

3D breast imaging takes to the UK clinical stage

Siemens' first tomosynthesis installation to premiere at Nottingham Breast Institute

Tomosynthesis, a next generation diagnostic tool that uses 3D imaging to assist with the detection of breast cancer, has been ordered for the first time in the UK. Nottingham Breast Institute, part of the Nottingham University Hospitals NHS Trust, will be installing a Siemens MAMMOMAT Inspiration™ Full Field Digital Mammography system which will have the tomosynthesis module.

Nottingham Breast Institute is one of the major breast radiology research centres in the UK. The Inspiration mammography system was selected due its tomosynthesis functionality that will enable the Institute to enhance its research potential and remain at the forefront of pioneering medical investigation.

Nottingham Breast Institute is aiming to perform between five and ten tomosynthesis examinations a week, imaging patients who present with a lump and those recalled for further investigations following routine breast screening. These examinations will be used in research studies into how tomosynthesis can enhance mammogram sensitivity and improved diagnosis of multifocal breast cancer.

Tomosynthesis takes a number of low dose images at different angles from which slice-like images of the breast can be reconstructed. When pieced together, the slices reveal far greater detail and depth of information of the whole breast to assist with earlier detection. It takes breast imaging a step beyond conventional mammography currently used in national screening programmes and for symptomatic examinations.

“We are expecting the tomosynthesis-ready breast imaging system to provide a range of benefits to the Institute, to patients and to the UK as a whole,” states Dr Andrew Evans of the Nottingham Breast Institute. “Primarily, it should assist us with defining the precise staging of breast cancers, which then defines a more accurate course of treatment needed. Furthermore, the 3D images delivered go beyond traditional 2D images found in projection mammography, to show the morphological characteristics of cancers with a new degree of accuracy. This should improve the quality of screening results and demonstrate concern areas earlier.”

“Finding the very small mammographic changes that represent early breast cancer can be likened to finding a needle in a haystack. Tomosynthesis can help as the imaging technology virtually slices up the breast to look inside and explore in-depth,” states Sam Smith, Women’s Health Specialist at Siemens Healthcare. “Early detection means less invasive procedures and a speedier recovery for the patient. We anticipate that tomosynthesis will play an important role in the future of breast cancer diagnosis and may replace traditional mammography in the future.”

Siemens Healthcare is the only digital mammography provider in the marketplace to offer tomosynthesis ready systems that require a simple upgrade rather than complete machine renewal. The tomosynthesis module will be in place at the Nottingham Breast Institute later in the year.

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Picture caption: Patient with a 2.8-cm, grade 3, invasive ductal carcinoma the right breast imaged with digital mammography and breast tomosynthesis.

The digital mammography view (left) shows dense breast tissue with subtle distortion in the lower breast. The tomosynthesis slice image (right) shows a mass in the lower breast. This is much more evident than the corresponding mammogram.

