

REVIEW

The appropriate use of diagnostic services : (xiii) Medical audit in clinical practice and medical education

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INTRODUCTION

Many attempts have been made to define medical audit and many interpretations of the word are possible. It is perhaps easiest to define in laboratory medicine where, in many respects, it is synonymous with quality control. It is now standard practice for virtually all biochemical and haematological laboratories to know how precise and accurate their measurements are; many such laboratories now know how much any individual test costs and its relative diagnostic value. The validation of laboratory results however tells one nothing about the utilisation of laboratory services. Currently the clinician is able to demand virtually any investigation that he wishes irrespective of its cost and diagnostic value. Debate continues as to whether it is possible for the laboratory to control the rational use of investigations effectively without devoting much time and effort of staff to the vetting of individual requests. Even if the clinician agrees to be restricted to only those tests with the best discriminatory value it does not necessarily mean that the investigations will be of assistance to the clinical care or quality of care of the patient.

Both in laboratories and on the wards, the concept of audit embraces the setting and maintenance of the highest possible standards appropriate for the situation. For laboratory practice this is relatively easy to define and implement; for clinical medicine, on the other hand, the setting of standards becomes a much more nebulous entity, being difficult to define in other than vague terms and hence impossible to implement in a clear way. This is probably due to a large extent to the fact that there are few methods of investigation or treatments for which there is incontrovertible evidence of their value in a specific situation. Faced with this problem it is not surprising that no consensus has yet been reached as to how medical audit should be practised at the clinical level. What needs to be measured is the quality of care, a highly subjective entity which cannot be scientifically defined. All the methods of audit mentioned in this article have, to a greater or lesser degree, a bearing on the quality of care but none of them come anywhere near to measuring it.

For the purpose of this article I shall mention some specific methods of audit which I have seen practised and comment on my evaluation of them.

SOME METHOD OF AUDIT

Problem based investigation :

By this I mean that each problem automatically generates specific investigations. The recent profu-

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sion of algorithms suggests that this might be a popular and effective method of checking on medical practice. Clerks can be trained to go through notes to see whether all relevant investigations have been performed. The very method assumes, however, that problems usually have a clear cut method of being investigated. As mentioned above, this is not the case, and methods of investigation vary considerably between two experts in a field as well as between two patients with the same problem investigated by the same consultant. There are often factors which make one think differently about a particular case. Problem based investigation reduces patients into "problems", leading to more of the depersonalisation which all too many patients complain about. In addition, because this technique tries to guarantee the complete investigation of a problem it usually leads in practice to over-investigation of many patients.

Audit of complications :

In various guises this is a popular method, ranging from "death conferences" to analysis of wound infections of a specified operation. Although useful and in many respects to be encouraged, such procedures suffer a variety of drawbacks. Death conferences may concentrate on the rare disaster or rare syndrome which, although of some use, does not usually highlight defects in everyday clinical practice. Where only fatal complications are looked at a gross imbalance of views may be obtained. When one of my patients died of a pulmonary embolism after parathyroidectomy, a surgical review group decided that all subsequent patients undergoing parathyroidectomy should be anticoagulated — a view hard to justify when all previous parathyroidectomies are considered.

Review of complications for a single treatment can be very important but can be applied only when adequate numbers of that condition are seen by a given team. Hence wound infection rate for, say, elective inguinal herniorrhaphy is a useful figure for a surgeon to know especially if his figures are compared with those of colleagues performing similar operations. It is this latter point which is often omitted as there is a natural reluctance to publicise bad results. General physicians, on the other hand, are unlikely to see any condition often enough to compare outcome with colleagues in the same hospital.

ENFORCEMENT OF INVESTIGATION PATTERNS

Various methods have been tried in order to try to rationalise investigations. Although laboratories are ideally placed to do this they are, in fact, reluctant to enforce strict guidelines. The clinician continues to be powerful and can usually force through or demand most investigations that he or she wishes. The increasing stature and sophistication of the laboratory based services should have led to a major change in this area. Unfortunately the change, although present, has been slight. A major reason for this has been the introduction of automation to the laboratories which has made individual tests relatively cheap and allowed marked increases of throughput using fewer personnel. It is therefore easier to do the test than to argue. With a need to reduce laboratory costs more effort is now being put into this area. A few laboratories print the cost of each individual test on the report. While perhaps initially effective in the short-term there is no evidence that the effect is long-lasting. The insistence on specified types of information or samples is beginning to make inroads into certain areas. At my hospital the refusal to send samples for viral studies until a second specimen has arrived has drastically reduced the number of investigations performed. The potential for this technique is, however, limited. The recognition that certain tests are obsolete or unhelpful is a slow process. The introduction of charges for tests that are not thought to be useful while providing free measurements for recommended tests has had a dramatic effect in a number of American Institutes in speeding up this process. The gradual move towards clinical budgeting is likely to help reduce unnecessary and expensive investigations.

NOTIFICATION OF THE CONSUMER

Many laboratories keep accurate records of all investigations requested by individual consultant firms performed both electively and as emergencies. To date there has been little dissemination of this information. I have discovered that within my own firm, even during periods of careful auditing, requests for tests can vary considerably and in a manner unknown to me. Recent evidence has been conflicting as to whether careful monitoring of emergency requests influences the numbers per-

formed. This approach needs to be further explored but is likely to be effective only if individual consultants are compared to their colleagues, with the information being made available to all clinicians. In this way people can be asked to justify their practice. It is at this stage of open dissemination of facts that many doctors become uncomfortable.

PEER REVIEW

After consideration of the various methods I decided to introduce audit by peer review to the Medical and Clinical Pharmacology Units of the University of Birmingham seven years ago^{1,2}. Basically, the documentation and decision making process of about a quarter of the in-patients managed by an individual consultant firm are reviewed by a different firm. The auditor comments on the quality of the admission notes and follow-up notes, the method of investigation, appropriateness of the tests performed and drugs prescribed. The information given to the patient and relatives, the quality of the discharge summary and the time taken to produce it are all reviewed. Where necessary the audited firm is asked to justify its actions.

Although these procedures may sound threatening this has not proved to be so and most cases are thought to have been managed very adequately. However, this method does lead to open discussion of many points of management with the resulting input of differing viewpoints. In some areas the effects of audit have been dramatic but in others it has not been so easy to quantify change, despite the fact that all concerned are aware of changes. The most obvious effect has been on patient documentation which has improved beyond all recognition. This effect is due to the fact that a doctor is aware that failure to write notes will rapidly be brought to light. This has not, however, led to vast amounts of time being spent on note writing and there has been no increase in the number of entries in the notes since auditing began. Occasionally the chance arises to look at the records of non-auditing firms and the difference is striking. During the period of auditing there have been reductions in the number both of tests performed and of drugs prescribed. However, what has not and perhaps will never be shown is that the practice of medicine has improved.

It remains an act of faith that open discussion of the way you manage a patient, the identification of errors and omissions, a more rational use of tests and better communication with patients and doctors leads to better patient care. It is, however, a very persuasive argument. All the consultants involved feel that their practices have been affected favourably by the process. New junior staff and visitors have been impressed by the openness and informality of the meetings. As mentioned earlier, there are few black and white areas in medicine. These meetings allow a group of people of different grades to discuss problems and to talk them through. Differences of opinion may remain, but at least the topic has been looked at from various angles.

There are several obvious disadvantages of this method of audit. Following the rapid initial improvement in documentation most of the notes analysed were found to be well-written and management appropriate. Under these circumstances the meetings can become repetitive and less rewarding. This has been overcome by the auditors spending very little time on such notes and concentrating mainly on those where discussion is needed. By randomly choosing notes it is possible that cases most in need of discussion may be missed. This is undoubtedly true but is in practice unavoidable unless all notes are reviewed. More important is that in-patient records only are reviewed. Auditing out-patient records has been tried but this has so far proved to be unsuccessful, mainly because out-patient care is conducted in a different hospital on a site removed from the base hospital. A need to examine out-patient notes is accepted.

My biggest disappointment has been the failure to persuade other consultants to introduce audit by peer review. A variety of reasons has been given for this, usually the claim of insufficient time. Other colleagues have said that they achieve the same effect with case presentations, but this is clearly not true as such cases, although leading to a discussion of management, are presented by the managing team usually to illustrate a specific point or case of interest. The division of medicine at the Queen Elizabeth Hospital, Birmingham has not accepted the audit process on the grounds that the procedure has not been proved to save money. In my view it is inescapable that many of my colleagues are still unprepared to have other people looking critically at

the way they work. They feel threatened by the process and for the time being choose to ignore it. That this need not be the case has been clearly demonstrated. I do, however, know of one hospital in Stoke-on-Trent where the entire staff have accepted audit throughout all disciplines and it will be of great interest to see how this functions.

MEDICAL EDUCATION

One of the important principles to get over to both undergraduate and postgraduate students is that medicine is not a rigid specialty with a collection of specific treatments for specific ailments. In many instances the condition being treated is unknown and even when it is known the evidence that the treatment is proving beneficial is often lacking. A well-proven treatment for one patient with a certain condition may be inappropriate for a different patient with the same condition. My colleagues and I are well aware that we are seeing patients who may have been inappropriately investigated and treated by other colleagues; it would be naive to assume that we ourselves do not do the same thing.

It seems essential that an integral part of medical education must involve open discussion of what is being done and why, with other people being given

an opportunity to comment on what has happened. Allowing junior staff and students to become an integral part of such meetings means that they have shared the experience, and feed-back from them shows that they consider it an important method of education. In particular they felt that the audit forces them to think very carefully about why they had acted in a certain way.

The audit I have described creates a situation whereby a problem is discussed from a whole variety of angles by various doctors with differing areas of interest. As mentioned earlier it is not the only method of audit and should not replace case presentations, clinical-pathological meetings etc. Perhaps the most telling point in favour of peer group review is that in discussions with lay people it becomes clear that most of them assume that it must already be done — little do they know !

REFERENCES

1. Heath DA, Hoffenberg R, Bishop JM, Kendall MJ, Wade OL. Medical audits. *JR Coll Physicians Lond* 1980;14:200-1.
2. Heath DA, Medical audit in general medicine. *JR Coll Physicians Lond* 1981;15:197-9.