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## Improving Breast Cancer Detection with ProFound AI for 2D Mammography



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According to the International Agency for Research on Cancer, in 2018 breast cancer accounted for 26.4 percent of all new cancer cases in European women.<sup>[i]</sup> Europe's radiologist shortage, particularly in Scotland and the United Kingdom, where the shortage is dire, makes it hard to maintain medical standards.<sup>[ii]</sup> Without a sufficient number of radiologists for 1st and 2nd reads, there's a risk that abnormalities may be missed.

The close scrutiny radiologists give to each image takes time and can be visually and mentally exhausting. Deep-learning, artificial intelligence (AI) technology can assist in breast cancer detection and decision-making. ProFound AI for 2D Mammography, a deep-learning AI platform trained with one of the largest available image datasets, can improve diagnostic confidence.

Professor Sylvia H. Heywang-Köbrunner, a radiologist and researcher based in Munich, Germany, was scheduled to present her findings at the 2020 European College of Radiology (ECR) annual conference in March.<sup>[iii]</sup> In this study, 18,002 consecutive screening mammograms acquired between January and November 2018 were anonymized and processed using ProFound AI for 2D Mammography. The data show that using a case threshold of 30, ProFound AI for 2D Mammography achieved a sensitivity of 91.5 percent and a specificity of 80.2 percent for 32 ductal carcinoma in situ (DCIS) and 85 invasive cancers. The first reader's results were 84.6 percent for sensitivity and 91.6 percent for specificity, while the second reader's results were 89.7 percent and 91.5 percent, respectively. These results validate the efficacy of ProFound AI for 2D Mammography. In her conclusion, Professor Heywang-Köbrunner wrote, "Achieved results justify hopes to use novel CAD systems for a second (e.g., in countries with a shortage of readers) or third reading in the near future. Human consensus reading remains indispensable."

In addition, when using findings from ProFound AI for 2D Mammography, radiologists can reduce the likelihood of missing malignancies and decrease the number of false positives. "With such a high sensitivity and specificity, ProFound AI often reveals suspicious areas that may have been missed, and at the same time, reassures my decisions when no further patient procedures are needed," said Axel Gräwingholt, MD, Radiologie am Theater, Paderborn, Germany.

ProFound AI for 2D Mammography rapidly and accurately analyzes each individual image or slice, detecting both malignant soft tissue densities and calcifications with accuracy. It can be particularly useful for detection in dense breast cases and for complex cases with subtle lesions. "The arrival of ProFound AI marks a real technological advancement in the development of breast cancer detection tools. I use ProFound AI in my daily practice, and it helps me in my diagnostic decision-making," said Corinne Balleyguier, MD, PhD, radiologist at Gustave Roussy Cancer Campus, Villejuif, France. "In the beginning, I was skeptical about how AI could help me, but I quickly understood the assistance ProFound AI could bring, especially with subtle lesions and complex cases."

ProFound AI for 2D Mammography highlights suspicious areas and assigns unique Certainty of Finding and Case Scores that radiologists can use to make clinical decisions and prioritize caseloads. ProFound AI for 2D Mammography's detection capabilities improve continuously through ongoing software updates. Radiologists can use the AI platform to prioritize their caseloads and manage their workflow.

In 2019, ProFound AI for 2D Mammography was featured at several medical conferences, including the Société Française d'Imagerie de la FEMme (SIFEM), the Journées Francophones de Radiologie (JFR) Congress in Paris and the European Society of Breast Imaging (EUSOBI) Annual Scientific Meeting in Budapest. In July 2019, ProFound AI for 2D Mammography received CE Mark approval. This approval signifies that it conforms to stringent European standards for health, safety and environmental protection, and further validates the product as a world-class AI solution.

Early detection is key for improving health outcomes and longer-term survival odds. Finding tumors earlier means they're easier to treat. ProFound AI for 2D Mammography can reduce the number of false-positives and callbacks and help make the entire process less stressful for patients.

Part of [iCAD](#)'s deep-learning, artificial intelligence platform, ProFound AI also includes Digital Breast Tomosynthesis (DBT), which was CE Marked in March 2018 and FDA cleared in December 2018.

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