The effectiveness of mailed patient reminders on mammography screening: a meta analysis

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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Reminder systems to increase mammography screening rates.

Type of intervention
Screening.

Economic study type
Cost-effectiveness analysis.

Study population
Women aged 40 years and older who are eligible for mammography screening.

Setting
Community setting. This study was carried out at the School of Public Health, University of California, Berkeley, California, USA.

Dates to which data relate
Effectiveness and resource data were collected from 1985 to September 1996. The price year was 1995.

Source of effectiveness data
Effectiveness data were derived from a review of previously published studies.

Modelling
No modelling was undertaken.

Outcomes assessed in the review
The outcomes assessed in the review included the percentage of women who received a mammogram, variables associated with screening, and the effect of follow-up reminders on screening rates.

Study designs and other criteria for inclusion in the review
All studies were published randomised controlled trials. The reminder had to be mailed to the patient. Studies using telephone calls from outreach workers or other non-mailed reminders were excluded.

Sources searched to identify primary studies
The following sources were searched: Medline, Current Contents, Magazine & Journal Articles, PsycINFO, and ABI/Inform databases. The bibliographies of selected articles were also searched.

Criteria used to ensure the validity of primary studies
Not reported.

Methods used to judge relevance and validity, and for extracting data
Original data from individual studies were used.

Number of primary studies included
16 articles were included in the review.

Methods of combining primary studies
Not reported.

Investigation of differences between primary studies
Differences in study design and sample populations dictated that studies be pooled according to the location of the study and the type of control group. To assess interaction between studies and the overall level of association between reminders and mammography screening, the Woolf test for interaction and Mantel-Haenszel common odds ratio (OR) were calculated, respectively.

Results of the review
In the US studies, 47% of women who received reminders and 39% of women who did not receive reminders underwent mammograms. Women who received reminders were 50% more likely to undergo a mammogram (OR 1.48, p<0.001). In studies conducted outside the USA, cases were five and a half times more likely to undergo mammography than controls (OR 5.57, p<0.001). In the US studies, 38% of women who received tailored letters and 25% of women who received generic reminders underwent mammography (OR 1.87, p<0.05). Variables related to perceived health risk including health status, family history, and previous mammography were associated with screening. Follow-up reminders significantly improved screening rates (p<0.05).

Measure of benefits used in the economic analysis
The measure of benefit used was the percentage of women who received a mammography.

Direct costs
Costs were not discounted given the short time period of the study (<1 year). Quantities and costs were not reported separately. The cost per woman screened was calculated. These cost estimates did not include the cost of the mammogram itself. Estimates of unit costs were obtained from three studies. The price year was 1995.

Statistical analysis of costs
Not reported.

Indirect Costs
Not reported.
Currency
US dollars ($).

Sensitivity analysis
Some studies compared multiple interventions with a single control group. Since this has the effect of recounting the same control group, sensitivity analysis was conducted by excluding each study, one at a time.

Estimated benefits used in the economic analysis
The reader is referred to the "Results of the Review" section above.

Cost results
Cost per woman estimates derived from three studies ranged from $0.45 to $2.78. The cost per woman for the reminder with and without a scheduled appointment was $6.13 and $1.68, respectively.

Synthesis of costs and benefits
The cost per woman screened ranged from $0.96 to $5.88. The cost per woman screened for the reminder with and without a scheduled appointment was $18.29 and $16.25, respectively. The sensitivity analysis indicated that statistical significance was maintained with the omission of any study.

Authors' conclusions
Patient-oriented reminder systems are effective in increasing the initiation and maintenance of annual mammography for patients 40 years of age and older.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear.

Validity of estimate of measure of benefit
The measure of benefit would appear to be valid. The authors drew attention to the fact that effectiveness results may differ according to the study population and the type of reminder system.

Validity of estimate of costs
More details about the costing method could have been provided. The cost estimates did not include the costs of designing and implementing the patient reminders. No sensitivity analysis was conducted to test the robustness of the cost results.

Other issues
The authors did not examine the use of physician reminders. Insufficient data were available to determine whether age, race, English as a second language, education, marital status, or smoking behaviour were related to mammography screening. Interventions to women receiving mammography to return the following year were not examined.

Implications of the study
More research is needed to assess the cost-effectiveness of patient reminders and to examine their cost-effectiveness across race, education, income, and type of insurance.

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