Tumours were classified regarding invasiveness, tumour size, axillary lymph node status, Nottingham grade, tumour proliferation (Ki67), HER2, cyclin D1 and p27, WHO type and hormone receptor status. Duration of breastfeeding was measured using mean time of breastfeeding per child. Duration was categorised in quartiles using the lowest as the reference group (<2.2, $\geqslant$2.2−<4.0, $\geqslant$4.0−<6.2 and $\geqslant$6.2 months). Relative risks, with 95% confidence intervals, were obtained using a Cox's proportional hazards analysis adjusted for potential confounders.

Overall risk for breast cancer was similar in all quartiles of breastfeeding. In women with long ($\geqslant$6.2 months) duration of breastfeeding, there was a statistically significant risk of grade III tumours, 1.87 (1.05–3.34), and tumours with high Ki67, 2.15 (1.14–4.05). Longer breastfeeding was also associated with high cyclin D1 expression (1.29: 0.61–2.71), low p27 expression (1.55: 0.95–2.54), and ERα negative tumours (1.62: 0.70–3.74), but these associations did not reach statistical significance. In addition to mean time of breastfeeding per child, all results were similar when total time of breastfeeding and time related to the first child were used as exposures.

We conclude that long duration of breastfeeding was associated with more unfavourable breast tumour characteristics.

504   Poster discussion
Safety of pregnancy in breast cancer survivors: a meta-analysis

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Background: Breast cancer (BC) is the most common malignant tumour affecting women during their childbearing period. With the decline of BC mortality and rising trend of delaying pregnancy to later in life, it is often that BC survivors consider getting pregnant. However, some concerns have been raised regarding the safety of this approach though. Hence we conducted a meta-analysis to evaluate the effect of pregnancy on survival of patients with history of BC.

Material and Methods: A MEDLINE and EMBASE search was performed by two authors with no time or language restriction using the search terms "breast cancer, pregnancy" and "breast cancer, gestation". Eligible studies had to provide overall survival (OS) analysis, hazard ratio (HR) and 95% confidence internal (CI) as summary statistics. When not directly available, HR and 95% CI were indirectly calculated from the reported number of deaths, or from the reported comparison between median survival with the corresponding P-value, or from the survival curves. Heterogeneity of the effect across studies was assessed by the x^2 and I^2 tests. The method of Macaskill was used for assessing publication bias. In this analysis no distinction was made between the various measures of association (relative risk, rate ratio, risk ratio, HR). Pooling of data was performed using the mixed effect model.

Results: 14 trials published between 1970 and 2009 met the inclusion criteria (1417 pregnancy and 18059 controls; Table 1). Patients who got pregnant following BC diagnosis had significantly better survival compared to women who did not get pregnant (HR 0.58; CI: 0.49–0.68). There was no evidence of heterogeneity as estimated by x^2 test (20.2; p = 0.09) and I^2 test (35.6). There was no evidence of publication bias (p = 0.22).

Table 1: Studies comparing overall survival in pregnant and non-pregnant patients

Study	Year of publication	No. pregnant	No. non-pregnant controls	Study design	Matching criteria for choosing controls
Cooper	1970	28	56	Matched CC	stage (I/III); N(+/−); age
Mignot	1986	68	136	Matched CC	age, year of tumor treatment, TNM status, histology
Ariel	1989	46	900	Population based	NA
Sankila	1994	91	471	Matched CC	stage (I/III); age; year of BC diagnosis
Malamos	1996	21	222	Hospital based	NA
Lethaby	1996	14	334	Population based	NA
Velentages	2000	53	265	Matched CC	stage of disease
Birgisson	2000	14	33	Matched CC	tumor size, nodal status, year of BC diagnosis
Gelber	2001	94	188	Matched CC	nodal status, tumor size, age, year of BC diagnosis
Blakely	2003	47	323	Hospital based	NA
Mueller	2003	329	2088	Matched CC	age, race/etnicity, year of BC diagnosis, stage
Ives	2007	123	2416	Population based	NA
Kroman	2008	371	9865	Population based	NA
Largillier	2009	118	762	Hospital based	NA
Total		1417	18059		

NR: not reported; CC: Case-Control; BC: breast cancer; NA: Not applicable.

Conclusion: On the contrary of what is perceived; pregnancy in BC survivors is not detrimental on survival but seems to be associated with a protective value. Several immunological and endocrinal theories could explain this finding.

505   Poster
Improving the quality and efficiency of breast cancer follow-up: results from an RCT

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Background: A multicentre randomised clinical trial (RCT) was performed among early breast cancer patients to investigate the impact of nurse-led telephone follow-up (f-up) and a short educational group programme (EGP) on quality of life (QoL) and resource use.

Material and Methods: Between 2005 and 2008, 320 breast cancer patients were randomised into one of four f-up strategies for their first year after treatment: 1. three-monthly hospital f-up and mammography at one year after treatment; 2. three-monthly nurse-led telephone f-up and mammography at one year; 3. arm 1 with EGP; 4. arm 2 with EGP. The EGP consisted of two group-sessions, led by a breast care nurse and health psychologist, in which physical and psychosocial sequelae of diagnosis and treatment were discussed. The primary endpoint of the trial was health-related QoL as measured by the EORTC QLQ-C30. Additionally, anxiety, feelings of control, patient satisfaction and resource use were measured at randomisation, three, six, and 12 months after inclusion. Linear mixed models for repeated data were used for the analyses. Data were analysed according to the intention-to-treat principle.

Results: Nurse-led telephone follow-up did not result in a loss of quality of life (p = 0.42), nor did it increase feelings of anxiety (p = 0.42). Additionally, it did not negatively (or positively) affect feelings of control (p = 0.32), and general patient satisfaction (p = 0.38). Patients in the telephone group showed a significant higher satisfaction with access of care (p = 0.02). Resource use was considerably lower in the telephone group. The EGP was well-received by patients, it provided new information, but did not significantly improve QoL (p = 0.86), or affect other outcome measures.

Conclusions: Nurse-led telephone f-up seems an appropriate model of f-up care for early breast cancer patients. An EGP does not increase QoL, but may be appropriate to meet information needs early in the f-up. However, instead of trying to find a one-size-fits-all approach, we propose an individualised tailored approach in which the patient and health care professional make a shared and informed decision on the basis of evidence of actual benefits and risks, and an assessment of the patient's needs and preferences.

Friday, 26 March 2010   **18:15–19:15**

POSTER SESSION
Epidemiology, prevention, follow-up, management and care

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506   Poster
Locoregional recurrence in breast cancer patients: a population-based five year follow-up study

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Background: Conservative surgery for early breast cancer patients, if adequately performed and followed by radiotherapy, should lead to a

similar local and regional recurrence rate as mastectomy. In this study, we compared the risk of locoregional recurrence (LRR) for patients treated with breast-conserving surgery with patients who underwent mastectomy in a population-based study and identified predictors for LRR in this setting.

Methods: From the Netherlands Cancer Registry, we retrospectively identified 1,312 women who were diagnosed with primary invasive breast cancer (T1−2, N0−1, M0) between January 1, 2002, and December 31, 2003, and who underwent surgical treatment for their disease within the region of Middle Netherlands. Our primary endpoint of interest was LRR isolated or with distant metastases after five years. Predictive factors for LRR were determined by univariate and multivariate analyses.

Results: Overall, 49 patients (3.7%) had a LRR within five years after surgical treatment, and 24 of these patients also developed distant metastases (49.0%). After five years, LRR was more common in women who had mastectomy (5.3%) compared to patients who received breast-conserving surgery (2.5%; p = 0.008). All participating hospitals (n = 6) were able to achieve favourable rates of LRR with conservative surgery. The results of multivariate analysis showed that higher stage and omitting radiotherapy are risk factors for LRR.

Conclusions: Our population-based study shows that both academic and community hospitals are able to achieve low rates of LRR in breast cancer patients treated with conservative surgery compared to patients who underwent mastectomy in the first five years following breast surgery.

507   Poster
A national audit of breast cancer follow-up patterns in Wales

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Background: United Kingdom NICE clinical guidance for early and locally advanced breast cancer (February 2009) recommended that patients should be followed up with annual mammograms for a maximum of 5 years. Evidence has shown that routine follow-up over and above 5 years has little benefit as recurrence commonly occurs within the first 3 years and is usually symptomatic. The aims of the audit were to assess the current breast cancer follow-up practice in Wales

Method: A unique questionnaire was constructed and e-mailed to all consultant breast surgeons in Wales. If the consultants failed to respond, a telephonic interview was conducted with a breast care nurse within the unit.

Results: Our results showed that there is no unified approach to follow-up of breast cancer patients within Wales. The duration of follow-up varied from ten years, until the age of 50, until the age of 50/five years (whichever was sooner) or until the age of 50/ten years. In younger patients (aged <40), 15 consultants used mammography to screen the contra-lateral breast after mastectomy in patients, while 5 preferred MRI. Breast units followed-up young cancer patients with MRI in north Wales but mammography in south Wales. Breast units in south-west Wales offered yearly mammograms until the age of 50 for younger patients and five years for all others, while those in south-east Wales had the most varied and prolonged follow-up protocols. Older consultants also tended to follow-up their patients for longer periods.

Conclusion: There are wide geographical differences in breast cancer follow-up throughout Wales. We recommend a unified protocol, based on NICE guidelines, of annual review for five years, and access to breast clinic only in the presence of new symptoms.

508   Poster
Breast cancer care and outcomes in 18 countries in Europe, Asia, and Latin America

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Background: Although breast cancer has a better prognosis than many other cancer forms, with long-term relative survival rates of up to 80% in some countries, the burden of breast cancer is considerable both in terms of suffering for patients and economic burden to society. Survival still differs considerably between countries that appear to have comparable resources dedicated to healthcare. This study reviews best practices and discuss what is crucial for the development of optimal breast cancer care in relation to available resources in different settings.

Material and Methods: A review of literature and public databases was performed, clinical experts were consulted and a survey was administered to previous and current breast cancer patients.

Results: The lack of clinical and epidemiological data in many countries is a limitation when estimating the burden of disease, identifying trends in cancer prevention, care, treatment and outcomes over time as well as when making inter-country comparisons. Guidelines for the organisation and treatment of breast cancer are available in almost all the study countries, but only monitored in a minority of countries. We found a 15× variation in breast cancer care spending per capita; a variation in 5-year survival from 55−90%; a variation in screening attendance from 15−90%; a variation in access to radiotherapy of 10×; and variations in access to breast cancer drugs: tamoxifen of 5× and trastuzumab of >10× (radiotherapy and drug access adjusted for breast cancer incidence). Feedback from patients and patient groups included a need for more information about treatment options and greater focus on quality of life aspects. This especially applies for women with metastatic breast cancer, where so far limited improvement in outcome has been seen.

Conclusion: There is a need for registries that capture not only incidence and mortality but also treatment patterns in relation to more specific outcome measurements. In order to achieve high quality and equal care, guidelines need to be evidence-based, regularly updated and monitored. It is essential that regulations, funding, and care organisation are coordinated to provide all patients with the most appropriate, cost-effective and evidence-based treatment with minimal delays.

509   Poster
Policy cost-effectiveness of a hospital-tailored multi-faceted implementation strategy for introduction of a short stay admission programme following breast cancer surgery

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Background: Aim of the study was to assess the policy cost-effectiveness of a short hospital stay programme following breast cancer surgery after implementation of the programme. Costs and effects of a short stay programme were combined with costs and effects of an implementation strategy to calculate policy cost-effectiveness.

Material and Methods: The analysis was performed alongside an implementation study and took a societal perspective with a five-year time horizon. The implementation strategy was multi-faceted, and tailored to the needs of each of the four participating hospitals. The study period spanned from December 2004 until December 2007. The effectiveness of implementation was defined as the uptake of short stay admission. Cost data on development and execution of the implementation strategy were obtained from healthcare professionals, and were added to costs of the short stay programme to calculate total policy costs. Policy cost-effectiveness of the short stay programme versus care as usual was expressed as the incremental costs per Quality Adjusted Life Year (QALY).

Results: The uptake of short stay admission was 36%. Implementation costs were €23.− per patient. As QALY differences were marginal, an ICER could not be calculated. Bootstrap analysis revealed that the short stay programme had a probability of 93%-89% of being cost-effective irrespective of the ceiling ratio. From the healthcare perspective, the policy was significantly cost-saving.

Conclusions: With incorporation of costs and effects of implementation, the short stay programme was cost-effective from a policy point of view. We advise large-scale implementation of the short stay programme based on the results of this study.