

Multi-modality breast review and analysis

IntelliSpace Breast* heightens efficiency at University of Chicago

Who/where

Gillian Newstead, M.D. University of Chicago Chicago, IL, U.S.A. The combination of early detection and more effective treatment has resulted in decreasing breast cancer death rates in developed countries. A good part of this success can be credited to mammography screening programs that help clinicians detect cancer early. For patients with abnormal screening mammograms or clinical symptoms, adjunctive diagnostic methods, such as ultrasound, are also commonly used.

Challenge

Efficient review, analysis, and reporting of breast images across multiple modalities

This imaging method complements mammography, providing a more complete picture of the disease. In addition, clinical studies suggest MRI may be helpful in breast care, particularly in imaging high risk patients.

As ultrasound and MRI have become more integrated in breast cancer diagnosis and follow-up, a new challenge has arisen: integrating these imaging modalities into department workflow. In addition, patient medical and family history, and radiology and pathology reports are essential to creating a comprehensive picture of patient health, and must also be readily available to breast radiologists.

Gillian Newstead, M.D., breast radiologist at the University of Chicago, points out that for patients with breast cancer, the mammogram, ultrasound, and the MRI findings have to be documented and then correlated with subsequent imaging and

non-imaging data. "For patients with breast cancer, typically mammographic images are done first, followed by the ultrasound of both the breasts and the axilla, and then the MRI," she says. "All of those images have to be presented and correlated for confident diagnosis."



Gillian Newstead, M.D., breast radiologist at the University of Chicago

Solution

Philips IntelliSpace Breast, a breast imaging workspace that delivers multimodality imaging and non-imaging information in a single workspace





Integrated viewing environment

Managing such large and disparate data demands efficiency. Newstead notes that efficient workflow has clinical implications as well. "For most radiologists, diagnostic confidence combined with outstanding workflow efficiency is most important. We have to be able to easily gather the images we want to look at, and do it efficiently," she says. "When we started using more modalities, this was a major hurdle to overcome. Viewing images from multiple modalities was highly inefficient, and inefficient workflow does not promote diagnostic confidence. If radiologists have to struggle to organize images, instead of concentrating on the images themselves, they may lose workflow efficiency."

To bring all those images together in an integrated viewing environment, Newstead relies on Philips IntelliSpace Breast*, a multimodality workspace designed for

efficient review, intuitive control, and customizable workflow. The IntelliSpace Breast integrates mammography, ultrasound, and MRI studies to provide a comprehensive picture of multiple breast exams at a single workspace, with a single login for review, analysis, and reporting.

Having access to all required images, information, and tools at a single location is a welcome change for Newstead and her colleagues, who previously had to move among multiple reading environments to comprehensively review a patient's images and information. "The University of Chicago Medical Center's Breast Imaging Center of Excellence is located on the second floor of the Comprehensive Cancer Center, while the screening clinic and MR system are both located on the first floor," Newstead explains. Prior to acquiring IntelliSpace Breast, screening and diagnostic breast images were read in different rooms,

on different floors. "We would read the mammograms on the mammography monitor. If we wanted to review them again, we would have to look them up on a PACS workstation," Newstead says. "We would look at the ultrasound and patient history and all of that information on the PACS workstation, and then if we wanted to look at the MR images and access complete functionality, we would read those on the third workstation."

Efficient review

access to an integrated view of a patient's images and patient history. "IntelliSpace Breast allows us to look at everything from one workspace, so we can be more confident in terms of comparing one set of images with another," she says.

28,000 and 30,000 women each year, including both screening and diagnostic exams. Particularly because she has a large referral practice, Newstead appreciates IntelliSpace Breast's ability to accept images from different systems and display them in a consistent size and manner, regardless of origin.

*multi-modality options powered by IntelliSpace Clinical Applications

translated," she explains. "IntelliSpace Breast reformats them so that they present to the radiologist in a format that is similar to the images that were obtained at our institution. That is important to radiologists, because if we are looking at two different mammograms, and they are very different in terms of size, orientation, etc., it can be difficult to make exact comparisons." In addition, IntelliSpace Breast has a graphical patient timeline, which provides access to a patient's case history and makes

In contrast, with IntelliSpace Breast, she has mammography, ultrasound, and MRI breast images, including automatic display of prior

Newstead and her colleagues see between

Intuitive control

"Most patients from outside institutions

uploaded to our PACS system, and there are

a lot of difficulties associated with that. Even

if we are able to upload them successfully,

they often are in a different format than

our own data, and then they have to be

follow-up comparisons easy. "Every time we

read a breast image, if there have been prior

maximum size for the display area. Also, with

a single click, radiologists can zoom to look

closely at a specific area of breast tissue.

Newstead also values Vertical Tissue

Alignment, which enhances symmetry

based on glandular tissue, rather than

the curvature of the breast. "This feature

automatically aligns left and right breast

for radiologists to check for differences

images," she notes, "making it easier

in appearances, which aids in lesion

perception."

images, we have to compare the current

findings with the prior findings, and that

bring images on DVDs that have to be

With the IntelliSpace Breast, just one login enables review, analysis, and reporting. The system connects to the existing IT infrastructure to access patient information, and delivers BI-RADS® results back to the RIS or MIS. The uniquely designed mammography keypad helps users move quickly through readings. Users can switch between patient exams in less than a second, and walk through hangings with a single keystroke. "Functions that provide improved efficiency of interpretation, reporting, and transmission to the RIS or MIS, are valuable additions to the radiologists' workflow experience," Newstead points out.

Customizable workflow

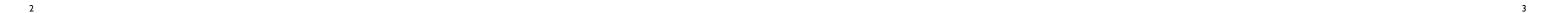
IntelliSpace Breast also enhances workflow by the breadth of its offerings, using advanced clinical applications, as well as preprogrammed buttons on the mammography keypad that provide access to the most commonly used tools. Customizable buttons can be adapted for department workflow, and different hanging protocols can be programmed to customize the viewing environment to the preferences of each radiologist who uses the system.

"Every radiologist likes to look at datasets differently. They have preferences about which views they want to see and the order

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takes time. So again, this is the issue of being efficient in terms of retrieving prior data so that it can be presented in an organized fashion to radiologists," she says. Another feature, Breast-Fit-To-Window, enhances review by scaling images to the





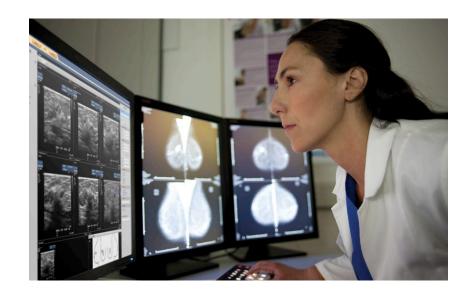
of those views, how images should be arranged on the monitor, what size different images should be, and what should be done with them next," Newstead says. "The ability to adjust the protocols according to the way each individual radiologist prefers is very important."

Structured reports and easy auditing

IntelliSpace Breast also provides standard BI-RADS® language to aid in creating structured reports. Newstead says that this makes reporting easy for normal, screening mammography.

She points out that automated reporting systems have existed for a long time in breast imaging, but it sometimes has been difficult to audit data, requiring dictation on a separate system. "Now we have standard terminology that can easily be fed into a database," she says. "We used to have a separate monitor that would handle MQSA requirement and reporting. Having it integrated into the viewing environment is a big help."

"This feature automatically aligns left and right breast images," she notes, "making it easier for radiologists to check for differences in appearances, which aids in lesion perception."



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