prevented or treated if safe and effective methods are available. In Japan, most (probably all) children when they develop varicella visit their doctor because parents know that children with the disease are often uncomfortable, febrile, irritable, and unhappy and they look to doctors to prevent or reduce these problems. There is also an increasing number of children who receive a live varicella vaccine, which costs approximately 10 000 yen (about £65) in Japan. More than 200 000 children received the vaccine in 1993, which clearly indicates a strong parental need to have their children free from the disease.

Dr Conway questions whether a rise in antibody titre from <4 to 8 reflects seroconversion. We believe it is an obvious seroconversion and a significant (a fourfold) increase in the antibody titres, which would surely be supported by clinical virologists. We followed up children who did not show seroconversion and found that most of them had antibody activity two to three months later (unpublished data), which suggests that administration of acyclovir in the incubation period tends to postpone development of immune response to the virus. We also found that immunity to the virus persisted for at least one year in most of the children treated with acyclovir (unpublished data). It is therefore possible that the actual seroconversion rate is higher than reported. As suggested by Dr Conway the optimal dose of acyclovir that prevents the disease but induces virus immunity should be established.

It is unlikely that immunity in children treated with acyclovir tends to decline or diminish, thereby creating a risk of more severe varicella or early zoster later in life. Reduced frequency and severity of the skin rash in children treated with acyclovir suggests that the drug prevents or reduces blood borne dissemination of the virus and infection of skin with the virus.²⁻⁴ Possibly, the drug suppresses replication of the virus in the lung, liver, spleen, and other organs before or during the second viraemia.⁵ Many of the children given acyclovir developed the virus antibodies and most of them had no signs and symptoms of varicella. All this suggests that subclinical infection is occurring. As fluorescent antibody to membrane antigen assay measures antibodies to glycoproteins or late antigens of the virus, it is reasonable to consider that a limited virus replication conferred specific memory to the virus in the immune system of children treated with acyclovir. Moreover, it is likely that the immunity will persist for a long time, as subclinical infection in a natural setting and infection with live varicella vaccine provide a long lasting immunity to the virus and protect the infected individual from the disease.⁶

Little is known about the mechanism by which the virus establishes latency in sensory ganglia. However, it is generally believed that the virus may arrive at the sensory ganglia not only via a nerve but also via the haematogenous route during the viraemic phase of varicella. It is unlikely that acyclovir treatment during the incubation period predisposes the host to a higher risk of reactivation of disease (herpes zoster), as there was protection against rash and probably a reduced degree of viraemia in treated patients.

YOSHIZO ASANO
SADAO SUGA
TETSUSHI YOSHIKAWA
Department of Paediatrics,
Fujita Health University School of Medicine,
Toyoake, Aichi 470-11,
Japan

TAKAO OZAKI
Department of Paediatrics,
Showa Hospital,
Konan, Aichi,
Japan

- 1 Suga S, Yoshikawa T, Ozaki T, Asano Y. Effect of oral acyclovir against primary and secondary viraemia in incubation period of varicella. *Arch Dis Child* 1993; **69**: 639-43.
- 2 Asano Y, Itakura N, Hiroishi Y, et al. Viral replication and immunologic responses in children naturally infected with varicella-zoster virus and in varicella vaccine recipients. *J Infect Dis* 1985; **152**: 863-8.
- 3 Asano Y, Itakura N, Kajita Y, et al. Severity of viraemia and clinical findings in children with varicella. *J Infect Dis* 1990; **161**: 1095-8.
- 4 Asano Y, Yoshikawa T, Suga S, et al. Post-exposure prophylaxis of varicella in family contact by oral acyclovir. *Pediatrics* 1993; **92**: 219-22.
- 5 Asano Y, Yoshikawa T, Urisu A, Yazaki T, Mizoguchi Y, Kurata T. Varicella-zoster virus replication site in internal organs of an otherwise healthy child with varicella and sudden death. *Acta Paediatr Jpn* 1993; **35**: 348-51.
- 6 Asano Y, Nagai T, Miyata T, et al. Long-term protective immunity of recipients of the OKA strain of live varicella vaccine. *Pediatrics* 1985; **75**: 667-71.

Simultaneous pulmonary infection with respiratory syncytial virus and human cytomegalovirus

EDITOR,—Respiratory syncytial virus (RSV) is the major cause of acute lower respiratory tract illness in infants and young children. The presentation and subsequent course of RSV bronchiolitis may be atypical in the presence of a simultaneous infection with other viral agents.^{1,2} During the winter 1991-2, we studied children hospitalised for respiratory disease in a paediatric unit in Marseille. All patients were tested for viral infections and an information chart was made to determine the prevalence of multiple viral isolates and to assess the impact of dual infections on the severity of clinical disease.

Between December 1991 and February 1992, 405 children were hospitalised for respiratory disease. In all cases, nasopharyngeal wash specimens were taken on admission to the paediatric unit and simultaneously submitted to human cytomegalovirus isolation and respiratory virus fluorescent antibody staining. For human cytomegalovirus isolation, specimens were inoculated on human embryonic lung fibroblasts and a monoclonal antibody directed against the immediate early antigen (E13, Biosoft, Clonatec, France) was added 48 hours later to detect viral antigen expression. Simultaneously, indirect immunofluorescence assay was performed directly on nasopharyngeal secretions, using monoclonal specific antibodies against several viruses: RSV, influenza A virus, influenza B virus, parainfluenza virus type 1, 2, and 3 (Monofluo kit, Pasteur, France), and adenovirus (Biosoft, Clonatec, France).

The following information was obtained for each patient: age, sex, history and clinical symptoms, other infections, duration of hospitalisation, socioeconomic status, and ethnic group.

From the 405 children hospitalised for bronchiolitis or respiratory disease, 195 (48%) presented viral infection: 165 were positive for RSV, 30 were positive for human cytomegalovirus, and 20 were simultaneously infected with RSV and human cytomegalovirus.

Given the frequency of RSV-human cytomegalovirus coinfection in our series (10%), we studied these 20 children. The sex ratio was 1:1 and they were aged 1 month to 8 years. Fourteen of them were less than 4 months old, hence they may have had congenital or perinatal human cytomegalovirus infection. However, six were from 6 months to 8 years old. One child had oral candidosis and one was simultaneously infected with *Haemophilus influenzae* and rotavirus, one had a history of pneumonitis, but all were without underlying disease. Most of them were from low socioeconomic groups. Three were of Spanish extraction, seven were North Africans, and two were black children. No specific clinical situation was correlated with the coinfection: five had fever over 39°C, four had severe bronchiolitis or pneumonitis requiring corticotherapy. But the severity of the children's illness was demonstrated by the duration of hospitalisation: the average was 6.6 days compared with 3.2 days in RSV isolated infection.

We especially noted the frequency of RSV-human cytomegalovirus simultaneous infections in the children hospitalised for lower respiratory tract disease. But the exact role of human cytomegalovirus in bronchiolitis remains unclear^{3,4} and further clinical and biological investigations should be undertaken.

CHRISTINE M ZANDOTTI
XAVIER N DELAMBALLERIE
CATHERINE VIGNOLI
JEAN-MARC GARNIER
University Timone Hospital,
13385 Marseille,
France

- 1 Subbarao E, Griffis J, Wasser JL. Detection of multiple viral agents in nasopharyngeal specimens yielding respiratory syncytial virus (RSV). An assessment of diagnostic strategy and clinical significance. *Diagn Microbiol Infect Dis* 1989; **12**: 327-32.
- 2 Tristram DA, Miller RW, McMillan JA, Weiner LB. Simultaneous infection with respiratory syncytial virus and other respiratory pathogens. *Am J Dis Child* 1988; **142**: 834-6.
- 3 Ray CG, Holberg CJ, Minnich LL, Shehab ZM, Wright AL, Taussig LM. Acute lower respiratory illness during the first three years of life: potential roles for various etiologic agents. The Group Health Medical Associates. *Pediatr Infect Dis J* 1993; **12**: 10-4.
- 4 Smith SD, Cho CT, Brahmacharya N, Lenahan MF. Pulmonary involvement with cytomegalovirus infections in children. *Arch Dis Child* 1977; **52**: 441-6.

Carers as children

EDITOR,—Aldridge and Becker in their article comment that there is uncertainty as to how many child carers there are.¹ We have recently completed two population based surveys into the health and social care needs assessment of people with multiple sclerosis in Bradford and Huddersfield. We surveyed over 500 people who agreed to volunteer. Of those surveyed over 20% between the districts indicated that their children helped with either domestic or personal care.

A further random sample of 192 were interviewed by face to face interviews. Approximately 40% of those with children under 16 years felt that their children helped more than they normally would with personal care. However, from the parents' point of view it did not all seem to be bad. Approximately 40% felt that the multiple sclerosis had had little or no effect on their

children. Thirteen per cent felt that the children had suffered from the parents' limited physical participation in family activities, for example holidays. Interestingly, 10% felt that their children had 'benefited' in that they had become more caring with heightened common sense and sensitivity, although 14% did concede that excess stress had been induced. There was a perceived sense of inertia from the multiple sclerosis sufferers' point of view: 'They have become carers, which I don't like but I am powerless to stop it'.

Caring is a complex phenomenon for families which does not always need to be replaced by the statutory or voluntary agencies. It appears, for the younger physically adult, to be the rule rather than the exception and it requires recognition, careful appraisal, and possible proactive intervention.

IAIN SMITH
Nuffield Institute for Health,
University of Leeds,
c/o Bradford Health Authority,
New Mill, Victoria Road,
Saltaire,
Shipley
BD18 3LD

JULIA FARRAR
Multiple Sclerosis Needs Assessment Project,
Bradford Health Authority

- 1 Aldridge J, Becker S. Children as carers. *Arch Dis Child* 1993; 69: 459-62.

Availability of data tapes from national infant feeding surveys in 1985 and 1990

EDITOR,—The first national survey of infant feeding practices was in 1975. These surveys have been repeated every five years and are internationally acclaimed. They offer unique high quality information about how this country feeds its infants. The first survey covered England and Wales only, Scotland has been included from 1980, and in 1990 Northern Ireland has also joined in. Some 6000 new mothers, chosen as nationally representative of their population, provide information on three occasions: at 6 weeks, at 4 months, and at 9 months after their baby was born. Apart from gathering facts, the questionnaires are designed to draw out information about influences on the parents' choices of how to feed their baby. The scope and style of the surveys can best be assessed by referring to the report of the most recent survey, which was published in 1992.¹

The surveys were conducted by the Office of Population Censuses and Surveys for the Department of Health. Readers may wish to be aware that the full data tape of the surveys in 1985 and 1990 is now available for independent researchers. It has become standard practice for the data tapes from diet and nutrition surveys to be deposited with the National Data Archive. Access to this information is available on request to this address: ESRC Data Archive, University of Essex, Wivenhoe Park, Colchester, Essex CO4 3SQ (Tel: 0206 872001).

P C CLARKE
Department of Health,
Skipton House,
London SE1 6LW

- 1 White A, Freeth S, O'Brien M. *Infant feeding 1990*. London: HMSO, 1992.

BOOK REVIEWS

ABC of One to Seven. 3rd Ed. By H B Valman. (Pp 144; £8.95 paperback.) BMJ Publishing Group, 1993. ISBN 0-7279-0768-9.

This book aims to be a practical guide to paediatrics for GPs, medical students, vocational trainees, nurses, and midwives. Based on a series of *BMJ* articles and first published in 1982 it has achieved deserved popularity because it is easy to read, profusely illustrated, and memorable. It packs most of the important topics of primary care paediatrics into its 144 pages.

The third edition has a new chapter on audit, examples of pamphlets for parents, and forms for recording results of child health surveillance, as well as revisions of several chapters. Many paediatricians would not, I think, agree that swimming should be avoided after insertion of grommets, or that steam inhalation often helps acute stridor. The statement that children with epilepsy should not ride a bicycle on the open road is at odds with the advice of the British Epilepsy Association. The emphasis on admission to hospital in the management of child abuse is surprising in the light of current practice and the Children Act.

This is a shame because many chapters are well written, informative, and up to date. Asthma, urinary tract infection, abdominal pain, minor orthopaedic problems, and sleep and behaviour problems are all well covered with plenty of sound commonsense advice – for parents as well as practitioners.

The four chapters on services for children, in primary care, the community, outpatient clinics and day care, in accident and emergency departments, and finally in hospital clearly describe the respective roles of each part of the service and offer models of good practice.

This ABC will continue to attract a wide readership simply because it is readable, cheap, and deals with common paediatric problems in a practical way. Its A4 size makes it a difficult book to handle as a study or bedtime read. It is more likely to be found on the mess coffee table where it will attract the passing trainee with a few minutes to spare while waiting for the next patient or episode of *Neighbours*. With any luck the author's evident enthusiasm will encourage him to read on.

K L DODD
Consultant paediatrician

Phototherapy. Treating Neonatal Jaundice with Visible Light. Edited by K Jährig, D Jährig, and P Meisel. (Pp 193; £35 hardback.) Quintessence Publishing Co Ltd, 1993. ISBN 3-86128-113-9.

This is a rather unusual monograph devoted to phototherapy for neonatal jaundice. Its first edition appeared in 1980 and was written in German. This expanded version has both

German and English editions and the original authors from Greifswald (formerly East Germany) have been joined by two contributors from Italy and one from Norway. I am not sure who was responsible for the translation from German but 'it can thus be stated that every hyperbilirubinaemia is a condition requiring treatment and, apart from its aetiology, the only question to be discussed is the limits of the indication', needs some clarification.

The book is packed with information, some of which is useful and some much less so. Generally the clinical section is more helpful than basic physical principles, but the authors come over as dedicated advocates of phototherapy: 'phototherapy is recommended for infants with levels exceeding 10 mg/dl (170 µmol/l) up to the 5th day of life'. None of the 'lighter touch' here. 'To what extent bilirubin is of physiological importance as a scavenger of oxygen radicals in the neonatal period and whether it helps to prevent cerebral damage by oxygen radicals precisely during the treatment of newborns with hypoxia, is too speculative at present for any new therapeutic conclusions to be drawn from it'. In other words phototherapy is unlikely to be harmful so if in doubt treat. If the reader wants to obtain a flavour of the recommendations of this monograph he could turn to p 155-9; Summary: phototherapy in the approach to the treatment of neonatal jaundice.

Recommended for reference in the local medical library rather than to buy.

H L HALLIDAY
Consultant paediatrician

Pediatric Respiratory Disease. Diagnosis and Treatment. Edited by B Hilman. (Pp 953; £148 hardback.) Harcourt Brace Jovanovich, 1993. ISBN 0-7216-4683-2.

This is a major textbook on paediatric chest disease, of similar size to Kendig. There are 97 chapters and 127 contributors, all but two from North America. Chapters are grouped into sections. The first called 'general information' has five chapters: pulmonary mechanics, pulmonary defences, respiratory mucous, epidemiology, and self management programmes. The second considers evaluation and includes diagnostic methods. The last called 'management' includes chapters on environmental control, surgical procedures, ventilatory support and resuscitation, and several chapters on drug pharmacology. The remainder consider disease categories. Each section is amply supported by diagrams, graphs, tables, radiographs, lists, and drawings. References up to 1991 are in the Vancouver style.

One striking omission is the exclusion of the management of respiratory infection in the developing world. The World Health Organisation recently claimed that its much publicised acute respiratory infection programme has resulted in a 25% reduction in mortality. If true this huge advance in the care of respiratory disease in children is surely worth mentioning. Diphtheria, another major disease with a huge mortality, is not mentioned at all.

This textbook compares very well with Kendig, a valuable source of references and information. But should a textbook not also be a learning tool? The problem with texts written by so many authors is that while all