

Development and Application of New and Existing Biological Monitoring Methods to Assess Workers Exposure to Toxic Chemicals and Their Role in Hazard Identification, Evaluation and Control

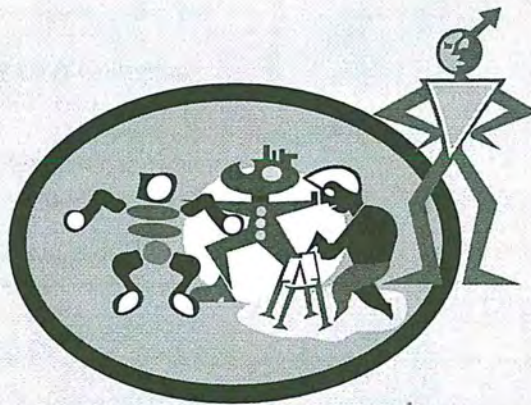
John E. Snawder, Barbara A. MacKenzie, Raymond E. Biagini, Deborah L. Sammons, Jerome P. Smith, and Cynthia A.F. Striley. National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Cincinnati, OH

Exposure assessment by biological monitoring is a multidisciplinary field central to determining workplace exposures to occupational hazards. Biomonitoring is the direct measurement of environmental chemicals, their primary metabolites, their reaction products (such as macromolecular-adducts) and toxicological effects in people--usually in blood or urine specimens. These techniques are used to estimate personal exposures, determine health effects of occupational exposures and define exposure- response relationships for epidemiologic studies. Basic knowledge of metabolic fate and the toxicology of occupational chemicals are applied to develop suitable biomarkers. This knowledge is then used to develop and apply new methods, particularly rapid immunochemical methods, in conjunction with advances in traditional chemical analysis. The application of newly developed methods for assessment of exposure and effects in conjunction with epidemiological field studies increase opportunities to evaluate occupational hazards. Exposures to JP-8 jet fuel, agricultural chemicals and workplace solvents will be presented as examples. These rapid, inexpensive measurement tools and improved data analysis methods are being developed for the collection of adequate exposure data and for effective intervention. These advancements will lead to (1) better identification of at-risk workers, (2) better identification of the most cost-effective control and intervention strategies, (3) better understanding of exposure-response relationships, and (4) improved baseline data for standard setting and risk assessment.



Applying Biomarkers to Occupational Health Practice

Exposure Assessment Methods Workshops



Abstract
(Sorted Alphabetically by Author Name)

March 24-25, 2003 • La Fonda on the Plaza • Santa Fe, New Mexico

