077

MORTALITY PATTERNS IN INDIANA WORKERS EXPOSED TO POLYCHLORINATED BIPHENYLS (PCBS). *A M Ruder, M J Hein, N Nilsen, M AWaters, P Laber, K Davis-King, M M Prince, E Whelan (The National Institute for Occupational Safety and Health/CDC, Cincinnati, OH)

Background; Mortality was updated through 1998 for 3,588 workers exposed to polychlorinated biphenyls (PCBs) between 1957 and 1986 at a capacitor manufacturing plant, to evaluate excess melanoma and brain cancer, originally seen in this cohort, and rectal, liver, biliary tract, and gall bladder cancer, and non-Hodgkins lymphoma, observed in other PCB studies. Methods: Standardized mortality ratios (SMR) and 95% confidence intervals (CI) used Indiana state (shown) and U. S. rates. A new job-exposure matrix calculated estimated cumulative exposure. Results: Overall mortality was reduced (547 deaths, SMR 0.81, CI 0.75, 0.88). Melanoma was significantly elevated (9 deaths, SMR 2.43, CI 1.11, 4.60); brain cancer (12 deaths, SMR 1.91, CI 0.98, 3.33) and non-Hodgkins lymphoma (9 deaths, SMR 1.23, CI 0.56, 2.33) were elevated. Other cancers of a priori interest were not in excess. When the cohort was stratified by quartiles of estimated cumulative exposure, melanoma was in excess in the lowest quartile (4 deaths, SMR 4.09, CI 1.12, 10.5), with a trend ($p = 0.014$) of decreasing SMR with increasing exposure. Brain cancer was in excess in the highest quartile (5 deaths, SMR 3.55, CI 1.15, 8.28) but there was no dose-response trend. Among 2,789 individuals who worked at least 90 days, both melanoma (8 deaths, SMR 2.66, CI 1.15, 24) and brain cancer (11 deaths, SMR 2.12, CI 1.06, 80) were in excess. Conclusion: These findings reinforce those of the original study. For both melanoma and brain cancer, mortality and estimated cumulative exposure do not fulfill dose-response relationships.

078

EFFECT OF SHORT-TERM EXPOSURE TO LOW LEVELS OF GASEOUS AIR POLLUTION ON COPD HOSPITALIZATION AMONG THE ELDERLY IN VANCOUVER, CANADA. *Q Yang, Y Chen, D Krewski, S W Wen, R T Burnett, Y Shi, K M McGrail (McLaughlin Centre, Institute of Population Health, University of Ottawa, Canada)

The authors conducted an epidemiologic study to examine the association between gaseous air pollutants and hospitalization for chronic obstructive pulmonary disease (COPD) among elderly people. Daily measures of gaseous (Carbon monoxide (CO), Ozone (O3), Nitrogen dioxide (NO2), and Sulfur dioxide (SO2)) and particulate (thoracic particulate matter (PM10)) air pollutants were collected in greater Vancouver, British Columbia, Canada from 1994 to 1998. All adults 65 years of age or older who had acute COPD admissions in a hospital in Greater Vancouver from 1994 to 1998 were included in the analysis. The logarithm of daily counts of hospitalization on the daily mean levels of each pollutant was estimated, after accounting for seasonal and subseasonal fluctuations and weather conditions, using non-Poisson dispersion regression model. NO2 and CO were significantly associated with hospitalization for COPD and the magnitude of effects was increased slightly with increasing days of exposure averaging, with the relative risk for a 7-day average being 1.11 (95% CI: 1.04, 1.20) and 1.08 (1.02, 1.13), respectively. There was no statistically significant association between either SO2 or O3 and COPD hospitalization. The combined relative risk for all four gaseous pollutants (CO, O3, NO2 and SO2) on COPD hospitalization was 1.21. The inclusion of PM10 in multiple regression models did not increase the effect estimate. The authors conclude that CO and NO2 are significantly associated with increased risk of COPD hospitalization among elderly people.

079

ASSOCIATION BETWEEN AMBIENT AIR PARTICLE POLLUTION AND FIRST HOSPITALIZATION FOR RESPIRATORY DISEASE IN CHILDREN LESS THAN 3 YEARS OF AGE. *Q Yang, Y Chen, D Krewski, Y Shi, S W Wen, R T Burnett, K M McGrail (McLaughlin Centre, Institute of Population Health, University of Ottawa, Canada)

To access the impact of air particular matters (PM) on first hospitalization due to respiratory disease in young child, the authors conducted an epidemiologic analysis for children less than 3 years of age living in Greater Vancouver, British Columbia, Canada who had their first hospitalization due to any respiratory disease (ICD-9 codes 460–519), pneumonia only (ICD-9 codes 480–486) or asthma only (ICD-9 code 493) during the period from June 1, 1995 to March 31, 1999. Children from the same area who had their first admissions for gastroenteric diseases were selected as a control group. Logistic regression was used to estimate the associations between PM and first hospitalization. These associations were also examined using bi-directional case-crossover and time-series analyses. The odds ratios for first hospitalization due to respiratory disease associated with mean and maximal PM10-2.5 with a lag of 3 days were 1.12 (95% CI: 0.98, 1.28) and 1.13 (1.00, 1.27), respectively. After adjusting for gaseous pollutants, the corresponding odds ratios were 1.22 (1.02, 1.48) and 1.14 (0.99, 1.32). On the other hand, mean and maximal PM2.5 showed no significant effect on first hospitalization for respiratory disease before and after adjustment for covariates. Case-crossover and time-series analyses yielded similar results. The authors conclude that exposure to coarse PM associates with increased risk of first hospitalization for respiratory disease in early childhood, with the strongest association at a lag of 3 days.

080

USING LANDSCAPE ELEMENTS DERIVED FROM REMOTE SENSING IMAGERY TO EXPLAIN THE GEOGRAPHIC DISTRIBUTION OF *WUCHERERIA BANCROFTI* INFECTION IN LEOGANE COMMUNE, HAITI. *H A Boyd, D G Addiss, L A Waller, W D Flanders (Emory University, Atlanta, GA 30322)

Remote sensing (RS) has been promoted as an inexpensive, non-labor-intensive method of collecting exposure data for epidemiologic research on vector-borne diseases. We assessed associations between landscape elements derived from Landsat satellite imagery and *W. bancrofti* infection in children from 57 schools in Leogane Commune, Haiti. In generalized linear mixed models containing two landscape element variables, agricultural vegetation variables were positively associated with infection status, regardless of the choice of control variable (prevalence odds ratio (POR) range: 2.68, 7.47). Negative associations were observed between infection status and rock/rocky soil, trees, and native grasses when agricultural vegetation variables were not included as covariates (POR range: 0.08, 0.61). Although larger multivariate models were not constructed due to landscape element collinearity, our results suggest that combinations of landscape elements may explain the geographic distribution of *W. bancrofti* infection better than individual elements alone. We faced not only collinearity problems but also image acquisition, processing and interpretation challenges that are likely to be similar for most lymphatic filariasis (LF)-endemic areas. Consequently, routine use of RS data-based models to provide guidance for LF elimination programs is unfeasible at present. Nevertheless, RS-derived landscape elements promise to contribute to our understanding of the geographic heterogeneity of W. bancrofti infection if the issues raised by our work, particularly the collinearity problems, can be addressed.

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