packed cell volumes with a lower limit in black American women may be due to the high frequency of α thalassaemia in people of African descent and to total compensation for lifelong slightly lower haemoglobin concentrations.

Steer and colleagues consider that it "remains possible that genuine anaemia . . . has adverse consequences on fetal growth and long term outcome." Obstetricians and others working in developing countries know well the severe consequences of maternal anaemia on placental size, fetal growth, length of gestation, fetal nutrition, infant morbidity and mortality, and maternal morbidity and ultimately mortality.⁴ It remains the duty of obstetricians to try to bring maternal haemoglobin concentration into the optimal range for pregnancy. Evidence suggests that the optimal range is 110-140 g/l rather than the lower values proposed by Steer and colleagues.

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Author's reply

EDITOR,—To answer the questions of Sarah Vause and colleagues in reverse order, I can reassure them that the data given in our paper referred only to singleton pregnancies. This information was included in our original submission but was inadvertently omitted when we revised the paper to answer points made by referees. I am grateful for the chance to put the record straight.

The St Mary's maternity information system records the lowest haemoglobin concentration but not the gestation at which the lowest value occurred. The references we quoted in our paper make it clear that most of the expansion in plasma volume (which is reflected in the fall in haemoglobin concentration) has occurred by 20-24 weeks' gestation and there is comparatively little change thereafter. Thus, estimation of haemoglobin concentration at any gestation after 24 weeks is likely to show a similar relation with birth weight.

Finally, although we referred mainly to the relation of the lowest haemoglobin concentration to birth weight, I confess that we assumed several times that the lowest concentrations showed the largest falls from prepregnancy values. This assumption is consistent with the longitudinal studies of plasma volume in pregnancy that we cited in our paper. I accept that without measuring prepregnancy haemoglobin concentrations it cannot be proved. If the assumption were not true, however, the average fall in haemoglobin concentration would be the same (or greater) with a high pregnancy haemoglobin concentration as with a low (95-105 g/l) concentration. This would lead to the intriguing conclusion that women with higher than average haemoglobin concentrations when not pregnant would have smaller babies than their peers with lower values. I am not aware of any obvious physiological basis for such a hypothesis. To test it would require a large number of women to have their haemoglobin concentrations

measured before they became pregnant; such a study would probably present insuperable logistical problems.

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Outcomes of neonatal intensive care

EDITOR,—Christine Sanderson and D M B Hall support the concept of improving the availability of data on the outcome of neonatal intensive care.¹ Their suggestion that this can best be achieved by each unit employing "someone trained in counselling, child development and psychological assessment to follow up its graduates" seems, however, to be against the current trend.

The Audit Commission initiated this debate in the report *Children First* after being unable to obtain even the most straightforward population based data on outcomes.² It suggested that simple information (Is the child blind? Is the child deaf?) should be collected routinely for all babies who had received intensive care. The report mentioned by Sanderson and Hall was an attempt by the relevant professional groups to reach consensus on both what should be included in such a minimum dataset and the optimum timing of the collection of data.³ To fulfil the challenge issued by the Audit Commission it was considered essential that all infants who had received intensive care, not simply those in whom problems might be expected, should be included in any review of outcome. Although clinical data may sometimes give a strong indication of subsequent disability, prediction continues to be unreliable.

Given the mobility of the population and the current role of community paediatric services, it is appropriate that health staff based in the community should monitor the later health status of those who receive neonatal intensive care. In Sanderson and Hall's region (Trent) each health district still tries to examine all children, whether or not they have required intensive care, between 1½ and 2½ years of age. These reviews already aim to collect all the items of the minimum dataset except the date on which the child's mother left full time education.¹ The information is recorded and stored centrally but rarely used. Surely it is sensible to try to refine and focus this activity instead of inventing a new system at further cost.

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Water births

Could saline in the pool reduce the potential hazards?

EDITOR,—I have recently attended four water births; three went smoothly, but in one the baby had some difficulty breathing and was admitted to the special care baby unit, where he had a convulsion and was found to have a low sodium concentration. Inhalation of water was thought to be a likely cause for this, and the diagnosis on

discharge was freshwater drowning. Apparently the inhalation of even a small quantity of fresh water can cause appreciable haemodilution and the kind of problem experienced by this baby (who made a full recovery).

The proponents of water birth argue that a baby cannot inhale water even after the head is delivered because of chest compression in the birth canal. I do not believe this: on several occasions I and midwives have heard a baby whose head has been delivered make an attempt to cry. If the same happened under water a small amount of fresh water would be inhaled.

If the contents of the birthing pool were not fresh water but isotonic saline then presumably this haemodilution effect could be avoided. In the most recent water birth I attended, the patient was a qualified pharmacist, who told me that the birthing pool held 909 litres of water, to which the addition of 9 kg of salt would produce a solution of isotonic saline. I have discussed the idea locally with colleagues, who can see no obvious flaw in it, and I would appreciate others' comments.

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*We sent Dr Barry's letter to an expert, asking for his comments.

EDITOR,—The suggestion that salt should be added to make the water isotonic in a water birth would give rise to few theoretical objections by those who insist on having a water birth and would probably have an appeal, following the experience of C N Barry. A convulsion due to hyponatraemia in a baby who has been immersed in fresh water is important. The phenomenon is well recognised in the so called "drownproofing" of infants, in which well meaning but misguided people attempt to teach children under the age of 12 months to swim. Under these circumstances the infants can be trained to struggle across up to 10 m. They are submerged for an appreciable part of this distance and swallow a considerable amount of water. Convulsions have been reported after lessons and are known to be associated with similar hyponatraemia to that seen after the swallowing of large quantities of fresh water with subsequent haemodilution.

Nevertheless, it would be wrong to add salt in this way, or indeed in any way to encourage the practice, until experimental studies with animals were undertaken. Any experimental trials by well meaning adults that use infants or children as research subjects are unacceptable until double blind experimental studies have been reported and the procedure is found to be safe.

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Trends in sudden infant death

The few remaining sudden infant deaths are likely to be explicable and avoidable

EDITOR,—E A Gilman and colleagues report a dramatic fall in the rate of the sudden infant death syndrome in England and Wales after a peak in 1988.¹ This particularly occurred after the Department of Health issued advice at the end of 1991 that babies should not be placed to sleep prone; this instituted the "back to sleep" campaign. I have reported a campaign in the Scarborough district to avoid overdressing, overwrapping,