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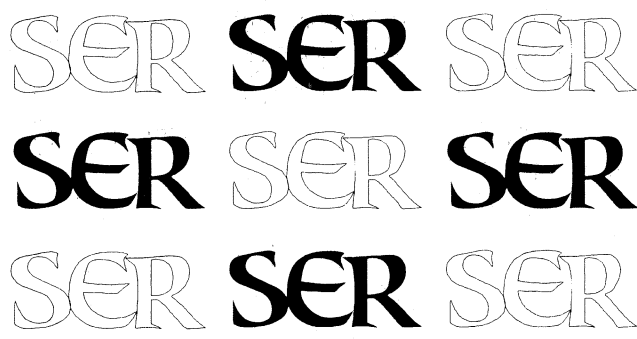
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**ABSTRACTS OF THE 35<sup>TH</sup> ANNUAL MEETING  
PALM DESERT, CALIFORNIA, JUNE 18-21, 2002**

*Founded 1920 by W. H. Welch and W. H. Howell as the American Journal of Hygiene  
at the Johns Hopkins School of Hygiene and Public Health*

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COHORT MORTALITY STUDY OF EMPLOYEES AT A CHEMICAL PLANT: AN UPDATE. J. Mandel, \*P. Chapman, and J. Amsel (Exponent Health Group, Menlo Park, CA 94025)

This mortality study of chemical workers from the Pampa, Texas Celanese Americas plant is an update of a previous study of the mortality experience of workers through 1991. An additional seven years of employee and mortality data resulted in an additional 268 cohort members and 71 new deaths. Mortality was determined through December 31, 1998. The Pampa plant, which began operation in October 1952, produces organic chemicals by means of the liquid phase oxidation (LPO) of butane in the presence of air pressure, heat, and catalysts. The principal products of the LPO process are acetic acid and acetic anhydride. Products that were produced at the plant in prior years include vinyl acetate, betapropiolactone, and diacetyl cyanide. Besides these products, employees worked with certain materials that are no longer being used including chromic acid, paraformaldehyde, and benzene. The mortality experience of Celanese Americas employees was compared to that of the general population of the United States. All cause and cause-specific standardized mortality ratios (SMRs) were calculated. For the entire cohort, several causes of death including all causes (SMR=65.9; 95% confidence interval (CI) = 56.9-76.0), heart disease (SMR=69.1; 95% CI: 53.6, 87.8), and all malignant neoplasms (SMR=74.2; 95% CI = 56.3-95.9) were significantly less than expected and similar to the findings of the previous study. Unlike the initial study, the SMR for prostate cancer among white males was not significantly elevated (SMR=174.3; 95% CI = 75.3-343.5) and was much lower than the initial SMR of 330.4. This suggests that the initial findings, which were based on a small number of deaths, were likely due to chance. Overall, Celanese Americas employees from the Pampa plant have significantly lower than expected SMRs for several causes of death, and no causes of death that are significantly elevated.

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HETEROGENEITY, INFLUENCE AND SENSITIVITY ANALYSES IN META-ANALYSIS STUDIES - IT MATTERS: A CASE STUDY OF TRICHLOROETHYLENE AND CANCER. \*Kelsh MA, Exuzides KA, Cher D, Mandel JS.(Exponent Health Group, Menlo Park, CA 94025)

Meta-analytic reviews of epidemiologic research on a specific exposure and disease relationships are becoming increasingly relied upon for environmental policy decisions and for classification of the toxicity or carcinogenicity of chemical and physical agents. In meta-analysis, it is important to assess the heterogeneity across individual studies' findings to determine the appropriateness of summarizing studies with a single summary effect estimate. It is useful to conduct influence and sensitivity analyses to determine the impacts of specific studies or assumptions on the meta-analysis summary estimates. We assessed the importance of these procedures for the case of trichloroethylene (TCE) exposure and cancer where a recent comprehensive review was completed [Wartenberg et al., 2000. Trichloroethylene and cancer: epidemiologic evidence. *Environ Health Perspect* 108 Suppl 2: 161-176]. Statistical measures of study heterogeneity indicated that for the better-designed studies (i.e. occupational cohort studies), there was substantial heterogeneity of findings across individual studies for kidney cancer ( $p=0.001$ ) as well as other cancers. Funnel plots identified a potential outlier study, which, when removed from the analyses, changed the meta relative risk (RR) summaries from the original  $RR=1.73$  with 95% confidence intervals [CI] of 1.07-2.65 to  $RR=1.04$  (95% CI, 0.60-1.70). This change substantially altered the interpretation of the risks of TCE and kidney cancer. Similar, although less dramatic impacts, were noted for other cancers examined in this review. We conclude that the suggested meta-analysis procedures for assessing heterogeneity and performing influence and sensitivity analyses have a large impact in the interpretation of meta-analysis studies for TCE and cancer.

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CANCER AND OCCUPATIONAL USE OF PESTICIDES: REGULATORY RISK ASSESSMENTS AND BIOLOGIC PLAUSIBILITY. \*Acquavella J, Doe J, Bloemen L, Tomenson J, Chester G (Monsanto Company, St. Louis, MO 63167)

Epidemiologic studies frequently provide evidence of associations between reported use of specific pesticides and human cancers. These findings have engendered debate largely on methodologic grounds. However, biologic plausibility is a more fundamental issue that has received only superficial attention. Pesticides are regulated extensively in developed countries where most epidemiologic research has been conducted. Many widely used pesticides are not animal carcinogens even when experimental animals ingest physiologically taxing doses every day for a lifetime. For these compounds, and for pesticides that are animal carcinogens, regulators require estimated human exposures to be orders of magnitude below levels of any toxicologic significance. In many instances, therefore, epidemiologic findings are in conflict with weight of evidence assessments of pesticide toxicity and likely human exposure. Progress toward understanding the causes of cancer among pesticide-exposed populations will require explicit consideration of: toxicologic results, the probable range of human exposures, and non-chemical risk factors characteristic of agricultural settings. The authors provide a generic example of how likely human exposures might be estimated and compared to relevant toxicologic dose levels.

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ANTHRAX POST EXPOSURE PROPHYLAXIS ADHERENCE IN CONNECTICUT POSTAL WORKERS. \*J. Williams, S. Noviello, H. Wurtzel, K. Griffith, J. Hamborsky, J. Perz, I. Williams, J. Hadler, D. Swerdlow, R. Ridzon (Centers for Disease Control and Prevention, Atlanta, GA 30333)

Post exposure prophylaxis (PEP) is the prevention effort cornerstone of postal workers (PWs) with potential anthrax exposures; however, non-compliance has been a significant problem. On 11/20/01, a Connecticut woman was diagnosed with anthrax. PEP was recommended for 1122 PWs at the regional mail facility serving the patient's area. Initial facility testing was negative; subsequent testing confirmed the presence of *B. anthracis*. We evaluated the extent of compliance among PWs and identified barriers to PEP. Questionnaires were administered to 100 randomly selected PWs. Demographics, antibiotic use, adverse events, attitudes regarding PEP and exposure risk were evaluated. The majority of PWs were male (66%), and white (71%) with a mean age of 45 years. 94 PWs picked up antibiotics; 80% received ciprofloxacin, 19% doxycycline and 1% amoxicillin. Of the 68 (72%) PWs starting PEP, 21 (31%) discontinued (mean duration=6 days). The 53 PWs who stopped or never started PEP cited disbelief regarding exposure (32%), concerns or problems with adverse events (21%) and initial reports of negative environmental cultures (13%). Adverse events were reported by similar proportions of PWs treated with ciprofloxacin (42%) and doxycycline (38%). Among the 36 PWs who reported adverse events, predominant symptoms were gastrointestinal distress (72%) and headache (25%). PEP adherence was influenced by PWs' perceived low risk of exposure and concerns about adverse events. Communications about risks of acquiring anthrax, education about adverse events and management of adverse events will be essential components to increasing PEP adherence.