LETTERS TO THE EDITOR

Screening for growth: towards 2000

EDITOR,—On the 14 December 1994 we attended the 'Screening for growth: towards 2000' meeting at the Royal College of Physicians, London. The meeting was designed to focus on the role, value, and mechanisms of growth measurement in the community with particular reference to the soon to be published recommendations in the latest edition of *Health for all Children* edited by Dr David Hall.

The meeting was well organised and stimulating but it is sad that the body of senior paediatric opinion in this country cannot come to a consensus view on this important topic.

The presentations and associated discussion ranged from the presentation of the new growth standards, through the mechanisms of growth measurement and assessment to the costs and effectiveness of such programmes. Interested parties included clinical paediatric endocrinologists, community child health specialists, purchasers of health care, and there was passionate representation from the parent body clearly frustrated by the lack of professional consensus and by a clear change in perspective seen in some professionals who appear to have crossed the clinician/purchaser divide.

It was interesting to note that although the meeting was called 'Screening for growth: towards 2000' it was almost lunch time before someone pointed out that the concept was in fact growth monitoring in the community rather than screening.

The various proponents then got entangled in the usual arguments of the difficulties of accurate height measurement, the use of single height plots and relevant cut off points of normality, the use of height velocity and its year to year variation within individuals in the normal population, statistics and calculations and discussions over charts and their relevance to particular populations and the family. The end point of which is that the purchasers see the split in opinion and choose the cheapest option or no option at all.

Surely there are some things in life that are so obviously common sense that they do not necessarily have to be proved to be correct. One of these must be the measurement of growth in children – the unique paediatric indicator of well being, which can monitor a child population for endocrine, nutritional, emotional, and physical health.

In Hull and East Yorkshire we have adopted a pragmatic approach with a few simple goals and aims. Firstly, if measurements are to be accurate, the measurer (in our case the health visitor/school nurse) must be interested in and responsible for what they are doing. Each individual attended a half day seminar on technique of growth measurement and its interpretation and each professional is responsible for their own referrals to the paediatric growth clinic. Each was also supplied with a simple piece of accurate measuring equipment (Raven Minimetre) and a standard rod of 500 mm to check its calibration. The health visitor is responsible for obtaining parental heights at first contact and every child is measured standing at 2, 3·5, 5, 7, and 9 years by the appropriate professional with additional measurement of supine length in the first year of life where clinically appropriate. The recorded height is plotted on the child's chart and compared with the target range based on parents' height and a yearly velocity is calculated over the two year intervals to lessen the effect of year to year variation and inaccuracies of measurement. Referral is made on the basis of the child being more than 3 SD for the population (Tanner-Whitehouse 1975), outside 2 SD for parental target range or outside 25th–75th centile velocity (Tanner-Whitehouse 1976).

The system has worked very well and referrals are by and large appropriate, have identified treatable pathology, and have not swamped the system.

The frequency and timing of initial measurement in the first two years of life is as indicated clinically – we have not opted for routine length measurement in the first two years because of the difficulties in accurate domiciliary technique and in the interpretation of velocity over the first two years.

We all have anecdotal cases of pituitary tumour, hypothyroidism, chronic renal failure, liver disease, and malabsorption with poor outcomes that could have been diagnosed earlier and managed more effectively if regular child height measurements had either been recorded and/or interpreted correctly. In addition to these there are the more specific endocrine diseases and deficiencies that stimulated the call for growth monitoring and are currently still often diagnosed too late for full and effective management.

May we make a plea therefore for a clear message from those who will be recommending the guidelines to those that hold the purse strings that child growth monitoring is an integral part of child health surveillance and must not be lost in the current round of 'efficiency savings' and that regular measurement must be purchased throughout prepubertal childhood with programmes effected by trained professionals interested in, responsible for, and understanding of the programme they are involved in.

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Body mass index centile charts to assess fatness of British children

EDITOR,—While new weight for height charts for children are needed, as evidenced by the trends in national data,[1] we wish to point out that the recent centiles published by White *et al*[2] should not be used as such, for a number of reasons.

First, as the data are from Tayside only they are not representative of Scotland, let alone of Britain. In a study soon to be published adjustments were made between the various data sets, including Tayside, which contributed to the new national reference curves for stature and weight.[3] While there is some discussion of regional differences the statement in the abstract[2] that 'British children appear to be fatter' (than French children) is not substantiated by results in this paper and the title, which claims the charts 'to assess fatness of British children' is erroneous. Chinn and Rona showed that Scottish boys are now heavier for their height than English boys, based on data from five areas in Scotland and 22 in England.[1]

Second it is not clear whether only cross sectional data were included, as is appropriate for standards of this type, or whether two measurements have been included for some children. The only justifiable reason for including longitudinal data in cross sectional standards, or basing reference curves on data from a limited geographic area, would be the non-existence of other, more appropriate data. Given the work which has already been put into assembling a large, quasirepresentative national data set,[3] which is cross sectional except for the data for children under 2 years, it seems a pity if this is not to be used to construct national reference curves for weight for height, rendering piecemeal publication unnecessary.

Although unrelated to the above we should like to point out that the correlations of body mass index (BMI) with estimates of body fat derived from bioelectrical impedance are almost certainly spurious, and due to the common components of height and weight in both variables.[4] The equation quoted[5] converts height^2/impedance to total body water, which can then be converted to fat free mass.[6] 'Fat' can then be obtained by subtraction from body weight, but it is very doubtful as to the meaning of a correlation between this resulting quantity and BMI, whether or not the latter is converted to a z score.

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1 Chinn S, Rona RJ. Trends in weight-for-height and triceps skinfold thickness for English and Scottish children, 1972–1982 and 1982–1990. *Paediatr Perinatal Epidemiol* 1994; **8:** 90–106.
2 White EM, Wilson AC, Greene SA, McCowan C, Thomas GE, Cairns AY. Body mass index centile charts to assess fatness of British children. *Arch Dis Child* 1995; **72:** 38–41.
3 Freeman JV, Cole TJ, Chinn S, Jones PRM, White EM, Preece MA. Cross sectional stature and weight reference curves for the UK, 1990. *Arch Dis Child* 1995; **73:** 17–24.
4 Hammond J, Rona RJ, Chinn S. Estimation in community surveys of total body fat of children using bioelectrical impedance or skinfold thickness measurements. *Eur J Clin Nutr* 1994; **48:** 164–71.
5 Davies PSW, Gregory JW. Body water measurements in growth disorders. *Arch Dis Child* 1971; **66:** 1467.
6 Fuller NJ, Elia M. Potential use of bioelectrical impedance of the 'whole body' and of body segments for the assessment of body composition: comparison with densitometry and anthropometry. *Eur J Clin Nutr* 1989; **43:** 779–91.

Drs White, Wilson, and Greene comment:
Chinn and Rona suggest that data from Tayside children should not be used to represent the BMI of British children. Scotland is part of Britain, and Tayside is considered to be representative of Scottish physical and social development. We argued in our paper that BMI charts should be constructed from the forthcoming new national data set and indeed are delighted that this is now the case.[1] The Tayside and new National data BMI charts have an identical match for the 50th centile. Our data are the only published data from Europe other than those of Rolland-Cachera *et al*.[2] Our paper was an observation to highlight the need for national standards. It appeared to us that there had been a definite change in BMI between our data and the French standards, collected approximately 30