

American Cancer Society Guidelines for the Early Detection of Breast Cancer: Update 1997

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On March 7-9, 1997, the American Cancer Society convened a workshop to consider new scientific findings related to breast cancer screening and to determine whether these new findings warrant a change in the existing ACS guidelines for the early detection of breast cancer. This meeting was proposed in June 1995 but postponed twice in order to benefit from new data related to screening women ages 40 to 49 years from two sources, a meeting in Falun, Sweden, in March 1996 and a National Institutes of Health (NIH) Consensus Development Conference that was announced just after the Falun meeting and held in January 1997.^{1,2}

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Although data presented at these meetings provided further support for the benefit of mammography for women ages 40 to 49 years, these new data have not been universally persuasive.³ In fact, even though acknowledgment is growing that the accumulated results from the randomized clinical trials do show a benefit from screening for this age group, differences of opinion exist as to the value of including women ages 40 to 49 years in recommendations for regular breast cancer screening. This difference in opinion regarding breast cancer screening policy is largely the result of different criteria for evidence-based medicine or values regarding cost-effectiveness. However, the ACS had concluded that the new data accumulated since the last review of its guidelines in 1993 had potentially positive implications for the overall question of benefit from mammography in women ages 40 to 49 and, in particular, for recommendations about the periodicity of mammography in that age group.

Annual Mammography for Women Beginning at Age 40

After a day and a half of scientific presentations and workgroup discussions, workshop participants concluded that the new data warranted the following succinct recommendation: *The American Cancer Society recommends annual mammography for women beginning at age 40.* In addition, cessation of annual screening is

not age related but a function of comorbidity.* Therefore, no age at which screening should be terminated is specified. The workgroup assigned to evaluate recommendations for clinical breast examination and breast self-examination concluded that no new data were present to warrant a change in the current guidelines. However, the workgroup recommended that to the extent possible, a clinical breast examination should be conducted close to the time of the regularly scheduled mammogram. On March 21, 1997, the ACS Board of Directors approved the recommendations for these changes in the guidelines.

By convention, women aged 40 years or older were included in the early studies of breast cancer screening because women diagnosed in their 40s accounted for a considerable proportion of the premature mortality attributed to deaths from breast cancer.⁴ However, the risk of breast cancer increases with age. Between the ages of 40 and 49 years, a woman has a 1.52% (1 in 66) risk of developing breast cancer at some time during the decade.⁵ Between the ages of 50 and 59 years, risk increases to 2.48%, or 1 in 40. Age-specific incidence increases until the age group 75 to 79 years (480.7 per 100,000 women), after which it declines to 431.4 per 100,000 in women 85 years or older.

Eight randomized clinical trials of mammography screening have been conducted. The most recent meta-analysis of all eight yields an 18% (95% confidence interval, CI, 0.71 to 0.95) mortality reduction among the group aged 40 to 49

years. Seven of the trials are population based, and a meta-analysis of these shows a 26% (95% CI, 0.63 to 0.88) mortality reduction in the same age group.⁶

Recent results from two of the trials conducted in Sweden also reveal a statistically significant reduction in mortality among women aged 40 to 49 years at randomization. After 12 years of follow-up, the Gothenberg trial has shown a 44% reduction in mortality (95% CI, 0.32 to 0.98) and the Malmo trial has shown a 36% reduction in mortality (95% CI, 0.45 to 0.89).^{7,8} Data for this age group now meet the same criteria of benefit that has been the basis for concluding that mammography was beneficial for women aged 50 years or older at randomization, that is, that the observed mortality reduction achieves statistical significance at the 95% probability level.

Data from these studies show that relative mortality reductions appear later in women aged 40 to 49 years at randomization compared with women aged 50 years or older. This observation has raised questions about whether the benefit may be attributable to women randomized during their 40s who were diagnosed with breast cancer after age 50. However, even though it is methodologically unsound to analyze trial data based on age at diagnosis rather than age at randomization, data from the Swedish trials do not support this conclusion.⁹ Rather, it appears that the delayed appearance of a relative mortality reduction in younger women compared with older women is best explained by (1) lower incidence and mortality in women in their 40s, (2) small numbers of women in their 40s in the existing randomized trials, (3) a greater proportion of diagnosis of ductal carcinoma in situ (DCIS) in the group invited to screening (the greater lead time achieved from a diagnosis at this stage requires a longer period of follow-up), and (4) the observation that in most of the trials screening intervals longer than 1 year were comparatively less effective in de-

* Previously, the ACS recommended that women begin mammographic screening for breast cancer by age 40, with intervals of 1 to 2 years between the ages of 40 and 49 years, and annual screening beginning at age 50. Also, this recommendation had no upper age limit; as long as a woman is in good health, regular mammographic screening is recommended. At present, limited data exist to guide recommendations for screening intervals for older women. Workshop participants concluded that cost-effectiveness research for women in these age groups was an important area for investigation.

tecting more aggressive tumors at favorable stages.

More recent analysis indicates that longer periods of follow-up have been necessary for observation of a benefit among women aged 40 to 49 years because the wide screening interval in the majority of the trials contributed to mortality reductions only among women diagnosed with tumors of intermediate to good prognosis.^{1,10} Survival is better among women diagnosed with less aggressive tumors, and therefore a relative difference in mortality in the invited compared with the noninvited group has taken longer to observe. These data are consistent with the conclusion that annual screening is necessary to achieve in younger women mortality reductions similar to those of older women when a 2-year interval is used.

Results from randomized trials and large community-based screening programs (“service screening”) have provided compelling evidence to support a revision in the existing ACS guidelines. Evaluation of interval cancers indicates that a greater proportion of breast cancers grow faster in younger women than in older women.^{10,12} Therefore, to achieve the maximal benefit from screening among women aged 40 to 49 years, it is important that the screening interval be the same in women younger and older than 50 years, that is, annual screening. Further, it is clear from the data presented that it is artificial to compare women aged 40 to 49 years with *all* women over the age of 50. There is an incremental risk of breast cancer with increasing age; therefore with increasing age there are incremental benefits in the efficiency of screening programs.¹³⁻¹⁵

The magnitude of the potential reduction in mortality among women in different age groups who participate in regular screening with modern mammography (as contrasted with the older mammography used in the trials) is unclear. However, diagnosis at more favorable

stages is the basis for the observed mortality reductions in the trials, and reports from modern screening programs have demonstrated similar distributions of prognostic factors in women aged 40 to 49 years and the decades after age 50 years. Long-term follow-up also has shown similar survival. For the reasons listed earlier, no reason exists to recommend different screening intervals for women younger and older than 50 years.

New data were presented on the cost-effectiveness of modifying the current guidelines to annual screening for women aged 40 to 49 years. The cost-effectiveness of these new guidelines differs little from previous estimates and is within the range of other commonly accepted screening procedures.

Workshop participants believed that it was important to more effectively communicate the benefits and limitations of breast cancer screening to women and health care providers. Communication of these recommendations and information for informed decision making are responsibilities that the American Cancer Society must address and are an important area for further research.

All of these recommendations require succinct but adequate explanation in the narrative portion of a guidelines document. This new recommendation should be accompanied by a background document clearly delineating the scientific evidence that supports the recommendation.

Additional Recommendations

In the last day’s general session, workshop participants made the following additional recommendations:

- Additional research is needed into the most effective screening interval for postmenopausal women in successive decades of life. Further, the influence of hormone replacement therapy on breast cancer risk, sojourn time, and mammographic image quality requires further investigation.
- Research and professional education

programs to improve the overall efficacy of mammography (accuracy and efficiency) should be pursued, including continuing medical education needs, double reading, self-assessment of interpretative skills, and so forth.

- Medical-legal considerations related to mammographic screening require further clarification, and interventions should be pursued that will reduce the adverse affects of “defensive medicine.”
- A realistic statement of cancer risk, by decade and over the lifetime, is needed.
- The stated “risks” from mammography (i.e., false positive results, false negative results, anxiety, and so forth) should be further quantified and efforts should be made to minimize adverse consequences associated with the limitations of mam-

mography.

- Research into new technologies for early detection and risk profile estimation, in particular identification of genetic susceptibility, is needed.
- Evaluation of recruitment techniques and methods that improve compliance with breast cancer screening, in particular the effectiveness of reminder systems in women of all ages, is a high priority for research.
- The ACS should place greater emphasis on training of providers to conduct clinical breast examination.
- Improved communication to women of all ages about the relative importance of clinical breast examination and breast self-examination is needed. ☐

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