Clinical comparison of full-field digital mammography and screen-film mammography for detection of breast cancer.

OBJECTIVE: The purpose of this work is to compare full-field digital mammography and screen-film mammography for the detection of breast cancer in a screening population.

SUBJECTS AND METHODS: Full-field digital mammography was performed in addition to screen-film mammography in 6736 examinations of women 40 years old and older presenting for screening mammography at either of two institutions. Two views of each breast were acquired with each technique. The digital and screen-film mammograms were each interpreted independently. In addition to a clinical assessment, each finding was assigned a probability of malignancy for use in receiver operating characteristic analysis. In cases in which the digital and screen-film interpretations differed, a side-by-side analysis was performed to determine the reasons for the discrepancy. With few exceptions, findings detected on either technique were evaluated with additional imaging and, if warranted, biopsy.

RESULTS: Additional evaluation was recommended on at least one technique in 1467 cases. These additional evaluations led to 181 biopsies and the detection of 42 cancers. Nine cancers were detected only on digital mammography, 15 were detected only on screen-film mammography, and 18 were detected on both. The difference in cancer detection is not statistically significant (p > 0.1). Digital mammography resulted in fewer recalls than did
screenfilm mammography (799 vs 1007, p < 0.001). The difference between the receiver operating characteristic curve area for digital (0.74) and screen-film (0.80) mammography was not significant (p > 0.1). Reasons for discrepant interpretations of cancer were approximately equally distributed among those relating to lesion conspicuity, lesion appearance, and interpretation.

**CONCLUSION:** No significant difference in cancer detection was observed between digital mammography and screen-film mammography. Digital mammography resulted in fewer recalls than did screen-film mammography.

DOI: [10.2214/ajr.179.3.1790671](http://dx.doi.org/10.2214/ajr.179.3.1790671)
Alternate Journal: *AJR Am J Roentgenol*
PubMed ID: 12185042