

## The effect of printed educational materials on professional practice and health care outcomes: Evidence and implications for public health

### Review on which this evidence summary is based:

Farmer, A.P., Légaré, F., Turcot, L., Grimshaw, J., Harvey, E., McGowan, J.L., & Wolf, F. (2008). **Printed educational materials: Effects on professional practice and health care outcomes.** *Cochrane Database of Systematic Reviews*. Issue 3, Art. No.: CD004398.

*Note: The Cochrane review that this evidence summary is based on has been updated. This evidence summary summarizes the above-cited version of this review, not the updated version. An updated evidence summary will be provided as soon as possible.*

### Review Focus

- P** Healthcare students and professionals
- I** Mass- or direct-mailing of printed educational materials (PEMs), such as clinical practice guidelines
- C** No intervention
- O** Improved process outcomes such as professional practice outcomes (e.g. x-ray requests consistent with guidelines, taking adequate history, prescribing behaviour, medication change, and smoking cessation) and patient outcomes (e.g. General Health Questionnaire score, return to work, and smoking cessation).

**Review Quality Rating:** 8 (strong) *Details on the methodological quality are available [here](#).*

### Considerations for Public Health Practice

#### Conclusions from Health Evidence

This well-done review includes evidence from 12 high quality RCTs, 1 controlled before and after study (CBA), and 10 interrupted time series studies (ITS) of weak methodological quality.

Printed educational materials (PEMs) compared to **no intervention** led to:

- small negative change in patient outcomes, with the effects being of limited clinical significance
- no improvement in professional practice outcomes

PEMs compared to **a single intervention** (i.e., educational workshops or outreach) resulted in:

- a small change in some professional practice and patient outcomes
- non-significant changes in continuous outcomes.

No studies were found comparing PEMs as part of a multifaceted intervention to other multifaceted interventions.

Review authors were unable to determine specific circumstances and contexts in which PEMs are most effective.

#### General Implications

Currently available evidence does not support the use of PEMs by public health as a means to improve both professional practice and patient outcomes.

Decision makers may consider including PEMs as part of a multi-faceted intervention, although this will require rigorous evaluation.

Although there is currently insufficient evidence related to the circumstances and contexts in which PEMs work best, future projects re-explore this literature in planning PEM campaigns.

## Evidence and Implications

What's the evidence?	Implications for practice and policy
<p><b>1. PEMs compared to no intervention (4 cluster randomized trials, 3 RCTs, and 10 interrupted time series studies)</b></p> <ul style="list-style-type: none"> <li>• Small deterioration of <i>patient outcomes</i> across 3 studies (median standard ES -0.004 to -0.20), with uncertain clinical significance.</li> <li>• <u>No impact</u> on <i>professional practice outcomes</i> for categorical process outcomes (e.g. x-ray requests, prescribing and smoking cessation activities) and continuous process outcomes (e.g. medication change, x-rays requests per practice)</li> </ul>	<p><b>1. PEMs compared to no intervention</b></p> <ul style="list-style-type: none"> <li>• Public health decision makers should not consider PEMs to improve professional practice</li> <li>• Given the impact of PEMs on patient outcomes was minimal at best, PEMs may not be an optimal use of public health resources.</li> </ul>
<p><b>2. PEMs as one component of any intervention, compared to a single intervention (1 RCT)</b></p> <ul style="list-style-type: none"> <li>• A single RCT showed a small positive impact on <i>professional practice outcomes</i> (median absolute risk difference 0.5 in favour of PEMs), with the 2 other trials reporting non-significant effects.</li> <li>• A single RCT showed a small positive impact on categorical <i>patient outcomes</i> for smoking cessation (median standardized effect -0.2%).</li> <li>• <u>No impact</u> on continuous patient outcomes (e.g. screening, return to work, quit smoking).</li> </ul>	<p><b>2. PEMs as one component of any intervention, compared to a single intervention</b></p> <ul style="list-style-type: none"> <li>• Public health decision makers should not invest heavily in PEMs as part of a larger intervention to improve professional practice OR patient outcomes. The currently-available evidence is limited.</li> </ul>
<p><b>Legend:</b> P – Population; I – Intervention; C – Comparison group; O – Outcomes; CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk            *For definitions see the <a href="http://www.healthevidence.org/Glossary">healthevidence.org Glossary</a> <a href="http://www.healthevidence.org/glossary.aspx">http://www.healthevidence.org/glossary.aspx</a></p>	

### Why this issue is of interest to public health in Canada

Printed educational materials (PEMs) - short clinical guidelines, newsletters, journal articles - are commonly used means of disseminating knowledge to improve health professionals' awareness, attitudes, skills, professional practice and patient outcomes.<sup>1,2,3</sup> Professional development, and "lifelong" learning, are essential to evidence informed decision making, and essential to the maintenance and development of public health core competencies as outlined by the Public Health Agency of Canada.<sup>4</sup> As such, establishing the most effective mode(s) of knowledge dissemination will serve to enhance professional growth and improve both practice patient outcomes.

1. Bull, F.C., Holt, C.L., Kreuter, M.W., Clark, E.M., & Scharff, D. (2001). Understanding the effects of printed health education materials: Which features lead to which outcomes? *Journal of health Communication*, 6(3), 265-279.
2. World Health Organization. (2004). *Session guide: Designing effective printed educational materials*. Retrieved from [http://archives.who.int/PRDUC2004/RDUUCD/Acrobat\\_Files/SG\\_Acrobat\\_Files/15\\_Designing\\_Effective\\_Printed\\_Ed\\_SG.pdf](http://archives.who.int/PRDUC2004/RDUUCD/Acrobat_Files/SG_Acrobat_Files/15_Designing_Effective_Printed_Ed_SG.pdf)
3. Grimshaw, J.M., Thomas, R.E., MacLennan, G., Fraser, C., Ramsay, C.R., Vale, L., Whitty, P., Eccles, M.P., Matowe, L., Shirran, L., Wensing, M., Dijkstra, R., Donaldson, C. (2004). Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technology Assessment*, 8(6). Retrieved from <http://www.hta.ac.uk/pdf/execs/summ806.pdf>
4. Public Health Agency of Canada. (2008). *Skills enhancement for public health: Core competencies for public health in Canada, release 1.0*. Retrieved from <http://www.phac-aspc.gc.ca/ccph-cesp/pdfs/cc-manual-eng090407.pdf>

Other quality reviews on this topic are available on [www.healthevidence.org](http://www.healthevidence.org)

### Suggested citation

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*This evidence summary was written to condense the work of the authors of the review referenced on page one. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself. The opinion and ideas contained in this document are those of the evidence summary author(s) and healthevidence.org. They do not necessarily reflect or represent the views of the author's employer or other contracting organizations. Links from this site to other sites are presented as a convenience to healthevidence.org internet users. Healthevidence.org does not endorse nor accept any responsibility for the content found at these sites.*