Audit of audit: review of a clinical audit programme in a teaching hospital intensive care unit

Objective: A comprehensive review of the clinical audit programme in a teaching hospital intensive care unit.

Design: A retrospective analysis of the clinical audit projects undertaken within the intensive care unit over the preceding 2 years and compared with published national guidelines for clinical audit.

Setting: A 27-bedded teaching hospital intensive care unit in the UK.

Measurements: Each audit project was reviewed independently by two assessors. The following questions were assessed: 1) Were the projects true audits? 2) Were they prospective or retrospective? 3) Did the projects have input from appropriate members of the multidisciplinary team? 4) How many of the audit projects were re-audits? 5) Of the re-audits how many showed evidence of service improvement? Each audit project was also scored against the Audit Project Assessment Tool produced by the UK Clinical Governance Support Team.

Results: Of the twenty five audit projects reviewed twenty two were considered to be true audits. All of the projects used only retrospective data. Audit projects were contributed from all sections of the multidisciplinary critical care team but there were few truly multidisciplinary projects. Four of the audit projects were re-audits, of these three showed service improvement and one showed deterioration. Of the twenty two true audit projects reviewed, eleven were classified as good quality projects using the Audit Project Assessment Tool.

Conclusions: Despite the clinical audit programme being active and well supported, objective evidence of clinical governance benefit was lacking. The overall clinical audit programme has been revitalised by a series of improvements since undertaking this review and this approach is recommended to other organizations who are interested in improving their clinical audit performance.

Clinical audit is a core component of good clinical governance, and participation is a requirement for all doctors registered with the General Medical Council. Despite this, evidence of improved practice resulting from clinical audit is lacking (Jamtvedt et al, 2006), and there is evidence that resources may be being wasted by selecting inappropriate audit criteria (Hearnshaw et al, 2003). The National Institute for Clinical Excellence (2002) expressed concern that:

'Clinical audit has a mixed history in the NHS, and for every success story there are just as many projects that have run into the ground without demonstrating any significant contribution to quality of services'.

There may be several reasons why a clinical audit programme may not result in improvements in patient care. First, local clinical audit projects are often undertaken by trainee doctors who may have a limited understanding of the principles of good clinical audit and negative attitudes towards the process. These doctors are often in post for only a short period of time and may not have the opportunity or incentive to implement change and re-audit. Second, there is often confusion about the differences between clinical audit, service evaluation and research. Some audit projects may cross the fine line between audit and research, not actually assessing performance against accepted standards but continually re-defining those standards. Third, while in theory clinical audit takes the form of a neat cycle of identifying a problem, defining standards, collecting data, implementing change and re-auditing, in the real world of clinical medicine the cycle is often not completed and the problems not resolved.

In an attempt to improve the quality of clinical audit in the UK the National Institute for Clinical Excellence and the (now disbanded) Clinical Governance Support Team of the NHS both pro-

Dr Peter Anderson *is Critical Care Consultant, Intensive Care Unit, Royal Sussex County Hospital, Brighton BN2 5BE,* **Dr Peter Fee** *is Specialty Registrar Anaesthesia in the Northern Ireland Deanery,* **Dr Rob Shulman** *is Critical Care Pharmacist in the Pharmacy Department,* **Dr Geoffrey J Bellingan** *is Consultant and Reader in Intensive Care Medicine and* **Dr David CJ Howell** *is Divisional Clinical Director for Critical Care in the Centre for Respiratory Research, University College London Hospitals, London*

Correspondence to: Dr P Anderson (pganderson@doctors.org.uk)

Table 1. Twelve criteria for good clinical audit

Should be part of a structured programme
Topics chosen should in the main be high risk, high volume or high cost or reflect National Clinical Audits, National Service Frameworks or National Institute for Clinical Excellence guidance
Service users should be part of the clinical audit process
Should be multidisciplinary in nature
Clinical audit should include assessment of process and outcome of care
Standards should be derived from good quality guidelines
The sample size chosen should be adequate to produce credible results
Managers should be actively involved in audit and in particular in the development of action plans from audit enquiry
Action plans should address the local barriers to change and identify those responsible for service improvement
Re-audit should be applied to ascertain whether improvements in care have been implemented as a result of clinical audit
Systems, structures and specific mechanisms should be made available to monitor service improvements once the audit cycle has been completed
Each audit should have a local lead

From Copeland (2005)

duced guidance for the management of successful audit programmes (National Institute for Clinical Excellence, 2002; Copeland, 2005). *A Practical Handbook for Clinical Audit* produced by the Clinical Governance Support Team (Copeland, 2005) defines twelve criteria for good local clinical audit (*Table 1*). How well an individual audit project fulfils these criteria can be assessed using the Audit Project Assessment Tool, also published in the handbook (*Table 2*). Audit projects are scored out of a total of 25 points, those scoring more than 16 points are regarded as good projects.

The intensive care unit at University College London Hospitals has an active, multidisciplinary clinical audit programme which is well supported by senior staff. The authors wanted to ensure that this clinical audit programme was a useful clinical governance tool and of value in improving patient care, so they audited the clinical audit programme.

Methods

All of the projects which had been presented at the intensive care unit monthly clinical audit meetings over a 24-month period were identified. Of twenty nine presentations given during this period the records for twenty five (86%) were available for review. These were retrospectively evaluated independently by two reviewers (PA and PF). The following was assessed:

1. Were the projects true audits rather than activity reports or research?
2. Were the projects prospective or retrospective?
3. Did the projects have input from appropriate members of the multidisciplinary team?
4. How many of the projects were re-audits?
5. Of the re-audits, how many showed service improvement?
6. What did each project score on the Audit Project Assessment Tool?

A score was awarded by each reviewer independently and the mean of these two scores was taken. Presentations which were identified as not being true audits were excluded from the scoring process.

Table 2. The audit project assessment tool

Criteria		Score
Topic appropriateness (maximum score allowed 5)	High volume, high risk, high cost	Score 2
	As a result of litigation or patient compliant, adverse incident	Score 2
	National Clinical Audit or NHS Scotland	Score 2
Standards (evidence based) (maximum score allowed 5)	Based on nationally agreed best practice, e.g. National Institute for Clinical Excellence/National Service Framework	Score 3
	If none available then standards based on Scottish Intercollegiate Guideline Network (SIGN) or College guidelines	Score 2
	Alternatively literature search undertaken, supporting information with regard to the level of evidence identified and the method of consensus	Score 1
	Patient perspective considered	Score 2
Methodology (maximum score allowed 5)	Multidisciplinary design with service users	Score 2
	Outcome and process built into design	Score 2
	Lead responsible clinician identified	Score 1
	Data sources for prospective data identified	Score 1
	Adequate audit tool and sample size	Score 1
	Case mix adjustment for outcome assessment	Score 1
Intended dissemination of results (maximum score allowed 5)	Distributed to all stakeholders and service users	Score 2
	Presented to directorate including managerial team	Score 2
	Local team presentation	Score 1
	Presentation to regional or national meeting or publication	Score 1
Potential for change consideration (maximum score allowed 5)	Lead clinician responsible for action planning identified	Score 1
	Managerial input into action planning identified	Score 1
	Potential barriers to change identified	Score 2
	Potential financial implications and risks identified and prioritised	Score 2
	Re-audit planned with tool adjustment if necessary	Score 1
	Re-audit planned with tool adjustment if necessary	Score 1
	Service monitoring criteria considered	Score 1
Total (max 25) (maximum score allowed 25)		

A score greater than 16 would be regarded as a good clinical audit project. From Copeland (2005)

Results

Were the projects true audits rather than activity reports or research?

Of the twenty five projects reviewed twenty two (88%) were considered to be true audit projects of which two (8%) had a research overlap. Of the three presentations considered not to be true audit projects, two were presentations highlighting targets for standards of care but without review of current practice, and one was an activity report of a recently established service with no comparison to accepted best practice.

Were the projects prospective or retrospective?

All of the audit projects used only retrospective data.

Did the projects have input from appropriate members of the multidisciplinary team?

There were single-specialty audits from all professions within the multidisciplinary team, but only nine of the projects (41%) were multidisciplinary undertakings.

How many of the projects were re-audits?

Four (18%) of the projects were re-audits. Of these re-audits, three identified an improvement in performance during the intervening period and one deterioration.

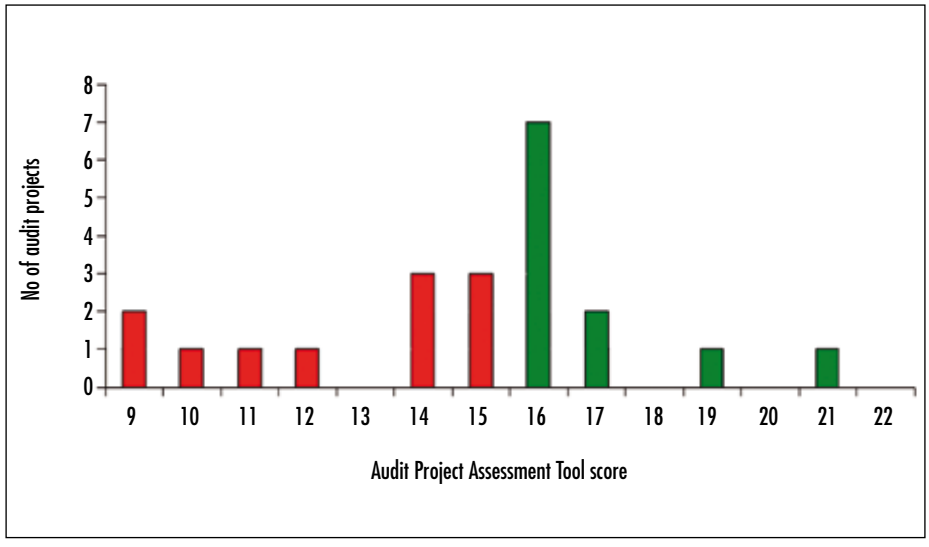

Figure 1. Spread of the Audit Project Assessment Tool scores – a score of 16 or greater (green bars) is required to be considered a good audit. Red bars show audits which failed to reach that standard.

What did each project score on the Audit Project Assessment Tool?

The twenty two projects scored between 9 and 22 points using the Audit Project Assessment Tool. There was generally good agreement between the two assessors with the same score being allocated by both assessors for nineteen of the twenty two projects (86%). The largest disparity between the scores was 2 points. Eleven of the twenty two projects assessed (50%) scored more than the 16 points necessary to be regarded as a good audit project. The spread of scores is shown in *Figure 1*.

Discussion

Clinical audit is a useful tool for ensuring that patient care is of the highest possible standard. Individual audit projects require a great deal of time and effort from the investigators to yield meaningful results. Junior medical staff are expected to participate in clinical audit, and a well-designed project can help them gain a greater understanding of the health-care process (Benjamin, 2008). This study identified that although the audit programme was active and well supported, objective evidence of clinical governance benefit was lacking. The authors suspect that other local clinical audit programmes would find similar results when reviewing their overall performance.

Consistent with this hypothesis, a study by Gnanlingham et al (2001) reviewed 213 audit projects carried out over the course of 1 year in a UK teaching hospital. They identified that the audit cycle was completed in only 25% of cases. Furthermore, in their study, 16% of the projects undertaken were not considered as true audit but were instead research projects or discussions. John et al (2004) reviewed 134 clinical audits performed at a UK children's hospital over a 6-year time-span. They found that the audit cycle was completed in 22% of cases and that 6% of the projects were not true audits. However, neither of these reviews reported assessment of the quality of the individual audit projects, as was performed in the current study.

Johnston et al (2000) reviewed the literature on the benefits and disadvantages of clinical audit and assessed the main barriers to the process. They classified the barriers to clinical audit under five headings: lack of resources, lack of expertise or advice in project design or analysis, problems between groups or group members, lack of an overall plan for audit, and organizational impediments.

In the current study, the authors also encountered some of these problems. Adherence to the criteria for good local clinical audit defined in the *A Practical Handbook for Clinical Audit* (Copeland, 2005) (*Table 1*) was varied, notably in the following areas:

Weaknesses

Clinical audit projects should be part of a structured programme

Audit meetings were held monthly and were well attended, but no central record was kept of projects undertaken, recommendations arising and the need for re-audit.

Clinical audit projects should be multidisciplinary in nature

Only 41% of the audit projects reviewed had input from various specialties of the multidisciplinary team. The majority were single specialty undertakings.

Standards should be derived from good quality guidelines

Only six of the twenty two projects (27%) cited good quality guidelines or evidence against which to compare practice.

Re-audit should be applied to ascertain whether improvements in care have been implemented as a result of clinical audit

Only four re-audits were undertaken in the time period reviewed. Four of the new projects did not include plans for service improvement or re-audit.

Each audit project should have a local lead

All of the audit projects reviewed had a named local lead. Of the projects with a trainee doctor as the lead who subsequently left the department, a successor was identified in only 20%.

In addition, prospective use of the Audit Project Assessment Tool would have rejected 50% of the audit projects at the outset. The commonest reasons for poor assessment tool scores were failure to implement change and then re-audit, and failure to justify the relevance of the audit by citing a good evidence base.

Strengths

The sample size chosen should be adequate to produce credible results

All of the projects used large datasets from the intensive care unit's electronic medical record system; this contains full records of all of the 1200 annual admissions to the intensive care unit dating back to 2004.

Managers should be actively involved in audit and in particular in the development of action plans from audit enquiry

All of the audit projects were presented at meetings with at least one senior clinical manager present.

Changes made

As a result of the findings of this study, the following changes and goals were introduced to the department's clinical audit programme:

1. A database was established containing the details of each audit project undertaken. This records the findings of each project, the action plan agreed, and the proposed timescale for re-audit
2. A Lead Clinician for Clinical Audit was appointed, responsible for identifying a local lead for each project. The local lead takes ownership of the project, recruits other members of the multidisciplinary team, implements any identified action plan and is responsible for coordination of re-audit where necessary. If the local lead moves from the department before re-audit, a successor is identified by the Lead Clinician for Clinical Audit.
3. All audit projects proposed are reviewed and approved by the Lead Clinician for Clinical Audit before starting to ensure that they are relevant to the practice of the department, based on good evidence and are methodologically sound.
4. In order to provide 'added value' for participants in clinical audit, a drive towards increasing the number of presentations delivered at clinical meetings was introduced with a secondary aim of publishing a proportion of the highest quality audits.
5. An annual review of the departmental audit programme is presented at the departmental clinical governance meeting, to ensure that standards are maintained, audit loops closed, and practice change facilitated.

Conclusions

This review of the department's clinical audit programme was an extremely useful exercise. The audit programme was active and well supported with both the department and individual staff investing time and effort undertaking audit projects. However, when viewed dispassionately, these were not actually contributing to effective clinical governance. The Audit Project Assessment Tool is helpful in allowing clinical audit leads to define and maintain the standards expected of audit within their institution. The authors recommend a regular 'audit of audit' to identify areas for improvement in departmental or institutional audit programmes. **BJHM**

Conflict of interest: none.

Benjamin A (2008) Audit: how to do it in practice. *BMJ* **336**(7655): 1241–5

Berger A (1998) Why doesn't audit work? *BMJ* **316**(7135): 875–6

Copeland G (2005) A Practical Handbook for Clinical Audit. NHS Clinical Governance Support Team. www.hqip.org.uk/assets/Downloads/Practical-Clinical-Audit-Handbook-CGSupport.pdf (accessed 31 August 2012)

Gnanalingham J, Gnanalingham MG, Gnanalingham KK (2001) An audit of audits: are we completing the cycle? *J R Soc Med* **94**(6): 288–9

Hearnshaw HM, Harker RM, Cheater FM, Baker RH, Grimshaw GM (2003) Are audits wasting resources by measuring the wrong things? A survey of methods used to select audit review criteria. *Qual Saf Health Care* **12**(1): 24–8

Jamtvedt G, Young JM, Kristoffersen DT, O'Brien MA, Oxman AD (2006) Audit and feedback: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev* (2): CD000259

John CM, Mathew DE, Gnanalingham MG (2004) An audit of paediatric audits. *Arch Dis Child* **89**(12): 1128–9

Johnston G, Crombie IK, Davies HT, Alder EM, Millard A (2000) Reviewing audit: barriers and facilitating factors for effective clinical audit. *Qual Health Care* **9**(1): 23–36

National Institute for Clinical Excellence (2002) *Principles for best practice in clinical audit.* NICE, London

LEARNING POINTS

- Clinical audit is regarded as a key component of good clinical governance, but evidence of benefit is lacking.
- Many clinical audit projects may not be of sufficient quality to be useful clinical governance tools.
- The Audit Project Assessment Tool allows standardized assessment of individual clinical audit projects.
- Departments and institutions should regularly review their clinical audit programmes to ensure that they are of value.