August 2008 – SUPPORT Summary of a systematic review

Do continuing education meetings and workshops improve professional practice and healthcare outcomes?

An important aim of continuing education is to improve professional practice so that patients can receive improved health care. Educational meetings and printed educational materials are the most common types of continuing education for health professionals. Educational meetings include lectures, workshops and courses. The meetings can be highly variable in terms of content, number of participants, the degree and type of interaction, length and frequency. Other activities used for quality improvement and professional development, like audit and feedback, educational outreach and continuous quality improvement, may include educational meetings.

Key messages

- **Educational meetings alone or combined with other interventions can improve professional practice and healthcare outcomes for the patients.**
- **The median effect is small to modest and comparable to the effect of other continuing medical education activities such as audit and feedback and educational outreach visits.**
- **The effect of educational meetings alone on professional practice was the same as for multifaceted interventions that included educational meetings. Examples of co-interventions could be reminders, patient education material, supportive services, feedback reports and educational outreach visits.**
- **There are large variations in the effects found in different studies.**
- **Few studies have compared different types of educational meetings. No firm conclusions can be drawn about what is the most effective form.**
- **The effect appears to be larger with higher attendance at the educational meetings and with mixed interactive and didactic educational meetings.**
- **Educational meetings did not appear to be effective for complex behaviours and they appeared to be less effective for less serious outcomes.**

Who is this summary for?

People making decisions concerning the use of educational meetings 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- and middle-income countries

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:

Forsetlund L, Bjørndal A, Rashidian A, Jamtvedt G, O'Brien MA, Wolf F, Davis DA, Odgaard-Jensen J, Oxman AD. Continuing education meetings and workshops. Cochrane Database of Systematic Reviews, In press (2009, 2).

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 – an international collaboration funded by the EU 6th Framework Programme to support the use of policy relevant reviews and trials to inform decisions about maternal and child health in low- and middle-income countries.
www.support-collaboration.org

Glossary of terms used in this report:
www.support-collaboration.org/summaries/explanations.htm

Background references on this topic:
See back page.

Background

Health professionals need continuing eduation to be updated and improve practice. In many countries continuing medical education is mandated by professional or regulatory bodies or stimulated by incentives. Each year billions of dollars worldwide are spent on continuing medical education activities. Nearly all health professionals in high-income countries attend educational meetings, such as lectures and workshops. The amount of continuing education time spent at educational meetings is second only to the amount of time spent reading, by self-report.

This summary is based upon an update of a systematic review on continuing education meetings and workshops that is in press. The previous version of this review, published in 2001, concluded that interactive workshops can result in moderately large changes in professional practice, but didactic sessions with lectures or presentations alone were unlikely to change professional practice.

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- and middle-income countries. The methods used to assess the quality of the review and to make judgements about its relevance are described here: www.support-collaboration.org/summaries/methods.htm

Knowing what's not known is important

A good quality review might not find any studies from low- and middle-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.

About the systematic review underlying this summary

Review objective: To address the following questions: 1) Do educational meetings and workshops improve professional practice and healthcare outcomes? 2) What are the effects of educational meetings compared with the effects of other interventions? and 3) Can changes in how educational meetings are done increase the effects?

	What the review authors searched for	What the review authors found
Interventions	The following types of educational meetings: conferences, lectures, workshops, seminars, symposia and courses. Only randomised trials were included.	81 trials (74 cluster randomised trials, 7 randomised by providers). Targeted behaviours were preventive care (11), test ordering (3), screening (6), prescribing (13), general management of a wide array of problems (41) and other (7). The interventions were multi-faceted in 32 studies.
Participants	Studies involving qualified health professionals or health professionals in post-graduate training were included. Studies involving only undergraduate students were excluded.	Studies from USA (28), UK (14), Netherlands (10), Canada (4), Australia (3), Norway (3), France (2); Sweden, Denmark, Belgium, Spain, Scotland (1 each); Indonesia (2), South-Africa (2); Mali, Thailand, Peru, Mexico, Zambia, Sri Lanka, New Zealand and Brazil (1 each). The health professionals were physicians in most trials, nurses (2), pharmacists (3), prescribers (1), or mixed providers (18).
Settings	All healthcare settings (primary care and hospital care).	General practice (43), community-based care (16), hospital- based care (17) and 'other type of settings' (5).
Outcomes	All objectively measured health professional practice behaviour or patient outcomes.	There was wide variation in the outcome measures and number of outcomes measured. Median follow-up was 6 months (range 14 days to 2 years).

Date of most recent search: March 2006

Limitations: This is a good quality systematic review with only minor limitations.

Forsetlund L, Bjørndal A, Rashidian A, Jamtvedt G, O'Brien MA, Wolf F, Davis DA, Odgaard-Jensen J, Oxman AD. Continuing education meetings and workshops. Cochrane Database of Systematic Reviews. *In press*. (2009, 2).

Summary of findings

This updated review included 49 new studies in addition to the 32 studies in the review published in 2001, for a total of 81 studies. Most studies were from Europe (34) and North America (32). Eleven studies were from low and middle-income countries. The authors judged 17 of the studies to have a low risk of bias, 44 a moderate risk of bias and 20 a high risk of bias. There was substantial variation in the complexity of the targeted behaviours, baseline compliance, characteristics of the inverventions and results. Studies with a high risk of bias and studies without baseline data were excluded from the primary analyses.

1) Educational meetings compared to no intervention

The authors categorised the studies according to whether the educational meetings were interactive or didactic, the intensity of the educational meetings, attendance at the meetings (the proportion of study participants that attended the educational sessions), the complexity of the targeted behaviour, the seriousness of the outcome, and the level of baseline compliance. The effect appeared to be larger with higher attendance at the educational meetings and with mixed interactive and didactic educational meetings. Educational meetings did not appear to be effective for complex behaviours and they appeared to be less effective for less serious outcomes.

➔ **Educational meetings with or without other interventions improve compliance with desired practice and patient outcomes.**

About the quality of evidence (GRADE)

⊕⊕⊕⊕
High: Further research is very unlikely to change our confidence in the estimate of effect.

⊕⊕⊕◯
Moderate: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

⊕⊕◯◯
Low: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

⊕◯◯◯
Very low: We are very uncertain about the estimate.

For more information, see last page

Educational meetings with or without other interventions* compared to no intervention

Patients or population: Healthcare providers
Settings: Primary and secondary care
Intervention: Educational meetings with or without other interventions
Comparison: No intervention

Outcomes	Adjusted absolute improvement (risk difference)† Median (Interquartile range)	Number of studies	Quality of the evidence (GRADE)
Compliance with desired practice	Median 6% (1.8 to 15.9)	30 studies	⊕⊕⊕◯ Moderate
Patient outcomes	Median 3.0% (0.1% to 4.0%)	5 studies	⊕⊕⊕◯ Moderate

GRADE: GRADE Working Group grades of evidence (see above and last page)

*Several studies tested multifaceted interventions. The most commonly used co-interventions were reminders, patient education material, supportive services, feedback reports and educational outreach.
†The post intervention risk differences are adjusted for pre-intervention differences between the comparison groups.

2) Educational meetings alone compared to no intervention

➔ **Educational meetings alone improve compliance with desired practice and patient outcomes.**

➔ **The effect of educational meetings alone on professional practice was the same as for multifaceted interventions that included educational meetings.**

Outcomes	**Adjusted absolute improvement (Risk difference)* Median (Interquartile range)**	Number of studies	Quality of the evidence (GRADE)
Compliance with desired practice	Median 6% (2.9% to 15.3%)	19 studies	⊕⊕⊕◯ Moderate
Patient outcomes	Median 3.0% (-0.9% to 4.0%)	3 studies	⊕⊕⊕◯ Moderate
GRADE: GRADE Working Group grades of evidence (see above and last page)			
*The post intervention risk differences are adjusted for pre-intervention differences between the comparison groups.			

3) Interactive educational meetings compared to didactic (lecture based) educational meetings

The updated overview identified two trials that compared interactive educational meetings to didactic educational meetings. Only one of the two studies had a low or moderate risk of bias and reported baseline data. The aim of this study from Indonesia was to improve appropriate drug use in acute diarrhoea to prevent dehydration and death. Locally arranged interactive educational meetings were compared to didactic educational meetings arranged for all prescribers in a health district. Although a somewhat larger improvement was reported for the group receiving interactive education, it was not statistically significant (adjusted risk difference 1.4%).

The authors of the review categorised all the included studies according to whether the educational meetings were interactive or didactic and analysed the results to find out if this could explain the variations in effect among the studies. They found that interactive educational meetings alone were not consistently more effective than didactic educational meetings alone, but that interventions that they had categorised as mixed interactive and didactic educational meetings were more effective than either one alone.

➔ **Interactive educational meetings may be somewhat more effective than lecture-based meetings, but the review found only one study of low or moderat risk of bias that directly compared interactive and didactic educational meetings.**

➔ **Based on indirect comparisons (between studies), mixed interactive and didactic educational meetings appeared to be most effective.**

Relevance of the review for low- and middle-income countries

➔ Findings	▷ Interpretation*
APPLICABILITY	
➔ The 81 included studies covered an extensive range of settings, targeted behaviours and interventions. Eleven of the trials were conducted in low and middle-income countries.	▷ *Educational meetings alone or combined with other interventions generally result in small to moderate improvements. The findings of this review are likely applicable to low and middle-income settings.*
EQUITY	
➔ Overall, the included studies provided little data regarding differential effects of the interventions for disadvantaged populations.	▷ *Resources needed for educational meetings may be less available in disadvantaged settings. Thus, additional resources may be needed to deliver effective educational meetings in disadvantaged settings to reduce inequities.*
ECONOMIC CONSIDERATIONS	
➔ The findings summarised here are based on randomised trials in which the levels of organization and support were potentially greater than those available outside of research settings.	▷ *The cost of educational meetings is likely to be highly variable and must be estimated based on specific local conditions outside research settings.*
MONITORING & EVALUATION	
➔ There is evidence that educational meetings are effective in resource poor settings, but there is little evidence regarding the cost-effectiveness of educational meetings.	▷ *The impact and cost-effectiveness of educational meetings in resource-poor settings, with or without additional interventions, should be monitored using objective measures of professional practice when they are used as a means of improving the quality of care, to ensure that intended improvements in practice are achieved.*

*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- and middle-income countries. For additional details about how these judgements were made see: http://www.support-collaboration.org/summaries/methods.htm

Additional information

Related literature

O'Brien MA, Freemantle N, Oxman AD, Wolf F, Davis DA, Herrin J. Continuing education meetings and workshops: effects on professional practice and healthcare outcomes. Cochrane Database of Systematic Reviews 2001, Issue 1.

Grimshaw JM, Shirran L, Thomas R, Mowatt G, Fraser C, Bero L et al. Changing provider behavior: An overview of systematic reviews of interventions. Medical Care 2001; 39:Supplement 2, II-2 - II-45.

Getting evidence into practice. Effective Health Care 1999; 5:(1).
http://www.york.ac.uk/inst/crd/pdf/ehc51.pdf

Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay C, Vale L et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. Health Technol Assess 2004; 8:(6).
http://www.hta.nhs.uk/fullmono/mon806.pdf

NorthStar - how to design and evaluate quality improvement interventions in healthcare: NorthStar is a tool that provides a range of information, checklists, examples and tools based on current research on how to best design and evaluate quality improvement interventions.
http://www.rebeqi.org/?pageID=36&ItemID=18

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Conflict of interest

None declared. For details, see: www.support-collaboration.org/summaries/coi.htm

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Keywords

All Summaries: evidence-informed health policy, evidence-based, systematic review, health systems research, health care, low- and middle-income countries, developing countries, primary health care.

About quality of evidence (GRADE)

The quality of the evidence is a judgement about the extent to which we can be confident that the estimates of effect are correct. These judgements are made using the GRADE system, and are provided for each outcome. The judgements are based on the type of study design (randomised trials versus observational studies), the risk of bias, the consistency of the results across studies, and the precision of the overall estimate across studies. For each outcome, the quality of the evidence is rated as high, moderate, low or very low using the definitions on page 3.

For more information about GRADE:
www.support-collaboration.org/summaries/grade.htm

SUPPORT collaborators:

The Alliance for Health Policy and Systems Research (HPSR) is an international collaboration aiming to promote the generation and use of health policy and systems research as a means to improve the health systems of developing countries. www.who.int/alliance-hpsr

The Cochrane Effective Practice and Organisation of Care Group (EPOC) is a Collaborative Review Group of the Cochrane Collaboration: an international organisation that aims to help people make well informed decisions about health care by preparing, maintaining and ensuring the accessibility of systematic reviews of the effects of health care interventions.
www.epocoslo.cochrane.org

The Evidence-Informed Policy Network (EVIPNet) is an initiative to promote the use of health research in policymaking. Focusing on low- and middle-income countries, EVIPNet promotes partnerships at the country level between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the best scientific evidence available. www.evipnet.org

For more information:
www.support-collaboration.org

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http://www.support-collaboration.org/contact.htm