To the Editor, *Journal of Epidemiology and Community Health*

The doctor anomaly

SIR—Dr. Cochrane and his colleagues have sought, by ingenious methods, to get rid of the positive correlation between infant mortality and physician supply in 18 developed countries (Cochrane *et al.,* 1978). They say '. . . . . we must admit defeat and leave it to others to extricate doctors from their unhappy position'. This remark has had the intended effect of challenging the reader.

It occurrred to us that some of the countries richly endowed with physicians may obtain their large supplies by having bigger medical schools, larger classes, and thus less individual instruction of the medical student. The consequence could be a poorer standard of medical practice, the influence of which would be evident in the mortality of the younger age groups where the outcome of disease is most susceptible to the physician's skill. Another possible indicator of the quality of medical education would be the proportion of a country's graduates passing the United States licensing examination for foreign medical graduates. This would be a legitimate indicator for our purpose if the quality of emigrating physicians bears the same relationship to the quality of indigenous physicians in all the countries under study.

We have obtained data on class size in the first year of medicine and on the percentage of candidates passing the ECFMG examination in the United States for 15 of the 18 countries studied by Cochrane *et al.* (Canada and the US graduates do not take the ECFMG, and Scotland was combined with England for class size). Data on class size came from the World Health Organisation (1973) and data on the ECFMG from the US Health Resources Administration (1974).

In these 15 countries, the zero-order correlation of infant mortality with physicians per 10 000 population is +0·67, almost identical to that found for the 18 countries. The partial correlation resulting from the introduction of the two variables, class size and examination performance, is only +0·39. The matrix of the zero-order correlations show why this has happened.

	Physician supply (1970)	Average class size (1970)	% passing ECFMG (1970–72)
Infant mortality (1970)	+0·67	+0·57	−0·71
Physician supply		+0·68	−0·62
Class size			−0·68

While we have not 'made the doctor anomaly go away', we have substantially reduced its size. Perhaps other readers may be able to whittle it down further.

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References

Cochrane, A. L., St. Leger, A. S., and Moore, F. (1978). Health service 'input' and mortality 'output' in developed countries. *Journal of Epidemiology and Community Health,* **32**, 200–205.
World Health Organisation (1973). *World Directory of Medical Schools 1970.* WHO: Geneva.
US Health Resources Administration (1974). *Foreign medical graduates and physician manpower in the United States.* DHEW Publication HRA 74–30. Appendix Table 8.

Correction

Cochrane, A. L., St. Leger, A. S., and Moore, F. (1978). Health service 'input' and mortality 'output' in developed countries. *Journal of Epidemiology and Community Health,* **32**, 200–205.

In Table 4 the last two row headings 'Education index' and 'Intervention index' should be transposed. The correlation coefficient between intervention index and mortality at age 1–4 years should read −0·28. The text and conclusions are not affected.