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**Katia Katsari**

Chief medical Physicist Affidea,
Project Leader AI Operations
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Better Insight*, **Better Peace of Mind**

Enhanced diagnostic accuracy of screening mammography with the use of Artificial Intelligence

Breast cancer is the most frequent cancer among women, with an estimated incidence of 560,000 cases in 2018, in Europe.¹ The World Health Organisation (WHO) estimated that 627,000 women worldwide,² out of which 150,000² only in Europe, died from breast cancer, in the same year. In order to improve breast cancer outcomes and survival, early detection is critical. For this reason, many European countries have successfully introduced breast cancer screening programmes.

Affidea **breastInsight|Mammography** is a recently launched Artificial Intelligence (AI) clinical product to streamline and improve the clinical performance of screening mammography and drive the earlier detection of breast cancer. It is powered by TransparaTM, an FDA cleared and CE approved AI solution for breast cancer screening of ScreenPoint Medical. TransparaTM uses deep learning algorithms to automatically detect lesions suspicious for breast cancer in 2D and 3D mammograms and has been validated for multiple vendors and mammography models. The software categorises mammograms on a 10-point scale indicating the risk of cancer.

The Transpara™ Score can be used to triage examinations and help radiologists to prioritise patients for further investigation. CAD marks for calcifications, soft tissue lesions and interactive decision support are provided to

support radiologists to interpret the images with higher accuracy. Studies have shown that the AI solution matches the performance of breast imaging radiologists,³ and can be used as a second opinion. In this way, doctors can gain a better and more accurate insight⁴ and patients, the peace of mind that any woman should have when undergoing a mammography examination.

Affidea breastInsight|Mammography brings benefits to all stakeholders, and most importantly, to both women who need to undergo screening mammography and their referring physicians:

A Faster Diagnostic Pathway for their patients

Effective triage of mammograms with low likelihood of malignancy allows radiologists to focus on the high-risk cases⁵ which will allow doctors to get a faster diagnosis for their patients.

Enhanced diagnosis which results in reduction of unnecessary recall rates and false positive findings (fewer biopsies), giving women who undergo a mammography the peace of mind they deserve.

Improved clinical accuracy and diagnostic confidence⁴

The AI solution matches the performance of a breast imaging radiologist^{3,4} and can be used as a second opinion reader to improve diagnostic outcomes. ■

"This is our second AI innovative project that we embed across our European Network with the goal of expanding precision medicine, improving accuracy and driving a faster, more personalised breast imaging diagnosis with the help of advanced artificial intelligence solutions. In this way, we support our doctors to take full advantage of the AI tools which allow them to foster diagnostic confidence and ultimately, to save more lives. Our vision, our digital and clinical capabilities and our experienced teams across 16 countries provide us with a unique opportunity to significantly improve the delivery of patient care."

Giuseppe Recchi
CEO, Affidea

"We are pushing the boundaries in terms of enhanced productivity, increased diagnostic accuracy, more personalised treatment and ultimately, improved clinical outcomes with an outstanding patient experience. The new AI solution that we are implementing in our countries, Transpara™, will provide our doctors with an automated clinical decision support that can boost reading performance and faster distinguish between healthy and tumour tissue, thus increasing diagnostic accuracy."

Prof. Rowland Illing
Senior VP, Chief Medical and
Digital Strategy Officer, Affidea

Affidea at a glance:

- Multinational healthcare provider, with presence in 246 centres across 16 countries in Europe, providing high quality affordable care for millions of patients every year.
- Working with over 7,500 professionals, producing 13 million scans every year.
- Affidea is the only healthcare operator in Europe to sit on the Imaging Advisory Board of IBM Watson Health and also sits on Microsoft Cloud's board.
- 50% of the European winning centres awarded by the European Society of Radiology belong to Affidea.



REFERENCES

* The ScreenPoint Medical AI solution Transpara™ plus expert radiologist's opinion are more accurate than sub-specialty radiologist alone - see reference 7

¹Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer;

²Curado et al. (2007) Cancer Incidence in Five Continents, Vol. IX, IARC Scientific Publications No. 160. IARCPress: Lyon.

³Rodríguez-Ruiz et al. (2019) Standalone artificial intelligence for breast cancer detection in mammography: Comparison with 101 radiologists. Journal of the National Cancer Institute. Available from doi.org/10.1093/jnci/djy222.

⁴Rodríguez-Ruiz et al. (2019) Detection of Breast Cancer with Mammography: Effect of an Artificial Intelligence Support System. Radiology 290(2):305-314.

⁵K. Lång et al. (2019) Can artificial intelligence identify normal mammograms in screening? B-0696, Presented at ECR 2019, Vienna