decline in stillbirth rates followed the national one. There is, therefore, no evidence that the decline in early neonatal mortality was achieved at the expense of a rise in stillbirth rate.

The final point is that hospital rather than geographically delineated groups should be studied on the basis that the causative factors for cerebral palsy originate within the hospitals. This is emphatically not so; it must be restated that for most cases, even those of LBW, cerebral damage occurs well before birth. To use Barson's phraseology, this lets both obstetricians and paediatricians off the hook, but it behoves all of us to seek the nature and timing of the insult(s) which compromise cerebral development. *Pace Barson*, observing a hospital population cannot account for the biases inherent in differential inter hospital transfer rates and clinical management policies which may affect prevalence without any bearing on the incidence of the condition.

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Prediction and management of nocturnal hypoglycaemia in diabetes

Sir,

Following the report of Whincup *et al*¹ I have analysed my own data on hospital based blood sugar profiles with rather different results.

A group of 118 diabetic children were admitted to the Royal Manchester Children's Hospital for 24 hours for a study of their renal function.² Capillary blood was taken before and one hour after meals and at 0300 hours for estimation of plasma glucose concentrations. In 107 of these children an after supper (usually 2100 to 2300 hours), and 0300 hour plasma glucose estimation were available for predictive analysis. Nocturnal hypoglycaemia was defined as a plasma glucose concentration of less than 3 mmol/l. The table shows the results.

Twenty seven children had a plasma glucose concentration <7 mmol/l after supper and of these only five had one of <3 mmol/l at 0300 hours. Eighty children had a plasma glucose concentration >7 mmol/l after supper and of these three had one of <3 mmol/l at 0300 hours. Thus for these data the after supper plasma glucose value was a poor predictor of nocturnal hypoglycaemia, being correct only about one fifth of the time.

I suspect that the difference between these results and those of Whincup *et al* reflects a difference in the per cent of the two populations that were confirmed positive and confirmed negative. The predictive value of a test depends entirely upon the ratio of confirmed positive and confirmed negative results in the population.³ In this data set,

Table Predictive value models for nocturnal hypoglycaemia (n=107)

Plasma glucose concentration after supper (mmol/l)	Sensitivity	Specificity	Predictive value	
			Positive	Negative
<4	25	97	40	94
<5	50	91	31	96
<6	50	85	22	95
<7	63	78	19	96
<8	63	72	18	97
<9	63	65	15	97
<10	63	63	14	97

7.4% of the population were confirmed positive compared with the 34% of that of Whincup *et al*. I can only speculate on what percentage of the general population of diabetic children have nocturnal hypoglycaemia, but from clinical practice I would be surprised if it was more than 10% to 20%.

There is an additional problem with predictive analysis. Feinstein comments that such an analysis has to accept the idea that the results can be listed in a fourfold table.³ Thus the presence of 'nocturnal hypoglycaemia' is expressed as a simple 'yes' or 'no' and the results of the after supper plasma glucose estimations are similarly interpreted. This is a simplification of the realities of glycaemic control and of home blood glucose monitoring in diabetic children, where the results are rarely 'yes' or 'no' but often 'perhaps' or 'maybe'.

Most British paediatricians ask their diabetic children to perform one blood glucose test at home at a different time each day. Acceptance of this predictive model implies two home blood glucose tests each day; one during the course of the day and one at bedtime. Personally I find it difficult establishing a once daily home blood glucose monitoring routine for most diabetic children and I believe that, for many, a twice daily routine would be difficult to achieve.

In conclusion, therefore, despite the results of the intervention study I remain unconvinced by the argument that paediatricians should be encouraging some of their diabetic children to estimate a nocturnal blood glucose concentration to reduce the incidence of nocturnal hypoglycaemia.

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