

# Postscript

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## LETTERS TO THE EDITOR

### Suicide in doctors

Hawton and colleagues<sup>1</sup> found that, relative to the general population, NHS female doctors had about twice the expected suicide rate, whereas NHS male doctors had about half the expected suicide rate. They concluded that, "the excess risk of suicide of female doctors in the NHS workforce is an important pattern that should be carefully monitored. This is especially so in the light of increasing numbers of women coming into medicine" (page 299). In the paper's summary, the same conclusion is stated more boldly: "The excess risk of suicide in female doctors highlights the need to tackle stress and mental health problems in doctors more effectively. The risk requires particular monitoring in the light of the very large increase in the numbers of women entering medicine" (page 296).

This conclusion is misleading. The excess suicide risk of female doctors was relative to the comparable age/gender section of the general population. However, that finding is irrelevant to the question at issue: inter-gender differences in the suicide risk of doctors within the NHS.

Comparison of the female and male doctors' suicide rates, presented in table 2 of the paper by Hawton and colleagues, shows that the female doctor suicide rate is numerically higher in the 35-39 age group, the same in the 30-34 age group, and lower in the 25-29, 40-49, and 50-59 age groups. The total suicide rate of the female doctors is also lower than that of the male doctors, irrespective of the inclusion or exclusion of the male 60-64 age group. With inclusion of the suicide rates presented in table 3, this makes for seven comparisons. In only one comparison is the female doctors' suicide rate higher than that of the male doctors, in one the rates are the same, and in the remaining five, the male doctors have the higher suicide rate.

As female suicide risk is quasi-universally lower than male suicide risk, the conservative

conclusion should therefore have been that the female doctors maintained the lower suicide risk of their gender. If it is true that increasing numbers of women are entering medicine, it can be confidently predicted that the suicide rate of the profession is more likely to decrease than to go up.

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### References

- 1 Hawton K, Clements A, Sakarovich C, *et al*. Suicide in doctors: a study of risk according to gender, seniority and speciality in medical practitioners in England and Wales, 1979-1995. *J Epidemiol Community Health* 2001;55:296-300.

### Abortion and breast cancer

Goldacre *et al*<sup>1</sup> use an impressively large database (28 616 cases and 325 456 controls) and an observed/expected ratio significantly below unity (0.83; 95% CI 0.74 to 0.93) in their record linkage study, to conclude that induced abortion "does not increase the risk of breast cancer".

In their discussion, however, the authors acknowledge a massive deficiency—that is, that their "data on abortions are substantially incomplete because they only include women admitted to hospital (and) only include those in the care of the National Health Service (NHS)". Considering that the majority of English abortions do not occur in NHS hospitals, most of the women in the study who did indeed have an induced abortion are probably misclassified as not having had any. The even more egregious nature of this flaw is reflected in the fact that a mere 300 cases—just over 1% of the total—are classified as having had an induced abortion. As the overall induced abortion rate in England and Wales averaged more than 1% per year during the study period (1968-1998),<sup>2</sup> it is conservatively estimated that approximately 15% of the women in the cohort underwent an induced abortion in their lifetime. Consequently, more than 90% of the women in the study cohort who underwent induced abortion were misclassified as not having an induced abortion. Therefore, the Goldacre *et al* dataset is wholly inapplicable to the question of an association between induced abortion and breast cancer.

Such inappropriate use of a large dataset is reminiscent of a similar report from 1982 by an Oxford group with authorship overlapping that of the present study (D Yeates).<sup>3</sup> In the 1982 study, Vessey *et al*, using a retrospective dataset consisting of 1176 case-control pairs, reported an odds ratio 0.84 (95% CI 63 to 1.12) for "miscarriage/termination" before first full term pregnancy. In the 1982 paper, the authors concluded: "The results are entirely reassuring, being in fact, more compatible with protective effects than the reverse." This "reassurance" was claimed despite the fact that the only quantitative description, in that 1982 paper, of the population of women who actually had an induced

abortion was "only a handful" (on which basis the authors justified their combination of induced and spontaneous abortion).<sup>3</sup>

In regard to possible "protective effects", it is also noteworthy that in their 2001 study, Goldacre *et al* attribute the slightly but significantly lower than expected number of abortions among cases "to confounding with other reproductive or lifestyle variables". We would suggest that women of higher socioeconomic status—who are known to suffer higher breast cancer incidence—are underrepresented among NHS abortion patients, and thus more likely to be misclassified. This follows from the fact that only non-NHS abortions cost the patients any money.

Yet no less troubling than the use of an inappropriate dataset for discounting the repeatedly observed positive association between induced abortion and breast cancer, is the misrepresentation of the published record by Goldacre *et al*. In their discussion,<sup>1</sup> they claim: "None of the cohort or record linkage studies have shown a significant increase in breast cancer risk after exposure to induced abortion." In this context, they cite three studies, but omit the 1989 study of Howe *et al*,<sup>4</sup> which was, in fact, the only other case-control study linked to medical records of induced abortion. We discussed this point in some detail in our 1996 review<sup>5</sup> in this journal, but Goldacre *et al* erroneously indicate that we only reviewed studies based on retrospective data. Importantly, Howe *et al* reported an overall odds ratio of 1.9 (95% CI 1.2 to 3.0) for induced abortion.<sup>4</sup>

Such misguided attempts, as exemplified by Goldacre *et al*, to "reassure" the public about the safety of induced abortion in regard to breast cancer risk, do not serve to fulfill the need articulated by Stuart Donnan<sup>6</sup> in his December 1996 editorial in this journal, for researchers "to have a view which might be called 'pro-information', without excessive paternalistic censorship (or interpretation) of the data."

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Conflicts of interest: none.

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- 5 Brind J, Chinchilli VM, Severs WB *et al.* Induced abortion as an independent risk factor for breast cancer: a comprehensive review and meta-analysis. *J Epidemiol Community Health* 1996;**50**:481–96.
- 6 Donnan S. Abortion, breast cancer, and impact factors—in this number and the last. *J Epidemiol Community Health* 1996;**50**:60.

### Authors' reply

Brind and Chinchilli suggest that incompleteness of ascertainment of abortion histories, and misclassification, are reasons for our not finding an increased risk of breast cancer associated with abortion.<sup>1</sup> "Misclassification" is all one way: women identified as having had an abortion can all be assumed to be correctly classified. In some of the low ascertainment subgroups—for example, older women with short recorded histories—we readily accept that only (say) 85% are correctly classified as not having had an abortion. Incompleteness of recording is, unfortunately, a design characteristic of the dataset and method—based on NHS hospital cases only, and without a full lifetime history of the women—which is nevertheless the same for cases and controls. To maximise the number of cases, we included a wide range of ages and included periods of short as well as long recorded history. However, older women and those with short recorded histories would have contributed very little to either the observed values of prior abortion (Brind's calculation of 1%) or to the expected values. The

important point is that, because the analysis was stratified by age and length of history, the cases and controls were the same in these respects. In subgroup analyses, subdividing by the women's age, birth cohort and year of breast cancer diagnosis, there are very different levels of recording of prior abortion. For example, considering women aged 30–39 years with breast cancer diagnosed between 1989–98, and their corresponding controls, 11.1% (1609 of 14 529) had a record of abortion and 5.9% (857 of 14 529) were specifically recorded as induced abortion. We think that many of the women whose record simply stated "abortion" were in fact cases of induced abortion but we report the data in precisely the way that they were recorded. In women aged 40–49 at the time of breast cancer between 1989–98, the corresponding figures for prior abortion were 8.7% (1199 of 13 734) and 4.3% (589 of 13 734). As shown in table 1, the relative risks in these women were very similar to those reported overall on lower levels of ascertainment. If under-ascertainment itself was important in comparing cases and controls, one would expect to find a divergence of relative risks at different levels of ascertainment. We did not.

The next issue is therefore whether bias—related either to ascertainment or other causes—obscured a true increase of risk. Brind and Chinchilli suggest social class as a biasing factor. The results within social class subgroups show no support for this (table 2). Because of the interest shown in the topic, we

will publish results of further subgroup analyses.

If abortion increased the risk of breast cancer, one would expect the increased risk to have an identifiable timescale to reflect a latent period. An increase in risk over time would be expected even if, through bias or confounding, the underlying background risk was underestimated.

As we reported,<sup>1</sup> subgroups defined by time interval between breast cancer and abortion show very similar relative risks and, specifically, there was no increase in "risk" with time since abortion. For example, the relative risk of breast cancer associated with induced abortion five years or less before the cancer was 0.80 (95% CI 0.6 to 1.0); and that associated with induced abortion 15 years or more before the cancer was 0.81 (95% CI 0.7 to 1.0).<sup>1</sup>

Brind and Chinchilli speculate about our interest in this subject. In fact, it stems mainly from a methodological interest in the use of record linkage to study topics that are hard to study using other methods.<sup>2</sup> Case-control studies of abortion prior to breast cancer, using personal interview, are problematic because of responder bias. Cohort studies based on personal long term follow up of women who undergo abortion would be formidable and, for most women, very unwelcome. Record linkage is therefore attractive and, for reasons emphasised above, the dataset and methods used are appropriate.

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**Table 1** Observed number of women with breast cancer and prior abortion, expected number, O/E and its 95% confidence interval: women aged 30–39 and 40–49 years at time of breast cancer between 1989–98

	Obs	Exp†	O/E†	95% CI
<i>Abortion, all</i>				
Aged 30–39 in 1989–98	65	79.4	0.8	0.6 to 1.0
Aged 40–49 in 1989–98	161	188.5	0.9	0.7 to 1.0
All women*	564	643	0.9	0.8 to 1.0
<i>Abortion, specified as induced</i>				
Aged 30–39 in 1989–98	32	42.4	0.8	0.5 to 1.1
Aged 40–49 in 1989–98	72	96.6	0.8	0.6 to 0.9
All women*	300	363	0.8	0.7 to 0.9

\*Totals as previously published; †after stratification for age, year of diagnosis, place of residence.

**Table 2** Observed number of women with breast cancer and prior abortion, expected number, O/E and its 95% confidence interval: subgroups defined by social class

	Obs	Exp*	O/E*	95% CI
<i>Abortion, all</i>				
Social class				
1	34	32.1	1.1	0.7 to 1.5
2	122	160.8	0.8	0.6 to 0.9
3	188	279.7	0.7	0.6 to 0.8
4	70	89.3	0.8	0.6 to 1.0
5	19	21.0	0.9	0.5 to 1.4
Unrecorded	131	128.9	1.0	0.9 to 1.2
<i>Abortion, coded as induced</i>				
Social class				
1	10	13.8	0.7	0.4 to 1.3
2	69	93.6	0.7	0.6 to 0.9
3	103	165.2	0.6	0.5 to 0.8
4	41	57.9	0.7	0.5 to 1.0
5	11	16.0	0.7	0.3 to 1.2
Unrecorded	66	66.0	1.0	0.8 to 1.3

\*After stratification for age, year of diagnosis, place of residence.

### Description of a fitness to travel health assessment evaluation tool for displaced Albanian Kosovars in the former Yugoslav Republic of Macedonia

During the 1999 conflict in Kosovo, an estimated 850 000 people were displaced from Kosovo.<sup>1</sup> Many thousands of these people arrived in the former Yugoslav Republic of Macedonia (FYROM). As the physical and political pressures mounted within Macedonia to provide safe haven for the refugees, the United Nations High Commissioner for Refugees (UNHCR) called for an international humanitarian evacuation programme (HEP). The International Organisation for Migration<sup>2</sup> (IOM) in collaboration with UNHCR and several responding international governments facilitated the voluntary movement of refugees out of Macedonia. More than 91 000 people moved to third countries under the HEP. IOM performed pre-travel "fitness to travel" health assessments for 41 652 refugees transported by the organisation. Of the remaining refugees who travelled under the HEP, approximately 20 000 left

**Table 1** Gender specific fitness to travel colour code summary

Summary by gender	Total	Green	Yellow	Red	No recorded conclusion
Female	21923	18935	2266	712	10
Male	19566	17905	1163	488	10
Unknown	163	145	14	4	-
Grand totals	41652	36985	3443	1204	20

Macedonia without a health assessment, and approximately 30 000 received a health assessment by the receiving host country on arrival.<sup>3</sup>

A health assessment tool was designed, validated, and implemented, to measure immediate health issues that may have affected the ability for the person to be transported in a safe and humanitarian manner by air craft. During the mostly transcontinental and transoceanic flights, only very limited health care could be provided by medical escorts. A brief historical and physical evaluation of the refugees was conducted by IOM field medical personnel consisting of culturally and linguistically appropriate assessors, nurses, and physicians. Supervision of the implementation was done by a senior IOM medical officer on site in the refugee camps. The face validity of the evaluation tool was done by physicians experienced in emergency assessment and field evaluations. A triage, colour coded tool was designed to reflect the following fitness to travel status: green—no significant health issues; yellow—non-urgent medical issues requiring routine follow up on arrival at the host country; red—urgent medical issues requiring immediate medical assessment on arrival in host country. A data capture and communication system was implemented to document the fitness to travel health status of the refugees before departure. The colour coding system was used to clearly identify refugees to the receiving health authorities according to their health condition at the time of departure to permit appropriate triage on arrival. When possible, the results of the fitness to travel assessment (yellow and red codes) were communicated ahead of the planned arrival to the receiving host country medical authorities to assist in preparing for the arrival of potentially ill refugees.

Of 41 652 fitness to travel assessments performed, 4647 people who were deemed fit to travel required medical assessment at the host destination (yellow and red designations), and of those 1204 required urgent care (red designations) (see table 1). The majority of health complaints were acute respiratory tract infections and hypertension. Pregnancy or recent delivery were common issues in the transported women of childbearing age.

A rapid and efficient system for fitness to travel was created to assist in the management of health issues related to the urgent and mass movement of refugees. The collected health information was of use to health care planners during the crisis and for those responsible for the health care of newly arrived refugees. The lessons learned have implications for future similar operations, and for the development of research and education programmes<sup>4</sup> for both the refugees and the host recipient nations.

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**BOOK REVIEWS**

**Needs assessment in public health. A practical guide for students and professionals**

D J Peterson, G R Alexander. (Pp 139; \$37.50). Kluwer Academic/Plenum Publishers, New York, 2001. ISBN 0-306-46530-2.

An excellent overview of the principles and application of needs assessment for the development and implementation of public health policy is provided. The issues surrounding the involvement of public and private agencies in needs assessment are discussed non-judgementally. The necessary requirements and processes for the use of focus groups as part of the needs assessment and policy development are well described as are the strengths and limitations of the data sources. The authors also succinctly lay out the framework for developing solutions to meet needs

identified including the role of governments, how to influence the political process necessary for implementation and, where necessary, effecting legislative change.

The role of the core needs assessment team is outlined and emphasis placed on needs assessment as a continuing process with appropriate monitoring and evaluation.

Most chapters end by posing questions for the reader based around three fictitious scenarios. While provision of possible answers to the questions as an appendix would have been useful for readers, and the topics covered could have been given a little more life by citing failures and successes of different approaches with analytical accounts from academic journals, the book is very thorough in dealing with the topics introduced.

Overall, this is an excellent book that will be very useful for both students and professionals alike.

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**Decision-making in environmental health**

Edited by C Corvalan, D Briggs, G Zielhuis G. (Pp 278; price not stated). E & FN Spon, 2000. ISBN 0-419-25940-6.

Published on behalf of WHO, this book considers the use of statistical information on health and the environment in the management of environmental health problems. It comprises nine chapters, each prepared by one or more of eight authors, on topics ranging from largely theoretical discussions of statistical and epidemiological methods to the practical application of one specific approach to environmental health assessment (the HEADLAMP project) in six cities in developing countries. There is also an annex describing 13 examples of environmental health indicators.

The target readership includes researchers in public health, epidemiology, and social sciences, and those working in government institutions concerned with environmental health, but I suspect that few readers will wish to follow the text in detail from cover to cover. The finer subtleties of statistical modelling in ecological studies and time series are unlikely to be important for those working with relatively crude data in developing countries, and will be above readers who do not already have a solid grounding in epidemiology. On the other hand, the more rough and ready approaches to the identification of local environmental health problems in the developing world will only be of limited relevance to researchers attempting to assess much smaller risks in affluent settings.

Nevertheless, there is something of interest for everyone. I found the review of Geographical Information Systems (GIS) particularly helpful, and was fascinated by a reference to legal controls on the burning of sea coal in mediaeval England because of concerns about the associated air pollution.

I would recommend the book principally to people working on environmental health problems in developing countries who are looking for practical guidance on how to tackle important problems in difficult circumstances. Those wishing to learn more about the techniques of environmental epidemiology that are applied in developed countries

will probably do better to consult more specialised texts, although some chapters are worth a quick browse.

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### **El control de las enfermedades transmisibles, 17th edn.**

Edited by J Chin. (Pp 748; price not stated). Informe Oficial de la Asociación Americana de Salud Pública (American Public Health Association). Organización Panamericana de la Salud. Publicación Científica y Técnica no 581, 2001. ISBN 9-27-531581-7.

This book is the translation to Spanish by the Pan-American Health Office of a well known text, the compendium report of the American Public Health Association on Control of Communicable Diseases in Man. This new edition

updates most of the infectious diseases. Its small size, a pocket book, makes it attractive. At the beginning of the book the first chapter covers how every disease is described in the text: brief clinical description, agent, distribution, reservoir, mechanism of transmission, incubation period, transmissibility period, susceptibility, and control measures. The second chapter offers a brief summary of surveillance of infectious diseases. After these chapters every infectious disease is described. They are ordered alphabetically, which permits an easy finding of any condition. The reader is given a comprehensive approach on the epidemiology and preventive measures of infectious diseases. The text ends with a chapter offering a comprehensive glossary of the scientific terms used throughout.

It is a highly recommended read for those who would seek an introduction to the epidemiology and prevention of most infectious diseases. It is targeted at public health officers, but it can also be very useful for specialists in

infectious diseases, teachers, and medical students. The text gives the opportunity to Spanish speaking professionals and students to share this excellent job sponsored by the American Public Health Association.

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