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*Committee on the Medical Effects of Air Pollution*

### **Asthma and Outdoor Air Pollution**

HMSO, London  
195 pp.; £ 21.00  
ISBN 0-11-321958-X

There is widespread scientific and public concern that increases in levels of air pollution are responsible for the rise in childhood asthma that has been occurring in the United Kingdom over the past 20-30 years. If there was evidence of a causal association between air pollution and asthma, any government seriously contemplating re-election would be compelled to implement appropriate policies to reduce industrial emissions and vehicle exhausts. Environmentalists in search of such evidence who read *Asthma and Outdoor Pollution* produced by the Committee on Medical Effects of Air Pollution (COMEAP) and recently published by the Department of Health (DH) will be disappointed. Using a format similar to other recent DH publications on pollution (*Non-Biological Particulates and Health* by COMEAP and *Ozone, Oxides of Nitrogen, Sulphur Dioxide and Acid Aerosols and Particulates and Health Effects of Exposures to Mixtures of Air Pollutants* by the Advisory Group on the Medical Aspects of Air Pollution Episodes), this report reviews the current evidence from animal studies, controlled chamber studies, panel studies and epidemiological studies for a relationship between asthma and air pollution. The third chapter 'A General Review of Asthma' describes the essential clinical and immunological features of asthma and each subsequent chapter addresses relevant questions such as 'Are there plausible mechanisms by which air pollution could induce or incite asthma?' and 'Can short term exposure to inhaled pollutants under controlled experimental conditions make asthma worse?'. Chapters which examine epidemiological evidence form the bulk of the report. Difficulties experienced in the conduct and interpretation of epidemiological studies are identified and major research works are reviewed and summarised. Tables giving data on asthma prevalence, asthma mortality, hospital admission rates, increases in asthma prevalence and the relationship between the prevalence of wheeze in areas with different pollution levels are given and new data on urban/rural and seasonal variations are presented. The report shows that although there is laboratory evidence that air pollution may initiate asthma, increases in asthma prevalence have occurred when the level of many air pollutants has fallen and the prevalence of asthma is not higher in more polluted urban than (presumably less polluted) rural areas. Factors other than air pollution have been shown to cause relatively large changes in asthma morbidity if compared to the inconsistent and subtle changes associated with short-term fluctuations in air pollutants. The report acknowledges that there is compelling evidence that asthma prevalence and hospitalisation for asthma is higher among those who live close to busy main roads but points out that these associations may result from reporting bias or be con-

founded by the higher prevalence of other risk factors for asthma in those with the greatest exposure to traffic pollutants.

The report concludes that outdoor air pollution does not cause asthma and that most asthmatic patients should be unaffected by exposure to non-biological particulates at the levels that commonly occur in the United Kingdom. It was not within the COMEAP's remit to include policy advice for national or local environmental health departments but the report does make recommendations - for further research. To discount this as procrastination is tempting but the unbiased reader, who devotes sufficient time to read this lengthy but comprehensive and well-referenced document is likely to share at least some of COMEAP's hesitancy in attributing much of the current 'asthma problem' to air pollution.

Deborah Jarvis, London

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*E. Pukkala*

### **Cancer Risk by Social Class and Occupation**

A Survey of 109,000 Cancer Cases among Finns of Working Age  
Contributions to Epidemiology and Biostatistics, vol. 7  
Series editor: J. Wahrendorf  
Karger, Basel, 1995  
277 pp.; CHF 120.- / DEM 144.- / USD 104.50  
ISBN 3-8055-6152-0

This book is an important contribution to the evidence relating cancer incidence to occupation and social class. It is based on a huge prospective study involving the whole 1970 census population of Finland aged 25-64, who were followed up until 1985 using the nationwide Finnish Cancer Registry. The analyses were restricted to men and women aged 35-64 at the beginning of each 5-year period and involved some 47,000 incident cancers in each of the two sexes. The analyses presented showed how age-specific risk of cancer, not only by primary site but also for some tissues by histological type, varied by social class (four groupings) and occupation (almost 400 categories).

The volume is divided into eight main sections. Section I, Introduction, describes the aims of the study and the structure of the report. Section II, Background, refers to occupational cancer surveillance systems in other countries, lists agents evaluated as carcinogenic by IARC, summarizes the Health Care system in Finland and shows how tobacco consumption and dietary habits vary by social class. Section III describes the Materials and Methods used. Section IV, Results, is the meat of the book. For each primary cancer site, text, figures and tables (supplemented by extensive appendix tables) summarise how incidence varies by social class and lists the occupations with the highest and lowest age-adjusted, and age and social

class-adjusted, standardised incidence ratios. Useful brief comments are made as to how the results fit in with the known aetiology of the cancer, taking into account variations in smoking habits and of other lifestyle risk factors by occupation and social class. In section V, cancer profiles of selected occupations (physicians, teachers and labourers, tobacco industry workers and economically inactive persons) are summarised, showing the cancers with which they are associated. A quite detailed section VI, General Discussion, follows, ranging over a number of relevant issues, some of which I will touch on below. The main part of the volume then ends with a Summary and Conclusions section (VII) and a References section (VIII).

Overall incidence of cancer in the lowest social class was found to be 30% higher in men and 20% lower in women than observed in the highest social class. Cancers of the lip, oesophagus, stomach, larynx, nose, cervix uteri, vagina and multiple myeloma were associated with low social class, while cancers of the colon, breast, testis and soft tissue and melanoma were associated with high social class. Lung cancer in men was a disease of low social class but, interestingly, among women it changed from a disease of high social class to a disease of low social class within the study period.

Many of the associations with specific occupations had been previously reported, but several new ones came up, which need to be confirmed by other studies. These included a high risk of lip cancer in cooks, who are likely to burn their lips in work, and a high risk of pancreatic cancer in sauna attendants, cooks, flame cutters and some others working in very warm working conditions.

Interesting tables in the discussion included one comparing, for each site, the number of associations significant at 95, 99 and 99.9% that were observed and were expected by chance, and estimates of preventability of the different types of cancer based on assuming the whole population had the lowest risk seen for any social class group. In the absence of individual data on smoking and other lifestyle risk factors, direct estimates could not be made of the extent to which variations in risk by occupation are due to specific occupational hazards and to occupation-related social factors. Reasons were advanced as to why occupation-related social factors were in fact the major source of variation; nevertheless rough estimates from these data indicated that some 5% of all cancer cases may be due to specific occupations.

The book is clearly written and well laid out and will be a useful reference work for the cancer epidemiologist.

*Peter N. Lee, London*

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*Bertil Clavensjo, Gustav Akerblom*

### **The Radon Book: Measures against Radon**

Svensk Byggtjänst, Solna, Sweden, 1994  
129 pp.; SEK 330  
ISBN 91-540-5649-7

The Radon Book has been known to many of those involved in the radon field in its Swedish original for some years and parts of it have been the subject of ad hoc translation. It is known as a mine of useful information and therefore, its appearance in an English translation is thoroughly welcome. Its authors have many years experience in the field and the Swedes were of course pioneers in radon remediation and protection.

The book is comprehensive starting with an outline of the physics of radon, the health risks of radon and the physical processes whereby radon gets into buildings. It also describes comprehensively the methods of measuring radon. It then goes on to describe equally comprehensively methods of protection and remediation. The book is copiously illustrated with both photographs and clear drawings and line diagrams. The effectiveness of remedial measures is described and research results presented.

The book does, however, also include quite a lot of material on the legal and financial aspects of radon remediation which are only relevant to Sweden. Also, whilst the general principles of radon remediation are universal, building construction differs markedly between countries, as do soil conditions. The use of sub slab suction, the radon sump to us, is pretty well universal, but the use of the radon well external to a group of houses depends on soil of high permeability. Sweden also has a major problem of radon emission from building materials, notably concrete made from alum shales, which does not exist in the UK. The greater prevalence of domestic mechanical ventilation systems in Sweden means that the book contains a great deal of information about how to design or modify such systems as a radon remedial measure. The detailing of suspended floors in Sweden is different from the UK, for example the provision of a plastic membrane over the ground instead of concrete as in the UK. A number of interesting ideas are suggested but the use of indoor air via a mechanical extract system to ventilate the space under the floors would not be practical in the UK with timber floors in existing buildings because of the high humidity levels. The full range of topics is covered, including useful sections on basements and on sealing. Costs are also covered but again these are related to Swedish conditions.

The protection of new buildings reflects the higher level of construction required in the more severe climate of Sweden.

Overall the book is to be thoroughly recommended to all those actively engaged in the radon field, provided they remember that it is written very much from the Swedish viewpoint. It is both comprehensive and practical. It is, however, probably most useful to the professional or technician, rather than the craftsman. The small builder doing the occasional remedial job would probably find it confusing and would be better advised to stick to UK guidance, notably that issued by DoE or by ourselves at the BRE. Nevertheless a very welcome addition to the literature.

*Mike Woolliscroft, BRE, Garston*