for intravenous fluids for shocked patients and for the small proportion of patients in whom oral rehydration treatment fails. We would, of course, concur but would emphasise that oral rehydration treatment will decrease the need for intravenous fluids, especially when there are suggestions that oral rehydration may in fact be safer. For example, when Santosham *et al*³ compared intravenous with oral rehydration, morbidity was confined to the intravenous treatment group. Pizarro *et al*⁴ reported that repair of fluid and electrolyte disturbances was more rapid in orally than intravenously rehydrated patients and the convulsion rate due to hypernatraemic dehydration was less with oral treatment. The incidence of convulsions has been further decreased by extending the rehydration phase in hypernatraemia to 12 hours, rather than six (M M Levine, personal communication). We share the aim of Dr Coulter of '100% cure rate' but would suggest that these data, obtained from well nourished infants and children, call for similar trials in developed countries.

A further attraction of oral rehydration is that it can be administered by the patient's family under supervision, thus actually releasing nurses for other tasks. We accept that families are all too often not involved in the inpatient care of their children but have found that children's nurses prefer to rehydrate children orally than attend to an infusion pump. When a suitable rehydrating solution is used, rehydration is correspondingly shortened⁴ and inpatient stay is further curtailed when regaded according to the regimen in our annotation.

Dr Coulter draws attention to the problem of oedema occurring during rehydration of malnourished children; this complication has been reported regardless of route or the sodium concentration of the rehydrating fluid.^{1,4}

Dr Coulter's helpful comments on potassium depletion were well received. We also share his anxieties about the accuracy of 'home based solutions', but he would accept that a balanced, physiological solution will never be available for treatment of the 500 million episodes of acute diarrhoea occurring in children throughout the world each year, and other strategies are required. Part of this strategy must be the training of personnel to provide the supervision of treatment of diarrhoeal illness, without which any treatment regimen will fail.

Like any powerful, effective therapeutic tool, WHO oral rehydration solution must be used with respect.

Dr Coulter's concern about the use of the WHO solution in neonates prompts us to emphasise that a 90 mM sodium solution is specifically for rehydration and to continue to administer it after rehydration is achieved will provide an excessive sodium intake for any age group. This is why we were careful to specify the details of the Pizarro rehydration regimen in our annotation, and emphasise a return to nutritious fluids after six to eight hours. A dehydrated child of any age is suffering from depletion, in the main, of extracellular fluid which requires replacement by a fluid resembling it in composition.⁵ We can only return to the limited published report on rehydration of diarrhoeic neonates⁶ which shows that provided free water was administered with WHO oral rehydration solution, 122 of 127 neonates were successfully treated, with recourse to intravenous fluid in only five who had ileus, profuse diarrhoea, or vomiting.

In conclusion, pioneers in the field of treatment of diarrhoeal dehydration in Asia, Africa, and South America have provided many important messages for the optimum treatment of this condition which challenge many established dogmas.

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Impact of improved perinatal care on the causes of death

Sir,

We would like to reply to the points made in Dr Addy's commentary on our paper.¹ The word 'impact' was perhaps unfortunately chosen since it implies a sudden event followed by a static situation. However, both obstetrics and neonatology are in a progressive evolution whose rate of change has become more rapid since the availability of techniques for fetal monitoring and ventilatory care of the newborn. Continuous change in perinatal care inevitably provokes continuing change in clinical consequences.

Lessons are therefore more clearly perceived when viewed against the passage of time. The year 1976 was a logical time to begin the survey but any choice was bound in some degree to be arbitrary. Emergency caesarean sections and resuscitation of the newborn were practised long before that date. Knowledge of the statistics before 1976 would supplement the conclusions of our paper but would be unlikely to alter them materially. Since perinatal mortality cannot exceed 100% the fall in mortality of low birthweight infants can hardly have been more dramatic before 1976 than it has been afterwards. Nevertheless, our colleagues in St Mary's Hospital are currently reviewing the statistics from 1970 onwards and we look forward to their findings.

Dr Addy is naturally concerned with the severity of respiratory distress syndrome and asphyxia in all live births and some of the questions he asks are beyond the scope of the paper. Our study was quite deliberately confined to

perinatal deaths. But it is prudent to warn neonatologists that studies which isolate their patients can only be a half truth. Their patients' problems are profoundly influenced by obstetric practice.

Some misconception has arisen over the definition of asphyxia (less commonly but more correctly called hypoxia.) For the purposes of the study the term was applied only to hypoxia arising intrapartum. Liveborn infants who were never able to breathe independently despite resuscitative measures were usually regarded, in the absence of lethal malformation, to be asphyxial deaths. Asphyxia which only developed postnatally but which resulted in death would not have been classified in the asphyxial group. In such circumstances hyaline membrane disease, intraventricular haemorrhage, pneumonia, or malformation were the common aetiological factors. It is important to appreciate that the classification adopted categorises death rather than specifies primary causes of death. Pronouncements on whether death is due to hyaline membrane disease or intraventricular haemorrhage is a very subjective exercise. The incidence of both hyaline membrane disease and intraventricular haemorrhage has risen since 1975 in St Mary's Hospital. The longer survival produced by ventilatory care has necessarily encouraged the resolution of hyaline membranes before death, while intraventricular haemorrhage has had more time to develop.² Most of the suggestions made by Dr Addy to account for the failure of the deaths from immaturity to decline are reasonable, although the importance of any single factor must be a matter of speculation.

We would take exception, however, to the suggestion that 'Neonatal intensive care, as practised in Manchester, does not save the lives of babies with hyaline membrane disease'. Our study has only shown that there was no significant reduction in deaths secondary to the consequences of being born too soon between 1976 and 1981. That falls far short of saying that intensive care saved no lives from hyaline membrane disease. It is worth pointing out that a previous study has clearly shown a higher survival in infants admitted from the region to our intensive care unit than those whose transfer proved impossible.³

We fully concur, therefore, with Dr Addy's plea that our findings should not be used to belittle neonatal intensive care. It would be tragic if doctors were ever discouraged from innovation in clinical care by a failure of mortality rates to respond immediately to their endeavours. Our study indicates that the problems of being born deficient in surfactant are less easily remedied than those of being born deficient in oxygen. But the fact that intensive care has been so successful in combating the effects of intrapartum hypoxia can only be cause for celebration. That such intensive care is not universally available can only be a cause for sadness.

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BPA response to 'healthier children thinking prevention'

Sir,

As a senior clinical medical officer with administrative duties in the child health service may I comment on the British Paediatric Association's response to this report. Colleagues have expressed similar sentiments on one or both of the following points:

- (1) Possibly the general practitioners of the future will undertake a competent and conscientious paediatric surveillance programme for their patients and one sees the logic of this proposal, but to date there is little tangible evidence of this apart from the above 'paper exercise'. Health authorities now have a statutory requirement imposed by the 1981 Education Act to notify education authorities of any child likely to have special education needs by the time he is 2 years old. Gross handicap is obvious, 'hidden handicap' is initially more difficult to detect. One must not let the latter group down in the power/item of service payment game.
- (2) Senior clinical medical officers with a paediatric training are convinced that the doctor who obtained a Diploma in Child Health now elevated to a member of the Faculty of Community Medicine (MFCM) (or who has passed the latter examination) has received a training which is largely irrelevant to the *present day* needs of community paediatrics. Surely the advised higher qualification *must* be membership of the Royal College of Physicians with a senior registrar background in hospital and community paediatrics; the MFCM could be an optional extra! Unfortunately, one is only too conscious of the serious limitations of the Community Medicine Training Programme and the anachronistic practice in 1984 of someone from this background being responsible for a community paediatric service as is the district medical officer or his specialist in community medicine. The problems caused by this can be very serious, producing a distorted or diminished awareness of service requirements, and very often a lack of commitment to child health which adversely affects the service. In what other specialty does a non-clinical, inappropriately qualified 'desk' doctor have responsibility for a clinical service?

Even now it would be eminently more sensible for the suitably qualified and experienced senior clinical medical