

Digital Compared with Screen-Film Mammography: Performance Measures in Concurrent Cohorts within an Organized Breast Screening Program

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OBJECTIVE

To evaluate the performance of digital direct radiography (DR) and computed radiography (CR) compared with that of screen-film mammography (SFM) in large concurrent cohorts.

MATERIALS AND METHODS

The study involved over 816,000 screening examinations on women aged 50 to 74 enrolled in the Ontario, Canada breast screening program. The study population was divided into three cohorts; one was screened with SFM and the other two with digital mammography (DR or CR technology).

RESULTS

	Screen Film Mammography	Digital Radiography	Computed Radiography
Cancer Detection Rate (cancers per 1000 mammograms)	4.8	4.9	3.4
Recall Rate (%)	7.4	7.7	6.6
Positive Predictive Value (%)	6.6	6.4	5.2

CONCLUSION

Although DR is equivalent to SFM for breast screening among women aged 50–74 years, the cancer detection rate was significantly lower for CR making CR 21% less effective among all screening examinations. Screening programs should monitor the performance of CR separately and may consider informing women of the potentially lower cancer detection rates.

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