

1272/80 Radiological Findings as Predictors of Mortality in Quebec Asbestos Workers. F. D. K. Liddell and J. C. McDonald. *Brit. J. Ind. Med.* 37: 257-267, August 1980. 21 refs.

Two cohorts of chrysotile miners and millers in Quebec were selected to study the extent to which chest radiographs taken while still employed predict mortality. The paper presents mainly findings in such the larger cohort, which consisted of 4359 men (two-thirds past workers) whose latest radiograph had been assessed by one of six experienced readers into what became the UICC/Cincinnati (U/C) classification; by the end of 1975 there had been 1343 deaths in this cohort. The findings were generally confirmed in the other cohort, comprising 988 current male workers, who had been examined in 1967-68 by questionnaires on respiratory symptoms and smoking and by lung function tests, and for whom all six readers had assessed their 1966 radiographs into the U/C classification; 130 men had died by the end of 1975. Men with any radiographic abnormality, heavy dust exposure, or a history of cigarette smoking had relative risks (RRs) of total mortality greater than unity. Death from pneumoconiosis was associated with small parenchymal opacities, usually irregular, of profusion 1/1 or more, and with heavy dust exposure but not with smoking. Most who died from lung cancer had smoked cigarettes, or had been heavily exposed to dust, or both. Small parenchymal opacities were present in most but not all the excess deaths due to lung cancer. Deaths from other malignant diseases showed no consistent dust or x-ray patterns. RRs of deaths from most other causes were raised for certain radiographic features. Failures in forecasting mortality were primarily due to deaths in which asbestos-related disease was not the primary cause but may have been a contributing factor. The main findings validated the U/C classification convincingly, particularly as the films had been taken as routine and were of modest quality. Despite objective rules for the reading and the fact that all six readers were contributing to the development of the classification, there was inevitably some observer variation. The importance of radiographic technique and the need for careful control of the reading is evident. The authors' results provide support for the use of the chest radiograph for surveillance of asbestos workers, and for environmental monitoring. Its protective value for individual workers, however, is limited to the extent that radiological progression continues after withdrawal from exposure, and by the carcinogenic risk associated with dust already retained.

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1273/80 Clearance of Asbestos Bodies from the Lung: A Personal View. K. J. Arul and P. F. Holt. *Brit. J. Ind. Med.* 37: 273-277, August 1980. 11 refs.

In histological sections asbestos bodies in human lungs may be either transparent, yellow,

strongly Perls-positive structures as described in published reports, or opaque, black structures, the ferroprotein coating having been converted into haemosiderin. The transparent asbestos bodies fragment into segments; the black asbestos bodies disintegrate into a mass of haemosiderin granules that accumulate as dense deposits, particularly near to blood vessels. The presence of haemosiderin granules indicates that asbestos bodies have broken down. When a patient has died with a mesothelioma there is little evidence of phagocytic activity in many areas of the lung. When exposure to asbestos ceased many years before a mesothelioma developed there may be few recognisable asbestos bodies remaining in the lung.

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1274/80 Effect of Smoking on Attack Rates of Pulmonary and Pleural Lesions Related to Exposure to Asbestos Dust. G. H. G. McMillan, et al. *Brit. J. Ind. Med.* 37: 268-272, August 1980. 6 refs.

In follow-up studies of samples of employees at two of Her Majesty's Dockyards the prevalence of asbestos-related lesions in smokers and ex-smokers was statistically significantly higher than in non-smokers even when differences in age and exposure risk were considered.

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1275/80 Carbon Monoxide: Dosimetry in Occupational Exposures in Denver, Colorado. J. W. Jabara, et al. *Arch. Environ. Health* 35: 198-204, July/August 1980. 6 refs.

The occupational carbon monoxide (CO) exposure of Denver traffic control personnel was evaluated during 8-hr workshifts using three parameters: (1) 98, 8-hr time-weighted average breathing zone air samples (personal dosimetry); (2) before- and after-workshift CO breath samples; and (3) 8-hr moving average, ambient CO levels during the fall and winter months. Different shifts and work experiences were taken into consideration. The data revealed greater CO exposure in subjects working on the street than controls working inside downtown buildings with respect to breath CO concentration and breathing zone air samples. The CO concentrations in the after-workshift breath samples were closely associated with the 8-hr time-weighted average CO levels. The greatest source of CO to the sample population was cigarette smoking, followed by occupational-related sources, and finally, the ambient background CO levels.

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