examination (CBE), annual mammography and annual contrast-enhanced breast magnetic resonance imaging (MRI). However, false positive rate of MRI is high, leading to further investigations, patient burden, and extra costs. Therefore, we evaluated the results of such intensive surveillance, including the medical consequences and costs of false positive results.

Methods: 196 women carrying a BRCA1 or BRCA2 mutation underwent the intensive surveillance program between September 1999 and 2005. In case of an abnormal investigation, further examinations (consultation, ultrasound, biopsy, MRI, mammography) were performed. An abnormal finding was defined as a suspected palpable mass or abnormal lesion on mammography or MRI.

Results: In 6 years 196 women were controlled with a median follow up of 2 years (544 woman years). For standard surveillance procedures were performed: 1149 (2% abnormal) CBE's, 494 (9% abnormal) mammograms and 436 (14% abnormal) MRI scans. Abnormal result led to the following additional investigations: 32 CBE's, 114 ultrasounds, 17 mammograms, and 64 MRI scans. Invasive breast examination by histological biopsy was performed 48 times: 31 guided by ultrasound, 10 by MRI, 4 stereotactic, and 3 by surgical procedure.

The costs of the standard (clinical and radiographic) surveillance amounted €138,169.− (€254.− per woman year). The extra costs of the further (radiographic and histological) investigations amounted €33,022.− (€61.− per woman year). During the period of 6 years 13 cancers were detected: 11 invasive cancers (9 by surveillance and 2 interval cancers) and 2 in situ ductal cancers.

Conclusions: Total (clinical, radiographic and histological) costs of intensive surveillance of BRCA mutation carriers are only €315.− per woman year. However, the total costs to detect 1 breast cancer are high (€13,168.−).

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Radiographer gender in a population breast screening programme – would it matter?

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BreastCheck, the National Breast Screening Programme, screens women aged 50–64 years in the Republic of Ireland. Radiographer recruitment has been a challenge for the programme; expansion of the programme to the south and west of the country has just commenced and a doubling of numbers is now required. There has been little research regarding attitudes to male radiographers for mammography, particularly in the screening rather than symptomatic setting. The aim of this study was to document attitudes to male radiographers and effect on the programme performance parameters.

A postal questionnaire was completed by 85.8% of a random sample of 2,000 women recently screened by BreastCheck with 'normal' outcome.

The commonest reaction women felt they would have if there were a male radiographer was embarrassment; significantly greater among those attending a static unit (45.6%) than mobile (38.4%) and in younger women (46%) than older (38.7%). Almost 9% would not have proceeded if the radiographer was male and 9% would only have proceeded if female chaperone present. 17.5% (95% CI 15.7%-19.4%) agreed with the statement "If there were male radiographers I would not return for another screening appointment"; 18.3% were unsure. One-quarter agreed that "if I heard there could be male radiographers it would change my opinion of BreastCheck for the worse". However 78% (95% CI 76%-80%) agreed that "having my breast screening performed is more important to me than any concern about the gender of staff dealing with me". The proportions agreeing with these statements did not vary significantly by screening unit or mobile, age group, area of residence or insurance status.

To-date female radiographers have been employed BreastCheck. Male radiographer recruitment would impact on screening uptake, which must surpass 70% in order to achieve desired mortality reduction. This is the largest international study to date of this issue; the correct balance between equality and programme performance must be identified.

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The results of 9,439 screening telemammography using computed radiography (CR) softcopy

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Background: Resent progress of digital technology has overcome the problems of digital mammography including the resolution of monitor. The results of several large clinical trials demonstrated the equality of digital and film screen (F/S) mammography in breast cancer screening. The number of digital mammography is increasing in Japan and the majority of them are computed radiography (CR) systems because introduction cost of CR is cheaper than that of full field digital mammography (FFDM). We have started telemammography screening using CR softcopy since 3 years ago.

Materials and Methods: Since Jun 2005, using high resolution monitor (5M pixels), the expert mammographers have interpreted screening mammograms of about 15,000 cases, transmitted over optical fiber from the screening clinic where mammograms were taken with CR mammography system and compressed softcopy was made according to DICOM standard. And now, we are constructing a new telemammography network connecting 4 more screening facilities to our institute, funded by Japanese ministry of welfare and labor.

Results: In the first two years, we had interpreted the mammograms of 9,439 cases in this system, and the recall rate, breast cancer detection rate and positive predictive value were 6.79%, 0.36% and 5.3%, respectively. These results were not inferior to those of the other screening programs using film-screen mammography in Japan.

Conclusions: The preliminary result of our screening telemammography system using CR softcopy was adequate. This telemammography system might be a good model to utilize the situation that the majority of digital mammography is CR in Japan.

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Breast MRI screening in Asian women with high familial risk of breast cancer

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Background: The purpose of this study is to assess the feasibility and performance of breast MRI screening in Asian women with high familial risk of breast cancer.

Materials and Methods: Forty-two asymptomatic women attending our centre in the last 3 years (Dec 2004 to April 2007) who had a cumulative lifetime risk of breast cancer of 15 percent or more, were recruited. They underwent mammography, breast ultrasound and breast MRI which were interpreted prospectively and independently; and scored using the ACR BI-RADS reporting system. Confirmation of imaging results was obtained via histopathology for BI-RADS categories 4 and 5 and subsequent follow-up breast imaging for BI-RADS categories 1−3.

Results: The mean age of the subjects was 40.4 years. The youngest candidate was 24 years and the oldest 52 years. The average length of follow-up at this juncture was 17 months with the longest follow up period being 27 months. No interval cancer has occurred in the interim. One cancer was detected solely by MRI while another cancer was visible on all 3 modalities. The sensitivity of mammography, ultrasound and MRI for detecting breast cancer was 50 percent, 50 percent, and 100 percent respectively, and the specificity was 95.1 percent, 85 percent, and 95.1 percent respectively. The overall discriminating capacity of MRI was significantly better than that of mammography or ultrasound ($P < 0.05$). Analyzing the receiver operator characteristic curves plotted from the BI-RADS score for each modality, the area under the curve for MRI was the largest, indicating it was the best test ($P < 0.05$).

Conclusion: Despite the small sample size, preliminary results show that breast MRI screening in the context of high familial risk Asian women is feasible with a cancer detection rate of 0.047%. This compares favorably with that achieved by breast MRI screening trials performed in Caucasian women. In addition, the better performance of MRI highlights the poor sensitivity of mammography and ultrasound in screening for breast cancer in this category of women.

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Benefits and risks of breast cancer screening among women with a familial or genetic predisposition: validation of a simulation model using published data

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Background: Women at increased risk of breast cancer are often screened with mammography at relatively young ages during which the sensibility for x-rays is higher and the risk of radiation-induced tumours therefore is increased. Regarding the aim of regular screening to reduce the incidence and mortality rate, it is important to know, whether screening protocols