Biennial screening mammography is cost effective in healthy women aged over 65 years

Patricia A. Carney, PhD (Commentary Author)

1 Medical Center Drive, HB 7925, Dartmouth Medical School, Lebanon, NH 03756, USA

Summary
Question What is the cost-effectiveness of screening mammography in women over 65 years old?

Study design Systematic review with narrative synthesis.

Main results Ten studies, out of 115 identified, met inclusion criteria. Studies had similar cost-effectiveness findings; extending biennial screening to ages 75–80 years cost, on average, $34,000–$88,000 per life year gained compared with stopping screening at age 65 (adjusted to 2002 US dollars). Two studies found breast cancer screening less effective at reducing mortality in women with significant comorbidities (dementia, congestive heart failure, or hypertension), thus reducing the cost-effectiveness of screening in this population. No study fully adjusted for potential harms of screening.

Authors’ conclusions In women aged over 65 years without serious comorbidity, biennial breast cancer screening reduces mortality at reasonable costs.

Commentary
Breast cancer is an important health concern for both US women and their physicians. This is demonstrated by the extensive research on breast cancer, with 2994 active trials funded by the National Cancer Institute.1 In addition, the amount of media attention research on this topic receives,2,3 and the medical malpractice issues it generates4 indicate the importance of breast cancer. Lastly, international debates on a variety of screening issues, such as variability in recall rates,5 the appropriate screening interval,6 and age to start or stop screening7 are ongoing. Unfortunately, study results conflict, often because different methodologies are used and because population-based research is often challenging due to missing data, lack of follow-up, confusion over cause of death, and historical changes over time in both screening technology and advancements in treatment.8–10 Understanding biological aspects of this disease and other disease mortality within the context of routine screening could help identify when to cease screening mammography.

In the Mandelblatt paper, 10 of 115 research publications on cost-effectiveness of screening mammography focused on older women (65 years of age or older). Of these, only one included...
modelling of age-dependent assumptions of disease biology and none fully captured the potential harms of screening (e.g., anxiety due to a false-positive result and overdiagnosis). Though the studies differed in specific strategies compared and analytic methods used, these investigators found that, on average, extending biennial screening to ages 75 to 80 years cost between $34,000 and $88,000 (2002 US dollars) per life-year gained compared to stopping screening at age 65. Two of the 10 studies suggested that targeting healthy older women for screening was more cost-effective than including women with several competing risk factors for death.

Implications

Should this study make healthcare providers rethink screening practices in older women? Not yet. Many of the studies included in this cost-effectiveness analysis were done using different screening intervals, some had missing information about the performance of mammography and were done before the Mammography Quality Standards Act was widely in effect, which enhanced the quality of both mammography equipment and better classified interpretive information. In addition, it is very difficult to collect information on treatment tolerance and outcomes in women whose cancers were found. Much more research is needed before clinicians can comfortably recommend that their older female patients cease screening mammography.

Study parameters

Question

What is the cost-effectiveness of screening mammography in women over 65 years old?

Study design

Systematic review with narrative synthesis.

Search strategy


Inclusion/exclusion criteria

Reviewers included studies on the cost-utility or cost-effectiveness of breast cancer screening that contained analysable data on women aged over 65 years. Reviewers excluded studies that did not evaluate health outcomes; that reported only cost per person screened or per type of cancer detected; that did not evaluate screening from a societal or third-party funder’s (e.g. health service or Medicare) perspective; or were duplicate studies that did not contain additional data.

Data analysis

Reviewers extracted data from each study, including cost per person by age group and life years gained. The medical care Consumer Price Index was used to adjust costs to 2002 US dollars. Extracted data was used to calculate incremental cost-effectiveness ratios comparing screening after age 65 to stopping screening at age 65.

Main outcomes

Cost per life year saved.

Notes

There was heterogeneity among studies regarding analytic methods used, data recorded and mammography regimens compared.

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References

