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Digital Breast Tomosynthesis Continues to Perform Well After 10 Years

Over the last ten years, digital breast tomosynthesis (DBT) has continued to provide better cancer detection with fewer false positives than 2D digital mammography. At RSNA 2021, Dr Liane E Philpotts of Yale School of Medicine presented a study comparing DBT's performance to 2D mammography over a ten-year period.

An X-ray source travels in an arc over the compressed breast, capturing multiple images from different angles in DBT. This differs from 2D mammography, where the X-ray source stays stationary.

Since August 2011, DBT has become Yale University's standard of care. All DBT exams in the study used Hologic's Dimensions mammography units. Of the 207,128 DBT mammograms performed at Yale University's main and satellite offices, 77,014 were on dense breasts, for which screening is often ineffective at finding cancer. Since DBT screening was given at no charge to patients, this minimised the contribution of breast density, risk factors, insurance coverage in biasing the data. Data collected from a mobile 2-D mammography unit provided comparison control data from 8,844 patients.

Rates of recall (RR, the per cent of true positives among the patients in the study), cancer detection (CDR), and positive predictive value (PPV, the rate of correctly identified cancers) were determined to be 7.2%, 0.55%, and 7.6%. In comparison, 2-D mammography rates were respectively 13.3%, 0.45 and 3.4%.

Favourable metrics were found in women with either non-dense breast tissue or with dense tissue. For women with non-dense tissue, RR and CDR averaged 6.8% and 5.8%, whereas,for women with dense tissue, RR and CDR averaged 7.9% and 5.1, respectively. Dr Philpotts summarises: 'The results showed that the screening metrics really did stand up over time. The recall rate was low compared to 2D data, and the cancer detection rate stayed high.'

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