

Introduction to Herbicides and Birth Outcomes in the Midwest

James Roberts, MD, MPH



Project Goal

Assure that farmers and our food system do everything possible to support the health of children

- Conception—pregnancy—birth
- Early growth & development
- Adulthood

At its core, this project is about supporting healthy pregnancies and normal childhood development.



Project Activities

Conduct and publish research on trends herbicide use, toxicity, and health effects.

- Synthesize and disseminate published research
- Emphasize supporting positive patient outcomes, epidemiological advances
- Improve accuracy of herbicide use metrics around rural communities
- Enhance exposure estimates through:
 - GPS modeling
 - Biomonitoring data
 - Environmental sample results



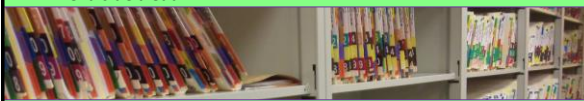
More Project Activities

Assess options to reduce herbicide use, exposures, and risk

- Enhance birth and death certificates
- Improve integration of birth defects registries and medical records

Identify and promote prudent actions to mitigate known risk drivers

- Limit the applications of these known risk drivers
- Support herbicide resistant management plans to slow down the "herbicide treadmill"



Project Science Team



- Charles Benbrook, Benbrook Consulting Services
 - PhD in Agricultural Economics from University of Wisconsin-Madison



- Michael Hansen, Consumers Union
 - PhD in Ecology and Evolutionary Biology from University of Michigan



- Irva Hertz-Picciotto, University of California- Davis
 - PhD and MPH in Epidemiology and MA in Biostatistics, University of California- Berkeley

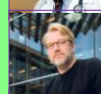


- Richard Jackson, University of California- Los Angeles
 - MD from the University of California-San Francisco, and MPH in Epidemiology, University of California – Berkeley

Project Science Team, Continued



- Philip Landrigan, Mount Sinai School of Medicine
 - MD, Harvard University and MS in Occupational Medicine from the London School of Hygiene and Tropical Medicine



- Bruce Lanphear, Simon Frasier University, BC Children's Hospital, and Cincinnati Children's Hospital Medical Center



- MD, University of Missouri- Kansas City, MPH from Tulane School of Public Health and Tropical Medicine

- Rount Reigart, Medical University of South Carolina
 - MD, Harvard Medical School



- Paul Winchester, Franciscan St. Francis Health and Riley Children's Hospital
 - MD, University of Colorado Medical Center, MA University of Michigan

Why the Focus on Herbicide Use in the Midwest?



Four Concerns

- 1. Reproductive problems**
 - Spontaneous abortions, failure to conceive
- 2. Adverse Birth Outcomes**
 - Premature delivery, low-birth weight, birth defects
- 3. Developmental Effects**
 - Neurological, immune system, metabolic
- 4. Epigenetic Effects**
 - Metabolism, CVD, obesity, diabetes, neurobehavioral

