

# Are child health surveillance reviews just routine examinations of normal children?

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## SUMMARY

**Background.** The provision and content of child health surveillance (CHS) has changed greatly since 1990. However, its value continues to be questioned. The introduction of the personal child health record (PCHR) has provided a new means of collecting data about CHS.

**Aim.** To identify what problems are recorded at CHS reviews in the PCHR during the first year of life, and what follow-up/referrals result directly from these reviews.

**Method.** A total of 28 practices were recruited from one health authority. All babies born to mothers registered with study practices during one year were followed up. Health visitors returned copies of CHS reviews recorded in children's PCHRs. Written comments on returned reviews were analysed.

**Results.** In all, 2308 babies were entered into the study and 2001 (87%) were followed up for one year. A total of 7848 (78%) CHS reviews were returned. Physical problems were recorded in 58% of children at the 10–14 day, 35% at the six to eight week, and 39% at the six to nine month review. Of physical problems recorded at CHS reviews, 30% required follow-up in primary care and 7% required referral to hospital. Other problems were recorded less frequently and health promotion was recorded at only 7.5% of CHS reviews.

**Conclusion.** Child health surveillance provides important opportunities to discuss problems that may cause parental concern and to identify children requiring treatment or follow-up. The design and use of the PCHR needs to change to reflect increasing emphasis on health promotion.

**Keywords:** child health surveillance; patient-held records; follow-up; prevention.

## Introduction

SINCE 1990, the majority of child health surveillance (CHS) has been provided in general practice and, in 1994, 94% of general practitioners (GPs) were registered for child health surveillance.<sup>1</sup> Also, the number and content of recommended CHS

reviews has reduced with the publication of successive Hall reports.<sup>2–4</sup> The effectiveness of CHS screening continues to be questioned,<sup>5,6</sup> yet CHS reviews offer an important opportunity to discuss other issues such as parental concerns and health promotion. In addition, they help to develop the relationship between families and the primary health care team.<sup>4,7,8</sup>

Since the changes to child health surveillance earlier this decade, little has been published about what is discussed at CHS reviews or what problems are identified.<sup>9</sup> The introduction of the personal child health record (PCHR)<sup>10</sup> has meant that CHS reviews should now be recorded in one record even if done by different primary care staff. Previous studies have shown completion of CHS reviews in the PCHR is very high.<sup>11,12</sup> Therefore, the PCHR is potentially a useful new data collection tool for investigating CHS.

Between 1993 and 1996 we evaluated CHS in Nottingham Health Authority. In this paper we examine the content of CHS in primary care during the first year of life by identifying what problems were recorded in the PCHR and what follow-up was recorded as resulting directly from CHS reviews.

## Method

The social and geographical characteristics of practices in Nottingham had previously been analysed using 1981 Census data and practice area, categorising them by 'social area'.<sup>13</sup> Initially, all 10 Nottingham practices involved in medical student teaching were contacted and five agreed to participate in the study. A further 30 practices were selected using a stratified random sample based on the social area categories, and 26 agreed to participate. One practice was excluded because a third of patients lived in an adjacent health authority, another because it did not provide CHS, and a third because the partnership disbanded during the first six months of the study.

All babies born between 1 September 1993 and 31 August 1994, to mothers registered with the remaining 28 practices, entered the study. We were notified of all births to mothers registered with study practices in the two Nottingham hospitals by University Hospital, and of any home births or births outside Nottingham by Nottingham Community Health National Health Service (NHS) Trust. During the study, health visitors attached to the study practices notified us of children who died or moved from the practices, these were then excluded.

The schedule of CHS reviews used in Nottingham<sup>14</sup> has a hip check at three to four months in addition to the reviews recommended in the third Hall report.<sup>4</sup> Each CHS review recorded in the PCHR has several self-carbonated copies. One copy of each CHS review, whoever it is completed by, is returned by health visitors to the Information Service Department of Nottingham Community NHS Trust. The CHS reviews of study children were then forwarded to us.

All legible comments on CHS reviews we received were entered onto a database (OMNIS 7). One doctor (AH) coded them using categories developed from the data and using the constant comparative method.<sup>15,16</sup> Problems recorded as already having been referred to hospital were coded separately from those that appeared to be new presentations at CHS reviews.

The study was approved by the local research ethics commit-

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tee. Data were analysed using SPSS 6.1. Chi squared and Mann-Whitney U tests of significance were used where appropriate.

## Results

### Study sample

The study practices were representative of all practices in Nottingham Health Authority for Jarman deprivation scores,<sup>17</sup> and for fundholding and single-handed practices. Study practices were more likely to be registered for CHS, as this was an inclusion criterion for participating in the study (28/28 versus 103/120,  $\chi^2 = 3.2$ ,  $P = 0.04$ ). They were also more likely to be involved in undergraduate or postgraduate medical teaching (15/28 versus 30/120,  $\chi^2 = 8.1$ ,  $P = 0.004$ ).

Between 1 September 1993 and 31 August 1994, 2308 babies were born to mothers registered with study practices. By the time of their six to nine month review, nine children had died and 298 (12.9%) had moved practice. Therefore, 2001 (86.7%) children were included in the study. The children who moved practice were more likely to have been registered at practices with higher Jarman scores (mean score = 14.8 versus 10.3,  $z = -4.69$ ,  $P = 0.0001$ ).

### Completeness of CHS review returns (Table 1)

We received 7848 (78.4%) copies of CHS reviews completed during the study children's first year of life. Of these, 7415 (94.5%) were completely legible. Most of the remainder contained only one item that was illegible, usually a number; for example, weight. Therefore, problems of legibility had minimal effect on the data presented here.

### What problems were recorded in the PCHR at CHS reviews? (Table 2)

The most frequently recorded problems in the PCHR were physi-

cal, with 31.8% of CHS reviews during the first year of life recording a physical problem. Table 3 shows the physical problems recorded at each CHS review. Skin rashes were most frequent, but 'sticky eyes', jaundice, and umbilical healing were also a cause for concern during the first six weeks of life.

### Recorded follow-up and referral of problems in primary care

Problems requiring follow-up in primary care were recorded on 981 (12.5%) CHS reviews. The reviews generating most GP follow-up were the six to eight week and six to nine month reviews. Most problems recorded as requiring health visitor follow-up were from the six to nine month review; the most common reason being failure of the distraction test.

Table 4 shows that physical problems accounted for most recorded referrals/follow-up by the primary care team. Of physical problems recorded on CHS reviews, 752 (30.1%) required referral/follow-up in primary care. Distraction test failures accounted for 278 (40%) of these. If these are excluded, 62.7% of physical problems requiring follow-up in primary care were followed up by a GP. The most frequent reasons were possible developmental dysplasia of the hip, squints, and undescended testes. In comparison, the most frequent reasons for follow-up by a midwife were concerns about feeding/weight gain or umbilical healing, and the most frequent reasons for follow-up by a health visitor were umbilical healing or head circumference monitoring.

### Recorded follow-up and referral to hospital

Between 4.5% and 8.8% of children were recorded at CHS reviews as already being under hospital follow-up. The most frequent reason was for potential developmental dysplasia of the hip, accounting for 353 (61.6%) of recorded problems under hospital follow-up.

Only 167 (2.1%) returns documented problems requiring a new referral direct to hospital, and all of these were physical. Of

**Table 1.** Return rates and legibility of CHS reviews from personal child health records (total children = 2001).

	Number (%) of returns for each CHS review				
	Birth	10-14 day	6-8 week	3-4 month	6-9 month
Returned reviews	1661 (83.0)	1740 (87.0)	1542 (77.1)	1497 (74.8)	1408 (70.4)
Completely legible reviews	1572 (94.6)	1617 (92.9)	1410 (91.4)	1479 (98.8)	1337 (95.0)

**Table 2.** Problems at CHS reviews and resulting referrals recorded in the PCHR during the first year of life.

	Number (%) of children at each CHS review				
	Birth	10-14 day	6-8 week	3-4 month	6-9 month
Physical problems <sup>a</sup>	314 (18.9)	1014 (58.3)	539 (34.9)	77 (5.1)	554 (39.3)
Feeding/weight gain	23 (1.4)	42 (2.4)	82 (5.3)	5 (0.3)	51 (3.6)
Sleep pattern	0	0	16 (1)	0	31 (2.2)
Development	0	0	18 (1.7)	0	21 (1.5)
Colic	0	7 (0.4)	33 (2.1)	0	0
Referred to/follow-up by midwife	45 (2.7)	41 (2.4)	0	0	0
Referred to/follow-up by health visitor	4 (0.2)	166 (9.5)	25 (1.6)	5 (0.3)	355 (25.2)
Referred to/follow-up by GP	14 (0.8)	15 (0.9)	129 (8.4)	42 (2.8)	140 (9.9)
Referred to community paediatrician	0	2 (0.1)	0	2 (0.1)	7 (0.5)
Referred to hospital	0	3 (0.2)	60 (3.9)	11 (0.7)	93 (6.6)
Already under hospital follow-up	146 (8.8)	139 (8.0)	134 (8.7)	67 (4.5)	87 (6.2)
Receiving prescribed medicine	92 (5.5)	111 (6.4)	68 (4.4)	0	22 (1.6)
Total PCHR returns	1661	1740	1542	1497	1408

<sup>a</sup>Excluding those recorded as already under hospital follow-up.

**Table 3.** Most frequently recorded physical problems at CHS reviews (excluding those already under hospital follow-up) recorded in the PCHR.

	Number (%) of children at each CHS review				
	Birth	10–14 day	6–8 week	3–4 month	6–9 month
Skin problem: rash, eczema, spots	51 (3.1)	159 (9.1)	123(8.0)	3(0.2)	24 (1.7)
Hearing concern	0	2 (0.1)	4 (0.3)	0	278 (19.7) <sup>a</sup>
Sticky eyes	69 (4.1)	127 (7.3)	31 (2)	0	5 (0.3)
Jaundice	92 (5.5)	114 (6.5)	3 (0.2)	1 (0.07)	0
Umbilicus: wet, granuloma	21 (1.3)	153 (8.8)	32 (2.1)	0	0
Abnormal hip examination	0	35 (2.0)	28 (1.8)	47 (3.1)	38 (2.7)
Oral thrush	26 (1.6)	55 (3.2)	17 (1.1)	0	0
Vision concern: including squint	0	8 (0.5)	30 (1.9)	2 (0.1)	57 (4.0)
Birth mark	7 (0.4)	37 (2.1)	49 (3.2)	0	4 (0.3)
Nappy rash	0	30 (1.7)	28 (1.8)	1 (0.07)	15 (1.1)
Bowels: loose or constipated	23 (1.4)	17 (1)	24 (1.6)	1 (0.07)	5 (0.3)
Wheezy/chesty	0	4 (0.2)	33 (2.1)	0	20 (1.4)
Weight loss	3 (0.2)	5 (0.3)	28 (1.8)	2 (0.1)	16 (1.1)
Umbilical hernia	1 (0.06)	17 (1)	32 (2.1)	2 (0.1)	2 (0.1)
Birth trauma	13 (0.8)	30 (1.7)	5 (0.3)	0	0
Other	8 (0.5)	221 (12.7)	72 (4.7)	18 (1.2)	90 (6.4)
Total PCHR returns	1661	1740	1542	1497	1408

<sup>a</sup>Failed first distraction test.

**Table 4.** Problems requiring follow up in primary care as a result of CHS reviews recorded in the PCHR.

	Number (%) of children requiring follow-up from CHS reviews by health care staff			
	Midwife	Health visitor	GP	Total
Physical problem	39 (5.2)	416 (55.3)	297 (39.5)	752 (76.7)
Weight gain/feeding	39 (25.2)	101 (65.2)	15 (9.7)	155 (15.8)
Development	0	18 (50)	18 (50)	36 (3.7)
Immunisations advice	0	4 (36.4)	7 (63.6)	11 (1.1)
Crying/colic	1 (10.0)	7 (70.0)	2 (20.0)	10 (1)
Sleep pattern	0	8 (100)	0	8 (0.8)
Other	7 (77.8)	1 (11.1)	1 (11.1)	9 (0.9)

recorded physical problems, 6.7% were referred to hospital. The distraction test generated 83 (49.7%) hospital referrals. The other most frequent reasons were possible developmental dysplasia of the hip, heart murmurs, squints, and undescended testes.

#### *What else was recorded at CHS reviews in the PCHR?*

Health promotion advice was recorded on only 586 (7.5%) returns. These included 75 (health visitor) 10 to 14 day returns, 154 (GP) six to eight week returns, and 357 (health visitor) six to nine month returns. Most frequently recorded advice was for immunisations and smoke alarms at 10 to 14 days, immunisations at six to eight weeks, and safety and dental care at six to nine months.

Developmental progress was recorded in detail on 1058 (75.1%) six to nine month returns, but only 21 (2%) children were recorded as requiring follow-up. Feeding was recorded at all reviews except the three to four month hip check.

## Discussion

In our study, 32% of returned CHS reviews during the first year of life had a physical problem recorded in the PCHR. Including distraction test failures, 30% of recorded physical problems required follow-up in primary care and 7% required referral to hospital. After excluding distraction test failures, 21% of physical problems required follow-up in primary care and 4% referral

to hospital. Other problems were recorded much less frequently and included feeding, weight gain, sleep pattern, development, and colic. Health promotion advice was recorded on only 7.5% of CHS returns.

In comparison with other studies, 35% of children having physical problems at the six to eight week review is high, but our figure of 1.5% of developmental problems at the six to nine month review is comparable. Other studies in general practice have shown that 12% to 19% of children had a physical abnormality at the six week review.<sup>18,19</sup> One study at a child health clinic found that 18% of children at the six week review had physical problems.<sup>20</sup> At the seven to 10 month review, Barber also found that 6.4% of children had developmental delay and 1.3% had abnormal development.<sup>19</sup>

Although, in our study, many children had physical problems recorded at CHS reviews, the majority might not be considered as clinically significant as they did not require follow-up or treatment. However, they were considered important enough to be recorded and they may be of significant concern to parents.

Despite physical examination of children being only one part of CHS, physical problems generated the most written comments on the CHS reviews. They were also the most frequent reason for follow-up in primary care or referral to hospital. Although primary care staff have been encouraged to see CHS as more than the physical examination of children, our study suggests that physical problems are either the most frequent problems identified or

the most frequently recorded.

Only a minority of CHS reviews had examples of health promotion recorded on them, despite recommendations to provide health promotion during child health surveillance.<sup>4</sup> Either health promotion advice is not being given at CHS reviews or it is not being recorded. Recording such advice would emphasise to parents what has been discussed and act as a reminder to them. To encourage the provision and recording of health promotion, the CHS review pages in the PCHR could be redesigned. The Nottingham version of the PCHR was changed in 1997 to include relevant health promotion prompts on each review page. This may be insufficient to improve recording unless specific sections for recording health promotion advice are added or staff are advised to record health promotion in 'comments' sections on review pages.

Our study demonstrates the extent to which distraction test failures create extra workload in follow-up and referral compared with the remainder of CHS. It adds further evidence that this element of CHS is not effective. The distraction test potentially causes unnecessary concern to many parents as most children who fail the first test pass the following test, and the majority of children who are referred to hospital are found to have normal hearing.<sup>6,21</sup> The effectiveness of the distraction test has often been criticised and the introduction of universal neonatal screening for hearing loss has recently been recommended.<sup>6,21,22</sup> Hopefully, this change will reduce unnecessary parental anxiety and workload both in primary and secondary care.

We have shown that the PCHR can provide useful information about CHS. In particular, detailed information about CHS reviews conducted by all primary care staff can be collected. However, the data may underestimate the issues discussed at CHS reviews. Although others have suggested that CHS reviews are well recorded in the PCHR,<sup>11,12</sup> one study of GPs that compared actual performance with what was recorded found only 32% of actions were recorded in medical notes.<sup>23</sup> In our study, physical problems were recorded far more frequently than other issues; for example, health promotion. This may either reflect what is discussed or what health professionals believe should be recorded.

The return rate of CHS reviews in our study was good, and the legibility of the review pages was excellent. However, we did not identify whether the content of non-returned reviews differed from returned CHS reviews.

The return rate of CHS reviews did not represent the coverage rate for CHS in the study children. When we compared a three-month sample of non-returned 10 to 14 day and six to eight week reviews with health visitor and GP notes, we found that in only 4% of cases was there no evidence for a CHS review having been done. Reasons for reviews not being returned included loss in the internal post system or reviews not being identified as belonging to study children.

As we found a higher proportion of children to have physical problems at the six to eight week review than in other studies,<sup>18-20</sup> our coding may have included more problems as 'physical'. Alternatively, our GPs may have been recording more in the PCHR than has been recorded in medical notes in the past.

In comparison with previous studies,<sup>18-20</sup> ours was large, comprising 2001 children from 28 practices. The other studies comprised between 281 and 543 children, and were conducted in individual practices or child health clinics. Nevertheless, the representativeness of our study sample could be criticised. Our initial sampling procedure meant that a high proportion of study practices were involved in teaching. Therefore, it is possible that the standard of CHS and the record keeping of the GPs might be better than average. Also, we did not follow-up children who

moved practices. These children could have more problems to be identified at CHS reviews and be less likely to attend, particularly as they were registered with higher deprivation practices.

In conclusion, CHS is not just the routine examination of normal children. Many children are recorded as having physical and other problems. CHS reviews provide an important opportunity to discuss these with parents and arrange appropriate treatment and follow-up. Although health promotion is important, it was not well recorded in the PCHR. If recording of CHS reviews in the PCHR is to reflect current recommendations on CHS, the PCHR needs to be redesigned and health care staff need advice about what they should record.

Future research could investigate what is discussed at CHS reviews more directly; for example, through audio- or videotaping. It would then be possible to compare what is discussed with what is recorded and explore why some issues are recorded and others are not. In particular, the health promotion content of CHS could be examined in more detail. We have explored the content of CHS reviews during the first year of life, future studies could usefully consider the content of later reviews.

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