



Radiology Rounds

A Newsletter for Referring Physicians
Massachusetts General Hospital
Department of Radiology



Volume 1, Issue 3

August 2003

Janet Cochrane Miller, D.Phil., Author

Susanna I. Lee, M.D., Ph.D., Editor

Screening Mammography - Who Needs It? What are the Benefits?

With all the controversy in the news in recent years, many women and their physicians have been confused about the benefit of mammographic screening for breast cancer. In fact, several very rigorous studies have directly demonstrated the benefit of mammographic screening in women over 40 and there has been a 20% drop in the death rate due to breast cancer since 1990, which can be directly attributed to screening mammography. From this information, we can conclude that mammography screening aids in the detection of cancers at an early stage when they have a better chance of being treated successfully.

While other imaging technologies have been found to be useful in imaging breast tumors, including ultrasound, MRI, and PET, mammography is the only modality that has been rigorously studied and validated as a screening method. Research at MGH and elsewhere is directed towards finding additional modalities to detect cancers at a time when they can be cured. But, at this time, MGH radiologists feel that the data do not support any referral for alternate imaging techniques for screening. For detecting breast implant rupture, however, MRI has been shown to be useful.

Recommendations for Screening Mammograms

The National Cancer Institute, the American Cancer Society, and the US Preventive Services Task Force (USPSTF) all agree that asymptomatic women should start having annual screening mammograms at age 40. The incidence of breast cancer increases steadily with age and there is no clear cut-off age when mammography could not be beneficial. Since no women over age 74 were included in the mammography screening trials, the decision to continue screening in older women should be individualized by considering the potential benefits and risks of mammography in the context of current health status and estimated life expectancy.

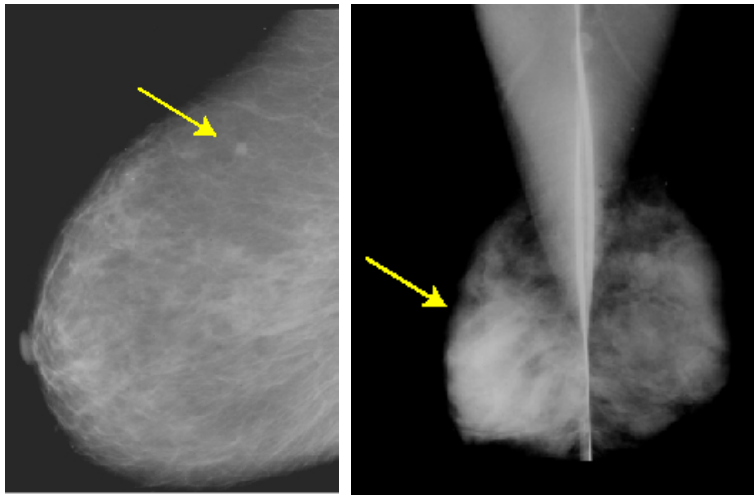
Annual screening mammograms are recommended for:

- Asymptomatic women over 40 years
- Women with 1st degree relative who has had breast cancer
- Patients who have been successfully treated for cancer

Women with a first degree relative (mother, sister, and daughter) who has had breast cancer are considered to be at higher risk than the general population and they should start screening earlier, at an age 10 years earlier than that at which the relative was first diagnosed. Patients who have been successfully treated for cancer should continue to be screened annually since they are at increased risk for a second cancer. If a patient has had a mastectomy, then only the remaining breast needs mammographic screening. Women who have been treated conservatively, i.e. lumpectomy and radiation, should return to annual screening as soon as breast compression can be tolerated (usually 6 months after completion of their therapy).

Breast tissue has a very heterogeneous structure, which makes it very challenging to accurately and consistently read mammograms. In order to ensure the highest standards and to minimize missed diagnoses, two radiologists independently review each mammogram at MGH. This extra service increases the detection rate by 5-7%.

Mammography is not perfect and some cancers may not be visible due to overlying dense tissue. Consequently, women over the age of 40 should have at least an annual clinical breast examination and should be encouraged to do breast self-examinations. Regular self-examination helps women to become familiar with what is normal for them. Although no clinical study has demonstrated that self-examination saves lives, the woman herself finds most cancers that are not detected by mammography.



(A) A small, non-palpable cancer is easily seen in fatty breast tissue.
 (B) A large palpable cancer is hidden by the dense normal breast tissue

Diagnostic Mammography

When a potential abnormality is discovered clinically by the patient or her doctor, the patient should be referred for mammography if she is aged 28 or older. In these cases, mammography can be considered both diagnostic and screening, since the whole breast is examined for tissue abnormalities.

At times, a patient is fearful that the breast pain she feels is due to cancer, but this is rarely the case and mammography is seldom helpful in depicting the cause of pain. Only those with non-cyclic focal pain (from a single point), especially a "drawing sensation," are in need of diagnostic imaging. Clinical evaluation is more suitable in all other cases.

- Clinical Symptoms of Breast Cancer:**
- Lump
 - Skin retraction and/or thickening
 - Thickening
 - Nipple changes and/or discharge
 - Focal, non-cyclic pain, especially a "drawing sensation"

Follow-up Imaging

Follow-up mammography may be recommended by a radiologist when additional imaging is needed or after an abnormal screening mammographic finding. In addition, follow-up mammography may be recommended if there is a question as to whether the correct tissue was removed during a biopsy or surgery.

Follow-up imaging by other modalities (ultrasound, MRI, CT) should be on the recommendation of radiologists who specialize in breast imaging.

Reporting Findings from Mammography

The FDA now requires that radiologist's reports end with an action oriented code. This is based on the standardized reporting system devised by the American College of Radiology (ACR). The ACR Breast Imaging Reporting and Data System (BI-RADS®), based on the reporting format devised at the MGH, standardizes the language used in mammography reports and requires the use of the assessment categories. This reporting system is intended not only to help clinicians understand the disposition of their patients based on mammographic imaging but also to be an auditing aid for mammography practices. The mammographic findings are interpreted and assessed, using a categorical system that is intended to convey the degree of concern and any pertinent recommendations for follow-up mammography or biopsy.

BI-RADS Assessment Categories

Category 0	Assessment incomplete - Need additional imaging evaluation
Category 1	Negative
Category 2	Benign Finding - e.g. cyst or fibroadenoma
Category 3	Probably Benign Finding - recommend follow-up mammography every six months for two years
Category 4	Suspicious Abnormality - biopsy should be considered
Category 5	Highly Suggestive of Malignancy - biopsy recommended

Mammography Scheduling and Reporting

Mammography screening is performed in the [Avon Comprehensive Breast Evaluation Center](#) on the main campus at MGH, at [Mass General West Imaging](#) in Waltham, and the MGH Health Center in Revere. Diagnostic imaging is only available at the main campus. Mammography may be ordered online via the Radiology Order Entry (ROE) system <http://mghroe/> or by calling 4-XRAY (617-724-9729).

Mammography reports are not available immediately after a screening study, mainly because of the dual reading of mammograms. They are made available to physicians online, usually within 24-48 hours. The patient will be given the results of her diagnostic study before she leaves the Center.

Further Information

For further questions on breast imaging, contact [Daniel Kopans, M.D.](#), 617-726-3093

[Patient information](#) on preparing for mammography at MGH

For general questions about web-based Radiology scheduling, call 617-726-0304

For general questions about Radiology Services, call 617-724-4902

[BI-RADS reporting system](#)

References

Kopans DB. (1994) *Screening for Breast Cancer and Mortality Reduction Among Women 40-49 Years of Age*. Cancer **74**:311-322.

Kopans DB. (1999) *The Breast Cancer Screening Controversy and the National Institutes of Health Consensus Development Conference on Breast Cancer Screening for Women ages 40-49*. Radiology **210**:4-9.

Dershaw, DD. (2000) *Mammographic screening of the high-risk woman*. Am J Surg **180**: 288-9.

Gui, GP, Hogben, RK, Walsh, G, A'Hern, R and Eeles, R. (2001) *The incidence of breast cancer from screening women according to predicted family history risk: Does annual clinical examination add to mammography?* Eur J Cancer **37**: 1668-73.

Smith, RA, Saslow, D, Sawyer, KA, Burke, W, Costanza, ME, Evans, WP, 3rd, Foster, RS, Jr., Hendrick, E, Eyre, HJ and Sener, S. (2003) [American Cancer Society guidelines for breast cancer screening: update 2003](#). CA Cancer J Clin **53**: 141-69.

Tabar L, Yen MF, Vitak B, Tony Chen HH, Smith RA, Duffy SW. (2003) *Mammography service screening and mortality in breast cancer patients: 20-year follow-up before and after introduction of screening*. Lancet **361**:1405-10

©2003 MGH Department of Radiology

[Janet Cochrane Miller, D. Phil., Author](#)
[Susanna I. Lee, M.D., Ph.D., Editor](#)