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Mammographic Screening.
[Editorials]

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Since 1987, the United States has stood alone among major developed countries in having encouraged asymptomatic women under 50 years of age to undergo screening mammography, although US mortality rates for women these ages continue to mirror those of other Western countries [1]. Recent reports in JAMA and elsewhere compel a reexamination of this policy.

Diagnostic mammographic evaluation is indicated at any age if a woman has a lump or other signs of disease. In contrast to diagnostic assessments, screening mammography is a routine measure seeking to detect latent disease in asymptomatic women, in order to provide treatment, which may increase the likelihood of a cure [2].

A recent meta-analysis of all relevant studies ever conducted on screening mammography of asymptomatic women confirmed a clear benefit--a 30% reduction in deaths for women over 50 years of age who were screened every year or two. It found, however, "no basis for the promotion of mammographic screening in women under age 50 in the general population." [3] Kerlikowske et al [4] provide an important new contribution to this subject in a recent issue of JAMA with their carefully conducted study of the positive predictive value of screening mammography in 31 814 women referred to the University of California San Francisco Mobile Mammography Screening Program from 1985 to 1992. They found that "women younger than 50 years will have approximately 2.5 times as many

biopsies and three times as many diagnostic procedures for every cancer diagnosed compared with women aged 50 years or older," yet fewer than 20% of all cancers occur in the younger age group. An international workshop on this subject in February 1993 indicated that for every 1000 women under 50 years of age screened with mammography in a decade, 700 would require some sort of diagnostic procedure to detect fewer than 15 tumors, and seven tumors would be missed entirely [5].

Screening mammography cannot prevent breast cancer, but it can detect some small tumors early when they are more amenable to treatment and cure in women over 50 years of age. Despite the strong evidence that the number of deaths from breast cancer in women over 50 years of age can be reduced by 30% through regular mammography, women in this group have not been receiving the lifesaving test; thus, in 1990, 40% of women over 50 years of age had never had a mammogram [6,7]. Over the past two decades at Harlem Hospital Center, New York, NY, one study found that half of all breast cancer cases were incurable on admission, and only 5% were in stage I [8].

An especially disappointing finding of the study by Kerlikowske et al [4] was the fact that the proportion of women over 50 years of age seeking mammograms fell between 1985 and 1992 from about 47% to 33%, while it rose for those under 50 years from 53% to 67%, and for those under 40 years from 22% to 29%. The Centers for Disease Control and Prevention report similar trends, with older women with lower levels of education having the lowest rate of mammography screening [7].

The two biggest risk factors for breast cancer remain sex and age, with nearly 85% of cases occurring in women over 50 years of age. Growing concerns about the rising incidence of breast cancer have fueled screening programs worldwide. Mammography is a major enterprise, involving widespread public efforts including posters, brochures, print and television specials, and public service ads in English and Spanish urging every woman to have a mammogram "once a year for the rest of your life." Despite the fact that the United States has had excess capacity since 1990 [9], firms continue to sell equipment for use in physicians' offices.

As to the current state of mammography, it is important to consider the newness of the venture. The American Board of Radiology included a section on mammography only in the past three examinations. Last year, Congress passed the National Mammography Standards Quality Assurance Act in response to reports that more than half of the current facilities and technologists failed to meet minimal quality assurance standards. In many southern states, fewer than 30% of all radiology centers currently comply with the American College of Radiology guidelines for safety and effectiveness [10]. A reevaluation of first screening films in one urban practice found that "imaginomas" or ghost images accounted for more than half of those recommended for biopsy (oral communication, Gillian

Newstead, MD, director of Breast Imaging, New York University Medical Center, August 6, 1993). In addition, mammography in women younger than 50 years is not without risk. This risk includes the economic and social cost of the procedure, the health hazards linked with radiation exposure begun at a younger age (one cancer induced per 25 000 mammograms), and the considerable human and economic toll of unnecessary diagnostic procedures; overall, about one of 10 biopsies recommended on the basis of mammography will be cancerous [11].

Despite efforts to improve current imaging technologies, imaging just may not be the best screening approach in young women because of the density of their breast tissue. A noninvasive biochemical test of blood or urine that pinpoints early markers or risk factors for breast cancer might prove to be a better population screening tool for younger women, with imaging technologies used only to locate occult cancers.

The public policy dilemma posed by these findings for women and their health providers in the United States today is profound. Chalmers [12] has reminded us that "if our society had been oriented towards finding out whether new technology is efficacious as soon as possible after its introduction there would not be much left to debate more than 30 years (later)\. . ." [12] But wistful wishing cannot alter the fact that mammographic screening in women under 50 years of age does not reduce deaths, while for those over the age of 50 years it saves lives. The reasons for these results are unknown and need to be resolved through additional clinical studies that assess the importance of menopausal status and other factors, including breast tissue change with age. In the meantime, women must be told the truth, so that they can make informed choices about their health care. And efforts must proceed apace to develop better techniques to detect early breast cancer in asymptomatic younger women, to ensure that all woman over 50 years of age are provided access to the lifesaving benefit of screening mammography, and to identify avoidable causes of this major cancer [13].

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