

Cost analysis of child health surveillance

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Executive summary

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Executive summary

Background

Child health surveillance (CHS) forms part of a more general programme of child health promotion. For the purposes of this study, CHS was defined to include routine health checks offered to all children at visits scheduled at approximately 6–8 weeks, 6–9 months, 18–24 months and 39–42 months. These checks generally combine a series of physical checks with health education.

Objectives

To provide:

- estimates of the costs of individual components of the CHS programme
- a register of the costs of each element of the CHS programme in a form that can be updated.

It was not part of the purpose of this work to evaluate the cost-effectiveness of CHS, because of the absence of information on the relative effectiveness of components of the programme.

Methods

The focus of the study was on costs to the NHS and parents, including the cost of first referrals arising from a routine CHS check. The working hypothesis was that costs are likely to be determined primarily by three variables: the range of tests offered at each visit, the location of the visit and the type of staff involved.

The first stage of the research was designed to identify the range of service models found in practice. A postal questionnaire was sent to relevant Trusts in England and Wales, requesting information on local CHS policy and delivery. Replies were received covering 88 Health Authorities: 81.5% of the possible total. The questionnaire demonstrated a high degree of homogeneity in policy, with most Authorities conforming closely to the recommendations contained in *Health for all children*.¹ The main differences between Authorities appeared in the organisation of routine eyesight tests, and in the hearing distraction test (HDT).

A sample of 11 Health Authorities was selected. The sample was designed to be representative of differences in geography (north/south), rurality (rural/urban) and local policy on eyesight tests and the HDT. Two areas reporting the highest proportion of children from ethnic backgrounds were also included. The sampling unit was the main Community Trust providing CHS services within each Health Authority. The consultant community paediatrician at the Trust was asked to select two Trust-run clinics and three GP practices for the fieldwork, giving a sample of 55 subsites.

A member of the research team visited each subsite as an observer. During the visit the researcher collected information on the time spent on each of the components of routine CHS checks and on the type of staff involved. Parents were also asked about the time and other costs involved in attending the clinic. Staff at each subsite completed activity timesheets prospectively over a 3-month period following the initial visit and recorded referrals arising from routine CHS activity.

The aim of the research was to provide information on the costs of individual components of the CHS programme in order to inform policy, and the focus of the study was on identifying the opportunity costs of variable inputs. The research demonstrated that the scale of CHS activity is such that no likely changes in the organisation or content of the programme would be expected to have a significant impact on fixed costs (such as the costs of land, premises or equipment). Costs are estimated on the basis of time inputs valued at midpoint salary scales plus on-costs. Costs associated with gaining qualifications and overhead costs are excluded from the analysis, although the identified costs can be increased by appropriate percentages to reflect these additional costs.

Results

Average costs

No statistically significant differences were found in overall average costs per child between sites in the north and south, or between urban and rural areas. Despite the fact that high ethnicity was expected to lead to higher mean costs (because

of the need for interpreters in some cases), no significant differences were found. However, significant differences were found in mean cost per child between Trust-led and GP-led clinics. On the basis of this result the sample was divided into two subsamples (Trust-led and GP-led) for the remaining analysis.

Average costs of Check 1 (6–8 weeks)

The estimated mean costs per child (1997 values) for Check 1 were £6.24 (Trust-led) and £8.88 (GP-led), a statistically significant difference. The most common models of delivery involved a doctor (i.e. a GP or community medical officer), either alone or with a health visitor.

The main difference between Trust-led and GP-led settings is the proportion of checks carried out by a doctor alone. More than 40% of children are seen by a doctor alone in the Trust setting compared with 19% in primary care.

The guidelines in *Health for all children*¹ suggest that a doctor should carry out this check, preferably in the presence of a health visitor. The estimated mean costs of this model of delivery are £10.74 (GP-led) and £8.74 (Trust-led), which is statistically significant.

Average costs of Check 2 (6–9 months)

The estimated mean costs of Check 2 (for those observations in which the HDT was undertaken at the same time as the other components of the check) were £4.82 (Trust-led) and £8.02 (GP-led) per child, a statistically significant difference. When the HDT was carried out separately, the overall costs of the check were £15.66 (GP-led) and £15.82 (Trust-led). This difference is not statistically significant.

The most common models of delivery in both settings involved either a health visitor alone or a health visitor with another professional. These two models accounted for between 67% and 77% of all observations.

The guidelines in *Health for all children*¹ suggest that this check should be carried out by a doctor, but can equally be the responsibility of a health visitor. However, it is also recommended that two adequately trained staff carry out the HDT. The estimated costs of a model involving a health visitor and another professional are £6.82 (GP-led) and £4.30 (Trust-led) per child, a statistically significant difference.

Average costs of Check 3 (18–24 months)

The estimated mean costs of Check 3 were £7.41 (GP-led) and £8.55 (Trust-led) per child. This

difference is statistically significant and was mainly a result of the higher proportion of checks in Trust-led clinics carried out at home (57.7% Trust-led compared with 29.1% GP-led).

For GP-led checks the most common models of delivery were those involving a health visitor alone in a clinic, a health visitor with another professional in a clinic or a health visitor at the child's home. For Trust-led checks the most common models were health visitor and doctor in a clinic and health visitor (either alone or with another professional) at the child's home.

*Health for all children*¹ suggests that this check does not involve any specific medical or screening procedures, and is concerned primarily with parental guidance. It is often carried out in the family home and it is suggested that the health visitor is the most appropriate person to take responsibility for this check. The costs of Check 3 carried out by a health visitor alone in the family home were £9.44 (GP-led) and £8.70 (Trust-led). This difference is not statistically significant.

Average costs of Check 4 (39–42 months)

The estimated mean costs of Check 4 when the orthoptic screen is carried out with other components of the check are £8.51 (GP-led) and £8.81 (Trust-led). This difference is not statistically significant. Taking account of the additional costs arising when the orthoptic test is carried out separately, the mean costs per child of Check 4 were £9.50 (GP-led) and £10.45 (Trust-led). As with Check 3, there were differences between settings in the proportion of checks carried out at home (43.6% Trust-led compared with 26.3% GP-led).

*Health for all children*¹ suggests that each primary care team should decide whether this check is best performed by a doctor or a health visitor. In practice no more than 19–22% of checks at this age included any doctor input. The guidance does not specifically mention the desirability of performing this check in the family home, but the importance of making contact with children who have previously failed to attend for immunisation, and the emphasis on developmental, language or behavioural problems, may make a home visit appropriate.

The estimated cost of performing Check 4 by a health visitor in a clinic was £6.38 per child, irrespective of clinic type. The estimated costs of a health visitor performing the check in the family home were £9.60 (GP-led) and £10.41 (Trust-led). This difference is not statistically significant.

Average costs of check components

For each of the checks the observed range of times required to carry out a particular component was very wide. Few of the individual components cost more than £1.00, with the exception of the HDT and the orthoptic screen when carried out separately from other components of a check. This suggests that the addition or removal of specific components within a check will have a negligible effect on the overall costs of CHS. Furthermore, the physical checks are often performed at the same time as health education topics are discussed.

The HDT takes on average 3.5 to 5 minutes when carried out as part of Check 2 and costs between £1.00 and £2.40 in staff time. Carried out separately, the HDT takes between 15 and 20 minutes and costs in the range of £6.24 to £8.31.

When carried out as part of Check 4, the test of vision takes an average of 2 minutes and costs less than £1.00 in staff time. Carried out by an orthoptist on a separate occasion, the average time is 10–15 minutes and the cost is between £2.00 and £3.00.

Average costs of follow-up activity

Requests to return or referrals arise from 16% of CHS contacts. Approximately 10% of contacts give rise to referrals to a GP (1.8%) or a health visitor (8%). The remaining 6% lead to referrals to a community paediatrician (0.9%), orthoptist (1.2%), audiologist (1.5%), speech therapist (1.5%) or another professional (1.5%). The majority of referrals are made by and to health visitors.

Costing referrals is difficult, but the salary cost of a 30-minute appointment varies from £4.86 (speech therapist) to £17.83 (community paediatrician).

Average costs to parents

The majority of parents, who either walked or drove in their own cars, did not report any direct costs of attending CHS clinics. Parents travelling by bus, train or taxi (3.5%) incurred an average cost of £2.23 per visit. Less than 1% reported indirect costs (e.g. for child-minding) of £2.00 on average, and 3% reported loss of earnings. The average cost to this latter group was £23.56. Overall, the mean cost to parents was less than £1.00 per visit.

Conclusions

- Despite common policies (e.g. for a Health Authority), CHS checks (and their components) vary widely in their actual delivery.
- Because components are often undertaken simultaneously, it is difficult to identify any

significant time savings from omitting any of the individual elements (apart from the HDT and vision tests on separate occasions).

- Data on the effectiveness of CHS checks in meeting their broad objectives and on the specific components in meeting their objectives are needed to complement the cost data – cheap models of delivery may or may not be cost-effective.
- There appears to be great variation in the coverage of relevant health education topics.
- Because of the wide diversity observed in practice, a register of the costed time inputs, which could be updated as salaries change, has not been prepared.

Recommendations for research

- Identifying the objectives of CHS (e.g. health promotion, detection of child abuse) to determine whether the CHS programme is the most (cost-)effective way of meeting these objectives.
- The comparative (cost-)effectiveness of the different ways in which hearing is assessed (ranging from asking the parents to performing HDTs in appropriate surroundings).
- The comparative (cost-)effectiveness of the different ways in which vision and eyesight are assessed.
- The comparative effectiveness of checks undertaken by doctors and health visitors (e.g. why do health visitors generate so many more requests to return than doctors?).
- The outcomes of the referrals to specialists arising from the CHS checks – were the referrals appropriate?
- The numbers of problems diagnosed and requiring specialist input outside the CHS framework (e.g. via GP visits, playgroups/nurseries and primary schools).
- The views of parents – what do they want from the checks, and how can their needs be met most appropriately (e.g. for their first and subsequent children)?
- Are there differences in the costs of attending CHS checks for parents from urban and rural areas?

Reference

1. Hall D. Health for all children. Oxford: Oxford University Press, 1996.

Publication

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The website also provides information about the HTA Programme and lists the membership of the various committees.

NHS R&D HTA Programme

The NHS R&D Health Technology Assessment (HTA) Programme was set up in 1993 to ensure that high-quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage and provide care in the NHS.

Initially, six HTA panels (pharmaceuticals, acute sector, primary and community care, diagnostics and imaging, population screening, methodology) helped to set the research priorities for the HTA Programme. However, during the past few years there have been a number of changes in and around NHS R&D, such as the establishment of the National Institute for Clinical Excellence (NICE) and the creation of three new research programmes: Service Delivery and Organisation (SDO); New and Emerging Applications of Technology (NEAT); and the Methodology Programme.

This has meant that the HTA panels can now focus more explicitly on health technologies ('health technologies' are broadly defined to include all interventions used to promote health, prevent and treat disease, and improve rehabilitation and long-term care) rather than settings of care. Therefore the panel structure has been redefined and replaced by three new panels: Pharmaceuticals; Therapeutic Procedures (including devices and operations); and Diagnostic Technologies and Screening.

The HTA Programme will continue to commission both primary and secondary research. The HTA Commissioning Board, supported by the National Coordinating Centre for Health Technology Assessment (NCCHTA), will consider and advise the Programme Director on the best research projects to pursue in order to address the research priorities identified by the three HTA panels.

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