

## Perspective

### On Mammography — More Agreement Than Disagreement

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**B**reast cancer is the most common cancer in women in the United States, with more than 190,000 women receiving a diagnosis of invasive disease annually<sup>1</sup> and more than 40,000 dying of

breast cancer each year. Worldwide, more than 1 million women are diagnosed with breast cancer and more than 500,000 die from it each year.<sup>2</sup> During the past two decades, there have been modest but real decreases in breast-cancer mortality that have been attributed to improvements in early detection and treatment. It is in this context that the recent controversy surrounding the optimal approach to breast-cancer screening should be considered.

On November 16, 2009, the U.S. Preventive Services Task Force (USPSTF) released updated recommendations for breast-cancer screening,<sup>3</sup> informed by additional follow-up from previous studies and a new study focused on sta-

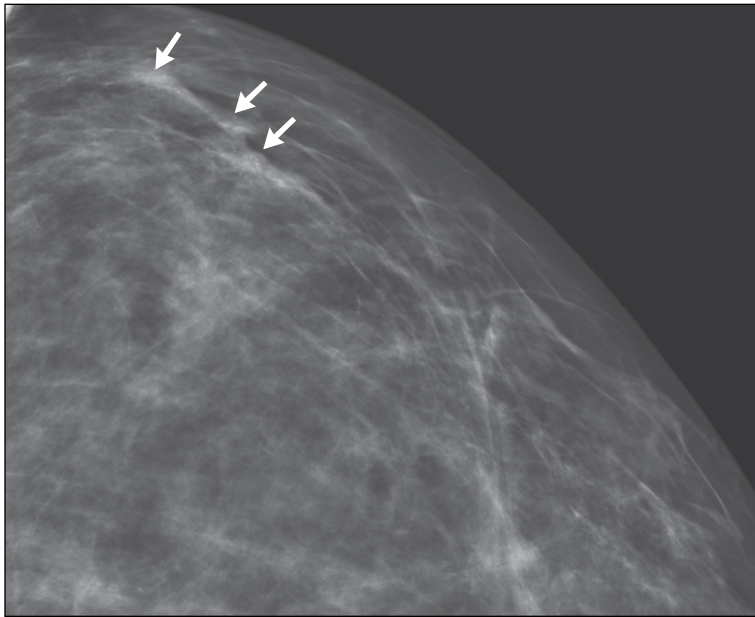
tistical modeling.<sup>4,5</sup> The two most substantive and controversial recommendations were that mammography be eliminated as a “standard test” for women 40 to 49 years of age and that mammography be performed biennially rather than annually in women from 50 to 74 years of age.

The rationale for the changes was clearly delineated by the task force. Although mammography decreases breast-cancer mortality among women in their 40s, the absolute benefit is smaller than among older women, because the disease is less common in the younger age group. Younger women are also more likely to have false positive results, which lead to additional testing, anxiety, and

psychological distress. For women in their 40s who are not at increased risk for breast cancer, the USPSTF recommends that the benefits of mammography be carefully weighed against the potential adverse consequences.

The recommendation for biennial rather than annual screening was based on the modeling study and cross-study comparisons suggesting that more frequent screening is not associated with better outcomes. Moreover, the panel concluded that the rate of false positive results appears to be much lower with biennial mammography.

The updated recommendations sparked substantial controversy and have had a polarizing effect in the breast-cancer community. There has been confusion, fear, and anger on the part of patients with breast cancer, their families, and women’s health advocates. The intensity of the controversy



Screening Mammogram in a 42-Year-Old Woman, Showing Calcifications (Arrows); Biopsy Revealed Ductal Carcinoma In Situ.

is unfortunate, because there is far more agreement than disagreement about breast-cancer screening.

First, there is a consensus that mammographic screening leads to a reduction in breast-cancer mortality among women 40 to 74 years of age. Second, experts agree that the failure of one third of American women to have regular screening is a travesty and probably results from disparities in health care and inadequate education about the benefits of screening. Third, it is widely recognized that mammography is a highly imperfect test. Mammograms fail to reveal an unacceptable number of cancers, particularly those that are estrogen-receptor–negative and pose the greatest threat to survival. At the same time, false positives are too common, and mammography leads to overdiagnosis, particularly of noninvasive cancers. Some mammographically detected noninvasive lesions, as well as some invasive cancers, might never have caused any difficulty. But despite overdiagnosis and under-

detection, mammography remains our best breast-cancer screening tool for the general population.

How do we interpret the USPSTF's new recommendations, reconcile the divergent opinions, and advise patients? First, we need to reassure our colleagues, our patients, and the public that the task force did not suddenly turn the long-debated topic of breast-cancer screening upside down. There has long been controversy about screening for women in their 40s, and in our view, these recommendations represent a modest adjustment.

Second, the task force is neither prohibiting mammography for women in their 40s nor deeming it of no value. Instead, they have acknowledged what we have known for many years: the benefits of mammography are more limited in younger women than in older women, and women at average risk should make a decision with their health care providers about the screening program best suited to their personal prefer-

ences and physical condition. When women in their 40s learn that the absolute benefit of mammographic screening is quite limited — more than 1900 women must be screened for 10 years to prevent 1 death from breast cancer, and there are approximately 60% more false positive results and unnecessary biopsies than there would be if screening began at 50 years of age<sup>5</sup> — some younger women will choose to forgo mammograms, though others will still choose to have regular screening.

Third, the recommendations should be viewed as a step toward more personalized cancer screening. Some may argue that we do not know enough about breast-cancer risk to operationalize these new recommendations, but clearly personalized risk assessment and screening tailored to risk are our goals for the future. Advances in molecular tools such as genome-wide association studies, which identify common genetic factors influencing health and disease, are likely to lead to a better understanding of breast-cancer risk, causation, and biology and will most likely improve our ability to predict the risk of the disease and optimize the risk–benefit ratio of screening options for each individual woman.

Fourth, we must be careful not to send a message that screening and early detection are of no value: there is no doubt that early detection of breast cancer can save lives. We are particularly concerned about the perceptions of women who are members of disadvantaged minority groups and those who lack education and health insurance. It would be lamentable if progress made in breast-cancer awareness were reversed as a result of this debate. Efforts to ed-

ucate the public about breast cancer must be maintained and, in some areas, increased.

Fifth, no woman in her 40s should be denied insurance coverage for screening mammography. Although decisions about coverage may change in the future, at present there is no justification for a change in reimbursement policies. Any decision to limit coverage should be implemented only if there is broad consensus about the risks and benefits of screening in well-defined subgroups.

The task force's decision regarding the frequency of screening has generated more limited attention. In many countries with breast-cancer outcomes similar to those in the United States, biennial screening is standard.<sup>2</sup> In response to the concern that these guidelines primarily represent a cost-cutting measure, it is worth noting the less-controversial new recommendation that routine screening be extended from 70 to 74 years of age — a change based primarily on new benefit estimates derived from statistical models.

The USPSTF recommendations have not changed substantially with regard to the lack of usefulness of routine breast self-examination or recommendations for women under 40 or older than

74 — age groups in which benefits of routine mammography are unproven and unlikely, though more research is needed. The failure of breast self-examinations to improve outcomes does not mean that women should not examine themselves. In fact, they may extend their lives by bringing worrisome breast findings to medical attention. However, a regular and rote monthly self-exam appears to offer no distinct advantage. Instead of teaching women to do self-exams, most cancer experts and advocacy groups encourage women to be aware of their breasts and to bring worrisome findings to the attention of their health care providers. The role of breast self-exams in women at markedly increased risk for breast cancer, such as women with a *BRCA* mutation or a history of breast cancer, has not been studied adequately.

As we move forward, we must remember that mammography may be our best tool for breast-cancer screening, but we urgently need more accurate and cost-effective screening methods to decrease the burden of breast cancer. Our understanding of the molecular basis of breast cancer continues to evolve, and we now view it as a family of distinct disease subtypes — which may well require

their own screening tools. Moreover, the evolution of breast-cancer treatment is likely to have a profound effect on the way we conceptualize screening. There may be room for debate about the optimal age at which to begin screening and the optimal frequency of screening, but there is no debate that technical advances will make these controversies fade. Although we must optimize what is available today, we must also promote far better approaches for tomorrow.

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