



Breast Cancer Screening With Imaging: Recommendations From the Society of Breast Imaging and the ACR on the Use of Mammography, Breast MRI, Breast Ultrasound, and Other Technologies for the Detection of Clinically Occult Breast Cancer

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Screening for breast cancer with mammography has been shown to decrease mortality from breast cancer, and mammography is the mainstay of screening for clinically occult disease. Mammography, however, has well-recognized limitations, and recently, other imaging including ultrasound and magnetic resonance imaging have been used as adjunctive screening tools, mainly for women who may be at increased risk for the development of breast cancer. The Society of Breast Imaging and the Breast Imaging Commission of the ACR are issuing these recommendations to provide guidance to patients and clinicians on the use of imaging to screen for breast cancer. Wherever possible, the recommendations are based on available evidence. Where evidence is lacking, the recommendations are based on consensus opinions of the fellows and executive committee of the Society of Breast Imaging and the members of the Breast Imaging Commission of the ACR.

Key Words: Screening, breast cancer, recommendations, mammography, breast ultrasound, breast MRI

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INTRODUCTION

The significant decrease in breast cancer mortality, which amounts to nearly 30% since 1990, is a major

medical success and is due in large part to the earlier detection of breast cancer through mammographic screening. Nevertheless, major efforts continue to build on this success by developing additional methods to screen for early breast cancer. Consequently, recommendations for breast cancer screening with imaging technologies have become increasingly complex. Several organizations, most notably the American Cancer Society (ACS) [1], have guidelines that are largely evidence-based, for how screening mammography should be used. In addition, the ACS has issued guidelines, also based predominately on existing evidence, for the use of magnetic resonance imaging of the breast to screen for breast cancer [2]. However, there are gaps in these guidelines, undoubtedly due to a lack of data concerning many aspects of the optimal

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utilization of available screening tests. To address some of these gaps, the Society of Breast Imaging (SBI) and the ACR, whose members are directly responsible for performing these screening tests, have performed and analyzed many of the trials establishing appropriate screening algorithms, and have the most expertise in these technologies, are issuing these guidelines and recommendations for breast cancer screening. Whenever possible, these are based on peer-reviewed published scientific data. Where data are lacking, the recommendations reflect expert consensus opinions by the fellows of the SBI and the members of the Breast Imaging Commission of the ACR. These guidelines and recommendations are intended to suggest appropriate utilization of imaging modalities for screening. They are not intended to replace sound clinical judgment and are not to be construed as representing the standard of care. It should be remembered that mammography is the only imaging modality that has been proven to decrease mortality from breast cancer.

The SBI and the ACR also wish to remind women and their physicians that in those instances in which there is a concern that risk for developing breast cancer is considerably elevated above that of the general population, consultation with appropriate experts in breast cancer genetics or high-risk management is desirable.

SOCIETY OF BREAST IMAGING AND AMERICAN COLLEGE OF RADIOLOGY RECOMMENDATIONS FOR IMAGING SCREENING FOR BREAST CANCER

A. BY IMAGING TECHNIQUE

1. Mammography

- Women at average risk for breast cancer
 - Annual screening from age 40
- Women at increased risk for breast cancer
 - Women with certain *BRCA1* or *BRCA2* mutations or who are untested but have first-degree relatives (mothers, sisters, or daughters) who are proved to have *BRCA* mutations
 - Yearly starting by age 30 (but not before age 25)
 - Women with $\geq 20\%$ lifetime risk for breast cancer on the basis of family history (both maternal and paternal)
 - Yearly starting by age 30 (but not before age 25), or 10 years earlier than the age of diagnosis of the youngest affected relative, whichever is later
- Women with mothers or sisters with pre-menopausal breast cancer
 - Yearly starting by age 30 (but not before age 25), or 10 years earlier than the age of diagnosis of the youngest affected relative, whichever is later
- Women with histories of mantle radiation (usually for Hodgkin's disease) received between the ages of 10 and 30
 - Yearly starting 8 years after the radiation therapy, but not before age 25
- Women with biopsy-proven lobular neoplasia (lobular carcinoma in situ and atypical lobular hyperplasia), atypical ductal hyperplasia (ADH), ductal carcinoma in situ (DCIS), invasive breast cancer or ovarian cancer
 - Yearly from time of diagnosis, regardless of age

a. Screening Mammography by Age

i. Age at Which Annual Screening Mammography Should Start

Age 40

- Women at average risk

Younger Than Age 40

- *BRCA1* or *BRCA2* mutation carriers: by age 30, but not before age 25
- Women with mothers or sister with pre-menopausal breast cancer: by age 30 but not before age 25, or 10 years earlier than the age of diagnosis of relative, whichever is later
- Women with $\geq 20\%$ lifetime risk for breast cancer on the basis of family history (both maternal and paternal): yearly starting by age 30 but not before age 25, or 10 years earlier than the age of diagnosis of the youngest affected relative, whichever is later
- Women with histories of mantle radiation received between the ages of 10 and 30: beginning 8 years after the radiation therapy but not before age 25
- Women with biopsy-proven lobular neoplasia, ADH, DCIS, invasive breast cancer, or ovarian cancer regardless of age

ii. Age at Which Annual Screening With Mammography Should Stop

- When life expectancy is < 5 to 7 years on the basis of age or comorbid conditions
- When abnormal results of screening would not be acted on because of age or comorbid conditions

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