³ Cowen J, Ellis, McAinsh J. Absorption of chlorhexidine from the intact skin of newborn infants. *Arch Dis Child* 1979;54: 379-83.

M W QUINN and R M BINI
The Royal Liverpool Children's Hospital,
Myrtle Street,
Liverpool L7 7DG

Measles immunisation in atopic eczema

Sir,

Last year a communication from the Department of Health and Social Security indicated that there was an upsurge of measles notifications in early 1988 and emphasised that allergy to hens' egg is no longer considered to be a contraindication to measles immunisation unless associated with an anaphylactoid reaction.¹ This specific contraindication also applies to the MMR vaccination.²

In 1984/1985 we performed a questionnaire study of all children with atopic eczema who had attended a dermatology clinic at the Hospital for Sick Children, Great Ormond Street, at any time in the previous four years. Questionnaires were also answered by non-eczematous controls matched for age and social class. There was an 82.7% response with 128 cases and 117 controls out of a total of 148 pairs of questionnaires. Measles immunisation had been withheld for inappropriate reasons from 28.9% of the eczematous children and 2.6% of controls.

Although this questionnaire response reflects attitudes

among health professionals in the early 1980s it is our impression that a considerable number of atopic children, particularly those with atopic eczema and those with a vague and unsubstantiated history of egg allergy, are still inappropriately denied immunisation. Approximately 10% of children will experience atopic eczema at some stage in their childhood and there is evidence that this is increasing.³ Uncertainty in the profession as to the contraindications to immunisation in this group may adversely affect the immunisation rate for the population as a whole. We welcome the latest attempts by the Department of Health and Social Security to clarify this issue.

References

- 1 Department of Health and Social Security. *Upsurge of measles in 1988*. London: DHSS, June 1988. (PL/CMO (88) 17; PL/CNO (88)9.)
- 2 Department of Health and Social Security. *Immunisation against infectious disease*. London: HMSO, 1988: 59-63.
- 3 Taylor B, Wadsworth J, Wadsworth M, Peckham C. Changes in the reported prevalence of childhood eczema since the 1939-45 war. *Lancet* 1984; ii: 1255-7.

M G PIKE, R G CARPENTER,* C L CHANG,* and
D J ATHERTON
Hospital for Sick Children,
Great Ormond Street,
London WC1N 3JH
*Department of Medical Statistics,
London School of Hygiene and Tropical Medicine,
Keppel Street,
London WC1E 7HT

Neonatology—then and now (C H M Walker)

Monitoring blood oxygen (1957)

Blood oxygen studies in premature infants

PATRICIA M RUSSELL AND F P HUDSON

Walton Hospital and Department of Child Health, University of Liverpool (*Arch Dis Child* 1957;32:392-6)

In the early 1950s there was some debate as to whether the lower and variable oxygen saturations observed in premature babies were of importance and whether or not they required correction. The observation that the irregular (periodic) respirations of premature babies became regular when they were given oxygen was observed personally (CHMW) even in babies born at full term in the Mile High City of Denver, Colorado. The respiratory mechanisms of some of the latter apparently respond to the lower ambient partial pressures of oxygen at altitudes of 5000 feet just as do preterm babies at lower altitudes.

The purpose of this study was therefore to measure the effect of administering 55-60% oxygen to premature babies for one hour. The birth weights of these babies were not given but it is presumed that they were below 2500 g. While PO₂ 'in the lung' (presumably alveolar air) was used in calculations of dissolved oxygen, arterial PO₂ could not be measured in small volumes of blood and all estimations in those days were in terms of percentage saturation and content in volumes percent. As might be expected increases in saturation (up to 105%) and content (up to 31 volumes %) were observed even with as little as 55-60% oxygen.

But there was an interesting conclusion:

'There was, however, no indication that prolonged oxygen therapy was needed by any of the infants at the time they were being studied. It is unlikely that the routine study of blood oxygen levels of healthy premature babies would assist in their general management.'

This is not to say that vigilance was disregarded but gone are the days (not that we ever had them in the United Kingdom) when one saw as I did in 1964 in the 'preme' nursery of the celebrated Clement Smith in Boston, a nurse sitting at almost every incubator watching for signs of apnoea and hypoxia.

Today It is intriguing to find that after many years of being 'lost in the wilderness' oxygen saturation, now measured by means of the pulse oximeter, has returned as an additional means of controlling oxygen treatment.¹ The technology for the measurement of oxygen saturation in babies by surface oximetry was, of course, quite far advanced even in the 1950s but seemed to be overtaken by that of partial pressures and 'laid aside'. But how attitudes to monitoring have changed. Indeed, the conclusion of this 1957 paper is rather strange because the link between retrolental fibroplasia and oxygen treatment had already been recognised. It is likely, however, that most babies who weighed less than 1500 g at birth died, and many of the more mature who survived were indeed 'healthy'.

The problem today is seldom one of administering too little oxygen but rather of exposing the infant to too much. Despite the wonders of modern monitoring equipment, wide fluctuations cannot be totally avoided: sudden blockage or displacement of tubes, pneumothoraces, segmental collapse, and so on, must expose the infant even temporarily to fall and rebound in oxygen supply to brain, eye, gut, and myocardium—all of which react in their own way.

Hindsight makes it easy to criticise but, of course, we

now regard monitoring blood gases as essential management, though unfortunately in the 'healthy' preterm baby it is now almost as much for medicolegal protection as it is for the benefit of the baby. Are the frequent assays now performed always necessary and in the best interests of infants who require frequent 'top up' transfusions caused at least in part by iatrogenic blood loss?²

Unfortunately non-invasive methods have come to our rescue only to a limited extent, and the wide ranging biochemical monitoring now practiced will be with us for a long time to come. So frequent 'top up' transfusions—that are not entirely free from haemodynamic or infectious complications—will continue. As long as litigation hangs over the head of the neonatologist frequent blood oxygen (and other) measurements in preterm infants, healthy or otherwise, will remain mandatory.

References

- ¹ Dear PRF. Monitoring oxygen in the newborn: saturation or partial pressure. *Arch Dis Child* 1987;**62**:879–81.
- ² Robertson NRC. Top up transfusion in neonates. *Arch Dis Child* 1987;**62**:984–6.

Frederick Hudson qualified in Glasgow (1937) and after early hospital appointments in England served as a medical specialist in the Royal Army Medical Corps during the second World War. After demobilisation he became clinical tutor at the Royal Hospital for Sick Children in Edinburgh and in 1947 was appointed consultant at the Alder Hey, Royal Liverpool Babies' and Walton Maternity Hospital, and later Clinical Tutor in Child Health at the University of Liverpool. He established a special care baby unit at the Walton and his studies and publications included work on oxygen saturation, Vitamin K, convulsions, and galactosaemia. He had a particular interest in metabolic disorders and as well as starting a children's diabetic clinic at the Alder Hey he became director of the Medical Research Council/Department of Health and Social Security Phenylketonuria Registry (UK) and founder member and later president (1972–74) of the Society for the Study of Inborn Errors of Metabolism.