

Supporting practice-based audit: a price to be paid for collecting data

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SUMMARY

Background. *There has been considerable investment by health authorities in the funding of support staff whose job is to collect data for audit purposes. It is important to understand what costs are involved in such a data collection exercise. The cost advantages of using existing practice staff or externally funded staff are not known.*

Aim. *To assess the cost of transposing data on workload to computer software for audit purposes and retrieving data on five chronic diseases from case records.*

Method. *Four audit support staff monitored the time taken to collect specific data as part of a broad audit programme in 12 training practices within one health board area in the West of Scotland in 1997. The time taken was used to estimate comparative costs for using a receptionist or practice nurse for carrying out a similar exercise.*

Results. *Average costs for collecting data per 1000 patients for waiting time, appointments, recall, and telephone audits were £5.24 for reception staff, £5.64 for audit support staff, and £9.68 for a practice nurse. The average cost for collecting data per patient with diabetes, asthma, epilepsy, hypertension, or rheumatoid arthritis was £1.48 for reception staff, £1.60 for audit support staff, and £2.74 for a practice nurse.*

Conclusions. *The cost of collecting data varies considerably depending on which staff are chosen for the purpose. Practices should consider carefully how best to collect data for audit in terms of cost.*

Keywords: *audit; data collection; staff costs.*

Introduction

THERE has been much discussion about the best way to support the routine collection of data for practice-based audit. Broadly speaking, the costs fall into two categories: indirect costs from the use of existing practice staff, or direct costs from the use of audit support staff who enter the practice with the sole purpose of collecting data for audit.

The National Health Service Management Executive has provided a job description for support staff for audit.¹ In England and Wales, through the Medical Audit Advisory Group structure, many audit support staff have been employed from a range of backgrounds.^{2,3} One study has shown how multidisciplinary clinical audit can be facilitated by audit support staff.⁴ The cost of training audit support staff has been debated⁵ but not evaluated.

The inadequacy of research into the development of sound

audit method, particularly relating to value for money from many current practices, has been highlighted.⁶

In the West of Scotland all 145 training practices are involved in an audit programme covering various aspects of workload and five chronic diseases. Training groups of between 10 and 15 practices are encouraged to work together through a peer review process.

This programme offered an opportunity to assess the costs involved in collecting data for audit purposes.

Method

One group of 12 training practices covering one health board area in the West of Scotland agreed to pilot a costing exercise whereby four audit support staff collected the data for whichever part of the audit programme that the practice required assistance.

Support staff

Four audit support staff — two funded by the local health board and two funded by a grant from the Clinical Resource and Audit Group (CRAG) — attended a series of training meetings organized by one of the authors (ML) to introduce them to a core audit programme, involving issues of workload and five chronic diseases running in 145 training practices in the West of Scotland. The health board-funded staff were already experienced data collectors. One of the staff funded by CRAG had a background as an engineer in British Telecom and the other was returning to employment after bringing up her family. Neither of the grant-funded staff had any background in health care. The two health board-funded support staff were overseen by the local audit facilitator, and the CRAG-supported staff were overseen by a research fellow from the University of Glasgow. All four staff were issued with a specially designed chart to record specifically, at 15-minute intervals, which data they were collecting over a period of approximately 30 weeks. They were also asked to note any problem areas in collecting and transposing the data.

Audit programme — workload

All data were collected by practice reception staff or the general practitioners, as part of their normal duties on pre-prepared sheets over a prescribed two-week period. Specific data to be collected were:

- *Appointment availability.* Date appointment requested, date actually seen. (Standard = 90% of patients to be seen by a doctor within three days.)
- *Waiting times.* Patient arrival time, patient appointment time, time seen by doctor, time finished with doctor. (Standard = 80% of patients seen within 15 minutes of appointment time.)
- *Telephone audit.* Patients were asked if they felt they had waited more than six rings before the phone was answered. The answer 'yes' or 'no' was recorded. (Standard to be set by the practice.)
- *Doctor recall of patients.* Doctors recorded at the end of each consultation whether patients were discharged, asked to return if required, or asked to return within a given time

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interval. (Standard to be set by the practice.)

The sheets with the collated data were collected by the practice manager and given to the audit support staff, who then fed them into a customized software programme on a Visual FoxPro database for analysis. The results were then collated at the University Department of Postgraduate Medical Education and fed back comparatively and anonymously to the practices at a peer review meeting.

Audit programme — chronic disease management

Basic instruction was given by one of the authors (ML) on the five chronic diseases that were being audited: diabetes, asthma, hypertension, epilepsy, and rheumatoid arthritis. Specific process and outcome indicators had been chosen by the 12 practices at a previous training group meeting to be considered as part of their peer review process towards quality assurance. These were:

- *Asthma*. Recording of peak flow, smoking status, use of spacer, patients hospitalized owing to asthma since their last surgery visit.
- *Diabetes*. Smoking status, last recorded blood pressure, HbA_{1c}, patients registered as blind.
- *Epilepsy*. Date of last seizure, number of drugs taken for epilepsy, drugs for epilepsy on a more than twice daily regime.
- *Hypertension*. The mean of three pre-treatment blood pressures, smoking status, most recent blood pressure reading.
- *Rheumatoid arthritis*. Diagnostic accuracy based on American Rheumatism Association criteria, the recording of patients hospitalized with upper gastrointestinal haemorrhage.

Each chronic disease had a specially designed data collection chart, each of which was offered to practices who were not using their own. Each practice decided which disease(s) they wished to audit and supplied a respective list of their patients with diabetes, epilepsy, and rheumatoid arthritis. For patients with asthma or hypertension a sample size was calculated⁷ from the list supplied by the practice to ensure that the sample was within $\pm 5\%$ of the actual number with 95% confidence.

Case records of the relevant patients were extracted by the support staff and appropriate data collection sheets inserted as requested by the practice. The pre-agreed data for peer review were searched for in the records and recorded on the data collection charts.

The time taken to carry out this exercise was used to calculate the costs of data transposition for workload audits from paper to software, and the costs of retrieving data from case records for the five chronic diseases and transposing these to the flowcharts. An estimation of comparative costs using a receptionist or a practice nurse was then calculated.

Salaries for the support staff were calculated at £5.59 per hour. Salaries for the reception staff were calculated at £5.19 per hour (Grade 3, spine point 9). Salaries for the practice nurses were calculated at £9.59 (mid-point Scale F of Whitley scale).

Results

The 12 practices had an average list size of 6943 (range = 3380 to 11 700) and the mean number of doctors per practice was 4.75 (range = 3 to 8).

Ten practices chose the appointments system audit, nine practices the waiting times audit, eight practices the recall audit, and seven practices the telephone answering audit. The transposition

of data from paper sheets collected by the practices took 78 hours for the appointments audit, 125 hours for the waiting times audit, 24 hours for the re-call audit, and 17 hours for the telephone audit. The respective costs of this exercise and the estimated comparative costs for a receptionist and practice nurse are shown in Table 1.

The case notes of 205 diabetic patients, 711 patients with asthma, 349 patients with epilepsy, 1538 patients with hypertension, and 338 with rheumatoid arthritis were evaluated. The average time taken to extract the relevant case records, insert the appropriate data collection sheet, and find the relevant process and outcome measures was 20 minutes for each hypertension patient, 18 minutes for each rheumatoid arthritis patient, 17 minutes for each diabetic patient, 16 minutes for each epilepsy patient, and 14 minutes for each asthma patient. The total time and average cost for each disease with an estimation of comparative costs for using a receptionist or practice nurse are shown in Table 2.

Discussion

This exercise was carried out as one part of the evaluation of a structured audit programme across a whole region of 145 training practices. This was beneficial to the training of the lay support staff who quickly identified with the common core audits being undertaken and allowed for a tight job description to be defined, thus minimizing the need to interpret data; a skill with which they were not equipped.

The collection of workload data involved practice-employed staff and doctors; but, as the practice reception staff were already working with prearranged appointment sheets as part of their normal duties, their extra input was minimal. The doctors' input involved ticking one of three boxes at the end of each consultation; again, a negligible disruption to the normal service.

The part of the workload audit that took the longest was the transposition of data on waiting times as this incorporated four different areas, each of which was analysed separately for the practices. However, the extra time and cost were more than offset by the extra information provided to doctors by the audit results on reasons for possible dysfunctional appointment systems; for example, a mismatch of booking time and consulting time resulting in persistent late running.

Support staff were well received in the practices with no complaints of interference with day-to-day running of practice activities. There was regular contact with the facilitators overseeing the staff and practice managers. The completion of the time-sheets every 15 minutes created no problems and was carried out conscientiously.

Among the chronic diseases, hypertension was the most time-consuming, and therefore costly, owing to difficulty in finding the relevant data. Information on asthma, diabetes, and epilepsy proved easier to find. Doctors' handwriting provided a constant challenge to the support staff, as did certain decisions, such as when and why hypertension treatment actually started.

The choice of process and outcome measures for chronic diseases may vary depending on need, but those for which data were collected had been chosen by the group themselves as their priorities. The data provide an opportunity to reflect on the best way for practices to collect routine data for audit purposes.

It may be necessary to match certain staff with data that require more clinical skills; for example, chronic disease audits can be more effectively collected by the nurse, with reception staff being more familiar with the appointment systems.

Training practices have been shown to be better organized than non-training practices,⁸ suggesting that time and cost would be greater for a similar exercise in non-training practices.

Table 1. Average cost (in pounds sterling) of transferring data for workload audit per 1000 patients.

	Appointments (n = 61 000)	Waiting times (n = 64 300)	Re-call (n = 48 900)	Telephone (n = 52 600)	Total
Total time for data collection (hours)	78	125	24	17	244
Average cost per thousand patients — receptionist: estimated	6.64	10.09	2.55	1.68	20.96
Average cost per thousand patients — support staff	7.15	10.87	2.74	1.81	22.57
Average cost per thousand patients — practice nurse: estimated	12.26	18.64	4.71	3.10	38.71

Table 2. Average cost in pounds sterling for retrieving data for each chronic disease

	Diabetes (n = 205)	Asthma (n = 711)	Epilepsy (n = 349)	Hypertension (n = 1538)	Rheumatoid arthritis (n = 338)	Total
Total time for data collection (hours)	57	164	95	527	103	946
Average cost per patient — reception staff	1.44	1.20	1.41	1.78	1.58	1.48
Average cost per patient — support staff	1.55	1.29	1.52	1.91	1.71	1.60
Average cost per patient — practice nurse	2.67	2.21	2.61	3.29	2.92	2.74

If these figures are extrapolated further to the population of 2.8 million covered by practices in the West of Scotland — training and non-training — the cost of a similar audit exercise would be approximately £1 176 000, which represents 43% of the six health boards' total audit budgets in the West of Scotland for 1996/7 and would be difficult to justify even as a 'pump-priming' exercise.

Data collection, however executed, carries a cost. The source of any funding for collecting routine data for audit purposes is likely to be controversial, particularly with clinical governance requiring it to be implemented at no extra cost.^{9,10}

The General Medical Council has stated clearly that monitoring and improving quality of care is a professional responsibility,^{11,12} the cost of which could therefore be interpreted as already being covered by General Medical Services. Considerable sums of money have already been spent by health authorities on audit support staff, with data collection forming a large part of their work. More coordination with practice staff, focusing on developing systems within the practice for systematic routine data collection, may be a more efficient use of precious resources.

In conclusion, this study reminds us that the process of audit to achieve a better quality of care is not without cost. It is an imperative to help clinicians find data with minimum delay¹³ and maximize the potential for electronic data handling and retrieval.^{14,15} The responsibility, however, is still with the practice to ensure a systematic and rigorous method for collecting data. This will result in the most efficient use of whichever staff are involved.

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