

PostScript

LETTERS

ALTE and gastro-oesophageal reflux

McGovern and Smith¹ have embarked on the welcome development of an evidence based algorithm for the investigation of infants presenting with an apparent life threatening event (ALTE). Unfortunately, they do not distinguish between coincidence and causality. Recurrent vomiting occurs in over 60% of 4 month old babies,² and it is therefore unsurprising that gastro-oesophageal reflux is commonly found in infants presenting with ALTEs. The aim of their study was to determine the diagnoses reported after the first evaluation of an ALTE, but the paper's title then somewhat misleadingly refers to "causes" of ALTE.

Despite the fact that in six of the eight studies analysed, patients did not routinely undergo pH monitoring, one of the most common diagnoses made was "gastro-oesophageal reflux disease" (GORD). This begs the question as to whether most if not all of the children merely had physiological gastro-oesophageal reflux (GOR), wrongly defined as GORD, simply because of the ALTE under investigation—an unwarranted assumption of causality. Moreover, they fail to point out that the milk scans and contrast studies used in some of their cited studies have unacceptably low sensitivity and specificity in the diagnosis of non-physiological GOR.

Their suggested plan of investigation acknowledges that in around 50% of infants experiencing an ALTE, a careful history and examination will point to an underlying diagnosis. Conversely, in the absence of other symptoms (for example, vomiting) they imply it may be important to identify and treat occult reflux by recommending investigating for GOR. Demonstration of a significant temporal relation between lower oesophageal acidification and apnoea is crucial in establishing a causal hypothesis linking the two. However, when Arad-Cohen *et al* explored the relation between GOR and apnoea in infants with a history of ALTE³ during polygraphic recording, only 19% of 741 brief apnoeas were coupled with GOR, and of these, apnoea preceded rather than followed GOR in the vast majority. The concept of an "ALTE-sudden infant death" spectrum in which GOR plays an important role is no longer widely accepted.⁴

We argue that there is no need to perform tests for GOR unless there is a suggestive clinical history such as vomiting during or after feeds, poor weight gain, feed refusal, etc. Under these circumstances pH monitoring (whatever its limitations)⁴ remains the investigation of choice. A reliance principally on contrast studies and clinical history is likely to mean that physiological "GOR" will be diagnosed as "GORD". This may lead not only to unnecessary treatment, but also focus attention away from serious disorders including factitious illness.⁵ We regard pH

monitoring in children who have experienced an ALTE but have no clinical pointers to GORD as being of little value, and contend that there is no evidence base for such an approach.

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Competing interests: none declared

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Authors' reply

We appreciate the thoughtful comments on our recent paper.

The main points raised by Dr Puntis and Booth are:

- Most of the studies in this review did not diagnose GORD by the accepted criteria
- The issue of causality was not addressed
- They recommend investigating for GORD only when there is corroborating clinical information because occult reflux does not cause apnoea.

We agree that the diagnosis of GOR disease requires a combination of clinical information and selective testing. We acknowledged in our paper that there were varying investigative protocols for this disease. We were unable to review the diagnostic criteria for all studies. This reflects the lack of one standardised, well validated test. pH probes have limitations as well because they do not detect non-acid reflux. The clinicians in the studies reviewed reported GORD as a diagnosis after an ALTE, but did not say it caused the ALTE.

The issue of causality was clearly addressed in the discussion and we agree that it is a very important point for exactly the reasons which Drs Puntis and Booth highlight. To repeat, we have said that the detection of a disorder after an ALTE does not necessarily mean that the two are associated. We noted that there was conflicting evidence as to whether or not the relation between GORD and ALTEs is causal. Even when an underlying disorder such as RSV infection (which seems to have a clear temporal relation with an ALTE) is

detected, the question is still unresolved as to why some infants react to RSV infection with apnoea while others do not.

It is likely that several factors interact to produce an ALTE. We do not think the relation between GOR and apnoea has been clearly established in the medical literature. Drs Puntis and Booth write that demonstration of a significant temporal relation between lower oesophageal acidification and apnoea is crucial in establishing a causal relation between the two. However, in an editorial review of GOR and infant apnoea, it is noted that GOR and apnoea may have a causal relation that is not necessarily temporal.¹ Given the current state of conflicting evidence, it would seem reasonable to investigate the upper gastrointestinal tract according to our algorithm (see discussion below). We agree that the paper could be titled "Diagnoses reported after apparent life threatening events in infants: a systematic review". The abstract, however, summarised the aims, results, and conclusions of the review.

We have not advocated a blanket investigation for GORD in all ALTEs. We have designed our algorithm with several selection points. The algorithm indicates that if the patient does not have a short, self-correcting episode around feeding (often physiological GOR), then a period of observation (including a review of history and examination) is indicated. Then, if the history suggests GORD, appropriate testing is performed. This is no different from the approach suggested by Drs Puntis and Booth. If no cause is forthcoming and the clinician is concerned about the event, we do recommend a series of investigations, which include investigation of the upper gastrointestinal tract. Perhaps the algorithm would be more accurately written as investigation of the upper gastrointestinal tract instead of investigate for gastro-oesophageal reflux to acknowledge the possibility that anatomical abnormalities of the gastrointestinal tract may present with an ALTE.

The problem of ALTEs is one faced daily by frontline clinicians. The purpose of our review was to try to bring some clarity and order to conflicting literature. We view this paper as a starting point for an evidence based approach. We invite further discussion.

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Reference

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Diagnosis of iron deficiency anaemia

According to Wright *et al*, taken in isolation, a mean cell haemoglobin (MCH) of <25 pg is

more likely to predict a significant haematological response to a trial of iron replacement therapy than a mean cell volume (MCV) of <75 fl, on its own.¹ My own approach to identifying which of the two red blood cell indices, namely MCH and MCV, was the stronger predictor of iron deficiency was to evaluate the cut-off levels which yielded the optimum combination of sensitivity, specificity, and positive predictive value for unequivocal iron deficiency, the latter being defined as a serum ferritin of <10 µg/l. In a study comprising 365 adults characterised by an MCH of <26 pg and/or an MCV <80 fl,² 145 of whom proved to be unequivocally iron deficient,³ an MCH of <24 pg was identified as being the one associated with the optimum combination of sensitivity (74%), specificity (59%), and positive predictive value (80%) for this diagnosis. Correspondingly, an MCV <76 fl was the one associated with the optimum combination of sensitivity (65%), specificity (66%), and positive predictive value (55%).³ Fortunately, in the *ABC of clinical haematology*, it is also an MCV of <76 fl which is utilised in what I would describe as “automated” screening for iron deficiency.⁴

However, what has not been addressed until very recently, is the issue, not only of the superiority of MCH in predicting a favourable response to a therapeutic trial of iron replacement therapy,¹ but also its robustness, relative to the MCV, under laboratory conditions of automated screening. According to one of the leading authorities on the subject, different counting systems yield “clinically significant different” estimates of the MCV, as shown by the monthly reports of the UK General Haematology NEQAS Scheme. In contrast, MCH yielded a “consistent equality of results reported by the different technologies within the UK NEQAS schemes”.⁵

These observations tend to support the suggestion made by the authors of the present study that, as opposed to the MCV, the MCH should be the preferred screening test for predicting a satisfactory haematological response to iron replacement therapy.¹

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Replacing mercury sphygmomanometer in paediatric clinical practice: is there a need for a consensus conference?

The definition of normal blood pressure (BP) values in adults and children is based on mercury sphygmomanometry, and standard mercury readings are the main basis for BP-disease associations.¹ Unfortunately, mercury has toxic effects on the environment and the mercury sphygmomanometer will have to be gradually replaced.² However, there is a rearguard movement to retain mercury until some satisfactory substitute can be found.

We investigated the type of BP devices that are currently being used in Departments of Paediatrics in Greece. In a total of 76 departments, 30% use a mercury sphygmomanometer, 25% use automated devices, 25% use either mercury or automated devices, and 20% use an aneroid sphygmomanometer. Interestingly, 1 in 3 departments has the commonly used automated monitor “Dinamap” (several models); furthermore, half of these departments are using the model 8100. However, the accuracy of Dinamap monitors is questionable, especially the model 8100, which, when tested against the standard mercury sphygmomanometer, was found to detect mean systolic and diastolic BP values significantly above auscultatory readings.³

We feel that replacement of mercury sphygmomanometer with automated devices has become increasingly common but, also, rather questionable in some countries, considering the lack of validated automated devices for the paediatric age group. The recent “International Protocol” established by the European Society of Hypertension for validation of BP measuring devices, is designed for adults and does not make recommendations for children.⁴ Facing the beginning of new standard in clinical sphygmomanometry, there is little doubt that we need a consensus conference. Such a conference would help in making recommendations for endorsing the use of alternative devices as the optimal replacement for mercury devices. In addition, the development of appropriate validation standards for paediatric use of BP devices and the elimination of inaccurate monitors would improve our methods of BP measurement and interpretation.

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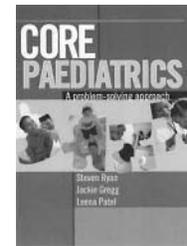
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BOOK REVIEWS

Core paediatrics: a problem-solving approach

Steven Ryan, Jackie Gregg, Leena Patel. London: Arnold, 2003, £24.99, pp 428. ISBN 0-34080971-X



In contrast to a decade ago, there appears to be numerous paediatric “textbooks” on the market today, aimed primarily at medical students. The choice must appear somewhat overwhelming! *Core paediatrics* adds itself to this ever-growing list. As the title suggests however, it does attempt to approach the subject from a different angle.

The book is set out in 40 distinct chapters. Each chapter approaches a familiar topic in a refreshing manner—likely to appeal to a student and in a way in which they can place it in context. For instance, rather than a chapter on “Upper airway obstruction”, *Core paediatrics* presents this as “A boy with a croupy cough and breathlessness”. Other examples are “A child with a black eye”, “A tired teenager”, and so on...

The authors present each chapter in a systematic manner. A clinical case is presented—many of which the typical student is likely to encounter on any paediatric attachment. Realistic differential diagnoses are then presented, the same way in which a junior doctor may formulate impressions after clerking such a child. The authors then go on to consider each of the differential diagnoses at length, taking into account aetiology, pathology, investigations, and management. Frequently, the text pauses to present the reader with “Self-tests”. These questions are relevant to the clinical case and many are typical dilemmas that doctors face in planning management for unwell children. Some are presented as extended matching multiple choice type questions.

The authors stress the importance throughout, of history and examination, and guide the reader in eliciting key facts in the clinical cases. Throughout the book, information is presented in easy to read tables and diagrams, which appeal and break up the text. Relevant investigations are discussed at length, often with illustrations. Dilemmas are often centred around such investigations—for instance, *how should a urine sample be obtained from young children when investigating for UTI?* Further questions relate to interpretation of such investigations—ensuring a clinically relevant approach. Throughout the text, misleading “normal” test results are discussed as well as obvious positive test results. Management of various conditions is presented in a structured way, incorporating both immediate and long term issues. When relevant, drug doses are included—useful for junior doctors, as well as other tips such as writing child protection medical reports. The book centres discussion of management around clinical cases, presenting likely progress that a child may make

while in hospital and any complications or side effects one may encounter. Finally each chapter ends with further sources of information, including other textbooks and relevant articles, although pleasingly not an exhaustive list of documents!

Core paediatrics therefore is primarily aimed at medical students. It approaches paediatrics in a manner that a student is likely to understand well and encounter on an attachment. It moves away from a traditional system based approach, towards a clinical presentation based approach, while integrating basic science and pathology of each disease well. The text is also likely to appeal to junior doctors embarking on a paediatric career who require refreshment of how children present when ill. The 40 presentations of unwell children that the book describes are likely to incorporate many such patients who will present to a department.

L J Phillips

Chief complaints in pediatrics

Edited by Theodore C Sectish. PocketMedicine.com, 2002. US\$50.00. Buy from: <http://www.skyscape.com>. Memory requirements: for palm 0.4 MB, for Pocket PC 0.8 MB.

Have you ever wondered, looking at Wisteria, if the plant in front of you is right or left winded? Do you know how to tell? Once you know, it is easy. It is just the same with this publication. This is not a book, not even an eBook. *Chief complaints in pediatrics* is software. It is worth clarifying this right at the start, as there are some practical consequences to this. After installation you will find its icon in the list of programs. If you simply follow the prompts, it will install itself to the main memory. If you then realise that you want to have it on your memory card you will have to go through uninstall and install (to the chosen location) procedure. As this is not a book, there are no numbered pages.

The interface is easy and intuitive, you will be able to do it all without looking into Help. The same unified interface can be found on all Skyscape products; if you have used Archimedes, a popular free program that works like an extended medical calculator, you will find the familiar interface of Skyscape in this program. *Chief complaints in pediatrics* comes with an internal link to other Skyscape products that are already installed on your PDA.

The display is tidy: menu choices on the top, along the right side, and on the bottom of the screen, and text in the middle. The icons on the top are for the previously viewed page, main index, table of contents (with alphabetical list of topics), history (analogous to the same feature in Internet Explorer), links (to other Skyscape products on your device), and toggling arrows. There are also arrows to navigate back and forward within the text of the program, and a little pen which is an icon to tap if you want to add notes to the topic (and this includes the option of voice note). The menu at the bottom of the page is to edit (make annotation and bookmarks), view (change font size and access the Main Index), tools, and help. A pleasant feature of this software is the use of colours. There is a free trial download. This will allow you to assess if you like the interface and how the program works. It

does not allow access to all of the topics, so you cannot make a judgement if the content is as rich as you would like it. For the list of topics see the "learning and demos" manual on the Skyscape website.

The content of *Chief complaints in pediatrics* is organised so as to be useful to a clinician presented with a diagnostic puzzle. The table of contents takes us to a long (over 150) list of topics arranged in alphabetical order in the Main Index. All topics are "complaints": symptoms, signs, or laboratory findings. Information about each topic is grouped under the following headings: description and definition, history of the present illness, past medical history and family history, physical examination, differential diagnosis (most common and then expanded), and the next steps in the work up. True to its title, *Chief complaints in pediatrics* deals with the common problems. It will be most useful as a quick look up tool when deciding on differential diagnosis and on what investigation could be done. The program is designed as a diagnostic aid and does not contain any information about treatment or prognosis.

In summary: the program works really well, is easy to use, and very functional. My only reservation is that many paediatricians would find it too basic in content. For a trainee it seems a good investment.

E Posner

Pediatric physical diagnosis electronic atlas

Edited by Basil J Zitelli, Holly W Davis. Elsevier Mosby, 2004, £146.00 (DVD for Windows and Macintosh). ISBN 0323029922

Today, medical education faces huge challenges. The patient contact time essential for developing clinical acumen has been progressively eroded by increased trainee numbers, reduced working time, reduced training duration, shifts, and encroachment of non-medical professionals on traditional medical areas. Skills labs have evolved to cover basic skill sequences, but there remains a gap between core skills and clinical practice. An obvious approach is to "can the experience" using modern multimedia technology to bridge the hiatus, ensuring some exposure at least to core conditions. There are various ways of developing such collections: the proprietary way, as here, or by using the internet, as for example at www.brisbio.ac.uk/bblt, www.hon.ch/HONmedia, www.healcentral.org, or www.peir.org.

This single DVD comes in a large glossy box with significant dead space. The authors are American, mainly from the Children's Hospital of Pittsburgh. The resource consists of "over 2500 visual representations of a broad range of common and uncommon pediatric disorders". There are over 40 video and audio clips too. The images can be saved to a separate area (like a shopping trolley on the web), then transferred to PowerPoint. The video and audio can be navigated to on the disc and transferred using cut-and-paste. The license does not allow materials to be integrated into other teaching resources (for example, question banks), nor can the PowerPoint presentations be placed on the web or intranet. Images can be viewed without annotations, but there is no interactive self-assessment (that is, scoring or review of wrong answers).

The term "physical diagnosis" is used broadly, and is not restricted to clinical signs. For example, x ray pictures, blood films, karyotypes, and diagrams are all included. It also includes many normal children, for example in the section on child development. The resource quality is generally good to excellent, with most images presented as full colour JPGs. The highlights for me were the video clips of different forms of epilepsy. These bring to life an otherwise difficult topic. I was a little disappointed with the quality of some of the heart sounds. Coverage is inevitably incomplete: for example, there were excellent radiographs of pneumocystis, mycoplasma, and tuberculous pneumonias, but none of typical lobar pneumonias or bronchiolitis.

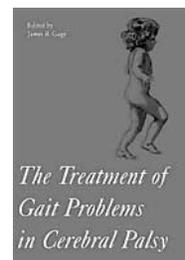
Searching is rudimentary, either by one of 23 chapter headings and scrolling through the thumbnails or by using a simple search string (US spellings) through the annotations. There is no metadata, but audio/video files can be accessed separately using tabs. This means that there is a learning curve associated with using the resource effectively with the potential to miss media that are in it. With repeated use its value increases greatly.

It is an excellent and reasonably comprehensive resource for any paediatric unit to have available for teaching purposes, particularly those with slow or difficult internet access. A huge amount of work has gone into its production and the authors are to be congratulated. It provides a good way to learn most classical presentations for examinations, particularly DCH and Part 2, though the text version may allow for a more structured approach. I shall certainly be using it for my own teaching. I suspect that the restrictions of DVD capacity, publishing cycle (versioning), searching, and copyright will prove to be long term disadvantages compared with the web based approach. It is worth remembering that, while multimedia are useful they are no substitute for the "real thing". The clinical experience engages the whole brain at sensory, intellectual, cerebellar, and emotional levels. We are still far from virtual reality here, but this resource is certainly an advance on a traditional textbook with text and few illustrations.

C Melville

The treatment of gait problems in cerebral palsy

Edited by James R Gage. Cambridge: Cambridge University Press, 2004, £85.00 (hardback with CD-ROM), pp 423. ISBN 1898683379



I settled down to read this book, thinking it would be instructive and enjoyable—and I was not disappointed. Basic principles are clearly explained in the text and are well illustrated with appropriate clinical

examples and case studies, supplemented by the CD-ROM.

Jim Gage is a master in the use of automated gait analysis to rationalise surgical decision making for children with walking disorders, and, with his wealth of experience, accumulated over more than 20 years, is a very appropriate editor for this volume. The clarity of his own thought processes is evident in his explanation of biomechanical principles applied to the complex dynamic gait problems encountered in children with cerebral palsy. A particular highlight is his chapter on the biomechanics of normal gait. His fellow contributors are all acknowledged experts in their own fields and complement his contributions well.

The main focus is the correction of problems with gait and the text illustrates how gait analysis can provide clear insight into the safety and efficacy of potential surgical intervention. The book is divided into five sections. Early chapters cover the neuroanatomical, neurophysiological, and biomechanical background; further sections are devoted to patient assessment, gait pathology in cerebral palsy, treatment options including detailed discussion of orthopaedic surgery, and assessment of outcome. The role of the multi-disciplinary team is emphasised. The kinematics and kinetics of gait together with biomechanical modelling are covered in detail (and here the reader may just start to feel a little insecure in his knowledge of mathematics!).

The chapters on treatment demonstrate the logical differentiation between the primary, fixed problem—that is, the neurological injury itself; the secondary biomechanical problems, resulting from abnormal growth forces, which are amenable to treatment; and the tertiary compensatory problems which do not require treatment per se. Patterns of gait pathology are discussed with specific attention to hemiplegia, di/quadruplegia, and crouch gait, and the respective surgical solutions. Illustrative case studies are included and the data on the CD-ROM facilitates correlation between the clinical picture and the kinematic plots. The treatment role of selective dorsal rhizotomy is carefully delineated. One chapter is devoted to non-operative treatment modalities including botulinum toxin and intrathecal baclofen. Perhaps the section on botulinum toxin could have been expanded in the light of its increasing popularity as a first line treatment for reduction of dynamic spasticity—I was a little disappointed that it received only a passing mention in the treatment of upper limb deformities in hemiplegia, although there was more discussion of its use in the lower limb.

Although not all of us have access to a gait laboratory—and indeed it would not be appropriate to subject all our patients with gait disorders to complex gait analysis—clinical gait analysis is readily performed in most centres treating children with spasticity. Basic biomechanical principles are equally valid across the spectrum of gait analysis, whether planning botulinum toxin injections or multi-level orthopaedic surgery. This book ably expounds these principles and illustrates their application to specific case studies, representative of the most frequently encountered patient scenarios in clinical practice. The biomechanical rationale for the proposed treatment is explained, and the results are demonstrated from follow up studies. As such the clinician has a guide to refer to as he follows his own, sometimes uncharted, course. I suspect that I shall be dipping into it

many times to refresh myself of the finer details as I manage the children in my own clinical practice.

I thoroughly recommend it to anyone with even a superficial interest in the field—beware, you may find yourself more involved as a result!

R J Jefferson

Minor trauma in children, a pocket guide

Edited by Ffion Davies. London: Hodder Murray, 2004, £19.99, pp 210. ISBN 0340732040



For many paediatric doctors the emergency department (aka A&E) is only visited when referrals are made, or the crash bleep summons with its screeching siren. These visits are usually straightforward, especially if the APLS creed can be chanted. However, for those of us who

missed the emergency department in a rotation, the intricate management of minor cuts and bruises may evade us. Davies's guide to minor trauma will help to glue the gaps in knowledge. From the initial child's drawing on the front cover, there are a number of helpful illustrations, photographs, and x ray pictures that aid the guide and its reader. The presentation of the text leads your eyes through the various subheadings; important ideas are highlighted with the use of miniature road signs that are supposed to elicit an emergency stop.

The first few chapters set minor trauma in its context and deal with the basics of management. Despite recent opposition to the use of such terminology, the reader is offered several interesting statistics on accidents and the outline of how strategies in society can prevent them. Pain assessment and management is given its rightfully prominent position as the foundation for good holistic care of the child. An overview of general wound and soft tissue management follows before the guide leads the reader through chapters exploring various locations of the body. Each chapter carries a concise description of the various minor injuries that can affect the area, accompanied by useful x ray pictures; ploughing through lengthy radiology and orthopaedic texts may now be circumvented.

More specific injuries such as minor burns are covered before reaching chapters that explore the difficulties of frontline medicine that have recently been exposed by the continued media interest in child protection. The chapter on non-accidental injury is regularly signposted with danger points. Davies makes one profound observation that will resonate with many doctors, "You could be forgiven for thinking that paediatricians are perhaps obsessed by the subject but the reality is that delay in diagnosis is still common, the diagnosis itself can be extremely difficult to make, and the repercussions of either a 'false negative' or 'false positive'

can be very damaging." The following chapter helps explain the forensic and medicolegal aspects of assessing children with suspicious injuries, or those that might require personal presence in a court of law.

The final chapter looks at practical procedures. Most of us know how to negotiate the examination of the ear, nose, and throat, but how do you tie a sling? If your first aid is a little rusty, then here is your answer. The mystery of gluing wounds is revealed. A small section on trephining the nail for subungual haematomas is found; and if your department does not have the specific tool for the job then the guide provides a "Blue Peter" solution with a paperclip and sticky-backed plasters. Overall the guide is a useful, concise aid to managing minor trauma, and would be a valuable reference for any emergency department. It collects together wisdom on the assessment and management of problems not easy to obtain elsewhere; apart from the experienced casualty nurse.

S Fountain-Polly

The Chailey approach to postural management, 2nd edition

Edited by Teresa E Pountney, Catherine M Mulchahy, Sandy M Clarke, Elizabeth M Green. Chailey Heritage Clinical Services, 2004, £30.00, pp 194. ISBN 0954825802

Disorders of posture are a frequent feature of neurological disability. These often limit a child's ability to function efficiently and access his/her environment. They also tend to progress in time with a potential for further loss of abilities, orthopaedic complications (such as scoliosis and hip dislocation), and secondary pain. Therefore professionals who work with these children find themselves constantly battling to maintain and, if possible, correct these abnormal postures. I often find myself in the situation of having to recommend interventions or prescribe expensive and sometimes cumbersome postural equipment for which only little evidence of efficacy is to be found in the medical literature. I was therefore looking forward to reading *The Chailey approach to postural management* in which I hoped to find some answers to my predicaments.

This book presents the approach developed over 20 years of research and clinical practice at the Chailey Heritage Clinical Services, a centre that has acquired national recognition in the management of children with complex physical disabilities. It progressively brings the reader to understand the principles of posture analysis and how to solve postural problems. The pedagogic style is very much that of a training manual, with multiple questions and activities targeted at the reader, and it was no surprise to learn that Active Design Ltd (the company who manufacture the postural equipment described in this book) run courses using this volume as their reference material. The theoretical basis that underpins the approach is concisely but clearly described in a series of chapters on the relevant aspects of biomechanics, neuroplasticity, motor control, and motor learning theories. The book is well referenced and the text is supported by a number of excellent illustrations.

The management programme per se relies mainly on the 24 hour provision of postural

equipment for lying, sitting, and standing. This may seem quite a heavy handed approach and one could question its tolerability in certain children. However its efficacy in reducing hip dislocation is already partly supported by a retrospective study, and further research is underway in a 5½ year longitudinal prospective study at Chailey Heritage Clinical Services. I certainly look forward to reading their conclusions, and I hope they will feature in the book's next edition as additional support to the approach.

Overall, working in the field of paediatric rehabilitation I found *The Chailey approach to postural management* a useful read and it did provide me with a better insight into the evaluation of postural disorders and their treatment. It gave me elements which will hopefully allow me to deal with these issues more confidently in the future. The great strength of this book is that it offers a clear and coherent approach to what is a common problem in neurodisability. As such I would recommend it as an essential reference in all multidisciplinary centres that care for children with neurological impairments.

C J Newman

Cerebral palsy, principles and management

Edited by Christos Panteliadis, Hans-Michael Strassburg. Stuttgart: Thieme, 2004, €69.95, pp 270. ISBN 3131400218

We devote time and energy, disproportionate to their numbers but not to their need, to these children. Diagnosis is often difficult, may be delayed, and the physical and psychological problems, intractable. There is an enormous and fast growing literature to help us, had we time to access it. A well organised, clear and concise introduction to the conditions which fall under the heading of cerebral palsy, and an update on management of the difficulties which come with it, would be welcome.

Unfortunately, *Cerebral palsy, principles and management*, does not fill the bill. As I read, I felt like a diver, struggling deeper into a hostile environment, hoping to surface with some pearls, but aware that there would be few, if any, to take home, and increasingly frightened of drowning.

The most striking obstacle is the language. A substantial proportion of the book reads as if mechanically translated by a computer unfamiliar with conventional English medical phrases. So there are such novelties as EPH-gestosis, superior and inferior kinetic neurones, asphyctic insults, athetotic cerebral palsy, and stimulation buttons on the tooth vestibule or the palate plates. I liked the idea of suspicious newborns, but was less happy to read about non-functional children. And when it came to the "batrachoidal state of the trunk", I began to wonder if I had carelessly strayed into a botany or zoology text. So there are some problems with reading and writing. The arithmetic is not too hot either—I was surprised to be told that "there have been more than 200 years since the first description of cerebral palsy made by Little in 1843". How time flies!

Twenty four authors contributed. The editorial hand has been light, and there is considerable repetition of information between, and sometimes even within,

chapters. Misprints abound. Some illustrations are of poor definition, duplicated, or reversed, and their relevance is not always obvious. Legends are not always accurate. One of the tables is in three languages. Of the 131 references in the bibliography to the first chapter, only 104 are referred to in the text. Conversely, 10 references in the text have no corresponding entry in the bibliography. Feeling despondent, I checked the 12 references to published papers by Little—all were inaccurate and one paper (admittedly the best known) appeared twice.

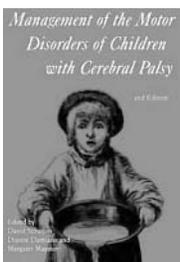
No doubt form is less important than substance. But it was not just the distractions of form that made it impossible in all but a very few chapters to shell out a pearl. I was unable to decipher the meaning of considerable portions of the book. There is undesirable grit as well—controversial advice regarding anticonvulsants, annual pertussis immunisation, and treatment of undescended testicles by hormone injection in preference to orchidopexy, to take three random examples. And any candidate for MRCPCH who holds a baby upside down by one leg to test the Collis II reaction as depicted in the chapter on therapeutic concepts, is likely to fail. Another child on the same page appears to be being smothered beneath an ample bosom.

I cannot recommend this book.

M Wheeler

Management of the motor disorders of children with cerebral palsy, 2nd edition

Edited by David Scrutton, Dianne Damiano, Margaret Mayston. Cambridge: Cambridge University Press, 2004, £50.00 (hardback), pp 191. ISBN 1-898-68332-8



There has been an interval of 20 years since publication of the first edition of this book, and this second edition reflects the progress in this field. David Scrutton has invited two colleagues, Dianne Damiano from the USA, and Margaret

Mayston, originally from Australia to join him as editors, and together they have commissioned contributions from an international group of experts who reflect the current approach to care. The book is written primarily for therapists but there is much of value for paediatricians.

The introduction describes current treatment dilemmas. In the past, physiotherapy programmes were based on philosophies of care. Modern management is based on clinical principles with a scientific rationale for their use. Evidence for their efficacy is emerging but remains sparse.

The first chapter defines cerebral palsy and describes the various cerebral palsy syndromes, their correlation with MRI scan findings, and the concept of causal pathways. A wide range of descriptive terminology for cerebral palsy still exists which results in confusion, and more emphasis on areas of

agreement would have been useful, such as that reached by collaboration between cerebral palsy registers.

The broad principles of care are well covered. Peter Rosenbaum has written an excellent chapter on the benefits of family centred care, involving the extended family such as grandparents. The evidence shows that this is associated with greater satisfaction with care and adherence to therapies, and is most important for children with complex disability and multiple problems, where the risk of fragmentation of care is high. He then persuasively argues that developmental interventions should focus on promoting participation and achievement of functional goals, rather than fixing impairments. Eva Bower and Roslyn Boyd follow with helpful practical guidance to therapists on goal setting, models of assessment, and reliable tools to measure change or outcome. It is made clear that goals differ from aims, they should be specific and measurable, and relate to problems experienced by the child.

The second half of the book is devoted to therapeutic possibilities. At the cerebral level, some exciting possibilities are emerging based on neural plasticity in the damaged nervous system, such as constraint induced therapy. The reader is reminded that abnormal muscle tone is only one feature of the motor syndrome in cerebral palsy, and other aspects, such as muscle weakness, may be successfully treated with strengthening exercises. There has been an explosion of interest in new treatments for spasticity, such as intrathecal baclofen and focal injections with botulinum toxin. In controlled trials to date, functional gains have been limited and overall muscle tone can be reduced by simple measures, such as relieving pain or ensuring a good night's sleep.

The orthopaedic contribution emphasises the progressive nature of the musculoskeletal disorder in cerebral palsy and how this confuses families who learn that cerebral palsy is due to a static cerebral lesion. A biological clock is ticking and unrelieved muscle spasm gradually leads to muscle shortening, bony torsion, joint instability, and ultimately degenerative arthritis. Appropriate management in childhood may influence the natural history. For example, monitoring of the hips in bilateral cerebral palsy with early intervention reduces the risk of dislocation and painful arthritis in adulthood. A chapter is devoted to the conservative management of deformity, using 24 hour postural care in conjunction with strategies to facilitate movement and function.

The wealth of alternative therapies and approaches to care, combined with a lack of hard evidence to promote one above the other, has been confusing for parents as well as professionals, and Margaret Mayston's contribution is helpful for both. She describes the various treatment approaches, ranging from the Bobath technique to alternative or complementary therapies such as hyperbaric oxygen, giving a balanced view of the available evidence as to their merits and disadvantages.

With the increasing lifespan of the most severely impaired young people, the chapter on cerebral palsy in adults is sobering and should be essential reading for the paediatric team. There is evidence of a gradual loss of function and independence, aggravated by increasing weight and loss of physical fitness. Adult care is at best fragmented, and a case is made for a coordinated service for adults

similar to that provided for children by the community paediatrician.

Overall the editors must be congratulated for bringing together a wealth of information from diverse sources. At times fuller descriptions of important new measures, such as the Gross Motor Function Classification System (Palisano *et al*, 1997) or promising new therapies would have been welcome. Nevertheless the book is essential reading for therapists and paediatricians specialising in neurodisability. A copy should be available for all child disability teams and is a valuable addition to the paediatric department library.

S M Wallis

Paediatric oncology, 3rd edition

Edited by Ross Pinkerton, Piers N Plowman, Rob Pieters. London: Arnold, 2004, £145.00 (hardback), pp 728. ISBN 034080775

The first thing that struck me as a newcomer to this 3rd edition of *Paediatric oncology* is the heavy alliteration of title and editors. The next was that is exactly the book I have been looking for—both to have with me in the clinic and on the ward, and to dip into at night. It is a good size: heavy enough to promise sufficiently detailed information as to be of real use; and yet light enough to be carried in the hand. The paper is pleasingly thick, so that the print is easily legible, and both the black and white photographs and the colour plates are very clear. As a haematologist, I could have wished for a little more morphology, but overall the balance between picture and print is good. The layout makes the chapters readable, and even the sections which looked rather daunting with prose running in unbroken paragraphs over several columns were in practice simple to read.

The content is broken up into five parts: Scientific and diagnostic principles; Diagnosis and management of individual cancers; Advances in therapy: megatherapy; Advances in therapy: targeted therapy; and Late effects and supportive care. Each part is then divided into appropriate chapters. I particularly liked the use of boxes at the end of each chapter to recap key points. The reference lists are extensive and helpful in pointing to significant papers.

The text and the references have all been updated, and, given the length of time needed to get such a tome to press, are reasonably current. The list of contributors represents recognised experts in the various fields, and is drawn predominantly from the United Kingdom, making this a very relevant book for clinical practice here. However, I found the main chapter on acute leukaemia a little disappointing. I felt the discussion rather overlooked the UKALL trials, concentrating instead on other protocols, and in particular the ALL-BFM trials—reflecting the author's own experience. This is, of course, relevant and of interest; but, given that this is the most common childhood malignancy, and that this book is presumably aimed predominantly at a British audience, seemed to be a significant weakness.

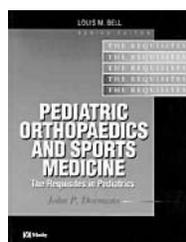
This book is already a standard on the shelf of paediatric oncologists and haematologists. Would I recommend it for a general paediatrician or a haematologist working in a district general hospital? Yes, definitely. Is it worth upgrading from the last edition? Again, yes—for two reasons: firstly, this is a

rapidly changing field, and the old edition is now out of date; and secondly, the quality of this edition, especially the photographs, makes it a delight to read.

R M James

Pediatric orthopaedics and sports medicine, the requisites in pediatrics

Edited by John P Dormans. Oxford: Mosby, 2004, £34.99 (hardback), pp 454. ISBN 0323018262



This is the first of a series on paediatric sub-specialties.

My first impression of the book was that the content was daunting for a paediatrician. However, after reading selected chapters in detail, the authors certainly fulfilled their aim to

educate paediatricians on how to approach an orthopaedic problem. My experience in paediatric training is that there is little exposure in managing musculoskeletal problems. The development of the musculoskeletal system in childhood and adolescence is a very important aspect of paediatrics and tends to be a neglected part of paediatric training. This book will help to rectify this.

There is substantial detail describing the mechanism and management of injuries. In fact, a patient of mine brought in her child who had fractured her radius and ulnar. She had consulted an orthopaedic surgeon but requested a second opinion from me. With the help of this book, which happened to be on my desk at the time, I was able to give an informed opinion on the appropriate management of this problem. I made no apologies about using the book!!

Sports medicine includes how the body adapts to exercise and the effects that exercise has on medical conditions such as asthma, diabetes, arthritis, epilepsy, malignancy, and other chronic disorders of childhood. Included in this, is the use of exercise in managing these conditions. Medical conditions were not included in this book. Thus a better title of the book would have been "Pediatric orthopaedics and overuse injuries in childhood and adolescence".

The book gave detailed accounts of overuse injuries involving anatomical sites. However, I felt that there could have been an introductory section describing, in principle, the unique types of injuries in childhood and adolescence.

A more detailed account of the rehabilitation of injuries, for example, the role of physiotherapy and biokinetics would have been helpful.

The chapters on paediatric rheumatology were clear, detailed, systematic, and moreover very easy to read.

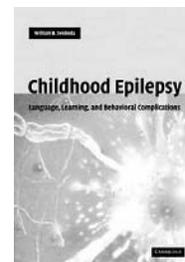
The layout, tables, and photographs were excellent. The blocks summarising the salient points of each chapter were very useful. Above all, each section was well referenced.

This book is highly recommended to paediatricians and health professionals working with children.

R Leaver

Childhood epilepsy: language, learning and behavioural complications

Edited by William B Svoboda. Cambridge: Cambridge University Press, 2004, £85.00 (hardback), pp 638. ISBN 0-521-82338-2



Given that Alexander the Great, Julius Caesar, Cardinal Richelieu, and Lenin all suffered from epilepsy it is clear that epilepsy does not preclude future career success. The prominence of sufferers within the higher echelons of the creative arts is striking. Dostoyevsky, Flaubert, Moliere, and Byron are just a handful of names that immediately spring to mind. Van Gogh's most creative period coincided with the time when his epilepsy was at its worst. And yet, we know that epilepsy can have a dramatic and disastrous effect on the cognitive and language abilities of our paediatric patients. It is hard not to be moved by West's description of how his son regressed following the development of infantile spasms. We hear similar stories time and again in paediatric clinics of how an apparently normal baby arrests developmentally and then regresses coincident with the onset of infantile seizures.

It must be equally distressing to be the parent of a child with Landau-Kleffner syndrome (LKS). One day you have a previously chatty 5 year old who suddenly is unable to understand what you are saying to them. Their speech and behaviour deteriorates and, to cap it all, they develop seizures.

We do not understand the relation between epilepsy and the cognitive, behavioural, and linguistic disorders so evident in these and other paediatric epilepsy syndromes. In both LKS and West's syndrome they may have chaotic status-like electroencephalograms. We postulate that such chaos must be interrupting the formation of critical neural synapses and pathways. However, the resolution of such electrographic disorder and clinical seizures may not, unfortunately, coincide with any cognitive or language improvement.

We search for effective treatments for these disorders. The breadth of different treatments used suggests that we are uncertain where to target our therapeutic approaches. For example, in LKS, steroids often improve the situation, but is it because they are modifying some infectious or autoimmune process or through their action at the GABA-A receptor? Indeed our treatments may exacerbate the situation. Virtually all the anticonvulsant drugs have been associated with behavioural and cognitive problems.

Of course, I am exaggerating the state of confusion in this area ... but only slightly. I turned to Professor Svoboda's book on this subject, looking for some clarity and direction. It is a veritable goldmine of anecdote and case reports. A lifetime of reading and clinical experience are condensed here. It would be wrong to say that this is an evidence-free area. Svoboda documents a wealth of studies, references, and data.

However, at the end of the book I longed for some critical appraisal of the evidence he had marshalled together. He gives no indication, for example, of the relative benefits of steroids, immunoglobulins, anticonvulsants, and sub-pial transection in the treatment of LKS.

In fact, this book is a testament to the lack of knowledge that exists. There is a pressing need for a good evidence base about the aetiology and treatment of these disorders. Which treatments improve cognitive outcome in infantile spasms? Is surgery preferable to medical therapy in LKS? Does treatment alter the prognosis of so-called benign focal epilepsies of childhood? The answers to such questions need to be unearthed but they are not to be found or hinted at in this book.

F J O'Callaghan

PediSuite 5.0

Published by Medical Wizards. Platform: Palm and Pocket PC handheld devices. Requirements: Pocket PC: 4.1 MB of either RAM or storage card memory. Palm OS 3.2-5.4: RAM deploy: 3.46 MB, memory/SD deploy: 1.34 MB RAM, 2.35 MB memory/SD card. US\$ 45.99. Buy from: <http://www.medicalwizards.com>

PediSuite is produced by Medical Wizards, a company founded in 2000 by a practising physician. The program is large and consists of 15 modules. Within each module there are numerous options. The selection of calculations, regimes and protocols is huge. Getting to know the content is time well spent as the information that you will be looking for you would usually want to know quickly.

This is software that aims to be a powerful calculator rather than an information source. Consequently, most of the modules contain some basic information about the topic but "the meat" of the program is numerous calculators that instantly work out dosages, speed of infusion, body mass index, croup score, etc for a given child. The interface is fairly intuitive and once you know what it contains no further guidance is required to be able to use it proficiently. There is one point where I stumbled and for some time thought that the program was freezing the PDA: within many modules you need to enter data about a child (usually weight) before you are allowed to access the content of the module. You also cannot exit these modules until you enter a number in the calculator. This is not a problem once you know it but I was just about to contact the Medical Wizards company when I cracked this.

In most of the modules the information is given in a cascade of windows. For example, within module PALS you choose "desired item", let's say bradycardia. The next window

asks for the type of rhythm; from the options you choose "stable" and then the management of the problem pops up.

The modules include paediatric advanced life support (PALS) protocols, some basic paediatric data like normal vital signs values, laboratory results or immunisation schedules, a mini-poison centre, and growth charts. There are modules calculating various values relating to fluid balance and infusion rates, also for critical care infusions. Several extensive drug databases provide information about various groups of drugs (fever medication, sedation, emergency, over the counter, antibiotics), calculate the dose for a given child, and give information about speed of infusions, compatibility, flavour of suspension, etc. There is also a general index.

For the users on this side of Atlantic it has to be noted that PediSuite is an American product. In the PALS module, in case of asystole use of a "turkey baster" is recommended. In treatment of shock, you can give a push of "LR". Some names of the drugs are not so familiar, many dosing regimes are different to those in mainstream UK use, and many investigation results are in different units. While it can complicate use of the information provided it also reminds us that there are many ways of skinning a cat (and surely many ways of basting a turkey?). I was glad to note that centimetres and kilograms can be used in the calculations.

It is difficult in brief words to convey how rich and versatile is the content of this software. I have spent hours playing with it and I have used it for several weeks at work. I still am not sure if an equation to calculate fractional sodium excretion is not there, or if I have simply not found it. A module "PediCalc" contains 14 different calculators. Some I thought unusual: "CHF and thrombolysis risk" or "oxygen tank routine"... Most of them are very useful like body surface area, peak flow, or conversion of units calculator.

The more I used this software the more impressed I was, finding more and more useful tools. PediSuite is the most useful PDA program for a paediatric doctor I have come across. It is an extremely powerful tool for any paediatrician and it can be recommended at any stage of their career.

E Posner

Safeguards for young minds: young people and protective legislation, 2nd edn

Edited by Richard White, Anthony Harbour, Richard Williams, Gaskell (The Royal College of Psychiatrists), 2004, £15.00, pp 118. ISBN 1 904671 02 0



This book is invaluable for child psychiatrists, but not all paediatricians would be so attracted to it, except those who wish to understand the legal basis of child protection work. Those who might see it as irrelevant would be missing out on the

combined rich experience of two paediatric solicitors and one child psychiatrist.

The chapter on consent is essential for all clinicians dealing with children, and has a superbly helpful flow diagram detailing how and when the child, young person, or parents can agree or refuse to medical or psychiatric assessment or treatment. The rules governing consent and refusal are surprisingly different. To my consternation, it leaves out all mention of assent, which I understand is a young person's agreement to something that is legally sanctioned by others, and which I think is increasingly being sought in written form.

The best advice in the book is contained in one of the prefatory pages—consult a solicitor whenever in doubt. Don't leave it until the issue is so contentious as to need deciding by the Courts. If you can develop a relationship with a legal adviser, this, the authors say, will be more valuable than any book. Although this may appear to be a free advert for solicitors, it is sound advice: your professional indemnity association and your Trust's solicitors should already be paid for.

This is the second edition of a 1996 book that expanded on the authors' condensation (in previous writings) of The Children Act 1989 to include related legislation. The new edition includes explanations for professionals dealing with children of The Human Rights Act 1998, The Children (Leaving Care) Act 2000, and The Mental Health Act 1983, revised in 1998 by a new Code of Practice. It will need further updating when and if the intended new Mental Health Act becomes law. The authors tread with great clarity through the confusing overlap of the Children Act and the existing Mental Health Act—which should be clarified by the new Act. They cover what you can and can't do to children in hospital, and how age and the Gillick principle should affect clinicians' decisions.

The book is written in commendably clear language, with a layout that encourages selective reading. If it has a significant fault, it is the lack of clinical details to flesh out the plentiful legal cases. It may seem to some like a primer for students of law, but it is in fact intended for, and essential for, practising clinicians.

Every department of child health should have a copy of this book, as well as every CAMHS service.

Q Spender

PostScript

LETTERS

Rejoinder to Eigenmann PA, Haenggeli CA, Food colourings and preservatives—allergy and hyperactivity (*Lancet* 2004;364:823–4) and an erratum

Eigenmann and Haenggeli have commented¹ on a paper we recently published on food additives and hyperactivity in children.² This commentary gives a seriously misleading account of the findings of the study. Eigenmann and Haenggeli claim that “the term hyperactivity seems to be used as synonymous to ADHD”. We deliberately did not use the term ADHD as a criterion for recruitment into the study. This is a diagnostic term requiring a set of explicit criteria to be met and is of doubtful validity when applied to 3 year olds. The definition of hyperactivity we used for this study was one based on the risk of subsequent behavioural difficulties in middle childhood which we had established previously in a longitudinal study of an epidemiologically ascertained sample of 3 years olds.^{3,4}

The study used screens for atopy (AT) and for hyperactivity (HA) applied to a total population sample to identify cases for the following design: “Children were entered into the four group randomised, placebo controlled, double blind, crossover challenge study. The four groups were in a 2×2 between group design with the following groups: HA/AT, non-HA/AT, HA/non-AT, and non-HA/non-AT.”² Eigenmann and Haenggeli observe that “...families interested in hyperactivity seem to be over-represented” and on this basis conclude that “...results from this study should not lead to recommendations for the general population”. The presence of hyperactivity was one of the inclusion criteria of the food challenge phase of the study and consequently occurs in about half of the cases. A substantial proportion of children were included in the food challenge phase by design. Full details of participant flow were given in a diagram (fig 1 in our paper) as recommended in the CONSORT statement for reporting randomised trials.⁵

The separate issue of sample attrition through each of the stages of the study was considered carefully and we concluded that the findings from the group completing the food challenge phase would indeed hold for the general population.

The study found significantly greater increases in hyperactive behaviour reported by parents when the children were given the active compared to the placebo challenge. The statement by Eigenmann and Haenggeli that “parents’ observations can be easily explained by their expectations” is puzzling. The parents, children, and the person collecting the behaviour ratings were blind as to the food challenge being taken by the child over these periods. Consequently “expectations” cannot account for the effects we identified based on changes during the active and

placebo periods. This does not hold for the reduction in hyperactivity we observed during the withdrawal phase which, as we discussed in the paper, was not blinded and was greater than that for the placebo versus active periods. This would be expected if the withdrawal effect alone was influenced by parental expectations.

The final part of the Eigenmann and Haenggeli commentary is concerned with the use of diet changes as treatments for hyperactivity. Our study showed that the effects of food colourings and the benzoate preservative were not restricted to or more strongly present for children with atopy or hyperactivity. Consequently our conclusions did not relate to the treatment of children with hyperactivity but rather to the preventive public health issue of whether food additives are having a general detrimental effect on children’s behaviour. The final conclusion from the paper was “...if additives have an effect at all, it is via a pharmacological effect which is best exemplified by the non-IgE dependent histamine release. We believe that this suggests that benefit would accrue for all children if artificial food colours and benzoate preservatives were removed from their diet. These findings are sufficiently strong to warrant attempts at replication in other general population samples and to examine whether similar benefits of the removal of artificial colourings and sodium benzoate from the diet could be identified in community samples at older ages.” We are now conducting just such a replication.

Erratum

While preparing this rejoinder, we have discovered an error in the reporting of the composition of the above mix in the paper. The sentence that reads:

“The active drink included 20 mg in total of artificial food colourings (sunset yellow, tartrazine, carmoisine, and ponceau 4R; 5 mg of each) (Forrester Wood, Oldham, UK) and 45 mg of sodium benzoate (J Loveridge, Southampton, UK).”

should have read:

“The active drink included 20 mg in total of artificial food colourings (sunset yellow 5 mg, tartrazine 7.5 mg, carmoisine 2.5 mg, and ponceau 4R 5 mg) (Forrester Wood, Oldham, UK) and 45 mg of sodium benzoate (J Loveridge, Southampton, UK).”

J Stevenson, B Bateman, J O Warner
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Funding: Jim Stevenson and John Warner are funded to conduct studies on children’s food by the Food Standards Agency, UK

Competing interests: none declared

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Developmental delay versus developmental impairment

The use of the term delay should be replaced by impairment because of parental perception of the meaning of delay as applied to development.

I would like to draw attention to my experience of parents’ perception of the language we use in describing children and their ability.

It is common practice to refer to children who are detected to be significantly behind in achieving developmental milestones to be *developmentally delayed*. In talking to prospective adoptive parents I have become aware of how misleading this phrase is in describing to prospective adopters what we mean.

The general population has a perception of delay to mean something that will get there in the end, rather like a train being delayed, but reaching its destination eventually. It has taught me to use the term *impairment* rather than *delay* so that I do transmit to prospective adopters the true meaning of what I am trying to describe.

I wonder if as a profession we would consider examining our use of this term *delay* and possibly re-educating our profession to use the term *impairment* because it does not suggest that the child will be normal eventually.

A Bosley

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Palivizumab prophylaxis in haemodynamically significant congenital heart disease

Patients with congenital heart disease (CHD) have been reported by many authors to have high rates of hospitalisation, morbidity, and mortality associated with respiratory syncytial virus (RSV) lower respiratory tract illness.^{1–3} However, in a recent paper in *Archives of Disease in Childhood*, Duppenhaler et al reported a substantially lower incidence of

RSV hospitalisation in patients with “haemodynamically significant” CHD.⁴

They suggest that the rate of hospitalisation in their population of patients from the Canton of Bern, Switzerland was as much as four times lower than rates previously reported in the United States. Based on these results they concluded that the unrestricted use of palivizumab to prevent RSV hospitalisation was not justified.

There are several possible methodological reasons for the disparity in RSV hospitalisation rates in the calculations of both the numerator and denominator. With respect to the numerator, Duppenhaler’s methods would miss all of the nosocomial RSV disease. Furthermore, ascertaining the true incidence of RSV hospitalisation would require that all CHD patients admitted to the hospital undergo RSV screening, as was done in the international multicentre trial, not just those with symptoms judged typical of RSV.³

Finally, in a previous paper by the same authors in the first four years of the study (1997/98–2000/01),⁶ 12 of 497 patients studied aged <5 years were identified with CHD compared to 6 of 449 aged <2 years in this study. Since the previous study encompassed children under the age of 5, the difference of six patients between the first study and this one would imply that children who were hospitalised were between the ages of 2 and 5 (making a strong case for palivizumab prophylaxis in that age group), or they were deemed to have haemodynamically insignificant heart disease (making a case for prophylaxis in this group or questioning the definition of haemodynamically significant heart disease).

With respect to the denominator, the author used the International Classification of Diseases (ICD) coding as a screen for patients with “haemodynamically significant” CHD for entry into the cardiology registry. However, the ICD system does not allow for severity adjustment and therefore does not distinguish between haemodynamically significant and insignificant disease. In our recent multicentre trial, we defined haemodynamically significant CHD as patients with cyanotic CHD, single ventricle physiology, or those with acyanotic CHD that required medical therapy.⁵ Overall, this would account for only about 35–40% of all the CHD patients. This would have significantly reduced the number of patients in the denominator, increasing RSV hospitalisation incidence. Secondly, no attempt was made to verify the accuracy of screening utilizing the ICD system, which might have resulted in missed patients with CHD due to inaccurate and/or inconsistent coding. Third, the calculations of child-years of observation, as written, was assumed to equal the number of child-years. This would be true if every child were born on 1 July; however, if births are spread out over 12 months the number of child-years should be halved.

Thus, if the numerator were increased (for the reasons stated above) by perhaps one and one-half to two times and the denominator were decreased by two times (even just to account for the incorrect child-years of observation), the actual calculated hospitalisation rate per 100 child-years would be between 3½ and 4 times higher than the rates quoted in tables 3 and 4. These rates would then be comparable to the rates of CHD in the USA.³ In support of this statement is a brief recalculation of their data. The

total birth cohort observed over six years was 54 947. There were 813 RSV hospitalisations which would give a rate of 29.6 per 1000 children per year, similar to other developed countries.⁴ Finally, the calculation of relative risks for hospitalisation uses a referent group that is not low risk, but includes children with prematurity and chronic lung disease, that would unfairly bias the relative risk in a lower direction. The correct referent group would be the low risk group as was done by Boyce and colleagues.³

We would agree with the authors that unrestricted use of palivizumab in CHD patients is not warranted. The intention was never to use the drug indiscriminately in CHD patients as evidenced in the cardiac trial that restricted its use in truly haemodynamically significant young CHD patients.³ We disagree with the use of an NNT analysis to justify this statement. An NNT analysis only factors in the cost from a single RSV hospitalisation. But the CHD infant with RSV is likely to incur additional morbidity and mortality related to future hospitalisations and/or treatment, especially when it comes to surgical correction, and thus raises the cost of care.⁷ Also, NNT analysis takes only a payer’s perspective, and ignores the societal component of pharmacoeconomics. As healthcare providers, it is our responsibility to use costly drugs in a responsible manner, while also ensuring that these patients receive the treatment/prevention from which they would clearly benefit.

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Authors’ reply

We greatly appreciate the interest of Feltes and Simoes in our study, but we are

somewhat surprised by the intensity of their allegations. The large number of unrelated flaws they claim to find in the methods we used suggests that Feltes and Simoes have a fundamentally different view of how these data should be interpreted. In our opinion, their critique is mostly unjustified and requires a firm rebuttal.

It is true that nosocomial infections were not included in our study.¹ We did not claim otherwise. However, adding for instance a 14% rate of nosocomial RSV infections as reported for the placebo arm in their study (9 of 63 cases),² would not translate into a major change in the calculated RSV hospitalisation incidence.

It is also correct that RSV tests were not conducted in CHD patients admitted for reasons other than respiratory tract disease, but it is incorrect to claim that RSV testing was performed only in patients with typical RSV symptoms. Symptoms and signs leading to RSV testing are detailed in the method section of our paper¹ and encompass the vast majority of presentations caused by RSV. Furthermore, it is unclear why Feltes and Simoes here compare our observational study with their randomised controlled trial (RCT),² which obviously led to a more complete case catchment, but may not reflect real life—a well known limitation of RCT. It would have been more appropriate to compare our study with the Tennessee Medicaid Study by Boyce and colleagues,³ which we used as the comparator study. In this study, however, only 6% of cases were specifically coded as RSV infection; 94% were coded as “bronchiolitis”.³ Thus, it appears obvious that our case catchment was not inappropriately insensitive. It is also worth mentioning here that our method of diagnosing RSV had undergone in-house validation.⁴

In our previous study,⁵ we did not focus on CHD cases. During the entire six year study period described in the present study, there were 21 hospitalisations among CHD patients <24 months of age, 11 of which were considered by the cardiologist as haemodynamically insignificant. There were an additional three cases in children >24 months of age, all haemodynamically significant. During the first four years of the study period covered also by our previous study,⁵ there were 12 hospitalisations, all in children <24 months of age, six of which were considered haemodynamically significant. During the subsequent two years, there were 12 cases. Of these, nine cases occurred in children <24 months of age and were haemodynamically significant in four.

We did not—as Feltes and Simoes apparently assume—use ICD codes for case catchment. As stated in the method section,¹ the ICD-10 codes Q20–Q26 describe CHD patients included in the database. The large groups of haemodynamically insignificant VSD, ASD, and PDA are not included. All cases included in the registry were “CHD requiring medical therapy”. It follows that the definition of haemodynamically significant CHD used in our study to create the denominator is quite similar to the definition used by them.² Their claim that the true denominator of CHD in our population was only 35–40% of the figure used, is incorrect in our opinion. Again, our main comparator study³ used a less stringent definition of CHD (ICD-9 codes 745–747) which did not address the issue of haemodynamic significance, and was thus more likely to report estimates of low precision.

Feltes and Simoes also claim that we got it wrong with the “child-years” and thus over-estimated that denominator by a factor 2. Objection! We agree that RSV exposure only occurs during approximately half of the child-years, and that total child-years should be divided by factor 2 for calculation of incidence per child-year of RSV season. However, we compared our incidence rates with those of Boyce and colleagues,³ which were already corrected for this discrepancy (that is, our data in table 3 were compared to the column entitled “Hospitalisations per 1000 children” in table 1 of Boyce’s paper, p. 867,³ which were multiplied by factor 2). Had we truly committed the mistake claimed by Feltes and Simoes, we would have compared our data with the preceding column in the said table, which is entitled “Incidence” (meaning: hospitalisations per 1000 child-years of RSV season).

Reduction of our denominator by factor 2 was indeed necessary, when children <6 months of age only were investigated. This, however, we did for calculation of the figures in table 3 and we explicitly stated that we did so in the text on page 963.¹ Thus, this allegation again is incorrect in our opinion.

It is true that we used the entire population of non-CHD patients as referent, because we did not have data of sufficient quality for analysis of other individual risk factors. This was clearly stated in the manuscript. However, to claim that such a comparison is “unfair” is difficult to understand, because (1) for comparison we used Boyce’s raw data³ to calculate non-CHD rates in their population, and (2) in Switzerland, palivizumab has been recommended for children with severe BPD only.

Thus, we believe that it does make sense to compare CHD patients to all others who do not receive palivizumab. The very small group of children with severe BPD makes no substantial difference here.

We agree with Feltes and Simoes that NNT should not play a major role when it comes to providing optimal care for children with CHD. This is one reason why the new 2004 Swiss recommendations for the administration of palivizumab include children <1 year of age with surgically uncorrected, haemodynamically significant CHD and cyanotic CHD or severe pulmonary hypertension or cardiac failure,⁶ as soon as the distributor of palivizumab successfully applies for mandatory coverage by the health insurance companies. If, however, resources are limited, and they increasingly are in many European countries, cost-effectiveness analyses including NNT do play a role when authorities have to weigh different new interventions against each other.

In summary, we believe that Feltes and Simoes create a largely incorrect worst case scenario of what could have gone wrong with our study. As elaborated above, we believe that our data are correct and—with the limitations described in the paper—reflect the current epidemiology in the study area.

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The Royal College of Paediatrics and Child Health flagship meeting: is it value for money?

The most recent Newsletter from the Royal College of Paediatrics and Child Health (RCPCH) was accompanied by a call for abstracts for the 9th Spring Meeting. An article in a recent RCPCH trainee’s newsletter from the chairman of the trainees’ committee expressed disappointment at the level of attendance by trainees, and that those who did attend left almost immediately after giving their presentation. This is supported by official figures from the RCPCH¹ which show the lowest number of SHO and SpR attendees at the 2004 meeting over the past six years (table 1). SpR attendances at the 2004 meeting accounted for less than one quarter of total attendees and SHO attendances for only 2%. Why is this happening?

I postulate that it is simply too expensive. To attend for the three full day sessions at the RCPCH meeting will cost in excess of £500. The total sum involved is in excess of most trainees’ annual study leave budget. Indeed with the financial constraints existing in most NHS trusts, study leave budgets are often not fully reimbursed, leaving trainees to supplement fees from their own pocket.

In contrast to most other countries, no concessions are given for trainees. The Society for Paediatric Research in the United States offers significant reductions in subscription fees for their annual meeting. This concession for trainees is mirrored by flagship paediatric meetings in most European countries, including the Congrès de la Société Française de Pédiatrie, which are attended by a far greater percentage of trainees than the RCPCH meeting.

If the RCPCH is serious about campaigning for a greater number of junior attendees at the Spring Meeting then it must follow the example of most other major paediatric meetings worldwide and offer financial concessions to the future paediatricians they are hoping to train.

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Competing interests: none declared

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Reply by the RCPCH

I am pleased to have the opportunity to respond on behalf of the Academic Board. The trainee representatives on the Academic Board have taken soundings from their peers and formal approaches have been made to regional advisers, to inform our extensive discussions of these same data.

The data above show a fall in attendance, but do not provide any evidence that the reducing attendance is because the meeting is too expensive. Indeed, during inquiries many other factors were identified—European Working Time Directive, the introduction of shift systems at middle grade, shorter training attachments at Specialist Registrar level are some—which not only have the effect of reducing and availability for visits to the Spring Meeting, but mitigated against research activities by trainees, so reducing their chance of presenting at the Spring Meeting. The growth of sub-specialty training may also be attracting trainees to specialty groups in the UK and Europe instead of the RCPCH Spring Meeting.

The Academic Board Executive has written to RCPCH college tutors and the chairman and members of the National Association of Clinical Tutors to ensure that trainees are encouraged to attend and given study leave and funding to do so. Contrary to popular belief, the Spring Meeting does not make money for the College, even when profits from the trade exhibition are included (these latter are far smaller than abroad, because of rules about sponsorship). Indeed, the meeting runs within a very narrow margin of making a loss. The figures are published in the annual accounts. Concessions for any group would mean an increase in costs for another.

Finally, the venue of the Spring Meeting is regularly reviewed, but there are few alternative venues, when the requirements for simultaneous sessions, technical support, accommodation, and provender are taken into account. Currently, York University offers good value and a fine setting where paediatricians, senior and junior, from the UK and abroad can meet, make and renew

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	2004	2003	2002	2001	2000	1999	1998	1997
Consultant	824	903	1044	891	944	977	805	691
SpR	348	373	430	403	454	422	232	186
Staff grade	97	80	112	81	61	47	39	32
SHO	32	34	43	37	37	39	15	21
Other	255	215	228	225	211	171	213	38

friendships, and exchange ideas about the scientific foundations that underpin our specialty practice.

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Meningitis is a common cause of convulsive status epilepticus

With the benefit of hindsight from this study,¹ which refuted the perception that convulsive status epilepticus is atypical of acute bacterial meningitis (ABM), cerebrospinal fluid (CSF) sampling might have been more readily undertaken, and perhaps more blood cultures done, given the fact that the latter modality sometimes tests positive even when CSF Gram stains are non-contributory.

The crux of the matter is how the index of suspicion for meningitis is “packaged”, and the bottom line is that, given the fact that both ABM and tuberculous meningitis (TBM) are eminently amenable to treatment, and without treatment death is an almost invariable outcome for both, common ground must be found in the “packaging” in order to optimise diagnostic potential. A package which does not acknowledge the true prevalence of disease manifestations risks relegating those stigmata to oblivion, the latter being the fate of the blanching maculopapular rash which, notwithstanding its prevalence of 13% in meningococcaemia,² nevertheless totally escaped mention in the section on ABM in a leading textbook.³ With a prevalence of 6.5–9.7% in ABM, the CSF which is characterised by normal cellularity and biochemistry^{4,5} is another parameter that deserves greater recognition than is usually the case, especially because this is a feature which may characterise TBM as well.^{6,7} One view is that, in the latter context coexisting HIV/AIDS is the operative factor for this manifestation of TBM.⁸

What is also evident from the HIV/AIDS epidemic, is that tuberculous patients who harbour this virus are more likely to have extrapulmonary tuberculosis than their counterparts who do not have HIV/AIDS.⁸ The paradigm shift dictated by the HIV/AIDS era is that the index of suspicion for miliary tuberculosis and, hence, TBM, should be correspondingly higher, and that parallels between ABM and TBM should be more readily recognised. For example, like the four patients reported with ABM in the absence of meningeal signs,¹ the 8 month old HIV/AIDS patient with TBM reported by Janner *et al* also presented without any clinical signs of meningitis.⁷

Fundoscopy is crucial to the index of suspicion for miliary tuberculosis and, hence, TBM, given the fact that the presence of choroidal tubercles will reveal the miliary component even when routine chest radiography has failed to do so.⁹ Among 113 confirmed cases of miliary tuberculosis, 12.4% were undetected by chest x ray.⁹ Choroidal tubercles were detected by fundoscopy in five of the 14 x ray negative cases.⁹

The armamentaria for the heightened index of suspicion for ABM as well as for TBM include a more overt acknowledgment of the significance of the blanching maculopapular rash in ABM, routine fundoscopy to detect choroidal tubercles, a greater willingness to undertake CSF sampling and blood cultures in convulsive status epilepticus, and a recognition that a CSF which is

normal for cell count and for biochemistry may be a feature of either ABM or TBM, and so may be the total absence of signs of meningeal irritation.

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Competing interests: none declared

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BOOK REVIEWS

The collected editorials by Martin CO Bax from *Developmental Medicine and Child Neurology*, 1961–2003

Edited by Martin C O Bax. London: MacKeith Press, 2004, £18.00, pp 264. ISBN 1898683417

And it's only £18, including postage! But how does one review a book like this, a collection of twelve dozen editorials spanning four decades? I thought of the late Ronnie Mac Keith (“I am not your boss, I am your colleague!”) whose evocative personal memoir by Martin rounds off this book, and looked for a bottle of Madeira to accompany my morning coffee and sweet biscuit. All I could find was port, and at once I was there watching Ronnie standing on the college dining room table between the silver giving an after-dinner speech, while Martin, already an editor since 1961, sat beaming below. But before I continue, I should explain about the editor date. The year 1961 is when Martin first became co-editor (with Ronnie Mac Keith) of *Developmental Medicine and Child Neurology*. Martin had already been editor of *Ambit* (the literary and artistic magazine with poetry and visual arts side by side http://www.3ammagazine.com/litarchives/2002_jun/interview_martin_bax.html) since 1959. That may give a clue as to why the present collections of editorials will be so fascinating to paediatricians, and not just to paediatric neurologists or students of developmental

medicine. These editorials are well written (as befits a literary man), wide ranging, and a delight to dip into, delightful enough to find a place on the bedside table or even—and this is a compliment—in the loo.

Martin's first editorial was on animal behaviour, summarising the work of Harry Harlow on infant Macaque monkeys and the contrasting effects of cloth and wire “inanimate surrogate mothers” on the infants' behaviour emotions and affection. He was then fresh from Guy's, having previously been up at New College, Oxford. In a later editorial, he tells us that at his first paediatric unit two elderly paediatricians took him aside and advised him not to continue in that specialty, which they saw as declining and coming to an end, what with the eradication of tuberculous meningitis and other acute infectious diseases of childhood. But, he writes (p. 141) “There were two straws blowing in the wind: one was the developing interest in neonatology; the second was that people were beginning to wonder about the fate of the many children with congenital disabilities who at that time were often fated to be placed in institutions and to spend the rest of their lives there.” As Martin's mentor (if not boss) Ronnie Mac Keith predicted, paediatrics did not disappear, quite the contrary, and by 1984 (p. 96) Martin is making “a plea for not too many more paediatric specialties. A paediatrician is a doctor who looks after the child, intending both to promote health and development and to care for the child who becomes ill. This is a species that should not be endangered by too much fragmentation.”

Nonetheless, in this travel through the academic life of Martin Bax, I sometimes sense a whisper of conflict between keeping paediatrics whole, in one piece, and dividing up even into subsections of paediatric neurology, so that rare disorders may be properly dealt with, so that doctors know more than the internet learned parents. Another conflict is between the role of paediatric neurologists in centres for handicapped children (p. 56) and the Aicardi view that the prime task or skill of paediatric neurologists is to make precise diagnoses: why did it happen, will it happen again, and can it be treated, rather than can the child be managed, for the answer to the latter is always yes. The solution may lie in the various skills as doctors that each of us has, fortunately as varied as we differ from each other as humans.

I would hasten to point out that the editorials in this collection are not predominantly about paediatric neurology. We are led through byways old and new, journeying from the clay tablets of ancient Mesopotamia (p. 205) to Hippocrates to Chaucer, to Little, Osler and Freud, and via the USA to more recent sages. By 1986 (p. 106) “I feel that the dead hand of peer reviewing and conformity hangs heavily over medical journals” whereas “The glory of language is its flexibility and its failure to obey the rules.” Regarding meetings and conferences, he favours the view of Mac Keith¹ that the “greatest benefit results when small groups of 10 to 50 are together for three or four days” with “the intelligent use of guests from far-away parts of the world” (p. 61).

The final Editorial of Martin Bax in 2003 (p. 252) includes the immortal lines “Indeed it was Hippocrates who denied that epilepsy was due to the erotic behaviour of the gods, but to some disorder which could be rationally investigated.” Much better than ratic!

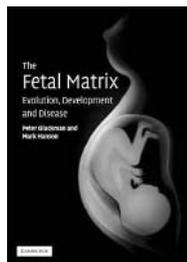
J B P Stephenson

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The fetal matrix: evolution, development and disease

Edited by Peter Gluckman and Mark Hanson. Cambridge: Cambridge University Press, 2004, pp 256, £24.99. ISBN 0 521 54235 9



The idea that the intrauterine environment has an effect on disease later in life is not new. The “Barker hypothesis” has been around for over 10 years. For those unfamiliar with the hypothesis at its simplest level, it suggests that a low birth weight reflects an adverse intrauterine environment that the fetus has adapted to, in order to survive. This “thrifty phenotype” is the result of altered development in utero to cope with poor supply of nutrients and oxygen from the mother. The consequence of this phenotype, however, is a doubling in the risk of death from heart disease in individuals born with low birth weights (less than 2.5 kg). Gluckman and Hanson develop these ideas, and draw on evidence from zoology and fetal physiology, and suggest that many diseases may, at least in part, result from “predictive adaptive responses”.

A PAR is a different trajectory of development that the fetus takes as a result of its intrauterine (or perhaps early postnatal) environment, with the aim of maximising chances of survival to reproductive maturity, in a particular *expected* postnatal environment. For example, in the pregnant snowshoe hare, stress (due to predation, cold, or starvation, for example) may lead to increased maternal cortisol levels. Cortisol may cross the placenta, and the fetus may detect, via signalling from the mother and placenta, that the external environment is a harsh one. The cortisol levels may enhance maturation of fetal organs, such as the lungs, and prepare the fetus for the rigours of postnatal life. However, it appears that exposure to such high cortisol levels in utero may alter the sensitivity of the hypothalamo-pituitary-adrenal axis, making it hyper-responsive after birth. So the offspring of hares that have been stressed during pregnancy, may be hyper-alert—a predictive adaptive response to the expected postnatal environment. One wonders what the effects of an analogous human PAR might be.

Gluckman and Hanson propose that while we have reached a stage in the 150 000 year history of *Homo sapiens* where Darwinian evolution is no longer active or has slowed dramatically, the predictive adaptive responses we have evolved now threaten our post-reproductive health, in terms of obesity, type 2 diabetes, atherosclerosis, and hypertension. These responses could be initiated soon after conception, mediated by DNA methylation. What is unclear is the extent to which PARs may play a role in human disease outside the context of birth weight (or rather suboptimal fetal growth) and the metabolic “syndrome X”. Gluckman and Hanson make a case for other diseases

such as osteoporosis, cognitive decline, psychosis, and polycystic ovarian syndrome, with varying degrees of persuasiveness.

The message from the book appears to be twofold: that the evidence for PARs playing a role in human disease is a persuasive one, which should not be overlooked in favour of “sexy” genome research; and secondly, that if these hypotheses are correct then this has significant implications for society, and how we try to reduce the burden of disease in later life. Unfortunately, there appear to be few recommendations we can make for optimising the intrauterine, and postnatal, environment to minimise the potentially harmful effects of inappropriate PARs.

The fetal matrix concludes with a call for an increased emphasis on the importance of female health before and during pregnancy, with improved female literacy and education (and therefore, hopefully, avoidance of teenage pregnancy), and nutrition. It therefore sends a message to research funding councils of the potential importance of this area of research, and to politicians about priorities. The book should however be of interest (and thought provoking) to anyone with an interest in perinatal care, human nutrition, and fetal physiology.

A C Breeze

CORRECTION

The author of the book review *Minor trauma in children, a pocket guide* (*Arch Dis Child* 2005;90:656) was misspelt and should be S Fountain-Polley. We apologise for the error.