Evidence Summary Title:
Mammography educational interventions for low-income women: Evidence and implications for public health

Review Quality Rating: 7 (moderate)

Review on which this evidence summary is based:

Review author contact information:
Amid Ismail, BDS, MPH, DrPH, University of Michigan School of Dentistry, Ann Arbor, MI 48109; ismailai@umich.edu.

This is an evidence summary written to condense the work of the authors of this systematic review, referenced above. 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.

Review content summary
This systematic review of 24 randomized controlled trials or cohort studies with a control aimed to determine the effectiveness of educational interventions in increasing mammography screening among low-income women. Participants studied were: racial/ethnic minority or low-income women. To be included, studies were: randomized, community-based trials targeting low-income women and published between January 1980 and March 2003. Interventions described in this review included: multiple intervention strategies, used peer educators, or provided easy access via vans, cost vouchers, or home visits were effective in increasing mammography screening. Outcomes measured include: mammography screening. Authors report that mailed letters or telephone reminders were not effective in this population.

Comments on this review’s methodology
This is a methodologically moderate systematic review. A focused clinical question was clearly identified. Appropriate inclusion criteria were used to guide the search. A comprehensive search was employed using health, and cancer-specific databases; reviewing reference lists of primary studies; and handsearching key relevant journals. The search was limited by language (English). Primary studies were assessed for methodological quality using randomization, allocation concealment, sample size calculation a priori, rate of follow-up, outcomes of the participants who withdrew, and comparability of the control and experimental groups. The methods were not described in sufficient detail so as to allow replication although two reviewers were involved in quality appraisal. Any discrepancies in appraisal results were rectified by discussion. The results of this review were not transparent. Results were clearly presented in graphical form so as to allow for comparisons across studies. Heterogeneity was assessed. Appropriate analytical methods (fixed effects, random effects) were not employed to enable the synthesis of study results. One limitation to this review was that the studies were not weighted appropriately.

Why this issue is of interest to public health
In Canadian women, breast cancer is the most common type of cancer, and is one of the leading causes of cancer-related deaths. Currently, mammography is regarded as the best tool to screen for breast cancer in women. In fact, the only proven strategy to reduce breast cancer mortality is early detection through screening mammography in women over 50. Population-based trials have demonstrated that screening mammography can reduce mortality from breast cancer by approximately 30% in women aged 50-69. In Canada and the United States, low-income women are less likely to participate in screening mammography. Low-income populations face significant barriers to healthcare, and interventions need to account for these in order to be effective. Interventions that prove effective in middle and high-income women may not be efficacious in low-income women. Thus there is a need to examine the effectiveness of interventions to increase mammography screening in low-income women.

Evidence and implications
Evidence points are not in order of the strength of evidence

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<th>What’s the evidence?</th>
<th>Implications for practice and policy:</th>
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<td>1. Educational interventions for low-income women to increase mammography (24 studies)</td>
<td>1. Educational interventions for low-income women to increase mammography</td>
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<td>1.1. Logistical support: mammography vans/ mobile units, cost vouchers and home visits (10 studies)</td>
<td>1.1. Community programs to increase mammography among low-income women should include multiple strategies;</td>
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<td>1.1.1. Three studies using mammography van/ mobile units (2)</td>
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of which also included free or low-cost vouchers for mammograms) reported statistically significant (P<0.001) increases in mammography screening compared to controls. The absolute benefit increase in mammography screening across the three studies was 16%, 33% and 15%, for those exposed to logistical support.

1.1.2. Three studies using cost vouchers, presentations, small group discussions and reminders reported statistically significant (P <0.05) increases in mammography screening compared to controls. The absolute benefit increase in mammography screening across the three studies was 12%, 70%, and 15%, for those exposed to cost vouchers, education and reminders.

1.1.3. Three studies (some overlap with studies reported in 1.1.1 and 1.1.2) using mammography vans or cost vouchers with peer educators (matched to the language or ethnicity of the target population) reported statistically significant (P <0.05) increases in mammography screening compared to controls. The absolute benefit increase in mammography screening across the three groups was 16%, 12% and 70% for those exposed to vans or cost vouchers and peer educators.

1.1.4. Three of four studies using home visiting and education reported statistically significant (P<0.05) increases in mammography screening compared to controls. The absolute benefit increase that could be calculated from data in the review for two of the four studies was 2%, and 8%.

1.2. Community Education Alone (1 study)
1.2.1. A bilingual educator and community education did not result in significant increases in mammography screening compared to controls.

1.3. Referrals (1 study)
1.3.1. A community referral program (information about how to get a mammogram) with education resulted in a statistically significant (P<0.029) increase in mammography screening compared to controls.

1.3.2. The absolute benefit increase in mammography screening was 14% two years following exposure to the intervention.

1.4. Multi-component Interventions (5 studies)
1.4.1. Four of 5 studies of interventions that included a combination of: physician letters, telephone calls and home visits from a peer educator, screening and appointment facilitation, family practitioner education, reminders and tailored counselling methods resulted in statistically significant (P<0.05) increases in mammography screening compared to controls.

1.4.1.1. A study of core education, opportunity to schedule a mammogram, provision of out-of-pocket expenses, and medical record and patient reminder did not result in increased mammography rates compared to controls.

1.4.1.2. One study of community screening and appointment facilitation had significantly (P<0.01) higher screening rates compared to media promotion only. The absolute benefit increase in mammography screening was 27% at 12 months in those exposed to these interventions.

1.4.1.3. In one study, family practitioner education and medical record reminders resulted in increased mammography rates that were statistically significant only in one of two regions compared to community participation. The absolute components

1.1.2. Interventions including logistical support including mobile units, cost vouchers and home visiting are recommended

1.1.3. Video and print materials should include ‘loss framed’ and multiculturally tailored messages

1.1.4. Mailed letters signed by a health professional with a pre-fixed mammography appointment are also recommended
benefit increase in mammography rates was 12% in those exposed to the intervention after three months.

1.4.1.4. Two studies of tailored vs. non-tailored counselling (one also used phone calls) resulted in statistically significant (P<0.001) increases in screening rates compared to controls, especially for women with high barriers to screening. The absolute benefit increase in mammography rates was 15% for phone counselling, 25% for in person counselling, 14% for an MD letter, 23% for phone counselling and an MD letter, and 29% for in person counselling and MD letter, at 6 months in comparison to usual care.

1.5. Telephone calls (2 studies)

1.5.1. One study that recruited women to deliver mammography screening messages to friends resulted in statistically significant (P<0.01) increases in mammography screening compared to controls. The absolute benefit increase in mammography rates was 15% among women exposed to the intervention up to 8 months later.

1.5.2. One study evaluating outcalls to women in a low-income neighbourhood did not result in increases in mammography screening compared to controls (P>0.05).

1.6. Video and print materials (1 study)

1.6.1. One study that included videos and supporting print materials found statistically significant (P<0.05) increases in mammography screening at follow up compared to baseline.

1.6.1.1. The results were more robust for whites and Hispanics than for African-Americans. Whites were 3.04 times and Latinas 7.67 times more likely to report having a mammography than African Americans, however, confidence intervals not reported.

1.6.1.2. Messages that emphasized the perils of not engaging in health behaviour (loss framed messages) and those that were multicultural were more effective in increasing mammography than positively framed or ethnically targeted messages.

1.7. Printed materials (5 studies)

1.7.1. Two of 5 studies evaluating mailed letters with educational information and Medicare benefit information, and invitation strategies signed by the general practitioner or program coordinator with a prefixed appointment were effective in increasing mammography screening compared to controls. In one study African Americans were 1.97 times and Hispanics 2.33 times more likely to report having had mammograms, which was significant at P<0.05. However confidence intervals were not provided.

1.7.2. Three studies of mailed print material only did not result in increased mammography rates compared to controls.

1.8. Peer-led interventions (8 studies)

1.8.1. Seven of the 8 studies that included peer-led interventions reported statistically significant increases in mammography screening compared to non-peer-led interventions. The absolute benefit increase in mammography rates among the seven studies was 16%, 12%, 70%, 14%, 29%, and 15% in those exposed to the intervention.
2.2. Many studies in the review had control groups who received some intervention; most included general education about breast cancer – this may have led to underestimation of program effect.

relative effectiveness of intervention strategies to increase mammography among low-income women

2.1.1. Research should assess the role that peer-led, access-enhancing and tailored messages have on mammography attendance for low-income women

2.2. Research should test interventions in particular settings and for high priority groups including low-income, ethnic and racial minorities

2.2.1. Studies of ineffective program interventions should be published to minimize the effect of publication bias.

3. Cost Benefit or Cost-effectiveness Information

3.1. No cost related information was included in the review

3.1. Future research should assess cost benefit or cost-effectiveness of the interventions

**General Implications**

- Peer-led and logistical supports are effective in increasing mammography among low-income women
- Programs to increase mammography screening among low-income women should include multiple strategies
- Future research should assess the relative effectiveness of intervention strategies including access-enhancing and tailored messaging on mammography attendance

Legend: CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk

**for definitions please see the healthevidence.org glossary [http://www.healthevidence.org/glossary.aspx](http://www.healthevidence.org/glossary.aspx)**

References used to outline issue


Other quality reviews on this topic


Related links

- Canadian Cancer Society [http://www.cancer.ca](http://www.cancer.ca)

Suggested citation


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