

# NISS

National Institute of Statistical Sciences

# News Release

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## **JAMA Article Contends Earlier Study Overstated Validity of Findings on Bisphenol A - Multiple Testing Involved**

**February 18, 2009: RTP, NC** – In a letter to be published in this week’s Journal of the American Medical Association (JAMA), Dr. S. Stanley Young, Assistant Director of Bioinformatics at the National Institute of Statistical Sciences, and Ming Yu, University of British Columbia, highlight the statistical limitations of a study claiming that bisphenol A is associated with cardiovascular diagnoses, diabetes and abnormal blood level liver enzyme levels. The earlier study, published in JAMA (September 16, 2008) by Dr. Ian A. Lang and colleagues, did not adequately address the potential for multiple testing to result in a false positive result.

Young and Yu note that the CDC National Health and Nutrition Examination Survey [2003-2004] that was used in Lang et al’s study measured 275 environmental chemicals and a wide range of health outcomes. Although the Lang et al study focused on one chemical and 16 health outcomes, Young and Yu note that it is important to focus on how many questions were at issue.

They point out that with 32 possible health outcomes, including combinations, potentially associated with any of the 275 chemicals, along with multiple confounders and statistical models, there could be as many as approximately 9 million statistical models available to analyze the data. Given the number of questions at issue and possible modeling variations in the CDC design, Young and Yu conclude that the findings reported by the authors could well be the result of chance rather than representing real health concerns.

Dr. Young graduated from North Carolina State University, BS, MES and a PhD in Statistics and Genetics. He worked in the pharmaceutical industry on all phases of pre-clinical research, first at Eli Lilly and then at GlaxoSmithKline. He has authored or co-authored over 50 papers including six “best paper” awards, and a highly cited book, Resampling-Based Multiple Testing. He conducts research in the area of data mining. In addition to his position at NISS, Young is an adjunct professor of statistics at North Carolina State University, the University of Waterloo and the University of British Columbia where he co-directs thesis work.

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