

## **Biologic Variations, Incidence by Age, and Risk Assessment of Breast Cancer Screening Outcomes**

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The participants in this work group discussed the state of scientific knowledge of factors that may influence screening outcomes. Specifically, the participants addressed the questions of (1) the role and relevance of age in delimiting different groups with respect to early detection recommendations, (2) the advisable periodicity of screening examinations for the asymptomatic women, (3) the potential usefulness of risk factors other than age in guiding recommendations and policies, (4) areas of needed research, and (5) the use of American Cancer Society Guidelines as recommended public health screening policy in addition to their application as guidelines for physician practice.

### **Age Considerations**

The work group reviewed each of the age-related recommendations in the current American Cancer Society Guidelines. The first was the recommendation that regular breast self-examination begin at 20 years of age; this topic is discussed in a later report by the work group assigned this topic.

With respect to clinical examination, the work group had concerns that the value of this procedure conducted in women younger than 40 years has not been demonstrated. However, the clinical breast examination is recommended as part of a triennial cancer-related checkup that includes the pelvic examination. The marginal cost of this examination, therefore, is low. Although the group sentiment was that the utility of clinical breast examination was limited, at best, in women younger than 40 years of age, no specific recommendation for change was made.

Current evidence does not indicate the need to change the use of 40 years as the age for beginning regular clinical and mammographic examinations. By this age, breast cancer is an increasingly serious health threat. Although increasing risk exists as a continuum over age, 40 years of age was believed to be a reasonable, incidence-based convention to demarcate the lower age for screening recommendations. The initial mammogram at 40 years of age also was suggested as the logical source of the baseline mammogram that current guidelines recommend be obtained between 35 and 39 years of age.

The current recommendations set no upper age limit for either the initiation of screening examinations or the continuation of an examination protocol begun at a younger age. There are no known biologic factors that militate against the efficacy of screening older women. As long as life expectancy is sufficient to realize benefits, screening at advanced ages is desirable.

The work group observed that the age specifications of the guidelines have a certain arbitrary character. The differences in benefits achieved in women older than and younger than any particular age are measured in degrees. Rigid interpretation of the guidelines at particular age cutoff points is not justified by scientific evidence.

### **Screening Intervals**

Special attention was given to the recommended frequency of screening examination in the group 40 to 49 years of age. The scientific basis for recommending less frequent examination in this age group compared with

women older than 50 years of age was judged to be inadequate. The members recognized, however, that the recommendation is based on factors other than consideration of biological characteristics and disease incidence, including cost. In light of this, the work group did not advise change in the recommended periodicity but did encourage the American Cancer Society to support further research on this issue as well as to monitor results from ongoing investigations.

### **Role of Risk Factors**

The use of risk factors in addition to age to modify the application of general guidelines to individual patients was discussed in detail. The consensus of the group was that there is little evidence currently available that risk factor assessment can be used to alter significantly the effectiveness of screening maneuvers. Age is the only risk determinant well enough understood and sufficiently related to risk to be useful in a practical sense in shaping screening guidelines. Within relevant age groups, all women are at risk of breast cancer and the absence of any risk factor should not be the basis for excluding any women from screening.

A family history of breast cancer is of limited value in shaping an individual detection recommendation because the patterns of family history most commonly seen are not associated with greatly enhanced absolute risk. On the other hand, constellations of risk factors and family histories may occur in individual patients to suggest exceptional risk. Earlier onset and/or greater frequency of screening may be justified in these women and physicians reasonably may tailor their practice on this basis. The presence of breast pathology that may predispose to cancer also is a justifiable basis for modifying the surveillance protocol.

### **Future Research**

In spite to the progress of recent decades, numerous important questions remain to be addressed, and the work group made several recommendations about avenues for future inquiry. Particular importance was attached to the development of clinical trials as the most powerful research tool available, but several questions were considered that may be investigated by observational or laboratory methodologies.

The value of educational interventions conducted decades before the age at which screening examinations are recommended to begin should be investigated. If health behaviors taught to young women do provide greater adherence to recommendations later in life or greater life-long skill in self detection, interventions in young women may be more justified than currently is the case. American Cancer Society educational interventions concerning breast detection education often are presented as but one component of broader lifestyle interventions. In this context, the interventions may have synergistic effects not observed when viewed in isolation.

Additional research on identification of risk factors is needed to yield better strategies of targeting high-risk populations. Newly described measures of breast parenchymal patterns, enhanced by automated procedures for describing parenchymal density, may provide better risk assessment tools than have been available in the past. The applicability of current breast cancer prognostic factors also should be examined in the asymptomatic population as potential indicators of risk.

The greatest potential for progress may lie in the development of biomolecular markers. Recent genetic studies suggesting familial patterns of risk argue for the feasibility of this approach. The ability to categorize individual women on the basis of biological markers of susceptibility for breast cancer might permit provision of screening to just those women most likely to benefit, thereby revolutionizing the cost effectiveness of early detection.

### **Role of Guidelines as Public Health Policy**

The members believed it important for the American Cancer Society to maximize its use of the early detection guidelines as public health recommendations. Whereas the guidelines are undeniably useful to individual primary care providers, even greater effects may be achievable through implementation of the guidelines as recommended public health policy. All women are at risk of breast cancer in their lifetimes, and the application of the American Cancer Society Guidelines should address that reality. All means of providing high-quality screening services to the broadest population of women should be pursued. This should particularly include women who are not currently being reached by available health services.

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