Routine screening mammography in women older than 74 years: a review of the available data

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CRD summary
This review found that screening mammography in women aged over 75 years could reduce breast cancer mortality. These conclusions should be interpreted with extreme caution given the methodological limitations of the review and the fact that age at screening was not discussed, which makes it difficult to draw conclusions regarding the impact of screening older women.

Authors' objectives
To determine the efficacy of breast cancer screening in women aged older than 74 years.

Searching
MEDLINE was searched from inception to August 2006 for studies published in the English language; the search terms were reported. Reference lists of retrieved articles and recent reviews were screened for additional relevant studies.

Study selection
Study designs of evaluations included in the review
Initially it was intended to limit the review to randomised controlled trials, but as none were found the criteria were broadened to include observational studies. The included studies comprised retrospective cohort studies and one case-control study.

Specific interventions included in the review
Studies that assessed screening mammography were eligible for inclusion. In most, but not all of the included studies, screening mammography was defined as mammography within the 2 years before diagnosis of breast cancer.

Reference standard test against which the new test was compared
The review did not include any diagnostic accuracy studies that compared the performance of the index test with a reference standard of diagnosis.

Participants included in the review
Studies that included women aged 74 years or older were eligible for inclusion. However, it was not clear whether women had to be over 74 years at the time of screening. All women in the included studies were diagnosed with breast cancer and were aged 65 to 101 years.

Outcomes assessed in the review
Studies that reported mortality due to breast cancer or stage of breast cancer (and/or tumour size) at the time of diagnosis were eligible for inclusion. The review reported all-cause mortality instead of mortality due to breast cancer for some studies.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity. However, some potential biases were discussed in the tables and text of the review.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.
Methods of synthesis
How were the studies combined?
There were insufficient studies to permit statistical pooling. The results of each included study were discussed, with no
attempts at synthesis across studies.

How were differences between studies investigated?
Differences between the studies were discussed in the text.

Results of the review
Seven studies (728,642 women) were included in the review.

The included studies all suffered from a number of methodological limitations, especially the possibility of selection
bias. Other flaws included the misclassification of screening mammography (confused with diagnostic mammography),
misclassification of death from breast cancer and lack of an adjustment for potential confounders.

Effect of screening on mortality (2 retrospective cohort studies, 14,953 women, and 1 case-control study, 198 women).

One cohort study showed a higher risk of death from breast cancer among women aged 75 to 84 years who had not
been regularly screened for breast cancer compared with those who had (hazard ratio, HR 2.47, 95% confidence
interval, CI: 1.70, 3.58). An increased risk was also observed in women aged over 85 years, although this increased risk
was not statistically significant (HR 1.45, 95% CI: 0.63, 3.32). The second cohort study showed that women with
mammographically detected tumours and no co-morbidity had lower relative risks of all-cause death compared with
women whose tumours were detected clinically (age 75 to 79: relative risk, RR 0.36, 95% CI: 0.26, 0.49; age 80 to 84:
RR 0.66, 95% CI: 0.52, 0.83). The findings were similar for women with moderate co-morbidity. The case-control
study found no significant effect on mortality of attending screening following the last invitation, compared with not
attending screening, in women aged over 75 years (RR 2.87, 95% CI: 0.62, 13.2).

Effect of screening on stage of disease at diagnosis (4 retrospective cohort studies, 713,491 women).

All studies found that women who underwent screening mammography had significantly smaller tumours and earlier
disease stage at diagnosis compared with those who were not screened. Some studies found that mammography may
also identify clinically insignificant tumours.

Authors’ conclusions
Screening mammography in women aged over 75 years could reduce breast cancer mortality and lead to the detection
of smaller and earlier-stage cancer.

CRD commentary
The review addressed a focused question that was supported by clearly defined inclusion criteria. The search was
limited to one database and no attempts were made to locate unpublished studies; relevant studies may therefore have
been missed and the review may be subject to publication bias. Details of the review process were not reported, so it is
not possible to determine whether appropriate steps were taken to minimise bias and errors. Although quality was
discussed in the tables and text, a more formal quality assessment using established criteria would have been more
informative.

No attempt was made to synthesis findings across the studies, which makes the results somewhat difficult to interpret.
A key problem with these studies, which the authors did not discuss, is that they all included women with breast cancer
and then retrospectively assessed whether or not they underwent screening. Since their age at final screening was not
discussed they might have been younger than 75 years when they were screened, in which case it would not be possible
to draw conclusions regarding the impact of screening women aged over 75 years. This appears to be a significant
limitation and could invalidate any conclusions. The authors’ conclusion should be interpreted with extreme caution
given the methodological limitations of the review and this possible limitation of the primary studies.
Implications of the review for practice and research
Practice: The authors stated that routine screening without an upper age limit should be encouraged for elderly women without any severe co-morbidities.

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

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