reject 12% of their samples, even in well motivated children. This further emphasises to us the difficulty, which we have found in our own studies, in the collection of accurately timed and measured volumes of urine in children. The use of urine albumin:creatinine ratio obviates the need for timed or measured samples and correlates well with albumin excretion rates,² and we would suggest this as an ideal method for further study of albuminuria in children. In our own studies of diabetic children, a group that require repeated assessment of renal function, it has become evident that some form of stress is necessary to unmask latent glomerular damage. Using urine albumin:creatinine ratio urine specimens taken before and after exercise we have identified 20 out of 60 diabetic children (compared with none in a control non-diabetic group) with abnormal albumin excretion, but who have normal values for albumin excretion rates and urine albumin:creatinine ratios on random and timed 24 hour split urine collections.

We would also echo the plea for standardisation of units. The authors chose to use SI units of mg/mmol for their urine albumin:creatinine ratio rather than the original mg/mg, which has the merit of not mixing units and is comparable with most previous data without a difficult conversion (1 mmol=113.1 mg creatinine). We would suggest continuing with mg/mg for the measurement of urine albumin:creatinine ratio.

References

- ¹ Davies AG, Posthewaithe RJ, Price DA, Biun JL, Houlton CA, Fielding BA. Urinary albumin excretion in school children. *Arch Dis Child* 1984;**59**:625-30.
- ² Barratt TM, McLaine PN, Soothill JF. Albumin excretion as a measure of glomerular dysfunction in children. *Arch Dis Child* 1970;**45**:496-501.

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Congenital diaphragmatic hernia: association between pulmonary vascular resistance and plasma thromboxane concentrations

Sir,

The report by Ford *et al*¹ of an association between plasma prostanooids and pulmonary vascular tone was extremely interesting. In the initial paragraph of the 'Results' section, however, they note an alveolar-arterial difference in oxygen tension (A-a Do₂) of 550 mm Hg. The alveolar air equation has undergone numerous revisions since first suggested by Benzinger,² but in its simplest form alveolar Po₂ is derived by first subtracting water vapour pressure from atmospheric pressure and then further subtracting the result of the arterial PCO₂ divided by the respiratory exchange ratio. Assuming a Paco₂ of 30 mm Hg, the A-a Do₂ would then become 446 mm Hg. Furthermore, infusion of tolazoline did not seem to eliminate the right to

left shunt, or venous admixture, but the infusion did succeed in reducing the shunt to somewhat less than that noted five hours after surgery, which might be roughly estimated as about 20%. Had tolazoline completely eliminated the shunt and produced a Paco₂ near 675 mm Hg, a rather new and more startling explanation would seem to have been required. These points are offered in clarification; the work is noteworthy and potentially quite important.

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Dr Ford and co-workers comment:

We calculated our alveolar-arterial difference in oxygen tension (A-a Do₂) using the umbilical artery as the source of arterial oxygen rather than the radial artery. Thus we derived an A-a Do₂ of approximately 550 mm Hg. This has been used previously to attempt to determine prognosis in these neonates.³

Obviously we have failed to clarify the degree of shunt at the various points in time. At the time of surgery, as the radial artery Pao₂ was less than the expected level on an F₁O₂ of 1.0, we assumed there was a shunt at the cardiac level plus or minus a ventilation-perfusion mismatch. At the same time point, the difference between the radial and umbilical artery was assumed to represent ductal shunting. When the radial and umbilical oxygenation levels became the same at 15 hours after surgery and then both dropped, we assumed that shunting was occurring at the foramen ovale or there was a gross ventilation-perfusion mismatch, or both. Tolazoline improved this situation dramatically and at the same time thromboxane concentrations fell. We at no stage attempted to quantify the shunt.

References

- ¹ Ford WDA, James MJ, Walsh JA. Congenital diaphragmatic hernia: association between pulmonary vascular resistance and plasma thromboxane concentrations. *Arch Dis Child* 1984;**59**:143-6.
- ² Benzinger T. Untersuchungen über die Atmung und den Gassstoffwechsel insbesondere bei Sauerstoffmangel und Unterdruck, mit fortlaufend unmittelbar aufzeichnenden Methoden. *Ergebnisse der Physiologie biologischen Chemie und experimentellen Pharmakologie* 1937;**40**:1.
- ³ Raphaely RC, Downes JJ, Jr. Congenital diaphragmatic hernia: prediction of survival. *J Pediatr Surg* 1973;**8**:815.

Medical contribution to the management of dyslexia

Sir,

What Drs Gordon *et al* allude to in their paper,¹ but perhaps should have clarified, is the way in which parents involve doctors—which is often as follows. Their child is not doing well at school. The head teacher has a talk with them and may mention referral to the educational psycho-