

Correspondence

Determinants of chronic bronchitis and lung dysfunction in Western Australian gold miners

SIR—Gantt and Lincoln (1988;45:503) of the Philip Morris Management Corporation have wrongly inferred from our study of Western Australian gold miners (1987;44:810–8) that “. . . lung damaging conditions in mineral operations can cause individuals to be exceptionally likely to find satisfaction in smoking. . . .” What they have ignored is the fact that in table 4 of our paper current smokers were shown to have more than a fourfold increase in obstructive chronic bronchitis *after* adjustment for mining experience. Thus the adverse effect of smoking cigarettes on lung function was not explained by smokers having worked in a more hazardous environment. Moreover, the prevalence of smoking in the mineral industry should not be compared with the total male population of Australia without adjustment for differences in age structure and socioeconomic status.

Gantt and Lincoln have also ignored one of the essential conditions necessary to substantiate a causal relation, which is the temporal sequence whereby the cause must precede the effect. There is ample evidence to indicate that people smoke first and develop respiratory problems later¹; not the other way around as the tobacco industry would like us to believe.

C D'ARCY J HOLMAN

P PSAILA-SAVONA

*Health Department of Western Australia,
189 Royal Street,
East Perth, Western Australia 6004.*

References

- 1 United States Department of Health and Human Services. *The health consequences of smoking: chronic obstructive lung disease. A report of the Surgeon General*, Washington: US Government Printing Office, 1984.

Outcome of retrospective cohort studies and study size: a publication bias?

SIR—Referring to their survey, Swaen and Meijers (1988;45:624–9) are surprised to find that there is no relation between the size of published retrospective cohort studies and their propensity to show “positive” results. Since the relation between size and power of studies is indisputable, what they have described may be attributable to publication bias. This is “the

British Journal of Industrial Medicine 1989;46:143–144

phenomenon in which studies with positive results are more likely to be published than studies with negative results,”¹ whether this be due to selection on the part of the author or the editor. Good evidence for publication bias in general medical publications exists¹ and, in particular, the extent of the bias is greater the smaller the study. This can be explained thus: an editor (author) may be reluctant to publish (submit) the results of a small study unless it shows a “significant” result, whereas non-significant results in large studies are considered more publishable. Greater “selection” of small studies according to their results would tend to hide the relation between size and power in published work.

Publication bias can be a serious problem in the interpretation of scientific research—for example, it has been suggested that the association reported between passive smoking and lung cancer is an artifact of publication bias.² Begg and Berlin state that “methodological standards for information dissemination” (via journal articles) “is a topic which urgently requires attention” and offer some suggestions.¹

ROSANNE MCNAMEE

*Occupational Health Unit,
Department of Community Medicine,
University of Manchester,
Stopford Building,
Oxford Road,
Manchester M13 9PT.*

References

- 1 Begg CB, Berlin JA. Publication bias: a problem in interpreting medical data. *Journal of the Royal Statistical Society A* (in press).
- 2 Vandembroucke JP. Passive smoking and lung cancer: a publication bias? *Br Med J* 1988;296:391–2.

Phenoxy herbicides and non-Hodgkin's lymphoma in New Zealand: frequency and duration of herbicide use

SIR—I have previously reported the findings of a New Zealand case-control study of non-Hodgkin's lymphoma and exposure to phenoxy herbicides.¹ More recently, this study has been expanded to include a total of 183 male cases of non-Hodgkin's lymphoma aged 20–69 registered with the New Zealand Cancer Registry during the period 1977–81, and 338 male controls with other forms of cancer matched for age and year of registration.² This study was initiated as a result of the malignant lymphoma study of Hardell *et al* in Sweden.³ In both studies subjects were classified as exposed to phenoxy herbicides if they had used these chemicals for at least one day. Using this

New Zealand non-Hodgkin's lymphoma case-control study: findings by duration and frequency of phenoxy herbicide use

	Cases	Cancer controls	Odds ratio*	95% Confidence interval
Duration of use (years):				
0	139	266	1.0	—
1-4	16	23	1.1	0.6-2.3
5-14	9	17	0.8	0.3-2.0
≥ 15	15	27	1.2	0.6-2.3
Unknown	4	5	—	—
Frequency of use (days/year):				
0	139	266	1.0	—
1-4	20	40	0.9	0.5-1.6
5-9	8	11	1.2	0.4-3.3
10-19	4	3	2.2	0.4-12.6
≥ 20	5	7	1.1	0.3-4.1
Unknown	7	11	—	—

*Adjusted for decade of birth and whether the patient or next of kin was interviewed.

relatively crude exposure classification, the Swedish study found a fivefold risk whereas the New Zealand study and a recent study in Washington State⁴ found little evidence of a raised risk of non-Hodgkin's lymphoma in workers exposed to phenoxy herbicides.

More recently, Hoar *et al* found a twofold risk in Kansas, but the risk was more than sevenfold in those who reported using herbicides for more than 20 days a year. This finding is consistent with the hypothesis that differences in spraying practices could account for the differing study findings. Owing to the climate, spraying in Sweden is usually carried out intensively during a two to three month period, whereas spraying in New Zealand and Washington State occurs intermittently over a longer period.⁴ It has been hypothesised that these differences could result in Swedish herbicide sprayers receiving a relatively high absorbed dose.⁴ In

other populations high absorbed doses might only be acquired by the subgroup of sprayers with a high frequency of herbicide use.

In response to this hypothesis I have reanalysed the New Zealand data. Some categories involve small numbers, but overall there is little evidence of an association of non-Hodgkin's lymphoma either with duration or frequency of phenoxy herbicide use (table). Thus it currently appears unlikely that differences in frequency of phenoxy herbicide use account for the puzzling differences in relative risk estimates obtained in studies in New Zealand, Sweden, and the United States.

N PEARCE

*Department of Community Health,
Wellington School of Medicine,
Wellington, New Zealand.*

References

- 1 Pearce NE, Smith AH, Howard JK, *et al*. Non-Hodgkin's lymphoma and exposure to phenoxyherbicides, chlorophenols, fencing work, and meat works employment: a case-control study. *Br J Ind Med* 1986;**43**:75-83.
- 2 Pearce NE, Sheppard RA, Smith AH, *et al*. Non-Hodgkin's lymphoma and farming: an expanded case-control study. *Int J Cancer* 1987;**39**:155-61.
- 3 Hardell L, Eriksson M, Lenner P, Lundgren E. Malignant lymphoma and exposure to chemicals, especially organic solvents, chlorophenols and phenoxy acids: a case-control study. *Br J Cancer* 1981;**43**:169-76.
- 4 Woods JS, Polissar L, Severson RK, *et al*. Soft tissue sarcoma and non-Hodgkin's lymphoma in relation to phenoxyherbicide and chlorinated phenol exposure in western Washington. *J Natl Cancer Inst* 1987;**78**:899-910.
- 5 Hoar SK, Blair A, Holmes FF, *et al*. Agricultural herbicide use and risk of lymphoma and soft tissue sarcoma. *JAMA* 1986;**256**:1141-7.



Phenoxy herbicides and non-Hodgkin's lymphoma in New Zealand: frequency and duration of herbicide use.

N Pearce

Br J Ind Med 1989 46: 143-144
doi: 10.1136/oem.46.2.143-b

Updated information and services can be found at:
<http://oem.bmj.com/content/46/2/143.3.citation>

These include:

Email alerting service

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
<http://group.bmj.com/group/rights-licensing/permissions>

To order reprints go to:
<http://journals.bmj.com/cgi/reprintform>

To subscribe to BMJ go to:
<http://group.bmj.com/subscribe/>