AbstractID: 1571 Title: Technical Evaluation of Foam Pads for Mammography

Purpose:

To measure the effect of foam pads on image quality and patient dose with commercially available screen-film (SFM) and full-field digital mammography (FFDM) units across the full clinical range of compressed breast thickness.

Method:

Four contrast-detail (CD) images at 2, 4, 6, and 8 cm thickness and one ACR phantom image were acquired on each of 12 commercially available SFM and 4 different manufacturer's FFDM units. Images were acquired using no pads, 1 pad, and 2 pads using the BioLucent Woman's Touch® MammoPad®. Results were analyzed for significance of differences in AGD, OD, CD and ACR phantom scores.

Results:

Phantom testing indicated small mean AGD differences with significance only between no pads and 1 or 2 pads for 2 cm, 4 cm, and the ACR phantom ($p<0.01$). Mean OD differences and contrast across the acrylic disc on the ACR phantom were not significant. Mean phantom fiber, speck, and mass scores were not significantly different except for a small difference in speck group score between 1 and 2 pads ($p=0.0032$). The CD score difference was significant between no pad or 1 and 2 pads for 2 cm, 0 and 1 pad for 4 cm, between no pad and 1 or 2 pads for 6 cm, and 0 and 2 pad for 8 cm ($p<0.05$).

Conclusions:

These results indicate that the use of foam pads has no effect on optical density or contrast at all breast thicknesses, and a minimal effect on average glandular dose, contrast-detail scores, and ACR phantom scores.