Extending screening mammography to include younger women
minimally increased life expectancy with large increases in cost


Objective
To compare the cost-effectiveness of screening mammography for 2 age groups of women ≥ 40 years of age.

Design
Cost-effectiveness analysis using a Markov model and Monte Carlo simulations comparing breast cancer screening strategies by using data from previously published randomized controlled trials.

Setting
Economic perspective of the U.S. health care system.

Patients
A theoretical cohort of healthy women 40 to 69 years of age.

Intervention
2 breast screening strategies were compared: No screening was compared with biennial screening from 50 to 69 years of age.

Main results
Compared with no screening, biennial screening of 10 000 women from 50 to 69 years of age prolonged life by 329 months (an increased life expectancy of 12 years per woman). Screening every 18 months from 40 to 49 years of age compared with screening biennially from 50 to 69 years of age prolonged life by an additional 64 years (an increased life expectancy of 2.5 years per woman). Compared with the cost of screening women 50 to 69 years of age, the cost of biennial screening of women 50 to 69 years of age was $704 per woman, which resulted in a cost-effectiveness ratio of $21 400 per year of life saved and $21 700 per QALY saved. Screening women 40 to 49 years of age resulted in an incremental cost of $676 per woman, and an incremental cost-effectiveness ratio of $105 000 per year of life saved and $111 800 per QALY saved. A multiway sensitivity analysis showed a > 75% chance that screening mammography from 50 to 69 years of age would cost < $50 000 per year of life saved and a < 7% chance that extending screening to women 40 to 49 years of age would have the same cost-effectiveness ratio.

Conclusions
Breast cancer screening for women 40 to 49 years of age minimally increased life expectancy compared with screening women 50 to 69 years of age. The incremental cost-effectiveness ratio of screening women 40 to 49 years of age was approximately 5 times that of screening women 50 to 69 years of age. Source of funding: National Cancer Institute.

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References