Incidence and prevalence of non-specific symptoms and behavioural changes in infants under the age of two years

CHARLES O HOLME

SUMMARY

Background. The incidence and prevalence of non-specific symptoms in a group of normally healthy infants have not previously been investigated. The relationship of such symptoms to the risk of sudden unexplained infant death has been explored.
Aim. This study set out to assess the usually unreported minor morbidity occurring in infants under the age of two years in a defined community.
Method. Diary cards were completed by mothers for 323 infants on a daily basis for up to two years from birth. Analysis of the diary card data allowed the incidence and prevalence of behavioural changes and non-specific symptoms to be determined, together with the duration of the episodes of symptoms and the frequency and timing of consultations with health visitors and doctors.
Results. Non-specific symptoms and behavioural changes occurred commonly in this age group. Upper respiratory symptoms were especially prevalent. Episodes of symptoms relating to particular body systems tended to be of longer duration while behavioural changes tended to be of shorter duration. Parents managed 67% to 99% of infants' health problems without requiring a consultation. Parents often delayed four or five days before consulting their doctor for symptoms in conditions which could be judged to be 'normal' for the child such as some respiratory conditions, but behavioural changes and fever led to consultations on the second day on average.
Conclusion. The prevalence of the symptoms reported here should provide the setting for any discussion of their use as indicators of serious illness in infancy or the risk of sudden unexplained infant death.

Keywords: symptoms [disease]; child behaviour; morbidity risk factors; mortality risk factors; infants.

Introduction

IN 1985 Valman suggested four 'undoubtedly sinister' symptoms that could presage an increased risk of sudden unexplained infant death.[1] These symptoms were fast or noisy breathing, poor feeding, drowsiness and irritability. General practitioners have declared these symptoms to be common and to be usually associated with minor self-limiting illnesses.[2,3] They, therefore could not be used as predictors of a serious outcome.[4]

In the first six months of life there is an increased incidence of illness and sudden unexpected death compared with later in infancy.[5] Symptoms and behavioural changes arising in this age group may be difficult to recognize.[6] The incidence and prevalence of many symptoms in infants have not been investigated.[1]

C O Holme, MD, MRCP, DCH, consultant paediatrician, Salisbury District Hospital.

No prospective study has been undertaken to determine the occurrence of non-specific symptoms in a group of normally healthy infants. The relationship of such symptoms to the risk of sudden unexplained infant death has been explored,[6-9] and scoring systems based on non-specific symptoms and signs have been used to assess illness in young infants.[10] The present study was based on parents' diary card entries and was designed to assess the usually unreported minor morbidity occurring in infants under the age of two years in a defined community. The aim of the study was to determine the incidence and prevalence of episodes of non-specific symptoms and behavioural changes, and where consultations with medical staff occurred, the duration of symptoms before advice was sought.

Method

A pilot study carried out with the parents of 30 infants demonstrated the feasibility of undertaking a diary card survey of minor symptoms occurring in children under the age of two years. Subjects for the main study were recruited from a mixed urban and rural area (Wells, Somerset), population 17 500, covered by two neighbouring general medical practices. Over a two year period (January 1987 to January 1989), invitations to participate in the study were extended to all of 333 newly delivered mothers. Two women refused to participate and registration details were taken from the remaining 331 by the study assistant. At the registration interview, details of the infant and of the family composition were recorded. The infant's intended feeding pattern until weaning was noted. Each mother was requested to continue diary card surveillance for two years.

The symptoms under study were those investigated by Stanton and colleagues,[7] with some modifications, and they are shown with the accompanying definitions in Appendix 1. Each diary card displayed the 15 possible symptoms or behavioural changes on a daily record system for a month. During the registration interview, the study assistant explained the symptoms under surveillance to the parents, and demonstrated that a structured diary card system was the most efficient method of recording information on a daily basis.[11-13]

Mothers were encouraged to keep the diary cards in an easily accessible situation. Each evening, if the child had exhibited one or more of the listed symptoms in the previous 24 hours, a diagonal line was drawn in the square on the card for that symptom on that day. Should the health visitor or doctor have been consulted for a particular symptom, either by telephone or in person, then an H or D was also entered.

Every three months, new diary cards were exchanged for completed ones, and at the same time, or more often if necessary, support and advice were given to the mothers by the study assistant. Mothers were asked about the duration of breast feeding and the age of weaning of both breast and bottle fed infants at a brief review interview with the study assistant when the infants were aged 12 months.

Some minor symptoms or behavioural changes became part of a baby's 'normal' state. Symptoms such as persistent snuffles, rashes or prolonged crying may have been entered on diary cards for many days at a time. A notional limit of 99 days was set for

the duration of symptoms, any symptoms lasting longer were divided into sections of 99 days or less.

To investigate intra- and inter-observer variation in the parental perception of symptoms, a short videorecording of an infant with acute respiratory symptoms was shown to the same group of 10 of the 331 mothers on two occasions one month apart. Their diary card entries for the two film viewings were then compared. All of the mothers made appropriate, consistent entries on the two occasions except for one who recorded two extra symptoms at the first viewing.

At the completion of this study, the medical and health visitor records of each child were searched to detect any illnesses which had led to consultations, but where the parents had made no diary card entries. If a non-specific symptom had been a presenting feature of the illness, as noted by professional staff, a retrospective diary card entry was made for that symptom on one day only.

Analysis

Non-attributable data from the registration interview, the diary cards and health visitor and general practitioner notes were entered on to a personal computer using a *DBASE 3* software programme. Mean incidences and prevalences over 100 days were calculated for each symptom. For the effects on prevalences of the different factors under study, 95% confidence intervals for the differences between two proportions were calculated.

Results

Study population

The sex ratio of the 333 infants entering the study was male: female, 1: 1.03 (there were two twin deliveries and no neonatal deaths). During the 24-month recruitment period there were slight increases in birth rates in the second and fourth quarters of the two years — 77 births were recorded in the months of January to March, 89 in April to June, 76 in July to September and 91 in October to December.

The mean age of the 331 mothers was 28 years (range 16–44 years) and of the 331 fathers 31 years (range 17–55 years). The present or past occupation of each parent was graded according to the Registrar General's classification:[14] 19.2% of the 662 parents were in classes 1 and 2, 29.9% in 3N, 24.2% in 3M, and 26.7% in 4 and 5. In 40.5% of the 331 families there were no previous children, in 39.6% there was one previous child, and in 19.9% two or more previous children. Of the 197 families with at least one previous child, 17.3% had a one year gap between the child under surveillance and the next sibling, 27.9% had a two year gap, 15.2% had a three year gap, and the remaining 39.6% had a four year gap or more (range 1–23 years gap).

Of 331 householders 71.6% owned their own property, 26.0% rented and 2.4% were in shared or temporary accommodation. For those in permanent housing (323 families), 94 families (29.1%) lived in detached houses or bungalows, 223 (69.0%) lived in terraced or semi-detatched houses and six (1.9%) in flats.

Of the 662 parents 29.9% were smokers. Of the 331 families in the study 15.4% had no immediate access to a telephone, and 66.8% kept pets.

Initially, 71.0% of the 331 mothers breast fed, decreasing to 48.9% at four months and 22.8% at eight months. For all those mothers who breast fed for at least one month the median duration of breast feeding was 7.9 months (range 1–18 months), and the median age for weaning of both breast and bottle fed infants was 2.8 months.

Data on immunizations administered were obtained from as many general practice records as possible. In the area covered by the two medical practices in the study, the average immunization rates were 95% for diphtheria, tetanus and poliomyelitis, 96% for pertussis, and 96% for measles, mumps and rubella vaccine. Because of the early cessation of surveillance of some infants in the study, and the moves of some families away from the area, data on the immunization state of 54 infants (16.2% of the sample) were not available.

Characteristics of those excluded from analysis

Ten mothers failed to proceed with the completion of diary cards after the initial registration interview. The mean age of this group of mothers was 27 years (range 17–36 years) and one was in social class 2, four 3N, and five 4. In six of the 10 households, at least one parent smoked. Of the 10 infants, nine were female.

In addition, one infant died at the age of eight months in a road traffic accident, and another developed severe viral encephalitis at the age of 14 months and no further diary card and surveillance was carried out.

Sixteen families moved away from the study area during the survey, but six mothers continued to return diary cards by post after their move. The data from these cases represent events occurring at the same time as other symptoms noted in this study, but in different geographical locations. Contact with the health visitors and general practitioners could not be determined from the records for three of these infants.

The exclusion of some diary card information from these 22 cases resulted in the loss of an estimated 11 500 possible 'child days' of observations.

Diary card information

At least 23 months of diary card information was returned for 283 infants, and the mean surveillance period for the sample was 22 months, representing a completion rate of 91.1% on the possible return of diary cards. Under-reporting by parents, which was assessed by determining the number of symptoms recorded retrospectively on the diary cards at completion of the study, occurred in 2.5% of 8964 symptoms recorded in the infants' first year of life and 2.1% of 6299 in the second year.

In the analysis of diary card data, the incidence of each symptom was expressed as the number of new occurrences arising per 100 days, and the prevalence as the number of child days affected per 100 days at risk. Table 1 shows the incidence and prevalence of each symptom as means for the four years of the study. Upper respiratory tract symptoms showed the highest incidence and prevalence with cold, snuffles or sneezing being present on 9.5 days of every 100 child days of observation. Irritability and rashes were the next most prevelant. Frequent or painful passage of urine was rarely recorded by parents. The prevalence and incidence were also expressed excluding all symptoms which lasted for 30–99 days, and all symptoms recorded retrospectively (total number of symptom occurrences excluded was 477). These figures represent the parental record of acute and medium term symptoms in the sample population and show slight falls in the incidence and prevalence of respiratory symptoms and rashes compared with the inclusive figures.

The prevalences of each of the 15 symptoms were then examined for any changes imposed by the sex of the infant, season of birth, parents' ages, parents' socioeconomic class, the age gap to next sibling, the number of siblings, breast feeding, the age of weaning, parental smoking, recent routine immunization, the possession of pets, the type of housing (house, bungalow, flat or temporary/caravan), and whether accommodation was owned or rented. The effects of these 13 family or social factors on the 15 symptoms were assessed by 195 significance tests. Ten tests would be expected to be significant at the 5% level and two at the 1% level. However, significant results as determined by 95% confidence intervals for the differences between two proportions

Table 1. Incidence and prevalence of non-specific symptoms among 323 infants over the four year study period.

Symptom	Mean incidence (per 100 days)	Mean incidence with exclusions[a]	Mean prevalence (per 100 child days)	Mean prevalence with exclusions[a]
Cold, snuffles or sneezing (n = 3455)	1.6	1.5	9.5	8.6
Wheeze, noisy or altered breathing (n = 1003)	0.5	0.5	2.0	1.8
Cough (n = 1896)	0.9	0.8	4.8	4.2
Unusual drowsiness (n = 426)	0.2	0.2	0.4	0.4
Irritability or excessive crying (n = 1715)	0.8	0.8	2.2	2.0
Altered character to cry (n = 303)	0.1	0.1	0.3	0.3
Single missed feed in one day (n = 512)	0.2	0.2	0.7	0.6
Off feeds, or having difficulty with feeds (n = 1028)	0.5	0.5	1.7	1.5
Single vomit in one day (n = 1082)	0.5	0.5	0.7	0.7
Vomiting (n = 731)	0.3	0.3	0.8	0.7
Diarrhoea (n = 826)	0.4	0.4	1.2	1.1
No bowel action for more than two days (n = 378)	0.2	0.2	0.4	0.3
Rash (n = 1206)	0.5	0.5	2.7	2.2
Fever or excessive sweating (n = 664)	0.3	0.3	0.8	0.7
Frequent or painful passage of urine (n = 38)	0	0	0.1	0.1

n = total number of times symptom recorded, including symptoms lasting for 30–99 days and those recorded retrospectively. [a]Excluding all symptoms which lasted for 30–99 days, and those recorded retrospectively.

were obtained for six comparisons only, and these are shown in Table 2.

Excluding symptoms which lasted for 30–99 days and those recorded retrospectively, the duration of new occurrences was determined for each symptom (Table 3). The skewed nature of the distribution curve precluded the use of mean values as measures of location in the distribution, and so medians (calculated as half the area under the graph) and modes were employed, together with the 75th centiles. Table 3 shows that parents managed the care of 66.8%–99.0% of symptoms without consulting general practitioners or health visitors. Consultations for minor behavioural changes were rare; rashes, respiratory symptoms and fever were the most common causes of consultation. The ranges of median values of durations of symptoms are compared with the corresponding values for durations of symptoms when general practitioners or health visitor consultations were requested.

Discussion

Parents, especially mothers, are the primary carers of sick chil-

dren. Having some idea of the concept of normal health, parents will usually respond to warning signs of illness. In the family setting, ill health may be recognized by tokens very different from those taught in medical school. Parents may use phrases such as 'his eyes aren't right', 'she isn't herself, it's not like her', or 'she isn't sleeping properly'. These may be behavioural changes rather than symptoms, and mothers can use these changes, or cues, as sensitive markers of illness in children.[15] Alternatively, the initial symptom of a serious illness may be regarded as commonplace occurrences, owing for example, to a 'cold' or 'teething'; this has been described as 'normalization' by Davis[16] and Field.[17]

Mothers may judge changes of behaviour as potential precursors to illness, but decide to await events. Home remedies may be used, or advice sought from relatives, as soon as symptoms appear. A consultation with medical staff might occur only if the symptom did not improve. The decision making process taken by parents before seeking a medical consultation has been discussed by various authors.[13,18,19]

There is a dearth of accurate data on the incidence and severity

Table 2. Effects on symptom prevalence of family and social factors.

Symptom	Family or social factor	No. of infants in group	No. of days surveyed	Prevalence	Difference	Standard error of difference (95% CI)
Cold, snuffles or sneezing	*Number of siblings*					
	0	130	90 133	7.6	3.1	1.2 (0.7 to 5.5)
	1+	193	131 305	10.7		
	Age gap to next sibling					
	None	130	90 133	7.6	5.0	2.0 (1.1 to 8.8)
	2 years	55	34 713	12.6		
	Breast fed					
	Yes	232	156 900	10.2	2.7	1.3 (0.1 to 5.2)
	No	91	64 538	7.6		
Single missed feed in one day	*Father's occupation*					
	Classes 1,2	80	53 433	0.2	2.1	0.8 (0.6 to 3.5)
	Classes 4,5	65	41 178	2.2		
	Mother's occupation					
	Classes 1,2	47	32 583	0.1	1.2	0.5 (0.3 to 2.1)
	Classes 4,5	115	75 397	1.3		
	Accommodation					
	Owned	233	161 905	0.4	1.2	0.5 (0.2 to 2.3)
	Rented	90	59 533	1.6		

CI = confidence interval.

Table 3. Duration of episodes of symptoms, duration before consultation, and percentage of episodes not requiring consultations.

Symptom	% of episodes with no consultation with GP or HV	Median duration of episode (days)		75th centile for duration of episode for all symptoms (days)	Modal duration of episode before consultation (days)	
		All symptoms	Symptoms resulting in consultation with GP or HV		Health visitor	General practitioner
Cold, snuffles or sneezing (n = 3320)	81.3	4.1	5.2	11.5	5	4
Wheeze, noisy or altered breathing (n = 990)	87.3	2.6	3.5	8.2	3	4
Cough (n = 1820)	82.2	3.4	5.0	10.9	5	5
Unusual drowsiness (n = 425)	93.4	1.0	2.5	4.1	0	2
Irritability or excessive crying (n = 1684)	92.0	1.4	2.7	5.6	3	3
Altered character to cry (n = 303)	95.7	1.2	1.5	5.7	0	2
Single missed feed in one day (n = 506)	99.0	0.9	1.7	11.7	0	2
Off feeds or having difficulty with feeds (n = 1019)	95.8	2.0	2.4	7.0	1	2
Single vomit in one day (n = 1076)	97.6	0.6	0.8	2.0	1	2
Vomiting (n = 718)	86.5	0.8	2.2	5.5	4	3
Diarrhoea (n = 806)	84.0	1.8	3.5	6.1	4	4
No bowel action for more than two days (n = 372)	93.4	0.9	2.7	3.6	0	3
Rash (n = 1057)	66.8	2.6	2.9	12.9	5	4
Fever or excessive sweating (n = 654)	82.8	1.6	2.0	4.0	2	2
Frequent or painful passage of urine (n = 36)	86.8	2.1	1.5	4.0	0	2

n = total number of episodes of symptom, excluding symptoms which lasted for 30 – 99 days and those recorded retrospectively. GP = general practitioner. HV = health visitor.

of non-specific symptoms in the community. Case control comparisons in sudden infant death studies have used small numbers of controls with ill-defined symptoms of unknown severity and duration.[8,20] In studies of infants' symptoms in general practice, information has been collected from unwell infants who presented for consultation,[3,21] and in one survey, mother were questioned retrospectively about their children's illnesses.[4]

Prior to this study the most accurate measures of underlying non-specific morbidity were those obtained by Stanton and colleagues in their control series,[8] and by Morley and colleagues in the development of an illness scoring system.[22] However, comparison of the results of these two studies with the results of the present survey is difficult because of the lack of common definitions of symptoms.

Diary cards, as used in this study, have advantages over interview techniques that rely on recall. Retrospective interviews do not permit accurate distinction as to whether reported symptoms preceded a decision making process or not. Diaries provide a time frame, in the family context, for the development of the various components of an illness, and are especially valuable for recording symptoms that do not require medical attention. Doctors' records are a more reliable source of information for the utilization of services, for example, hospitalization,[11] and diary card entries may be inaccurate if written retrospectively by parents.

The proportion of houseowners in the initial study sample (72%) was higher than the figure for the local authority area of 63%.[23] There was a higher proportion of skilled non-manual workers among the parents in the study, and a lower proportion of managerial and professional workers,[23] otherwise the characteristics of this sample of young families was considered represents-

entative of the local authority area as a whole.

Through the use of parent-held diary cards, this study has shown that non-specific symptoms and behavioural changes occur commonly in the community. Upper respiratory tract symptoms are especially prevalent, and parents appear likely to judge a proportion of these to be part of their child's normal state.

The prevalence of upper respiratory symptoms was increased if the infant was not a singleton, and separately if there was a two year gap to the next child in the family. Breast feeding appeared to be linked to increased reporting of upper respiratory symptoms. No other family or social factors had any effect on the occurrence of symptoms, except for an increased tendency for children in social classes 4 and 5, and those in rented accommodation, to miss a single feed in one day. Feeding, family and environmental factors had fewer effects than expected statistically on the occurrences of individual symptoms.

No previous study has examined the duration of individual non-specific symptoms from diary card information. Episodes of symptoms relating to particular body systems (the respiratory tract, the genitourinary tract and the skin) tended to be of longer duration, drowsiness and irritability tended to be short-term changes in behaviour. The 75th centile on the distribution curve for each set of symptom durations demonstrates the time in which three quarters of cases of the reported symptom can be expected to be resolved. This may be useful information for primary health care workers when they discuss with parents the natural history of many minor complaints in infancy.

Many symptoms which resulted in consultations with general practitioners or health visitors showed median values of duration of at least a day more than the median for all symptoms. The

exceptions to this finding were an altered character to cry, off feeds, a single vomit in one day, rash, fever and pain on passing urine.

Although they sought advice frequently for the symptoms studied here, parents often delayed consulting their general practitioner until the fourth or fifth day of the symptom in conditions which could be judged to be 'normal' for the child such as some respiratory, gastrointestinal, or skin conditions. Behavioural changes such as drowsiness and being off feeds led to consultations on the second day on average; fever, a frequent cause of parental concern,[24] likewise was reported on the second day.

Parents managed the care of 67% to 99% of infants' health problems, depending on the symptom, without requiring a consultation. Spencer found that professional help was not needed on 83% of days when the symptoms under surveillance were present,[19] whereas Pattison and colleagues quote the higher figure of 94%.[13]

This study has shown that non-specific symptoms and behavioural changes in infants occur commonly. The prevalence of these symptoms should provide the setting for any discussion of their use as indicators of serious illness in infancy or the risk of sudden unexplained infant death.

Appendix 1. Symptoms and behavioural changes investigated, with definitions used.

● *Cold, snuffles or sneezing*
A change in the state of the upper respiratory tract, bearing in mind that the normal infant often has a snuffly nose when well. A noticeable increase in upper airways secretions.
● *Wheeze, noisy or altered breathing*
An increase in the noise or rate of breathing, a change in the effort required for respiration, or a change in the character of breathing — either from upper or lower respiratory sources.
● *Cough*
An increase in cough, by day or by night, occurring continuously or spasmodically.
● *Unusual drowsiness*
A reduction in the state of alertness, demonstrated as increased lethargy or sleepiness, with reduced general activity.
● *Irritability or excessive crying*
An increase in the state of sensitivity, to the extent of being fractious, short tempered, or having prolonged bouts of crying.
● *Altered character to cry*
A change in the pitch, intensity or character of the cry.
● *Single missed feed in one day*
A refusal of one normally timed feed.
● *Off feeds or having difficulty with feeds*
A reduced food intake during 24 hours, affecting each normal feed.
● *Single vomit in one day*
A vomit containing gastric contents, and more than just a posset (curdled milk).
● *Vomiting*
More than one vomit in 24 hours.
● *Diarrhoea (more than three loose stools in one day)*
Some breast fed babies may have frequent loose stools when well. A change in the colour and/or consistency of the stool should be reported if a baby's normal habit was to pass three stools daily.
● *No bowel action for more than two days*
This may be normal bowel habit especially in breast fed babies, but mothers were requested to complete this section even if the infants were well.
● *Rash*
Any skin or mucous membrane eruptions from whatever cause.
● *Fever or excessive sweating*
A parental impression of fever would be adequate without the need to take the infant's temperature.
● *Frequent or painful passage of urine*
Urinary frequency without having had a recent fluid load, and/or pain on passage of urine, from whatever cause.

References

1. Valman B. Preventing infant deaths [editorial]. *BMJ* 1985; **290:** 339-340.

2. Grabinar J, Valentine J, Struthers J. Terminal symptoms in children dying suddenly and unexpectedly [letters]. *BMJ* 1978; **2:** 1430.
3. Thurtle OA, Cox P, Fall C, *et al.* Preventing infant deaths. *BMJ* 1985; **290:** 1434-1435.
4. Wilson AD, Downham MAPS, Forster DP. Acute illness in infants: a general practice study. *J R Coll Gen Pract* 1984; **34:** 155-159.
5. Morley CJ, Thornton AJ, Cole TJ, Hewson PH. Interpreting the symptoms and signs of illness in infants. In: David TJ (ed). *Recent advances in paediatrics.* Edinburgh: Churchill Livingstone, 1991.
6. Knowelden J, Keeling J, Nicholl JP. *A multicentre study of post neonatal mortality.* London: Department of Health and Social Security, 1985.
7. Stanton AN, Downham MAPS, Oakley JR. Controlled study of terminal symptoms and the action taken for them in the first 100 sudden unexpected home deaths in the DHSS multicentre study of post neonatal deaths. *Arch Dis Child* 1978; **53:** 834-835.
8. Stanton AN, Downham MAPS, Oakley JR, *et al.* Terminal symptoms in children dying suddenly and unexpectedly at home. *BMJ* 1978; **2:** 1249-1251.
9. Taylor EM, Emery JL. Categories of preventable unexpected infant deaths. *Arch Dis Child* 1990; **65:** 535-539.
10. Morley CJ, Thornton AJ, Cole TJ, *et al.* Baby check: a scoring system to grade the severity of acute systemic illness in babies under six months old. *Arch Dis Child* 1991; **66:** 100-106.
11. Roghmann KJ, Haggerty RJ. The diary as a research instrument in the study of health and illness behaviour. *Med Care* 1972; **10:** 143-163.
12. Freer CB. Health diaries: a method of collecting health information. *J R Coll Gen Pract* 1980; **30:** 279-282.
13. Pattison CJ, Drinkwater CK, Downham MAPS. Mothers' appreciation of their children's symptoms. *J R Coll Gen Pract* 1982; **32:** 149-162.
14. Office of Population Censuses and Surveys. *Classification of occupations.* London: HMSO, 1980.
15. Locker D. *Symptoms and illness.* London: Tavistock, 1981.
16. Davis F. *Passage through crises.* Indianapolis, IN: Bobbs-Merrill, 1963.
17. Field D. The social definition of illness. In: Tuckett D (ed). *An introduction to medical sociology.* London: Tavistock, 1976.
18. Stimson G, Webb B. *Going to see the doctor, the consultation process in general practice.* London: Routledge and Kegan Paul, 1975.
19. Spencer NJ. Parents recognition of the ill child. In: MacFarlane JA (ed). *Progress in child health.* Edinburgh: Churchill Livingstone, 1984.
20. Carpenter RG, Gardener A, Pursall E, *et al.* Identification of some infants at immediate risk of dying unexpectedly and justifying intensive study. *Lancet* 1979; **2:** 343-346.
21. Wright A, Luffingham GH, North D. Prospective study of symptoms and signs in acutely ill infants in general practice. *BMJ* 1987; **294:** 1661-1662.
22. Morley CJ, Thornton AJ, Cole TJ, *et al.* Symptoms and signs in babies under six months of age correlated with the severity of their illness. *Pediatrics* 1991; **88:** 1119-1124.
23. *Census 1981. County report, Somerset.* London: Government Statistical Service, 1981.
24. Schmitt BD. Fever phobia. *Am J Dis Child* 1980; **134:** 176-181.

Address for correspondence

Dr C O Holme, Department of Community Paediatrics, Salisbury District Hospital, Odstock, Salisbury SP2 8BJ.

Food for thought...

'The Iraqi occupation had been brutal and many Kuwaitis were still missing. Nevertheless, throughout the occupation, many family practitioners provided a clandestine medical service to the population from their own homes, often at great risk.'

Fraser RC. Developing family practice in Kuwait. James Mackenzie lecture 1994. February *Journal*, p.103.