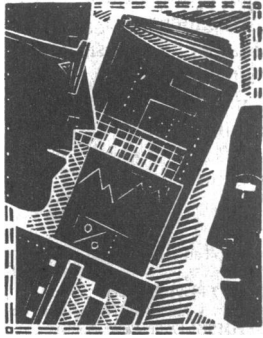


Audit in Person



A form to help learn and teach about assessing medical audit papers

Raj S Bhopal, Richard Thomson

The current prominence of medical audit has stimulated publication of papers on the subject and has created a need for a structured and critical approach for reading them. Several guides to the skills required for focused and critical reading of medical publications are available (see, for example, further reading listed in the paper by Fowkes and Fulton¹); and the analysis of research papers has been particularly well addressed.¹⁻³ Sackett and colleagues have provided guidance on the analysis of papers on quality of care and other issues relevant to medical audit.³ However, though these general guidelines are necessary for critical reading of published work on medical audit, we have found them insufficient.

What do we do?
Do we do what we think we do?
What should we do?
Are we doing what we should be doing?
How can we improve what we do?
Have we improved?

BOX 1—Key questions in medical audit

Medical audit is a process for the critical analysis of medical practice, and its essential aim is to improve the quality of routine medical care provided for patients. The essence of medical audit has been summarised by many; it is encapsulated in the questions in box 1 and the audit cycle (see box 2). Unlike research, it is not essential that medical audit extends the knowledge base of medicine. In fact, medical audit is heavily dependent on published data and consensus views. Unlike original research, audit is mainly concerned with assessing and changing routine medical practice and improving standards. Therefore, the emphasis of a critique of published medical audit needs to differ from that of research.

In many instances medical audit is primarily of local value, but sometimes the methods or the findings may be generalisable. If so, the audit deserves dissemination, potentially through publication. The ideal features of a medical audit project suitable for publication, in our view, include the following:

- The topic for study should concern routine medical practice or an aspect of health care which impinges on medical practice
- Standards of practice should preferably be made explicit or, if implicit, should be clearly discernible
- Measurements must be valid, suitable for routine medical practice, and relevant to the standards set
- Assessment of whether clinical standards have been met should be made and, if not, change instituted

- Effects of the change should be evaluated
- Reappraisal of medical practice should occur until the quality of care rises to or exceeds the standards agreed or agreement is reached on a revision of standards, thus creating an audit spiral.

We prepared a form, based on these perspectives, to help read and assess medical audit papers for a regional workshop on audit. We asked each clinician at the workshop to do the following: "List the main features, in your opinion, of a publication on an audit project. In particular consider those features which might induce change in your own practice, or entice you to begin a similar audit of your own practice." We also asked clinicians to comment on the assessment form and to give their opinion on the importance of the individual questions. We subsequently modified the form on the basis of their views on the important attributes of a medical audit paper (table) and from their collated comments on the value of the questions included in the form. The form was subsequently used in the analysis of five papers^{4,5} and subsequent discussion of two papers^{7,8} on audit with two groups of lead clinicians (local medical audit committee chairman and specialty audit lead clinicians) and two groups of clinicians with an emerging interest in audit.

Views on important attributes of medical audit papers among 25 clinicians attending regional workshop on audit

Category and description of attributes	No of mentions
Topic	32
Routine, relevant, practical	14
High volume, may save time and money, high cost	11
Practice needs change	5
Local concern or interest	2
Aims	11
Clear objectives	5
Focused audit on simple question	6
Standards	11
Standards, criteria, guidelines made clear	8
Process for setting standards clear or realistic	3
Measurements	12
Methods easy, repeatable, clear, sound	12
Interpretation	11
All factors leading to change considered	8
Statistical analysis included	3
Benefits and outcomes	16
Benefits shown in terms of health—for example, mortality	9
Benefits (unspecified)	2
Outcomes measured	5
Implementation	16
Change easy or within existing resources	6
Change made or audit cycle completed	7
Resource implication of audit and its implementation discussed	2
Change sustainable	1
Others	5
Educational value	1
Acceptable to colleagues	1
Cross specialty work	1
Patient satisfaction considered	2

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A BACKGROUND ISSUES

	Yes	No	Don't Know/ Not Sure
1 Is this audit relevant to the quality of patient care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Is the indication for undertaking the audit made explicit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 (a) Does the audit investigate routine practice?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not:			
(b) Does the audit concern a non-standard, new or experimental procedure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Does the audit concern a clinical issue characterised by:			
(a) High volume workload?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) High cost?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Local or wider concern?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) High variability in practice?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 (a) Is there consensus or partial consensus on the ideal mode of practice?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not:			
(b) Is it realistic, at the present time, to attempt to develop a consensus on this issue?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Is the audit of:			
(a) Structure of care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Process of care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Outcome of care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B METHODOLOGICAL ISSUES

1 Which, if any, of the following audit designs/approaches is used:

(a) Case note review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Critical incident discussion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Critical incident monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(d) Routine data monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(e) Criterion based topic audit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(f) Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If so, briefly describe:

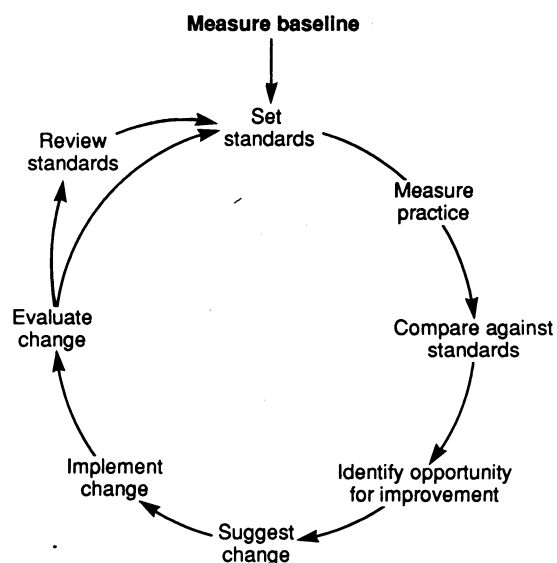
2 (a) Are the standards made explicit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not:			
(b) Are the standards implicit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Is the process of standard setting described?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 (a) Were standards taken from external sources (for example, medical reports)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(b) Were standards adapted from external sources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(c) Were standards developed by the authors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Was the audit based on aggregated data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Is the data collection method one that can be used by most clinicians?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Are the methods described well enough for you to repeat the audit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No	Don't Know/ Not Sure
8 (a) Are the results compared explicitly with standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not:			
(b) Are the results compared implicitly with standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

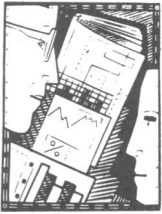
C IMPLICATIONS FOR CLINICAL PRACTICE

1 Do the authors indicate whether practice needs to be altered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Are you convinced by their arguments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Are appropriate and realistic changes suggested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Are the resource implications of the changes discussed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Were the suggested changes implemented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Were the changes described well enough for them to be implemented in your hospital/setting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Was the impact of change evaluated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 (a) Did the change lead to the anticipated benefit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not:			
(b) Were the reasons discussed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 (a) Were the benefits sustained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not:			
(b) Were the reasons discussed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Were the standards revised as a result of the audit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Were areas requiring educational input identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Were opportunities for future audit projects identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 Were opportunities for research identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Consider the audit cycle below and indicate how far this report has progressed around the cycle



If you have any further general comments about the audit report not covered by the above questions please make them below:



Content and purpose of assessment form

The form is in four parts: background issues, methodological issues, implications for medical practice, and a diagram of the audit cycle on which the reader marks the characteristics of the paper (box 2).

The completion of the form and subsequent discussion of it in an open forum of clinicians were intended to:

- Develop and refine a structured approach that could be applied to any published paper on medical audit (and, potentially, to unpublished audit projects and protocols)
- Provoke consideration, from first principles, of what to expect an audit paper to contain and hence to reinforce clinicians' understanding of the nature and purpose of audit
- Provide an opportunity of analysing several recent illustrative publications
- Reinforce the main principles of medical audit and illustrate that some principles are not fixed but evolving, through the discussion of the varying responses given by clinicians
- Engender debate on issues such as standards, criteria, and guidelines by discussing a paper's content and highlighting areas of uncertainty.

The form helped to achieve these objectives, as evidenced by feedback from the clinicians: 38 of 74 participants in the workshops subsequently completed an evaluation questionnaire (some are still expected), 34 of whom stated that they felt better able to assess and criticise audit reports; all but one clinician reported that the session in which the form had been used was valuable.

Discussion

The rapid pace of medical progress requires doctors to read original research reports and not to rely only on textbooks. As many writers have emphasised, reading original reports is best performed in a critical and structured approach. In this way, as Sackett and colleagues clearly showed,³ doctors may avoid being misled by spurious findings and use their reading time more effectively. Sackett and colleagues provided short accounts of how to read papers on a range of issues, including a few questions on the quality of care. We are unaware, however, of a comprehensive, structured approach to reading which concerns the specific attributes of medical audit papers.

Presently, many doctors need to learn quickly the principles and techniques of medical audit. Their need for continuing education in medical audit will be met not only by short courses and practical experience but also by reading the emerging publications on medical audit. Medical audit projects, unlike general research, will often exhort (explicitly or implicitly) change in medical practice. In these circumstances doctors need

to consider carefully the nature, validity, generalisability, and applicability of the work. Combined with previously published guidelines for critical appraisal of research, our form provides an approach for doctors to do this. In the process of systematically analysing papers doctors can consolidate their knowledge on the nature of medical audit. We emphasise that our form is part of a reading "toolkit" and cannot alone lead to a valid appraisal of the scientific validity of the paper (question C2 for example, requires general appraisal skills). In our experience the form is a useful teaching aid and helps to generate discussion on the core elements of a published medical audit paper. The form may also be useful for reviewing manuscripts and outlines of medical audit projects and for doctors designing audit projects, but as yet we have no practical experience of these uses.

Medical audit papers are not unique in addressing issues relating to the quality of medical care, and, combined with other reading aids, parts of our form—for example, section C—may be useful to clinicians in assessing other types of publication.

Our form was prepared on the basis of first principles and subsequently modified. We believe that it is reasonably comprehensive and, on the basis of the data in the table, that it focuses on the issues within medical audit papers which clinicians deem to be important. The clinicians at the workshops reported that audit publications, particularly those which might influence their own practice, should include a focus on routine, high volume medical care, be concerned with simple questions, use straightforward methods, and place emphasis on the implementation of change. They did not emphasise educational value or patient satisfaction as important attributes of published audit. The last two observations surprised us and may merit further study and reflection.

In conclusion, papers on medical audit need to be read particularly carefully by doctors who may be influenced to change their medical practice. They should utilise techniques for critical appraisal and a structured approach. Our form is an adjunct to established methods for learning and teaching about medical audit.

- 1 Fowkes FGR, Fulton PM. Critical appraisal of published research: introductory guidelines. *BMJ* 1991;302:1136-40.
- 2 Easterbrook P. "Critical appraisal" or how to interpret journal articles. *BMJ* 1990;302:392-3.
- 3 Sackett DL, Haynes RB, Tugwell P. *Clinical epidemiology. A basic science for clinical medicine*. Boston: Little, Brown, 1985.
- 4 Hancock BD. Audit of major colorectal and biliary surgery to reduce rates of wound infection. *BMJ* 1990;301:911-2.
- 5 Rutherford AD. Blood usage and laminectomy. *J R Coll Surg Edinb* 1987;32:72-3.
- 6 Neville RG. Notifying general practitioners about deaths in hospital: an audit. *J R Coll Gen Pract* 1987;37:496-7.
- 7 Milne RIG. Assessment of care in children with sickle cell disease: implications for neonatal screening programmes. *BMJ* 1990;300:371-4.
- 8 Fowkes FGR, Hall R, Jones JH, Scanlon MF, Elder GH, Hobbs DR, *et al*. Trial of strategy for reducing the use of laboratory tests. *BMJ* 1986;292:883-5.

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