

## **New Methods for Interpretation of Exposure Data Subject to Limit of Detection**

Enrique F. Schisterman. *Epidemiology Branch (EB), Division of Epidemiology, Statistics & Prevention Research (DESPR), National Institute of Child Health & Human Development (NICHD).*

Measurements of environmental levels of chemicals used for exposure assessments are often limited by levels of detection. Surrogate measures or computational approaches are used often to complete exposure assessments. Advancements in the interpretation of measured exposure data will significantly improve our ability to quantify actual exposures.

We are developing state-of-the-art methods to evaluate the impact of mixtures on human health effects. Upon completion of the work, we will prepare peer reviewed scientific manuscripts. These papers are expected to document the epidemiological and statistical issues, offer statistical approaches for obtaining valid parameter estimates along with confidence intervals, and empirically demonstrate the utility of the proposed methodology.

This study will offer DESPR investigators and external consultants an opportunity to develop statistical methods to perfect measurement issues pertaining to the quantification of chemicals or biomarkers. In addition, it will help design more cost effective studies and, ultimately, facilitate discussion of laboratory methods for standardizing the reporting of exposure data when estimating human health risks.

**Implications:** The new methodology produced as a result of this collaborative effort will enable researchers to reduce or eliminate bias due to limit(s) of detection. Employing these innovative analysis techniques for such data will enable improved decision making by researchers and policy-makers.

**Start and end date:** December 2006 – December 2008

### **Presentation(s):**

Symposium at Society for Epidemiological Research. 2008 Annual Meeting, Chicago, IL, June 24-27, 2008.

**Peer-reviewed publication(s):** None to date.

**Other publication(s):** None to date.

**Sponsors in addition to the LRI:** Intramural Research Program. *Eunice Kennedy Shriver* National Institute of Child Health and Human Development.

**Abstract revision date:** March 2009