

LETTERS TO THE EDITOR

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Cystic fibrosis related low bone density

We were interested to read the study by Laursen *et al* which highlights the important problem of decreased bone mass in the cystic fibrosis population.¹ The authors found that reduced bone size was primarily responsible for the decreased bone mass observed in patients ≤ 19 years old. These results are at variance with the findings of Gibbens and colleagues, who, using quantitative computed tomography, showed that the volumetric (three dimensional) lumbar spine bone density of children with cystic fibrosis was 10% lower ($p < 0.001$) than in local controls.²

Although these contrasting results may partially reflect true differences in bone mass between the study populations, they may also be due to regional differences in bone mass. In addition, quantitative computed tomography measurements in the spine are confined to cancellous bone whereas total body dual energy x ray absorptiometry measurements, as used by Laursen *et al*,¹ predominantly reflect cortical bone. Both measurements are therefore useful, but contribute differently to our knowledge of the skeleton. Another more recent study supports the fact that the reduced areal (two dimensional) bone mass density documented in young patients with cystic fibrosis is due to a combination of decreased volumetric bone mass density and reduced bone size, rather than reduced bone size alone.³ We would therefore suggest that it is important to monitor the skeletal health of patients with cystic fibrosis (starting in childhood), ideally by performing annual bone densitometry. As fractures involving trabecular sites such as the ribs and spine are more prevalent in adults with cystic fibrosis than in the general population,⁴ regional rather than total body bone mass density assessments should be performed to more accurately assess fracture risk.

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- 1 Laursen EM, Mølgaard C, Michaelsen KF, Koch C, Müller J. Bone mineral status in 134 patients with cystic fibrosis. *Arch Dis Child* 1999;81:235–40.
- 2 Gibbens DT, Gilsanz V, Boechat MI, *et al*. Osteoporosis in cystic fibrosis. *J Pediatr* 1988;113:295–300.
- 3 Shaw N, Bedford C, Heaf D, *et al*. Osteopenia in adults with cystic fibrosis. *Am J Med* 1995;99:690–1.
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Non-familial short stature

EDITOR.—Cole's proposed new chart¹ would indeed detect children with non-familial short stature. Whether it would detect “hidden” pathology is less certain—data from the Wessex Growth Study suggests not. Routine investigation of all children below Tanner's 3rd centile identified eight cases of silent pathology.² Three of these, already on or above the current 0.4th centile, would clearly have lain above it on a conditional chart (figure 1), and might easily have been dismissed as normal. Parental heights may well inform the specialist, but their usefulness in a screening programme, without a full family history, is debatable.

Conditional standards demand that all heights are measured, not estimated, and should exclude those of abnormal stature.³ Such conditions rarely hold. Few fathers, as we found, attend school medicals. In any case, by school entry, one in four Wessex children lived in single parent or reconstituted families.

Furthermore, almost half our short children, including those with pathology, had at least one parent below the 2nd centile. Short children, often assumed to be genetically

short, may instead have inherited pathology. All very short children, regardless of familial height, deserve careful investigation.

Most children below the parent adjusted 0.4th centile would also fall below the unconditional 0.4th centile. As Cole admits, only when parental height is near or above average, are additional children likely to be referred. Our data show that children who are very short, even those with clear pathology, rarely have tall or even average parents. Indeed, mean parental height of all children with pathology was as low as those without (10th centile *v* 7th centile).

In our study, some 10% of those short children with heights above the 0.4th centile had organic disease. As long as the fear of missed pathology remains, why not simply raise the screening threshold to a higher centile, perhaps the 2nd, and not complicate the process with a second chart?

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- 1 Cole TJ. A simple chart to identify non-familial short stature. *Arch Dis Child* 2000;82:173–6.
- 2 Voss LD, Mulligan J, Betts PR, *et al*. Poor growth in school entrants as an index of organic disease: the Wessex Growth Study. *BMJ* 1992;305:1400–2.
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Professor Cole comments:

Mulligan and Voss are concerned that the conditional chart does not identify hidden pathology, but they misunderstand the chart's purpose. It is designed for short children of tall families, not short children of short families—this group is already catered for with the unconditional chart. All the Wessex Growth Study cases of hidden pathology had shorter parents than average, so the conditional chart is not intended for them. Short children from tall families are relatively uncommon, so the cost of the extra screen is modest.

Despite what Mulligan and Voss say, familial heights do not *have* to be measured—it is obviously desirable but not essential. Precision of measurement is much more important for the child than for the other family member(s), due to the shape of the critical region on the chart. And the father is *not* essential for the assessment—the chart uses whatever family size information is available.

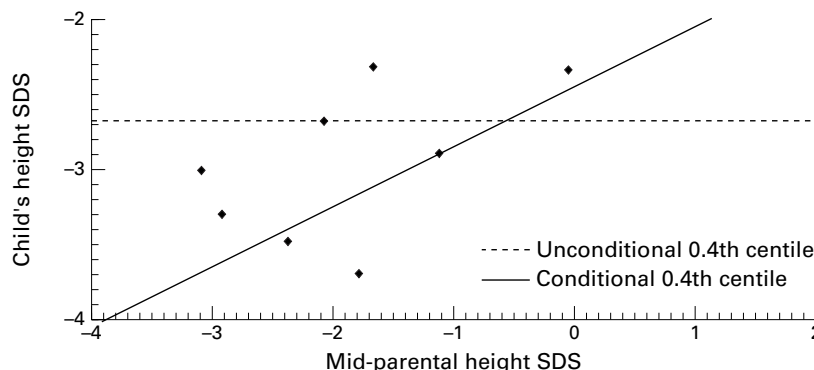


Figure 1 Height standard deviation score (SDS) of children with “silent” pathology plotted against mid-parental height SDS. Three children had a height on or above both the unconditional and conditional 0.4th centile.

What Mulligan and Voss seem to be concerned about is the use of the 0.4th rather than the 2nd unconditional centile. It certainly increases the number of cases of pathology missed, but it also reduces the false positive rate by five sixths. Either way it has nothing whatever to do with familial height adjustment.

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Physical treatment of fever

EDITOR,—I read with interest the paper by Pursel,¹ and I am in agreement with his conclusion that tepid sponging offers little advantage over the administration of paracetamol alone in most cases. I would go as far as saying that tepid sponging offers no advantage in the vast majority of cases. We no longer use fans and sponging, but remove some clothing (keeping a vest or a light T-shirt) during the phase of defervescence and sweating. We have not experienced any disadvantages with this current practice.

There are important points to mention that are missing in this paper. Why is there a need to lower the body temperature with tepid sponging even further than can be achieved with paracetamol? When we “treat” fever vigorously by combining an antipyretic drug with physical methods, we are giving the impression to parents, students, junior doctors, and others, that fever is harmful and the antipyresis is beneficial. The scientific evidence does not support this practice. It is the underlying disease, not the fever, which we should be concerned about. The presence of fever could well be of benefit to the infected host through the activation of the immune system. Several clinical studies have shown the beneficial effects of fever,² even high fever over 40°C,³ and the harmful effects of the antipyresis.⁴ We prescribe antipyretics because of prevailing concepts among physicians, parental expectation, and because children may show improvement in their level of activity and alertness.⁵

Physical methods have an important indication in cases of hyperthermia, such as heat stroke, where antipyretics are ineffective. Hyperthermia can also complicate febrile illness (vigorous muscular contractions in a child with febrile convulsion) and physical treatment may be of benefit.

Several issues remain unresolved. Which diseases are likely to benefit from the presence of fever, so that minimal interference is indicated? What degree of fever is harmful and thus ought to be lowered? Finally, does antipyresis have any effect on the clinical course of infectious diseases?

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Guidelines for the ethical conduct of medical research involving children

EDITOR,—The new guidelines¹ and the commentary by Professor Sir David Hull have highlighted the difficulties and problems of blood analysis in the paediatric population. However, I would like to point out that blood analysis is a very common practice in everyday paediatrics compared to its rarer use in research. Unfortunately, most of the blood analysis in everyday practice is carried out by junior house officers, under excuses such as “routine investigations”, often without consultation with more senior members of staff and full explanation either to the older child or to the parents as to the necessity of such investigations. I just wonder whether it is more appropriate for the college to issue guidelines on the appropriateness of investigations in the childhood population.

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- 1 McIntosh N, Bates P, Brykczynska G, et al. Guidelines for the ethical conduct of medical research involving children. Royal College of Paediatrics, Child Health: Ethics Advisory Committee. *Arch Dis Child* 2000;**82**:177–82.

EDITOR,—All concerned with the care of children will welcome the scholarly and authoritative guidelines recently published by the Royal College.¹ However, one aspect of research in children was perhaps insufficiently stressed, namely the ethical imperative to try to maximise the information obtained from clinically indicated procedures, which applies whatever the age of the subject. Thus an invasive procedure such as intubation or fibreoptic bronchoscopy, performed for purely clinical reasons, can legitimately be made an opportunity for gathering research specimens, such as bronchoalveolar lavage fluid² or bronchial brushings,³ subject to prior informed consent being obtained from the child and family, and subject to the safeguards set out in the guidelines. Since such invasive procedures can never legitimately be performed solely for research purposes, it is surely incumbent upon researchers to actively seek these serendipitous opportunities to gather information that would otherwise be unobtainable. Failure to do so might itself be considered unethical, or at least not best practice and a wasted opportunity.

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- 1 McIntosh N, Bates P, Brykczynska G, et al. Guidelines for the ethical conduct of medical research involving children. Royal College of Paediatrics, Child Health: Ethics Advisory Committee. *Arch Dis Child* 2000;**82**:177–81.
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The role of lumbar puncture in meningococcal disease

EDITOR,—The numbers of cases of meningococcal disease diagnosed clinically and by polymerase chain reaction (PCR) have increased, while the numbers of culture confirmed cases and lumbar punctures are falling.^{1,2} This changing trend in case ascertainment was noted by Gill.³ Pollard *et al* seem to support this trend,⁴ preferring to avoid lumbar puncture in all patients with “clinically obvious” meningococcal disease because it “adds little useful information to the clinical diagnosis, it could be misleading, and does not affect clinical treatment”. I find this surprising for several reasons.

Firstly, it is at odds with their view on treatment, that a broad spectrum third generation cephalosporin should be used “until microbiological information is available” and possible penicillin resistance or alternative bacterial causes of purpura are excluded. Cerebrospinal fluid (CSF) may provide this information, and could thus contribute significantly to diagnosis and management. Also, identifying a bacterium other than meningococcus or *Haemophilus influenzae* would avert unnecessary antibiotic prophylaxis of contacts.

Secondly, CSF microscopy could confirm the diagnosis of meningococcal disease within the hour. Blood and throat cultures take at least 12 hours; and although PCR itself only takes 2 hours,⁵ in practice the need to transport the sample to the Meningococcal Reference Unit in Manchester—particularly over the weekend—may delay results for several days. It must benefit clinicians and the patient's family to have the diagnosis confirmed quickly.

Thirdly, isolating the causative meningococcus does not just make the microbiologist happy, it can also provide valuable clinical and epidemiological information. PCR of blood can identify the capsular serogroup, but the actual organism is required to determine antibiotic sensitivities and other phenotypic characteristics. Compared to blood (54% (88/164)) and throat (31% (22/71)) cultures, CSF (70% (96/138)) offers the highest chance of isolating meningococci, particularly when pre-admission antibiotics are given.¹

Finally, an initially normal CSF is well recognised in meningitis cases and should be no more misleading than an initially normal white blood count or C reactive protein. Therefore, in the absence of contraindications, there are still good reasons to proceed with lumbar puncture in patients with purpura characteristic of meningococcal disease.

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A short stay observation unit improves care in the paediatric emergency care setting

EDITOR,—The number of admissions to hospital emergency departments is increasing, by up to five per cent a year.¹ Most of these children are under 5 years of age, and they may come straight to hospital without any preceding medical examination.² Although a short stay observation unit (SSOU) has been proved essential for a good emergency service,³ few publications have looked at its influence on the admission rate in paediatrics.⁴ We analysed the activity of a SSOU opened in 1992 in the paediatric emergency department (PED) of the Children's Hospital of Bordeaux. We also looked at the number of total admissions to the PED and the number of children admitted to paediatric wards between 1987 and 1996.

Among 2321 patients admitted to the SSOU in 1996, we analysed 644 medical patients (table 1): 55% of children were under 3 years old, 70% living in the town or surroundings, and only 36% referred by a general practitioner. Twenty per cent were admitted for diagnosis (group A), 50% for treatment and observation of a prediagnosed acute condition before deciding on discharge (group B), while 30% were waiting for a bed on a paediatric ward (group C). Sixty eight per cent of children spent less than six hours in SSOU, and 79% of those from groups A and B were thereafter discharged. Between 1987 and 1991, the number of medical referrals to the PED gradually increased by an average of 8.25% per year (fig 1). Similarly, admissions to paediatric wards increased by 5% per year, from 2467 in 1987 to 3541 in 1991 (fig 2). Since its opening in 1992, the activity of the SSOU increased dramatically, reaching 2141 medical admissions in 1996 (fig 2), representing a mean occupancy rate of 146%. Interestingly, although the number of medical visits to the PED continued to increase during that time (fig 1), the increase in admissions to the wards was stopped, and even decreased a little from 1995 (fig 2).

Our study demonstrates the clear effectiveness of a SSOU in limiting the number of admissions to a tertiary paediatric centre.

Table 1 Characteristics of the 644 patients admitted to the SSOU

Sex	Female	305 (47%)
	Male	339 (53%)
Age	<1 year	181 (28%)
	1 to 3 years	173 (27%)
	>3 years	290 (45%)
Locality of residence	City of Bordeaux	135 (21%)
	Suburbs	316 (49%)
	Other	193 (30%)
Route of admission	Via family doctor	231 (36%)
	Self-referral	412 (64%)
Symptoms	Gastrointestinal	195 (30.4%)
	Fever	148 (23%)
	Respiratory	108 (16.8%)
	Poisoning	57 (8.8%)
	Neurology	53 (8.2%)
	Dermatology	13 (2%)
	ENT	13 (2%)
	Miscellaneous	57 (8.8%)

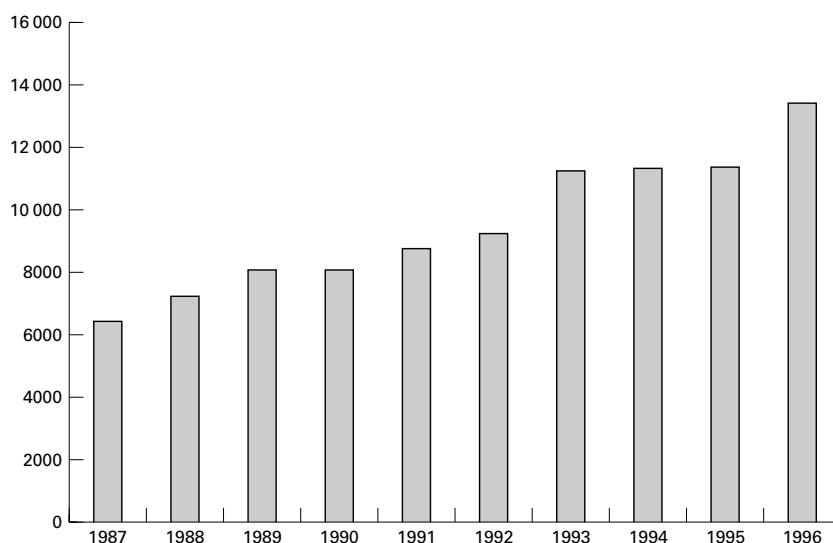


Figure 1 Medical referrals to the paediatric emergency department.

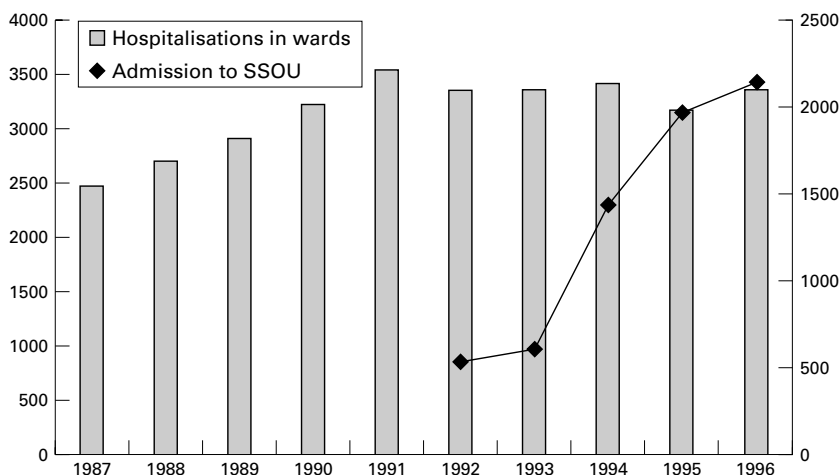


Figure 2 Admission to short stay observation unit and to paediatric wards.

The opening of the SSOU in our hospital's PED allowed us to control the increase in inpatient admissions even though the number of medical referrals to the PED was still going up. This meant that inpatient wards were less overburdened by emergency inpatients, who generally stay a short time in hospital, but disturb work in the specialised wards. In addition, inpatients are generally assessed by medical staff twice a day only, which may result in unnecessary delays in discharge. On the contrary, continuous observation and repeated assessments of those admitted to the SSOU facilitated more rapid discharge. The shorter length of stay in this unit reduces the risk of hospital acquired infections and limits childrens' and parents' anxiety.

The SSOU in a PED can provide comprehensive, cost effective care to patients who require short term treatment or observation, especially young children. It limits inpatient admissions, improves working conditions in specialised paediatric wards, with a degree of safety that protects the PED physician and

the hospital from litigation resulting from "inappropriate" discharges leading to poor outcome.

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