Digitalization of breast cancer screening: DigiBOB

Organization

The Dutch National Institute for Public Health and the Environment is managing the digitalization of the breast cancer screening program. The screening is carried out by nine independent screening organizations. Approximately 650 employees work for these organizations.

Project

With the DigiBOB project, the National Institute for Public Health and the Environment aims to digitalize the preventative breast cancer screening program. Approximately one million women are screened annually. This takes place in 65 specially equipped mobile units. In these mobile units, the technicians take dozens of X-rays each day during digital mammograms and save them on a central Image Management System (IMS). This storing of images takes place at two data centers in Eindhoven using the Philips SitePACS.

The results are immediately available to the radiologists who, working in pairs but independently, assess the mammograms. All of the fifteen locations where the radiologists assess the X-rays are equipped with special mammogram workstations that are connected via a gigabit optical SURFnet6 private fiber-optic network. The radiologists assess whether the patients need to undergo further investigations in the diagnostic process. Each breast is X-rayed twice. A mammogram is approximately 1MB.

Project duration

The project started in 2003. The European tender took place in 2007 and the first roll-out on July 1st 2009. The entire screening process was digital at the start of 2010.

Contact

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Situation

Four screening pilots have already been carried out in which various vendors tested the digitalization process working practices, with a particular focus on images.

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Proposed approach

Because the mammography process imposes special demands in terms of the linking of systems, the National Expert and Training Centre for Breast Cancer Screening was involved in the creation of the IHE mammography profile. This profile sets out the requirements that the mammography units, the image archive and the workstations must meet to ensure that they function properly. In the project both the 65 mammography units and the central IMS system were put out to tender in separate European-wide requests for tender. The details of the mammography profile were included in both schedules of requirements. In the tenders the vendors were awarded points for each IHE requirement. Many of the requirements counted as RJT knock-outs. After being awarded the contract, the vendor for the IMS had the opportunity to show in a Proof of Concept that the IMS could in principle support the entire workflow (December 2007). Conformance with the IHE mammography profile was examined in detail. Improvements were made in a number of areas prior to the acceptance tests in May 2008.

Contribution of the IHE

The IHE MAMMO mammography profile forms the basis for the screening solution. In this, the main IHE radiology profiles are combined and supplemented with specific requirements for mammography. Phase one involves the digitalization of the screening process. Phase two will involve the exchange of images and reports with the hospitals. The surgeon has access to the screening images for each referred patient. The pilot started with the MammoKL project in 2008/2009. The exchange takes place in accordance with the XDS-I profile.

Results

A national infrastructure in which work is carried out within the units according to SWF, the mammograms and scanners are specially set up to fully support the entire diagnostic workflow process and in which there will be a uniform national process that does not involve paper or film. Through this better image quality will be achieved resulting in a higher cancer detection rate.

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