AuntMinnie.com

Artificial Intelligence in Breast Cancer Screening: How the World's First and Only Deep-Learning Solution for Digital Breast Tomosynthesis Is Enhancing Patient Care

– Sponsor Supplied
By Randy D. Hicks, MD, MBA

November 18, 2019 -- Although the power of artificial intelligence (AI) has only been harnessed in recent years, it is increasingly being leveraged in healthcare, specifically within the field of radiology. One area within this realm where it is well-positioned to make a significant impact is in breast cancer detection, especially as digital breast tomosynthesis (DBT), or 3D mammography, continues to grow rapidly in adoption.

While 3D mammography offers a number of benefits to patients, such as improved cancer detection and fewer false positives and unnecessary recalls, it yields an exponential increase of images compared to 2D mammography, thus substantially increasing the daily workload for clinicians. For example, a radiologist reviewing 100 cases per day with 2D would typically review 400 images per day, whereas a radiologist reading 100 cases per day with DBT would be required to read almost 30,000 images per day.

This extensive amount of data presents an emerging issue for radiologists and can lead to reader fatigue, which may ultimately affect patient care. We experienced this phenomenon firsthand in my practice at Regional Medical Imaging (RMI) after upgrading from 2D to 3D in 2018. Although DBT offered improved image quality, we found it required a steep learning curve and the increased workload resulted in a case backlog that required additional staffing to combat.

ProFound AI for DBT is a high-performing, concurrent-read workflow solution designed to address this challenge by optimizing efficiency for radiologists and ultimately enhancing their clinical performance. It was the first artificial intelligence software for 3D mammography to be FDA-cleared and is the only software of its kind that is clinically proven to enhance breast cancer screening, reduce false positives and unnecessary recalls, and cut reading time for radiologists by more than half.[1]

Randy D. Hicks, MD, MBA, co-owner and CEO of Regional Medical Imaging.

It is the only AI software for DBT that rapidly and accurately analyzes each individual DBT image, or slice, rather than by reducing file size or compressing images. The technology acts as a second pair of eyes and delivers key data to the clinician, such as Certainty of Finding lesion and Case Scores, which improves radiologists' confidence in making clinical decisions and assists in prioritizing caseloads.

ProFound AI is also the only AI software for DBT that is clinically proven to substantially reduce the time required to review each patient's case, even with challenging cases, such as those with dense breasts.[2] The algorithm was trained with one of the largest available datasets and features the latest in deep-learning artificial intelligence, which allows for continuously improved performance via ongoing updates.

Clinical data from a large reader study involving ProFound AI for DBT were recently published in *Radiology: Artificial Intelligence*. According to study findings, ProFound AI for DBT improved radiologist sensitivity by 8%, reduced unnecessary patient recall rates by 7.2%, and slashed reading time for radiologists by 52.7%.[1] Additionally, ProFound AI cut reading time by up to 57.4% for radiologists reading cases with dense breasts.[2]

We adopted ProFound AI throughout all of our 10 locations at RMI earlier this year; the process was seamless and the technology immediately began to offer our practice and patients a number of benefits. The technology not only enhanced the reader experience, it also improved our workflow and enabled us to more easily conquer our case backlog. Employing this leading-edge AI solution within our practice reduced our call back and biopsy rates.

More importantly, our team of breast radiologists feels that we are finding more cancers and helping more women discover their disease earlier, thus giving them the opportunity for a better outcome. It enables us to fully maximize the benefits 3D mammography technology and imaging offers to our patients. ProFound AI addresses the current challenges radiologists face and is well-positioned to continue to enhance patient care and improve outcomes in the years ahead.

ProFound AI for DBT was FDA-cleared, CE Marked, and Health Canada-licensed in 2018. It is compatible with multiple vendors, including Hologic, GE, and Siemens. For more information, visit www.icadmed.com.

Dr. Randy Hicks, co-owner and CEO of RMI, is a distinguished expert on women's imaging who has coauthored several medical journal articles on topics related to imaging for breast cancer. He also has special interest and expertise in interventional breast biopsy procedures and product development.

References

1. Conant, E. et al. (2019). Improving Accuracy and Efficiency with Concurrent Use of Artificial Intelligence for Digital Breast Tomosynthesis. *Radiology: Artificial Intelligence*. 1 (4). Accessed via https://pubs.rsna.org/doi/10.1148/ryai.2019180096.

2. Hoffmeister, J. (2018). Artificial Intelligence for Digital Breast Tomosynthesis – Reader Study Results. [White paper]. Accessed via https://www.icadmed.com/assets/dmm253-reader-studies-results-rev-a.pdf.

❤️ **If you like this content, please share it with a colleague!**

Last Updated db 11/15/2019 3:58:43 PM