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**An International Comparison of Cost-effectiveness of Breast Cancer Screening Strategies for Women at Increased Risk**

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**Introduction:** For women with a *BRCA1* or *BRCA2* mutation or a strong family history of breast cancer (*BRCAu*), the screening strategies in the US, the UK and The Netherlands use different approaches in MRI and mammography. The US strategy is the most intensive where mammography and MRI are performed every year from age 25, the UK strategy is the least intensive where mammography and MRI are done from age 30 every year and only mammography from age 50 to 70 every 3 years, and the Dutch strategy is intermediate. In order to optimize screening, i.e. to find the most effective screening at reasonable costs, the aim of the present study is therefore to evaluate the cost-effectiveness of these screening strategies.

**Method and Materials:** A recently validated simulation model was applied to the current US, UK and Dutch screening strategies as proposed in their national guidelines. Main outcome were the life years gained, the costs and their ratio, the cost-effectiveness. Cost parameters included were the costs of screening, diagnostics and therapy and hospital stay. Each screening simulation was performed with 10,000 women and the simulation parameters were based on published data.

**Results:** For *BRCA1* and *BRCA2* mutation carriers no significant differences in cost-effectiveness were found. However, the number of life years gained and costs in the Dutch and US screening strategies were significantly higher than in the UK screening strategy. Although the US strategy had the highest costs, no improvement in life years gained was observed as compared to the Dutch screening strategy. For *BRCAu* women, the most cost effective screening scenario was the UK screening strategy and the least cost effective screening scenario was the US screening strategy ($p < 0.05$). No significant difference was found in life years gained. However, the US screening strategy showed an excessive increase in costs.

**Conclusion:** For women with a *BRCA1* or *BRCA2* mutation the US, UK and Dutch screening strategies are equally cost-effective, but the number of life years gained was lowest in the UK protocol. For women with only a strong family history of breast cancer the UK screening strategy is the most cost-effective and the US screening strategy is the least cost-effective.

**Clinical relevance:** This study provides information that can be used for optimisation of national screening guidelines for women at a hereditary or familial increased risk of breast cancer.

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**Breast Cancer Incidence and Case Fatality Among 4.7 Million Women in Relation to Social and Ethnic Background: a Population-based Cohort Study**

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**Background:** Incidence of breast cancer is increasing around the world and still it is the leading cause of cancer mortality in low- and middle-income countries. We utilized Swedish nationwide registers to study breast cancer incidence and case fatality to disentangle the effect of socioeconomic position (SEP) and immigration from the trends in native Swedes.

**Materials and Methods:** A nation-wide cohort of women in Sweden was followed between 1961 and 2007 and incidence rate ratio (IRR) and hazard ratio (HR) with 95% confidence intervals (CIs) were estimated using Poisson and Cox proportional regression models.

**Results:** Incidence continued to increase however it remained lower among immigrants (IRR = 0.88, 95% CI = 0.86 to 0.90) but not among immigrant's daughters (IRR = 0.97, 95% CI = 0.94 to 1.01) compared to native Swedes. Both cause-specific and all-cause case fatality decreased over the last decades and was similar in native Swedes and immigrants. However, cause-specific case fatality was significantly higher among immigrants if cancer was diagnosed after age 50 or in the most recent years. Women with the highest SEP had significantly 20% to 30% higher incidence but had 30% to 40% lower cause-specific case fatality compared with women with lowest SEP irrespective of country of birth. Age at immigration and duration of residence significantly modified the incidence and cause-specific case fatality.

**Conclusions:** Disparities found in case fatality among immigrants by age, duration of residence, age at immigration and country of birth emphasize the importance of targeting interventions on women that are not likely to attend screening or not likely to adhere to the therapy suggested by physicians.

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**Comparison Between Screen-detected Invasive Breast Cancer and Symptomatic Breast Cancer According to Immunohistochemical Intrinsic Subtypes**

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**Background:** The screening program aims to detect early breast cancer to improve survival. We investigated the clinicopathrogical characteristics, immunohistochemical intrinsic subtypes, and outcome of screen-detected invasive breast cancer (S-DIBC) compared with symptomatic invasive breast cancer (SIBC).

**Material and Methods:** From January 2005 to December 2010, 715 patients with invasive breast cancer who underwent surgery at our hospital were included. Among them, there were 155 S-DIBC. We retrospectively reviewed the clinical and pathologic data. Ki67 LI was categorized as low (<14%) and high (> or =15%) in IBC. Cases were classified as luminal A (ER+ and/or PR+, and HER2- and Ki67 low), luminal B (ER+ and/or PR+, and HER2+ or Ki67 high), HER2 disease (ER−, PR−, HER2+), or triple negative (ER−, PR−, HER2−). Overall survival (OS) and disease-free survival (DFS) curves were generated using the method of Kaplan and Meier. Survival comparisons were made with the log-rank test. The level of significance was taken to be 0.05. SPSS 18.0 software package was used for statistical analysis.

**Results:** S-DIBC was associated with smaller tumor size ($p < 0.001$), less lymph node involvement ($p < 0.001$), and earlier stage compared ($p < 0.001$) with SIBC ($p < 0.001$). Significantly more tumors were positive for hormone receptors and had a negative HER2 status in the S-DIBC group as compared to the SIBC group (ER+, 81.8% vs.74.7%, $p = 0.040$; PgR+, 69.7% vs. 50.1%, $p = 0.009$; HER2−, 89.0% vs. 85.7%, $p = 0.175$), with a greater proportion of the luminal A subtype in the S-DBC group (S-DBC: Luminal A 59.4%, Luminal B 23.9%, HER2 disease 5.2%, triple negative 11.9%; SBC group: Luminal A 46.5%, Luminal B 29.7%, HER2 disease 7.2%, triple negative 16.3%, $p < 0.04$). Patients with S-DBC had better prognosis [5-year OS: 100% (S-DBC) vs. 90.9% (SBC), $p = 0.004$, 5-year DFS: 96.1% vs. 89.7%, $p = 0.011$].

**Conclusions:** Screening mammography can detect early breast cancers as well as less aggressive phenotype, luminal A tumors.

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**Contra-lateral Breast Cancer − A 5 Year Clinical Study**

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**Introduction:** Breast cancer is now the commonest cancer and leading cause of cancer death in Indian women. Contralateral breast cancer is defined as the occurrence of a second, independent primary breast cancer in the other breast after the initial diagnosis of breast cancer. Current data suggest that between 2% and 11% of patients diagnosed with breast cancer have or will develop bilateral disease. The study of contralateral breast cancer is becoming public health issues and of etiological interest because of the increased incidence of primary breast cancer and improved survival.Since there is lack of universal criteria for a contralateral breast cancer,the present communication is a study to evaluate the role of various factors on the occurrence and pattern of contralateral breast cancer.

**Material and Methods:** The study comprised of 266 proven patients of breast cancer seen and treated with various modalities between 1st January 2002 to 31st December 2006 Department of Radiotherapy, Christian Medical College, Ludhiana. A detailed analysis in cases of contralateral breast cancer were carried out with respect to age, menopausal status, family history, disease stage, histopathology, hormonal receptor status and the use of chemotherapy or hormonal therapy.

**Results and Analysis:** Contralateral breast cancer was found in 3% of the patients. The timeto occurrence was 2 to 20 years,Median time being 6.5 years. Metachronous presentation was 75% in contrast to synchronous being 25%. Mean age of presentation was 43.25 years and mean parity was 3.125. Seventy five percent were premenopausal women and 25% were postmenopausal women. Family history for breast cancer was found in 37.5% of the patients. Twenty five percent patients received neoadjuvant chemotherapy and 50% patients adjuvant chemotherapy. All patients received external beam radiotherapy. Mean time duration between first and second malignancy was 9 years in ER+ & PR+ patients, 8.6 years in ER− & PR− patients and 3 years in HER−2/neu + patients. Sixty two percent of patients received tamoxifen as hormonal therapy where as 38%