

Global Net on "Consumer Exposure Modelling" Workshop on Exposure-Related Data

*JRC Workshop on Consumer Exposure Modeling
Verbania, Italy
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Background to the Workshop

- Consumer exposure assessment will be dominated by models
 - Monitoring is expensive, invasive, and difficult to perform
 - Modelling will be used to extend monitoring data to address variation in use and products
- Models require data on:
 - The user, the location/environment of use, the product, and how the product is used
- The exposure data required for the model varies with the role the model plays
 - Ranking models
 - Screening models with iterative refinements
 - Detailed simulation models
- The workshop focused on the available data for consumer product exposure models



Presentations

- Global efforts to collect and organize exposure-related data
 - EIS-ChemRisks activity to develop and inventory of relevant European sources
 - The ExpoFacts project
 - US EPA Exposure Factors Handbooks
 - Industry Projects
 - German Database for probabilistic exposure assessment
- Regulatory frameworks for exposure data collection and use
 - REACH
 - Biocide regulations in the US
 - Exposure Assessment in Japan
- Data gaps and data collection prioritization
 - Probabilistic exposure assessment
 - Aggregate exposure
 - EU perspective - theory versus practice



Barriers To Obtaining Data

- Goals for exposure models need to be better defined
 - For example intended versus unintended uses
 - What is considered in the “conservative case”?
- Data are scattered
 - Collected by various groups for sundry purposes
 - Not properly organized
- Limitations of peer review journals discourage release of raw data
- Data are proprietary or trade secret
 - Data are often closely related to product-specific design and marketing programs that have real financial value
 - Organizations have made significant investments to create data
 - Systems built on the concept of control of data
- Some data may simply not exist
(research needs)



Data Needs: Stochastic Modeling

- Deterministic models require point estimates that meet specific requirements
 - Representative of typical use event
 - Representative of high end use event
 - Representative of conservative estimate given current understanding
- Probabilistic models require data on
 - Variation across individuals
 - Variation across time in individuals
 - Models of uncertainty in data



Data Needs: Advanced Modeling

- Data on correlation between activities
 - The best data come from surveys where an individual's location, activities, and personal characteristics are collected at the same time
 - Frameworks are required to marry the data from multiple surveys
 - Must have access to original raw data
- Longitudinal data
 - Most of the current data on exposure relevant factors are cross sectional data (many individuals at one point in time)
 - Cross sectional data are easier to collect
 - Longitudinal data are required to characterize doses that occur over time



Challenges

- Mechanisms needed to make existing data available
 - Create motivations for sharing study results including access to raw data
 - Develop systems and approaches that reward or compensate organizations for creating data on exposure-related factors
 - Systems for organizing and disseminating data on substance and product specific data
- Develop methods for updating data over time
- Develop methods for addressing subpopulations with different characteristics
- Determining when data from one population can be applied to other populations - will an exposure assessment in Portugal apply in Finland?



Research Challenges

- Not all exposure factors are equally important
 - Factors that don't vary much should receive low priority
 - Factors with large amounts of existing data
- Research in how to organize, present, and share data
 - Libraries of exposure scenarios?
 - Substance specific data for 20,000+ compounds in commercial use
- Making use of the Internet
 - Large and growing source of data on behavior and product characterization
 - Data can be changed/withdrawn at any time
 - QA/QC questions
- Using new information technologies
 - Tracking chips
 - GPS



Summary

- Much data are available now
- More data are becoming available
- More data will be needed
 - Advanced models
 - Sub populations
- Work is needed to better:
 - Identify, organize and share existing data
 - Define and organize data on product use
 - Take advantage of the ongoing information revolution

