ProFound AI[™] for Digital Breast Tomosynthesis

Challenge

Digital breast tomosynthesis (DBT) is rapidly replacing full-field digital mammography in screening due to its clinical value in cancer detection. Although this advanced technology is becoming the standard of care, it presents significant challenges to radiologists. Clinicians are confronted by the workload and time required to accurately read the extensive amounts of data contained in DBT cases. Further, as incidence rates of cancer continue to rise, it is becoming increasingly more important to find cancer sooner, while reducing unnecessary recalls resulting from false positives.

Solution

ProFound AI[™] for digital breast tomosynthesis is revolutionizing the DBT reading paradigm and presents a transformative solution to address these challenges.

The high-performing, concurrent-read, cancer detection and workflow solution rapidly and accurately analyzes each tomosynthesis image, detecting both malignant soft tissue densities and calcifications with unrivaled accuracy.

Built on the latest deep learning and artificial intelligence (AI) technology, ProFound AI is clinically proven to assist radiologists in addressing the challenges of reading tomosynthesis cases by:

- Improving cancer detection rates
- Reducing false positives and unnecessary patient recalls
- Decreasing reading times

Clinical Performance Benefits

- 8.0% average increase in sensitivity
- 6.9% average increase in specificity
- 7.2% average reduction in recalls
- 5.7% average improvement in radiologist AUC

Workflow Benefits

- 52.7% reduction in reading time
- Certainty of Findings scores assist in prioritizing caseload and clinical decision-making

Compatible with leading digital breast tomosynthesis systems

Breast Health Solutions

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Certainty of Finding and Case Scores

The ProFound AI algorithm is trained to detect malignant soft tissue densities and calcifications. Certainty of Finding and Case Scores are assigned to each detection and each case respectively. Certainty of Finding and Case Scores are relative scores computed by the ProFound AI algorithm and represent the algorithm's confidence that a detection or case is malignant. The scores are represented on a 0% to 100% scale. A higher score indicates a higher level of confidence in the malignancy of the detection or case. The scores are calibrated to a population of 50% prevalence of cancer and should be interpreted as the probability of the detection or case correctly being identified as malignant in a population of 50% cancers and 50% non-cancers. The Certainty of Finding and Case Scores serve as a guide to the interpreting radiologist to aid in determining if a suspicious finding or case needs further workup.



Certainty of Finding Score

Certainty of Finding Scores are assigned to each detection identified by the ProFound Al algorithm. The Certainty of Finding Score represents how confident the algorithm is that the detection is malignant.

Case Score

Case Scores are assigned to each case by the ProFound AI algorithm. The Case Score represents how confident the algorithm is that a case is malignant. All cases, including those without detections, will be assigned a Case Score.



Platform

ProFound AI for digital breast tomosynthesis runs on the industry-leading PowerLook server platform with NVIDIA Graphical Processing Units (GPU). PowerLook is a flexible and reliable DICOM platform that easily integrates with image modalities, mammography review workstations, PACS, and image storage systems. Leveraging the latest in GPU technology, the algorithm can rapidly process a 4-view tomosynthesis case, ensuring results are available to radiologists in the most efficient manner.

FDA Cleared, CE Mark Approved, Health Canada Licensed

Breast Health Solutions

