CORRESPONDENCE

Cancer mortality among workers in the German rubber industry

The large scale study of cancer mortality among workers in the German rubber industry by Weiland *et al*,[1] is a well conducted and professional cohort study, which seems to have indicated the need for research in this industrial field.

Knowing the difficulties of carrying out such studies in Germany the authors have to be congratulated for achieving this result. However, one finding requires discussion. A possible reason why two incident cases of a laryngeal cancer were found in the same cohort in 1982—without contributing to mortality—could be explained because there is a putative cause involved, as it was known that the exposure was to the highest concentrations of nitrosamines ever found at a workplace according to the publication by the Department of Analytical Toxicology of the German Cancer Research Center.[2]

The measurements were reported to the public but were not in the analysis of the study of Weiland *et al*. These findings may therefore reflect an independent and specific indicator of a particular hazard, and the history of the sponsorship of this study is directly related to the findings of the two cases of laryngeal cancer requiring compensation as an occupational disease. A further analysis of the data of the study by Weiland *et al* with an analysis by stratification according to worksites could perhaps identify the specific risk situation better than, or at least as well as, the year of hire or observation period (years since hire) which contrasted with the data on the cancers of upper respiratory airways. The findings so far are inconsistent although indicative of plausible specific risks, so that a detailed analysis is warranted.

R FRENTZEL-BEYME
Bremen Institute for Prevention Research and Social Medicine (BIPS), Postfach 10 6767, 28067 Bremen, Germany

1 Weiland KW, Mundt KA, Keil U, Kraemer B, Birk T, Person M, *et al*. Cancer mortality among workers in the German rubber industry: 1981–91. *Occup Environ Med* 1996;53: 289–98.
2 Spiegelhalder B, Preussmann R. Occupational nitrosamine exposure. 1. Rubber and tyre industry. *Carcinogenesis* 1983;4:1147–52.

Authors' reply—We thank Frentzel-Beyme for his interest in our paper. The purpose of our report[1] was to present the total and cause specific mortality of production workers in the German rubber industry, and to examine the cancer mortality by year of hire and years since hire. As we point out in the introduction to our article, the reason we conducted the study was the concern not only about a possible increase in the morbidity and mortality from laryngeal cancers, but also from cancers of other sites.[2,3] We had therefore decided to conduct a historical cohort study to investigate the mortality of rubber workers in comparison with the general population of West Germany. The cohort approach has the advantage that it allows the description of the mortality from many causes. Our findings of an increased mortality from several cancers, including cancer of the pleura and lung as well as from leukaemia, show the value of this research strategy. Dye to the lack of population based cancer registries in Germany, a cancer incidence study would not have been feasible.

A mortality study, however, has limitations for the study of cancers which have relatively low fatality—for example, laryngeal cancer. Firstly, there is a loss of statistical power due to fewer deaths from laryngeal cancer than incident cases. Secondly, the standardised mortality ratio (SMR) may not give a good estimate of the standardised incidence ratio (SIR) if, for example, fatality is related to exposure, or if rapid changes in the incidence have occurred which were not yet reflected in the mortalities. Although we have no evidence that this may have been the case and, for the other reasons discussed in our paper, it is prudent to interpret the findings on mortality from laryngeal cancer with due caution.

The next step in the analyses of our data is to investigate the effect of occupational exposures in more detail. As we state in our paper, we are currently conducting further analyses of the work history data to find whether any of the observed excesses of cancers are related to work areas and specific exposures. A manuscript presenting the cancer mortality by exposure in specific work areas will soon be submitted for publication.

Furthermore, in collaboration with experts, including Spiegelhalder, we are developing an exposure matrix to investigate the effect of specific exposure, with special emphasis on established respiratory carcinogens and nitrosamines. Available nitrosamine measurements from the early 1980s will be taken into account,[4] but need to be evaluated carefully because the measurement was not based on epidemiological principles. These analyses will be presented in due course.

STEPHAN K WEILAND
KENNETH A MUNDT
KURT STRAIF
ULRICH KEIL
Institute of Epidemiology and Social Medicine, University of Münster, Germany
KENNETH A MUNDT
Department of Biostatistics and Epidemiology, School of Public Health and Health Sciences, University of Massachusetts, Amherst, Massachusetts, USA

1 Weiland SK, Mundt KA, Keil U, Kraemer B, Birk T, Person M, *et al*. Cancer mortality among workers in the German rubber industry: 1981–91. *Occup Environ Med* 1996;53: 289–98.
2 International Agency for Research on Cancer. *IARC monographs on the evaluation of carcinogenic risk of chemicals to humans. The rubber industry*. Vol 28. Lyon: IARC, 1982.
3 International Agency for Research on Cancer. *IARC monographs on the evaluation of carcinogenic risk of chemicals to humans. Overall evaluations of carcinogenicity: an updating of IARC monographs*. Vols 1–42 (suppl 7). Lyon: IARC, 1987.
4 Spiegelhalder B, Preussmann R. Occupational nitrosamine exposure. 1. Rubber and tyre industry. *Carcinogenesis* 1983;4:1147–52.

NOTICES

The third international conference on occupational health for health care workers. 29 June–2 July 1997. Edinburgh, Scotland.

The conference is being organised on behalf of the International Commission on Occupational Health and its Scientific Committee on Occupational Health for Health Care Workers by representatives of the professional bodies in the United Kingdom involved in this field. It will be of interest to a wide multi-disciplinary audience.

The occupational health of health care workers is assuming increasing importance, not only due to the wide range of hazards affecting this group within the healthcare environment, but also because of potential impact on the health of patients and the wider environment. Our conference theme—*environmental interactions*—will help to focus attention on all these dimensions. Our aim is to create a participative conference in which there will be effective interchange among all the delegates through keynote addresses, workshops, discussion sessions, and posters. These will also be linked with an enjoyable social programme which will encourage you to experience a flavour of Scottish life and culture.

Further information from: Ted McGuire, Conference Bureau, 17 Hillpark Terrace, Edinburgh. Scotland EH4 7SX. United Kingdom. Telephone: +44 131 312 8435; Fax: +44 131 312 8435.

The 4th Congress of the European Society of Contact Dermatitis (ESCD) 9–11 July 1998. Marina Congress Center, Helsinki, Finland

The organisers, the European Society of Contract Dermatitis, the Finnish Contact Dermatitis Group, and the Finnish Society of Dermatology, cordially welcome you to the 4th meeting of the ESCD in Helsinki, Finland, in 1988.

The meeting will cover every aspect of contact dermatitis, including allergic and irritant contact dermatitis, occupational and environmental dermatitis, cutaneous toxicology, and dermatitis from cosmetics, with invited lectures, free communications, posters, and workshops on epidemiology, pathomechanism, diagnostics, prevention, and treatment of contact dermatitis. Also a trade exhibition will be held during the meeting. **For further information, please contact**: ESCD-98 Secretariat, Ms Kirsi Saarelma, Congress Manager, Limingantie 8, FIN-00550 Helsinki, Finland tel + 358 9 790 080, fax + 358 9 757 3630.

CORRECTION

Cancer incidence and mortality around the PBI pesticide factory, Waltham Abbey (1997;54:101–7).

The second distance heading in tables 1 and 3 should read 0–7·5 km and not 1–7·5 km.

The first full sentence of the second column of page 106 should read: Also the fact that the ratio of cancer registrations to cancer deaths within 1 km of the plant was around 1·15 suggests underregistration (the 1989 England and Wales ratio was 1·59 for men and 1·74 for women).