



February 2017– SUPPORT Summary of a systematic review

Does providing healthcare professionals with data about their performance improve their practice?

Audit and feedback is commonly used as a strategy to improve professional practice. It appears logical that healthcare professionals would be prompted to modify their practice if given feedback that their clinical practice was inconsistent with that of their peers or accepted guidelines.

Key messages

- Interventions that include audit and feedback (alone or as a core component of a multifaceted intervention) probably improve professionals' adherence to desired practice compared with usual care.
- Audit and feedback may be more effective when baseline professional performance is low; when the source of the feedback is a supervisor or senior colleague; when the feedback is delivered at least monthly; when it is provided both verbally and in a written format; and when it includes both explicit targets and an action plan.
- The effects on patient outcomes of interventions that include audit and feedback may range from little if any effect to some improvement, compared with usual care.
- Few randomised trials of audit and feedback in low-income countries were found. Audit and feedback is difficult to implement if reliable, routinely collected data are not readily available.



Who is this summary for?

People making decisions concerning use of audit and feedback to improve the quality of healthcare

! This summary includes:

- Key findings from research based on a systematic review
- Considerations about the relevance of this research for low-income countries

X Not included:

- Recommendations
- Additional evidence not included in the systematic review
- Detailed descriptions of interventions or their implementation

This summary is based on the following systematic review:

Ivers N, Jamtvedt G, Flottorp S, et al. Audit and feedback: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev* 2012; (6): CD000259.

What is a systematic review?

A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from the included studies

SUPPORT was an international project to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries, funded by the European Commission (FP6) and the Canadian Institutes of Health Research.

Glossary of terms used in this report:
www.supportsummaries.org/glossary-of-terms

Background references on this topic:
See back page

Background

Audit and feedback can be defined as any summary of clinical performance of healthcare over a specified period of time that is fed back to healthcare providers with the aim of improving practice or the organisation of care. Feedback can be given in a written, electronic or verbal format. The summary of clinical performance may also include recommendations for clinical action.

As audit and feedback is used widely within healthcare organisations, it is important to consider its likely effects on clinical performance.

How this summary was prepared

After searching widely for systematic reviews that can help inform decisions about health systems, we have selected ones that provide information that is relevant to low-income countries. The methods used to assess the reliability of the review and to make judgements about its relevance are described here:

www.supportsummaries.org/how-support-summaries-are-prepared/

Knowing what's not known is important

A reliable review might not find any studies from low-income countries or might not find any well-designed studies. Although that is disappointing, it is important to know what is not known as well as what is known.

A lack of evidence does not mean a lack of effects. It means the effects are uncertain. When there is a lack of evidence, consideration should be given to monitoring and evaluating the effects of the intervention, if it is used.

About the systematic review underlying this summary

Review objective: To assess the effects of audit and feedback on the practice of healthcare professionals and on patient outcomes

Types of	What the review authors searched for	What the review authors found
Study designs & Interventions	Randomised trials assessing the effects of audit and feedback. Interventions were only included if audit and feedback was a core or essential element.	140 randomised trials were included. The interventions used were highly heterogeneous with respect to their content, format, timing and source. Targeted behaviours were prescribing (39 trials), management of patients with diabetes or cardiovascular diseases (34), and test ordering (31). The remaining trials varied widely in terms of health conditions and targeted behaviours.
Participants	Healthcare professionals responsible for patient care	In most of the trials the healthcare professionals were physicians. Other targeted providers included dentists (1 trial), nurses (3), pharmacists (2), and a mix of providers (14).
Settings	Healthcare settings	USA (69 trials), Canada (11), UK or Ireland (21), Australia or New Zealand (10), and elsewhere (29). Only 5 studies were conducted in low- and middle income countries: Sudan (2), Thailand (1), Laos (1), Argentina and Uruguay (1). 94 trials were in outpatient settings, 36 in inpatient settings, and the clinical setting was unclear in 10 trials.
Outcomes	Objectively measured provider performance or healthcare outcomes	There was large variation in outcome measures, and many trials reported multiple primary outcomes. Most trials measured professional practice, with some also reporting patient outcomes.

Date of most recent search: December 2010

Limitations: This is a well-conducted systematic review with only minor limitations.

Ivers N, Jamtvedt G, Flottorp S, et al. Audit and feedback: effects on professional practice and health care outcomes. Cochrane Database Syst Rev 2012; (6): CD000259.

Summary of findings

The review included 140 trials. Most trials were conducted in high-income countries (136). Only five trials were conducted in low- and middle-income countries (two in Sudan and one each in Thailand, Laos, and Argentina and Uruguay).

The interventions varied in terms of content, format, timing, and source. In 121 trials, audit and feedback was targeted at physicians. In 91 trials one or more groups received a multifaceted intervention where audit and feedback was considered the core, essential component.

Many trials reported multiple primary outcomes. Most trials reported professional practice outcomes, such as prescribing or use of laboratory tests, while some trials also reported patient outcomes, such as smoking status or blood pressure.

1) Audit and feedback (with or without other interventions) compared to usual care

There was important heterogeneity in the results across trials.

- **Interventions that include audit and feedback probably improve professionals' adherence to desired practice, compared with usual care. The certainty of this evidence is moderate.**
- **The effects on patient outcomes of interventions that include audit and feedback may vary from little if any effect to some improvement, compared with usual care. The certainty of this evidence is low.**
- **The effects of audit and feedback appear to vary based on the way the intervention is designed and delivered. Audit and feedback may be more effective when baseline professional performance is low; when the source of the feedback is a supervisor or senior colleague; when the feedback is delivered at least monthly; when it is provided both verbally and in a written format; and when it includes both explicit targets and an action plan.**

About the certainty of the evidence (GRADE) *

⊕⊕⊕⊕

High: This research provides a very good indication of the likely effect. The likelihood that the effect will be substantially different† is low.

⊕⊕⊕○

Moderate: This research provides a good indication of the likely effect. The likelihood that the effect will be substantially different† is moderate.

⊕⊕○○

Low: This research provides some indication of the likely effect. However, the likelihood that it will be substantially different† is high.

⊕○○○

Very low: This research does not provide a reliable indication of the likely effect. The likelihood that the effect will be substantially different† is very high.

* This is sometimes referred to as 'quality of evidence' or 'confidence in the estimate'.

† Substantially different = a large enough difference that it might affect a decision

See last page for more information.

Audit and feedback compared to usual care			
People	Health care professionals		
Settings	Primary and secondary care in high, middle and low-income countries		
Intervention	Audit and feedback with or without other interventions		
Comparison	Usual care		
Outcomes	Impact (weighted absolute improvement or decrease)¹	Number of comparisons/studies [participants]	Certainty of the evidence (GRADE)
Adherence to desired practice (dichotomous outcomes)	Median absolute increase in desired practice: 4.3% (IQR 0.5% to 16.0%)	82 comparisons from 49 studies ² [2310 clusters/groups of health providers (from 32 cluster trials) and 2053 health professionals (from 17 trials allocating individual providers)]	⊕⊕⊕○ Moderate
Adherence to desired practice (continuous outcomes)	Median percent change in desired practice: 1.3% (IQR 1.3% to 28.9%)	26 comparisons from 21 studies [661 clusters/groups of health providers (from 13 cluster trials) and 605 health professionals (from 8 trials allocating individual providers)]	⊕⊕⊕○ Moderate
Patient outcomes (dichotomous)	Median absolute decrease in desired outcomes: 0.4% (IQR -1.3% to 1.6%)	12 comparisons from 6 studies	⊕⊕○○ Low
Patient outcomes (continuous)	Median percent change in desired outcomes: 17% (IQR 1.5 to 17%)	8 comparisons from 5 studies	⊕⊕○○ Low
IQR: Interquartile range GRADE: GRADE Working Group grades of evidence (see above and last page)			
1. The post-intervention risk differences are adjusted for pre-intervention differences between the comparison groups to account for baseline differences. The effect was weighted across studies by the number of health professionals involved in the study to ensure that small trials did not contribute as much to the estimate of effect as large trials.			
2. Many studies had more than two arms and therefore contributed multiple comparisons of audit and feedback versus usual care.			

2) Audit and feedback compared to other interventions

A total of 22 comparisons from 20 trials were included in this analysis.

→ **The effects of audit and feedback on adherence with desired practice or patient outcomes, when compared to other implementation strategies (e.g. reminders, educational outreach, case management, financial incentives, patient-mediated interventions) are mixed.**

Relevance of the review for low-income countries

→ Findings	▷ Interpretation*
APPLICABILITY	
<p>→ The 140 randomised trials reviewed covered an extensive range of interventions and settings, but only five of the studies were conducted in low- and middle-income countries.</p> <p>→ The review findings are based on trials in which the levels of organization and support were potentially higher than those available outside of research settings.</p>	<p>▷ Decisions about if and how to use audit and feedback to improve professional practice should be guided by pragmatic factors and local circumstances, including whether:</p> <ul style="list-style-type: none">– The known or anticipated baseline adherence to guidelines or recommended practice is low– Conducting regular audits is feasible and the resources needed to collect these data are low– The data available for audit purposes are reliable– Supervisors are available to provide feedback and to link this to an action plan <p>▷ The scarcity of health professionals, low staff morale and motivation and resource constraints may limit the feasibility and potential of audit and feedback interventions in some settings.</p>
EQUITY	
<p>→ Overall, the included studies provided little data regarding differential effects of the interventions for disadvantaged populations.</p>	<p>▷ The resources needed to implement audit and feedback may be less easily available in disadvantaged settings.</p>
ECONOMIC CONSIDERATIONS	
<p>→ Few trials reported the cost or cost-effectiveness of the interventions.</p>	<p>▷ The resources needed to implement audit and feedback are likely to vary across settings and need to be estimated based on specific local conditions, including the availability of reliable routinely collected data and personnel costs.</p> <p>▷ Providing adequate support to programmes for audit and feedback is likely to be vital to ensure effectiveness when scaling up the intervention.</p>
MONITORING & EVALUATION	
<p>→ Few rigorous studies of the effects of audit and feedback have been conducted in low- or middle-income countries.</p> <p>→ The effects of audit and feedback are likely to vary based on the way the intervention is designed and delivered.</p>	<p>▷ The implementation of audit and feedback in low-income settings should be accompanied by rigorous evaluation.</p> <p>▷ Future studies of audit and feedback should compare different ways of providing feedback and their resource implications.</p>

*Judgements made by the authors of this summary, not necessarily those of the review authors, based on the findings of the review and consultation with researchers and policymakers in low-income countries. For additional details about how these judgements were made see: www.supportsummaries.org/methods

Additional information

Related literature

Ivers NM, Sales A, Colquhoun S, et al. No more ‘business as usual’ with audit and feedback interventions: towards an agenda for a reinvigorated intervention. *Implement Sci* 9(1):14.

Ivers NM, Grimshaw JM, Jamtvedt G, et al. Growing Literature, Stagnant Science? Systematic Review, Meta-Regression and Cumulative Analysis of Audit and Feedback Interventions in Health Care. *J Gen Intern Med* 2014; 29:1534-41.

Gardner B, Whittington C, McAteer J, et al. Using theory to synthesise evidence from behaviour change interventions: the example of audit and feedback. *Soc Sci Med* 2010; 70: 1618-25.

Hysong SJ. Meta-Analysis: audit and feedback features impact effectiveness on care quality. *Med Care* 2009; 47: 356-63.

NorthStar is a tool that provides a range of information, checklists, examples and tools on how to best design and evaluate quality improvement interventions.

<https://www.dropbox.com/sh/8mn8co0au0eupt1/AAC55wRS6YwLPRDsMWuTtueda?dl=0>

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Conflict of interest

None declared. For details, see: www.supportsummaries.org/coi

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This review should be cited as

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The summary should be cited as

Pantoja T, Flottorp S. Does providing healthcare professionals with data about their performance improve their practice? A SUPPORT Summary of a systematic review. February 2017. www.supportsummaries.org

About certainty of the evidence (GRADE)

The “certainty of the evidence” is an assessment of how good an indication the research provides of the likely effect; i.e. the likelihood that the effect will be substantially different from what the research found. By “substantially different” we mean a large enough difference that it might affect a decision. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the study design (randomised trials versus observational studies), factors that reduce the certainty (risk of bias, inconsistency, indirectness, imprecision, and publication bias) and factors that increase the certainty (a large effect, a dose response relationship, and plausible confounding). For each outcome, the certainty of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE: www.supportsummaries.org/grade

SUPPORT collaborators:

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is part of the [Cochrane Collaboration](http://www.cochrane.org). The Norwegian EPOC satellite supports the production of Cochrane reviews relevant to health systems in low- and middle-income countries. www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking in low- and middle-income countries. www.evipnet.org

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration that promotes the generation and use of health policy and systems research in low- and middle-income countries. www.who.int/alliance-hpsr

Norad, the Norwegian Agency for Development Cooperation, supports the Norwegian EPOC satellite and the production of SUPPORT Summaries. www.norad.no

The Effective Health Care Research Consortium is an international partnership that prepares Cochrane reviews relevant to low-income countries. www.evidence4health.org

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