.**
The Ohio Valley Chapter of the Society of Risk Analysis.
- 1986 - 93 **President, Vice President, and Treasurer.**
Lutheran Church of the Cross, Cincinnati, Ohio.
- 1993 **Member.**
Committee on Lutheran Mission Ministry Strategy for Greater Cincinnati.
- 1993 **Expert Witness.**
OSHA for Informal Public Hearing on the Proposed Rule on Occupational Exposure to Glycol Ethers, Washington, D.C., July 21.
- 1993 **Temporary Advisor and Joint Rapporteur.**
World Health Organization for Consultation on Guiding Principles and Methodology for Quantitative Risk Assessment in Setting Exposures Limits: III,

Geneva, Switzerland, June 14-18.

- 1993 **Faculty.**
As part of an EPA-sponsored delegation to teach a course on Environmental Management-Risk Assessment Training, Lodz, Poland, March 29-April 2.
- 1993 **Temporary Advisor.**
World Health Organization for Consultation on Guiding Principles and Methodology for Quantitative Risk Assessment in Setting Exposures Limits: II, Langen, Germany, January 19-22.
- 1990 - 93 **President and Vice President.**
Academy of Kettering Fellows. University of Cincinnati, College of Medicine.
- 1992 **Temporary Advisor and Co-Vice Chair.**
World Health Organization for Consultation on Guiding Principles and Methodology for Quantitative Risk Assessment in Setting Exposures Limits: I, Geneva, Switzerland, January 14-17.
- 1988 - 92 **Councilor.**
The Ohio Valley Chapter of the Society of Toxicology.
- 1987 - 92 **Chair.**
EPA Risk Assessment Forum's technical panel to develop Risk Assessment Guidelines for Non-Cancer Health Effects.
- 1986 - 94 **Chair and Co-Chair.**
Reference Dose (RfD) Work Group of the EPA (with a 1 year break in service).
- 1988 - 90 **President, Vice President and Councilor.**
Society of Toxicology's Specialty Section on Risk Assessment.

RISK ASSESSMENT EXPERIENCE

I explore new methods for assessing potential human risk resulting in numerous publications (see below), develop or review human health risk assessments (over 1000), and co-author government publications in both areas (over 100). I give numerous invited presentations on various aspects of risk assessment science (see specific examples below), provide opinion in areas of general toxicology and health risk assessment to interested federal and state scientists, lawyers and administrators, industry colleagues and advise other scientists and the general public on these areas.

In addition, I know dose-response and dose-effect relationships for a variety of chemicals and radiation. My dissertation research involved the mouse lung adenoma, carcinogen bioassay. Publications from this research appeared in the Journal of the National Cancer Institute.

While at EPA I successfully managed extramural projects associated with risk assessment research and with Congressional legislation regarding Superfund, solid waste, drinking water and water quality (over three million dollars).

At TERA, I initiated a number of successful partnerships among industry and governments on the risk assessment of environmentally important chemicals (e.g., soluble nickel salts). Research has been started on the toxicity of perchlorate and copper. New methods have been developed and

published for noncancer dose response assessment and comparative risk assessment. The annual *TERA* budget exceeds one million dollars.

SCIENTIFIC SESSIONS CHAIRED OR PLANNED (Selected)

Methyl Mercury: Risk assessment, policy and research needs.

Children's Health and the Environment 2000. 19th International Neurotoxicology Conference. Colorado Springs, Colorado. September 26th.

Effective Risk Communication: Avoiding the Pitfalls.

Continuing Education Course co-chaired at the Society of Toxicology Annual Meeting, Seattle, Washington, March 1, 1998

Chromium Symposium.

Chaired Session on Risk Assessment. Arlington, Virginia, April 23-24, 1996.

Society of Toxicology, NCAC.

Lead panel discussion on Information Resources for Toxicology and Environmental Health. George Washington University, Washington, DC, June 18, 1996.

Risk Assessment of Essential Trace Elements (ETES)

Session planner and co-chair. Society of Toxicology Annual Meeting. Anaheim, California, March 13th, 1996.

Risk Characterization

Session planner and chair. In: New Techniques in Risk Assessment. International Business Communication. Orlando, Florida, February 16th, 1996.

EPA's Integrated Risk Information System: Future Directions

Session planner and chair. In: New Techniques in Risk Assessment. International Business Communication. Orlando, Florida, February 14th, 1996.

Role of Toxicology in Tomorrow's Risk Assessment Practices.

Session planner and co-chair. Sponsored by the Society for Risk Analysis and the International Congress of Toxicology. Seattle, July 2-6, 1995.

Techniques for Quantifying Uncertainty in Risk Assessment.

Session planner & chair, Society of Toxicology Annual Meeting, March 19, 1995.

Statistical and Dose Response Models in Risk Assessment.

Session planner & co-chair, Society of Toxicology Annual Meeting, March 18, 1995.

Workshop on Benchmark Dose Methodology.

Member of the Planning Committee, Sponsored by the EPA, the American Industrial Health Council and the International Life Sciences Institute, Fairfax, Virginia, September 28-30, 1993.

Basics of Risk Assessment.

Session co-chaired in: Conference on the Risk Assessment Paradigm after Ten Years: Policy and Practice Then, Now, and in the Future, Sponsored by the U.S. Army, Air Force, Navy and EPA, Dayton, Ohio, April 5, 1993.

Basic Risk Assessment: Current Developments.

Continuing Education Course chaired at the Society of Toxicology Annual Meeting, New Orleans, Louisiana, March 14, 1993.

Risk Assessment of Essential Elements.

Member of the Planning Committee, Sponsored by U.S. ATSDR, EPA and the International Life Sciences Institute, Herndon, Virginia, March 10-12, 1992

Improvements in Quantitative Noncancer Risk Assessment.

Symposium co-chaired at the Society of Toxicology Annual Meeting, Seattle, Washington, February 27, 1992.

Neurotoxicity Risk Assessment: State of the Art.

Symposium co-chaired at the Society of Toxicology Meeting, Dallas, Texas, March 1, 1991.

Improvements in Quantitative Noncancer Risk Assessment.

Symposium co-chaired at the Society of Toxicology Annual Meeting, San Francisco, California, February 27, 1985.

Risk Assessment Peer Review Meetings.

Since 1986 I have chaired over 100 scientific peer review meetings for risk assessment documents. These meetings have been sponsored by a number of organizations through either Toxicology Excellence for Risk Assessment's (TERA) program of the International Toxicity Estimates for Risk (ITER) database (for examples, please see www.tera.org/peer), or by EPA through its IRIS database (see www.epa.gov/iris). These reviews have discussed well over 300 chemicals.

INVITED PRESENTATIONS (Selected)***To International Health Organizations...***

"Risk Assessment."

HESI Agricultural Chemical Safety Assessment Subcommittee Steering Committee Meeting.
International Life Sciences Institute. Washington, D.C. April 18, 2001.

"Approaches to assessing dose response assessment relations."

Chulabhorn Research Institute. Training course on environmental and health risk assessment and risk management of toxic chemicals, Lak si, Bangkok, Thailand, November 21, 2000.

Incidence and severity in relation to magnitude of intake: mixed effects, categorical regression."

International Life Sciences Institute. Workshop on the significance of excursions of intake above the ADI. Milan, Italy, April 23, 1998.

"Should there be an international accreditation of toxicologists? Accreditation in the USA."

International Congress of Toxicology. Paris, France. July 8, 1998.

"Noncancer Risk Assessment: Impact of Research on the Underlying Science".

International Society for the Study of Xenobiotics. Hilton Head, South Carolina, October 26-30, 1997.

"Alternatives to the NOAEL Approach (BMD, probabilistic approach)."

Federal Institute for Health Protection of Consumers and Veterinary Medicine:
Workshop on Use of Uncertainty Factors in the Risk Assessment Process - New Directions. Berlin, May 5-7, 1997.

"Presentation of Ongoing Work on Characterization of Distributions of Data which Serve as the Basis for Uncertainty Factors."

Health Canada: Planning Meeting on Uncertainty Factors. Ottawa, Canada, March 18, 1995

“On Reference Dose and Its Underlying Toxicity Data Base.”

Health Canada: Threshold of Regulation Workshop. Ottawa, Canada, March 28, 1995

“EPA's Integrated Risk Information System.”

International Programme on Chemical Safety, World Health Organization. Geneva, Switzerland, June 17, 1993.

“Noncancer Dose-response and Risk Characterization.”

In: Course on Environmental Health Risk Assessment. **Nofer Institute of Occupational Health**, Lodz, Poland, March 31, 1993.

“Most Important Problems Encountered in Quantitative Risk Assessment at the National or International Level.”

In: Meeting on Consultation on Guiding Principles and Methodology for Quantitative Risk Assessment in Setting Exposure Limits. **International Programme on Chemical Safety, World Health Organization**, Langen, Germany, January 19, 1993.

“Role of Risk Analysis and Risk Management in the U.S.”

In: 3rd U.S.-Japan Governmental Conference on Drinking Water Quality Management. **Governments of the United States and of Japan**, Cincinnati, Ohio, September 22, 1992.

“The Reference Dose.”

In: Conference on Trace Elements in Health and Disease. **International Society for Trace Element Research in Humans and Nordic Trace Element Society**, Stockholm, Sweden, May 27, 1992

“Novel Approaches to the Estimation of Noncancer Health Risk.”

International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland, January 16, 1992.

“Novel Approaches to the Estimation of Noncancer Health Risk: Probabilistic RfDs, benchmark dose, and severity modeling.”

In: Workshop on Risk Assessment for Noncarcinogens. **Health and Welfare Canada**, Tunney's Pasture, Ottawa, April 29, 1991.

“Impact of Risk Related Concerns on the EPA Programs.”

In: Advanced Research Workshop on Nitrate Contamination: Exposure, Consequences and Control. **North Atlantic Treaty Organization (NATO)**, Lincoln, Nebraska, September 14, 1990.

To U.S. Federal Agencies...

“Quality Issues relating to scientific information.”

US. EPA data quality and gaps workshop. **U.S. Environmental Protection Agency**. Washington, D.C. October 19, 1998.

“Overview: Classical Risk Assessment.”

Risk Assessment in Establishing Upper Reference Levels of Nutrients Workshop. **Food & Nutrition Board, Inst. of Medicine**, Washington, DC, July 15-16, 1996

“ADI, BMD, CEL...The Alphabet Soup of Methods for Dose Response Assessment.”

In: Conference on Advances in Toxicology and Applications to Risk Assessment. **ATSDR, U.S. Army, Air Force, Navy and EPA**, Dayton, Ohio, April 25, 1996.

“Overview of EPA’s Reference Dose Methodology.”

In: Toxicology Peer Review Board Meeting of the **U.S. Army** Center for Health Promotion and Preventive Medicine. Aberdeen Proving Ground, Maryland, January 18th, 1996.

“Evaluating Subpopulations: Fish Consumption Advisory Methodology.”

In: EPA Workshop on challenges in Risk Characterization. **EPA**, Cincinnati, September 8, 1994.

“Inherent Imprecision of RfD.”

In: EPA Regional Risk Assessors' Meeting. **EPA**, Boston, Massachusetts, April 27th, 1994.

“New Methods: Benchmark Dose.”

In: EPA Regional Risk Assessors' Meeting. **EPA**, Boston, Massachusetts, April 26th, 1994.

“Statistical Research Planning of the Environmental Criteria and Assessment Office.”

In: Workshop on Office of Research and Development Statistical Needs. **EPA**, Research Triangle Park, North Carolina, May 12, 1993.

“Risk above the Reference Dose (RfD) Benchmark Dose (BMD).”

In: Conference on the Risk Assessment Paradigm after Ten Years. **U.S. Army, Air Force, Navy and EPA**, Dayton, Ohio, April 7, 1993.

“The U.S. EPA's Use of Uncertainty Factors.”

In: Workshop on Safety Assessment for Non-Cancer Endpoints: The Benchmark Dose and Other Possible Approaches. **California EPA, U.S. EPA and U.S. Agency for Toxic Substances and Disease Registry**, Tiburon, California, May 12, 1992.

“Novel Approaches to Noncancer Health Risk Assessment.”

In: EPA Regional Risk Assessors' Meeting. **EPA**, Denver, Colorado, June 25, 1991.

“Risk above the RfD and Benchmark Dose Procedures.”

In: Workshop to Discuss Noncancer Risk Assessment Methods/Data Needs to Support the New Clean Air Act Amendments. **EPA**, Research Triangle Park, North Carolina, July 23, 1990.

“Reference Dose (RfD).”

In: Workshop to Discuss Noncancer Risk Assessment Methods/Data Needs to Support the New Clean Air Act Amendments. **EPA**, Research Triangle Park, North Carolina, July 23, 1990.

“Guidelines Used to Assess Toxicological Hazards: Quantification Issues.”

In: Symposium on Access and Use of Information Resources in Assessing Health Risks from Chemical Exposure. **Oak Ridge National Lab and EPA**, Knoxville, Tennessee, June 28, 1990.

“How Statutes and Executive Orders Affect the Use of Scientific Information.”

In: Regulation Development in EPA Course. **EPA**, Washington, D.C., June 20, 1990.

“Risk Assessment and Its Uses: Directions of New Research.”

National Institute of Occupational Safety and Health (NIOSH), Cincinnati, Ohio, June 20, 1989.

“Development of Oral Reference Doses.”

In: Workshop on EPA's Integrated Risk Information System: Access, Use, and Interpretation. **EPA**, Lexington, Massachusetts, July 22, 1987.

“New Development in the Derivation and Application of Acceptable Daily Intake Values.”
In: Workshop on Approaches to Ecological and Human Health Risk Analysis for Disposal of Contaminated Sediments and Human Consumption of Contaminated Seafood. **EPA and U.S. Department of the Army**, Seattle, Washington, December 16, 1985.

“Human Health Assessment.”
In: Workshop of Water Quality-Based Toxics Control. **EPA**, Philadelphia, Pennsylvania, November 14, 1985.

“Systemic Health Hazard Assessment.”
In: Workshop on Human Health Criteria. **EPA**, Philadelphia, Pennsylvania, October 3, 1985.

“Novel Methods for the Estimation of Acceptable Daily Intake.”
In: Course entitled "Risk Assessment 101." **EPA**, Washington, D.C., February 19, 1985.

“Toxicity Risk Assessment.”
EPA, Atlanta, Georgia, July 7, 1984.

To the Public and Public Officials...

“Extrapolating data from adults to set ULs for children.”
Workshop on upper levels of nutrients. **National Academy of Sciences**. January 21, 1999.

“Non-Cancer Risk Assessment: Three practical methods from a decade of research.”
In: New Techniques in Risk Assessment. **International Business Communication**. Orlando, Florida, February 15th, 1996.

“Alternatives to the RfD: What are we getting and how much effort does it cost?”
Interagency Risk Assessment Committee. **State of New Jersey**. April 25th, 1994

“Benchmark Dose Approach to Risk Assessment.”
In: **Federal-State Toxicology and Risk Analysis (FSTRAC)** Fall Meeting. Washington D.C., December 1-3, 1993.

“Overview of Alternatives to Benchmark Dose.”
In: Workshop on Benchmark Dose Methodology. Public workshop sponsored by **EPA, American Industrial Health Council, and International Life Sciences Institute**, Fairfax, Virginia, September 28-30, 1993.

“Development of RfDs and the IRIS Process.”
In: Cincinnati Forum on Dose Response Issues of Risk Assessment for Trivalent and Hexavalent Chromium Salts. **Public workshop sponsored by EPA**, Cincinnati, Ohio, August 19, 1993.

“The IRIS Process.”
In: Cincinnati Forum on Boron Containing Chemicals: Risk Factors and Characterizations. **Public workshop sponsored by EPA**, Cincinnati, Ohio, February 11, 1993.

“The Reference Doses for Chromium.”
In: Workshop on Risk Assessment of Essential Elements. Public workshop sponsored by **EPA, Agency for Toxic Substances and Disease Registry, and International Life Sciences Institute**, Herndon, Virginia. March 12, 1992.

“The Reference Dose.”

In: Workshop on Risk Assessment of Essential Elements. Public workshop sponsored by **EPA, Agency for Toxic Substances and Disease Registry, and International Life Sciences Institute**. Herdon, Virginia. March 10, 1992.

“How are Environmental Criteria Developed?”

In: A course entitled "Environmental and Occupational Health Risk Assessment and Risk Management."

Developed for **City of Cincinnati Council** and other local decision-makers, Cincinnati, Ohio, May 3, 1990.

“Non-carcinogenic Risk Assessment.”

In: Risk Assessment Workshop. **Federal-State Toxicology and Regulatory Alliance Committee**, Washington D.C., April 19, 1990.

“Use of Uncertainty Factors for Reference Dose.”

In: Workshop on the Use of the EPA Tools in State Risk Assessment. **National Governors' Association**, Copper Mountain, Colorado, May 4-6, 1988.

“The Regulatory History and Experimental Support of Uncertainty (Safety) Factors.”

In: Workshop on Toxic Air Pollution: A Regulatory Challenge. **State and Territorial Air Pollution Control Officials**, Washington, D.C., October 10-12, 1984.

To Scientific Societies...

“Noncancer risk assessment: A 20-year perspective.”

Ohio Society of Risk Analysis. Noncancer Workshop. June 13th, 2000.

“The challenges of using common mechanism of toxicity in chemical regulation.”

Roundtable session. **Society of Toxicology**. New Orleans. March 17, 1999.

“Risk assessment and the role of risk assessment guidelines.”

Workshop: EPA’s neurotoxicity risk assessment guidelines. **Society of Toxicology**. Cincinnati, Ohio. March 11, 1997

“Noncancer risk assessment: Impact of research on the underlying science.”

Symposium V: Cancer and noncancer risk assessment. **International Society for the Study of Xenobiotics**. October 28, 1997

“Advances in Research Used as an Adjunct to Toxicity Testing: EPA Perspective.”

In: Regulatory Update: EPA Regulation and Test Requirements. **American College of Toxicology**, Annual Meeting, Vienna, Virginia, November 12, 1995.

“Regulatory Considerations of the U.S. EPA.”

In: Biological effects of low level exposures (BELLE) and potential implications for regulatory decision-making. **American College of Toxicology** Annual Meeting, October 26th, 1994.

“Noncancer Improvements Discussion Panel.”

In: Health effects & risk assessment associated with noncarcinogenic, radioactive and mixed waste. **Air & Waste Management Association** 87th Annual Meeting, June 23, 1994.

“Panel Discussion.”

In: Issues in reproductive and developmental risk assessment-boron toxicity as a test case. Annual Winter **Toxicology Forum**, February 22nd, 1994.

“The Use of Threshold Limit Values for Determining Community Standards: Current Issues.”
In: Tutorial Session on Threshold Limit Values and Biological Exposure Indices. 11th International System Safety Conference. **Ohio Chapters of both the System Safety Society and the Society for Risk Analysis**, Cincinnati, Ohio, July 29th, 1993.

“Introduction to Risk Assessment.”
In: Tutorial Session on Environmental and Occupational Risk Assessment and Risk Communication. 11th International System Safety Conference. **Ohio Chapter of the System Safety Society**, Cincinnati, Ohio, July 29th, 1993.

“Modifying Uncertainty Factors for Noncancer Endpoints.”
In: Advanced Topics in Risk Assessment. Continuing Education Course. **Society of Toxicology**, New Orleans, Louisiana, March 14, 1993

“How Toxicity Data Are Used in the Process of Hazard Identification and Dose-Response Assessment.”
In: Basic Risk Assessment: Current Developments. Continuing Education Course. **Society of Toxicology**, New Orleans, Louisiana, March 14, 1993

“Risk Assessment: Who needs it?”
All-Ohio Safety and Health Congress and Exhibit, Cincinnati, Ohio, April 1, 1992.

“Risk Communication-A challenge for the 1990's and Beyond.”
System Safety Society, Cincinnati, Ohio, August 5, 1991.

“Quantitative Risk Assessment: The Reference Dose (RfD) and Research to Improve this Model Including the Use of Average Uncertainty Factors.”
In: Symposium on Neurotoxicity Risk Assessment: State of the Art. **Society of Toxicology**, Dallas, Texas, March 1, 1991.

“Novel Approaches for Quantitative Assessment of Risks for Noncancer Effects.”
Boston Risk Assessment Group and New England Chapter of the Society for Risk Analysis, Boston, Massachusetts, February 12, 1991.

“Health Risk Assessment: Chronic Reference Dose.”
In: Washington Conference on Risk Assessment. **Center for Energy and Environmental Management**, Washington, D.C., September 26, 1989.

“EPA's Approach to Developing Acceptable Air Quality Criteria.”
In: 4th Annual Conference. **HAZTECH International**, Cincinnati, Ohio, September 13, 1989.

“The Underlying Basis of Risk Management Decisions.”
In: 4th Annual Conference. **HAZTECH International**, Cincinnati, Ohio, September 12, 1989.

“Derivation of Risk Values by EPA.”
Hazardous Materials Management Conference and Exhibition/Central, Rosemont, Illinois, March 15, 1989.

“The Reference Dose.”
American Industrial Hygiene Association, Annual Toxicology Symposium. Williamsburg, Virginia, August 16, 1988.

“Reference Dose: Description and Use in Health Risk Assessments.”
In: 54th Annual Meeting. **American Mosquito Control Association**, Denver, Colorado, February 2, 1988.

“The Systemic Toxicity of Air Pollutants: New Directions in Health Risk Assessment.”
In: Session 100: Balanced Approach to Risk Assessment. Annual Meeting. **Air Pollution Control Association**, New York, New York, June 22, 1987.

“Traditional Means of Assessing the Safety of Non-carcinogens.”
In: Symposium on Federal Regulation of Carcinogens. **American Chemical Society**, Washington, D.C., August 30, 1983.

To Universities...

“Does the use of data-derived uncertainty factors allow risk assessors to describe uncertainty more accurately?”
Fifth Annual Workshop on Evaluation of Default Uncertainty Factors in Health Risk Assessment, **New Jersey Medical School**, June 1, 2001.

“Guidelines for Application of Data-Derived Uncertainty Factor in Risk Assessment.”
Fourth Annual Workshop of Evaluation of Uncertainty Factors in Health Risk Assessment, **New Jersey Medical School**, May 3-4, 2000.

“Determining USEPA Reference Doses (RfDs) for essential minerals.”
University of Ulster. Nutrition & Toxicology Excellence for Risk Assessment Workshop Series. Northern Ireland. June 18, 1999.

“Evolution of Science-based Uncertainty Factors in Noncancer Risk Assessment.”
The 2nd Annual Workshop on the Evaluation of EPA 10X Safety Factors in Health Risk Assessment. **New Jersey Medical School**, Nutley, NJ. December 6, 1996.

Invited Conference participant at Harmonization of State/Federal Approaches at the Environmental Risk Symposium. Moderated Workshop on Toxicity Assessment. **Michigan State University**. May 20-21, 1996.

“Noncancer Hazard Identification and Dose Response Assessment, Part 2.”
In: Risk assessment. **University of Cincinnati, College of Medicine**. April 18, 1996.

“Dose Response Class Exercise: Aroclor.”
In: Risk assessment. **University of Cincinnati, College of Medicine**. April 30, 1996.

“Introduction to Risk Assessment.”
In: Risk assessment. **University of Cincinnati, College of Medicine**. March 26, 1996.

“Systemic Toxicants, Cross Route Extrapolation, Complex Mixtures.”
In: Risk assessment. **University of Cincinnati, College of Medicine**. May 23, 1995.

“Components of Risk Assessment.”
In: Risk assessment. **University of Cincinnati, College of Medicine**. March 29, 1994. (This same lecture was also given an additional two times at the Cincinnati State Technical and Community College on September 27th and November 15th.)

“Noncancer Risk Assessment.”
In: Course entitled "Introduction to Risk Assessment." **University of Kentucky**, Lexington, Kentucky, July 28, 1993.

“Noncancer Risk Assessment Science.”

In: Risk Assessment and the Environment Series. Harvard Center for Risk Analysis. **Harvard School of Public Health**, Boston, Massachusetts, February 16, 1993.

“Bridging the Chasm: Breakthroughs Needed in Noncancer Risk Assessment.”

In: Kettering Seminar Series. **University of Cincinnati, College of Medicine**, Cincinnati, Ohio, January 22, 1992.

“Safety Factors in Non-Carcinogenic Risk.”

In: Workshop on Reducing Uncertainty in Risk Assessment. **Michigan State University**, East Lansing, Michigan, May 18, 1987.

“Use of Risk Assessment to Set Safe Levels.”

In: Conference on Emerging Issues in Environmental Analysis and Planning: Implication for Professional Education. **University of Cincinnati, U.S. Army Corps of Engineers and the EPA**, Cincinnati, Ohio, April 12, 1985.

“Environmental Risk Assessment.”

In: Course on Applied Toxicology. **University of Cincinnati, College of Medicine**, Cincinnati, Ohio, April 6, 1984.

“The U.S. Environmental Protection Agency Perspective of Qualitative Risk Assessment.”

In: Course on Applied Toxicology. **University of Cincinnati, College of Medicine**, Cincinnati, Ohio, March 30, 1983.

“EPA Criteria Documents.”

In: Fifth Annual Course in the Principles and Practices of Genetic Toxicology. Division of Environmental Toxicology. **University of Texas Medical Branch**, Galveston, Texas, 1980.

“Quantitative Considerations in Urethane Induced Neoplasia.”

In: Toxicology Division Seminars Series. **University of Cincinnati, College of Medicine**, Cincinnati, Ohio, October 25, 1979.

“Some Quantitative Aspects of Chemical Carcinogenesis II.”

In: Toxicology Division Seminar Series. **University of Cincinnati, College of Medicine**, Cincinnati, Ohio, February 2, 1979.

“Some Quantitative Aspects of Chemical Carcinogenesis I.”

In: Toxicology Division Seminar Series. **University of Cincinnati, College of Medicine**, Cincinnati, Ohio, March 7, 1978.

“Computer Simulation Studies on Kehoe's Lead Data.”

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I have also co-authored over 100 documents for the EPA that address either risk assessments for specific chemicals, or risk assessment methods, and have an additional 6 to 10 manuscripts that are not listed here.

COMMENTARIES

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AFFILIATIONS AND MISCELLANEOUS

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I am a member of the American Association for the Advancement of Science (**AAAS**), the International Society of Regulatory Toxicology and Pharmacology (**ISRTP**), the Society of Kettering Fellows, the Ohio Chapter of the Society of Risk Analysis (**OSRA**), Society of Risk Analysis (**SRA**), and the Society of Toxicology (**SOT**). I am a Diplomate of the American Board of Toxicology (October 1985) and was recertified in 1990 and 1995.

I have lectured in courses at the graduate level in several universities and institutes; have lectured high school students on the general principles of toxicology over several years; and have talked with grade school students on several occasions about careers in science and my experiences in Africa.

REFERENCES

References will be readily supplied upon request.