

**SYMPOSIUM:
EVALUATING STUDY DESIGNS
FOR THE MEASUREMENT OF DRUG EXPOSURE IN PREGNANCY**

Monday, 17 August 2009

Sponsored by the Medicines in Pregnancy SIG and the Teratology Society

Elizabeth B Andrews PhD MPH,¹ Lyn Colvin MPH,² Sonia Hernandez-Diaz MD,³ Lewis Holmes MD,⁴ Tina Chambers PhD MPH,⁵ Andrea Margulis³ and Allen Mitchell MD.⁶

¹ Pharmacoepidemiology and Risk Management, RTI, RTP, NC, United States

² Centre for Child Health Research, Telethon Institute for Child Health Research, University of Western Australia, Australia

³ Program of Pharmacoepidemiology, Harvard School of Public Health, Boston, MA, United States

⁴ Massachusetts General Hospital, Boston, United States

⁵ University of California San Diego, La Jolla, CA, United States

⁶ Slone Epidemiology Center, Boston University, Boston, MA, United States

Background: Teratogenicity of a drug depends on timing of fetal exposure. Methodological issues in exposure measurement in studies of drugs in pregnancy include inherent design biases, cost-efficient data collection, missing data and the timeliness of detection and reporting.

Objectives: This session aims to review the methodological and practical issues involved in the assessment of drug exposure in pregnant women.

Description: We will review exposure ascertainment in different study designs: clinical trials, pregnancy registries, ad hoc cohorts, databases, and case-control studies. Inherent biases and limitations in each design will be discussed. Examples from validation studies or sensitivity analyses will be presented to quantify potential exposure misclassification and expected biases; e.g., retrospective interview data, prescribing or pharmacy dispensing data, lack of data on LMP.

Presentations include:

- Organogenesis and the definition of ‘embryologically meaningful period’ (Lewis Holmes)
- Advantages and limitations of exposure data from the following designs:
 - Registries (Tina Chambers)
 - Claims or electronic medical records databases (Andrea Margulis)
 - Case Control studies (Allen Mitchell)

The discussion will cover methodological (e.g. recall bias, assessment of gestational timing, class action effects) and practical issues (e.g. absolute impact of theoretical biases, validation studies, optimizing data collection tools).

WORKSHOP:
ASSESSMENT OF PRENATAL EXPOSURE TO MEDICATIONS

Wednesday 19 August 2009

Sponsored by the Medicines in Pregnancy SIG and the Teratology Society

Lyn Colvin MPH,¹ Sonia Hernandez-Diaz MD,² Elizabeth Andrews PhD MPH,³ Allen Mitchell MD,⁴ Tina Chambers PhD MPH,⁵ Pamela E. Scott PhD⁶ and Richard Hill BSc MBBS.⁷

¹ Centre for Child Health Research, Telethon Institute for Child Health Research, University of Western Australia, Australia

² Program of Pharmacoepidemiology, Harvard School of Public Health, Boston, MA, United States, 2115

³ Pharmacoepidemiology and Risk Management, RTI, RTP, NC, United States, 27709

⁴ Slone Epidemiology Center, Boston University, Boston, MA, United States

⁵ University of California San Diego, La Jolla, CA, United States

⁶ Medication Exposure in Pregnancy Risk Evaluation Program, OSE, FDA, MD, United States

⁷ WHO Collaborating Centre for International Drug Monitoring, Uppsala, Sweden

Background: Measuring exposure to medications in pregnancy in pharmacoepidemiology studies presents methodological and practical challenges, which are described in the companion symposium on this topic.

Objectives: To provide an interactive workshop in which participants apply methodological and practical principles of exposure measurement to hypothetical, but true-to-life, examples using a case-based format.

Description: This workshop will highlight some of the lessons learned from the study of drug safety during pregnancy. The workshop will focus on the assessment of exposure information of newly marketed and established prescription and nonprescription drugs, and will cover the following:

- How to decide which study design is both feasible and valid?
- How to define the exposure of interest (what and when)?
- How to ascertain drug exposure optimally within each design?
- How to quantify potential biases (sensitivity analysis)?

Participants will design the exposure ascertainment plan for three hypothetical studies aimed to assess the teratogenicity of 1) a new antiretroviral regime, 2) a common antibiotic for urinary tract infections and upper respiratory infections, and 3) an over the counter cough medication. In small groups supported by senior investigators (Susan Andrade [invited] and investigators from the symposium), participants will develop a brief proposal. Studies will be presented to a panel of experts playing the role of Regulatory and Funding Agencies (Richard Hill and Amarily Vega). We will discuss the most valid, feasible, and efficient designs according to exposure characteristics.