

„Seeing in a different dimension.“

The GbR DIRANUK (DIRANUK regional clinic) has two sites which are responsible for 80,000 women in the conurbation of Bielefeld and Gütersloh (North Rhine-Westphalia). As well as the physician in charge of the programme, Dr. Ulrike Meyer-Johann, there are four additional team members from the clinic at present analysing approximately 52,000 examinations per screening round.

They are supported by Carestream Health technology. The image data is digitalised by a DirectView CR 975 System and analysed on CAD supported Carestream Mammography Workstations.

When the DIRANUK clinic began their mammography screening work at the Bielefeld site in January 2006 and at the Gütersloh site in February 2006 as the third national screening unit in Germany, the changeover from analogue to digital X-ray technology was already complete.

Moreover this technological policy decision for the large, umbrella organi-

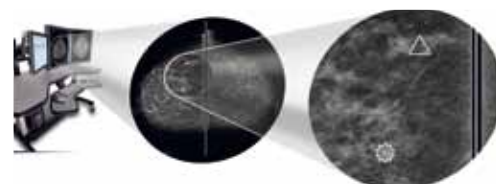
sation consisting of a total of five sites, has proved to be exactly the right one for the mammography screening process, according to the doctor in charge of the programme. “I simply cannot imagine how we would have been able to cope in the time, using analogue technology,” says Dr. Ulrike Meyer-Johann, looking back on nearly four years of screening, during which she learnt to appreciate the multiple advantages of digital over analogue body imaging.

Whilst recourse to established analogue images was essential in curative practice during the first screening round, the mammography team can now mostly access PACS archived, digital images for comparison. “That is an unbelievable asset as regards processing options and speed,” says Dr. Meyer-Johann, explaining the significance of second opinions, consensus and case conferences for everyday practice. “It means that each person has an image and can input it into the monitor, manipulate it, mark conspicuous areas and then save them for others.”



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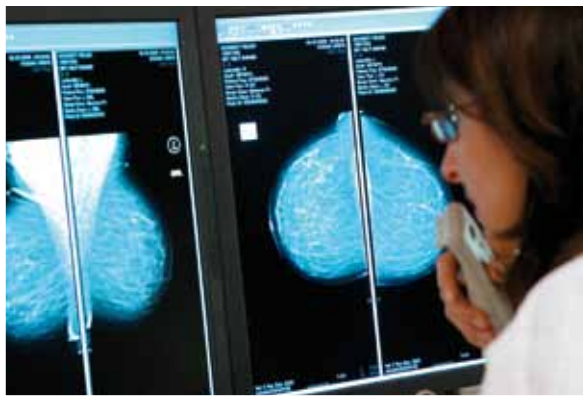


Aside from all the organisational advantages of a digital workflow, Dr. Meyer-Johann sees the enormous significance of digital mammography for detecting findings: "This means seeing in a different dimension for us and I would no longer want to be without it. We are making a leap. We can see calcium a great deal, better than on the analogue images. And calcium can signify a pre-cancer. Since we have been working digitally, we have detected pre-cancers much more frequently. By comparing images with high-quality prior images, we are more likely to discover small carcinomas."

Ulrike Meyer-Johann sees a significant improvement in the chances of those women affected being cured as a direct consequence of this improved early detection. "Pre-cancers are a hundred per cent curable as a rule. The higher detection rate of the small, curable carcinomas has consequences for managing operations and improves the chance of breast-preserving therapies. The increase in the detection rate of node-negative carcinomas means chemotherapy can be avoided more often. Thus, on the one hand, the overall mortality rate can be reduced and, on the other, therapy can be much less of a strain for many women."

However, Dr. Meyer-Johann points out that the changeover from analogue to digital practice also entails considerable change and challenges for the team members. "Analogue and digital images call for a completely different method of interpretation. Compared to before, we are seeing many single level findings today, due to improved resolution. When analysing interval carcinomas, the interpretation team was forced to conclude that using the different technologies hindered the comparability of the digital images and prior analogue images, producing incorrect results. "The analogue images seem more washed out and denser overall, while the digital images achieve better contrast and identification of the details. It turned out that our analysis, carried out exclusively on the basis of the digital images, was more accurate."

The doctor in charge sees the close cooperation of the mammography team as another positive enhancement of the learning effect. In order to provide additional backup for this learning process, all team members receive weekly reviews, to establish how successfully they have worked during screening in comparison to others and to what extent false positives or false negatives were diagnosed. Misdiagnoses are promptly analysed together. "Was it calcium? Were they architectural abnormalities or predominantly small carcinomas? In recent years this further training has led to a noticeably steeper learning curve



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for all the participating team members," is how Ulrike Meyer-Johann explains this in-house quality improvement. "We all have a high academic standard requiring that we detect small changes and interpret them correctly, in order to identify as many small, curable carcinomas as possible, whilst at the same time causing the least possible amount of anxiety for women through additional clarification."

In conclusion, the advantages of digital mammography can be summarised in the following points. The improved detailed detection of micro-calcium and architectural abnormalities has led to an increase in the detection of small carcinomas and pre-cancers. Compared to analogue pictures, digital images, including prior images, are available more quickly and allow parallel interpretation at different locations. This enables efficient time management. The numerous options for handling and displaying images allow a wide variety of presentation options in interdisciplinary conferences.