

Surveillance of Respiratory Diseases Among Construction and Trade Workers at Department of Energy Nuclear Sites

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Background Medical screening programs were begun in 1996 and 1997 at three Department of Energy (DOE) nuclear weapons facilities (Hanford Nuclear Reservation, Oak Ridge, and the Savannah River Site) to evaluate whether current and former construction workers are at significant risk for occupational illnesses. The focus of this report is pneumoconiosis associated with exposures to asbestos and silica among workers enrolled in the screening programs through September 30, 2001.

Methods Workers provided a detailed work and exposure history and underwent a respiratory examination, which included a respiratory history and symptom questionnaire, a posterior–anterior (P–A) chest radiograph, and spirometry. Both stratified and multivariate logistic regression analyses were used to explore the risk of disease by duration of DOE employment and frequency of exposure, while controlling for potential confounders such as age, race, sex, and other work in the construction and building trades.

Results Of the 2,602 workers, 25.2% showed one or more chest X-ray changes by ILO criteria and 42.7% demonstrated one or more pulmonary function defects. The overall prevalence of parenchymal changes by ILO criteria (profusion 1/0 or greater) was 5.4%. In the logistic regression models, the odds ratio for parenchymal disease was 2.6 (95% confidence interval (CI) = 1.0–6.6) for workers employed 6 to 20 years at Hanford or Savannah River and increased to 3.6 (95% CI = 1.1–11.6) for workers employed more than 35 years, with additional incremental risks for workers reporting routine exposures to asbestos or silica.

Conclusions Continued surveillance of workers is important given their increased risk of disease progression and their risk for asbestos related malignancies. Smoking cessation programs should also be high priority and continued abstinence for former smokers reinforced. Although the observed respiratory disease patterns are largely reflective of past exposures, these findings suggest that DOE needs to continue to review industrial hygiene control programs for work tasks involving maintenance, repair, renovation, and demolition. *Am. J. Ind. Med.* 43:559–573, 2003. © 2003 Wiley-Liss, Inc.

KEY WORDS: DOE; Hanford; Oak Ridge; Savannah River; asbestos; silica; construction; trades; radiograph; parenchymal; pleural; surveillance

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