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A survey of cancer and occupation in young and middle aged men. I Cancers of the respiratory tract

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ABSTRACT In a search for clues to previously unrecognised industrial carcinogens the occupational and smoking histories of young and middle aged men with different types of cancer were compared. The study population comprised men aged 18–54 and resident in the counties of Cleveland, Humberside, and Cheshire (including the Wirral). From hospital and cancer registration records 2942 members of the study population in whom cancers were diagnosed during the period 1975–80 were identified retrospectively. The occupational and smoking histories of these patients were sought by a postal questionnaire addressed either to the patients themselves or, if they had died, to their next of kin. The overall response rate to the questionnaire was 52·1%. Additionally, limited occupational information was obtained for 89% of cases from their hospital notes. Analysis of these data suggests that no serious bias arose as a consequence of the incomplete response to the questionnaire. This paper concentrates on the results for cancers of the respiratory tract and mesothelioma. Mesothelioma was found to cluster in laggers, electricians, and shipyard workers, and nasal carcinoma in woodworkers. Carcinomas of the larynx and of the bronchus were examined by formal statistical techniques, each being compared with a control group made up of all other cancers combined. Several interesting occupational and industrial associations were shown, in particular, an excess of bronchial carcinoma in the leather industry (RR = 2·6, CI 1·2–6·0), in building labourers (RR = 1·7, CI 1·0–2·9) and other construction workers (RR = 1·8, CI 1·0–3·0), in bakers and pastry cooks (RR = 3·6, CI 1·3–10·4), and in cooks (RR = 2·5, CI 1·2–5·1). In addition, a small cluster of lung tumours was observed in men who had worked as dental mechanics.

Most of the known occupational causes of cancer were discovered through the alertness of observant clinicians. It is significant, however, that two hazards—the risk of bladder cancer in rubber workers and of nasal carcinoma in boot and shoe manufacturers—first came to light incidentally in the course of epidemiological investigations.[1] In both instances the choice of the population under study was fortuitous. Similar surveys carried out in other geographical areas would not have shown the hazards. Such chance findings suggest that systematic epidemiological searches might disclose further, as yet unrecognised, occupational carcinogens.

To date, attempts to screen populations for occupational risks of cancer have met with only limited success. Several promising clues have been generated but few have been adequately followed up. Possibly the sensitivity of screening studies could be improved by concentrating on cancers occurring at young ages. Such an approach has several potential advantages. Diagnostic data should be more accurate since clinical investigation is generally more thorough in young people. Occupational information should also be more reliable because the employment histories of young people go back less far in time. In addition, it appears that for several known industrial carcinogens—for example, chromates[2] and bis-chloromethyl ether[3]—the relative risk of cancer is highest and therefore most readily detectable at young ages. This effect will if anything be exaggerated for recently introduced carcinogens to which cumulative exposure is similar in all age groups (if a hazard has been present for many years older workers will tend to have the greatest cumulative exposure).

We describe here a survey in which we have compared the occupational histories of young and middle

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