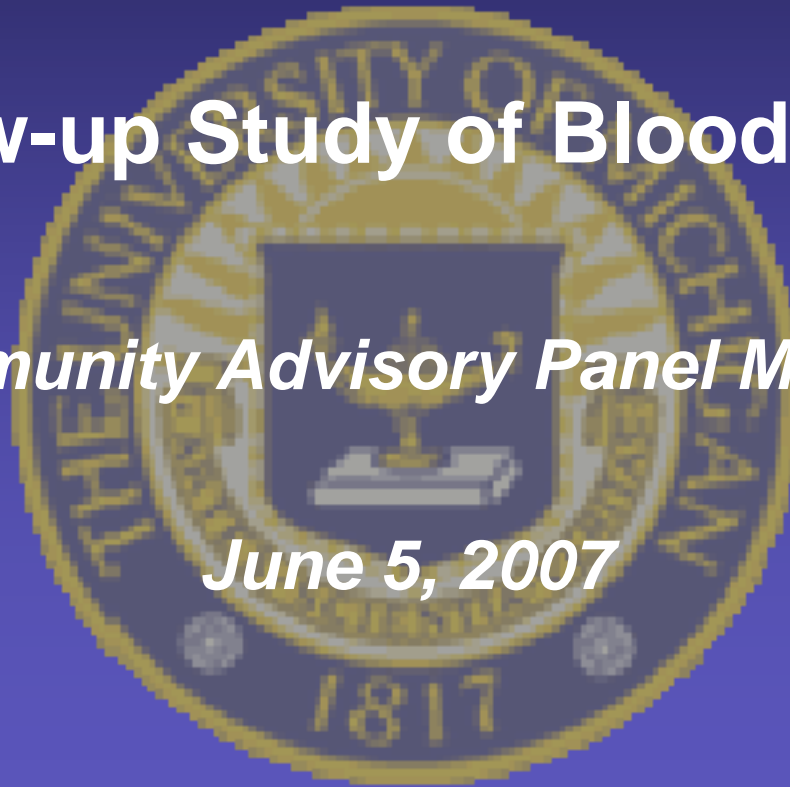


The University of Michigan Dioxin Exposure Study

A Follow-up Study of Blood Outliers

Community Advisory Panel Meeting

June 5, 2007



Outlier Study - Background

- ❖ The University of Michigan Dioxin Exposure Study (UMDES) has collected information based on questionnaires and samples of blood, soil and/or house dust from over 1,300 randomly selected subjects in Midland, Saginaw, Bay, Jackson and Calhoun counties, including blood results from 946 people.
- ❖ The study seeks to understand sources of variation in the observed blood measurements. Not surprisingly, the distribution of blood results is skewed, with a small number of 'high' total TEQ_{DFP29-1997} values, after adjustment for age and BMI.
- ❖ This follow-up study seeks to better understand the reasons for these blood outlier values.

Preliminary Study

- ❖ Over the last year we conducted a pilot study of 'high' serum outliers.

Preliminary Study

- ❖ Eligible subjects (n=8) were invited to be re-interviewed in person.
- ❖ The interview was semi-structured, and included topics on:
 - ❖ Residential history
 - ❖ Occupational history
 - ❖ Recreational activities (e.g., fishing and hunting, gardening and spraying pesticides)
 - ❖ Pregnancy history
 - ❖ Basic demographic information
 - ❖ Diet

Preliminary Study - Conclusions

- ❖ Most outliers had a congener pattern in their blood which was low in furans and high in PCBs. Similarities among these outliers included:
 - ❖ Regular consumption of sport fish and wild game
 - ❖ Recent weight loss
- ❖ One case had a different congener pattern, suggesting that there are other sources of exposure in the community (e.g. past clay/ceramics hobbies)
- ❖ Outlier blood levels based on total TEQ_{DFP29-1997} do not appear to be due to occupation or activities in the TR/SR/SB floodplain
- ❖ For full results see: www.umdioxin.org

Current Study

- ❖ The present outlier study compares the exposure histories of outlier cases to a common pool of non-outlier controls randomly selected from the UMDES study population.
- ❖ The five studies investigate outliers for:
 - ❖ TEQ_{DFP29-2005}
 - ❖ 2378-TCDD
 - ❖ 123678-HxCDD
 - ❖ 23478-PeCDF
 - ❖ PCB 126

Rationale for Selecting Congeners

- ❖ PCB 126 was found to be elevated among TEQ outliers in the pilot study
- ❖ 2378-TCDD may be a marker of working at Dow, or exposure to soil (e.g., in plume area – where TCDD levels were elevated)
- ❖ 23478-PeCDF may be a marker of flood plain contamination
- ❖ 123678-HxCDD may be a marker of having worked at Dow

Current Study Design

- ❖ We will seek to recruit a minimum of 15 outliers from each of the five groups, plus approximately 20 controls
- ❖ Controls will be matched to the outliers by age. In addition, controls will meet the following eligibility criteria:
 - ❖ Total blood TEQ_{DFP29-2005} less than the median for Jackson/Calhoun counties (after adjustment for age, age² and BMI)
 - ❖ Each of the 29 congeners less than the median for Jackson/Calhoun counties (after adjustment for age, age² and BMI)

Progress to Date

- ❖ The current outlier study is underway. To date we have recruited and interviewed 27 people.
- ❖ Interviews started in the spring of 2007, and will continue through the summer and into the fall of 2007.

The End