Results: Of the 18 community based programmes carried out (2006−09) 886 completed the questionnaire and its factor analysis revealed: limited knowledge/lack of education (n = 250), Limited funds (n = 200), Difficulty in accessing facilities (n = 135), family priorities (n = 122), unhelpful attitude of health workers (n = 103), religious/spiritual delays (n = 76). Out of 886 females who completed the questionnaire, 421 attended the breast screening service giving an uptake of 50% compared with an uptake of 35% in previous screening rounds (2003−06). Sample age was 20−55 yrs and 78% were married. Clinical breast examination was carried out in all while mammogram was done in (n = 324). Cases detected were ductal carcinoma in situ (n = 2) and cancer breast (n = 2). Pathologically both were infiltrating ductal carcinoma. Tumor staging: Stage II: n = 1, Stage IIIB: n = 1.

Conclusion: Factor analysis emphasizes regular screening awareness programmes, providing education, allocation of funds, accessible health care and trained health workers as major interventions to increase uptake of breast cancer screening, and to diagnosis this disease early.

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Physical examination is a valuable tool in the follow up of young women with a history of early breast cancer

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Background: Regular physical examination is recommended in follow up guidelines for breast cancer patients. The objective of this study is to assess the contribution of physical examination in addition to mammography in the early diagnosis of breast cancer recurrences.

Methods: The medical follow-up documents of 669 patients were reviewed. 127 contra-lateral breast cancers and 65 loco-regional recurrences in 169 patients were included. The contribution of physical examination over mammography was evaluated with the proportions of loco-regional recurrences or contra-lateral breast cancers detected by physical examination alone and were assessed stratified for type of recurrences and surgical modalities. The potential impact of patients' age and time from first tumour on the contribution of physical examination was evaluated with Chi-square tests.

Results: Seven (5.5%) out of 127 contra-lateral breast cancer recurrences and 13 (20.0%) out of 65 loco-regional recurrences were detected by physical examination alone. The contribution of physical examination in detecting loco-regional recurrences was not statistically different between patients after mastectomy and patients after breast conserving treatment (25.9% vs. 15.8%; Chi-square=1.014, P = 0.314). There was a trend that the contribution of physical examination is higher in women under 60 years of age than in patients over 60 years of age (14.8% vs. 6.7%; Chi-square=3.304, P = 0.069). There is no significant difference in the contribution of physical examination during the first 5 year and after the first 5 years since diagnosis of the primary tumour (8.0% vs. 13.3%; Chi-square=1.430, P = 0.232).

Conclusions: Some breast cancer recurrences would have been detected later without physical examination. Physical examination has a higher contribution in younger patients (<60).

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The effectiveness of breast cancer screening with MRI and mammography in women with a BRCA1/2 mutation

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Background: The objective of this study is to evaluate the effectiveness of screening with mammography and MRI in detecting breast cancer in BRCA1 or BRCA2 mutation carriers.

Methods: Women who were screened by a surgeon of the Family Cancer Clinic at least once in 2004–2006 were included. Breast cancer screening consisted of clinical breast examination twice a year and annual alternating MRI or mammography, where BIRADS $\geqslant$3 was considered as positive. Sensitivity, specificity, positive and negative predicting values (PPV and NPV) as well as the number needed to screen (NNS) to detect 1 early stage breast cancer, were calculated.

Results: During the screening period 305 mammographies and 256 MRIs were performed in 173 consecutive BRCA1/2 carriers. A total of 13 invasive ductal carcinomas were found of which 3 prevalent, 5 interval and 5 screen-detected carcinomas. The screen-detected and prevalent carcinomas were all diagnosed in stage I/II. Of the 5 interval carcinomas 1 was in stage III. The sensitivities of mammography and MRI were 67% and 71%, respectively. The PPV of mammography and MRI was 60% and 12%, respectively. The NPV was 99% for both tests. The NNS to detect one breast cancer for mammography as well as for MRI were about 50.

Conclusion: MRI has a higher sensitivity than mammography. However, as there are still carcinomas detected with mammography only, mammography is still warranted in breast cancer screening. Given the early stages of detected breast cancers, the current screening policy of BRCA 1/2 mutation carriers seems effective.

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The usefulness of telemammography using soft-copy computed radiography (CR) in screening program for Japanese women

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Background: Digital mammography machines are widely used across Japan, and the majority of them are computed radiography (CR) systems. Therefore, telemammography using soft-copy CR can compensate for the uneven national distribution of mammographers and radiologists in Japan. However, the evaluation of soft-copy interpretation of CR is still controversial because it is usually diagnosed using hard-copy. The purpose of this study is to elucidate the usefulness of telemammography using soft-copy CR in breast cancer screening.

Screenees and Methods: The mammograms of 18,549 screenees had been taken at Kochi Kenshin Clinic using Phase Contrast Mammography (PCM) systems (Konica Minolta Health Care Co. Ltd.) between July 2005 and September 2008. Digital data of them were made by Regius 190 (Konica Minolta), and then processed and compressed to the transferable sized soft-copy by Vox-base II (J-Mac System Inc.). Thereafter, the soft-copy CR were transferred to Kochi Medical School via optic fiber (provided by NTT West co.) and interpreted on 5 mega pixel monitor by the mammographers who were licensed by the central committee on quality control of mammographic screening.

Results: The recall rate was 6.1%, the cancer detection rate 0.33% and the positive predictive value 5.4%. These results were not inferior to those of Kochi prefectural screening program using analogue mammograms of 26,747 screenees (8.7%, 0.34% and 3.9%, respectively).

Conclusion: The long-term results of our telemammographic screening using soft-copy CR had not been inferior to those of analogue mammography. Telemammography using soft-copy CR might be one of promising strategies to overcome the uneven distribution of human resources that participate mammographic screening in Japan. Recently, we structured a mew telemammography network between our institute and five screening facilities including Kochi Kenshin Clinic.

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Ethnicity is a high risk for breast cancer: should we target screening of high-risk groups earlier?

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Background: Breast cancer screening in the United Kingdom is currently indicated in the 50−70 year age group. Previous studies have suggested that patients from minor ethnic groups, especially Afro-Caribbean's, have a worse prognosis after being diagnosed with breast cancer compared to the Caucasian population. We explored whether there are any ethnic differences in the incidence of breast cancer rates among women attending a busy breast clinic at a London University Hospital. We were especially interested in whether there are any benefits of screening the 41−50 year age group in the various ethnic groups.

Materials and Methods: This was a retrospective analysis identifying patients who attended the breast clinic with newly-diagnosed breast cancer. The data was retrieved from the Breast Cancer Registered Database. Our centre has observed one of the highest ethnic population attendance amongst the London Hospitals. The period of study was from March 2002 to March 2009. Patients with previous diagnosis of breast cancer, male patients and those patients not presenting at the Breast clinic were excluded from the study. From the data, the age specific breast cancer distributions (age 21–100 years) of various ethnicities were compared and statistically analysed. Odds Ratio, chi-squared, 95% confidence interval

and p-values were calculated between different ethnicities, for each age group.

Results: See the table.

Ethnicity	Age ranges (in years)								Total
	21–30	31–40	41–50	51–60	61–70	71–80	81–90	91–100	
Caucasian	4	52	176	233	264	168	66	7	970
Asian	3	7	19	20	14	5	2	0	70
Afro-Caribbean	4	30	67	39	45	18	2	0	205
Mixed	0	3	6	3	0	0	0	0	12
Mediterranean	1	2	11	14	12	9	0	0	49
Other	0	6	35	40	30	13	2	0	126
Total	12	100	314	349	365	213	72	7	1432

Conclusions: 32.7% of Afro-Caribbean, 27.1% of Asian, and 18.1% of Caucasian were in the 41−50 year age group. Interestingly, of the total population (1432 patients), 21.9% of patients were aged between 41−50. This study highlights racial and ethnic differences in the breast cancer incidence rates among women attending our hospital. We feel that, overall, the 41−50 age group represents a group that may benefit from a targeted screening programme. This study also provides evidence that women of Afro-Caribbean origin in the 41−50 year age group represent a high risk sub-group that will benefit most from efforts at earlier detection.

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Treatment cost of screen detected versus symptomatic breast cancer in a limited resource environment

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Introduction: Screen detected breast cancer (SDC) has a better prognosis than symptomatic breast cancer (SymC). There is a paucity of data on the cost of care impact of the method of detection in resource-restricted countries. We here present a detailed cost analysis of the primary treatment of SDC versus SymC.

Methods: From a prospective database of a breast health centre in Cape Town, South Africa, 100 consecutive cases each of SDC and SymC were identified from 2003 to 2008. Costs for all components of primary therapy for each patient were obtained from the individual service providers. Except for hormonal therapy, all systemic therapy had to be competed. Hormonal therapy costs were projected for the planned duration of treatment. All costs were calculated at June 2009 prices; one Euro converted to 11.5 South African Rand.

Results: The mean age in both groups was 55 years. TNM staging for SDC vs SymC was Stage 0: 60% vs 0%; stage I: 26% vs. 22% stage II 18% vs 57%, III 1% vs 18%, stage IV: 0% vs 3%. Of SDC, 50% were treated with breast conservation vs 49% of SymC. All SDC vs 97% of SymC had surgery as part of their treatment. One percent of SDC vs 33% of SymC had neo-adjuvant systemic therapy; 13% of SDC did not receive any systemic therapy. Forty-two percent of SDC vs 78% of SymC had radiotherapy. Eleven percent of SDC vs 62% of SymC had chemotherapy; 73% of SDC vs 80% of SymC had hormonal therapy and 4% of SDC vs 18% of SymC had biologicals. Surgical therapy costs (including pathology costs) were not different between the two groups (R 7,396,501.00 vs. R 7,227,512.00; $p = 0.908$). Radiotherapy costs were significantly lower in SDC (R 2,915,604.00 vs. R 4,421,621.00, $p = 0.002$). Systemic therapy costs were also significantly lower in SCD (R 6,808,637.00 vs. R 10,283,325.00; $p = 0.001$) as was the average treatment cost per case (R 171,207.24 vs. R 219,324.58; $p < 0.001$).

Conclusion: Even in a resource-restricted environment, screening leads to earlier diagnosis of breast cancer with improved survival and concurrent lower treatment costs. The high surgical costs and the relatively low breast conservation rate in screen-detected cancers require further investigation.

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Screening mammography read by breast surgeons: an audit of 10,020 examinations

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Introduction: Working in a resource restricted environment where there is a lack of dedicated breast radiologists, screening mammography was read by breast surgeons. We here present an audit of more than 10,000 screening examiantions to establish whether dedicated breast surgeons could deliver a reading performance similar to specialized breast radiologists.

Methods: All mammography performed at a dedicated, surgeon-run breast health centre between January 2003 and June 2009 was entered into a prospective database. Data recorded were: Age of the patient, indication for mammography, hormonal replacement therapy and its duration, prior breast surgery, the outcome of the mammography, abnormality characteristics and location and final histopathology. Women had to be 40 years of age or older, asymptomatic and without a personal history of breast cancer. Mammography was performed by certified mammographers initially on state of the art film-screen and from July 2006 on full-field digital equipment. Mammograms were double read by 2 experienced breast surgeons. Outcomes were classified in a simplified system based on BIRADS: BIRADS 3 and 4 lesions were summarized as indeterminate; these lesions proceeded directly to tissue acquisition, or underwent further imaging or had short-term follow-up imaging. BIRADS 5 lesions proceeded directly to tissue acquisition.

Results: Of 13,622 mammograms, 10,020 were performed for screening. In 40−49 year old women, 4177 screening mammograms were performed; of these, 7.8% were performed in women on hormonal replacement therapy (HRT); in 24% prior breast surgery had been performed. The recall rate was 4.3%; the biopsy rate 1.7% and the cancer diagnosis rate 4.1 per 1000 examinations. The malignancy rate of biopsy was 23%.

In women 50 years and older, 5843 mammograms were performed; of these, 50.0% in women on HRT, in 31% prior breast surgery had been performed. The recall rate was 5.0%, the biopsy rate 2.3%, the cancer diagnosis rate 11.5 per 1000 and the malignancy rate of biopsy 49%.

Of the cancers detected, 36% were in-situ and of invasive cancers, 85% were node-negative. The average size of invasive cancer was 11.9 mm.

Conclusions: These figures established by a dedicated, surgeon-led team fall well within the range expected in organized national screening programs run by specialized breast radiologists in Europe and Australia. With far fewer recalls, a lower biopsy rate with a higher malignancy rate of biopsy and a high cancer detection rate, these figures exceed those expected of highly skilled radiologists in the United States. They provide a first benchmark for surgeon-read screening mammography.

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Implementation and progress review of a nurse-led family history risk assessment clinic

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Background: A nurse-led breast cancer family history risk assessment clinic was set up in response to local need and to implement national guidelines. The purpose of the clinic was to identify women who were eligible for early mammographic screening and to refer those in the increased risk group to the regional genetics unit to consider genetic testing. The form of the clinic followed previously suggested models. The Consultant Nurse undertook training in cancer family history risk assessment and the regional genetics service provided ongoing support and clinical supervision.

Material and Methods: Patients were referred directly to the clinic by their family doctor and risk stratified using a national assessment tool. Following initial assessment by the nurse, patients were referred for mammographic screening if indicated and further interventions as dictated by initial imaging findings.

Results: From October 2007 to March 2009 176 patients were referred. Nineteen of these declined the appointment, 18 were at average risk only and were reassured by letter only and 10 were known breast cancer patients under routine follow-up who requested genetic testing. This left a cohort of 129 patients, of whom 52 were at moderate risk with 35 eligible for annual mammography and with 77 at increased risk with 38 eligible for annual mammography. A total of 73 patients underwent mammography − 55 of these had benign mammographic findings and 17 had indeterminate mammography. Further investigations confirmed normal/benign findings in 15/17 with atypical ductal hyperplasia and ductal carcinoma in-situ (DCIS) found in the remaining 2. One patient had malignancy on mammography, confirmed as high grade DCIS on excision.

Of the 77 patients in the increased risk group 50 were referred to the regional genetic unit for further assessment and to discuss the possibility of genetic testing within the family. The results from genetic testing to date have shown 6 to have tested BRCA negative and 2 to have tested BRCA positive.

Conclusions: a nurse-led breast cancer family history clinic model is effective in identifying patients at increased risk, leading to appropriate breast screening, genetics referral and diagnosis.