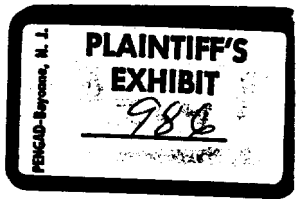
Arch Env Health
43: 201, 1987



Abstracts of Poster Sessions

Applications of Measures of Cumulative Exposure to Assessing Air Pollution Health Effects

D. E. Abbey, C. L. Euler, A. R. Magie, J. E. Hodgkin
Loma Linda University, Loma Linda, California

A METHOD for assessing the health effects of long-term cumulative exposures to air pollutants or other environmental exposures is proposed and illustrated using self-reported symptoms of chronic obstructive pulmonary disease (COPD) for a population of 7,343 nonsmokers. Using zip code by month. residence histories, and interpolated exposure estimates from the network of California air monitoring stations, two alternative exposure indices were calculated to estimate cumulative exposure Over an 11-yr period above different threshold levels for each of four pollutants. The indices were used with multiple logistic regression models to form dose-response curves for relative risks adjusting for covariates. The dose-response curves are used to illustrate how a determination of at what exposure amounts and threshold levels health effects, which are biologically and statistically significant, begin to occur. Statistically significant effects were noted for total. suspended particulates, total oxidants, sulfur dioxide, and passive smoking. A description is also given of how the indices are currently being used in a 10-yr follow-up of the study population. This follow-up study is utilizing data collected by the National Cancer Institute-funded Adventist Health Study and has mortality, cancer incidence, heart disease incidence, and change in self-reported COPD symptoms as outcomes.

Community-Based Prevention of Childhood Lead Exposure

R. H. Allen
US E.P.A./O.R.D. Office of Acid Deposition, Environmental Monitoring and Quality Assurance, Washington, D.C.

EXPECTED PREVALENCE of childhood lead exposure was computed and mapped using census data for an urban metropolitan area. An estimate of the number of children at risk was made using those demographic risk factors found to correlate with elevated blood lead levels, according to indices set by the Centers for Disease Control. and findings of the second National Health and Nutrition Examination Survey. Neighborhood variations were examined along with overlays of elementary school otchment areas. Recent findings about the epidemiology of childhood lead exposure were used to identify key variables. Advancer in research and development of biomarkers of absorption and in measurement of significant adverse outcomes related to school behavior and learning were summarized. along with recommendations on solving common community involvement and methodological problems. Expected community variation in exposure and absorption form the basis for a proposed community-based prevention research program in defined elementary schools.

Chromosomal Abnormalities and Environmental Exposures in Acute Nonlymphocytic Leukemia

M. M. Crane, M. J. Keating, J. M. Trujillo, D. R. Labarthe
University of Texas Health Science Center School of Public Health, Houston and M. D. Anderson Hospital and Tumor Institute

CHROMOSOMAL ABNORMALITIES are present in bone marrow of approximately 50% of newly diagnosed acute nonlymphatic leukemia (ANLL) patients, but their etiologic significance, if any, is unclear. The frequency of environmental exposures, gathered by questionnaire from patients or relatives. was compared in 127 newly diagnosed ANLL patients with marrow abnormalities (AA) and 109 ANLL patients with cytogenetically normal marrow. These represented 73% of de novo patients treated at M. D. Anderson Hospital between 1976 and 1983. M patients were more likely than NN patients to: report cytotoxic treatment for prior medical conditions (Odds Ratio [OR] and 95% confidence intervals, adjusted for age. sex. and other exposures by logistic regression = 4.25 [1.38, 13.17]); smoke cigarettes, OR = 1.82 (1.02, 3.26); drink alcoholic beverages. OR = 1.91 (1.05, 3.48); and work at occupations with possible exposure to mutagens, OR = 3.59 (0.76, 17.13). No statistically significant associations between aneuploidy and use of other tobacco. avocational exposure to chemicals or exposure to animals were present. Associations between specific abnormalities and prior cytotoxic therapy (deletion of chromosome 7), smoking (extra chromosome 8, inversion chromosome 16), and occupation at the time of diagnosis (translocation between chromosomes 8 and 21) were noted. No association between occupational exposure to benzene or ionizing radiation and the 6 most common chromosomal abnormalities in ANLL patients were noted. although these agents are known to be leukemogenic. Problems with interpreting the above associations, including the high nonresponse rate. a high proportion of surrogate respondents. and the large number of significance tests that were performed, will be discussed. These results are consistent with those from previously reponed series. and suggest that tumor-specific markers may be present for some exposures in this disease.

Fish Consumption Habits and Body Burden Levels of Chlorinated Hydrocarbons in Wisconsin Sport Fishermen

V. B. Jones, H. A. Anderson, L. P. Hanrahan, L J.
Section of Environmental and Chronic Disease Epidemiology, Wisconsin Division of Health, Madison, Wisconsin

SINCE the mid-1960s, when trout and salmon stocking programs were initiated. there has been a resurgence of Great Lakes sports fishing in Wisconsin. In the early 1970s, the Wisconsin Department of Natural Resources, having identified hazardous constituents in industrial water discharge, implemented a fish monitoring program. Chlor-