What implementation interventions increase cancer screening rates? A systematic review

CRD summary
This review concluded that reasonable candidate interventions for increasing uptake of breast, cervical and colorectal cancer screening were identified. These included client reminders, small media, provider audit and feedback and, for breast cancer only, one-on-one education and reduction of structural barriers. This reflects the review results, but potential for reviewer error and bias requires consideration when interpreting reliability.

Authors' objectives
To evaluate interventions designed to increase the rate of screening for breast, cervical and colon cancers. This review updated three previous systematic reviews (see other publications of related interest).

Searching
MEDLINE, EMBASE, CINAHL and PsycINFO were searched with systematic reviews identified in a special edition of the American Journal of Preventive Medicine. Search dates were from 2004 up to May 2010 (August 2008 for CINAHL). Search strategies were provided. References of identified reviews were checked and members of an expert panel consulted. Only studies published in full in English were eligible.

Study selection
Randomised controlled trials (RCTs) or cluster RCTs that assessed one of ten specified types of interventions that targeted either public or healthcare providers for increasing screening rates for breast cancer (by mammogram), cervical cancer (by Pap test) or colon cancer (by faecal occult blood test, flexible sigmoidoscopy or colonoscopy) were eligible for inclusion. Eligible comparisons were between one intervention or combination of interventions and no intervention, or between two different interventions/combinations of interventions. The primary outcome was screening rate.

Included trials evaluated a range of interventions; these fell into the categories of reminders to clients, small media interventions, group or one-on-one education, interventions to reduce structural barriers or out-of-pocket costs and feedback and incentives to providers (definitions were provided in the paper).

The authors did not state how the papers were selected for the review, or how many reviewers carried out the selection.

Assessment of study quality
Trials were evaluated with the following criteria: funding; randomisation; baseline characteristics; blinding; statistical power; target sample size reached; follow-up; and use of intention to treat analysis. The authors did not state how many reviewers performed the assessment.

Data extraction
Data on screening completion, either from self-report or record reviews, were extracted to enable the calculation of the median post-intervention increase in completed screening tests. Formulae for calculating these and methods for handling non-convertable data were reported. The authors did not report how many reviewers carried out the data extraction.

Methods of synthesis
The studies were combined in a narrative synthesis structured by intervention type, with results of the previous reviews reported separately from the new trials.

Results of the review
Sixty-six new trials which evaluated seventy-four comparisons were included in the review. The trials included in the original reviews were generally judged to be of poor quality; those included in the update were of weak to moderate quality, except in the case of use of mass media and small media where the quality ranged from weak to excellent.
Trials that addressed screening for all three cancers were included. All eligible interventions were assessed, with the exception of client incentives and mass media for which no trials were identified. The greatest numbers of new studies were for small media interventions (23 new trials) and client reminders and education interventions (18 new trials for each).

Client reminders, small media and provider audit and feedback all appeared effective for increasing screening for all three cancers but the evidence for small media interventions was less convincing. One-on-one education and reduction of structural barriers also appeared effective but their roles in colorectal and cervical screening were less established. In addition to mass media and client incentives for which there was no evidence, there was limited evidence on group education (six trials) where the latter showed positive effects for specific populations such as ethnic minorities. There was some evidence supporting provider assessment and feedback; this was more consistent where both components were involved (nine new trials). Evidence was also limited for provider incentives (one trial) and reducing out-of-pocket costs (two trials).

**Authors’ conclusions**
Reasonable candidate interventions that aim to increase the uptake of breast, cervical and colorectal cancer screening have been identified.

**CRD commentary**
This update review had a clear review question and inclusion criteria and a thorough search strategy. The restriction of the review to studies published in full and reported in English may have led to publication and/or language bias and the omission of some relevant studies. The authors carried out a quality assessment with relevant criteria but did not report using methods designed to reduce reviewer bias or error at any stage of the review process. The narrative synthesis was appropriate and well-structured. The authors’ conclusions reflected the results of the review, but the potential for reviewer bias and error should be considered when interpreting reliability.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that more research was required to assess client incentives, mass media, group education, reduction of out-of-pocket costs and provider incentive interventions. They also stated that future studies should more precisely define the features of different interventions for increasing rates of screening for breast, cervical and colorectal cancers, in order to allow the relative effectiveness of each mechanism to be established.

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