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CORRESPONDENCE

We may shorten letters to the editor unless the authors specifically state that we may not. This is so that we can offer our readers as wide a selection of letters as possible. We receive so many letters each week that we have to omit some of them. Letters must be typed with double spacing between lines and must be signed personally by all their authors, who should include their degrees. Letters critical of a paper may be sent to the authors of the paper so that their reply may appear in the same issue.

Correspondents should present their references in the Vancouver style (see examples in these columns). In particular, the names and initials of all authors must be given unless there are more than six, when only the first three should be given, followed by et al; and the first and last page numbers of articles and chapters should be included.

Hazards of ultrasound

SIR,—Dr Peter Davies (30 June, p 2001) chides Minerva for suggesting (19 May, p 1541) that larger controlled studies are required to provide stronger evidence that obstetric ultrasound has no important adverse consequences. "The accumulated clinical experience of the past quarter century," Dr Davies suggests, should be reassuring enough.

If Dr Davies believes that this kind of "evidence" (whatever it is) is going to reassure those who have begun to express their concerns about the possible adverse effects of obstetric ultrasound, then he is mistaken. Moreover, the attitudes shown in his letter (and in recent public statements on the same subject by other doctors) can only help to fuel a growing public concern that some doctors are being just a bit too cavalier in protesting the efficacy and safety of obstetric ultrasound.

Dr Davies believes that clinical evidence of the adverse effects of *x* rays and drugs became apparent within a decade of their introduction into clinical practice. This leads him to conclude that because in 20 years of using ultrasound no "clinically obvious adverse effect has been reported," we should relax. *X* rays were introduced to obstetric practice in 1899, they became widely used during the 1920s, and by 1935 it had been recommended that they be used routinely.[1] It was not until 1956 that it was suggested that this practice might predispose to the development of leukaemia in childhood,[2] a hypothesis which was supported by subsequent research.[3] The drug diethylstilboestrol was introduced into clinical obstetric practice in the early 1940s[4]: it was in 1969 that it was suggested that fetal exposure to the drug might predispose to the development of vaginal adenocarcinoma in young women.[5] This adverse effect is one of many which have been identified subsequently; indeed, adverse effects continue to be discovered more than 40 years after the drug was introduced.[6] For obvious reasons, none of the adverse effects on the fetus of either *x* rays or diethylstilboestrol were "clinically obvious" to radiologists and obstetricians. Indeed, it was non-clinicians who conducted the research which identified these adverse effects.

The extent of Dr Davies' complacency is shown most vividly in his discussion of the research issues. "It is unethical," he writes, "to set up a study unless we are reasonably sure that a result will be obtained." He may wish to consider the ethical position of those who have introduced ultrasound into clinical practice without first establishing with appropriately designed research the circumstances in which this technology can be expected to have *beneficial* effects on perinatal health. Dr Davies declares himself daunted by the prospect of a study with a total sample size of only 2500 subjects. Yet it seems very likely that in Britain alone well over a quarter of a million fetuses every year are exposed to ultrasound. In view of the massive scale on which ultrasound is being used in obstetrics, it is important for those using these techniques to assemble strong scientific evidence to justify their current practice. As the recently published National Institutes of Health consensus statement on this subject has pointed out,[7] there is a dearth of such evidence. Had large randomised trials to assess the effectiveness of obstetric ultrasound in promoting perinatal health been mounted a decade ago, obstetricians and radiologists might now be better able to reassure their critics that their use of this technology on such a widespread scale is justified.

Like Minerva, I think that there should be larger, better controlled studies of ultrasound than have been conducted so far. First and foremost, such studies should address the multitude of poorly formulated and inadequately tested hypotheses which exist concerning the efficacy of ultrasound in promoting perinatal health. The same studies could also be used to test and generate hypotheses about possible adverse effects. As yet there is no evidence that obstetric ultrasound has any adverse effects on the human fetus. Although it will never be possible "to prove that ultrasound is safe" (as some people have demanded), Dr Davies and others like him should learn to respond to the expression of concerns about its safety in ways which are more likely to promote public confidence in doctors. Because such vast numbers of fetuses are affected, a very