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Scientific paper

Radiation doses using digital breast tomosynthesis versus digital mammography in a population-based screening program

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Purpose: To compare radiation dose using digital breast tomosynthesis (DBT) versus digital mammography (DM) in the Norwegian Breast Cancer Screening Program (NBCSP).

Methods and Materials: As part of a randomized controlled trial performed at NBCSPs screening unit in Bergen, mean glandular dose (MGD) per exposure (mGy) for four standard images was collected for 3120 women screened with DM and 2412 women screened with DBT, January-June 2016. T-test and 95% confidence intervals (CI) was used to test for statistical significance between the means.

Results: Women screened with DBT had a mean MGD of 1.52 mGy (95% CI: 1.51-1.53) per exposure. This was statistically significantly higher compared with women screened with DM, with a mean MGD of 1.50 mGy (95% CI: 1.49-1.51, $p<0.01$) per exposure.

Conclusion: The results imply that screening with DBT results in a higher radiation dose than screening with DM. Though statistically significant, the difference in mean MGD might not be of clinical relevance (0.02 mGy).