



Evidence-Based Series #15-7: Section 1

Interventions to Increase the Uptake of Cancer Screening: Guideline Recommendations

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QUESTION

What interventions have been shown to increase the uptake of cancer screening by individuals, specifically for breast, cervical, and colorectal cancers? Interventions of interest include:

- Population-based interventions aimed to increase the demand for cancer screening.
- Population-based interventions aimed to reduce barriers to obtaining screening.
- Provider-directed interventions targeted at clinicians to implement in the primary care setting, including provider assessment and feedback interventions and provider incentives.

INTENDED USERS

This guideline is intended for:

1. Health care providers and organizations responsible for implementing cancer screening programs.
2. Members of the public.

METHODS and KEY EVIDENCE

The Cancer Screening Uptake Expert Panel conducted an initial scoping review and systematic review that yielded several candidate synthesized documents that could serve as the evidentiary base for these guideline recommendations. Three systematic reviews and a recommendations report (1,2,3), published in a special issue of the American Journal of Preventive Medicine, were chosen because of their direct relevance to the objectives of our project, their currency, and their quality. These were accompanied by recommendations from the United States (US) Task Force on Community Preventive Services (4). An update of the systematic reviews was undertaken by the Expert Panel, and 41 additional randomized controlled trials (RCTs) and cluster randomized trials were found. Thus, three systematic

reviews, 41 randomized trials, and the original recommendations of the US Task Force serve as the evidentiary foundation to inform the guideline recommendations.

RECOMMENDATIONS

Table 1 summarizes the recommendations of the Cancer Screening Uptake Expert Panel (Section 2: Appendix 1) of Cancer Care Ontario regarding population-based interventions to increase the demand for cancer screening, population-based interventions to reduce barriers to obtaining screening, and provider-directed interventions targeted at clinicians to implement in the primary care setting.

Table 1. Summary of Recommendations of Cancer Care Ontario’s Cancer Screening Uptake Expert Panel.

<i>Population-based Interventions to Increase Demand for Screening</i>			
Intervention*	Breast Cancer	Cervical Cancer	Colorectal Cancer
Client reminders	Recommended		
Client incentives alone	There is insufficient evidence to recommend for or against this intervention.		
Mass media alone	There is insufficient evidence to recommend for or against this intervention.		
Small media	Recommended		
Group education	There is insufficient evidence to recommend for or against this intervention.		
One-on-one education	Recommended	Recommended	Consider
<i>Population-based Interventions to Reduce Barriers to Obtaining Screening</i>			
Reducing structural barriers	Recommended	Recommended	There is insufficient evidence to recommend for or against this intervention.
Reducing out-of-pocket costs	There is insufficient evidence to recommend for or against this intervention for the Ontario context.		
<i>Interventions Directed at Health Care Providers to Increase Screening</i>			
	Breast Cancer	Cervical Cancer	Colorectal Cancer
Provider assessment and feedback	Recommended		
Provider incentives	There is insufficient evidence to recommend for or against this intervention.		

Note: Recommendation table template designed by the United States (US) Task Force on Community Preventive Services (4).

* For the US Task Force intervention definitions, please see Table 1, page 7 of Section 2.

Specific Recommendations

- Client reminders and small media are effective population-based interventions to increase the uptake of breast, cervical, and colorectal cancer (CRC) screening.
- One-on-one education is an effective population-based intervention to increase the uptake of breast and cervical cancer screening. Evidence is emerging suggesting one-on-one education might facilitate the uptake of CRC screening and should be considered as an option in the context of CRC screening.
- Reducing structural barriers is an effective intervention to increase community access and reduce barriers to breast and cervical cancer screening. There is insufficient evidence to support or refute its role in CRC screening.
- Provider assessment and feedback is an effective provider-focused intervention to increase the uptake of breast, cervical, and CRC screening.
- At this time, there is insufficient evidence to support or refute the role of client incentives, mass media, group education, reducing out-of-pocket costs, and provider incentives as strategies to increase the uptake of breast, cervical, or CRC screening.
- There are no interventions studied in this review that led the Cancer Screening Uptake Expert Panel to recommend unequivocally *against* their use because of proven ineffectiveness.

With few exceptions, the recommendations of the Cancer Screening Uptake Expert Panel align with the original recommendations of the US Task Force. The exceptions include:

- The Expert Panel chose not to categorize the strength of the recommendations or evidence foundation due to the inability to form reliable operational definitions that could be consistently applied across the areas of inquiry.
- The Expert Panel believes the new evidence emerging in the update is sufficient to reclassify one-on-one education for CRC from the original “not recommend” to “consider” as an option.
- The Expert Panel did not view the evidence regarding reducing out-of-pocket costs for patients as relevant to the publicly-funded Ontario context and could not recommend for or against that intervention. However, covering patient expenditures associated with screening, for example, parking or colonoscopy preparation material costs, might remove barriers that prevent a patient obtaining a screening procedure.

Qualifying Statements

a. Recommendation Caveats

- There is little evidence directly testing the effectiveness of interventions for different populations; nonetheless, subgroup analysis suggests group education may be a useful intervention for special populations such as specific ethnic groups or other groups for whom access to health care might be challenging.
- There is little evidence directly testing the effectiveness of interventions for different provider groups; nonetheless, evidence suggests that provider assessment and feedback may be more effective for trainees than for established practitioners.
- Types of provider incentives explored in the original systematic review and the updated studies may or may not be generalizable to the Ontario experience. Currently in Ontario, there are some financial incentive strategies (for example, fee codes and bonus payments) for screening that should be explored and evaluated more thoroughly.
- Across the studies, the labelling, categorization, and operationalization of several of the interventions evaluated were inconsistent and overlapping. This precludes

recommendations for specific options within the suite of activities the intervention represents.

- Nonetheless, it is important to note that across categories where the greatest overlap exists (i.e., client reminders, small media, and one-on-one education) the evidence is generally consistent and in favour of the interventions.
- The methods by which information was tailored varied across studies. As such, no specific advice can be offered in favour of one tailoring strategy over another.
- The literature is incomplete in differentiating between newly screened and repeat-screened individuals. This precludes making recommendations for each of these population groups.
- There are several screening options within each cancer site, particularly in the case of CRC screening (fecal occult blood test [FOBT], flexible sigmoidoscopy [FS], and colonoscopy). Studies varied in terms of the types of screening covered, and in no case was an analysis of a specific modality complete. This precludes making specific recommendations for each screening modality within that site.

b. Methodological Caveats

- In contrast to the original systematic reviews that included a range of study designs, the update of the literature focused on RCTs and cluster RCTs only.
- The quality of RCTs and cluster RCTs in the update was poor, primarily due to the incomplete reporting of quality characteristics information in the studies.
- Measures of the key outcome, percentage point (PP) change, were calculated in the original systematic reviews and the update using various strategies based on the availability of the data. While larger PP changes are more indicative of greater effectiveness, the absolute magnitude of effect cannot be calculated, and comparisons across studies using different data may be misleading.

c. Resources Caveat

- An update and review of the cost-effectiveness data analysis fell outside the scope of our guideline because the Expert Panel did not believe the data could be reliably generalized to the Ontario context. Nonetheless, appropriate planning and resource estimates should be considered before the implementation of an intervention.

How to Apply These Recommendations

The recommendations provide information regarding what suites of interventions are more or less effective at increasing the uptake of cancer screening. The recommendations do not provide specific advice regarding which activity or elements within that intervention group should be implemented or for which specific populations or providers one might see the greatest effect. To make these decisions, users are encouraged to do the following:

- Choose a few candidate studies with populations, providers, and contexts that most closely align with your own populations, providers, and context.
 - This can be accomplished by reviewing study details presented in the text and Tables 4-6 in Section 2: Appendix 5 of this report and reviewing the original studies (all referenced in Section 2).
 - Recognize that there is significant overlap across some of the intervention categories that show the greatest promise (e.g., client reminders, one-on-one education, and small media), and consider this when developing your own suite of interventions.

- Consider and deliberate:
 - Which activities and operational details have the greatest face validity for your context?
 - Would these activities be acceptable to the populations you are targeting?
 - Do you have the resources (e.g., human, financial) to offer these interventions?
 - Do you have the capacity to measure their impact?
- Contribute to the knowledge base.
 - Where possible, build into your activities a formal high-quality evaluation strategy and communicate your findings to a wider audience, including the scientific community. These data can be used to improve the knowledge base and enable health services researchers to refine what is known and provide more precise recommendations in the future.

POTENTIAL RESEARCH AREAS

The evidence review identified several potential research areas that could advance the knowledge in this area. Some of these include:

- Research targeting interventions that, in this review, continue to provide insufficient information for or against effectiveness. This includes client incentives, mass media, group education, reducing out-of-pocket costs (relevant to the Ontario context), and provider incentives as strategies to increase the uptake of breast, cervical, or CRC screening.
- Research to disentangle the multiple operational elements that define the various interventions to test those that are more and less effective, and further, to explain whether the cumulative impact of these interventions can facilitate achieving the desired behavioural outcomes, and whether frameworks of behavioural change, for example, the Transtheoretical Model, can help in our understanding of these complex processes. A conceptually similar undertaking was led by Eccles and colleagues (5) in their efforts to understand better the specific mechanisms underlying theories of behaviour change and the components to which change could more or less be attributed.
- Research specifically designed to study the effects of interventions across different populations, and in the area of CRC screening, gender-specific research. Repeat-screened versus never-been-screened populations, general populations versus specific ethnic groups, and other groups for whom access to health care might be more challenging are of particular interest.
- Research to determine more accurately the efficacy of tailored versus nontailored approaches, including the cost-effectiveness of more complex tailored approaches.
- Research to analyze and evaluate the cost-effectiveness of specific interventions using strategies that will yield data relevant to the Ontario context.
- Research to investigate the impact of more recent electronic and other mass media interventions when targeting either general or specific populations.
- Research to compare the impact of interventions related to the type of health care practitioner delivering that intervention (e.g., family physician, nurse practitioner, pharmacist).

DISSEMINATION OF THE EBS REPORT

The draft EBS report was disseminated in Ontario and other jurisdictions through the Professional Consultation component of the PEBC External Review process. In addition, the final report is posted on the CCO website and was disseminated to the CCO Clinical Council, the CCO Clinical Leadership Group, the Division of Prevention and Screening, and the

ColonCancerCheck Clinical Advisory Committee, which sponsored the report. The research priorities will be sent to the Health Services Research Network of the CCO-Ontario Institutes of Cancer Research (OICR) for their information.

ADDITIONAL CANCER CARE ONTARIO GUIDELINES RELEVANT TO QUALITY IMPROVEMENT IN CANCER SCREENING

The following evidence-based series (EBS) reports are available on the Cancer Care Ontario website (<http://www.cancercare.on.ca>):

- PEBC EBS #15-4 *Guaiac Fecal Occult Blood Test (FOBT) Laboratory Standards* (<http://www.cancercare.on.ca/pdf/pebc15-4f.pdf>).
- PEBC EBS #15-5 *Colonoscopy Standards* (<http://www.cancercare.on.ca/pdf/pebc15-5f.pdf>).
- PEBC EBS *Cervical Screening* (<http://www.cancercare.on.ca/pdf/pebccervf.pdf>).
- PEBC Special Report EBS *Self-collected Samples for Testing of Oncogenic Human Papillomavirus* (<http://www.cancercare.on.ca/pdf/pebchpvf.pdf>).
- PEBC Special Report EBS *The Optimum Organization for the Delivery of Colposcopy Service in Ontario* (<http://www.cancercare.on.ca/pdf/pebccolps.pdf>)

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