

“Clinical aspects of computer-aided detection (CADe) and diagnosis (CADx)”
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Outline:

- ☒ Elizabeth Wende Breast Care (EWBC) History with CAD
 - Implementing CAD since November 2000
 - Versions of CAD
 - CAD Research-
 - Radiology 2004: Retrospective review of a small subset of cancers, CAD had the potential to decrease the FN rate with double reading by more than one-third (from 31% to 19%). The CAD system correctly marked 37 (71%) of 52 actionable findings read as negative in previous screening years.
 - EWBC Prospective Review: CAD marked 78% (72/93) of cancers in the study group of approximately 20,000 screening patients. With double reading, there was an increase in work-up rate of 2% due to CAD; the increase was 1% when there was a single reader with CAD. Additionally, CAD prompted the recall of 7 cancers that would have otherwise been missed by both readers.

- ☒ Current Standard of Care with CAD
 - EWBC Workflow
 - Double read with CAD for all screening mammograms
 - CAD for all mammograms (multi vendor facility)
 - ☒ R2 version
 - ☒ iCAD version
 - ☒ CAD Wish List
 - Temporal Comparison
 - Ability of CAD to analyze priors
 - Currently there is difficulty comparing to priors for the radiologist when reading digital-limitation of how many priors to pre-fetch
 - Case example of cancer that was marked in prior years by CAD and was not worked up
 - ☒ Reasons behind oversight?
 - Percentage of suspicion, concern
 - Doctor needs to trust what CAD has marked
 - Ability of CAD to display a percentage of concern(malignancy score) of a lesion
 - Library of cases where CAD marked lesion with high probability for malignancy and it turned out to be malignant
 - This could be used for residents and inexperienced breast imagers as a teaching tool
 - ☒ Other
 - Measurement Display tools- confirm distance from the nipple to lesion to assist radiologist confidence that the same lesion was marked by CAD in both views
 - Triangulate with other view
 - Breast density assessment
 - Risk assessment
 - Genetics
 - New modalities and CAD