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Radiological Society of North America

820 Jorie Blvd
Oak Brook, IL 60523
TEL 1-630-571-2670
FAX 1-630-571-7837
RSNA.org

NEWS

RSNA Press Release

Access to Prior Mammograms Helps Radiologists Detect Breast Cancer

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Media Contact:

RSNA Media Relations: (630) 590-7762

Maureen Morley
(630) 590-7754
mmorley@rsna.org

At A Glance

- Availability of prior screening mammograms reduces false positives by up to 44 percent.
- Comparing current mammograms to prior mammograms significantly improves radiologist performance.
- Prior mammograms should always be used for comparison when available.

OAK BROOK, Ill. (December 19, 2006) - Viewing prior mammograms in association with current mammograms significantly improves radiologist performance and may decrease unnecessary recalls by up to 44 percent, according to a study in the January issue of *Radiology*.

"Prior mammograms should always be used when available," said the study's lead author, Antonius A. J. Roelofs, Ph.D., from the Department of Radiology, Radboud University Nijmegen Medical Center in the Netherlands. "Limiting the availability of prior mammograms to cases selected by the reading radiologist appears to significantly reduce the beneficial effect shown when using prior mammograms in all possible cases," he said.

With the impending transition from film mammography to digital mammography, conventional film image viewing equipment is being replaced with digital image reading equipment.

"Generally, diagnosis is based on the most recent mammograms and on prior screening round images," said co-author Sander van Woudenberg, M.S. "The use of prior mammograms recorded on film in comparison with current digital mammograms poses a challenge, as reading digital images in combination with film images is difficult and may lead to loss of efficiency."

One solution that has been considered is the digitization of prior screening mammograms. However, this would require a considerable effort, which should be balanced by the medical benefits provided by the use of prior mammograms in the screening process. Another possible solution would involve limiting the number of prior mammograms used, according to the study authors.

For the study, twelve experienced screening radiologists studied 160 mammograms to

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retrospectively determine the influence of comparing current mammograms with prior mammograms on breast cancer detection in screening and to investigate a protocol in which prior mammograms are viewed only when deemed necessary by the radiologist.

Eighty mammograms were obtained from women in whom breast cancer was diagnosed later. The other 80 mammograms had been reported as normal or benign. All cancers were visible in retrospect. The reviewers remained unaware of the pathologic nature of the lesions until the whole study was completed. Readers located abnormalities, estimated likelihood of malignancy for each finding and indicated whether prior mammograms were considered necessary.

The results showed that without prior mammograms, many more suspicious findings were noted. Reading performance was significantly better when prior screening mammograms were available. The 12 radiologists reported 1,935 findings when prior mammograms were unavailable, for an average of 1.01 findings per case per radiologist. When prior mammograms were available, 1,715 findings were reported, for an average of 0.89. The total number of localized lesions detected without and with prior mammograms was 636 and 672, respectively.

The findings also showed that prior mammograms were primarily used for assessment and did not play an important role in the initial detection of abnormalities. On average, additional information obtained from the prior mammograms led to better decisions with radiologists marking 44 percent fewer nonmalignant findings as suspicious, resulting in a corresponding reduction in recall rates.

"Women should make sure that if they are moving to another place, their screening mammograms and files are moved as well," Dr. Roelofs said.

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"Importance of Comparison of Current and Prior Mammograms in Breast Cancer Screening." Collaborating with Roelofs and van Woudenberg were Nico Karssemeijer, Ph.D., Nora Wedekind, M.S., Christian Bech, Ph.D., Peter R. Snoeren, Ph.D., Jan H. C. L. Hendriks, M.D., Marco Rosselli del Turco, M.D., Nils Bjurstam, M.D., Hans Junkermann, M.D., David Beijerinck, M.D., Brigitte Séradour, M.D., and Carl J. G. Evertsz, Ph.D.

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