

**SRA Annual Meeting Workshops
Sunday, December 7, 2008**

Full Day Workshops – 8 AM-5 PM
(*Note: lunch is on your own for all workshops*)

WK1: Probabilistic Risk Analysis with Hardly Any Data

Organizer: Scott Ferson

\$245 preregistration; \$295 onsite registration

This full-day tutorial introduces and compares methods for developing a probabilistic risk analysis when little or no empirical data are available to inform the risk model. The talks are organized around the basic problems that risk analysts face: not knowing the input distributions, not knowing their correlations, not being sure about the model itself, or even which variables should be considered. Possible strategies include traditional approximative methods and recent robust and bounding methods. Numerical examples are given that illustrate the use of various methods including traditional moment propagation, PERT, maximum entropy, uniformity principle, probability bounds analysis, Bayesian model averaging and the old work horse, sensitivity analysis. All of the approaches can be used to develop a fully probabilistic estimate useful for screening decisions and other planning. The advantages and drawbacks of the various approaches are examined. Essentially, the drawbacks are that bounding approaches may say too little about risks, and the rough and ready approximate methods may say too much. The discussion addresses how defensible decisions can be made even when little information is available, and when one should break down and collect some data and, in that case, what data to look for. The presentation style will be casual and interactive. Participants will receive a CD of the illustrations and numerical examples used during the tutorial.

WK2: CANCELLED

WK3: Risk Analysis and MS Excel: No Need for Addins

Organizer: William McGill

\$225 preregistration; \$275 onsite registration

MS Excel is a very popular computational platform in the risk world for one simple reason – everyone has it. This workshop will equip novice Excel users with the skills needed to develop custom risk analysis tools for their clients leveraging both the power of Excel's built in mathematical and indexing functions and the added power of Visual Basic for Applications. The concept of "sheets" as "subroutines" will be explained and demonstrated, as well as suggestions on building a friendly user interface using Excel's form tools. All topics will be complemented by a wealth of case studies and practical exercises. Note that all participants should bring with them a PC laptop with MS Excel 2003 or later installed and working.

WK4: Linking Probabilistic Analyses to Decision Making Using Sensitivity Analysis

Organizer: Amir Mokhtari

\$245 preregistration; \$295 onsite registration

This workshop will answer key questions faced by those who conduct, manage, or review probabilistic and sensitivity analysis of risk models. When should you perform sensitivity analysis? What are the typical simulation techniques and software packages? What are the roles of uncertainty and sensitivity analyses as value added techniques in risk assessment? How do you prepare a model to facilitate sensitivity analysis? What are key considerations in the development of scenarios that are the basis for sensitivity analysis? What are some typical sensitivity analysis methods and how can you select among them? How should particular sensitivity analysis methods be applied? How should the results of sensitivity analysis be presented and interpreted? This workshop will answer these questions.

The methods and case studies that will be presented in this workshop are based upon several years of research at NC State University and RTI International regarding developing quantitative risk assessment models for environmental and microbial systems and also research at NCSU regarding transferring, applying, and adapting sensitivity analysis methods developed in other disciplines (e.g. complex engineering systems) to quantitative exposure and risk assessment models. Dr. Frey led a research program at NC State University which resulted in a guidance document regarding selection, application, and interpretation of sensitivity analysis methods applied to quantitative risk assessment models. This workshop helps practitioners in selecting specific sensitivity analysis methods that are relevant to a particular case study and to the characteristics of the model. Practitioners can also use the instructions in the workshop to aid in interpreting results from a sensitivity analysis in response to a particular modeling objective. Workshop participants will be provided with course notes, a copy of the guidance document, and a tutorial with examples for instructing attendees how to perform sensitivity analysis using common sensitivity analysis methods. The basic concepts of probabilistic risk assessment will be illustrated during the course using software packages such as @Risk and Crystal Ball. The uncertainty and sensitivity analysis methods will also be illustrated with practical case studies. This workshop is aimed at practitioners, managers, or reviewers who wish to refine their knowledge regarding approaches in risk assessment and sensitivity analysis methods.

WK5: CANCELLED

WK6: Improving Risk Governance: Defining a Better Process for Risk Communication and Stakeholder Participation

Organizer: Ortwin Renn

\$300 preregistration; \$350 onsite registration

Why should politicians, stakeholders or researchers communicate risks to other audiences and the public? How can we make sure that the intended message on risk is well understood by the targeted audiences? What is so special about risk communication? How and to what degree can scientific researchers contribute to successful risk communication?" Responses to these questions are addressed in this SRA Special Workshop.

Communicating risk to the public is often an end-of-pipe-product informing the public of what a researcher has assessed and what actions a risk manager has taken. Methods such as risk scenarios, risk classification, dose response modeling, exposure assessments, and probabilistic risk assessment provide scientific insights. These assist industrial risk managers and public regulators to handle and administrate hazardous substances. Our emphasis in this course is on food and pharmaceutical risks. These risks are particularly of concern to the public and can become hot topics in public debates. The basic core of this workshop is formed by a broad conceptual framework for risk governance developed by the International Risk Governance Council (IRGC), a private, non-profit foundation in Geneva, Switzerland.

The workshop will be a combination of lecture and interactive case studies, including development of mock press conferences and other role-playing exercises, and feedback discussions. It is designed to help workshop participants think through the issues involved in dealing with risk communication both in the design of programs for the governance of new risks and when faced with a crisis.

WK7: From Discounting to QALYs to VSLYs and Other Cost Benefit Analysis Approaches to Help Inform Decision Making

Organizer: Cristina McLaughlin

\$270 preregistration; \$320 onsite registration

Cost Benefit (CB) Analysis has become increasingly useful in helping policy makers evaluate health and safety policies. However, CB analysis carries considerable controversy, especially because it provides ways to measure health, safety and the environment in monetized terms.

This workshop will address how some of the components of CB analysis are used for measuring health and safety. For example, valuation approaches can include direct cost of illness approaches to estimates that includes society's willingness to pay (WTP) or Value of a Statistical Life Year (VSLY). One focus of this workshop is to address limitations in VSL estimates from compensating wage studies. Different valuation approaches will also be discussed such as cost effectiveness analysis and the use of QALY's and DALY's. Another focus of this workshop is to explore how discounting can help evaluate costs and benefits of policies whose effects will happen in the very distant future or span over a long period of time.

This workshop will present a case study about short and long term occupational risks from Silica dust exposure and will discuss different health valuation approaches in measuring health effects of this problem. Workshop participants will have an opportunity to formulate their own cost benefit analysis approach of potential policy options regarding the case study or other subjects of interest. The workshop will be concluded with presenters forming a panel to discuss issues raised by participants.

Morning

Instructors:

Anna Alberini, University of Maryland

Laina Bush, DHHS-ASPE

Frank J. Hearl, CDC, NIOSH

Amber Jessup, DHHS – ASPE

Cristina McLaughlin, FDA - CFSAN

Rene Pana-Cryan, CDC- NIOSH

David Zorn, FDA - CFSAN

For registration visit: http://www.sra.org/events_2008_meeting.php

For information contact Cristina McLaughlin at: Cristina.McLaughlin@FDA.HHS.GOV

WK8: CANCELLED

AM Half-Day Workshops – 8:30 AM-12:30 PM

WK9: New Features and Models of the Benchmark Dose Software – BMDS Version 2.0

Organizer: Jeffrey Gift

\$200 preregistration; \$250 onsite registration

This training course will provide instruction in the changes that have been implemented in version 2.0 of the U.S. EPA's benchmark dose software (BMDS). Some of the additions to this latest version include a new user interface that allows multiple run processing, the ability to save model option choices separately from the data sets, and summary sheets that compare different modeling results side by side. In addition, the following new models in BMDS 2.0 will be discussed: dichotomous models dealing with additivity to background, a dichotomous hill model and continuous exponential models. This course will provide hands-on training in using the new program and exercises to demonstrate the use of the new models. Models currently under development for addition to BMDS in the future will also be briefly introduced, including a new multistage model (MS_Combo) for estimating BMDLs associated with risk from multiple independent tumor sites. This course is an advanced training in the features of BMDS 2.0 and it is therefore recommended that prior to this training, students who are not familiar with BMD modeling take the online BMD training course, which introduces the use of benchmark dose modeling in risk assessment (<http://www.epa.gov/ncea/bmds/training/index.html>). Note that all participants should bring with them a PC laptop. To facilitate the installation of BMDS, the laptops should be running Windows XP and the user should have administrative rights for software installation.

WK10: Risk Analysis: Fundamental Concepts, Applications and Controversies

Organizer: David Hassenzahl

\$200 preregistration; \$250 onsite registration

Meetings and publications of the Society for Risk Analysis can be daunting to newcomers. More generally, risk analysis incorporates and spans many disciplines. It is often difficult for people, even those who work on some topic within risk analysis — be it toxicology, terrorist threat assessment or human behavior — to understand how their work fits into the risk analysis “big picture.” Likewise, disciplinary training does not prepare people to understand, much less converse with, fellow practitioners. This workshop, taught by three experts with extensive histories in practice, government and academia, is designed to fill that gap. We introduce fundamental risk analysis concepts, terminology, applications and calculations. The workshop is suitable for first time Society for Risk Analysis Annual Meeting attendees, as well as all individuals new to risk analysis and those who have been involved in only a limited aspect of risk analysis. Participants should have an undergraduate degree in an area relevant to risk analysis, and / or relevant work experience. Upon completion of this course, students will understand the origins, applications and controversies surrounding risk analysis. They will be prepared to evaluate risk analysis reports and presentations. Most importantly, they will be prepared to engage comfortably in the range of conversations that distinguish Society for Risk Analysis Annual Conferences.

WK11: Intermediate Topics in Chemical Mixtures Health Risk Assessment

Organizer: Linda Teuschler

\$259 preregistration; \$309 onsite registration

This half-day workshop presents intermediate topics and hands-on exercises on methodologies for assessing cumulative health risk from environmental exposure to chemical mixtures. Topics include additivity methods, common mode of action decision schemes for mixtures, physiologically-based pharmacokinetic (PBPK) modeling, toxicological interactions, and multiple route exposures, along with comparisons with traditional approaches such as time-weighted average exposures and the dose-additive Hazard Index. A brief overview will be given on basic concepts and terminology, with the bulk of the course focused on advanced chemical mixture health risk assessment methods with exercises for several important classes of chemical mixtures (e.g., PCBs, VOCs, pesticides, metals, drinking water disinfection by-products). Workshop topics include: Relative Potency Factors for common mode of action chemical groups; mechanistic information and interpretation of toxicological interactions; PBPK modeling of changes in kinetics for simple mixtures and their practical applications and significance; and mixtures assessment using multiple route exposures. Discussions include real world examples, exercise results, and general questions and comments.

Afternoon Half-Day Workshops – 1:30-5:30 PM

WK12: Introduction to Environmental and Health Aspects of Nanotechnology

Organizer: Jo Anne Shatkin

\$330 preregistration; \$380 onsite registration

This course will provide participants with an overview of the emerging concerns regarding nanotechnology and nanomaterials and impacts for occupational and public health and the environment. The course introduces the topics of nanotechnology, nanotoxicology, environmental aspects of nanotechnology, and addresses ethical, legal, societal and regulatory perspectives. Through lectures and interactive sessions, participants will obtain a knowledge base for understanding the exposure, human health, and safety issues for nanomaterials and nanotechnologies and the potential impacts for workers, consumers, stakeholders, and the environment.

Nanotechnology is the understanding and control of matter at dimensions of roughly 1 to 100 nanometers, where unique phenomena enable novel applications. Nanotechnology is emerging in all economic sectors, including: energy, medicine, food technology, imaging, manufacturing, electronics and

air and water purification. Some of the current and potential future materials and technologies have the potential for significant impacts on health and the environment. This course introduces participants to the technological basis of nanoscale phenomena, the current and potential future uses of nanotechnology, explores the breadth of issues raised for health and the environment, and implications of current research and gaps on regulatory policy and societal impacts.

At the conclusion of this course, the participants will have gained insights into (1) Key concerns regarding nanotechnology risks for employees, the public, and the environment; (2) Characteristics and properties of nanomaterials and nanotechnologies; (3) Nanotoxicology: state-of-the-science regarding the toxicity of nanomaterials and nanotechnologies; (4) Environmental aspects of nanotechnology; and (5) Risk assessment and risk management issues for nanomaterials and nanotechnologies.

WK13: Current Topics in Risk Analysis

Organizer: David Hassenzahl

\$200 preregistration; \$250 onsite registration

The Society for Risk Analysis now comprises a range of specialty groups. These include Biological Stressors, Decision Analysis and Risk, Dose-Response, Ecological Risk Assessment, Economics and Benefits Analysis, Emerging Nanoscale Materials, Engineering and Infrastructure, Exposure Assessment, Risk Communication, and Risk Policy and Law. In this workshop, expert representatives from these specialty groups will give presentations summarizing major topics in their fields.

WK14: Chemical Specific Adjustment Factors: Evaluating and Using Data to Quantify Inter- and Intraspecies Extrapolation for Risk Assessment

Organizer: John Lipscomb

\$250 preregistration; \$300 onsite registration

The World Health Organization's International Programme on Chemical Safety (IPCS)), has established guidance for replacing default uncertainty factor values for interspecies extrapolation and intraspecies extrapolation in risk values such as Reference Doses (RfDs) and Tolerable Concentrations (TCs). It guides the evaluation and quantitation of data that can be used to replace defaults with chemical specific adjustment factors (CSAFs). The approach subdivides the uncertainty factors for interspecies differences (UFA) and human variability (UFH) into toxicokinetic (TK) and toxicodynamic (TD) components. Default values for any or all of these four subfactors can be replaced by CSAF values. In the absence of chemical-specific data, default values of 2.5 and 4.0 have been established for the TD and TK component of UFA, while the default values for the TD and TK components of UFH were each established at one-half order of magnitude (3.2). This framework enables the incorporation of quantitative data, reducing the uncertainties in dose extrapolation. This emerging approach has been used to support the U.S. EPA in deriving an RfD for boron and by Health Canada in deriving a TC for 2--butoxyethanol. This half-day workshop will review the use of uncertainty factors and present a historical perspective on the reliance on quantitative data to develop values for inter- and intraspecies extrapolation. The course will focus on the IPCS methodology for CSAF development, including the thinking process and steps used for evaluating data. Examples and classroom activities will be used as instructional aids.