

Occupational and Environmental Medicine



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Short reports (including case reports) should be not more than 1500 words and do not require an abstract. They should comprise sections of Introduction, Methods, Results, and Discussion with not more than one table or figure and up to 10 references. The format of case reports should be Introduction, Case report, and Discussion.

Illustrations Photographs and photomicrographs on glossy paper should be submitted unmounted. Charts and graphs should be carefully drawn in black ink on firm white paper. Legends to figures should be typed on a separate sheet of paper.

References References will not be checked by the editorial office; responsibility for the accuracy and completeness of references lies with the authors. Number references consecutively in the order in which they are first mentioned in the text. Identify references in texts, tables, and legends by Arabic numerals. References cited only in tables or in legends to figures should be numbered in accordance with a sequence estab-

lished by the first identification in the text of a particular table or illustration. Include only references essential to the argument being developed in the paper or to the discussion of results, or to describe methods which are being used when the original description is too long for inclusion. Information from manuscripts not yet in press or personal communications should be cited in the text, not as formal references.

Use the Vancouver style, as in this issue for instance, for a standard journal article: authors (list all authors when seven or fewer, when eight or more, list only six and add *et al*), title, abbreviated title of journal as given in *Index Medicus* (if not in *Index Medicus* give in full), year of publication, volume number, and first and last page numbers.

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of chlorinated solvents may be increased immediately next to a leaking drum on a waste disposal site—and the spatial distribution and depth of sampling points can have a profound influence on measured concentrations. Also, the methods of storing and treating samples before analysis can introduce further variability.

In some cases it may be possible to standardise sampling procedures. For example, in the routine monitoring of drinking water that is currently carried out in Britain, samples are collected according to a standard protocol, both at water treatment plants and at the tap. In other cases—for example, measurement of pollutants in soil—the optimal sampling strategy will depend on the study question. In either situation, however, the methods of sampling and of storing and transporting samples should be adequately documented so that results can be properly interpreted and compared with those from other studies.

Quality assurance

The third major need is for better quality assurance of environmental exposure measurements. At present quality assurance in this field is not as well developed as it is, for example, in clinical chemistry, which could well serve as a model for good practice. Elements of a quality assurance programme should include observance of documented protocols and standardised procedures, not only for sampling and storage of specimens but also for their analysis in the laboratory; internal quality control, for example, through the use of “quality control samples” at regular

intervals; and external quality assessment schemes, or if these are not available—for example, for very specialised analyses such as assays of DNA adducts—checks on accuracy with certified reference materials.

It is intended that the working group's report will help the MRC to formulate its research strategy on environmental pollution, and assist the research community by indicating some of the priorities for future investigation. Proposals for studies to examine the determinants of personal exposure and uptake of pollutants, and the potential of DNA adducts as markers of uptake or proxies for disease outcome, or both, are clearly important. Also, research proposals should pay due attention to sampling methods and quality assurance of assays.

Full copies of the working group's report are available on request from Mrs J Jones, Medical Research Council, 20 Park Crescent, London W1N 4AL. The working group was established under the auspices of the MRC Committee on Toxic Hazards in the Environment and Workplace (Chairman Dame Barbara Clayton). The members of the group were Dr D Coggon (Chairman), Dr B Brown, Mr J Cherrie, Dr P B Farmer, Mr J K Fawell, Dr A Lovett, Dr D Gompertz, Dr P Harrison, Dr C W Suckling, Dr D Tennant, Dr A Wadge, Dr K J Finney, Mr K Brennan, and Dr G Sarna.

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- 5 Quality of Urban Air Review Group. *Urban air quality in the United Kingdom.* London: QUARG, 1993.

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should include: the names of all authors if there are seven or less or, if there are more, the first six followed by *et al*; the title of journal articles or book chapters; the titles of journals abbreviated according to the style of *Index Medicus*; and the first and final page numbers of the article or chapter. Titles not in *Index Medicus* should be given in full.

Examples of common forms of references are:

- 1 International Steering Committee of Medical Editors. Uniform requirements for manuscripts submitted to biomedical journals. *Br Med J* 1979;1:532–5.
- 2 Soter NA, Wasserman SI, Austen KF. Cold urticaria: release into the circulation of histamine and eosinophil chemotactic factor of anaphylaxis during cold challenge. *N Engl J Med* 1976;294:687–90.
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to cope more effectively with the HIV epidemic, make humane and workable policies on HIV testing for employees and give their workforces education to reduce HIV transmission and the stigma that hampers preventive measures. We are currently studying the effect of outreach education on employees' behaviour and attitudes to HIV.

We acknowledge gratefully the help of Boniface Moonze and Janet Bennett (data entry); Maria Quigley (statistical advice); and Eric van Praag and Keith McAdam for their helpful comments. The study was funded by the Enid Linder Foundation.

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Papers should include a structured abstract of not more than 300 words, under headings of Objectives, Methods, Results, and Conclusions. Please include up to three keywords or key terms to assist with indexing.

- 11 Evans KA, Allen-Williams LJ. Electroantennogram responses of the cabbage seed weevil, *Ceutorhynchus assimilis*, to oilseed rape, *Brassica napus* ssp. *oleifera*, volatiles. *J Chem Ecol* 1992;18:1641-59.
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Correspondence and editorials

Occupational and Environmental Medicine welcomes correspondence relating to any of the material appearing in the journal. Results from preliminary or small scale studies may also be published in the correspondence column if this seems appropriate. Letters should be not more than 500 words in length and contain a minimum of references. Tables and figures should be kept to an absolute

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be responsible for chronic injury to airways (cattle feeding, grain milling, hay storage, inhalation of pesticides, as well as climatic conditions). Although exposure can be quantified, it does not provide a picture of total exposure to risks. Some studies have attempted to assess exposure in terms of time spent in certain activities—for example, threshing or cattle feeding—although they failed to detect any correlation between chronic bronchitis and the duration of exposure.^{4,6,14}

Despite the fact that observed values were related to the predictive values, age appeared in the analysis. It is possible that age represents an indirect measurement of the duration of exposure. Some studies have the same results: age may be a reflection of cumulative exposure.^{10,11} We found a relative risk for distal obstruction of 3.02 for the smaller farms (<50 hectares) *v* the larger farms, which is in line with the findings of Saia *et al.*⁴ This risk was still present, after stratification by age (OR = 2.66). It may be that the smaller farms employ less mechanised equipment, thereby increasing exposure to certain risks. Analysis of characteristics of agricultural activities obtained from a more detailed questionnaire could perhaps provide an answer to this question.

In summary, this study shows that the prevalence of distal airway obstruction is higher than the prevalence of chronic bronchitis in an agricultural population, after stratification by smoking habits and history of cardiac and other respiratory diseases. Age and size of farms, which are negatively correlated, emerge as the two main explanatory variables. These results indicate that farming populations may have an early propensity to distal airway obstruction. The next steps should be to define agricultural exposure by creating a more detailed questionnaire, and to provide more evidence for the hypothesis that size of farm is a risk factor for respiratory diseases.

We thank Professor F Boutros-Toni for his technical assistance in statistical methods. This work was supported by a grant from Mutualité Sociale Agricole and Groupama Insurance, Limoges, France.

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Rejected manuscripts

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tional exposures of the study cohort. For example, heavy metalworking industrial concentrations are found in the United States in counties around cities such as Cleveland⁴ or Detroit⁵; petroleum and petrochemical industry is dense in certain counties of Texas or Louisiana. These considerations support the use of a national reference population.

In describing powerful multivariate modelling methods, which perform internal comparisons while incorporating external population experience, the authors cited Poisson and Cox regression examples. Not mentioned was modelling mortality (or incidence) odds with logistic regression, in well enumerated cohorts, which also inserts expected mortality (incidence) odds from an external population.⁶⁻¹¹ Like Poisson and Cox regression, this approach estimates relative (but not absolute) rates for exposure effects, and has some notable advantages. Unlike Poisson or Cox methods, complete information is required only for decedents (or incident cases). For example, date of birth or race, retrievable from death certificates or cancer registries, are often not available for occupational cohorts or general populations. Restriction of work history retrieval to the decedent (or incident cancer) subpopulation is a major advantage, compared with traditional cohort designs that may require enormous efforts.⁵ The method is actually a case-control design with the controls (for mortality study) consisting of all decedents with causes of death thought to be unrelated to exposures under study. The advantages and disadvantages of the use of deceased controls has been debated without clear resolution.¹²⁻¹⁵ In an incidence study with a cancer registry, controls would be all incident cancers at selected other sites.

The actual computation of mortality (incidence) odds by logistic regression is relatively simple compared with Poisson or Cox regression on the full population at risk. It can readily accommodate complex risk factor specifications, including cumulative exposures adjusted for latency, demographic dependencies of the healthy worker effect, and variation in mortality odds with employment duration independent of exposures.¹²

The concern of Callas *et al* on the appropriateness of multiplicative and non-linear exposure-response structures imposed by logistic (and Poisson) regression can be assessed by goodness of fit. In several studies, logistic models performed well.^{9,10} There is, moreover, some biological basis for this finding. For example, multistage carcinogenesis implies a higher than linear dependence in time (or exposure duration) that an exponential function can reasonably approximate over the ranges of effects found.

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Maculso M, Honda Y. Retrospective follow up study of foundry and engine plant workers. *Am J Ind Med* 1993;24:485-98.

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Offspring sex ratios as an index of pollution hazard in residential environments.

Author's reply—Your correspondent suggests that the negative findings for exposure to generalised air pollution on the sex ratios of births reported in our paper may conceal positive, but opposing, effects of the pollution on male and female parents.¹ He advances the analogy with the changes in the sex ratio of the offspring of parents with multiple sclerosis, when the direction of the change of sex ratio depends on the sex of the parent sufferer. It is indeed possible that such a cryptic scenario might result from exposure to general air pollution and an answer to this hypothesis might well come through follow up studies as he has suggested. That approach, however, would require extremely expensive *ad hoc* studies to generate the data. The main purpose of our investigation was to ascertain whether the sex ratio was a sensitive barometer of exposure of generalised environmental pollution in residential communities. Whether or not the sex ratios of offspring in exposed parents differ was really beyond the design of this investigation. Our conclusions therefore are unaltered: the routinely available data on sex ratios of births do not betray the presence of potential toxins in general industrial air pollution in the same way as was apparent for air pollution from specific industrial processes.

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1 James WH. Offspring sex ratios as an index of pollution hazard in residential environments. *Occup Environ Med* 1995;52:556.

NOTICES

Fibres, particles, and the lung: New perspectives. 11-12 September 1995. Edinburgh Conference Centre, Heriot Watt University, Edinburgh.

The British Association for Lung Research (BALR) was founded in 1981, and is the premier UK organisation for workers researching into medical and non-medical aspects of the lung.

The last 5 years has seen exciting new insights into the effects of particles on the lung.

Fibres—The publication of the RCC study data; the completion of the first phase of the Colt Programme; the increasing importance of bio-persistence.

Environmental particles—Association with disease; the role of particle size.

Overload—The mechanisms; impact on the interpretation of inhalation toxicology studies.

Key note speakers: Dr Gunter Oberdorster Rochester, New York; Dr Brooke Mossman Burlington, Vermont; Dr Tom Hesterberg Denver, Colorado.

Colt fibre programme reports: Dr JMG Davis; Dr A Searl; Dr A Jones; Dr K Donaldson.

Open sessions: Fibres; Particles; General lung research.

Young scientist competition: this session is open to younger BALR members. The prize will enable the winner to travel to a major scientific meeting of their choice.

The BALR summer meeting is sponsored by The Colt Foundation.

For further information contact: Dr R Cullen, Institute of Occupational Medicine, 8 Roxburgh Place, Edinburgh EH8 9SU. Tel 0131 447 8460, Fax 0131 447 2822.

Royal Society of Health National Conference—Caring for the working population. 10 October 1995. The Society of Chemical Industry, 14-15 Belgrave Square, London.

Aims and objectives:

- To consider the need for occupational health services and workplace health and surveillance systems.
- Raise awareness about occupational diseases, injuries and disability; their impact on individuals, families, businesses and society; and the system for compensating victims.
- Discuss recent initiatives in industry and the NHS aimed at promoting the health and the wellbeing of working people and meeting the occupational health needs of under served working groups.

Speakers and topics include:

Occupational health services in economically stringent times—Dr Michael Baxendine, Director of Occupational Health Services, United Biscuits.

Are occupational health services needed today?—Dr Ewen MacDonald, Faculty of Occupational Medicine, University of Glasgow.

New epidemics in occupational health—Simon Pickvance, Sheffield Occupational Health Project.

Occupational disease and injury and state compensation—Dr Alistair Brooks, Benefits Agency Medical Services.

UK Health and safety surveillance systems—Nigel Bryson, Director of Health and Safety, GMB.

Promoting healthy lifestyles—Jane Huntley, Lead Project manager, Health at Work in the NHS.

Sharing and promoting best practices—S Young, The Wellness Forum.

Fit for work—Peter Brown MBE, Fitness Consultant, British Gas plc.

Health at work in the NHS—The Health Education Authority.

Occupational health services provided by NHS trusts—Santosh Mehta, Business Manager—Nursing, Hillingdon Hospital NHS Trust.

Occupational health and safety projects in primary care—Jill Barlow, Liverpool Occupational Health Project.

All Enquiries: Anne Faichney, Conference Department, The Royal Society of Health, RSH House, 38A St George's Drive, London SW1V 4BH. Tel: 0171-630 0121. Fax: 0171-976 6847.

First European Forum of quality improvement in health care, QEII Conference Centre, London. 7, 8, and 9 March 1996

This first European Forum will allow the exchange of ideas on quality improvement in health care and provide education. The forum will consist of plenary lectures, parallel seminars and workshops, and discussions and short educational courses.

The themes of the first forum are:

- The fundamentals of continuous quality improvement:
- Achieving patient orientation
- Leadership and managing organisational change
- Improved quality and reducing costs
- The importance of measurement
- Involving everybody in quality improvement
- Professional education for quality
- The politics of quality.

For further information contact: Clare Moloney, BMA Conference Unit, BMA House, Tavistock Square, London WC1H 9JP. Fax: 0171 383 6663. Tel: 0171 383 6478.

BOOK REVIEWS

Book review editor: R L Maynard

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Occupational Health Decennial Supplement. Edited by FRANCES DREVER. (price £29). London: HMSO. ISBN 0-11-691618-4.

For over 150 years, data on occupational mortality have been published in the Registrar Generals' decennial supplements. These publications have proved to be a rich source of information for occupational health researchers and a starting point for many hypotheses about work and health. They have, however, been rather dry documents with lots of tables, and more recently, supplemented by the option of acquiring computer disks for further data. This is hardly the stuff of general interest to the occupational health professional.

The latest publication is a different matter altogether. Firstly, it is a joint effort between the Office of Population, Census, and Survey (OPCS) and the Health and Safety Executive (HSE). Secondly, it now includes many more data sources than just mortality including the census, cancer registrations, the labour force survey, general household survey as well as, HSE and Department of Social Security information on occupational illness and sickness absence. Thirdly, it is written up as chapters on various topics with some prominence given to the MRC Unit in Southampton and, finally the whole has been extensively reviewed by others before final publication. The result is a highly readable whole with a broad scope to cover diseases and occupations but in the context of the changing structure of United Kingdom industry. This is no longer a publication of interest to a limited number of epidemiologists. This is now a volume which no self respecting occupational health professional can afford not to have viewed.

The volume extends to nearly 400 pages and is divided into 13 chapters. As well as the "traditional" sections on male occupational mortality by disease and occupation, an interesting chapter deals specifically with female mortality. Cancer incidence is similarly described and there are specific chapters devoted to asbestos related diseases, occupational injuries, the influence of smoking and drinking on occupation, occupational sickness absence, fertility, as well as a final chapter bravely attempting to seek international comparisons. This last

chapter shows clearly the inadequacies of coverage in many other developed countries in an area where Britain still seems to lead the way.

It would be otiose in such a review to try and list all the interesting—even fascinating—findings from such a comprehensive account of the "Occupational Health of the Nation" but a few might serve to whet the prospective reader's appetite. Dramatic shifts in the demographic, employment, and occupational patterns have occurred in the past 20 years with greater service and less heavy industrial sectors. Part time work is increasing with more women entering the labour force. The effects of these changes on the pattern of occupational mortality and morbidity will inevitably follow and the implications of this for occupational health services will need to be closely watched.

For mortality, accidental injury, asbestos and coal mine dust remain the most important factors. For coal mining, the geographical pattern for excess risks of chronic bronchitis and emphysema are remarkably uniform, which is in contrast with the patterns for pneumoconiosis. Previous supplements had noted an excess of pulmonary deaths among welders but this supplement has found that this excess can be narrowed to pneumococcal and unspecified lobar pneumonia. Another new finding is the excess of oesophageal cancer in farmers in Hereford, Worcester, and Kent. Is this a link with cider consumption and does this correlate with similar excesses for this tumour in the Calvados region of France? Suicide rates are also high for farmers and a similar excess is found in their wives.

For cancer incidence, new findings include increased risks of bladder cancer in plastic goods makers, prostate cancer in dental technicians, and acute myeloid leukaemia in biological scientists. For asbestos related disease, the analysis had found the recently well publicised rising excess for mesothelioma with the greatest risk apparently associated with the cohort born in the early 1940s.

Another area of interest will be the chapter on occupational mortality studies. It may be a surprise to some, but OPCS have facilitated over 130 hypothesis generating and testing exercises in recent years in studies ranging from small groups such as 150 people at Liverpool University to thousands of workers in the rubber industry or engaged in occupations involved with ionising radiation.

The writing throughout is clear and succinct. Each chapter is a good informative read whether or not you intend to engage in epidemiological research yourself. Without doubt, this volume is the most comprehensive survey of work and health ever to be published in the country. It is a pity that its publication was not accompanied by greater publicity as it contains much of general interest to the public at large. The social trends documents always receive good media coverage yet this fascinating volume has been largely overlooked by television, radio, and the national newspapers. An opportunity to show the general population the importance of occupational health has been missed.

Nevertheless, for the readers of the *Occupational and Environmental Medicine*, this is one book that cannot afford to be overlooked, and, at £29, we should all seriously consider owning a copy.

J M HARRINGTON