

## World Congress on **Breast Cancer**

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### **Digital mammography alone versus digital mammography plus tomosynthesis for breast cancer detection**

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**D**igital breast tomosynthesis (DBT) is a three-dimensional imaging technology that aims to reduce tissue superimposition encountered in digital mammography (DM). This study provides an evaluation of DBT in conjunction with DM in terms of localisation performance and the radiologists' ability to identify lesion type compared with DM alone. Human ethics approval was obtained. Fifty cases (27 cancer and 23 non-cancer), each containing 2-view DM and 2-view DBT images, were reviewed by 23 experienced radiologists in two modes, DM alone and DM+DBT. Radiologists marked the location of the cancers, if present, gave it a score of 1-5 where 1 = "normal" and 5 = "malignant", and reported its type (stellate mass, round mass, non specific density, architectural disturbance or microcalcifications). The radiologists' performance in DM was compared with that using DM+DBT in terms of location sensitivity and Jackknife free-response receiver-operator characteristics (JAFROC) figure of merit (FOM). Use of DM+DBT resulted in significantly improved location sensitivity (0.563 vs. 0.469,  $p < 0.001$ ) and JAFROC FOM (0.745 vs. 0.621,  $p < 0.001$ ) compared with DM alone. Adding DBT to DM increased the number of correctly identified stellate breast lesions (20.3% of stellate masses were missed on DM while correctly marked on DM+DBT compared with only 1.2% missed on DM+DBT and correctly marked on DM alone). This study suggests that adding DBT to DM significantly improves diagnostic performance for breast cancer detection and localisation as well as identification of stellate masses. Further research involving a higher numbers of specific lesion types is required.

#### **Biography**

Maram M Alakhras completed her Radiologic Technology degree at Jordan University of Science and Technology (JUST) in 2005. After working two years as a teaching assistant, she received a Master's degree scholarship in Medical Imaging Science at Curtin University, Australia. Then she served another two years as a full-time Lecturer at JUST. She is currently a Medical Radiation Sciences PhD student at the University of Sydney. She participated in many local and international conferences and she published several papers including a literature review "*Digital tomosynthesis: A new future for breast imaging?*" which was the most downloaded paper in Clinical Radiology in 2013.

#### **Notes:**