Evidence Summary Title:
Cost-effectiveness of screening mammography beyond age 65 years: Evidence and implications for public health

Review Quality Rating: 6 (strong)

Review on which this evidence summary is based:

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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 meta-analysis of 10 cost effectiveness studies aimed to determine the cost-effectiveness of screening mammograms in women over age 65. Participants studied were women over age 65. To be included, studies were: cost-utility analyses or cost-effectiveness analyses. Outcomes measured include: life-years gained and costs per person for different age groups. Authors report that a) mammography screening in healthy women over the age of 65 years appears to be cost-effective; b) conducting mammography screening every 2 years from age 65 to 70 or 80 years would cost society $34,000 to $88,000 per year of life saved with costs for older women occurring at the higher end of this range; and c) additional high quality research studies regarding breast cancer progression in older women as well as treatment options and preferences for this population are required.

Comments on this review’s methodology
This is a methodologically strong meta-analysis. A focused clinical question was clearly identified. Appropriate inclusion criteria were used to guide the search. A comprehensive search was not employed as only one health database and the National Health Service Economic Evaluation Database were used along with reference lists and key informants. The search was limited by language. Primary studies were not assessed for methodological quality. The methods were not described in sufficient detail so as to allow replication and it is unclear if two reviewers were involved in quality appraisal. Any discrepancies in appraisal results were not indicated in the review. The results of this review were not transparent. Results were clearly presented in graphical/narrative form so as to allow for comparisons across studies. Heterogeneity was not assessed. Appropriate analytical methods (fixed effects, random effects) were not employed to enable the synthesis of study results.

Why this issue is of interest to public health
Breast cancer is the most common cancer among women aged 20-49 years in Canada. As well it is the most common cancer-related cause of death for women in this age group, second only to lung cancer as a cause of death. The lifetime risk of developing breast cancer is 11.2% (i.e., approximately 1 in 9 women are expected to develop breast cancer). One in 27 women are expected to die from it. That is, in 2006, an estimated 22,200 women will be diagnosed with the disease and 5,300 will die from breast cancer. The risk of developing cancer increases with age. Despite scientific evidence to support population-based screening for breast cancer and that quality, organized, long-term screening programs could reduce breast cancer mortality by as much as 25%, participation in screening remains suboptimal (below the 70% target for participation). Differences in screening rates vary among provinces and territories as well as by social determinants such as socioeconomic status, level of education, and for new Canadians.1

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

<table>
<thead>
<tr>
<th>What’s the evidence?</th>
<th>Implications for practice and policy:</th>
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<tbody>
<tr>
<td>1.1. The results indicated that screening every two years after the age of 65 was cost-effective and found the incremental costs to be approximately $34,000 to $88,000 (2002) US$ per life-year saved compared with stopping screening at age 65.</td>
<td>1.1. Public health should encourage women after the age of 65 to have screening mammograms conducted every two years.</td>
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<tr>
<td>1.2. Costs per life years saved increased after age 65.</td>
<td>1.2. To promote biennial mammogram screening among women over 65 years of age, public health should collaborate with primary health providers, community</td>
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2. **Impact of co-morbidities on cost-effectiveness of mammography screening after age 65**
   2.1. Screening reduces breast cancer mortality in all but the most ill women (e.g., those with co-morbidities such as dementia, congestive heart failure, and hypertension) (2 studies)

3. **Risk of harm**
   3.1. Studies did not reveal any evidence of increased incidence of harm (including scars, diminished arm mobility, and decreased quality of life associated with diagnosis or treatment; anxiety and discomfort associated with false positive results; and operative mortality associated with surgery) associated with screening. However, none of the primary studies thoroughly explored the potential harms of screening.

### General Implications
- The results of this review suggest it is cost effective to promote biennial mammography screening in women over the age of 65 years. However, high quality research is required in order to determine if there are any harms associated with mammography screening in this age group as well as the preferences of these women in relation to screening, diagnosis and treatment.

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

**References used to outline issue**

**Other quality reviews on this topic**

**Related links**
- In Canada, the Ottawa Health Research Institute is developing, for Health Canada, a decision aid related to mammography screening for women over 70 years of age.

**Suggested citation**