1005 clinic attendees were assessed. 310 women (31%) were low risk, 584 (58%) were moderate risk, and 111 (11%) were high risk. We continue to follow up 511 women (51%). These are the 386 (38%) moderate risk women aged 35–50, the 111 (11%) women over 35 years classified as high risk, and 10 women (1%) who declined discharge. After accurate risk assessment 503 (50%) women attending for screening were eligible for discharge to primary care and/or the national breast screening programme. Overall 995 women (99%) complied with their revised management plan.

Current guidelines and a multi-disciplinary team approach have helped to more clearly define women who should have surveillance due to their family history, allowing them to avoid potentially harmful investigations, and significantly reducing the surgical clinic workload.

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Breast cancer screening is associated with increased appropriateness of surgical treatment

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Introduction: On the basis of a review of the trials on breast screening with mammography, it has been claimed that screening increases mastectomy rates. However, the point is not mastectomy rates, but whether screening modifies breast surgery appropriateness. We describe the situation of breast cancer surgery in the late 1990s in Italy and the impact of screening services on its appropriateness.

Materials and Methods: We collected population data on areas from six Italian regions on all incident cases of in situ and invasive breast cancer in women aged 40 to 79 years from 1997 to 2001. We classified cases according to method of detection in screen detected (SD) at first test, SD at subsequent tests, not screen detected (NSD) with a previous screening test, NSD never compliers and NSD never invited; we also evaluated screening by intention to treat (ITT) according to invited and non invited categories.

Results: We enrolled 2162 in situ and 21,148 invasive breast cancer cases. Overall, 61.1% of cases underwent BCS, with a constant increase during the period of study. The proportion of BCS was around 80% for pTis and pT1a and pT1b, but was less than 50% for cases pT2 $\leqslant$ 30 mm. 75% cases SD at first test and 83% cases SD at subsequent tests had BCS, compared to two thirds cases NSD with a previous screening test and about 50% in those never invited to screening.

At multinomial analysis on cases pTis and pT $\leqslant$ 30 mm, the OR for mastectomy (adjusted by year of diagnosis, age, size of the tumour, method of detection and Centre) decreased by 9% per calendar year. Compared to cases NSD never invited, the odd for mastectomy showed a statistically significant reduction by one third and by half in cases SD at first and subsequent test, respectively, and was reduced by 15% in cases NSD with a previous test. In the analysis by ITT the odd for mastectomy was significantly lower for cases invited to screening (OR 0.74, at $p < 0.001$).

Conclusion: In the late 1990s in Italy there has been an increase in appropriateness of breast surgery, with a reduction of mastectomies in small lesions. The risk of inappropriate mastectomy was lowest in cases screen detected; screening had a positive effect also on cases NSD with a previous screening test, partly due to patients referring to screening' diagnostic and therapeutic services.

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Histological upgrade of atypical ductal hyperplasia diagnosed with percutaneous core biopsy. A review of 58 Chinese patients

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Introduction: Management of atypical ductal hyperplasia (ADH) diagnosed with core biopsy/vacuum assisted biopsy device was usually followed with surgical excision because of its association with malignancy. However, this potentially leads to over-treatment for patients. The present study was to review the upgrade rate for ADH and to identify any predicting factor for upgrade over 5 years period in our centre.

Design of study: Those patients presented with mammographic microcalcifications only and with percutaneous core biopsy yielded ADH were recruited. Wire-guided biopsy was advised to all patients. Histological upgrade was defined as detection of ductal carcinoma in situ (DCIS) or invasive ductal carcinoma (IDC) in subsequent surgical biopsy. Predicting factors for histological upgrade were analyzed using univariate analysis and statistical significance was tested using Chi-Square test.

Results: From July 2000 to June 2005, there were 58,436 patients attending our mammogram screening clinic. Stereotactic biopsies were performed for 625 patients presented with abnormal microcalcifications. 58 Chinese patients had ADH on stereotactic biopsy. 48 patients had subsequent surgical excision and were included in the present study. An upgrade rate of 29% was found. 13 patients had DCIS and 1 patient had IDC. Non-cribriform pattern in histology was found as a statistical significant predicting factor of upgrade when compared with cribriform pattern; 53% (8/15) compared with 18.2% (6/33) ($p = 0.013$). Complete removal of microcalcifications during core biopsy was associated with 20% upgrade, whereas incomplete removal with 31.6%, however, the result was not statistical significant ($p = 0.474$).

Conclusions: Surgical excision is recommended after atypical ductal hyperplasia is diagnosed with core biopsy for mammographic microcalcifications. Our series demonstrated an overall upgrade of 29%. Non-cribriform histological pattern was found to be a significant predicting factor for histological upgrade.

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Results of the new French breast cancer screening programme for year 2003

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The French national breast cancer screening programme set up in 1994 after a pilot phase, was implemented in 32 districts. Evaluation of this decentralised programme showed a good quality but a poor attendance, clearly indicating that this programme was not accepted. The French department of health therefore developed a new protocol which was implemented in 2002. National coverage of the programme with this new protocol, targeted to women aged 50 to 74, was achieved in the first quarter of 2004. The results of the new programme are presented.

Methods: The new protocol comprised, every two years, a systematic clinical breast examination, two views, immediate assessment by the first reader (R1) in case of abnormal mammography, centralised double reading of all normal mammographies by a restricted number of radiologists (R2). Data is collected on a yearly base by the National public health institute (InVS). Data for year 2003 59 districts were available for analysis.

Results: A total of 831,445 women attended the new programme in 2003. The attendance rates reached 32% varying from 20 to 60% one district to another. Abnormal mammography rate before assessment reached 13.8% and 3.6% after immediate assessment. True recall rate after R2 was 2%. Abnormal clinical examination with normal mammography reached 0.3% and decreased to 0.03% after assessment. Overall cancer detection rates were 6.3‰ (prevalence 6.8‰, incidence 5.9‰). Cancer rates of the new programme for women aged 50 to 69 were higher (5.8‰) than the rates observed in the former programme (4.9‰). A total of 8.3% of the cancers were detected by the second reader. DCIS rates were 12.8 and rates of cancers $\leqslant$10 mm were high 35.3% (prevalence 35.8% incidence 38.9%). Positive predictive value of surgical biopsy reached 80%.

Conclusion: The new breast cancer screening programme targets women aged 50 to 74 and offers screening procedures in agreement with the French screening practices in a decentralised health care system. The main aims of the programme are, by promoting quality, to increase attendance and progressively replace individual screening by the organised screening programme.

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Cost implications of the first year of the Hungarian nation wide breast cancer screening programme

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Background and aim: A nation wide organized breast cancer programme was introduced in January 2002 in Hungary for women aged 45–65 and a 2 years screening interval is applied. The aim of this study is to calculate the annual financial burden of the breast cancer screening programme and to calculate the cost of finding one cancer case.

Data and Methods: The data derive from the database of the National Health Insurance Fund Administration containing routinely collected financial data reported by the health care providers (including mammography centres). We calculated the cost of mammography screening, further

diagnostic cost of re-called women, and the cost of surgical, chemo- and radiotherapy. Women having mammography screening examination in 2002 were involved into the analysis. Due to the delay in diagnostics and treatment, follow up were made up to the end of April 2003. Exchange rate was: 1 euro (EUR) = 240 Hungarian Forint (HUF).

Results: Altogether N = 314.395 women had mammography examination in 2002 and they were included into the study. There was a 6.7% recall rate and finally 660 benign and 1127 malignant cases were found. The cost of mammography screening was 3.59 million EUR (862.7 million HUF). The cost of mammography screening represented only 38.47% of total cost. The further diagnostic cost of recalled women was 0.61 million EUR (146.4 HUF). The cost of surgical therapy was 1.16 million EUR (279.5 million HUF), the cost of radiotherapy reached 2.27 million EUR (543.9 million HUF) while the cost of chemotherapy went up to 1.66 million EUR (397.8 million HUF). The total costs of the first year of Hungarian nationwide organized breast cancer screening program reached 9.34 million EUR (2242.5 million HUF). The average reimbursement rate of one mammography examination was ca. 11 EUR (2744 HUF) in 2002. The cost of finding 1 malignant breast cancer case was 3731 EUR (895,386 HUF), while the cost of finding 1 case either benign or malignant was 2353 EUR (564,689 HUF).

Conclusion: Although prevention and screening is considered as a cost-effective or cheap way of avoiding illnesses, organized screening programmes need a strong financial background. The lack of financial resources might lead to the failure of the programme.

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Screen-film and digital mammography in the Finnish breast cancer screening programme: a randomised design

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Screen-film mammography has been shown to decrease mortality from breast cancer. Recent transition from screen-film to digital mammography in clinical settings challenges the mammography programmes to change their screening mode. Before nationwide implementation, performance of the new technique should be evaluated. Until now, only few studies have systematically explored the validity of digital mammography. We have planned a randomised design to assess the validity of digital mammography in comparison with screen-film mammography in a population-based screening setting. The aim of the study is to ascertain that the validity of digital mammography is at least as good as that of screen-film mammography. For the study period 2006–2010, women aged 50–69 years will be individually randomised either to screen-film or to digital arm (computed radiography or full-field digital). The randomised design will be carried out in fixed screening units in southern and central Finland and covers approximately 30% of the annual 200,000 invitations of the national mammography programme. The screening data will be linked with the data of the Finnish Cancer Registry at an individual level. In both screening arms, the process indicators (e.g. attendance rate, recall rate, rate of histological confirmation and rate of screen-detected cancers) and the rate of interval cancers at the first and at the subsequent screens will be reported. The episode sensitivity will be calculated by contrasting the incidence of interval cancers with the expected population incidence rate without screening. The results from the first screening round will be available in 2007. Randomised implementation of new screening modes within mammography programmes should be encouraged; proper evidence on the validity of screening is needed when making changes in a well-functioning national mammography programme.

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Regional inequalities of mammography coverage within the Hungarian nation wide breast cancer screening programme

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Background and aim: During the late 1990s there were some local pilot projects for mammography screening. After the evaluation of the results of the pilot projects, a nation wide organized breast cancer programme was introduced in January 2002 in Hungary for women aged 45–65 and a 2 years screening interval is applied. The purpose of this study is to analyse the within-country regional inequalities of mammography coverage within the nation wide organized breast cancer screening programme.

Data and Methods: The data derive from the database of the National Health Insurance Fund Administration containing routinely collected financial data reported by the health care providers (including mammography centres). We defined coverage as the proportion of women 45–65 resident who have had either a diagnostic or a screening mammogram at least once in the previous two years. The regional inequalities are calculated for 19 counties and Budapest as the capital (altogether 20 items). We carried out the detailed analysis for the years 2000–2001, without nationwide organized screening programme, as a reference value and for the years 2002–2003 after the implementation of a nationwide organised breast cancer screening programme.

Results: The national coverage was 25.85% in 2000–2001 and 53.46% in 2002–2003. We found the highest coverage in 2000–2001 in counties having a pilot screening programme: county Tolna (58.52%), county Jász-Nagykun-Szolnok (43.50%), county Zala (39.56%), county Baranya 35.19% and county Győr-Moson-Sopron 32.92%. After the introduction of nation wide breast screening programme in 2002–2003 we found the highest coverage in the following counties: county Szabolcs-Szatmár-Bereg 69.93%, county Borsod-Abaúj-Zemplén 62.20%, county Veszprém 62.09%, county Győr-Moson-Sopron 60.03% and county Fejér 59.99%. The gap between the counties with the highest and lowest coverage was 14.86% (Nógrád) and 58.52% (Tolna) in 2000–2001 and 27.07% (Békés) and 69.93% (Szabolcs-Szatmár-Bereg) in 2002–2003.

Conclusion: During 2000–2001 we realized the highest coverage in counties with local pilot screening programme but after the introduction of organized nation wide breast cancer screening programme the highest coverage can be found in counties without previous pilot programme. The gap between the coverage of different counties became lower after the introduction of organized nation wide breast cancer screening programme.

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The use of hormone replacement therapy in a population breast cancer screening programme

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Objective: to determine the percentage of the use of hormone replacement therapy (HRT) and the profile of the users in a population breast cancer screening program.

Materials and Methods: Our study population included women enrolled in the breast cancer-screening program of the "Institut Municipal d'Assistència Sanitària" (IMAS) in Barcelona, Spain, between January 2000 and January 2002. Data were obtained from a 10-minute interview, carried out by trained personnel, and from our own registry. Women using HRT composed the study group, and women not using HRT composed the control group. The following items were compared in both groups: age at the time of mammography, age at the time of menopause, familial history of breast cancer, personal history of benign breast disorders, mammograms prior to those of breast cancer screening, smoking, and the number of years attended at school.

Results: Between January 2000 and January 2002, 30,073 women participated in the breast cancer-screening program. A total of 22,783 were menopausal women, of whom 20,206 were non-users of HRT and 2577 were users (use in 11.3%). The median age at the time of the screening mammogram was significantly lower in users than in non-users (56.78 vs. 59.96, $p = 0.000$), and so was the median age at the time of menopause (48.65 vs. 49.65, $p = 0.000$). HRT users reported a significantly more frequent familial history of breast cancer (13.4% vs. 11.5%, $p = 0.005$), a higher incidence of benign mammary disorders (16.2% vs. 13.5%, $p = 0.000$), and more frequently, mammograms prior to their breast cancer screenings (99.3% vs. 96%, $p = 0.000$). There were more smokers among users (28.5% vs. 17.5%, $p = 0.000$). There was a significantly higher percentage of users among the women who attended school for more than 10 years (24.54%) than among those women who attended school between 8 and 10 years (16.2%) and those who attended school for less than 8 years (13.43%).

Conclusion: The percentage of use among the women who participated in our population-screening program was 11.3%. HRT users would include younger menopausal women, who entered menopause at a younger age than non-users. The results suggested the profile of a woman concerned about her familial history of breast cancer, who has been diagnosed with benign mammary disorders more frequently than non-users and who has frequently performed breast mammograms prior to the screening programs; she would be a smoker with a higher level of education.