**Letters**

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**Musicians playing wind instruments and risk of lung cancer: is there an association?**

Lung cancer is an important public health problem. Tobacco is its main risk factor. Occupational exposure is also an important risk factor. Some jobs have shown higher risks than others, but participation is also an important risk factor. Some studies have shown that musicians playing wind instruments have a higher risk of lung cancer. However, the results were not homogeneous, and did not allow us to draw conclusions about a possible risk from the same microenvironment.

A case-control study was performed between 1999 and 2000 in the Santiago de Compostela Health District (Galicia, northwest Spain). A total of 132 cases with confirmed diagnosis of lung cancer and 187 controls were enrolled. Controls underwent trivial surgery at the same hospital as did the cases. A personal interview about lifestyle and activities (past and present) was conducted by a trained researcher.

We found that, besides tobacco and occupational exposure to carcinogens, some leisure time activities were risk factors for lung cancer. Among the cases there were two musicians who played wind instruments, whereas there were no wind instrument players among the controls. The two cases had been playing the clarinet and trombone for 35 and 30 years, respectively. Both were ex-smokers (moderate smokers) and played music as a hobby. They had epidermoid lung cancer and were diagnosed at 57 and 76 years of age.

Since in our population the prevalence of persons playing musical instruments and specifically wind instruments is extremely low, we think that this activity might be a risk factor for lung cancer. The very low number of persons playing this type of musical instrument is probably a reason for the lack of studies focused on this activity, as many occupational studies of lung cancer and occupation are based on registries of workers. One study found an increased mortality rate of lung cancer for a category that included painters, potters, musicians, and actors— an inhomogeneous category that did not allow us to extrapolate results. The results were not adjusted according to smoking history.

This hobby requires inspiration and breathing of large volumes of air, making the lung alveoli expand more than in other people. This fact could facilitate the penetration of carcinogens into the cells of the lung epithelium, and this could be more harmful in smokers. We have found no other studies that have reported this possible association. It would therefore be necessary to explore this association in greater samples of professionally exposed persons and determine whether this finding is consistent or due to chance.

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How important is personal exposure assessment in the epidemiology of air pollutants?

The paper by Harrison and colleagues1 and the accompanying editorial by Cherrie2 in the October 2002 issue of *Occupational and Environmental Medicine* addressed the important issue of personal exposure assessment (of air pollutants) in environmental epidemiology. After reading both papers we would like to make some comments with regard to the design, conduct and statistical analysis of the study by Harrison et al and at the same time answer the question raised by Cherrie in his editorial.

Coming from the occupational exposure assessment arena it is interesting to see that our environmental colleagues are still relying on a large-to-tiny microenvironmental sampling and even rely on shadowing to represent personal exposure. The latter brought back memories of old occupational hygiene textbooks with pictures of technicians standing with a sampling probe in the room with the static sampler. However, microenvironmental sampling would be a good alternative for direct personal exposure measurements that supposedly are “costly, time consuming”. However, the costs for sampling microenvironments in a general population study will be far greater if we want to measure all the microenvironments people end up in (for instance, in table 1 seven environments are indicated, and most of them will most likely be different for each study participant). In addition, it will be practically impossible to measure some of these environments as the authors point out. In their study, it was not possible to collect data for all appropriate microenvironments, even for a comparatively small number of subjects.

Recently, a very insightful paper was presented at the X2001 conference in Gothenburg. Seixas and colleagues3 showed that in a study to assess occupational noise exposure, a task based methodology (analogous to microenvironmental sampling in environmental exposure assessment) could only account for 30% of variability in daily exposures. They even considered this estimate somewhat optimistic since their estimated noise exposures were derived from the same data on which the daily average exposures were estimated. In addition they clearly pointed out that using simple task based averages that artificially compress exposure variability resulted in a very substantial negative bias in the estimated daily exposure.

In our opinion, we should aim to collect personal exposure measurements when estimating exposure for epidemiological studies.
We agree that smaller and lighter sampling instruments will need to be developed, as was suggested by Cherrie in his editorial. Recent studies in both the occupational and environmental arenas have shown that study subjects are capable of carrying out personal measurements (and by doing so, cutting out the costs of the technician). In all these studies except one, 7 far more than 100 personal measurements were generated, which shows that studies of this size are not exceptional as was suggested in the editorial by Cherrie.

The question raised by Cherrie, “How important is personal exposure assessment in the epidemiology of air pollution?”, can only be answered with a firm “very important”, if we want to capture the full range of personal exposures experienced in the general environment. We agree that smaller and lighter sampling instruments were generated, given the relatively low concentrations in the general environment, we will need to measure these accurately. Microenvironmental monitoring and consequent modelling based on diaries will not provide sufficient resolution and accuracy.

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References

Will sewage workers with endotoxin related symptoms have the benefit of reduced lung cancer?

Thorn and colleagues’ reported that sewage workers suffer from various symptoms which can be related to bacterial endotoxin (lipopolysaccharide) exposure. Other studies have shown that some members of this occupational group are commonly exposed to endotoxin. However, there appears to be a large discrepancy in endotoxin exposure assessment among these workers within this group. 2

Endotoxin exposure to some of these workers appears to be sufficient to induce a respiratory response characterized with symptoms of endotoxin. What is the highest exposure in sewage treatment are suggested to be associated with the waste treatment process. 3 Professor Rylander pointed out that endotoxin exposure to this occupational group is low. A recent communication with Professor Rylander) Rapiti and colleagues suggested that the lack of an increased lung cancer rate in one study and reduced risk of lung cancer in another for sewage workers may be related to endotoxins in their occupational environment as was originally reported for cotton textile workers. Other studies 4 that reported on lung cancer in sewage workers support these findings as suggested by Rapiti and colleagues. 5 Rylander and Lange 6 previously reviewed the epidemiological literature on reduced cancer rates in various occupations that are exposed to endotoxin.

A number of epidemiological, 7–10 experimental, 11 and clinical 12–16 studies have suggested that endotoxin is effective against cancer. A recent study by Palmberg and colleagues 17 reported that there is a rapid blood response of total leukocytes, monocytes, and granulocytes within seven hours followed by a dramatic decline within 24 hours. These findings are supported by an investigation by O’Grady and colleagues 18 in humans, in which endotoxin was instilled into a lung segment; increased tumour necrosis factor (TNF) and interleukin 1 were found in the broncho-alveolar lavage fluid 2–6 hours afterwards. Cytokine levels returned to normal concentrations within 24–48 hours after treatment. An increase of TNF in lung fluids as a result of exposure to endotoxin and dust containing endotoxin has been reported by others conducting human investigations as well, 19–22 including the suggestion of a dose-response relation. 23 Thus, periodic exposure as would be experienced by those in sewage and dusty occupations may afford a continual or pulse stimulation of the immune system. Such stimulation may enhance production of antitumor mediator factors and cells 24 that are suggested to be responsible for observed reduced lung cancer rates.

Experimental studies 7 have suggested that benefit of endotoxin exposure is most effective during initiation of lung cancer with a finding of less benefit for established tumours. This, together with results from Palmberg and colleagues, 3 supports the hypothesis 25 that endotoxin in an occupational setting is not responsible for the early formation of lung cancer. This further suggests that endotoxin reduces the incidence of lung cancer by stimulating the immune system to guard against early lung cancer events.

Additional studies 26 are warranted on the relation of endotoxin and reduced lung cancer rates. This relation has been suggested for textile and agricultural workers. 27 There is no reason to believe that endotoxin will not exist in other occupational groups exposed to endotoxin. Many have explained that the relation is not one of benefit, but rather methodology and bias, including differences in smoking rates. 28 However, this explanation is not supported by experimental and clinical investigations involving endotoxin. The major influence on lung cancer is tobacco use (smoking). Although smoking is identified as one of the reasons for lower than expected rates in some populations, some studies 29–31 have shown that smoking is not always an explainable factor or bias for reduced lung cancer. For example, Rapiti and colleagues 32 reported that the consumption of cigarettes and prevalence of smoking in a population of municipal waste workers was higher than the general population, but the incidence of cancer deaths (standardised mortality ratio) for lung cancer in this group was 0.55. Epidemiological studies need to include and report not only detrimental outcomes but also potentially beneficial associations.

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References
15 Schroeder JC, Tolbert PE, Eisen EA, et al. Mortality studies of machining fluid exposure in the automobile industry: IV. a casecontrol
Neurobehavioural testing in workers occupationally exposed to lead

The article of Dr Goodman and coworkers on "Neurobehavioural testing in workers occupationally exposed to lead" covers an interesting approach with a surprising main message: "None of the individual studies is conclusive or adequate in providing information on the subclinical neurobehavioural effects ...". Such a sentence astonishes a reader since the study in Goodman et al. had described as 'moderate' in one location in the manuscript and 'low' in another, are not associated with neurobehavioural test scores" misrepresents our conclusions listed on page 222 of our paper.

(6) "Reliance on a small number of unspecified studies for effect estimates. Table 2 of the study reports the number of studies that were combined to derive effect estimates, but does not specify which studies were combined." The original version of the paper included information on each individual study; however, based on the reviewers' and editor's comments, we had to shorten the manuscript substantially. We will make this information available on request. Reliability on a small number of unspecified studies for effect estimates, but does not specify which studies were combined. The original version of the paper included information on each individual study; however, based on the reviewers' and editor's comments, we had to shorten the manuscript substantially. We will make this information available on request. Reliability on a small number of unspecified studies for effect estimates, but does not specify which studies were combined. The original version of the paper included information on each individual study; however, based on the reviewers' and editor's comments, we had to shorten the manuscript substantially. We will make this information available on request. Reliability on a small number of unspecified studies for effect estimates, but does not specify which studies were combined. The original version of the paper included information on each individual study; however, based on the reviewers' and editor's comments, we had to shorten the manuscript substantially. We will make this information available on request.
2001 article by Schwartz and colleagues’ found no association between tibia lead levels and test scores. With regard to Seeber and Meyer-Baron’s statements that “the repeated information on cross-sectional studies should also be accepted as source for conclusions on (neurobehavioural) effect due to exposure” and that “meta-analyses are one approach to search such summarising information”, after having reviewed the results of five meta-analyses on the subject (two presented in the recent article by Seeber and colleagues,” our paper, and the two additional re-analyses discussed here), we found five different sets of results with no evidence of consistency or quality that these results as “repeated”. Therefore, we have to adhere to our original conclusions.

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References

No change in sex ratio in Ramsar (north of Iran) with high background of radiation

A few areas of the world show high levels of natural radiation, and one of these areas is located in Iran. Ramsar is a northern coastal town situated in the Caspian littoral (in Mazandaran province, Iran) on the slopes of the Alborz mountain range, and surrounded by forests. It is situated at 49° 40′ eastern longitude and 36° 53′ northern latitude. The area is rich with mineral springs. Investigations into the amount of radium-226 to in the background radiation that is up to 260 µSv, substantially higher than the 100 µSv that is permitted for radiation workers.

Annual births subdivided by gender, were obtained from Statistical Center of Mazandaran province. Because of the relatively small number of annual births in the urban area of Ramsar (currently about 670 per annum), analysis was carried out on the 11 year total for male and female live births, for the period 20 March 1989 to 19 March 2001, equal to Iranian calendar 1368 to 1379 Hejirae Shami (HS). The data was not available for the 1378 HS (equal to 20 March 1999 to 19 March 2000).

To test the null hypothesis that the probability of a male live birth in Ramsar is equal to that in the control populations, a χ² test was conducted. A value of p < 0.05 was considered significant. The sex ratio is expressed as the proportion of total live births that were males.

The sex ratios at birth in the urban area of Tonekabon, the nearest city to Ramsar (about 20 km distance) and the urban areas of Mazandaran province (excluding Ramsar) were used as controls. The overall sex ratios in Ramsar, Tonekabon, and the urban areas of Mazandaran province were 0.511 (total live births = 7911), 0.517 (total live births = 14 266), and 0.509 (total live births = 253 918), respectively. There was no significant difference between Ramsar and either Tonekabon (χ² = 0.95, df = 1, p = 0.33) or urban areas of Mazandaran province (χ² = 0.13, df = 1, p = 0.71).

It has been reported that the sex ratio in the offspring of male radiologists is significantly lower than that in control populations. However, this is not consistent with the present result. This discrepancy could be attributed to the exposure of both parents to ionising radiation. Alternatively, because the inhabitants of Ramsar have lived for many generations in an area of high background radiation,
some kind of adaptation might have occurred. This study was supported by Shiraz University

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References

William Harvey and air pollution
Thomas Parr died, on 14 November 1635, at what was recorded as the advanced age of 152 years and 9 months. A post-mortem examination was performed and a record made by William Harvey. A translation by Alan Muirhead of Harvey's account is included in the Everyman edition of De Motu Cordis.1 Parr seemed remarkably well preserved, and when considering the cause of death, Harvey identified air pollution as a possible contributory factor. His words are worth reading:

"It was consistent to attribute the cause of death to the sudden adoption of a mode of living unnatural to him. [Parr had been brought to London not long before he died by Lord Arundel.] Especially did he suffer harm from the change of air, for all his life he had enjoyed absolutely clean, rarefied, coolish, and circulating air, and therefore his diaphram and lungs could be inflated and deflated and refreshed more freely. But life in London in particular lacks this advantage—the more so because it is full of the filth of men, animals, sewers, and other forms of squalor, in addition to which there is the not inconsiderable grime from the smoke of sulphurous coal constantly used as fuel for fires. The air in London is therefore always heavy, and in autumn particularly so, especially to a man coming from the sunny and healthy districts of Shropshire, and it could not but be particularly harmful to one who was now an enfeebled old man."2

Harvey went on to point to the possible adverse effects of changing from a simple diet to a rich one. Harvey's observation on the possible effects of air pollution are interesting in that they antedate Evelyn's much better known analysis by 26 years. In retrospect we can see that Harvey identified the effects of short term exposure to high levels of air pollution on a vulnerable person.

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Reference
1 Harvey W. The circulation of the blood and other writings. Translated by Franklin KJ. Everyman's Library, No. 262. 1963. ISBN 0 460 00262 7.

Alternative methods of administering amyl nitrite to victims of cyanide poisoning
The traditional method of administering amyl nitrite to a victim of cyanide poisoning, is to break an ampoule in a handkerchief and then intermittently hold this under the victim's nose.2,3

I would like to suggest two alternative methods for administering amyl nitrite. The first method is to use a nebuliser. The second method is to use an inhaler similar to the Penthone ox, normally used to administer methoxyflurane for emergency analgesia.

With appropriate training, either method could be used by first aid staff. This could be a particular value to remote mine sites where the absence of medical staff may preclude intravenous administration of cyanide antidotes such as dicobalt edetate, sodium thiosulphate, sodium nitrite, or hydroxocobalamin.

Both methods offer the following advantages over the traditional method:
• Oxygen can be administered during treatment
• Rapid delivery of the drug
• Accurate dose delivery
• Less risk of inhalation by first aid or medical staff
• Less risk of injury due to glass fragments.

The inhaler device would also be particularly well suited to the treatment of large numbers of victims following industrial disaster or terrorist attack—the risk of which has been recently alluded to.4

One concern about introducing these methods is the potential for amyl nitrite toxicity. Experimental research is recommended to determine safe dosages for each method.

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References

Basic Statistics and Epidemiology, A Practical Guide

This book is "aimed at people who want to understand the main points, with minimum fuss"—no small task when the subject at hand is statistics! However, this book manages it by using short, concise, easy to read chapters that contain simple examples and a minimum of mathematics. The style is suitable both as a text to read from start to finish and as a reference book. It introduces students to the basic terms and concepts in statistics and epidemiology and provides a very basic “walk through” of some simple formulas.

The book is loosely divided into two parts. It begins with a brief description of what are statistics, their role in the study of populations, and ways in which samples can be drawn from populations in order to make statements about individuals in the population. Concepts such as probability, significance testing, and standard errors are introduced and explained before a very brief mention of some simple statistical tests. In these later chapters insufficient information is provided to allow the reader to understand the mechanisms of these tests, or the conditions required for their application. However, useful references are given where the reader may find further details.

In the second “half” of the book the author covers basic epidemiological concepts, describing the difference between prevalence and incidence, and how to measure disease frequency, and discussing bias and confounding. Later chapters in this section include the basic study designs such as cohort, case-control, and randomised clinical trial (or RCT), and describe the planning and use of questionnaires.

The book provides a useful glossary of terms, including mathematical symbols and a number of statistical tables. A set of exercises is given and answers are provided. These are invaluable addition to the book.

For the non-mathematical health student faced with the daunting prospect of having to begin studying statistics, this 150 page book is an excellent primer. It introduces basic terms and concepts and gets the student started. However, statistical concepts can be difficult to understand, and in some chapters in this book the brief introduction given falls short of helping the student understand concepts properly. Therefore the interested student may see this book as a first introductory text, shortly to be followed or indeed accompanied by a more full statistical or epidemiological textbook. For this purpose an excellent, current bibliography is provided.

R Atkinson

Occupational Disorders of the Lung: Recognition, Management and Prevention

The authors of this book aim to draw attention to “the changing nature of the contribution the occupational environment makes to lung disease, and to the particular difficulties this poses for those who find themselves responsible for patient care or the management of relevant industries”. The result is a book which is easy to read, helped greatly by use of a standard format for each chapter. The format includes management of both the individual and the workforce, and prevention. The authors have also used difficult or “grey” cases, similar to one other textbook in the field. The difference here is
that the cases were circulated to all the contributors to this volume and the overall response summarised in the text. The lack of complete agreement in many instances is comforting at one level—“textbook” cases are the exceptions in practice—and this approach gives a far better feel for the real life situation.

Another attractive feature of this book is the chapters dedicated to descriptions of certain industries and the problems that arise from those workplaces, including mining, farming, the automotive industry, and health carers among the seven chapters. This does lead to repetition of some information between chapters but, as the authors rightly point out, will tend to dip into one particular part of the book, and repetition under these circumstances is helpful rather than an irritation. The chapters on specific disciplines used in the investigation and management of occupational lung disease (for example, imaging and occupational hygiene) are good and sufficient for most needs in this context. The chapters on legislation divided geographically into North America, Western Europe, and the Pacific, Far East, and Australasia is an excellent attempt to widen the relevance of the book.

My criticisms are few and minor. While there are good generic sections on how to take a history, I am sure that having surveillance and having surveillance, it might have been a useful addition to include a chapter on epidemiological aspects unrelated to surveillance and more to the research field. This would allow greater expansion on the healthy worker effect and perhaps also the opportunity to compare the now burgeoning literature on the health effects of the broader environment and how these findings might apply to the occupational scene. Boxes have been used for specific sections within chapters. Sometimes this works, but sometimes it does not. There are one or two boxes which run to four or five pages and I feel that these would quite happily sit as sections within the chapter rather than boxes. Boxes need to be short and punchy.

This book is an excellent addition to the literature in this area, complimenting nicely the classical standard textbooks, and at a penny under £100 is good value for money. It is targeted at all physicians, hygienists, health and safety officers, and administrators, and successfully hits that target for all these groups. For exam purposes (for example, AFOM in the UK) this should be regarded as the standard text.

J G Ayres

Bone’s Atlas of Pulmonary and Critical Care Medicine, 2nd edition
Edited by G Douglas Campbell Jr and D Keith Payne (pp 315 plus index and colour plates; $95) 2001. Hagerstown, MD: Lippincott Williams & Wilkins. ISBN 0 7817 3436 3

This book aims to cover an enormous subject, and the editors have done very well to contain it to a little over 300 pages. Its 26 chapters are grouped into six sections, the lion’s share being occupied by respiratory topics, with critical care being limited to the relatively short final section. The atlas format is certainly stylish and on the whole achieves the editors’ aim—that is, of helping busy clinicians and students of chest disease absorb a large amount of information in a relatively short amount of time.

Despite the numerous contributors, the book’s layout is uniform and very accessible; text is limited and punchy and extensive use has been made of diagrams, flow charts, and tables to supplement the generally good quality photographic images. The grouping of the colour plates to the final pages of the book, to contain printing costs, is a little distracting but a justifiable compromise.

All of the material is up to date and well referenced, though tends to some extent to be dominated by North American sources and opinion. I found the chapters dealing with lung cancer, bronchiolitis obliterans and other bronchiolar airway disorders, and sarcoidosis to be particularly useful and excellent sources of a large and diverse amount of information. In contrast the chapter dealing with interstitial lung disease was to me a little disappointing. The chapters covering sleep disorders, HIV and fungal infections, lower respiratory tract infections, and nutrition are new to this edition and are welcome additions. The use of graded evidence based recommendations for diagnostic and therapeutic interventions is variable between chapters and its more consistent application would add further to this book’s already considerable value.

I am sure that this book will have broad appeal to both undergraduate and postgraduate students of chest medicine as well as busy practitioners. It would be a valuable aid to those preparing for postgraduate exams as well as specialist registrars in respiratory medicine, who I’m sure would find it a very useful source throughout their trainee years. Intensivists and trainees in critical care will, I expect, find the balance towards respiratory medicine less appealing. It has few competitors in terms of its breadth and clarity and it represents good value for money; in short it deserves a place in all good medical libraries.

W S Tunnicliffe

The Health Effects of Chrysotile Asbestos

The famous mortality study led by Corbett McDonald has followed 11 000 Canadian chrysotile miners and millers until 80% were dead; only 33 mesotheliomas were reported and excess lung cancers occurred only at very high exposure levels. Yet that same chrysotile used in textile manufacture in South Carolina was associated with a 30 times greater lung cancer mortality.

This volume, published in 2001 by The Canadian Mineralogist, reports the papers presented and the ensuing discussion and commentary at a symposium in 1997 called by the Canadian Government to discuss the health issues surrounding the continued production and use of chrysotile asbestos. Can the mineral be used safely? To most uninformed observers, the answer must be a clear no. The true answer is of course not so cut. Much of the evidence suggests that chrysotile itself is much less hazardous than the amphiboles and that the serious risks associated with chrysotile are a consequence of its contamination by tremolite, an amphibole that is found in geological intrusions into the chrysotile ore body. These are the issues discussed by the distinguished geologists, mineralogists, epidemiologists, risk analysts, and pathologists who contributed to the symposium. Among them are the last published contributions of two who made great contributions over many decades to investigating the hazards of asbestos and to protecting workers, the late Chris Wagner and Bob Murray.

The resolution of this conundrum may seem unimportant to those who live in countries where past exposures have been to mixtures of amphiboles and chrysotile and where use of asbestos has effectively ceased. However, industry continues to need durable fibres and the poor world sees substantial advantages in using cheap asbestos cement for water pipes and roofing material. And the issue is of course important to the Canadian and Russian chrysotile industries and their employees. Anyone who has been involved in the asbestos debate, who gives advice to industry or lawyers on asbestos issues, or who is interested in the complexities of the interface between science and regulation will find much of this fascinating in this volume.

A Seaton

NOTICES

First World Congress on Work-Related and Environmental Allergy (1st WOREAL), and Fourth International Symposium on Irritant Contact Dermatitis (ICD), Helsinki, Finland, 9–12 July 2003

Congress on Work-Related and Environmental Allergy
• Work related and environmental aspects of respiratory and skin allergy
• Specific issues related to pathophysiology and skin allergy
• Management and prevention of allergy

Irritant Contact Dermatitis Symposium
• Occupational irritant dermatitis
• Prevention of irritant dermatitis
• Alternative methods for the assessment of irritants
• Irritant dermatitis from cosmetics

Satellite events
• Satellite Symposia, 9 July 2003
• Allergy School, 9–10 July 2003
• 7th International NIVA Course on Work-Related Respiratory Hypersensitivity, 11–15 July 2003

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PostScript
**NIVA Training Programme 2003: Advanced Courses in Occupational Health and Safety**

NIVA Training Programme 2003 offers 12 advanced courses on current themes of work life. Further information is available from the NIVA Office:

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Email: niva@ttl.fi
Website: www.niva.org

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**CORRECTIONS**

The authors of “Association between job strain and prevalence of hypertension: a cross sectional analysis in a Japanese working population with a wide range of occupations: the Jichi Medical School Cohort Study” (Tsutsumi A, Kayaba K, Tsutsumi K, Igarashi M, *Occup Environ Med* 2001; 58: 367–7) have asked for the following errors to be pointed out.

- There are errors in the abstract (line 16) and text (page 368, left hand column, line 5). A part of the baseline data was collected in 1995 in two of the 12 study sites so that the correct period was 1992–95 (not 1992–94).
- On page 368, left hand column, line 24, the number of older participants (over 69) should be 696 and not 699.

These facts do not, however, affect the study findings.


www.occenvmed.com
William Harvey and air pollution

R L Maynard

*Occup Environ Med* 2003 60: 147
doi: 10.1136/oem.60.2.147

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