



# SecondLook Digital

## Sensitivity of Direct Computer-Aided Detection System in Full-Field Digital Mammography for Detection of Microcalcifications Not Associated with Mass or Architectural Distortion

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### Purpose

The purpose of this study was to evaluate the sensitivity of a direct computer-aided detection (CAD) system (d-CAD) in full-field digital mammography (FFDM) for the detection of microcalcifications not associated with mass or architectural distortion.

### Materials and Methods

A database search of 1063 consecutive stereotactic core biopsies performed between 2002 and 2005 identified 196 patients with Breast Imaging-Reporting and Data System (BI-RADS) 4 and 5 microcalcifications not associated with mass or distortion detected exclusively by bilateral FFDM. A commercially available CAD system (SecondLook, version 7.2, iCAD, Inc.) was retrospectively applied to the craniocaudal and mediolateral oblique views in these patients (mean age 59 years; range 35 - 84 years). Breast density, location and mammographic size of the lesion, distribution, and tumour histology were recorded and analysed by using  $\chi^2$ , Fisher exact, or McNemar tests, when applicable.

### Results

When using d-CAD, 71 of 74 malignant microcalcification cases (96%) and 101 of 122 benign microcalcifications (83%) were identified. There was a significant difference ( $P < .05$ ) between CAD sensitivity on the craniocaudal view, 91% (68 of 75), vs CAD sensitivity on the mediolateral oblique view, 80% (60 of 75). The d-CAD sensitivity for dense breast tissue (American College of Radiology [ACR] density 3 and 4) was higher (97%) than d-CAD sensitivity (95%) for nondense tissue (ACR density 1 and 2), but the difference was not statistically significant. All 28 malignant calcifications larger than 10mm were detected by CAD, whereas the sensitivity for lesions smaller than or equal to 10mm was 94%.

### Conclusions

D-CAD had a high sensitivity in the depiction of asymptomatic breast cancers, which were seen as microcalcifications on FFDM screening, with a sensitivity of d-CAD on the craniocaudal view being significantly better. All malignant microcalcifications larger than 10mm were detected by d-CAD.

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