

## **A RECORD LINKAGE STUDY OF ADVERSE BIRTH OUTCOMES, CHILDHOOD CANCER AND WATER CONTAMINATION BY ATRAZINE AND NITRATES IN THE MIDWESTERN UNITED STATES**

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**Background and Aims:** There is limited evidence that exposure to atrazine and nitrates are associated with low birth weight, prematurity, birth defects and childhood cancer. Contamination of surface and ground water by atrazine and nitrates is high in Midwestern states that produce corn. This study will evaluate whether there is an association between water contamination of ground and surface water by atrazine and nitrates, and adverse birth outcomes and childhood cancer in the Midwest. A second aim is the development of methods to explore possible associations between water contamination and health outcomes by linking existing information from monitoring of water with health outcome data from birth certificates and for linking existing data from birth certificates with other registry data.

**Methods:** The target population for this study are all births that occurred between 2004 and 2008 in Indiana, Ohio, Michigan, Minnesota, Wisconsin, Indiana, Iowa, Illinois, and Missouri, which is estimated to include approximately 800,000 births. The study has three phases with each phase having greater ability to address spatial and temporal variations in exposure. The first phase is an ecologic study of birth certificate based outcomes including low birth weight and premature birth using estimates of exposure at the county level. In the second phase we will extend the study to include childhood cancers, and birth defects. In the 3<sup>rd</sup> we will link individual level data from birth certificates with tumor and birth defects registry data with individual level estimates of exposure.

**Results:** We have established agreements and are currently in the process of obtaining birth outcome and exposure data for all eight states.

**Discussion:** Many methodological challenges exist in both obtaining health data and estimating exposures for this study. These methodological challenges and results from the first phase of the data will be presented at the meeting.