Pesticide Exposure in Women of Reproductive Age: A US-Mexico Border Study

Start Date: January 2001 **Completion Date: December 2003**

Project Purpose:

To define pesticide exposure in women of reproductive age that live or work in the U.S.-Mexico border region. The objective of the study was to determine whether women living in an agricultural area along the border could have greater exposures to pesticides by agricultural spraying or from household use.

Project Description:

Imperial County in southern California was selected as the study location since it is an agricultural area along the US-Mexico border. In October 2001, 100 women were recruited from community health clinics. Women had no self-reported history of infertility, were not pregnant, and lived in the Imperial Valley for at least the previous two weeks at the time of this study. Each consenting woman completed a questionnaire and provided a urine sample. Urine samples were analyzed by the Centers for Disease Control and Prevention (CDC) environmental health laboratory and analyzed for 34 metabolites or parent compounds of pesticides that are used both agriculturally and residentially. Metabolites of the following groups were analyzed: organophosphates, phenol-based pesticides, pyrethroids and carbamates. We compared study results with population-based reference values from the CDC's *Second National Report on Human Exposure to Environmental Chemicals*. Reference values were not available for all the metabolites and compared to literature values. The median age of participants was 29 years (range 18 to 45 years), 89% of whom were Hispanic. Forty-one percent of the women were employed during the 2 weeks prior to the interview but none worked in agriculture. Sixty-nine percent of the women reported living one-quarter mile or more away from an agricultural field. Thirty-one percent reported living closer to a field.

Pesticide metabolites were detected in all the urine samples in Imperial County indicating recent past pesticide exposure. In general, the geometric means were higher in Imperial County for some of the metabolites, while some were the same, and others were lower when compared to the US population. The data reported in the National Report are for people that live in the eastern and western suburban and urban regions of the US. People living in this border region are in an agricultural area. This difference may account for the higher levels in this population, however, the levels of pesticides and the metabolites and other substances detected in urine do not necessarily indicate a health risk.

Results from this study provide information about the range of pesticide exposure among reproductive-aged women who live and work in an agricultural community. Most of the US population is exposed to pesticides from many different sources, even if they are not agricultural workers. Women who live and work along the US-Mexico border are exposed to generally about the same types and levels of pesticides as the US population.

Final Outcomes:

- Presented at the 131st American Public Health Association meeting November 2003 by Raquel Sabogal, CDC-NCEH
- Summary letter of results provided to study participants November 2003
- Community meeting coordinated by CDC and the State for the study participants, local health agency and the Imperial County agricultural commission December 2003
- Report to the State completed, dissemination pending
- Results will be published in a peer-reviewed journal 2004-2005

Presentations or Publications:

Pesticide Exposure in Women of Reproductive Age: A U.S.- Mexico Study. Final Report 2004. Prepared by CDC.

Publication pending: Pesticide Exposure in Women of Reproductive Age: A U.S.- Mexico Study

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