

**Quality Indicators of the First Round (2002–2003) of the Hungarian Organised,  
Nationwide Breast Cancer Screening Program**

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**Abstract**

**Background:** During the late 1990s there were some local pilot projects for mammography screening in Hungary. After the evaluation of the results of the pilot projects, a nationwide organised breast cancer programme was introduced in January 2002 in Hungary for women aged 45–65, and a 2-year screening interval was applied.

**Objective:** The aim of this poster is to give an overview of organisational issues of the Hungarian nationwide organised breast cancer screening programme and to provide results of the first screening round of the programme for the years 2002–03.

**Methods:** Data derive from the financial database of the National Health Insurance Fund Administration (OEP) covering the period 2000–03. Women who underwent mammography screening were included in the study.

**Results:** Uptake of the organised screening programme in 2002–03 was 45.09%, and the recall rate was 7.23%. Malignant cases represented 65.38% of total surgeries and 0.36% of the total number of screened women, yielding a cancer detection rate 3.6 per 1,000 screened women. Some 10.78% of malignant cases were identified as ductal carcinoma in situ (DCIS), and 89.22% were invasive cancer. The benign to malignant ratio was 0.54:1.

**Conclusion:** Mammography coverage increased significantly after the introduction of the organised breast cancer screening programme. However, the participation rate was substantially lower than recommendations of the European Guidelines. There is, therefore, an urgent need to review programme policies and procedures with the aim of increasing both the participation rate and the proportion of women eligible to attend screening.

## **Evaluation of the Swiss Mammography Screening Programmes and Comparative Performance of Organised Versus Opportunistic Screening**

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Keywords: Switzerland, screening quality, evaluation, organised versus opportunistic mammography screening

### **Abstract**

**Background:** Swiss health insurance regulation has limited reimbursement of organised screening mammography to a period of 10 years, ending in December 2007. Continued reimbursement of this screening test within a programme necessitated the most comprehensive analysis of breast cancer screening ever performed in Switzerland.

**Objectives:** To extensively evaluate all Swiss regional screening programmes and compare prognostic indicators between screened and unscreened women, both within and outside regions covered by a programme.

**Methods:** Performance of regional programmes was assessed according to European Guidelines. Detection and screening modalities (organised versus opportunistic screening, unscreened, interval cancers) were obtained by data matching with population-based Swiss cancer registries. Analyses focused on the three oldest programmes (Geneva, Vaud, and Wallis), which, though very similar in their organization, had different reading strategies.

**Results:** Screening performances met most European standards, and a substantial stage shifting was observed. Most of the variations in performance across programmes could be ascribed to reading strategies. Opportunistic and organised screening yielded little difference in prognostic profile in regions that offered organised screening. Breast cancer prognostic indicators were systematically more favourable in Swiss regions covered by a programme. In regions without a screening programme, the higher the prevalence of opportunistic screening, the better the prognostic profile.

**Conclusion:** Mammography screening has influenced the stage distribution of breast cancer in Switzerland, and a favourable impact on mortality is anticipated. Organised screening was as effective as opportunistic screening, a finding that, to date, few studies have been able to explore. Extension of organised mammography screening to the whole of Switzerland is warranted.

**Mean Sojourn Time and Risk of Breast Cancer by Conventional Risk Factors,  
Genetic and Epigenetic Markers Estimated by Multi-state Model: Implication for  
Personalized Breast Cancer Screening**

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Keywords: multi-state predictive model, personalized medical screening, genetic counseling

**Abstract**

**Background:** Personalized medical screening in conjunction with genetic counseling for breast cancer has increasingly gained attention given a body of evidence on genetic and non-genetic influences.

**Objectives:** We aimed to develop a multi-state predictive model to assess how factors affect initiation or subsequent progressions and to demonstrate its applications to personalized medical screening and genetic counseling based on pedigree data.

**Methods:** A 3-state model was constructed to delineate the disease natural history from normal, pre-clinical screen-detectable phase, and clinical phases. Major gene, epigenetic factors, clinical and personal attributes abstracted from literature were incorporated to build a covariate-specific multi-state model. A hypothetical simulated cohort was created and used to estimate the relevant transition parameters.

**Results:** Annual incidence rate was estimated as 0.108% for the carrier of BRCA1, 0.0437% for BRCA2, and 0.152% for both, compared with 0.009% without two genes. The mean sojourn time was estimated as 3.04 years for Ki67 gene expression, 1.86 years for c-erbB2 gene expression, and 1.16 years for both gene expressions, compared with 9.65 years in the absence of both factors. Bayesian revision algorithm together with the proposed 3-state, covariate-specific model was applied to estimate the carrier probability of major genes and cumulative risk of early and advanced breast cancer by various combinations of covariates based on pedigree information.

**Conclusion:** We demonstrated how to develop a predictive multi-state model using the existing biological information to offer information on personalized medical screening and genetic counseling.

## **Evaluation of the BreastScreen Australia Program**

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Keywords: evaluation, breast cancer screening

### **Abstract**

**Background/purpose:** BreastScreen Australia, the national breast cancer screening program, was established in 1991 and has been fully operational across Australia for over 10 years. Sufficient cohorts of women have now participated to allow an examination of the program's outcomes. A comprehensive evaluation of BreastScreen Australia was commenced in 2006 and is expected to be completed in 2008.

**Objective:** The objectives of the evaluation are to assess program outcomes; the extent of achievement of the program's aims and objectives; and the appropriateness, efficiency, and effectiveness of the program. The evaluation will also assess and address unresolved policy issues and identify opportunities for improvement.

**Methods:** The evaluation will consist of a range of projects aimed at assessing health outcomes—both the benefits in terms of reduction in breast cancer death rates and the risks associated with screening; process outcomes—efficiency of the implementation of the program; cost-effectiveness of the program; policy issues such as appropriate target age range and screening interval; and the program's capacity and future demand. The evaluation is guided by an advisory committee whose members include Australian and international experts and consumer representatives.

**Results:** The evaluation will consist of a number of individual projects that will address the evaluation's terms of reference.

**Conclusion:** This poster will present results of the evaluation to date and insights into the evaluation of a national screening program.

## **The Impact of BreastScreen Australia on Mortality for Breast Cancer**

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Keywords: breast cancer mortality, evaluation, breast cancer screening

### **Abstract**

**Background/Purpose:** BreastScreen Australia, the national breast cancer screening program, was established in 1991. A comprehensive evaluation of BreastScreen Australia is due for completion in 2008. This paper will report on research undertaken to identify the impact of the program on mortality from female breast cancer.

**Objective:** This research was conducted as two discrete projects. The objective of the first project, the methodology study, was to develop and rank design options for evaluating the effects of BreastScreen Australia on mortality from female breast cancer. The objective of the second project, the mortality study, was to identify the impact of participation in BreastScreen Australia on the mortality from female breast cancer, using the methodology determined from the first study.

**Methods:** The methodology study involved a comprehensive literature search and review of Australian and international evidence. It compared the relative advantages and disadvantages of each method against a range of criteria including value of evidence, ease of implementation, risk of unsuccessful implementation, anticipated cost, and likely time to complete the study.

**Results:** The methodology study developed nine design options, each of which were ranked against the agreed criteria. This poster will outline the proposed options and their ranking.

**Conclusion:** The recommended option of an ecological study of association of BreastScreen participation with breast cancer mortality by statistical local area was selected for the mortality study. Results of the ecological study to date will be presented.

**Associations Between the Process and Outcome of Organised Mammography Screening in Finland**

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Keywords: breast cancer, screening, performance, validity, mortality, efficacy

**Abstract**

**Background:** Wide variation in the performance and validity within and between mammography programmes suggests differences in the screening outcome.

**Objectives:** To report associations between the screening performance and the incidence-based mortality from breast cancer in Finland.

**Methods:** The study was based on individual followup of screening invitees and participants from 1992–2003. Observed deaths from breast cancer were compared with expected breast cancer deaths in the absence of screening in ages 50–69 at death in three screening centre categories. The categorisation of centres reflected variation in the screening specificity and was based on centre-specific recall rates at the subsequent screens. The recall rates correlated inversely with the incidence of interval cancers. Observed deaths were obtained from a cohort of individual invitees (n=361,848). Expected deaths were defined by modeling breast cancer mortality for 1975–85 and 1992–03 at population level.

**Results:** In the three centre categories grouped by ascending order of recall rates (low, intermediate, high), the risk ratios among the screening invitees were 0.83 (0.67–1.01), 0.71 (0.58–0.85), and 0.79 (0.60–1.02). After adjusting for self-selection, no clear association between the screening efficacy and the recall rates could be found.

**Conclusion:** Variation in the efficacy of mammography screening does not necessarily follow similar patterns as variation in the performance. Other fields of health care may affect breast cancer mortality (e.g., through accumulation of breast cancer deaths from interval cancers). The non-straightforward relationship between the process and outcome of mammography challenges the monitoring and development of screening quality.

**Audit System on Quality of Breast Cancer Diagnosis and Treatment (QT): Results from the Survey on Screen-Detected Lesions in Italy**

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Keywords: breast cancer, screening, quality of care, monitoring

**Abstract**

This survey on diagnosis and treatment has been conducted yearly since 1997 by the Italian Breast Cancer Screening Network (GISMa) and covers more than 50% of all screen-detected operated breast lesions in Italy. Individual data are recorded in the QT Audit system, a clinical database. In the time period 2000–05, about 15,000 lesions detected by 50 screening programmes in 10 Italian Regions have been recorded. Outcome measures that are being monitored are from Italian and European (European Guidelines on QA in Mammography Screening) guidelines.

Results show overall a good quality of diagnosis and treatment and an improving trend over time. Critical points have been identified concerning waiting times and compliance to the recommendations on not performing frozen section on small lesions and on performing specimen x-ray. Pre-operative diagnosis has reached the acceptable target (70%), but room for improvement still exists. In three-quarters of screen-detected invasive cancers the sentinel lymph node technique (SLN) has been performed on the axilla, avoiding a large number of potentially harmful dissections. On the other hand, potential overuse of SLN deserves further investigation.

Detailed results are distributed every year to local and regional screening programmes in order to allow multidisciplinary discussion and identification of appropriate solutions to any problem documented by the data. Specialist Breast Units with adequate case volume would provide the best setting for making audits effective in producing quality improvement.

**Diagnostic Assessment of Abnormal Mammography Findings. A Multi-Center Project in European Mammography Screening Programs**

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**Abstract**

The European Breast Cancer Network (EBCN) at the study time included 25 screening programmes. Ten programmes from seven countries (Belgium, France, Germany, Italy, Luxembourg, Spain, United Kingdom) agreed to participate in this study. All centres collected individual data on consecutive assessment episodes, defined as the diagnostic work-up of a lesion following a positive screening test, during approximately 1 year. Data were entered on the QT Audit System. Thirty-five quality indicators of the assessment procedures were identified on the basis of ongoing guidelines and as a result of a multidisciplinary consensus meeting attended by international experts that was held before the data collection. Indicators were meant mainly to evaluate the diagnostic accuracy of physical examination, image techniques, tissue sampling modalities, and waiting times.

Individual patient data on 5,513 consecutive assessment episodes have been collected. The first assessment episode was on December 2000 and the last on August 2003. Seven out of ten centres met the target of at least 300 recruited patients. Some of the measured performance indicators have numerical standards set by existing guidelines. One example is preoperative diagnosis. For this indicator, the desirable target is 90% and the acceptable target is 70%. Results were below the acceptable standard for one-half of the centres, with only one centre reaching the desirable target. Overall, results show that most of the targets were not out of reach, but still were not met by many mammography screening programs in Europe.

**Occult Breast Carcinoma in Reduction Mammoplasty Specimens in One Spanish Institution**

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Keywords: reduction mammoplasty, occult breast carcinoma

**Abstract**

**Background:** Reduction mammoplasty is one of the most common procedures performed in Spain by the plastic surgeon. Occult carcinoma has been detected in 0.06 to 0.4% of breast reduction specimens.

**Objective:** To examine the incidence of breast cancer in breast reductions performed in one institution over a 6-year period.

**Methodology:** In this retrospective study of 292 women who underwent reduction mammoplasty from January 1999 to December 2004, procedures are divided into three groups: macromastia, congenital asymmetry in patients without known cancer, and contralateral reduction performed to improve reconstruction symmetry in patients with known cancer. The pathologic findings were classified in normal breast tissue or benign breast disease, lesions of uncertain malignant potential, and carcinomas (in situ and invasive).

**Results:** Cancer was detected in five specimens (1.7%): two invasive cancers, two ductal carcinoma in situ, and one lobular carcinoma in situ. In the reconstruction group, invasive cancer was detected in 1.5% and ductal carcinoma in situ in 1.5%. No cancer was detected in the congenital asymmetry group. In the macromastia group, lobular carcinoma in situ was detected in 0.7%. The mean age of patients with cancer was 54.7 years old. Lesions associated with a mildly increased carcinoma risk were identified in 12 cases (4.1%): seven in macromastia and five in reconstruction.

**Conclusion:** Histopathological examination should be done routinely in reduction mammoplasty specimens to detect carcinomas or lesions associated with an increased risk of developing breast carcinoma and so to treat them in an earlier stage.