Clinical Medicine 2010, Vol 10, No 1: 20–5

Eight years' experience of regional audit: an assessment of its value as a clinical governance tool

H John, Z Paskins, A Hassell and IF Rowe on behalf of the West Midlands Rheumatology Service and Training Committee

ABSTRACT – Strengthening clinical audit is crucial for improving the quality of healthcare provision. The West Midlands Rheumatology Service and Training Committee coordinates an innovative programme of regional audits and the experience of rheumatology healthcare professionals involved was surveyed. This was a questionnaire-based study in which respondents rated statements relating to regional audit on Likert scales. Out of 105 staff, 70 replied. There was consensus that results of regional audit have been robust, valid and reliable; regional audits benefit patients and units; provide educational opportunities for specialist registrars (SpRs); and are more efficient than local audit by allowing comparison between units. Opinion was divided about how well informed respondents were and how effective they are at closing the audit loop. Many units reported changes in practice. Regional audit is widely perceived to be a valuable clinical governance tool supporting significant changes to clinical practice, and an excellent training opportunity for SpRs. Recommendations for a successful regional audit scheme are described in this article.

KEY WORDS: clinical audit, clinical governance, regional audit

Introduction

It is apparent that the strengthening of clinical audit will play a crucial role in current plans for improving healthcare provision. Increased emphasis on improving quality of patient services has been highlighted in the recent Darzi Report and the National Clinical Audit Advisory Group has been established to provide a coherent programme of audit activities and to support national and local audit.[1,2] Evidence of participation in quality, multicentre audit is likely to play a role in staff appraisal including consultant revalidation.[3]

National audit has been conducted in the UK since 1998 in specialties with National Service Frameworks (NSFs), as developed by the Clinical Evaluation and Effectiveness Unit (CEEu) at the Royal College of Physicians. It overcomes many of the well-cited problems with local audit including:

- projects often being small scale with too few patients to produce meaningful results
- results being retained locally so there is no external pressure for change
- the audit loop often not closed with repeat audit.[4]

National audits have led to significant improvements in healthcare and are likely to play an increasing role in the development of clinical audit.[5] However, these national audits incur significant costs in reporting and analysing data, currently remain limited to specialties with a relevant NSF and, importantly, will not give junior doctors the experience and educational opportunities afforded from designing and leading an audit project themselves.

Not all multicentre audit is at national level; several regional multicentre audits have been conducted and published.[6–8] In 2000, the West Midlands Rheumatology Service and Training Committee (WMRSTC) started an innovative, voluntary, annual programme of regional audits, designed and organised with specialist registrar (SpR) involvement, based on national specialty guidelines. The typical methodology used is described in Box 1.

Using this methodology, six regional audits were completed by the time of this study with no external funding. Each involved approximately 2,000 patients across 10 to 13 units (Table 1).[9–14]

The authors previously conducted a qualitative study with a small sample of healthcare professionals to evaluate this innovative regional audit programme. Findings from this work suggest that regional audit has specific strengths in the clinical governance armamentarium.[15] Regional audit was perceived to:

- be an efficient use of resources and expertise
- useful for specific topics with smaller patient numbers per unit
- allow benchmarking against other local units
- be a potentially powerful political tool
- provide training opportunities in generic skills for trainees
- develop collaborative regional networks.

In addition, regional programmes were reported to overcome barriers to audit, such as lack of time and resources, and to incorporate factors that promote successful audit, such as sound leadership and having a supportive environment.[15,16]

H John, specialist registrar, Dudley Group of Hospitals NHS Foundation Trust, Dudley; **Z Paskins,** specialist registrar, University Hospital of North Staffordshire, Stoke-on-Trent; **A Hassell,** consultant rheumatologist, University Hospital of North Staffordshire, Stoke-on-Trent; **IF Rowe,** consultant rheumatologist, Worcestershire Royal Hospital, Worcester

This current study was targeted at all healthcare professionals involved in the West Midlands rheumatology regional audit scheme. Informed by previous qualitative work, the study's aims were to identify views on the regional audit programme, its advantages and challenges, to measure recall of previous audits and whether respondents recollected the outcomes, to assess the impact of previous regional audits on local clinical practice and finally to produce a list of recommendations for successful regional audit, informed by stakeholder opinion, which may be of use not only for further development of this audit programme, but also to other regions and specialties.

Methods

Procedure

Research ethics committee approval was gained. A questionnaire was designed which collected demographic information and on which respondents were asked to rate various statements relating to regional audit on a Likert scale, ranging from strongly agree to strongly disagree. Questions were positively and negatively phrased to minimise acquiescence. Recall of previous regional audits, whether they had participated in the audit and whether they had received the results or heard them presented was ascertained. Details of any changes in clinical practice which had occurred as a consequence of each previous regional audit, such as a change to local protocols, whether the results had informed policy discussions with the relevant management and/or a business case for increased resources, and whether a local re-audit had been performed, were also collected. Lastly there was the opportunity for free text comments.

Participants

The questionnaire was posted to all rheumatology consultants, SpRs and clinical nurse specialists (CNSs) in the West Midlands

Box 1. An example method of a rheumatology regional audit in the West Midlands.

- A steering committee of specialist registrars (SpRs) is set up, led by a consultant member of the West Midlands Rheumatology Service and Training Committee (WMRSTC) with experience in large multicentre audit
- The topic is chosen by the WMRSTC, after regional discussion
- One central audit department within the region provides dedicated information technology support, and helps design and print pro formas
- The audit pro forma is kept to one sheet of A4 paper, and piloted at two units
- Details about the forthcoming regional audit are communicated to all relevant healthcare professionals in the region by email and units are invited to participate
- Adequate numbers of pro formas are distributed, by the steering committee, to the SpR at each unit involved
- Each local SpR informs their local unit and oversees administrative aspects of audit locally
- For a designated two-week period, all patients attending outpatient clinics have the audit pro forma attached to the front of their notes to be completed by the clinician who sees them
- Completed pro formas are collated by the local SpR and delivered to the central unit
- Audit pro formas are read digitally using 'Snap' software at the central unit audit department
- Results are analysed by the organising SpR group and a report is written
- Dissemination is by email to each consultant in the region; each unit receives details of individual performance with anonymised results from other units
- The audit report is presented locally, regionally and nationally and is published in a peer-reviewed journal

Table 1. Summary of patient and unit numbers involved in the West Midlands rheumatology regional audits to date.

Guidelines audited	Abbreviated title for audit standard	Total number of units in audit	Total number of patients in audit
National Osteoporosis Society. Corticosteroid-induced-osteoporosis prophylaxis guidance (1998)[9]	NOS steroid audit	10	1,766
National Institute for Clinical Excellence. Non-steroidal anti-inflammatory/ Cox-2 inhibitor guidance (2001)[10]	COX 2 audit	18*	2,846
British Society for Rheumatology (BSR). Anti-TNF α guidance (2001)[11]	Anti-TNF audit	12	1,441
Royal College of Physicians. Corticosteroid-induced-osteoporosis prophylaxis guidance (2002)[12]	RCP steroid audit	13	2,609
ARthritis and Musculoskeletal Alliance standards of care guidance (2004)[13]	ARMA audit	11	1,877
BSR/British Thoracic Society. Tuberculosis risk assessment for anti-TNF α guidance (2005)[14]	BTS audit	13	856

*This total includes a number of hospitals that have now merged as one trust and are counted as one unit in subsequent audits.

who had been involved in at least one of the previous regional audits. Repeat mailings were used to optimise the response rate.

Results

The response rate was 70/105 (67%), with replies from all 13 units. Of the 70 respondents, 39 were consultants, 15 were SpRs and 16 were CNSs; 18 respondents had been an author on a publication of a regional audit and five had declined to participate in one or more previous regional audits.

Views on the regional audit programme

There was consensus among respondents to many statements relating to regional audit, including the relevance of chosen topics, its benefit to patients and to rheumatology units, its role in promoting discussion within rheumatology departments and its usefulness in trainee education (Table 2). Some statements (marked ‡) did elicit divided opinion, notably regarding how well informed respondents felt about results of regional audits and how effective regional audit is at closing the audit loop. There was consistent disagreement with the statement that 'regional audit is a "tick box" exercise that does not lead to meaningful outcomes'.

Comparison of respondents' opinions of regional to local audit (Table 3) shows consensus of opinion regarding the greater efficiency and effectiveness of regional over local audit. Out of 68 respondents, 52 (76.5%) agreed that 'comparing results between units makes audit standards more meaningful'.

Table 2. Questionnaire elicited views on regional audit.

Regional audit....	Agree*	Neither agree nor disagree	Disagree+
...has involved relevant topics	64	5	1
...involves the development of a suitable questionnaire	57	7	3
...results have been robust, valid and reliable	40	20	3
...benefits patients	56	9	3
...benefits an individual unit	53	9	6
...contributes to continuing professional development	47	15	5
...builds positive relationships between units	25	30	10
...has led to further departmental discussion	57	7	3
...should be a multidisciplinary team activity	60	5	4
...offers an appropriate opportunity for specialist registrars to develop skills in questionnaire design and data analysis	65	3	0
Respondents are keen to be involved in regional audit	59	8	1
Anonymity of units is important‡	27	29	11
I did not feel well informed about each regional audit prior to data collection‡	25	16	27
I felt well informed about the results of my unit afterwards‡	38	13	17
Collecting data disrupts clinics‡	22	13	32
I would be less inclined to be involved in regional audits if previous audits had not been published‡	23	22	24
Regional audit is effective in 'closing the loop'‡	17	31	13

*Those that strongly agreed and agreed with the statement.
+Those that strongly disagreed and disagreed with the statement.
‡Statement about regional audit that elicited divided opinion among respondents.

Table 3. Agreement to statements comparing regional audit to local audit.

When compared to local audit, regional audit...	Agree*	Neither agree nor disagree	Disagree+
...is a more efficient use of time and resources	45	18	4
...is more likely to lead to change in practice	38	18	12
...allows specialist registrars to develop more advanced skills in audit methodology	42	14	11
...is more suitable for some topics	58	8	1
Comparing results between units makes audit standard more meaningful	52	12	4
Can learn from other units in order to improve clinical practice	34	23	9

*Those that strongly agreed and agreed with the statement.
+Those that strongly disagreed and disagreed with the statement.

Analysis of opinions between different groups of healthcare professionals showed no difference between the groups (Table 4[17]). Remarkably similar opinions were held between those respondents directly involved in leading an audit compared to those that collected data or declined to participate in an individual audit.

Recall of previous regional audits and their outcomes

The majority of respondents employed in the region at the time of a regional audit had heard about each audit. However, fewer people recalled hearing a presentation of the results or reading the peer-reviewed publication (Table 5).

Was change in clinical practice implemented following a regional audit?

Many units reported changes in practice following a regional audit (Table 6). Specific examples include that a regional audit helped in the business case for a local osteoporosis service,[9] provided data for negotiations with the local primary care trust to fund eligible patients with biologic therapy,[11] re-educated staff about avoiding unnecessary dual energy X-ray absorptiometry scans,[12] supported the commencement of annual review clinics[13] and reduced empirical prescription of anti-tuberculous therapy in low-risk cases.[14]

Table 4. Amount of agreement to statements about regional audit compared between different groups of healthcare professionals.

Category		Mean agreement (%)* among this group to the statements about regional audit
Job	Consultant	75
	SpR	74
	CNS	69
Authorship	Author on a regional audit publication	77
	Never been an author on a regional audit publication	72
Participation in regional audit	Never declined to participate in a regional audit	73
	Declined to participate in a regional audit	70

CNS = clinical nurse specialists; SpR = specialist registrar. *Verbal Likert scores on the questionnaire were converted into their ordinal equivalent, where 5 represents strongly agree and 1 represents strongly disagree (using inverse scoring for negatively phrased questions). Scores were then summed to give an overall score of agreement per respondent, which can be expressed as a percentage.[17]

Table 5. Respondent recall about the different regional audits.

Abbreviated title for audit standard	Year audit performed	Number of survey respondents employed in region at time of audit	Not heard of it	Involved in data collection	Received a personal copy of results (cons only)	Heard local presentation of results	Heard regional/ national presentation of results	Read the peer-reviewed publication
NOS steroid audit	1999	36	10	29	23	29	19	21
COX 2 audit	2002	50	9	32	10	20	14	13
Anti-TNF audit	2004	62	8	28	15	19	20	20
RCP steroid audit	2004	62	11	28	15	21	15	14
ARMA audit	2005	67	4	35	23	23	21	15
BTS audit	2007	70	3	32	10	20	14	in press

Table 6. Number of units whose staff reported changes in practice following each regional audit.

Abbreviated title for audit standard	Number of units involved in each individual audit	Change to local protocols	Business case for more resources	Informed policy discussions with primary care trust/ hospital management	Prompted local re-audit
NOS steroid audit	10	7	2	5	7
COX 2 audit	18*	6	1	3	3
Anti-TNF audit	12	7	7	8	4
RCP steroid audit	13	7	1	5	7
ARMA audit	11	4	3	5	2
BTS audit	13	8	1	3	1

*This total includes a number of hospitals that have now merged as one trust and are counted as one unit in subsequent audits.

The future of regional audit?

There was consensus among respondents that most would like to be involved in choosing topics for future audits and that regional collaboration could be developed beyond audit, for example with research projects or regional guidelines (only three and one respondent respectively disagreed with these statements). There was mixed opinion on whether there should be lay involvement in topic choice.

Discussion

This study has identified many strengths of the innovative programme of regional audits. In particular, there was general agreement that it benefits patients, has the potential to improve hospital services in individual units and offers many advantages compared to local audit including the ability to compare results between units thus increasing the value of the audit. Indeed this comparison between units may also be used to support applications for increased resource provision in order to meet the standards of neighbouring units. Other examples of regional audit have similarly compared, anonymously, performance between units whereas others have not exploited this benefit.[18,19] Interestingly, only 27 (40.3%) respondents to this questionnaire thought that, when comparing between units, anonymity was important. In addition, this regional audit scheme was thought to provide specific educational opportunities for SpRs, namely for developing skills in audit methodology, pro forma design and data analysis, essential generic skills that they are expected to acquire during their training.

The degree of agreement with the statements was similar between consultants, SpRs and CNSs suggesting that different healthcare professionals have similar views regarding the regional audit process. Those healthcare professionals who had been less involved in previous audits still held similar levels of agreement to the positive aspects of regional audit, which suggests that the results do not only represent the views of a group of enthusiasts. There was consensus among respondents that regional audit should be a multidisciplinary activity.

Audit ultimately aims to drive changes in clinical practice to improve patient care. A particular strength of this paper is that it attempts to assess the impact of regional audit on local practice. This reveals that significant modifications have indeed been implemented in many units following a regional audit. Regional audit facilitated increased resource provision and supported discussions with local management teams, in addition to changes to clinical pathways. Thus, this regional audit scheme has been a powerful clinical governance tool, with tangible results. Other groups also describe how a regional audit has been used to inform the development of standards of care and sequential national audits have also documented improvements in patient care.[5,20] However, compared to national audits, these regional audits have required no external funding. SpRs undertook this work as part of their protected time and the audit department involved took on this project as part of their ongoing funded work.

Areas which invoked divided opinion among respondents included the quality of intra-regional communication. The regional audit programme has been well publicised; however, communication between the steering committee and those collecting data needs to be improved, as does the communication of results. Whether regional audit is effective in closing the audit loop also provoked mixed opinion. The response here may reflect that only one of the regional audits completed so far was a re-audit although Table 6 shows that a regional audit has frequently prompted local re-audit.[12] Continuing to publish audits appeared to be more important to some respondents than others which may reflect different stakeholder motivations[15]; holding this opinion, however, was not related to job level.

Limitations of this study include an acknowledgement that the results may have been skewed slightly by potential regional audit 'enthusiasts', even though the analysis did not indicate that previous authors of regional audit publications responded differently to non-authors. Recall bias must be considered in the interpretation of the respondents' reported involvement in previous audits and description of changes in clinical practice following a regional audit, particularly as the first audit was carried out almost 10 years ago. Also staff will have moved in and out of the region over this time period so not all staff involved in the earlier regional audits were questioned.

Based on the experience and evaluation of this regional audit programme, the following recommendations for setting up a successful regional audit scheme are proposed (Box 2). A regional audit scheme is recommended to other regions and specialties. Specialist societies have been asked to look at methods of developing and assessing clinical quality indicators,

Box 2. Recommendations for successful regional audit.

- Obtain stakeholder commitment to the scheme at the outset
- Gain dedicated information technology support for producing and digitally reading audit pro formas
- Keep each pro forma brief and simple and audit over a short defined time period
- Designate a regional audit lead at each unit to improve communication between the steering committee and each local unit
- Involve allied health professionals in all aspects of the audit
- Widely present your results and consider publication
- Encourage units to close the loop locally, by local re-audit if appropriate
- Capitalise on the opportunity for trainees to be involved and develop generic skills

an area in which regional audit could play an important role. Future applications include extending the regional collaborative network that regional audit has fostered to include research projects or development of regional guidelines (in areas where national guidelines do not exist).

Overall this study has demonstrated that regional audit is widely perceived to be a valuable clinical governance tool improving quality of patient care. This may well prove worthy of future development in light of recent national recommendations for service delivery and the introduction of revalidation.[1]

Acknowledgements

We would like to thank the WMRSTC for coordinating the regional audit programme, everyone who has contributed to the programme and all respondents to the questionnaire.

References

1 Department of Health. *Our NHS, our future: NHS next stage review*. London: DH, 2007.
2 Department of Health. *National Clinical Audit Advisory Group*. London: DH, 2008. www.advisorybodies.doh.gov.uk/ncaag/index.htm
3 Department of Health. *Medical revalidation – principles and next steps: the report of the Chief Medical Officer for England's Working Group*. London: DH, 2008.
4 Mason A. The emerging role of clinical audit. *Clin Med* 2002;2:294–6.
5 Pearson M, Ingham J. Audit, assessment or performance management? *Clin Med* 2005;5:7–11.
6 South A, Iveson E, Allgar V, Harbison J. The under use of thromboprophylaxis in older medical in-patients: a regional audit. *QJM* 2007;100:685–9.
7 Wasson J, Pearce L, Alun-Jones T. Improving correspondence to general practitioners regarding patients attending the ENT emergency clinic: a regional general practitioner survey and audit. *J Laryngol Otol* 2007;21:1189–93.
8 Graham D, McClean H, Yorkshire Multi-District Clinical Audit Group. Yorkshire regional audit of hepatitis B vaccination. *Int J STD AIDS* 2007;18:212–4.
9 Erb N, Duncan RC, Raza K *et al.* A regional audit of the prevention and treatment of corticosteroid-induced osteoporosis in patients with rheumatic diseases in the West Midlands. *Rheum* 2002;41:1021–4.
10 Price-Forbes AN, Callaghan R, Allen ME, Rowe IF. A regional audit of the use of COX-2 selective non-steroidal anti-inflammatory drugs (NSAIDs) in rheumatology clinics in the West Midlands, in relation to NICE guidelines. *Rheum* 2005;44:921–4.
11 Yee CS, Filer A, Pace A *et al.* The prevalence of patients with rheumatoid arthritis in the West Midlands fulfilling the BSR criteria for anti-tumour necrosis factor therapy: an outpatient study. *Rheum* 2003;42:856–9.
12 Paskins Z, Potter T, Erb N, Obrenovic K, Rowe IF. Audits of the prevention and treatment of corticosteroid-induced osteoporosis in outpatients with rheumatic diseases in the West Midlands. *Clin Med* 2006;6:183–7.
13 Sandhu RS, Treharne GJ, Justice EA *et al.* Accessibility and quality of secondary care rheumatology services for people with inflammatory arthritis: a regional survey. *Clin Med* 2007;7:579–84.
14 John H, Buckley C, Koh L *et al.* Regional survey of tuberculosis risk assessment in rheumatology outpatients commencing anti-TNF-α treatment in relation to British Thoracic Society guidelines. *Clin Med* 2009;9:225–30.
15 Paskins Z, John H, Hassell AB, Rowe IF. Eight years experience of regional audit in rheumatology: what have we learnt? 2009, submitted for publication.
16 Johnston G, Crombie IK, Davies HT, Alder EM, Millard A. Reviewing audit: barriers and facilitating factors for effective clinical audit. *Qual Health Care* 2000;9:23–36.
17 Hulley SB, Cummings SR, Browner WS, Grady DG, Newman TB. *Designing clinical research*, 3rd edn. Philadelphia: Lippincott Williams and Wilkins, 2007.
18 Young RJ, Holmes EM, Casson IF, Maresh M. The North West Diabetic Pregnancy Audit: a practical system for multi-centre diabetic pregnancy audit. *Diabet Med* 2008;25:496–500.
19 Teir J, Koduri G, Meadows A *et al.* An audit of recording cardiovascular risk factors in patients with rheumatoid arthritis and systemic lupus erythematosus in centres in East Anglia and the South East. *Rheum* 2008;47:1252–4.
20 Seeley HM, Maimaris C, Hutchinson PJ *et al.* Standards for head injury management in acute hospitals: evidence from the six million population of the Eastern region. *Emerg Med J* 2006;23:128–32.

Address for correspondence: Dr IF Rowe, Department of Rheumatology, Worcestershire Royal Hospital, Charles Hastings Way, Worcester WR5 1DD.
Email: Ian.Rowe@worcsacute.nhs.uk