NHS Direct: review of activity data for the first year of operation at one site

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Abstract

Background NHS Direct was set up in 1998 and now covers all of England. One site in South East London, which went live in April 1999, has been studied to gain an insight into how NHS Direct is used and by whom.

Methods Routine data from TAS was obtained from NHS Direct in South East London for its first year of operation.

Results Data were collected on 56,540 calls. Almost one-quarter of calls were for 0- to 5-year-olds. The service was busiest between 9 a.m. and 2 p.m. and again between 6 p.m. and 9 p.m. The majority of calls (68 per cent) were received during the out-of-hours period. Most calls to the service (56 per cent) are categorized with no urgency level, with 37 per cent of callers given advice on how to look after the problem themselves. Over the millennium celebration period the call volume tripled. However, calls tended to be less urgent, with more being from the older age groups.

Conclusion NHS Direct is an important service to parents of young children and can provide advice about when contact with another service is necessary to those who traditionally worry about this.

Keywords: NHS Direct, evaluation, out-of-hours

Introduction

NHS Direct is a 24 hour nurse-led telephone advice line, which aims to either provide callers with advice on how to care for their condition at home, or refer them to the most appropriate service. The service was set up in 1998 initially at three pilot sites, and has covered the whole of England since November 2000.

NHS Direct South East London (SEL) went live in April 1999, covering a population of approximately 900,000 in the London Boroughs of Lambeth, Southwark and Lewisham. This area is culturally diverse with relatively high deprivation. During the study period, NHS Direct SEL involved call handlers employed by the London Ambulance Service (LAS), nurses employed by Community Health South London NHS Trust (CHSL) and information staff at the Lambeth, Southwark and Lewisham Health Shop, split over three sites. Staff used the TAS (Telephone Advice System) computer decision support software to support nurse advice and maintain caller records. All calls are initially dealt with by a call handler, who may complete the call or pass it on to a nurse or information worker. All staff have access to telephone interpreting.

This paper provides a detailed analysis of the activity and the relationship between patient characteristics and outcome over the first year of operation, which included the millennium celebration period.

Methods

Data on all calls to the service were obtained from the TAS system for 1 year: 1 May 1999–30 April 2000. The data were analysed using Excel and SPSS.

Results

During the study period TAS recorded 56,450 calls to the service. This includes all calls taken by nurses, but does not include all those taken by call handlers alone, as often a TAS record is not completed for very short calls. LAS telephone logs show 74,706 calls in the same period. The difference is explained by those calls the call handlers took but did not create a full TAS record for, and wrong numbers, hoax calls and ‘training’ calls, for which a TAS record is also not created. Therefore, the true number of calls received by the service lies somewhere between these two figures.

The results presented here relate to the 56,540 calls for which we have data from TAS.

Volume

The volume of TAS calls over the 12 months is shown in Figure 1. There was a steady increase in call volume from 2,573 in May 1999 towards the December and January millennium holiday, when the volume had more than tripled. Demand diminished in the early months of 2000 but at the end of the year had more than doubled (6,191 in April 2000).
Characteristics of callers or patients

Residence
About two-thirds of calls (66 per cent) were from residents of Lambeth, Southwark and Lewisham. The relatively high proportion of non-residents is explained by the large number of mobile phone users whose calls do not follow BT exchanges. There may also have been times when there was sharing of work between NHS Direct sites.

Carers
Callers to NHS Direct are not necessarily the patient; the patient was the caller for only 45 per cent of calls. Parents calling on behalf of children were the largest group of carers (31 per cent), with relatives, friends and neighbours making the remaining calls.

Age and sex
Nearly one-quarter of calls were about 0- to 5-year-olds (24 per cent). The next largest categories of patients were those aged 17–29 years (22 per cent) and 30–39 years (22 per cent). Sixty per cent of calls were about females.

There was a significant difference in the sex of patient by age group. Calls for the 5–16 years age group were more likely to be about males, whereas calls for the 17–39 years age group were more likely to be about females (\(\chi^2 = 173, df 7, p < 0.001\)). In the 17–29 years age group only 31 per cent of calls were for male patients, suggesting under-representation of this group.

Time of calls
Figure 2 illustrates that the service has its busiest periods between 9 a.m. and 2 p.m. and again around 6 p.m. and 9 p.m. During these times the service is taking, on average, around eight or nine calls per hour. The quietest time for the service is between 4 a.m. and 5 a.m. A similar pattern is found for weekends and bank holidays, although the call volume is slightly higher than during the week. Over the year, 68 per cent of calls are received in the out-of-hours period (6 p.m.–8 a.m. Monday–Friday and all weekends and bank holidays). On weekdays, 50 per cent are received out of hours. These findings are consistent with data from the evaluation of the first three pilot sites.\(^1\)

Priority and outcome
Nurses assign a priority and outcome category to each call from a range of options. Only one priority and one outcome category can be assigned. Options and definitions are shown in Table 1.
Nearly a third (32 per cent) of calls were categorized with some level of urgency (18 per cent urgent, 10 per cent moderate urgency, 4 per cent immediate), the majority being categorized as no urgency (56 per cent) and routine (11 per cent). The call outcome is shown in Figure 3. The largest category is self-care (37 per cent), with 28 per cent being advised to see their general practitioner (GP), either routinely (10 per cent) or urgently (18 per cent).

The actual number of callers from the Lambeth, Southwark and Lewisham area that were referred to other local services is given in Table 2 for the year studied. In terms of what this meant for local services, two patients were referred by NHS Direct per month per GP, two patients per day to each of the three accident and emergency departments (A&E), six patients per day to community services, and one patient per day to the ambulance service.

### Table 1 Definitions of priority and outcome

<table>
<thead>
<tr>
<th>Priority</th>
<th>Outcome</th>
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<tr>
<td>No urgency – usually implies self-care advice given</td>
<td>Self-care – advice given on how to look after the problem</td>
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<tr>
<td>Routine – seek the next available appointment</td>
<td>GP urgent – seek urgent appointment with GP</td>
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<tr>
<td>Moderate urgency – seek help within the next 24 h</td>
<td>GP routine – seek next available appointment with GP</td>
</tr>
<tr>
<td>Urgent – seek help within 2-4 h</td>
<td>Information – either information given over telephone or leaflets posted</td>
</tr>
<tr>
<td>Immediate – seek help now</td>
<td>A&amp;E – advised to attend accident and emergency department</td>
</tr>
</tbody>
</table>

| Community – referred to community service (includes pharmacy, mental health services, social services and community nursing) | Aborted – call terminated by caller |
| A&E – advised to attend accident and emergency department | No action required – no action taken |
| Community – referred to community service | Ambulance – either caller advised to call ambulance or ambulance called by nurse |
| Aborted – call terminated by caller | Medication – advice on medication given |
| No action required – no action taken | Other – includes calls referred to the Health Shop, and also where the agency referred to is not specified |

**Interaction of variables**

The age of the patient had an effect on the priority assigned to the call ($\chi^2 = 1122, \text{df} 28, p < 0.001$), and the outcome ($\chi^2 = 1504, \text{df} 56, p < 0.001$). The 0- to 5-year-olds were more likely to be categorized as no urgency. The 17–39 years age group were more likely to be routine, and the over-70s were more likely to be categorized as urgent. Accordingly, in terms of outcome, 0- to 5-year-olds were more likely to be referred to a GP routinely or given self-care advice. The 17–29 years age group were more likely to be referred to community services or given information. The 30–39 years age group were more likely to be referred to a GP routinely or given information. The over-70s were more likely to be referred to a GP urgently.

Age was also associated with time of call ($\chi^2 = 781, \text{df} 161, p < 0.001$). Calls for the 0–5 years age group were more common between 4 p.m. and midnight during the week and between 8 p.m. and midnight at the weekend.

Associations were also found between sex and urgency and outcome. Males were more likely to be categorized as urgent ($\chi^2 = 31, \text{df} 4, p < 0.001$). Females were more likely to be referred to community services or given information, and less likely to be referred to A&E or advised to self-care ($\chi^2 = 187, \text{df} 13, p < 0.001$). There was a significant difference in the outcome of the call depending on whether the call was made at the weekend or during the week ($\chi^2 = 516, \text{df} 13, p < 0.001$). For calls made at the weekend the outcome was more likely to be advice to attend A&E, to see a GP urgently, or to self-care. For calls during the week, the outcome was more likely to be to
contact a community service, see a GP routinely, or to be given information. When the week was divided into in and out of hours a significant difference was found ($\chi^2 = 516$, df 13, $p < 0.001$).

Callers were more likely to be categorized as urgent at the weekend and as moderate urgency or routine during the week ($\chi^2 = 375$, df 4, $p < 0.001$). During the week out-of-hours callers were more likely to be categorized as urgent whereas in hours they were more likely to be no urgency or routine ($\chi^2 = 145$, df 4, $p < 0.004$).

Millennium celebrations

During the first year of NHS Direct SEL’s operation the challenge of meeting demand over the millennium celebration period was faced. It was estimated that somewhere in the region of two to three million people would spend New Year’s eve in London and demand on health services was expected to be high. During the holiday period (21 December 1999–3 January 2000) there were 4704 calls, an average of 336 a day compared with an average of 124 a day during the rest of the year. The overall pattern of calls during these days was similar to that at other times of the year. However, there were some differences. Callers were more likely to be advised to self-care ($\chi^2 = 303$, df 10, $p < 0.001$) and be categorized as no urgency ($\chi^2 = 143$, df 4, $p < 0.001$). Calls were also more likely to be received from the 50–59 years age group and the over-70s ($\chi^2 = 298$, df 7, $p < 0.001$).

Discussion

This study provides a descriptive account of activity at one inner city NHS Direct site over a period of 1 year. Using statistical analysis on the routinely collected data at NHS Direct has highlighted both the potential value of this nation-wide dataset and some of the difficulties. From a research perspective, the dataset was not complete and under-reports activity with no way of determining patterns in the calls not passed to nurses. Further, consistent data entry cannot be relied on and there may be systematic bias in the recording of urgency and outcome. From an NHS Direct perspective, it is clearly not always appropriate to collect full details from reluctant callers; for example, age may be estimated and postcode not collected. The most serious gap is the information on presenting complaint, which is not collected systematically but could represent a rich source of morbidity data if collected and coded accurately.

Despite these limitations this study has described activity at an inner city NHS Direct site, which can be compared with the three sites – Milton Keynes, Lancashire and Northumbria – studied in the national evaluation. Results are broadly similar in demonstrating that NHS Direct is used predominantly as an out-of-hours service, a high proportion of calls are for young children, there is relative under-use by older age groups, and there is a slightly higher use by women. However, with further analysis we have shown differences between groups associated with age of patient and time of call.

The study showed that most calls to the service were for the under-fives. These seemed to be about less serious problems. Calls were often received during the evening on weekdays, which suggests that parents are probably using NHS Direct for reassurance when other services are not available. Although the over-70s use the service least, when they do they are using it for more serious problems. This may support literature which suggests that older people do not like to bother other services when they are unwell, and therefore NHS Direct is able to provide advice on when this is necessary.

The majority of calls are received in the out-of-hours period. This suggests that people are using NHS Direct when other services are not available, or are available only for emergencies. The outcome and priority assigned to males and females is different. However, it is unclear whether males and females are calling with different problems, males apparently having more serious problems, or whether their gender affects the outcome of the call. Further investigation is needed on this point.

The data collected in this study for the millennium celebration period are of particular interest and relevance for winter planning. They suggest that although there was a threefold increase in demand, there was no change in the urgency of calls. This is surprising given that the age distribution changed, with more calls being about the 50- to 59-year-olds and the over-70s, and fewer than usual about the under-5s.

A single computer system has now been procured for all NHS Direct sites, and the process of installing this at individual sites is now under way. Nationally there will therefore be available a rich source of information which could be of value for planning processes not only for NHS Direct but also for other services too. Work needs to be done to ensure that these data are accurate and uniform across the country if they are to be of use.

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References


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