

Improving early detection of breast cancer

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Figure 1. Screenshot of the BREAST assessment system. In this case the user diagnosed cancers in a normal case. In practice this may result in an unnecessary and expensive biopsy procedure and significant stress to the patient.

(Medical Xpress) -- The University of Sydney, in partnership with BreastScreen NSW and Ziltron, has developed a pioneering web-based program to monitor the performance of radiologists in detecting and diagnosing abnormalities in breast X-rays. Currently commencing its nationwide rollout, the BREAST Project has the potential to improve the early detection of breast cancer through screening and in turn reduce breast cancer mortality and morbidity.

About 1.6 million women have [mammograms](#) each year in Australia, however, reading mammograms is one of the most challenging tasks in radiology according to Program Co-Director, Professor Patrick Brennan from the University of Sydney's Faculty of Health Sciences.

BreastScreen Australia aims to maximise the number of breast cancers diagnosed early, enabling early treatment and improving outcomes for women. Key to this is providing feedback and support to image readers.

"The project supports this through increasing the opportunity for radiologists to monitor their performance and receive feedback following examination of series of test cases," says Professor Brennan.

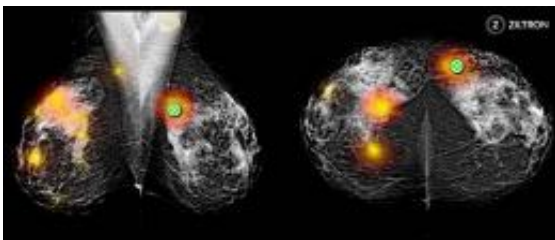


Figure 2. Screenshot of heat-map showing variance in opinion amongst 140 Australian radiologists. The actual cancerous lesion underlies the green marker. All other regions are normal.

The BreastScreen Reader Assessment Strategy (BREAST) is based on a world-first web-based program of digital screen-reading test sets designed to assess the performance of the user in correctly identifying abnormalities on mammograms and in interpreting whether or not the lesions identified pose a risk of [breast cancer](#).

"The strength of the project is the comprehensive collection of breast X-rays which form the test sets," says Professor Brennan. "They have been developed in partnership with BreastScreen NSW and thoroughly validated through subsequent scans and biopsy."

The BREAST Project will benefit all BreastScreen Australia services, which offer screening at more than 500 locations Australia wide. The

[Ziltron](#) web-based system with its unique embedded algorithm allows for the provision of real-time and instant evaluation and feedback to participating radiologists and will also enable the development of national performance standards based on confidential data collection.

"This will allow us to determine the level of variation across BreastScreen Australia, set reference levels for good performance and encourage targeted quality improvement programs to manage under performance," says Warwick Lee, State Radiologist for BreastScreen NSW, Adjunct Associate Professor at the University of Sydney and Co-Director of [BREAST](#).

"The data collection - made possible through our technology partnership with Dr John Ryan and Ziltron - also presents immense opportunities for further research into the types of lesions that are creating difficulties for readers, either through underdiagnosis or overdiagnosis, and has huge potential for improving standards in the future," comments Professor Brennan.

Dr. John Ryan, CEO of Ziltron, a global company specialising in the field of real-time web-based performance-analysis systems, said the joint venture puts Australia at the forefront of this field.

"By implementing our system as a breast-screening quality and performance tool, Australia is proving to be the most innovative and progressive nation in this field."

Provided by University of Sydney

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