

More Efficient Workflow and Accurate Diagnosis with Breast MRI CAD

As clinical indications for Breast MRI studies continue to expand, so too does the amount of data produced for each exam. Computer-aided detection (CAD) can facilitate more rapid interpretation of the MR study in a standardized and efficient manner. GE has partnered with Confirma™ (Kirkland, WA) to offer CADstream™, the first CAD application designed exclusively for MRI, to users of the GE Signa® MR family.

CADstream's automated processing of MRI studies helps standardize the way studies are analyzed and reported, further enhancing clinical efficiency. Automated processing includes detection and removal of cardiac artifact, image registration to correct for patient movement, subtraction images, multiplanar reformats, Angiogenesis maps and curves, maximum intensity projections (MIPs) and volume summaries.

Lesion(s) of interest selected by the radiologist are automatically placed into a report with reference images, size and location information and radiologist-assigned Bi-RADS® Atlas classification for each lesion.

More Efficient, Accurate Breast Imaging

For Michael Fisher, M.D., St. Francis Hospital in Indianapolis, the integration of CADstream with a GE Signa MR has resulted in the ability to increase the volume of breast MR studies. "Once we integrated CADstream with our GE MRI equipment, our Breast MRI program became faster and more efficient and accurate," Dr. Fisher said. "CADstream enables more thorough, higher quality image analysis and a standardized process for image interpretation."



St. Francis now performs four to five Breast MRI studies each week, up from one study every three months prior to implementing CADstream. “I really feel that without CAD, Breast MRI is an extremely difficult study,” Dr. Fisher added. “CADstream makes Breast MRI more accessible to patients who can dramatically benefit from this important study.”

Case in Point

A 49-year-old patient was found to have calcifications in the left breast and underwent stereotactic biopsy, demonstrating Ductal Carcinoma In Situ (DCIS). She then had a surgical lumpectomy showing invasive lobular carcinoma with micrometastasis to two lymph nodes.

A Breast MRI examination processed with CAD found a one centimeter enhancing mass in the left breast away from the lumpectomy site and a large two to three centimeter enhancing mass in the right breast. “A second-look ultrasound exam was negative at these two sites,” Dr. Fisher said. “We then did bilateral MR-guided needle localization and both sites were determined to be malignant. Even with the wires in place after the localization, on mammography we still could not see the lesions in the dense breasts.” The patient subsequently underwent bilateral mastectomy.

Breast MRI with CAD Creates Time Savings

Hackensack Radiology Group operates two GE Signa 1.5T MR scanners at its outpatient imaging center. “GE is our preferred MR vendor because of the superior image quality of the scanners as well as the robust pulse sequence, VIBRANT, for breast exams,” said Andrew Osiason, M.D., radiologist. Since 2004, the group began using CADstream for all of its Breast MRI cases – from 50 to 100 exams each month.

As a result of the partnership between CADstream and GE, Dr. Osiason notes a unique advantage between MR and CAD vendors. “Because of the relationship between these companies, the two systems work seamlessly together. The CAD sits on the MR console – I don’t know of any other MR system that offers a CAD integrated quite as well as this.”

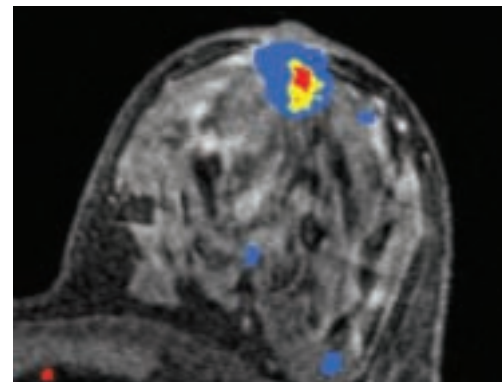
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Dr. Michael Fisher

About St. Francis Hospital Indianapolis, IN

St. Francis Hospital & Health Centers is one of the largest healthcare systems in Indiana with three main facilities in Indianapolis, Beech Grove and Mooresville. The St. Francis Hospital campus in Indianapolis continues to lead the area’s healthcare providers as the only teaching hospital in Indiana to receive the HealthGrades Distinguished Hospital Award for Clinical Excellence for three consecutive years. HealthGrades also ranks the hospital among the top five percent of all hospitals nationwide for overall clinical performance.

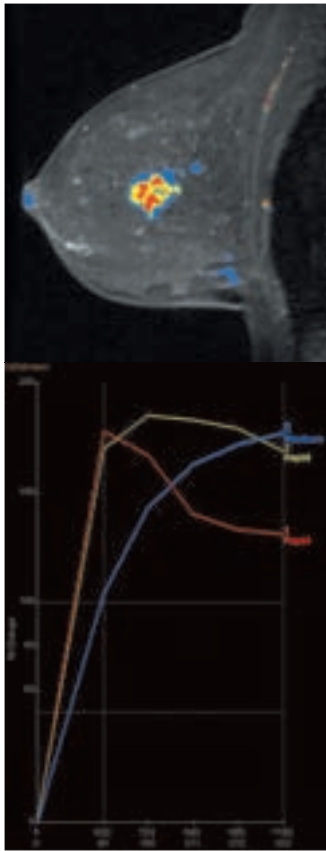
As Indianapolis’ newest hospital built in 1995, St. Francis boasts a state-of-the-art facility utilizing the latest medical technology with a strong emphasis on convenient access for both inpatient and outpatient services. The hospital is the only site among the healthcare systems’ 12 sites to offer open, closed and Breast MRI services.



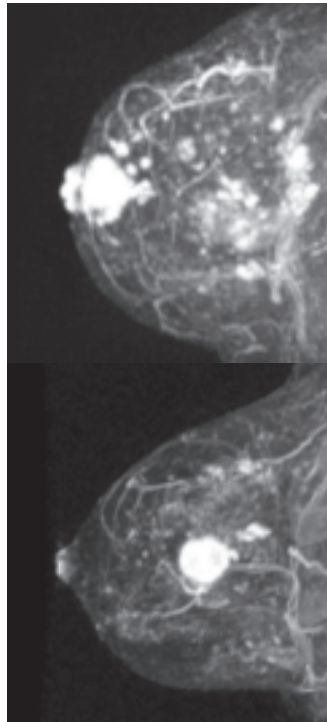
CADstream automates image processing functions and corrects for patient movement during the study.

About Hackensack Radiology Group Hackensack, NJ

Hackensack Radiology Group (HRG) provides comprehensive radiology imaging and services to Hackensack University Medical Center and the surrounding area. With a rich history of service dating nearly 50 years, HRG is comprised of the region’s leading imaging specialists in all areas of radiology, including neuroradiology, body and vascular imaging, orthopedic imaging and mammography. Two outpatient sites – Newman Street Imaging Center and New Century Imaging Center – offer a full range of imaging services: CT, MRI, ultrasound, nuclear medicine, mammography, bone densitometry, general X-ray and fluoroscopy. HRG has offered Breast MRI with CAD services since 2004.



Developed in accordance with the BI-RADS Atlas, CADstream's Angiogenesis Maps and curves promote standardization that is achieved through consistent thresholds.



CADstream can automatically create MIPs for the entire study or for left or right breast only.

There is no question that the utilization of CAD with Breast MRI has significantly reduced reading time for these studies at Hackensack Radiology Group. "CADstream enables us to review breast MR exams in a concise, consolidated fashion with all the functionality we need to manipulate the image," Dr. Osiason said. While he acknowledges that most CAD will streamline the image review process, it is his opinion that CADstream is the most intuitive and user-friendly breast MR CAD solution on the market today. "CADstream is particularly tuned to how the radiologists evaluate breast MR images," Dr. Osiason explained. "It is the better CAD system to use."

The most significant impact on workflow is the removal of manual post processing. "This alone has increased efficiency and workflow in every step of the process - from the technologist to the report," he added. Data is sent directly from the MR imager to the CADstream server where, after correcting for patient movement, the system automatically creates subtraction images, region of interest summary series and interactive real-time dynamic contrast curves.

With the integrated GE Signa MR and CADstream, Hackensack Radiology Group has been able to maximize return on investment by using the solution to read more Breast MRI cases. "If a facility is at its limit in terms of reading breast MR studies, then CADstream can be used to alter that capacity by helping clinicians read at a faster pace without compromising accuracy." ■

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Dr. Andrew Osiason