



August 2016 – SUPPORT Summary of a systematic review

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

An important aim of continuing education for healthcare professionals is to improve professional practice so that patients can receive improved healthcare. 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.

## Key messages

- Educational meetings alone or combined with other interventions probably improve professional practice and healthcare outcomes for patients.
- Educational meetings may be more effective with higher attendance at the educational meetings, mixed interactive and didactic educational meetings compared to only interactive or only didactic educational meetings.
- Educational meetings may not be effective for complex behaviours and they may 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-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:

Forsetlund L, Bjørndal A, Rashidian A, et al. Continuing education meetings and workshops. Cochrane Database of Systematic Reviews, 2009 Apr 15;(2):CD003030

## 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](http://www.supportsummaries.org/glossary-of-terms)

**Background references on this topic:**  
See back page

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# Background

Health professionals need continuing education 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.

## 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/](http://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 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? 3) Can changes in how educational meetings are done increase the effects?

Types of	What the review authors searched for	What the review authors found
<b>Study designs &amp; Interventions</b>	The following types of educational meetings: conferences, lectures, workshops, seminars, symposia and courses. Only randomized trials were included.	81 trials (74 cluster-randomized trials, 7 randomized 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 multifaceted in 32 studies.
<b>Participants</b>	Studies involving qualified health professionals or health professionals in post-graduate training were included. Studies involving only undergraduate students were excluded.	The health professionals were physicians in most trials, nurses (2 studies), pharmacists (3), prescribers (1), or mixed providers (18).
<b>Settings</b>	All healthcare settings (primary care and hospital care).	General practice (43 studies), community-based care (16), hospital-based care (17) and 'other type of settings' (5). Studies were from USA (28), UK (14), Netherlands (10), Canada (4), Australia (3), Norway (3), France (2), Indonesia (2), South-Africa (2); Sweden, Denmark, Belgium, Spain, Scotland, Mali, Thailand, Peru, Mexico, Zambia, Sri Lanka, New Zealand and Brazil (1 each).
<b>Outcomes</b>	All objectively measured health professional practice behaviours 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).
<b>Date of most recent search:</b> March 2006		
<b>Limitations:</b> This is a well-conducted 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. 2009 Apr 15;(2):CD003030.

# Summary of findings

This review included 81 studies. Most studies were from Europe (34) and North America (32). Eleven studies were from low- and middle-income countries. There was substantial variation in the complexity of the targeted behaviours, baseline compliance, characteristics of the interventions and results.

## 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 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. 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 probably improve compliance with desired practice and patient outcomes. The certainty of this evidence is moderate.**

### 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.

Educational meetings with or without other interventions* compared to no intervention		
<b>People</b>	Healthcare providers	
<b>Settings</b>	Primary and secondary care	
<b>Intervention</b>	Educational meetings with or without other interventions	
<b>Comparison</b>	No intervention	
Outcomes	Adjusted absolute improvement (risk difference)† Median (Interquartile range)	Certainty of the evidence (GRADE)
<b>Compliance with desired practice</b>	Median 6% (1.8% to 15.9%)	⊕⊕⊕○ Moderate
<b>Patient outcomes</b>	Median 3% (0.1% to 4.0%)	⊕⊕⊕○ 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 probably improve compliance with desired practice and probably improve patient outcomes. The certainty of this evidence is moderate.

Educational meetings alone compared to no intervention		
<b>People</b>	Healthcare providers	
<b>Settings</b>	Primary and secondary care	
<b>Intervention</b>	Educational meetings without other interventions	
<b>Comparison</b>	No intervention	
Outcomes	Adjusted absolute improvement (risk difference)* Median (Interquartile range)	Certainty of the evidence (GRADE)
<b>Compliance with desired practice</b>	Median 6% (2.9 to 15.3)	⊕⊕⊕○ Moderate
<b>Patient outcomes</b>	Median 3% (-0.9% to 4.0%)	⊕⊕⊕○ 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**

One trial that compared interactive educational meetings to didactic educational meetings was found that provided 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. A slightly larger improvement was reported for the group receiving interactive education (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 slightly more effective than lecture-based meetings.**
- ➔ **Mixed interactive and didactic educational meetings may be more effective than only interactive or only didactic educational meetings.**

# Relevance of the review for low-income countries

→ Findings	▷ Interpretation*
APPLICABILITY	
→ <b>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.</b>	▷ <i>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-income countries.</i>
EQUITY	
→ <b>Overall, the included studies provided little data regarding differential effects of the interventions for disadvantaged populations.</b>	▷ <i>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.</i>
ECONOMIC CONSIDERATIONS	
→ <b>The findings summarised here are based on randomized trials in which the levels of organization and support were potentially greater than those available outside of research settings.</b>	▷ <i>The cost of educational meetings is likely to be highly variable and must be estimated based on specific local conditions outside research settings.</i>
MONITORING & EVALUATION	
→ <b>There is evidence that educational meetings are effective in resource poor settings, but there is little evidence regarding the cost-effectiveness of educational meetings.</b>	▷ <i>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.</i>

\*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](http://www.supportsummaries.org/methods)

# 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.supportsummaries.org/coi](http://www.supportsummaries.org/coi)

## Acknowledgements

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## This review should be cited as

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*, 2009 Apr 15;(2):CD003030.

## The summary should be cited as

Flottorp S. Do continuing education meetings and workshops for healthcare professionals improve professional practice and healthcare outcomes? A SUPPORT Summary of a systematic review. August 2016.  
[www.supportsummaries.org](http://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](http://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](http://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](http://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](http://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](http://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](http://www.evidence4health.org)

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