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PNEUMOCONIOSIS PREVALENCE AMONG WORKING U.S. COAL MINERS: PRELIMINARY RESULTS BASED ON CHEST X-RAY SCREENING DATA, 1995 TO 2000.

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We investigated the prevalence of Coal Workers' Pneumoconiosis (CWP) using the most recent five years of data from the U.S. Coal Workers' X-ray Surveillance Program. From October 1995 to October 2000, the program received 23,144 classifiable chest x-ray films for 20,590 miners at 1116 mines located in 15 states. Chest films were classified by a NIOSH A reader and one or more NIOSH B readers, using the International Labor Office 1980 Classification. Simple CWP was defined as films having reader agreement (based upon 42CFR37.52) for small opacity profusion 1/0 or over. Progressive massive fibrosis (PMF) was defined as reader agreement on the presence of large opacities. The crude prevalence of simple CWP was 2.09% (431 cases), and of PMF, 0.17% (36 cases). Across the 15 states, simple CWP ranged from 0 to 5.32%; while PMF ranged from 0 to 0.42%. In surface, underground, and contract miners, CWP prevalence was 1.48, 2.27, and 7.14%, respectively. For ages <30, 30-39, 40-49, 50-59, and 60+, prevalence of CWP was 0.05, 1.38, 2.24, 2.71, and 3.93%; and of PMF, 0, 0.03, 0.18, 0.25, and 0.66%. 14,444 miners recorded a job history. For coal mining tenure of 0-10, 11-20, 21-30, and 30+ years, CWP prevalence was 0.71, 1.91, 2.77, and 3.47%; while PMF prevalence was 0, 0.09, 0.17, and 0.31%. Previous NIOSH reports have documented decreases in radiographic prevalence of CWP from 1970 to 1995. Our recent results highlight the importance of continuing attention to dust control for all miners and raise particular concern about exposures experienced by contract miners.

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CHANGE IN SENSE OF COHERENCE BETWEEN 1994 AND 1998 IN A SAMPLE OF THE CANADIAN LABOUR FORCE.

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This study examined the temporal stability of sense of coherence, a psychological resource, and the impact of working conditions on change in sense of coherence, over a four-year period using the Canadian National Population Health Survey. The study population consisted of 18 - 64 year labour force participants, who reported sense of coherence levels in both 1994 and 1998 (n=5,945). Change in sense of coherence level was assessed using two methods; (1) using a index of reliability of change based on personality test-retest reliability literature, and (2) using a 10% limit of change, based on comments from Antonovsky, the designer of the sense of coherence scale, as an upper limit of possible change. In the working population aged over 30 years (n=4,435), the age after which sense of coherence is predicted to be most stable, we found 17.5% of the population changed using limit one, and 55% changed using limit two. Utilizing a logistic regression framework, and adjusting for 1994 level of sense of coherence, we found that the risk of decline in sense of coherence level, using the more conservative personality limit, was higher for people positioned lower in the occupational hierarchy and for working conditions such as low decision latitude, job insecurity and total work stress, using an abbreviated form of the Karasek and Theorell Job Content Questionnaire. The findings suggest that (1) the sense of coherence level may not be as stable as originally thought, and (2) that negative change in sense of coherence may be affected by job conditions.

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QUESTIONNAIRES AS TOOLS FOR GATHERING WORK EXPOSURES AND ASTHMA SYMPTOMS IN COMMUNITY-BASED STUDIES.

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The study addressed the question of whether self-reported exposure information pertinent to asthma and asthma-like symptoms was as accurate a reflexion of exposure as information derived using industrial hygiene expertise. Use was made of occupational questionnaires completed by 338 parents participating in a Montreal community based study of childhood asthma. Participants listed all jobs ever held and their associated exposures. A list of 927 reported jobs was submitted for coding of exposures to 2 industrial hygienists working independantly and blinded to the exposure information reported by the subjects. Reproducibility of the self-reported exposures was examined in 33 subjects who reported 93 jobs; good overall results were obtained. Inter-rater reliability was also good for some categories of exposures, but not for others. Validity analysis, using as a reference criterion the exposure coding by either hygienist lead to poor values for sensitivity but not for specificity. After controlling for smoking, a family and personal history of atopy in multivariate models significant exposure response relationships were obtained only with self reported exposure. These results support the study hypothesis that self-reported exposures gathered by questionnaire are valuable information in characterizing exposure response relationships for asthma and asthma-like symptoms in community-based studies.

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REPRODUCTIVE HEALTH EFFECTS OF OCCUPATIONAL EXPOSURE TO LOW-LEVEL IONIZING RADIATION AMONG CANADIAN WOMEN.

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To determine the relationship between adverse reproductive outcomes and level of exposure to ionizing radiation, a cohort of 12,521 Canadian female medical radiation technologists (MRTs) was established. The cohort is comprised of all individuals who were members of the Canadian Association of Medical Radiation Technologists for at least one year between 1994 and 1999, inclusive. Mailed questionnaires were used to establish reproductive history for the full cohort. The occupational radiation exposure of all Canadian MRTs is monitored and recorded in the National Dose Registry. Radiation dose records were obtained for all cohort members and linked to the self-reported reproductive history. A second questionnaire asking for details about other relevant exposures during pregnancy was sent to selected female respondents to the first survey. More than 11,000 pregnancies were reported in the first survey, including 1,899 fetal and neonatal deaths; 1,211 live preterm deliveries; 461 live births weighing <2,500g; and 1,750 pregnancies with congenital anomalies. Crude risk ratios (RR) for women exposed to any occupational radiation prior to pregnancy compared to those with no pre-pregnancy exposure indicates that exposed women may have a decreased risk of spontaneous abortion (RR=0.63; 95% CI=0.56-0.70). Risk of preterm delivery (RR=0.91; 95% CI=0.75-1.23) and low birth weight at full-term (RR=1.15; 95% CI=0.56-2.35) were not apparently affected. The presentation will include the dose-response and confounder analyses necessary for interpretation of these preliminary findings.

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