



Confirma®

Understanding Breast Magnetic Resonance Imaging (MRI)



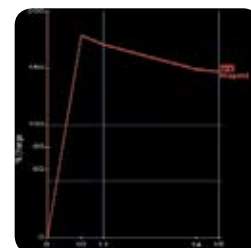
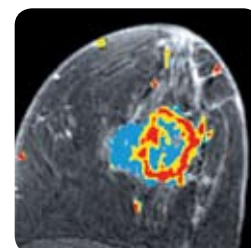
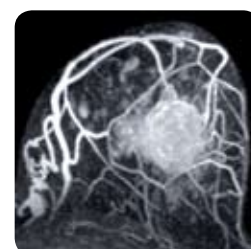
Breast MRI uses a high field magnet and radio waves to create detailed images of the breast that can reveal subtle differences between normal and abnormal tissue. In addition to being painless, non-invasive, accurate and highly sensitive, MRI does not carry the inherent risks of radiation or invasive imaging procedures.

on her stomach on a scanning table. The breasts are suspended in a special breast coil that detects the magnetic signal or a depression in the scanning table containing coils. The scanning table is moved into the bore of the MRI. The examination takes approximately 30 minutes to one hour.

Breast MRI Studies Expand

Clinical indications for breast MRI exams continue to expand as physicians increasingly recognize the value of this highly useful study. Since 1999, there has been a 40 percent per year increase in the number of breast MRI examinations in the United States.¹ Breast MRI is primarily used for determining extent of disease (staging), monitoring response to therapy in breast cancer patients and screening high risk patients. A breast MRI may be recommended following a screening mammogram; breast MRI does not replace a screening mammogram.

Clinical research has reported that MRI demonstrates high sensitivity for detecting invasive breast cancer.² Scientific literature also shows the effectiveness of MRI in screening women at high risk for breast cancer. In May 2003, the American Cancer Society released updated guidelines for breast cancer screening indicating that breast MRI, when used with mammography, may enhance the effectiveness of screening and diagnosis.³ In July 2004, the *NEJM* published strong evidence to suggest that breast MRI studies can be effective in finding tumors in women at high risk for breast cancer.⁴ In 2007 the ACS panel on breast cancer screening updated its guidelines, recommending that healthy women at high risk of getting breast cancer should get an annual breast MRI in addition to mammogram.⁵ A minimally invasive MRI-guided breast biopsy can also be used to establish a precise diagnosis or locate an abnormality not seen by mammography or ultrasound.



As clinical indications and study numbers expand, the amount of data produced per breast MRI exam has increased tremendously, with exams often producing 800 images. Physicians and MRI technologists spend a significant amount of time manually processing and interpreting a breast MRI study. A more efficient method for processing and interpretation is needed, without compromising patient care.

Computer-Aided-Detection (CAD) Provides Efficiency and Standardization

CAD now plays a significant role in improving efficiency, standardization and quality of breast MRI studies.



CADstream®, the first CAD application designed exclusively for MRI, automates image processing functions and corrects for patient movement. CADstream assists in the interpretation, reporting and interventional planning of breast MRI studies.

CADstream integrates into any existing network infrastructure and incorporates established standards, the ACR BI-RADS® Atlas and is the only CAD for MRI product that incorporates these standards. SureLoc®, an interventional guidance tool, allows radiologists to more efficiently calculate coordinates for MR-guided interventions at the point of procedure.

Confirma also provides the dual-purpose, multi-channel Access Breast Coil®, an ergonomically designed coil for high quality diagnostic imaging and improved interventional access.

Hundreds of CADstream systems around the world are helping to standardize breast MRI. The result is more standardized image processing and analysis, higher quality images and more efficient interpretation of the MRI study. The use of CAD ultimately makes breast MRI more accessible to women who would benefit from this valuable study.

Clinical Indications for Breast MRI

Based on peer-reviewed literature, the following clinical indications are considered appropriate and useful applications for breast MRI.

High Risk Patients	MRI is a valuable adjunct to mammography for improved detection of breast cancer in high risk patients, such as women with a BRCA mutation, history of childhood treatment for Hodgkin lymphoma and first degree relative with breast cancer (particularly if present at an early age). Breast MRI can be particularly useful in women with mammographically dense breasts.
Neoadjuvant Chemotherapy	MRI clearly and accurately depicts tumor size and vascularity before and during therapy to assess response to chemotherapy and residual disease prior to surgery.
Occult Breast Cancer	MRI can be effective in locating the primary or occult (invisible) tumor, allowing better breast conservation surgery.
Lobular Carcinoma	MRI is an effective method for detection of lobular carcinoma. Lobular carcinoma can be extremely difficult to detect by mammography alone. It is commonly multifocal/multicentric (more than one site of disease in one breast) or bilateral (in both breasts) and a frequent cause of positive surgical margins, requiring re-operation.
Breast Implants	MRI is an extremely valuable study for detecting cancer in women with implants. Breast MRI can also be used to assess the integrity of implants.
Suspected Multiple or Bilateral Cancers	Breast MRI is sensitive for detecting multifocal or multicentric tumors.
Post-Operative Evaluation	MRI is useful in differentiating post-surgical scars and recurrent cancer (cancer that occurs in the same location after treatment).

1. MRI Census Market Summary Report, June 2002. IMV Medical Information Division, Des Plaines, IL.
2. Tillman, Gayle F. Effect of Breast Magnetic Resonance Imaging on the Clinical Management of Women with Early-Stage Breast Carcinoma. *J Clin Onc.* 2002; 16:3413-3423.
3. Smith RA, Saslow D, Sawyer KA, et al. American Cancer Society Guidelines for Breast Cancer Screening: Update 2003. *Cancer J Clin.* 2003; 53:141-169.
4. Liberman, L, et al. Breast Cancer Screening with MRI—What are the data for patients at high risk? *The New England Journal of Medicine.* 2004;351:497-500.
5. CA: A Cancer Journal for Clinicians, American Cancer Society Guidelines for Breast Screening with MRI as a Adjunct to Mammography March/April 2007

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