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Clinical Update

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Physician News

SERVICE LINE SPOTLIGHT:

Breast Imaging: 3-D Mammography Arrives at John Muir Health

Digital Breast Tomosynthesis (DBT), also known as 3-D mammography, is a breakthrough in imaging that provides a clearer, more accurate view compared to digital mammography alone.

DBT sets a new standard for clearer images of lesions, by reducing or eliminating the tissue overlap effect. There are fewer unnecessary biopsies and fewer recall rates, which significantly decreases patient anxiety. This revolutionary technology benefits all women of all breast densities.

JMHPN spoke with Linda Womack, Executive Director of Medical Imaging for John Muir Health, and Karen Connolly, Manager of Breast Imaging Services and Outpatient Imaging, as well as Vivian Wing, MD, Director of Breast Imaging Services, to find out more about the acquisition of this new technology and what it means to John Muir Health.

JMHPN: Tell us about the recent developments in your department.

Linda Womack: John Muir Health now offers Digital Breast Tomosynthesis at 1656 North California Boulevard in Walnut Creek. John Muir Health is the only accredited breast center doing tomosynthesis imaging in the East Bay. This new service are covered by some insurance companies, including Medicare. We have purchased our first Hologic Selenia Dimensions 3D Mammography system. This advanced technology provides a more accurate mammogram than traditional 2-D mammography alone, which can miss some cancers and which can also produce a significant number of false positives.

Karen Connolly: Conventional digital mammography produces one image of overlapping tissue, making it difficult to detect cancers. As you can see in the images below, DBT takes multiple images of the entire breast. This allows our specialized breast radiologists to see through layers of tissue and examine areas of concern from all angles.

Other John Muir Health Imaging Updates:

Starting June 22, 2015, Breast Screen Ultrasound will be a billed service. Most insurance companies (except United Healthcare) are now paying for this service.

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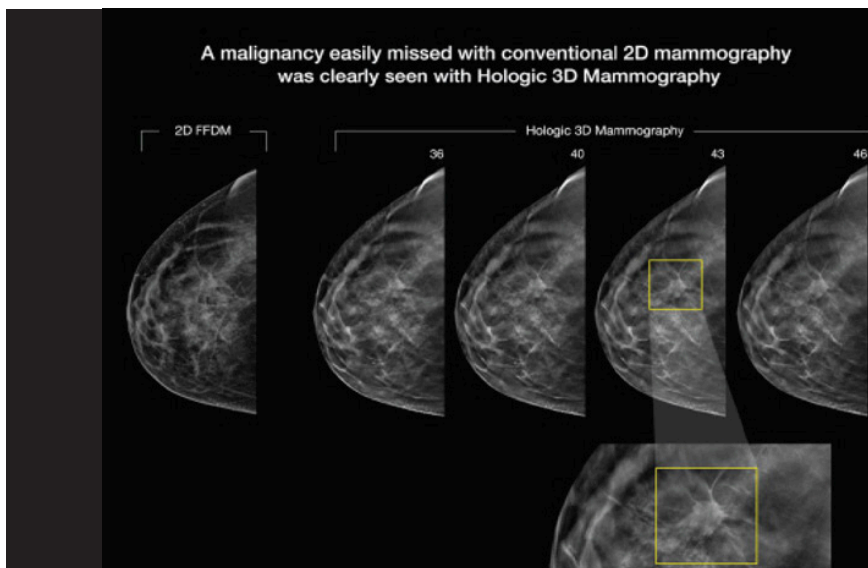
References: 1. Hologic Selenia Dimensions informational summary.
2. The Evolution of Mammography by Lawrence W. Bassett and Richard H. Gold.



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Benefits of tomosynthesis include the following:

- Earlier detection of small breast cancers that may be hidden during digital mammography
- Greater accuracy in pinpointing size, shape and location of abnormalities
- Fewer unnecessary biopsies or additional tests
- Greater likelihood of detecting multiple breast tumors, which occur in 15% of breast cancer patients
- Clearer images of dense breast tissue

Of what are you most proud?

Dr. Wing: I am very excited that John Muir Health is adding Digital Breast Tomosynthesis to the breast imaging armamentarium. We have been waiting a long time to add this new technology. Although mammography remains the best overall screening tool for the detection of breast cancer, its sensitivity is only about 70 percent for all breast tissue types. In women with dense breasts, the sensitivity is even lower, probably closer to 50 percent. Besides the limited sensitivity, another concern about mammography has been the high call back rate (10 percent.) Tomosynthesis was developed to improve upon these limitations, and early experience appears to be very encouraging, as institutions which have incorporated tomosynthesis into their practices have seen decreases in the recall rate while at the same time increases in the cancer detection rate.

L. Womack: I am most proud of the quality of the breast imaging exams that are performed at John Muir Health. In addition to all of our mammography systems receiving some of the highest American College of Radiology (ACR) accreditation scores possible, all of our locations that perform breast ultrasound have received ACR accreditation as well. Additionally, both our Walnut Creek Interventional Breast Imaging Center at 133 La Casa Via, Suite 100 and the Breast Imaging Center at John Muir Medical Center, Concord are Breast Imaging Centers of Excellence. This designation is awarded to breast imaging centers that seek and earn accreditation in all of the ACR's voluntary breast-imaging accreditation programs and modules, in addition to the mandatory Mammography Accreditation Program.

What do you wish other MDs knew about your department?

L. Womack: I would like physicians to know that they can begin to order Digital Breast Tomosynthesis (3D Mammography) for their patients beginning on June 3.

K. Connolly: Two recent studies from the American Journal of Roentgenology (AJR) and the Journal of the American Medical Association (JAMA) focused on the impact of 3D mammography and demonstrated the following key findings:

| AJR KEY FINDINGS (1) | JAMA KEY FINDINGS (2) |
|---|--|
| 44% increase in invasive cancer detected with 3D mammography | 41% increase in invasive cancer detected with 3D mammography |
| 16% decrease in recall rate from screening mammography | 15% decrease in recall rate from screening mammography |
| 29% increase in the detection of all breast cancers | 29% increase in the detection of all breast cancers |
| (1) AJR 2014 Jun 13 [Epub ahead of print] (2) JAMA. 2014;311(24): 2499-2507. doi:10.1001/jama.2014.6095. | |

What will be most challenging in the future?

Dr. Wing: Besides the usual reimbursement issues that we see with any new technology, the biggest challenge for the radiologist will be the additional time it will take to read each tomosynthesis study. It is estimated that each study will take three times longer to interpret compared to a standard 2-D mammogram due to the large number of images that have to be reviewed. We are hopeful that we will be able to decrease the time needed as we gain experience, but the bottom line is that many women in our community will benefit from this new technology. All of us involved in breast care health very much appreciate the support and commitment of the administration in bringing this new technology to John Muir Health.

L. Womack: The greatest challenge we face in the future is the ability to fund the replacement of our current digital mammography systems with digital breast tomosynthesis systems across John Muir Health. We are looking into creative ways of trying to raise money through generous philanthropic donations.

Do you have any patient stories you'd like to share?

L. Womack: We have patients asking us every day about new technologies, including 3-D mammography; it will be a very proud day to be able to say "yes, John Muir Health now offers digital breast tomosynthesis."

These images show the difference between a conventional 2D mammogram with magnification view and a 3D view of the same region. The tumor is obvious on the 3D view and could likely be missed on the 2D mammogram.

Digital breast tomosynthesis allows for the more accurate evaluation of lesions by enabling better differentiation between overlapping tissues. It is a precise science and is clinically proven to detect 41 percent more invasive cancers. DBT produces more accurate results by offering a significant increase in the Positive Predictive Value for both recalls (49 percent) and for biopsy (21 percent) compared to 2D mammography. Breast tomosynthesis is valuable in both screening mammography and diagnostic mammography.