



Compression force and radiation dose in the Norwegian Breast Cancer Screening Program.

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Abstract: Compression force is used in mammography to reduce breast thickness and by that decrease radiation dose and improve image quality. There are no evidence-based recommendations regarding the optimal compression force. We analyzed compression force and radiation dose between screening centers in the Norwegian Breast Cancer Screening Program (NBCSP), as a first step towards establishing evidence-based recommendations for compression force.

The study included information from 17 951 randomly selected screening examinations among women screened with equipment from four different vendors at fourteen breast centers in the NBCSP, January-March 2014. We analyzed the applied compression force and radiation dose used on craniocaudal (CC) and mediolateral-oblique (MLO) view on left breast, by breast centers and vendors.

Mean compression force used in the screening program was 116N (CC: 108N, MLO: 125N). The maximum difference in mean compression force between the centers was 63N for CC and 57N for MLO. Mean radiation dose for each image was 1.09mGy (CC: 1.04mGy, MLO: 1.14mGy), varying from 0.55mGy to 1.31mGy between the centers. Compression force alone had a negligible impact on radiation dose ($r(2)=0.8\%$, $p=$

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