

## LETTERS TO THE EDITOR

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### The management of fever and petechiae: collaborative studies are needed

EDITOR.—We were interested to read Brogan and Raffles' audit of the management of fever and petechiae.<sup>1</sup> This is an important audit for many general paediatricians in the UK. In Newcastle 36% of children with petechiae were treated with antibiotics, and only 10% had meningococcal disease (MCD). Brogan and Raffles correctly state that more studies are required to validate their proposed guideline. We offer two such studies:

(1) The ILL criteria (irritability, lethargy, low capillary refill) were applied retrospectively to a cohort of children presenting with petechiae who were part of a multicentre prospective study of MCD from Merseyside, UK.<sup>2</sup> The ILL criteria would have identified all except two of 66 children with MCD and petechiae. Both those not identified presented with seizures, one had meningism, the other a maculopapular rash. However, the ILL criteria were also present in 62 of 65 children with petechiae initially thought to have MCD, whose final diagnosis was a viral illness. In this cohort the features that suggested MCD were tachypnoea or signs of meningitis or septicaemia.<sup>3</sup> The ILL criteria are therefore of limited use in children already suspected of having MCD.

Local paediatricians in training asked for an algorithm to help assess children with fever and petechiae. We therefore designed an algorithm which includes risk factors from previous studies (recently reviewed),<sup>4</sup> the ILL criteria, the criteria from the above Merseyside study, and a period of observation. We introduced this algorithm into routine use in our hospitals this year. We are prospectively validating its use.

(2) During the first three months, 49 children presented with petechiae. Only one

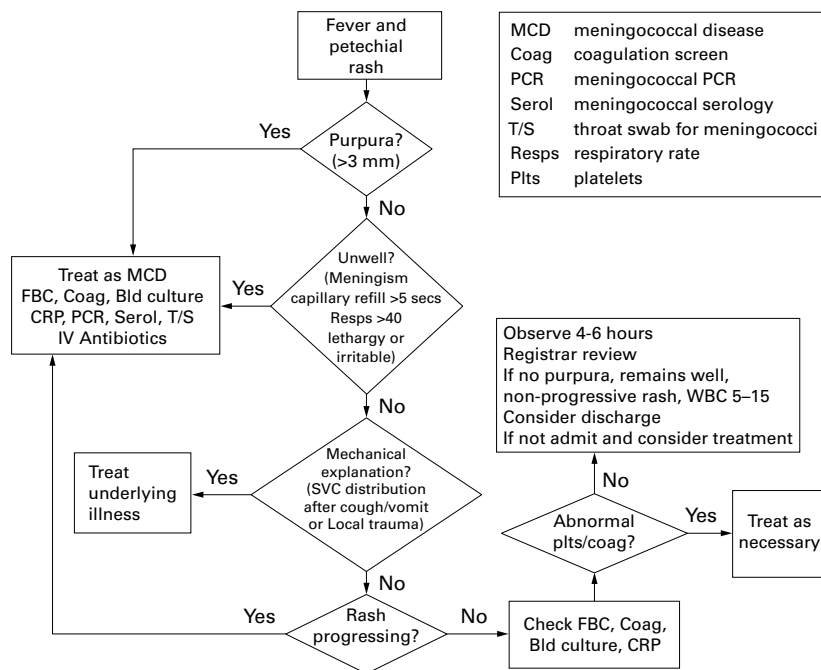


Figure 1

child had meningococcal disease. The algorithm was correctly followed in 34 (68%) children; this included prompt treatment for the child with MCD. For 15 children the algorithm was not followed; 7 were given antibiotics when not indicated, 8 were not treated when the algorithm suggested they should be. It is obviously vitally important that antibiotics are not withheld from children with possible MCD. When paediatricians suspect MCD, they should give prompt antibiotic treatment and then seek to confirm the diagnosis.

Any algorithm for the management of children with fever and petechiae must be shown to be clinically valid.<sup>5</sup> A large number of cases will be needed to show our algorithm is safe and effective. This requires collaboration between a number of centres. Any centre wishing to help validate our algorithm would be welcome to do so: please contact one of the authors.

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- 1 Brogan PA, Raffles A. The management of fever and petechiae: Making sense of rash decisions. *Arch Dis Child* 2000;83:506-7.
- 2 Riordan FAI, Thomson APJ, Sills JA, et al. Who spots the spots? The diagnosis and treatment of early meningococcal disease in children. *BMJ* 1996;313:1255-6.
- 3 Riordan FAI, Thomson APJ, Sills JA, et al. Are paediatricians overtreating suspected meningococcal disease? [abstract]. *Arch Dis Child* 2000; 82(suppl 1):A11.

4 DiGiulio GA. Fever and petechiae: No time for a rash decision. *Clin Ped Emerg Med* 2000;1:132-7.

5 Wade A. Derivation versus validation. *Arch Dis Child* 2000;83:459-60.

### Replies

EDITOR.—We read with interest the study and recommendations by Brogan and Raffles.<sup>1</sup> We agree with them on a number of issues and wish to draw attention to the following points.

(1) Previous international studies do not support a temperature of  $>37.4^{\circ}\text{C}$  as an inclusion criteria of significant fever for significant bacterial sepsis (SBS).<sup>2</sup> A minimum temperature of  $38^{\circ}\text{C}$  for 0-2 month old and  $39^{\circ}\text{C}$  for 3-36 month old children is recognised as an indicator of SBS. Hypothermia may also be significant. In children older than 3 years, the highest recorded temperature of  $40^{\circ}\text{C}$  or more, in association with other parameters, may be more significant. Interestingly, in their own series, 4 out of 5 children with SBS had temperatures of  $38.9-40.4^{\circ}\text{C}$ . We propose that a temperature of at least  $38^{\circ}\text{C}$  should be considered as significant fever.

(2) Lethargy has been mentioned as one of the diagnostic criteria of SBS. As a diagnostic criterion, it should be defined more objectively rather than as proposed by the authors. It may be defined as "a level of consciousness characterised by poor or absent eye contact or as the failure of a child to recognise parents or caregivers or to interact with persons or objects in the environment."<sup>3</sup>

(3) Although we fully agree with the cautious interpretation of total white blood cell count in relation to serious sepsis, we would like to mention the importance of absolute neutrophil count (ANC) more than  $10\,000/\mu\text{l}$ , especially in pneumococcal and to some extent in meningococcal sepsis. ANC of more than  $10\,000$  has 76% sensitivity, 78% specificity, and 99.2% negative predictive value in pneumococcal sepsis.<sup>3</sup>

(4) The term toxic needs to be defined as a clinical picture consistent with a varied constellation of lethargy, poor perfusion, or

marked hypo/hyperventilation.<sup>4</sup> We therefore suggest that the aide memoir of significant bacterial sepsis should be modified from ILL to ILLNESS: Irritability, Lethargy, Low capillary refill, Neutrophilia/Neutropenia, Elevated (or low) temperature suggests Significant Sepsis.

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- 1 Brogan PA, Raffles A. The management of fever and petechiae: making sense of rash decisions. *Arch Dis Child* 2000;**83**:506–7.
- 2 Baker MD. Evaluation and management of infants with fever. *Pediatr Clin North Am* 1999; **46**:1061–72.
- 3 McCarthy PL, Lembo RM, Fink HD, *et al*. Observation, history and physical examination in diagnosis of serious illness in febrile children of less than or equal to 24 months. *J Pediatr* 1987;**110**:26–30.
- 4 Baraff LJ, Bass JW, Fleisher RF, *et al*. Practice guideline for management of infants & children 0–36 months of age with fever without focus. *Pediatrics* 1993;**92**:1–12.
- 5 Kuppermann N, Fleisher GR, Jaffe DM. Predictor of occult pneumococcal bacteremia in young febrile children. *Ann Emerg Med* 1998;**31**:679–87.

EDITOR,—The accurate diagnosis of meningococcal disease is important, not only for the welfare of the patient, but also for the implementation of appropriate public health measures. Brogan and Raffles have made a useful contribution to more reliable diagnosis.<sup>1</sup> However, I feel that their finding of 9% could represent a falsely low proportion of children with serious bacteraemia because of potential recruitment bias and measurement bias. Knowing that children would not be given antibiotics if entered into the study, unless they met the ILL criteria or had a raised white cell count or C reactive protein, may have led admitting doctors to exclude some children that they felt uneasy about observing. This could easily have been achieved by describing the rash as >2mm for instance (it is not stated whether the rash was measured or judged by eye). Secondly, it is questionable whether they had discovered all the bacteraemias. Blood culture, or remaining well after discharge, could miss bacteraemia in those children treated with antibiotics before admission or given a short course in hospital. PCR would have been a useful additional diagnostic test.

This study is a useful first step but, as the authors say, needs to be followed up with a prospective trial. The recruiters and assessors of the children to the study are not the managing clinicians, and the diagnosis of bacteraemia is more thoroughly sought. This is important to validate the diagnostic technique and also the positive predictive value of the combination of petechiae and fever.

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EDITOR,—Although studies on children with petechiae who appear clinically unwell are important, the management of such children should pose few dilemmas in deciding to treat for presumed sepsis. A more challenging

group is those with petechiae who appear to be well. We feel this group generates anxiety for clinicians who worry about missing occult or early sepsis. To address this question, we retrospectively identified from a 1 year period, all children who presented with petechiae to our emergency department.

We wanted to focus in particular on well, afebrile children with petechiae of unknown cause. Therefore, unlike Brogan and Raffles, we excluded those at the time of presentation thought to have clinical sepsis, those with idiopathic thrombocytopenic purpura or Henoch–Schönlein purpura and those with suspected non-accidental injury. We also excluded febrile children but, unlike Brogan and Raffles, we defined fever as a temperature of 38°C or more (in accordance with the study of Mandl *et al*,<sup>2</sup> the largest prospective study to date on the incidence of sepsis associated with petechiae).

Thirty one well, afebrile children with petechiae were identified. Each had comments in their notes like “appears well” and the diagnosis for each was “viral illness”, plus or minus mechanical causes for petechiae. In addition, objective criteria such as pulse oximetry, capillary refill time, and blood pressure were all normal. Having identified this cohort, we reviewed laboratory data and outcome for each child.

Ten children were less than one year, 10 between one and five years, and 11 over five years. Nineteen had blood cultures done—all negative. Nine of these also had meningococcal PCR done—all negative. Of the 12 without blood cultures, 1 had meningococcal PCR done, which was negative. Twenty seven had full blood counts—3 showed an elevated white cell count and none had low white cell counts. Nineteen had C reactive protein measured, 9 of which were elevated. Twelve children were admitted—all remained well (despite this, 9 were given antibiotics, which were discontinued after 48 hours). Nineteen were discharged, having received no antibiotics. As far as we are aware, no children subsequently developed clinical sepsis.

The results of our study are in keeping with those of Mandl *et al*,<sup>2</sup> who found the incidence of clinical sepsis among (febrile) children with petechiae, who appeared well at the time of presentation, to be nil.

Furthermore, our study shows that management of well children with petechiae is highly variable. Lack of consensus among paediatricians on the management of petechial rashes has been well documented.<sup>3</sup> In our own department, we are considering implementation of the following guidelines for the management of well, afebrile children with petechiae, although we acknowledge that larger prospective studies are required.

1. That such children be observed in the emergency department for 4–6 hours and if they remain clinically well and afebrile, discharge without antibiotics would be safe.

2. Laboratory investigation is probably unnecessary, unless indicated to exclude ITP.

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- 1 Brogan PA, Raffles A. The management of fever and petechiae: Making sense of rash decisions. *Arch Dis Child* 2000;**83**:506–7.
- 2 Mandl KD, Stack AM, Fleisher GR. Incidence of bacteraemia in infants and children with fever and petechiae. *J Pediatr* 1997;**131**:398–404.
- 3 Nelson DG, Leake J, Bradley J, *et al*. Evaluation of febrile children with petechial rashes: is there consensus among paediatricians? *Pediatr Infect Dis J* 1998;**17**:1135–40.

EDITOR—I was pleased to read the letter from Richards *et al* proposing a collaborative study to validate the ILL criteria. Firstly, I support this proposal fully.

I was interested in their statement regarding the ILL criteria in those suspected of having meningococcaemia suggesting that the ILL criteria are of limited use. The abstract they refer to presented at the RCPCH meeting last year<sup>1</sup> states that the presence of poor capillary refill, meningism, altered conscious level, or tachypnoea identified 28 of 32 children with culture proven meningococcal disease. 3 of the 4 children not identified had a maculopapular rash (ie not petechial?). Moreover, 12 of 32 children with meningococcal disease had total WCC greater than 15, but we are not told if any of the “missed” cases had abnormal total white cell count, or elevation of serum C reactive protein.

It must be emphasised that the full “ILL criteria” included 5 components, (irritability, low capillary refill, lethargy, abnormal total white cell count, and abnormal C reactive protein), although Richards *et al* have only concentrated on the first 3 risk factors. Furthermore, they may have applied the criteria to children who did not have petechial rash (the 3 “missed” children with meningococcal disease with maculopapular rash).<sup>1</sup>

In order not to miss any cases of invasive bacteraemia, a screening test with high sensitivity at the expense of specificity is desirable. We proposed that the ILL criteria, in its full form, when applied to children with fever and petechiae, operate as a “SnNOUT” test (if a test is highly sensitive, if that test is negative the diagnosis can be ruled out) for invasive bacteraemia. We cannot draw the same conclusions if only part of the risk assessment analysis is applied, or the risk factors are applied to children who do not have fever and petechiae.

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#### Methodology for assessing patterns of interstitial pneumonia in children

EDITOR,—The report of Hacking *et al*,<sup>1</sup> of a series of infants with very early onset interstitial lung disease (ILD) with good prognosis, is of great clinical interest but sadly represents a lost investigative opportunity.

Firstly, their statement that percutaneous open lung biopsy has fewer side effects than open lung biopsy (OLB) is not supported by any direct comparative trial, and cannot be allowed to stand. Indeed, the largest published series using this technique<sup>2</sup> was heavily criticised both for the number of complications and the often non-diagnostic samples obtained.<sup>3,4</sup> By contrast OLB is safe,<sup>5</sup> permits direct inspection of the site of biopsy, and allows the acquisition of specimens large

enough to determine the lung architecture in order more precisely to classify the different types of paediatric ILD. OLB thus allows appreciation of the distribution of disease involvement within the acinus, allowing more precise identification of different histopathological patterns. There is therefore no reason to favour percutaneous biopsy over OLB in skilled hands; indeed the weight of evidence is in favour of OLB. Secondly, their selected nomenclature of paediatric ILD is open to criticism. It is questionable whether the use of term "idiopathic pulmonary fibrosis (IPF)" is still appropriate in children. IPF is generally used synonymously with lone cryptogenic fibrosing alveolitis, which in adults is most often represented histopathologically by the pattern of "usual interstitial pneumonia (UIP)". However UIP is rarely if ever seen in children; much more common are lymphocytic interstitial pneumonia (LIP), desquamative interstitial pneumonia (DIP), non-specific interstitial pneumonia (NSIP), and chronic pneumonitis of infancy.<sup>6</sup> Identifying these histological patterns may point towards specific investigations with regard to aetiology, and may also provide prognostic and treatment data, and we consider that it is a pity that this or a similar histopathological classification was not used in this report.

We suggest that more will be learned about these rare conditions if diagnostic precision is maximised by comparison of pre-biopsy computed tomography with properly classified histological findings.<sup>7</sup> Interdisciplinary collaboration is needed to achieve this, and it is unfortunate that more details of imaging and an up to date classification of histology were not included in an otherwise informative paper.

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- Hacking D, Smyth R, Shaw N, *et al.* Idiopathic pulmonary fibrosis in infants: good prognosis with conservative management. *Arch Dis Child* 2000;**83**:152-7.
- Spencer DA, Alton HM, Raafat F, *et al.* Combined percutaneous lung biopsy and high-resolution computed tomography in the diagnosis and management of lung disease in children. *Pediatr Pulmonol* 1996;**22**:111-16.
- Bush A. Diagnosis of interstitial lung disease. *Pediatr Pulmonol* 1996;**22**:81-2.
- Flake AW. Is a CT guided needle better than a knife? *Pediatr Pulmonol* 1996;**22**:83-4.
- Coren ME, Nicholson AG, Goldstraw P, *et al.* Open lung biopsy for diffuse interstitial lung disease in children. *Eur Respir Dis* 1999;**14**:817-21.
- Nicholson AG, Kim H, Corrin B, *et al.* The value of classifying interstitial pneumonitis in childhood according to defined histological patterns. *Histopathology* 1998;**33**:203-11.
- Copley SJ, Coren M, Nicholson AG, *et al.* Diagnostic accuracy of thin-section CT and chest radiography of pediatric interstitial lung disease. *AJR Am J Roentgenol* 2000;**174**:549-54.

*Dr Hacking et al respond*

EDITOR.—In their response to our article, Nicholson and Bush suggest that an investigative opportunity has been missed. We do not agree. These authors have repeated their previously reported criticism of percutaneous lung biopsy (PLB)<sup>1</sup> and have suggested

that this technique is prone both to more complications and to a greater number of non-diagnostic samples. We have shown that PLB in a series of nine patients was adequate for diagnosis in all cases and did not result in pneumothoraces significant enough to require thoracocentesis.<sup>2</sup> In our present report of 11 patients, PLB was not associated with any major complications and failed to provide a histological diagnosis in only one patient. This compares favourably to Nicholson and Bush's own report of open lung biopsy (OLB) in 27 cases where three patients experienced significant complications—that is, a pneumothorax, a haemothorax, and a pleural space infection.<sup>3</sup> Moreover, five previously self ventilating patients required ventilation after biopsy, and five patients returned from biopsy with a chest drain which had been inserted in the course of the procedure. We do not agree that OLB is superior to PLB.

Nicholson and Bush go on to question the nomenclature of paediatric idiopathic pulmonary fibrosis and briefly describe the histological classifications of usual pneumonia (UIP) and desquamative interstitial pneumonia (DIP) as we did in the introduction to our article. They suggest the "these histological patterns may . . . provide prognostic and treatment data". However, the distinction between UIP and DIP is questionable,<sup>4</sup> as they may represent different stages in the same disease process.<sup>5,6</sup> In common with previous reports,<sup>7-9</sup> we have shown that the severity of histological change did not relate to patient's response to steroids or their eventual outcome.

We agree with Nicholson and Bush when they state that "diagnostic precision is maximised by comparison of pre-biopsy computed tomography with properly classified histological findings" as this was practised throughout our series. We fear that they have missed the most important aspect of our report which is that idiopathic pulmonary fibrosis in children has a diverse natural history and a variable prognosis that can be favourable. The good prognosis seen in our series is different from previous case reports indicating a greater than 50% mortality.<sup>8</sup>

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- Smyth R, Carty H, Thomas H, *et al.* Diagnosis of interstitial lung disease by a percutaneous lung biopsy sample. *Arch Dis Child* 1994;**70**:143-4.
- Coren ME, Nicholson AG, Goldstraw P, *et al.* Open lung biopsy for diffuse interstitial lung disease in children. *Eur Respir J* 1999;**14**:817-21.
- Fan LL, Langston C. Chronic interstitial lung disease in children. *Pediatr Pulmonol* 1993;**16**:184-96.
- Crystal RG, Fulmer JD, Roberts WC, *et al.* Idiopathic pulmonary fibrosis: clinical, histologic, radiographic, physiologic, scintigraphic, cytologic and biochemical aspects. *Ann Intern Med* 1976;**85**:769-88.
- Reynolds HY. Classification, definition, and correlation between clinical and histologic staging of interstitial lung diseases. *Semin Respir Med* 1984;**6**:1-19.

- Kerem E, Bentur L, England S, *et al.* Sequential pulmonary function measurements during treatment of infantile chronic interstitial pneumonitis. *J Pediatr* 1990;**116**:61-7.
- Osika E, Muller M-H, Boccon-Gibod L, *et al.* Idiopathic pulmonary fibrosis in infants. *Pediatr Pulmonol* 1997;**23**:49-54.
- Rudd R, Haslam P, Turner-Warwick M. Cryptogenic fibrosing alveolitis: relationship of pulmonary physiology and BAL to response to therapy and prognosis. *Am Rev Respir Dis* 1981;**124**:1-8.

### Medication errors are NOT uncommon

EDITOR.—We welcome the coverage given to the major, and potentially fatal, problem of medication errors within managed health care.<sup>1</sup> We disagree, however, with the key message that *medication errors are uncommon*. They are endemic, extremely common, overlooked and often ignored.

Observational studies of medicine administration within hospitals in the UK report an error rate of 3% to 8%.<sup>2</sup> In contrast, Ross *et al* report 195 errors, collated from a mandatory error reporting policy, in 65 months.<sup>1</sup> While mandatory reporting is a commendable principle, the reality remains that the majority of healthcare professionals will not report errors, and the majority of medication errors, will not be reported.

Reasons for lack of reporting by nursing staff include confusion regarding the definition of drug errors and the appropriate action to take when they occurred, fear of disciplinary action, loss of clinical confidence and variation in managerial response.<sup>3</sup>

Voluntary, non-punitive error reporting programmes have been advocated as the most effective way to promote candid disclosure of medical error.<sup>4</sup> Unless we are aware of what errors occur, we cannot expect to implement an appropriate system fix.

We suggest that the occurrence of three errors/month, represents a tremendous under reporting of the extent of medication error.<sup>1</sup> If patient through put totalled 335 835 patient bed days, and we assume that each day the average patient received 6 doses of medicine, an error rate of 5%, suggests that a more realistic interpretation of the extent of the error iceberg is an incidence of greater than 100 000.

The conclusion therefore that medication errors are uncommon is unfortunately not true. The reality is that *reported medication errors are uncommon*.

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- Ross LM, Wallace J, Paton JY. Medication errors in a paediatric teaching hospital in the UK: five years operational experience. *Arch Dis Child* 2000;**83**:492-7.
- Barber N, Dean B. The incidence of medication errors and ways to reduce them. *Clinical Risk* 1998;**4**:103-6.
- Gladstone J. Drug administration errors: a study into the factors underlying the occurrence and reporting of drug errors in a district general hospital. *J Adv Nurs* 1995;**22**:628-37.
- Cohen MR. Why error reporting systems should be voluntary. *BMJ* 2000;**320**:728-9.

Dr Ross responds

EDITOR.—We welcome the debate stimulated by our paper. Indeed, this was our aim in publishing it. We agree with Mr Caldwell that a degree of under reporting is likely. Our system provides a clear definition to all staff of what constitutes a reportable medication error (listed in the appendix). It does not include errors that are averted—such as, misprescribed errors corrected by pharmacists before dispensing. We also noted that error reporting rates vary widely in the literature. We discussed some of the reasons advanced to explain such variations—for example, whether the reporting system is mandatory or voluntary, and the intensity of the search for errors. However, the published evidence about medication error rates in paediatric settings is very limited especially in the context of a nationally funded, universal, health care system like the NHS. There is, therefore, little firm paediatric evidence to support Mr Caldwell's opposite view that errors are "... extremely common, overlooked and often ignored."

In our experience, most reported errors were minor. Serious events with adverse outcomes were uncommon and, we think, are unlikely not to be reported. If anything, we would suspect it is minor errors that are most likely to go unrecorded. This may be of considerable importance if analysis of minor events highlights system problems whose correction may help avoid future serious incidents.

Mr Caldwell suggests that voluntary systems may increase error reporting. It needs to be recognised that voluntary systems are not a panacea but may also detect only a fraction of overall errors. Again, we would suspect that minor errors might be those most likely to be missed. The thrust of the editorial by Cohen seems to relate to errors with serious adverse outcomes.<sup>1</sup> There are also some potential difficulties with voluntary systems. For example, how we do we ensure that parents are notified about error occurrence if reporting is voluntary? What happens about errors of such seriousness that issues of criminal negligence arise?

Whether a reporting system is mandatory or voluntary is probably less important than that the system is non-punitive. This is borne out by the findings of Vincer and colleagues<sup>2</sup> who found an approximately four to six fold increase in error reporting when the punitive aspects of the form were reduced by making it an "incident" rather than an "error" form. We have no doubt that the critical challenge for us all is to make the shift from assuming "errors" arise from individual negligence to recognising that "incidents" more usually arise because of systemic organisational failures. We urgently need to move away from a culture of fixing the blame towards one of recognising and fixing the problem.

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- 1 Cohen MR. Why error reporting systems should be voluntary. *BMJ* 2000;320:728–9.
- 2 Vincer MJ, Murray JM, Yuill A, et al. Drug errors and incidents in a neonatal intensive care unit. A quality assurance activity. *Am J Dis Child* 1989;143:737–40.

## BOOK REVIEWS

**The Chailey approach to postural management.** Pountney TE, Mulcahy CM, Clarke SM, Green EM. (Pp 157, spiral bound, £25.00) Active Design Ltd. ISBN 09538262 0 1.

When teaching about children with neurological disability or when advising their parents or when, wearing an editorial hat, advising on publishability, the feedback I receive consistently includes requests for information on personal practice and "how to do it". Responding usefully to these requests is challenging.

What a pleasure it has been therefore to have made available to me for review, the Chailey approach to postural management.

Chailey Heritage Clinical Services is an NHS provision that works in conjunction with the independent Chailey Heritage School. The authors of this manual are a physiotherapist, two occupational therapists, and a consultant in paediatric rehabilitation. They have taken as their remit to provide an explanation of the theoretical aspects of posture management and thereafter its practical application through treatment and equipment. Active Design Ltd, the publisher of this manual, develops and manufactures the equipment detailed in this publication. What is provided within it are sections describing posture; a detailed exposition of assessment based upon the Chailey levels of ability; a good section on the relevant knowledge base, including discussion on subjects as diverse as biomechanics and motor learning theory; and helpful descriptions of assessment and putting theory into practice.

Having read through the volume as a textbook I consider that I have acquired some useful understanding of postural management.

This, however, is not the book's main strength. Rather, it has been prepared and bound as a bench manual and its whole approach is one of practical instruction. Within that context, I have no doubt that it would be most useful as an accompaniment to attending a series of workshops and practical demonstrations given by the authors. Used in its own right as a training manual, I have major doubts that the very directing pedagogic style might limit the attentional capacity of readers, the majority of whom are likely to be therapists with significant experience in this field.

I nevertheless recommend this manual as one that should be both available and used in centres offering multidisciplinary services for children with disabilities.

It would be nice to believe also that future editions of this and similar volumes would be able to illustrate more sophisticated technology than is usually available for children with disabilities.

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**Varicella-zoster virus.** Arvin AM, Gershon AE. (Pp 531) UK: Cambridge University Press. ISBN: 0-521-66024-6

If I were a betting man, and one could bet on such matters, I would stake the price of a new stethoscope that chicken pox will soon be a subject of media and thus public (and thus political) interest, at least in the UK. The vaccine—developed twenty five years ago—has been in general use in the USA for around five years and it cannot be long before it begins to be used more widely in Europe too. The most likely formulation to find general acceptance in national programmes will be a combination with the existing MMR vaccine and, as at least readers of the *Daily Mail* will know, the current word on the block is that combining vaccine viruses in this way is "a bad thing". I have already been interviewed at length by a journalist purporting to be interested in the primary prevention of varicella who then proceeded to publish a piece about an actually non-existent but implicitly fiendish sounding study of MMRV vaccine "going on" under my supervision.

So it may be a good time for paediatricians to inform themselves about this common but little discussed infection, which is most commonly acquired in childhood. Right on queue, this opportunity arrives to do so.

It has recently become fashionable in certain circles to assert that various infectious scourges of the past, now gone thanks to immunisation, were actually really rather innocuous (or perhaps even beneficial!) and—in a vaguely contradictory way—that they were vanishing away anyway, not thanks to vaccines at all. In the case of varicella the former notion (or at least the first part of it: I've not yet heard the assertion that chickenpox, specifically, is good for you) is widely prevalent, despite the continuing ubiquity of the infection. Paediatricians will be aware that such dismissals are misplaced. Not only do their oncology patients, those on steroids and children undergoing transplantation, to name a few, risk severe illness or rapid death following exposure to varicella, but many more healthy children develop common but unpleasant complications of varicella such as bacterial cellulitis, and a few more serious ones, such as ataxia or purpura fulminans. To be sure, many children are little troubled by primary infection, like my youngest son whose three lesions, which appeared while he remained entirely well and were dismissed as mosquito bites by me, were only correctly diagnosed by my non-medical wife. Some of these folk might be glad to be without residual facial scars but, among those many infected but hardly touched by varicella-zoster virus in childhood, there are those whose later lives will be blighted by zoster and post-herpetic neuralgia—a growing problem with rising longevity.

This monograph is timed to give an account of the enormous recent advances in understanding of the pathogenesis of human infection with this herpes virus and of the availability of tools with which to treat, attenuate, and prevent infection. But it also points out that the tale remains far from over: here is an infection that, unlike the superficially clinically similar, and now defunct, smallpox, lies latent lifelong in the human host and, worryingly, is more likely to cause severe primary illness in a non-immune adult than in a child. This story is set to run and run, with no easy bets on global eradication.

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