Effectiveness of interventions to enhance physician screening for breast cancer

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Authors' objectives
To review articles assessing the effectiveness of interventions to enhance physician breast cancer screening behaviour.

Searching
MEDLINE was searched for studies published between January 1980 and April 1993. The search terms included 'preventive health care services', 'clinical breast examination', 'breast', 'mammography', 'screening', 'cancer prevention' and 'periodic health examination'. A full list of search terms was included in the paper. Additional studies were sourced from Current Contents (November 1992 to April 1993) and the reference lists of identified studies.

Study selection
Study designs of evaluations included in the review
Controlled trials with concurrent arms were eligible if they included asymptomatic women and were based in the United States. Uncontrolled trials, descriptive studies, pre- and post-intervention studies, and those with historical controls were excluded.

Specific interventions included in the review
All interventions to improve physicians' use of breast cancer screening methods were eligible. The interventions included physician reminder systems, other office systems, audit with feedback, and physician and patient education. Most of the interventions were conducted in academic settings; two were community-based.

Participants included in the review
No inclusion criteria were specified with respect to the participants in the primary studies. The review focused on physicians in academic or community settings who conducted clinical breast examinations or referred asymptomatic women for mammography. A range of participant characteristics were tabulated in the article.

Outcomes assessed in the review
No inclusion criteria were specified relating to the outcomes in the primary studies. The main outcome assessed was increased uptake of mammography or clinical breast examination. Effect sizes and 95% confidence intervals (CIs) were calculated from the extracted data. An intervention effect size was calculated for the intervention employed in each study. For studies of multiple interventions, where possible, separate effect sizes were calculated for each intervention.

For randomised controlled trials, the intervention effect size was calculated as the difference in screening rates between the intervention and control groups at the end of the intervention period. For non-randomised trials, the intervention effect size was calculated as the difference in screening rates between the intervention and control groups of the difference between post- and pre-intervention levels.

How were decisions on the relevance of primary studies made?
Two reviewers assessed the studies for relevance based on predefined criteria. Inter-rater agreement on the inclusion criteria was 90%. Any disagreements were resolved by concurrent review and consensus.

Assessment of study quality
The authors did not state that they assessed quality.

Data extraction
Two reviewers extracted the data independently using a standardised template. Data were extracted on the intervention
Methods of synthesis
How were the studies combined?
The authors planned to calculate a summary effect size where the studies were homogeneous and to present individual results where the studies were heterogeneous. As the studies were mainly heterogeneous, the authors presented a narrative synthesis describing the results of individual studies, organised by intervention type.

How were differences between studies investigated?
Chi-squared heterogeneity tests were conducted separately for randomised and non-randomised trials using the methods of DerSimonian and Laird. Five tests of heterogeneity were conducted for mammography outcomes: physician reminder alone; physician reminder plus other methods; audit with feedback alone; patient reminder or education alone; and patient reminder or education with other methods. Three tests of heterogeneity were conducted for clinical breast examination outcomes: physician reminder alone; patient reminder or education alone; and patient reminder or education with other methods. Where the studies were heterogeneous, the individual study outcomes were reported.

Results of the review
Twenty controlled trials (11 randomised and 9 non-randomised) were included. The total number of physician and patients participating was not specified in all studies.

In academic settings, physician reminders and audit with feedback each significantly increased the use of mammography and clinical breast examination by between 5 and 20%. In community settings, physician education also improved mammography and clinical breast examination rates by between 6 and 14%. Patient education to influence physician behaviour was not effective in academic settings, but was associated with modest increases in community settings.

Cost information
The authors suggest that physician reminders were more cost-effective than audit with feedback, but no detailed cost data were provided.

Authors' conclusions
Physician-based interventions can increase screening use. The interventions should emphasise community practices and practices caring for under-served and older populations.

CRD commentary
This large review addressed a broad research question. Consequently, the inclusion criteria were broad, though generally well described. The assessment procedures were described well.

The literature search was limited, searching only one major bibliographic database, supplemented by a brief review of Current Contents. The authors did not include unpublished literature and it appears that the review was restricted to English language studies. It seems unlikely that all relevant studies were identified. Other potential sources of information include Cancerlit, CINAHL, Conference Papers Index, DHSS, Dissertation Abstracts, EMBASE, NTIS and the Science Citation Index. The review was also limited to studies conducted in the United States. The authors state that studies outside the United States were excluded because they might not be generalisable to the US health system. Excluding studies from other countries may have narrowed the review and made its findings less applicable in other contexts.
The review methodology was generally adequately described. Limited details of the included studies were reported, but no assessment of the methodological quality of the primary studies was described. Heterogeneity was formally assessed and discussed in the text. The authors also examined differences between academic and community settings, and looked into whether certain interventions were more effective for different ethnic groups. A narrative summary was appropriate given the heterogeneity of the included studies.

Overall, within the limitations of its methodology and the available primary studies, this review provides a useful overview of the variety of interventions available to increase physician uptake of mammography and clinical breast examination. However, it is limited by the breath of the question and interventions covered and the lack of pooled data. The result is a broad descriptive overview, rather than more precise estimates of the comparative value of various interventions.

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

Practice: The authors suggest that physician-directed interventions, such as reminders or audit with feedback, may be useful for increasing breast screening.

Research: The authors did not state any implications for further research.

**Funding**

American Cancer Society.

**Bibliographic details**


**PubMedID**

7654272

**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Breast Neoplasms /prevention & control; Controlled Clinical Trials as Topic; Female; Humans; Mammography /statistics & numerical data; Mass Screening /statistics & numerical data; Physicians /statistics & numerical data; Referral and Consultation /statistics & numerical data

**AccessionNumber**

12000008135

**Date bibliographic record published**

31/08/2003

**Date abstract record published**

31/08/2003

**Record Status**

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