



Office of the Report on Carcinogens Public Webinar

Human Cancer Studies on Exposure to Trichloroethylene: Methods Used to Assess Exposure and Cancer Outcome

March 17, 2014, 9 AM to 1 PM EDT

Abstracts and Preliminary References

ABSTRACTS

Presentation 1. *Methods Used to Assess TCE Exposure Levels, Duration, and Probability in Epidemiologic Studies*

Patricia Stewart, PhD, Stewart Exposure Assessments, LLC

Exposure assessment provides important information in the evaluation of carcinogenicity of TCE. First, the background of the basic approaches to assessing exposures is presented covering the four most frequent metrics estimated: probability, intensity, frequency and confidence; and the three most frequent assessment approaches: self-reports, job exposure matrices, and expert review of study-specific information. The information available and the process of assessing exposures generally differ by study design, i.e. industry-based cohort studies and population- or hospital-based case-control studies. TCE's major use has been as a degreaser. Each of the TCE cohort and case-control studies has been evaluated in a systematic way to identify different levels of quality based on the strengths and limitations of the assessments.

Presentation 2. *Methods Used to Classify Cancer Outcomes – Specifically Lymphohematopoietic Cancers*

Bernard D. Goldstein, MD, Professor Emeritus, University of Pittsburgh

Interpreting the relationship between various hematological tumors and potential causative agents has been complicated by advances in molecular biology and in pathology that have led to an evolution in recent decades in the conceptual understanding and in the diagnostic criteria of hematological neoplasms. On the one hand, the search for markers that can guide therapy has led to expanding the subclassification of various hematological disorders. But on the other hand, these markers have allowed recognition of the essential similarity among what had seemingly been disparate diseases. The resulting changes in diagnostic nomenclature have complicated interpretation of the literature about agents such

as trichloroethylene, particularly for those epidemiological studies that depend solely upon death certificates accumulated over relatively long time periods.

Presentation 3. *Use of Exposure and Outcome Assessments in the Epidemiologic Studies*

Mark Purdue, PhD, National Cancer Institute

Trichloroethylene (TCE) is a chlorinated solvent used for many decades in vapor degreasing of metal parts and other industrial applications until the early 1970s, when concern over potential health effects led to a decline in its use. Many cohort and case-control studies have evaluated the association between occupational exposure to TCE and cancer risk with varying results, possibly due in part to the different approaches to exposure and outcome assessment that were employed. In this presentation we will discuss the following: (1) how these studies used data from the exposure assessment in their statistical analyses; (2) how the quality of the exposure and disease assessment affects the scientific strength of study findings; and (3) how different aspects of exposure and disease assessment can be used to evaluate potential heterogeneity across studies.

PRELIMINARY REFERENCES FOR THE DRAFT ROC MONOGRAPH

The following list of references are for human studies of exposure to trichloroethylene (TCE) and specific cancer endpoints – kidney and liver cancer, non-Hodgkin lymphoma, multiple myeloma – under consideration for inclusion in the RoC TCE Monograph as of March 3, 2014.

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