

# Audit of a system for dealing with a practice's laboratory test results

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**SUMMARY.** *In order to improve efficiency in a non-computerized practice of 4700 patients the system for dealing with laboratory test results and communicating them to patients was audited over a two-week period. The audit involved a questionnaire for the practice team, a postal questionnaire to 36 patients, and an analysis of doctors' and receptionists' workload when dealing with laboratory test results. A new system was introduced, with two receptionists logging investigation details into a newly designed results book, and with date/process stamping of results. The new system was re-audited using another practice questionnaire and analysis of doctors' and receptionists' workload and found to be as effective as the old system but less time consuming, largely owing to the layout of the new results book. All members of the practice team were more satisfied with the new system. The function of a results book and its role in doctor-patient communication is discussed.*

**Keywords:** *diagnostic test results; follow up; doctor-patient relationship; records management.*

## Introduction

USE of laboratory services to investigate patients, and subsequent checking of the test results, is an important part of general practice. Previous studies have looked at patterns of investigation,<sup>1,2</sup> normal and abnormal results,<sup>3-5</sup> and investigation rates.<sup>3-6</sup> Kelly and Barber studied the communication of test results to 155 patients in an urban practice.<sup>7</sup> Only 61% of patients knew their test result and 34 abnormal results had not been relayed to patients. They concluded that the practice's system for relaying test results to patients needed modifying.

The aim of this study was to identify and eliminate any inefficiencies in one practice's existing results book system for dealing with laboratory test results. Efficiency, effectiveness, and acceptability are all aspects of quality<sup>8</sup> and to provide a comprehensive audit all three needed to be considered. Efficiency is a measure of the time needed to provide an acceptable and effective service. Therefore, data were needed on staff and patient opinion, as well as on time spent on various stages of the process. After the initial audit a new system was introduced, which was re-audited several months later in order to complete the audit cycle.

## Method

The study surgery, in Buckinghamshire, has 4700 patients, two full-time partners, one part-time partner and one trainee, operating a shared list system. At the time of the study the practice was not computerized. There is a practice manager and six receptionists. A practice nurse carries out venepuncture for most patients

who need it. Pathology and x-ray services are provided by a nearby district general hospital.

Test result sheets are returned from the laboratory with a results label attached to the original request form, so the original clinical details are visible. There was already a separate system for dealing with cervical smear test results and so cervical cytology results were excluded from the audit.

The initial audit was performed in January and February 1991, and the new system was re-audited in June and July 1991.

The initial audit comprised four parts. The first was a questionnaire to the practice team canvassing opinion on the present laboratory test results system and any suggestions for change, either specific or general. Any suggestions were considered, and changes were proposed by the author. If a suggestion was discounted, this was discussed with the team member involved. The second part was a postal questionnaire to 46 patients who had had investigations performed during one particular week. The patient questionnaire contained mainly closed questions. The other two parts were workload analyses, comprising an analysis of doctors' workload regarding laboratory tests (over two weeks data were collected on the logging of investigation requests, the number of result sheets received per day, and estimates were made of the time spent entering comments into the results book), and an analysis of receptionists' workload (over two weeks each patient contact concerning test results was noted and data obtained on the type of test, whether the investigation request had been logged correctly and whether or not there was a comment in the book for the patient).

When the new system was re-audited, the methods used and type of data collected were the same, except that the patients' questionnaire was not repeated. Analysis of doctors' and receptionists' workload required additional data on stamping of result sheets with the new date/process stamp, and time spent by the reception staff who were now logging requests into the results book.

## Results

### First audit

**Questionnaire to practice team.** From the questionnaires returned by the doctors, nurse and receptionists, it was found that the doctors were considered to be poor at logging details of investigation requests into the results book and their writing was often illegible. Blood tests were usually logged by the practice nurse when she had carried out the venepuncture. There was no set format for logging request details, and lists of investigations were often written in the results book on one line only. Inefficiencies at this stage affected later stages.

No problems were identified with sending the specimens to the hospital each day, although occasionally some specimens remained behind on doctors' desks, thus missing the collection at 12.00 hours.

Results could be returned by one of two mail deliveries or in the returned specimen box late in the morning and there was thought to be potential confusion here. Results were then placed in the post folder, to be read by all the doctors, together with that day's post. Receptionists stressed the importance of doctors giving a clearly written request for patients' notes. The receptionists could then place the notes in the doctor's in-tray together with the test results.

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Submitted: 31 March 1992; accepted: 8 December 1992.

© *British Journal of General Practice*, 1993, 43, 383-385.

Each day, one doctor was responsible for entering the results into the results book and writing a message concerning the result which could be given verbatim to the patient. Since investigation requests had often not been logged, this was time consuming. As regards informing patients it was felt that some test results, for example, results of a test for the human immunodeficiency virus (HIV) should not be given over the telephone. Some complicated results, for example lipid levels, should warrant a follow-up consultation rather than a comment. Reception staff wanted patients to be better informed of the allocated period (early afternoon) when receptionists had most time to deal with queries concerning test results.

Once a test result had been given, a tick was placed in a box beside the patient's details. Sorted results were placed in the patients' notes.

*Postal questionnaire to patients.* There were 36 valid replies out of 46 (response rate of 78%). Fourteen patients (39%) telephoned the surgery to receive their test results, seven had an appointment with the doctor, six called into the surgery, two were telephoned at home by the doctor, and one patient was given the test result when the doctor visited. Five patients (14%) did not follow up the test result and one tried to telephone the surgery to find out but failed to get through. Of the 14 patients who telephoned the surgery for their result, five stated that it was difficult and time consuming because the telephone was constantly engaged.

Twenty nine patients (81%) thought they had been given clear instructions for obtaining their test result. One patient felt that the instructions had been unclear (six replies could not be analysed). When asked to rate the system for dealing with test results, for the 36 replies, the mean satisfaction score on a scale of 1–10 (where 1 = appalling and 10 = excellent) was 8.6.

*Doctors' workload.* Over a two-week period (10 working days), 162 test result sheets were received; between 11 and 28 each day. Thirty one (19%) had not been logged in the results book, most commonly blood samples for full blood counts (seven) and midstream specimens of urine (six). Each result sheet took a mean of 53 seconds to comment on, and total time spent over two weeks was two hours 24 minutes. Thirty nine sets of notes were required by doctors for action or clarification.

*Receptionists' workload.* There were 37 requests for test results from patients over the two-week period. However, 14 results (38%) had not been returned from the laboratory, so patients were making the effort to obtain their results, but were contacting the surgery too soon. For three test results, request details had not been logged into the results book. In one of these three cases, the result had not come back from the laboratory, giving the impression that nobody knew anything about the investigation.

#### *New system for laboratory tests results*

The results of the first part of the audit cycle were used to devise a new system for processing laboratory test results in the practice (Appendix 1).

#### *Second audit*

*Questionnaire to practice staff.* All of the practice team felt that the new system was a considerable improvement. The doctors and practice nurse agreed that not having to perform the logging stage led to considerable time saving at the end of each surgery. The doctors felt that commenting on the results was much easier. The comments from the receptionists were largely favourable. Two of them had taken on a new role — the logging of request details into the results book. However, two difficulties were

found: deciphering the request details on the appointments lists, and deciding in which pathology laboratory column to enter the tests. All receptionists felt that problems could still arise when patients were informed of results.

*Doctors' workload.* Over the two weeks 140 result sheets were received of which 18 (13%) had not been logged into the results book (including six blood samples for full blood counts). Only seven (5%) of the result sheets had not been stamped correctly with the date/process stamp before being placed in the post folder. Each result sheet took the duty doctor a mean of 38 seconds to comment on and process, and total time spent over two weeks was one hour 28 minutes. Twelve sets of notes were required for action or clarification.

*Receptionists' workload.* There were 34 requests from patients for test results over the two weeks but 13 results (38%) had not come back from the laboratory. On two occasions (both tests on midstream specimens of urine), the investigation details had not been logged in the result book. Over the two-week period, it took between 10 and 20 minutes each day for one receptionist to enter laboratory test request details into the results book.

### **Discussion**

All practices must have a system for dealing with investigations and informing patients of the results because the use of laboratory services is a fundamental part of primary care. This study was carried out in order to improve the efficiency of the existing results book system. The aims of the audit were achieved in that a new results book system was introduced, many inefficiencies were removed, time spent by doctors commenting on results was reduced, and the new results book system was preferred by all members of the practice.

A basic test results system involves investigation request, sample collection, transport of specimen, receipt of result, checking of result, informing patient and filing. Nowadays, however, data on use of laboratory services are required for the practice annual report and are essential for fundholding practices. Therefore, there has to be an additional 'logging request' stage, when the investigation request is logged onto a database. There are advantages in logging details before the specimens are sent out, in that any lost, incorrectly labelled, or broken specimen bottles can be identified.

The major inefficiency of the old system was at the logging request stage. Doctors were poor at remembering to log investigations requests, and the details were difficult to read and interpret at later stages. This inefficiency was stopped by adding a 'data collection' stage, removing the logging function from the doctors and standardizing the results book layout. This made subsequent stages easier.

In a non-computerized practice the results book acts as the database, and an incidental benefit from this audit is that the improved format will make future data collection easier.

When results were returned, this stage was improved by date/process stamping of the result sheets. Medicolegally, it is good practice to stamp results sheets as they arrive, in case there are questions raised concerning the timing of treatment. The stamp also clarifies which result sheets have been commented on.

An area which showed little improvement on the re-audit was the number of patients contacting the surgery for their test result before the result had been received from the laboratory. Improved patient education is required.

Kelly and Barber highlighted the potential problems of a doctor-initiated telephone contact when informing a patient of a test result.<sup>7</sup> Some patients may not wish relatives to know they have

had a consultation or investigation. Great care has to be taken that transmission of any information to a third party, however guarded the conversation, does not constitute breach of confidentiality.

The study practice is a relatively small practice operating a shared list system and all doctors look at all the result sheets. In this situation we believe it is permissible for any doctor to comment on laboratory test results. The original clinical details are present on the results sheet, so the rationale behind the investigation request is easily understood.

The results book has a dual role: it acts as a database, but is also a means of communication, and this latter role is relevant to any practice. The patient can be informed of a result without seeing the doctor again. A good results book can provide personalized comments for patients, for example 'arthritis under control' or 'see me sooner than we agreed', rather than simply providing a bald statement of fact. We were already aware that the service was valued by patients, and the patient questionnaire verified this.

There is, in law, a recognition of the autonomy of the patient, so whose responsibility is it to ensure the patient has been informed?<sup>9</sup> McLean is quite clear: 'the duty to make disclosures [of information] is placed on doctors because they are, by the nature of their professional skill, in possession of the relevant information'.<sup>10</sup> Thus, failure to inform a patient and act on an abnormal test result is in breach of a general practitioner's terms of service. However, a good results book system can increase patients' awareness of their responsibilities for their own health care.

The audit achieved its aims and one factor in its success was the practice team questionnaire. This was valuable, since it gave all members of the team a feeling that they were contributing to the audit. It provided subjective data which was backed up by more objective data — analysis of time spent at various stages of the process. Furthermore, the audit was wanted and needed. Audit should inevitably lead to change, and will be more successful if there is a pre-existing desire for change.

#### Appendix 1. New system for dealing with laboratory test results at the surgery.

1. Investigation request and sample collection. All investigations are written beside the patient's name on the appointments lists. If venepuncture is required the patient attends in the usual way and the investigations requested are written down on that date. Full clinical details, with relevant previous investigation results, are entered in the clinical details section of the pathology/radiology request form by the doctor/nurse. Patients are given written instructions as to when to contact the surgery for their results.
2. Transport out. Specimens are sent to the hospital at 12.00 hours; it is the responsibility of the doctor/nurse to ensure that specimens are in the box.
3. Data collection. At the end of each surgery, appointments lists are placed in a tray in the notes room.
4. Logging requests. Two receptionists enter investigation requests into the results book, one to a line (except full blood count and erythrocyte sedimentation rate), with separate columns for haematology, biochemistry, microbiology, x-ray, and other (for example histology, hormones).
5. Results in. When results arrive, they are date and process-stamped by the receptionist. The stamp has a box for comments, a box to be ticked when comments have been entered in the results book and a box to be ticked if notes are needed. All result sheets are placed in the post folder, to be read by all the doctors.
6. Commenting on results. Any doctor can comment on the results by writing in the comment box. The comment is a message in simple language which can be given verbatim to the patient. Each day, the duty doctor enters the comments into the results book.
7. Requesting notes. If a doctor needs a patient's notes, the appropriate

box is ticked. If notes are required urgently, they will be collected by the doctor. Otherwise, notes are placed in the doctor's tray, together with the result sheet.

8. Informing patients. Most comments concerning test results can be given over the telephone or in person by any member of staff. However, no HIV test results are given over the telephone; the patient must see the doctor. For any important or abnormal test results, the doctor ensures that the patient has been informed.

9. Patient knowledge check. When a test result has been given to a patient, a tick is placed in the final column of the results book.

10. Filing. Once the comment on the test result has been entered in the results book the result sheet is filed in the patient's notes.

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#### Acknowledgements

My grateful thanks to all of the team at Threeways surgery, particularly to Dr Penny Aeberhard. Thanks also to Mrs Audrey Catterall, Mrs Ollie Constable and Mrs Barbara Pursey for their typing. Finally, my thanks to Petra for support and encouragement.

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