

NAI than reflex anal dilatation is of child sexual abuse.<sup>3</sup>

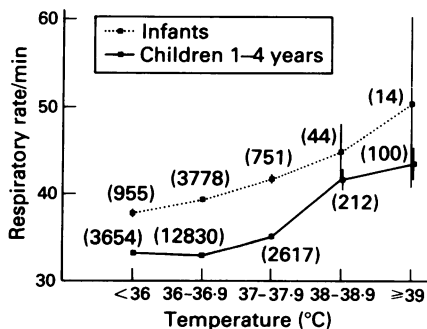
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- 1 Speight N. ABC of child abuse: non-accidental injury. *BMJ* 1989;298:879-81.
- 2 Forfar J, Arneil G. *Textbook of paediatrics*. Vol 2. Edinburgh: Churchill Livingstone, 1984:1899.
- 3 Bamford F, Roberts R. ABC of child abuse: child sexual abuse II. *BMJ* 1989;299:377-82.

### Effects of body temperature on respiratory rate in young children

SIR,—Dr Simoes and colleagues have reported studies of variability in measurements of respiratory rate in young American children, but did not consider possible effects of body temperature on these measurements.<sup>1</sup> Previous work suggested a weak association between body temperature and respiratory rate in young infants studied in Australia and Britain.<sup>2</sup> Current World Health Organisation guidelines for the management of acute respiratory infections in children recommend that young children with cough or difficult breathing and raised respiratory rate should be treated for pneumonia irrespective of temperature.

In a community study of acute respiratory infections undertaken at the MRC Laboratories in the Gambia, weekly measurements of temperature and respiratory rate were made on a population including approximately 500 children under the age of 5 years, over a one year period. This study is described in detail elsewhere.<sup>3</sup> Although these repeated observations are technically not independent, we consider that measurements of respiratory rate and temperature carried out not more than once weekly on a young child may reasonably be assumed to be independent. A total of 25 025 observations on 685 young children were made. In 70 instances abnormalities on chest radiography were found and these observations have been excluded from the following analysis. The relationships between temperature and respiratory rate for infants (5542 observations), and for children aged 1 to 4 years (19 413 observations), are shown in the figure. In both groups, mean respiratory rate shows a steady increase with increasing temperature of approximately 2.5 min °C over the temperature range shown. A similar analysis restricted to children with cough (2537 observations) showed a similar relationship (data not shown).



Relationships between respiratory rate and temperature in young Gambian children. Vertical bars represent 95% confidence intervals of the mean, and numbers of observations for each point are shown in parentheses.

The data presented, in accordance with experimental results on the effects of temperature on breathing,<sup>4</sup> suggest that raised respiratory rates may be partly attributable to increases in body temperature. We earlier reported that in children with cough or difficult breathing respiratory rate is a valid predictor of the presence of clinical or radiological pneumonia.<sup>3</sup> The findings presented here do not challenge this, but they suggest that this relationship between fever and respiratory rate may account for some of the false positive diagnoses of pneumonia in children with cough or difficult breathing, fever and raised respiratory rate. This issue may be of particular importance in areas in which malaria is prevalent as it has been shown that there may be a very substantial overlap of clinical presentation in children with malaria and pneumonia.<sup>5</sup> The possible effect of this phenomenon on the specificity of raised respiratory rate as an indicator for pneumonia needs further investigation.

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- 1 Simoes EAF, Roark R, Berman S, Esler LL, Murphy J. Respiratory rate: measurement of variability over time and accuracy at different counting periods. *Arch Dis Child* 1991;66:1199-203.
- 2 Morley CJ, Thornton AJ, Fowler MA, Cole TJ, Hewson PH. Respiratory rate and severity of illness in babies under 6 months old. *Arch Dis Child* 1990;65:834-7.
- 3 Campbell H, Byass P, Lamont AC, et al. Assessment of clinical criteria for identification of severe acute lower respiratory tract infections in children. *Lancet* 1989;i:297-9.
- 4 Cooper KB, Veale WL. Effects of temperature on breathing. In: Fenn WO, Rahn H, eds. *Handbook of physiology. Section 3: respiration*. Vol II. Washington DC: American Physiology Society, 1965:691-702.
- 5 Bloland PB, Redd SC, Kazembe P, et al. Cotrimoxazole for childhood febrile illness in malaria-endemic regions. *Lancet* 1991;337:518-20.

### Consumer safety and child choking attacks

SIR,—From time to time you publish letters which do not have any direct relevance to immediate past publications and it would be helpful if such letters indicated their origin. One such letter recently published gives no explanation as to why Drs Matthes, Sibert, and Levene were concerned about possible inhalation of foreign bodies from toys.<sup>1</sup> Those paediatricians who help local authority consumer protection departments by assessing or commenting on the safety of toys will be aware there has been a recent increase in the vigilance of trading standards officers regarding choking hazards to children because of a number of deaths. Dr Levene chaired a working party under the auspices of the Child Accident Prevention Trust, which found little published evidence of any serious hazard from the inhalation or ingestion of hair plucked from toys.<sup>2</sup> This report is being used by manufacturers to defend their products against legal action even though safer alternative materials are available.

The recent letter refers to a survey of paediatricians and ear, nose, and throat surgeons throughout Wales seeking to identify their awareness of choking hazards to young children from hair or other small objects. It is

gratifying that they knew of no such hazard but we suggest that the wrong people were asked the wrong questions. The children who died in Leeds (from obstructive inhalation after ingestion of hair from a toy donkey) and in Birmingham (after inhalation of a small piece of plastic from inside a novelty chocolate egg) were unknown to paediatricians or ear, nose, and throat surgeons because casualty doctors and pathologists dealt with them.

Life is full of hazards and it would be impossible to ever legislate them all away. Even if this could be done it would then so grossly distort normal childhood experience as to be unacceptable. There are, however, measures that can be taken to control unnecessary hazards and we are of the opinion that inappropriately long hair that is inadequately fixed to a fur fabric is not suitable for the exterior decoration of any toy. It is to be expected that young children will pluck or suck the hair and may then inhale or ingest with the risk of asphyxiation or bezoar formation. Small pieces of plastic that may occlude the airway are also inappropriate in toys intended for young children.

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- 1 Matthes J, Sibert J, Levene S. Children choking on foreign bodies from toys. *Arch Dis Child* 1991;66:1104.
- 2 Levene S. *Hair on toys—what is the hazard?* London: Child Accident Prevention Trust, 1988.

### Coroners' records of accidental deaths

SIR,—Dr Levene has demonstrated the potential of using coroners' records as a source of data relevant to child accident prevention studies.<sup>1</sup> In a similar retrospective study in this district using the coroner's records we discovered 69 children aged under 15 years who had died as a result of an accident between the years 1980-9 inclusive. Road traffic accidents represented the commonest fatal accident with falls, drownings, and asphyxia accounting for the remainder. Head injury was the commonest reported cause of death. Most deaths occurred within 2 km of the child's home while children were playing without supervision. We encountered an association between social class and incidence of accidents with 10 times as many accidents occurring in classes IV and V than in I and II. There was, in addition, a clustering of cases in areas with high deprivation scores.

This information was of great use to us in planning local child accident prevention strategy as it enabled us to target limited resources to areas where they were needed most. However, as in Dr Levene's case, we were made aware of the limitations of using coroner's records alone for this purpose. We discovered that inquisitions relate to deaths occurring to children who died within the boundaries of our district only. During the period of our study we became aware that several local children had died while visiting other districts but this information would not