

AbstractID: 14182 Title: Two-view CAD performance in digital mammography

Purpose: To compare the sensitivity and specificity of a CAD system for identifying breast cancer in two digital mammographic views.

Method and Materials: A commercial CAD system was applied retrospectively to craniocaudal (CC) and mediolateral oblique (MLO) views of 90 patients with 45 histologically proven cancers and 45 benign findings also confirmed histologically or with ultrasound and follow-up. Cancers included 21 masses and 24 microcalcification clusters. Benign findings included 23 masses and 22 calcifications. The sensitivity and specificity of the CAD system for cancer detection was estimated for each view separately and for the combination of the two views. The paired t test was used for statistical analysis.

Results: The sensitivities of the CAD system were 93% in the CC view and 89% in the MLO view. Sensitivity was higher (95%) when views were combined. The sensitivity for masses was significantly smaller than the sensitivity for calcifications (about 15% lower) but it increased significantly when the CAD results from the two views were combined (from an average 74% in the single views to 90%). The specificity of the CAD system was 32% for masses and 28% for the calcifications and it was only estimated from the single view findings.

Conclusion: In agreement with prior reports, the commercial CAD system showed sensitivities independent of the type of view for both masses and calcifications. The sensitivity for masses was smaller than the calcifications but increased to similar levels when the detections in both views were considered. The specificity of the system was low indicating the need for integrating a more robust classification algorithm in the detection process.