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[Intervention Review]

Audit and feedback: effects on professional practice and healthcare outcomes

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ABSTRACT

Background

Audit and feedback is widely used as a strategy to improve professional practice either on its own or as a component of multifaceted quality improvement interventions. This is based on the belief that healthcare professionals are prompted to modify their practice when given performance feedback showing that their clinical practice is inconsistent with a desirable target. Despite its prevalence as a quality improvement strategy, there remains uncertainty regarding both the effectiveness of audit and feedback in improving healthcare practice and the characteristics of audit and feedback that lead to greater impact.

Objectives

To assess the effects of audit and feedback on the practice of healthcare professionals and patient outcomes and to examine factors that may explain variation in the effectiveness of audit and feedback.

Search methods

We searched the Cochrane Central Register of Controlled Trials (CENTRAL) 2010, Issue 4, part of *The Cochrane Library*. www.thecochranelibrary.com, including the Cochrane Effective Practice and Organisation of Care (EPoC) Group Specialised Register (searched 10 December 2010); MEDLINE, Ovid (1950 to November Week 3 2010) (searched 09 December 2010); EMBASE, Ovid (1980 to 2010 Week 48) (searched 09 December 2010); CINAHL, Ebsco (1981 to present) (searched 10 December 2010); Science Citation Index and Social Sciences Citation Index, ISI Web of Science (1975 to present) (searched 12-15 September 2011).

Selection criteria

Randomised trials of audit and feedback (defined as a summary of clinical performance over a specified period of time) that reported objectively measured health professional practice or patient outcomes. In the case of multifaceted interventions, only trials in which audit and feedback was considered the core, essential aspect of at least one intervention arm were included.

Data collection and analysis

All data were abstracted by two independent review authors. For the primary outcome(s) in each study, we calculated the median absolute risk difference (RD) (adjusted for baseline performance) of compliance with desired practice compliance for dichotomous outcomes and the median percent change relative to the control group for continuous outcomes. Across studies the median effect size was weighted by number of health professionals involved in each study. We investigated the following factors as possible explanations for the variation in the effectiveness of interventions across comparisons: format of feedback, source of feedback, frequency of feedback, instructions for improvement, direction of change required, baseline performance, profession of recipient, and risk of bias within the trial itself. We also conducted exploratory analyses to assess the role of context and the targeted clinical behaviour. Quantitative (meta-regression), visual, and qualitative analyses were undertaken to examine variation in effect size related to these factors.

Main results

We included and analysed 140 studies for this review. In the main analyses, a total of 108 comparisons from 70 studies compared any intervention in which audit and feedback was a core, essential component to usual care and evaluated effects on professional practice. After excluding studies at high risk of bias, there were 82 comparisons from 49 studies featuring dichotomous outcomes, and the weighted median adjusted RD was a 4.3% (interquartile range (IQR) 0.5% to 16%) absolute increase in healthcare professionals' compliance with desired practice. Across 26 comparisons from 21 studies with continuous outcomes, the weighted median adjusted percent change relative to control was 1.3% (IQR = 1.3% to 28.9%). For patient outcomes, the weighted median RD was -0.4% (IQR -1.3% to 1.6%) for 12 comparisons from six studies reporting dichotomous outcomes and the weighted median percentage change was 17% (IQR 1.5% to 17%) for eight comparisons from five studies reporting continuous outcomes. Multivariable meta-regression indicated that feedback may be more effective when baseline performance is low, the source is a supervisor or colleague, it is provided more than once, it is delivered in both verbal and written formats, and when it includes both explicit targets and an action plan. In addition, the effect size varied based on the clinical behaviour targeted by the intervention.

Authors' conclusions

Audit and feedback generally leads to small but potentially important improvements in professional practice. The effectiveness of audit and feedback seems to depend on baseline performance and how the feedback is provided. Future studies of audit and feedback should directly compare different ways of providing feedback.

PLAIN LANGUAGE SUMMARY

Audit and feedback: effects on professional practice and patient outcomes

Researchers in The Cochrane Collaboration conducted a review to evaluate the effect of audit and feedback on the behaviour of health professionals and the health of their patients. After searching for all relevant studies, they found 140 studies that met their requirements. Their findings are summarised below.

The use of audit and feedback to influence health professional behaviour and patient health

In an audit and feedback process, an individual's professional practice or performance is measured and then compared to professional standards or targets. In other words, their professional performance is "audited". The results of this comparison are then fed back to the individual. The aim of this process is to encourage the individual to follow professional standards.

Audit and feedback is often used in healthcare organisations to improve health professionals' performance. It is often used together with other interventions, such as educational meetings or reminders. Most of the studies in this review measured the effect of audit and feedback on doctors, although some studies measured the effect on nurses or pharmacists. Audit and feedback was used to influence their performance in different areas, including the proper use of treatments or laboratory tests or improving the overall management of patients with chronic disease such as heart disease or diabetes.

After their performance had been measured, the health professionals were given feedback either verbally, in writing, or both. In some studies, this feedback was given to them by the researchers responsible for the study, while in other studies, feedback was given by supervisors or colleagues, by professional organisations or by someone representing their employer. In some studies, health professionals were given feedback only once, while others were given feedback once a week or once a month.

In some studies, health professionals were simply given information about their performance and how this compared to professional standards or targets. In other studies, health professionals were also given a specific target that they personally were expected to reach, or were given an action plan with suggestions or advice about how to improve their performance.

What happens when health professionals are given audit and feedback?

The effect of using audit and feedback varied widely across the included studies. Overall, the review shows that:

The effect of audit and feedback on professional behaviour and on patient outcomes ranges from little or no effect to a substantial effect. The quality of the evidence is moderate.

Audit and feedback may be most effective when:

1. the health professionals are not performing well to start out with;
2. the person responsible for the audit and feedback is a supervisor or colleague;
3. it is provided more than once;
4. it is given both verbally and in writing;
5. it includes clear targets and an action plan.

In addition, the effect of audit and feedback may be influenced by the type of behaviour it is targeting. It is uncertain whether audit and feedback is more effective when combined with other interventions.