The Growth and Benefit of Tomosynthesis When Performing Mammograms

Radiologists are on the front lines in the battle against breast cancer and they need all the help they can get from technology as they seek to improve the health of women during screenings. In the United States, the number of new breast cancer cases is estimated at 268,000 and accounts for approximately 15% of all new diagnosed cancer cases in 2019, according to the latest figures from the National Cancer Institute (of the National Institutes of Health). The number of deaths from breast cancer for 2019 is estimated at 41,760, while the current 5-year survival rate for patients with breast cancer is now at 89.9%.

Meanwhile, the Centers for Disease Control and Prevention notes that breast cancer is the "most common cancer in women, no matter your race or ethnicity." In addition, breast cancer is the most common form of cancer afflicting Hispanic women and the CDC reports it is the second most common death from cancer for white, black, Asian/Pacific Islander as well as American Indian and Alaska Native Women.

These sobering mortality statistics certainly help to encourage women to come in for regular breast cancer screenings. At the same time, the current estimated survival rate of 89.9% is a testament to the virtue of early and regular testing.

As a professional in the field of radiology, it is prudent for you to stay up-to-date on medical industry best practices as well as the latest in technological developments when screening patients for breast cancer.

However, your busy schedule sometimes makes it hard to devote much time and attention to reviewing medical literature and seeing how your colleagues are taking advantage of newer imaging systems. Your background and training has shown that mammograms are an essential aspect of screening female patients for abnormalities such as cancer. While conventional mammograms are designed to create images in two dimensions, newer systems obtain data for three dimensions.

This is why radiologists will want to consider a surveillance system that provides a more comprehensive view into the patient's situation. With that in mind, here is insight into the growth and benefit of using tomosynthesis when carrying out mammograms.

Comparing 2-Dimensional Mammography with 3-Dimensional Tomosynthesis

In a nutshell, 2-D mammograms provide just a flat, 2-dimensional glimpse into breast tissue for assistance during possible cancer diagnosis, while 3-D tomosynthesis gives a 3-dimensional perspective.

X-ray technology to perform mammograms was developed in the 1960s and the American Cancer Society began officially recommending its use in 1976, according to the ACS.

Radiologists performing 2-D mammograms rely on X-ray technology to obtain images of signs of cancer that are otherwise invisible and are not detectable by touch, in absence of any other symptoms. Detecting a lump can indicate cancer, but the X-ray will not suffice for making a diagnosis—since a biopsy could be indicated.

The need for further tests after a professional using conventional mammography detects a lump can be quite stressful on patients awaiting results, as noted by Medical News Today, leading to the Food and Drug Administration

approving the use of tomosynthesis in breast cancer screenings in 2017.

As you know, during a regular 2-D mammogram, the radiologist makes X-ray images of the breast from side to side and from top to bottom, in a process that requires the breasts to be momentarily compressed for a couple of seconds. Drawbacks include some temporary discomfort for the patient as well as confusing images that result in false-positives because of difficulties interpreting them because of overlapping breast tissue that resembles a potentially cancerous mass.

In comparison, when making a scan with tomosynthesis, an X-ray tube travels in an arc around each breast, capturing about 11 images at various angles. Then, the computer system processes the data to create a 3-D X-ray mammogram. This gives the radiologist a much more accurate view of the breast tissue while presenting less discomfort to the patient being scanned.

“Overlapping tissue can hide small breast cancers and in some cases make normal tissue appear abnormal,” according to Dense Breast-Info, which continued, “Tomosynthesis can help to reduce the confusion created by overlapping tissues.”

What’s more, “When added to standard digital mammography, tomosynthesis depicts an additional 1 to 2 cancers per thousand women screened in the first round of screening and this benefit appears to continue every year.”

The ability for radiologists to detect more cancers earlier as compared with just using mammograms makes it a technology that more patients will want to harness during regular breast cancer screenings. Consider the added benefit that tomosynthesis also cuts down on the amount of false positives, thanks to the more detailed information in the 3D scan. With fewer false positives, it’s expected that fewer patients will therefore need to come in for callback and

additional imaging sessions.

As the American College of Radiology puts it, “Particularly in areas of dense tissue, which look white on a mammogram, tomosynthesis will find some cancers that otherwise would have been hidden. This is especially true for invasive cancers, the ones that could spread and be lethal, which are found at a rate of up to 40% more with tomosynthesis. This means better and earlier detection and potentially more lives saved from breast cancer.”

Do You Plan to Use Tomosynthesis During Mammograms?

Since you can obtain a much better view and understanding of the condition of a patient’s breast when using tomosynthesis during mammograms, this is a technology that you and fellow stakeholders in your medical organization will want to consider using in your own facility. As patients and the primary care doctors who refer them to radiologists become increasingly aware of the availability of digital breast tomosynthesis, it is reasonable to say that more of them will be requesting this diagnostic option, going forward.