

progression of long-term complications in insulin dependent diabetes mellitus. *N Engl J Med* 1993;329:977-86.

- Kilpatrick ES, Rumley AG, Dominiczak MH, Small M. Glycated haemoglobin values: problems in assessing blood glucose control in diabetes mellitus. *BMJ* 1994;309:983-6. (15 October.)
- European IDDM policy group 1993. Consensus guidelines for the management of insulin dependent (type 1) diabetes. *Diabetes Medicine* 1993;10:990-1005.
- Benjamin RJ, Scaks DB. Glycated protein update: implications of recent studies, including the diabetes control and complications trial. *Clin Chem* 1994;40:683-7.

## Authors' reply

EDITOR,—A S Wierzbicki and colleagues think that trends in glycated haemoglobin concentration should be used with little referral to their absolute value. Accordingly, they must think that a patient with a stable haemoglobin A<sub>1c</sub> concentration of 12% should be treated in a similar manner to one with a stable value of 6%. In the light of the diabetes control and complications trial, which showed an impressive reduction in microvascular complications with improved absolute glycated haemoglobin values,<sup>1</sup> this opinion must be held by only a minority of clinicians.

How are we to achieve reductions in the incidence of long term diabetic complications without establishing a standard by which we can compare the glycaemic control of our own diabetic patients with those participating in complications trials? It is well known that standardisation for glycated haemoglobin does not exist, but what we showed was the extent to which the same diabetic patients may have their glycaemic control categorised differently because of this lack of standardisation between assays.

With regard to our statistical analysis, our way of comparing the glycated haemoglobin methods had no relevance to the European classification of patients into good, borderline, or poor control. Likewise patients' concentrations of fetal haemoglobin were not pertinent to our chosen assay by high performance liquid chromatography since fetal haemoglobin was not included in the result for glycated haemoglobin. We read with interest the findings of Hassan and colleagues, which are at odds with those of our study and previous publications.<sup>2,3</sup> While there is little doubt that their Glycomat results are analytically correct, their interpretation may be artefactual owing to the inclusion of fetal haemoglobin concentrations in this glycated haemoglobin assay. The random error introduced by fetal haemoglobin is likely to have a greater relative effect on the bias and standard deviation of their reference range population when using haemoglobin A<sub>1c</sub> than it is when measuring haemoglobin A<sub>1</sub>.<sup>4</sup> Therefore, this may affect the subsequent classification of diabetic control when European guidelines are used. We too found a significant correlation between non-glucose haemoglobin adducts and haemoglobin A<sub>1c</sub> concentration ( $r=0.66$ ), but this disguised the fact that these adducts did not rise as quickly as haemoglobin A<sub>1c</sub> in diabetic patients, which was part of the reason for the discrepancy we found when comparing haemoglobin A<sub>1</sub> and haemoglobin A<sub>1c</sub>.

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- Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993;329:977-86.
- Rumley AG, Kilpatrick ES, Dominiczak MH, Small M.

Evaluation of glycaemic control limits using the Ames DCA 2000 HbA<sub>1c</sub> analyser. *Diabet Med* 1993;10:976-9.

- Paterson JR, Barrington H, Malcolm EA, Lawrence JR. Evaluation of glycaemic control limits. *Diabet Med* 1994;11:715.
- Kilpatrick ES, Rumley AG, Small M, Dominiczak MH. Increased fetal haemoglobin in insulin-treated diabetes mellitus contributes to the imprecision of glycohaemoglobin measurements. *Clin Chem* 1993;39:833-5.

## Urinary tract infection in children

### GPs may not use same criteria

EDITOR,—Linda Pead and Rosalind Maskell report the proportion of children under 12 in the population served by a public health laboratory in a relatively affluent part of Britain in whom the child's general practitioner suspected a urinary tract infection sufficiently to ask for laboratory confirmation.<sup>1</sup> They also report the criteria used and the proportions of boys and girls. Miscellaneous imaging studies showed that an appreciable number of the children with positive findings had underlying or secondary abnormalities of the urinary tract.

What the paper does not tell us is whether general practitioners in other areas are likely to use the same clinical criteria for requesting such studies and, if they do so, whether other laboratories and imaging departments would report comparable findings; nor is it clear what fundamental questions such studies would be likely to answer. Surely what we need to know is the proportion of girls and boys in each cohort who sooner or later are likely to develop a urinary tract infection of sufficient severity to damage their kidneys in such a way as to lead to hypertension or renal insufficiency, or both; whether this depends partly on predisposing anomalies of the urinary tract as regards to both frequency and severity of infection; in what ways such cases usually present clinically; and how early diagnosis and treatment affect prognosis. Only when such knowledge is available will we be able to assess the cost effectiveness of attempting to identify children at risk.

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- Pead L, Maskell R. Study of urinary tract infection in children in one health district. *BMJ* 1994;309:631-4. (10 September.)

### Consider severity of abnormalities

EDITOR,—Linda Pead and Rosalind Maskell found urinary infections to be much commoner in children than is generally believed.<sup>1</sup> They rightly point out a considerable logistic problem if all children are to be investigated, as is generally recommended.<sup>2</sup> Although they did not investigate all cases, their figures suggest different risks of underlying renal disease for the different ages at presentation. Thus a newly diagnosed abnormality was found in 20 of 626 cases for girls aged 6-12 (1 in 31). In 27 of the 66 girls with a newly diagnosed abnormality, however, the abnormality was minor and would not be disastrous if missed; so a major abnormality was found in 1 in 43. Although readers are not given details, I suspect that the more severe defects (severe reflux, reflux with scarring, obstruction) were more likely to be present in the children under 5.

What would help address the debate over logistics is a more detailed breakdown of authors' figures by age and sex to give the incidence of important newly diagnosed urinary tract abnormalities for each age group. By important I mean abnormalities that needed surgery or had appreciable potential for impairing renal function long

term. We should examine critically any policy that results in x ray departments being inundated with children in whom the incidence of abnormal findings is low.

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- Pead L, Maskell R. Study of urinary infection in children in one health district. *BMJ* 1994;309:631-4. (10 September.)
- Guidelines for the management of acute urinary infection in childhood; report of a working group of the Research Unit, Royal College of Physicians. *J R Coll Physicians Lond* 1991;25:36-42.

## Authors' reply

EDITOR,—The breakdown of children with newly diagnosed abnormalities by age and sex for which J F B Dossetor asks is given in tables III and VII of our paper. Sixty three (85%) of those found to have major abnormalities were aged 5 or under. Dossetor's reasoning with regard to the rate of abnormalities in girls aged 6-12 is unclear. The 27 of 66 referred to were the figures for abnormalities in girls of all ages.

When considering the implications of our study it is important to remember that only a minority of the children with infections were investigated, that investigation was often limited to ultrasonography, and that awareness of the problem of urinary tract infection in children was high. Some of the children found to have apparently minor abnormalities on ultrasonography—for example, those with kidneys of appreciably different size—may indeed have had renal scarring. It is difficult to compare our figures with the few available from elsewhere. For example, those of Jadresic *et al* refer to numbers of specimens received rather than to numbers of children from whom they came.<sup>1</sup> Seemingly, however, the overall rate of referral of urine specimens in our study was close to that of the practitioners with the highest referral rate in theirs.

When the diagnosis is not suspected as readily as it was in our study the desirable objective of recognising abnormalities as early as possible may not be achieved. It is unwise, therefore, to assume that abnormalities are unlikely to be found in older children.

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- Jadresic L, Cartwright K, Cowie N, Witcombe B, Stevens D. Investigation of urinary tract infection in childhood. *BMJ* 1993;307:761-4.

## Floating eye clinic

EDITOR,—I recently paid a brief visit to the Russian eye hospital ship moored in Gibraltar's territorial waters and am now in a better position to comment on Giles Tremlett's news item<sup>1</sup> than I was in my previous letter.<sup>2</sup>

Firstly, the eye clinic's operation accords with Gibraltarian law concerning the licensing of medical practitioners. A firm of solicitors handled the details whereby ophthalmologists from Moscow receive secondary registration to practise while carrying out their tour of duty on the ship.

I found the ophthalmologists' examination of patients to be thorough and admired the computerisation of all the findings, which can readily be retrieved. A small army of interpreters are on board, facilitating communication with patients. There are also facilities for providing English