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Abstracts for oral presentation at the Association of Breast Surgery Conference & AGM, 21st & 22nd May 2012, Bournemouth International Centre

Session 1 – BJS Prize Papers
Monday 21st May 2012, 09:00 to 10:30

1. 20-year analysis of the Nottingham EPSII – A randomised trial of primary tamoxifen versus initial mastectomy plus adjuvant tamoxifen in older women with oestrogen receptor rich early operable invasive breast carcinoma

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Background: The Nottingham Elderly Primary Series I (EPSI), in which patients were randomised to primary tamoxifen or initial surgery, found that in oestrogen receptor (ER) unselected cases surgery achieved better local control but no overall survival advantage. However, analysis of EPSI by ER status suggested that the selection of patients with ER-rich tumours may lead to comparable local control and survival rates. Nottingham EPSII is a randomised trial designed to test this hypothesis, and we now present its final analysis at 20 years.

Patients and Methods: 153 fit elderly (≥70 years) women of mean age 78 years (range 70-93) with clinically node-negative primary invasive breast carcinoma <5cm of high ER content (Histochemical (H)-score ≥100) were randomised to primary tamoxifen (n=100) or mastectomy plus adjuvant tamoxifen (n=53). Randomisation was 2:1 in favour of primary tamoxifen in order to detect the events in this group.

Results: With median follow-up of 78 months, there was no statistically significant difference in 10-year rates of regional recurrence (9.0 vs 7.5%), metastasis (8.0 vs 13.2%), breast cancer specific survival (89.0 vs 86.8%) or overall survival (64.0 vs. 66.0%) between primary tamoxifen and initial mastectomy plus adjuvant tamoxifen respectively; however, local control was inferior with primary tamoxifen (local failure rates 43.0 vs 1.9%; $p<0.001$).

Conclusion: Irrespective of the degree of ER-positivity, tamoxifen led to local failure in a large proportion of cases. Thus surgery remains the treatment offering the best chance of long-term local control. However, there was excellent and similar survival in both groups, even at 10 years. Primary tamoxifen could be considered in those who are 'frail', refuse or prefer not to initially undergo surgery.

2. Understanding decision-making for reconstructive breast surgery: A qualitative study

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Introduction: Reconstructive breast surgery (RBS) is performed to improve quality of life for women with breast cancer. A range of techniques are available but little is known about how decisions to choose a particular procedure are made. The aim of this study was to explore decision-making for RBS from both the patient's and health professional's (HPs) perspective.

Methods: Semi-structured qualitative interviews exploring decision-making in RBS were undertaken with a purposive sample of 31 patients who had undergone surgery and 31 HPs. Interviews were transcribed verbatim and data analysed using the constant comparative technique of grounded theory. Sampling, data collection and analysis were undertaken iteratively and concurrently until data saturation was achieved.

Results: Decision-making in RBS was complex, highly individual and influenced by a number of factors. A third of women regretted their decision to have RBS, their choice of procedure or its timing. Both patients and professionals identified insufficient time and information as barriers to informed decision-making. Professionals perceived inequalities in access to RBS due to fragmentation of reconstructive services and conflict between service providers to be the major determinant of women's reconstructive experience.

Conclusion: Decision-making for RBS is challenging for both patients and professionals and improvements to current practice are needed. Interventions to improve the quality of decision-making, including decision-aids, may help, but service re-organisation will be necessary to address inequalities in access to care and to improve the experience of women seeking RBS in the UK.

3. Should the axilla be managed less aggressively in selected node-positive breast cancer patients?

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Introduction: Axillary clearance has been the treatment of choice for patients with positive sentinel lymph node(s) (sentinel LN+). However, emerging data have recently challenged this aggressive approach. The number of LN+ may be of fundamental importance. Between 1990-2000, our policy entailed four-node sampling, with <4 LN+ patients receiving axillary radiotherapy (AxRT) only. This study aimed to retrospectively evaluate the clinical outcome of this group of patients.

Methods: During this period, 2,607 consecutive patients (<70 years) with operable cT1-T2 invasive breast carcinoma underwent surgery followed by optimal adjuvant therapies. Among them 387 patients had 1-3 LN+, and received AxRT(50Gy in 25 daily fractions).

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Results: The number of patients with 1, 2 or 3 LN+ was 222, 106 and 59 respectively. At a median follow-up of 129 months (5-247), regional recurrence (RR) occurred in 28 patients (7%) with a median time to RR of 50 months (12-175). Estimated RR free-survival was 95.3% and 93.1% at 5 and 10-years respectively. 1 LN+ status predicted a lower risk of RR compared to those with 2/3 LN+ (HR 0.376,95% CI 0.173-0.815,p=0.013.). This remained significant after adjusting for grade and size, using Cox proportional hazard regression (p=0.02). Estimated breast cancer specific survival was 85.8% and 72.4% at 5 and 10 years respectively, with a trend for improved survival in those 1 LN+ (p=0.086).

Conclusion: RR is uncommon in 1-3 LN+ patients treated with AxRT, but the risk is significantly lower in the 1 LN+ subgroup. Less aggressive strategies of axillary management should be investigated for these patients.

4. Multiple step-section frozen section sentinel lymph node biopsy - a highly reliable intra-operative test: A review of 717 patients

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Introduction: Sentinel Lymph Node Biopsy (SLNB) is the standard of care for axillary staging in breast cancer. Multiple Step-section Frozen Section (MSFS) analysis of SLNB has not previously been reported. We present our experience comprising 717 patients.

Methods: A retrospective review of 717 consecutive breast cancer patients who had sentinel node biopsy was undertaken. Sentinel lymph nodes were frozen and multiple step-sections were stained and examined histologically for evidence of macrometastases. Residual tissue was submitted for routine H&E staining.

Results: 717 patients with a total of 1129 lymph nodes had MSFS analysis. 152 patients had positive lymph nodes on frozen section; 4 patients were found to have no metastases on residual histology (i.e. false positives due to tumour tissue being cut out during step sectioning). 561 patients had no involved lymph nodes on frozen section; 10 patients were subsequently found to have metastases on residual histology (i.e. false negatives due to sampling limitation in preparation of frozen sections). Overall, MSFS analysis had a sensitivity of 93.8%, a specificity of 99.3%, a positive-predictive value of 97.4% and a negative-predictive value of 98.2%. The average turnaround time for analysis of the sentinel node was 30 minutes.

Conclusions: Multiple Step-section Frozen Section examination of sentinel lymph nodes is a safe procedure with a sensitivity of 93.8% and a specificity of 99.3%. It is a cost-effective alternative to molecular technologies relying on DNA amplification. MSFS is more accurate than standard frozen section or touch-prep cytology, and with a low false positive rate.

5. Systematic evaluation of decision-making in multidisciplinary breast cancer teams: A prospective, cross-sectional study

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Introduction: High quality data and contributions from all team members are necessary for effective decision-making in MDTs. This study aimed to systematically examine aspects of breast cancer MDT decision-making to determine whether this is achieved in practice.

Methods: 173 cases from eight MDTs were observed by a trained researcher who used a validated MDT-assessment tool to score the following elements on a 5-point-likert scale: quality of case history presented, quality of pathological and radiological findings, and contributions to decision-making by oncologists, surgeons, pathologists, radiologists and clinical nurse specialists. A subset of cases were observed by another breast surgeon to ensure inter-rater reliability (analysed via ICC). One sample t-tests and Friedman's tests were used to analyse data.

Results: A median 22 patients were discussed per MDT (range 15-28) with high inter-rater reliability (ICC=0.78). *Quality of information presented*: Radiological(M=4.64, SD=0.89) and histopathological information (M=4.40,SD=0.80) was rated highest. Psychosocial information (M=2.44,SD=1.06), co-morbidities (M=2.47,SD=1.08) and patient preferences (M=2.42,SD=1.04) were all significantly below average (t=6.50 to 23.06, all $p \leq 0.001$). *Team-members' contribution to decision-making*: Surgeons (M=4.44,SD=0.98) and radiologists (M=4.56,SD=1.01) were rated highest, while chairs (M=2.00,SD=0.00)and histopathologists (M=2.05,SD=1.55) contributed least to decision-making (T=2.44 to 20.37, all $p \leq 0.05$). *Decision-making*: in 14 cases a decision was not reached. Compared to where decisions were made, these cases had significantly lower quality of histopathology, psychosocial and patient-preferences information provided (Z=2.06 to 2.37,all $p \leq 0.05$).

Conclusions: MDTS do not receive optimal information or sufficient contribution from all team-members required for effective decision-making. This must be improved to ensure a high-quality of cancer care delivery.

6. Validation of a technique using microbubbles and contrast enhanced ultrasound to identify and biopsy sentinel lymph nodes in pre-operative breast cancer patients

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Introduction: In patients with early breast cancer, axillary staging is dependant upon surgical excision of sentinel lymph nodes (SLN). In this study, microbubbles and contrast enhanced ultrasound were used to identify and biopsy SLN in a large group of pre-operative patients prior to validation with standard surgical treatment.

Methods: 347 patients with primary breast cancer and a normal axillary ultrasound were recruited. Patients received periareolar intra-dermal injection of microbubble contrast agent. Breast lymphatics were visualised by ultrasound and followed to identify axillary SLN that were then biopsied. Patients underwent standard tumour excision and either SLN excision (if biopsy negative) or axillary clearance (if biopsy positive) with subsequent histopathological analysis.

Results: SLN were identified in 333 patients (96%). The SLN of 302 patients were accurately biopsied (87%). A biopsy tract was seen in the excised SLN of 271 patients. The prevalence of lymph node (LN) metastases in the total study population was 19% and of those patients who had a SLN biopsy 14% were found to have LN metastasis. In those patients with a negative SLN biopsy, 22 (7%) were found to have LN metastasis on surgical excision (14 had micrometastases). The overall sensitivity was 65% and the specificity 99.6%. The positive predictive value was 97.6% and the negative predictive value 81% with a false positive rate of 0.4% and a false negative rate of 35%.

Conclusions: By means of this novel technique, SLN were readily identified and biopsied in the pre-operative period and the numbers of patients requiring secondary axillary surgery was significantly reduced.

7. Intra-operative Sentinel Lymph Node Assessment- How many patients will avoid a second operation?

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Aims: A UK economic analysis of intra-operative (IO) sentinel lymph node assessment estimated that it could save the NHS £5million each year. This analysis assumed that the number of patients with positive lymph nodes (28%) equated to the percentage of patients who could be saved a second operation using IO analysis. An axillary clearance is not the only reason for a second operation. We set out to determine what percentage of patients would have been saved a second operation of any kind if IO analysis had been used.

Methods: We conducted a retrospective case note and electronic operating data review of patients undergoing a SLNB between January and December 2009 at our district general hospital. The requirement, and the reasons, for a second operation where identified.

Results: Of the 121 patients undergoing a SLNB in the study period, 4 had second operations planned prior to the SLNB. Of the remaining 117, only 17 (15%) required a second operation and of these only 10 (9%) required a second operation purely for an axillary clearance. The other 7 patients all required the excision of further breast tissue, 6 with an axillary clearance. If 9% was used in the financial modelling, rather than 28%, then the widespread use of the technique would cost the NHS around £7million per annum.

Conclusions: These results question the clinical and financial benefit that IO could have to the healthcare community. If the results of the Z-0011 trial are translated into practice then the percentage of patients who could benefit from IO analysis will fall further and so the costs will become greater. This could hinder the adoption of the technique in smaller units.

8. Clinical outcomes of surgically treated octogenarians with breast cancers over a 5 years period

Melissa Ley-Hui Tan, Josie Bates, Amtul Carmichael
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Introduction: Surgery in elderly breast cancer patients remains controversial, especially in the era of an aging population. This study aims to evaluate the clinical outcomes of surgically managed octogenarians with breast cancers.

Methods: A retrospective study of octogenarians with breast cancers operated on over a 5-year period in a single teaching district general hospital. Data were collected from the West Midlands Cancer Intelligence Unit, case notes and pathology results. Validated Adult Co-morbidity Evaluation-27 (ACE-27) for cancer grading system was used: 3-Severe; 2-Moderate; 1-Mild; 0-None & 9-Unknown. Kaplan Meier survival curve analysis used to determine median survival.

Results: N=100. Mean age of operation was 83.85 years (range 80-95years). Mean follow up was 1247 days/3.4 years. ACE-27 grade 3 in 14% & non-grade 3 (0/1/2) in 66%. 67% oestrogen receptor was positive whereas 18% negative (15% unknown). Breast operation: 84% mastectomy and 15% wide local excision. Axilla operation: 68% axillary clearance (33% involved nodes); 10% sentinel lymph node biopsy (none involved) and 5% not performed. Nottingham Prognostic Index mean score was 4.40 (range 2.28-7.40, 95% CI 4.12-4.69). Kaplan-Meier survival curve shows a median survival of 6.66 years.

Table: Percentage of patients who is still alive post-surgery during the follow up period

	3yr	5yr	6-7yr
Post-op Survival	89/100 (89%)	72/100 (72%)	58/100 (58%)

48% died during the observational period of which 44% died related to breast cancer.

Conclusions: Breast onco-geriatric surgical practice in octogenarians mostly with non-severe co-morbidities gives a satisfactory median survival of 6.66 years, majority (72%) live 5 years post-surgery.

Session 2 – Submitted Papers Monday 21st May 2012, 09:00 to 10:30

9. Over 70- What will happen to me? Will I die from my breast cancer?

Caroline Mortimer, Peter Liptay-Wagner, Katherine Baird
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With the development of a specialist breast service in all hospitals the standard of care for all breast cancer patients should be similar and co-morbidity rather than age dependant. Here we present initial results from a prospective audit of more than 700 patients over the age of 70 diagnosed with breast cancer in the Anglia Cancer Network during a twelve month period between April 2010-September 2011.

Method: Data was recorded prospectively at each of the MDTs using a proforma for all patients over 70 with a new diagnosis of breast cancer. Co-morbidities were recorded using the validated ACE 27 score, and the benefits of adjuvant treatments using PREDICT® and ADJUVANTONLINE®.

Results: Of the data analysed 88% of patients were offered surgery, 15 % declined and 1% declined any treatment. 80% of cases were ER+ve. 25% were in the poor prognostic group: A quarter of this group accepted adjuvant chemotherapy, three quarters were not offered this treatment. Amongst those not offered chemotherapy over half had significant co-morbidities and when combined with their age their survival scores estimated <3% benefit.

Conclusion: Women over 70 do receive care in line with breast cancer treatment guidelines. Adjuvant treatment tools can be better applied with an accurate co-morbidity assessment. Patient choice and co-morbidities influence treatment decisions. For most in this age group the risk of death from breast cancer is low compared to the risk from their co-morbidities and age.

10. Trastuzumab (Herceptin®) induced cardiotoxicity in the elderly population: Do we need to re-assess prescribing practices?

David Naumann, Martin Sintler
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Introduction: Trastuzumab is used in advanced breast cancer and as adjuvant therapy for HER2+ disease. It has a well-known risk of cardiotoxicity, and NICE Guidelines recommend cardiac assessment before and during its delivery. Some prescribers are more reluctant to offer trastuzumab to the elderly (aged $\geq$65) population due to this cardiac risk. We aim to establish whether there is a difference in cardiotoxicity amongst elderly patients treated with trastuzumab compared to those aged <65.

Method: Retrospective study examining data from all patients with breast cancer who had received trastuzumab (for both adjuvant and metastatic indications) at a single NHS Trust from Jan 2005 - Sept 2011. Patient records were examined to compare both symptomatic and objective measurements (using LVEF) of cardiotoxicity between patients $\geq$65 and <65 years old who had received trastuzumab. Decrease in LVEF $\geq$10% or reduction to LVEF <50% were counted as a significant decreases. Chi-squared analysis was used to test significance.

Results: 226 women received trastuzumab in this population with an average age of 53.6 ($\pm$ 12.3). 37 patients were aged $\geq$65 and 189 patients <65 years old when receiving their first dose of trastuzumab. Cardiotoxicity was demonstrated in 37.8% (14) in the $\geq$65 group and 20.1% (38) in the <65 group ($p = 0.0191$).

Conclusion: We find that cardiac complications are common across all patients but there is a statistically significant difference in cardiotoxicity

between the aged ≥65 and <65 groups. Appropriate caution seems justified when assessing all patients but particularly elderly patients for this therapy.

11. The effect of a 'false positive' recall on intention to re-attend for screening mammography

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Background: The balance of risks and benefits of screening mammography continues to be a subject of debate. Critics argue that the screening programme causes unnecessary intervention and anxiety in women who are subsequently found not to have cancer. Some previous studies have shown a drop in re-attendance rates following such a 'false positive' recall. Our study was designed to discover the factors that might cause women not to re-attend for subsequent rounds of screening following a 'false positive' recall.

Method: All patients attending Recall Assessment Clinics at our centre during the calendar month March 2010 were identified. Those diagnosed with breast cancer or DCIS were excluded, leaving 106 patients who were subsequently discharged to routine screening after benign results. Postal questionnaires were sent to all these women in January 2011.

Results: 73 questionnaires were completed (69%). Of these women 96% reported that their opinion of breast screening was 'very good' or 'good' BEFORE the experience of a false positive recall. This rose to 98% AFTER that experience. 100% said they would come again for another mammogram (93% 'definitely' and 7% 'probably'). Feedback from free-text parts of the questionnaire indicated that the most frequent reasons for satisfaction were the speed of the service (18 replies), the general experience (15 replies), reassurance (13 replies), and good explanations received (10 replies). Feedback on negative aspects included insufficient information in recall letter (4 replies), waiting time too long (3 replies) and pain of mammography (2 replies).

Conclusion: Contrary to our expectations, the experience of a 'false positive' recall following a routine mammogram increased rather than decreased the perception of the value of breast screening. The intention of women to re-attend for subsequent rounds was 100%. Despite the limitations of a questionnaire based study our results suggest that an efficient and caring clinical service with good explanation and reassurance, results in high patient satisfaction rates and does not reduce intention to re-attend.

12. The role of triple assessment in benign breast disease

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Introduction: Triple assessment has long been the standard method for investigating symptomatic breast disease. Recently, however, this practice has been brought into question in certain circumstances, with the publication of the 'Best Practice Guidelines for Patients Presenting with Breast Symptoms' by the Cancer Reform Strategy Breast Cancer Working Group. In particular, the guidelines suggest that in certain circumstances, tissue biopsy may be avoided (quality indicator (QI) 11). An audit was undertaken to determine the role of triple assessment in patients who have clinically and radiologically benign breast presentations in line with the new guidelines, specifically QI11.

Method: The 'Dendrite' cancer database was used to identify breast cancer patients who were treated over a ten-year period at the Royal Devon and Exeter NHS Foundation Trust (RDEFT), and to determine which of these had benign clinical and radiological findings.

Results: Of the 2764 symptomatic patients treated for breast cancer since Jan 2000 at the RDEFT, 54 (2%) had non-suspicious clinical and radiological findings. Most commonly, patients were thought to have fibrodenomata (11%), cysts (15%), normal findings (15%) or nondescript, benign-feeling lumps (22%). Seven patients were considered to be at risk of misdiagnosis had the new guidelines been followed.

Conclusions: While many breast diagnoses can be confidently made by clinical evaluation alone and the majority by adding imaging to this, a small number of patients require thorough triple assessment if their breast cancer is not to be missed. We suggest that triple assessment continues to be used routinely in order to avoid misdiagnoses.

13. Is mode of presentation (screening or symptomatic) a distinguishing factor in the pathology of B3 core biopsies?

Gael M. MacLean, Brendan Smith
Royal Berkshire Hospital, Reading, UK

Introduction: The relationship between pathological subtype and mode of presentation (screening vs. symptomatic) of breast core biopsies classified as probably benign (B3) has not been examined before. We hypothesise that papillary and fibroepithelial lesions would be more highly represented in symptomatic patients (more often palpable). In contrast, we expect that atypia, lobular neoplasia and sclerosing lesions would be more common amongst screening (distinct mammographic appearances).

Methods: All B3 core biopsies from one breast unit (DGH) over a 5-year period (2006-10) were analysed (n=131). After dividing the B3 biopsies into 'screening' and 'symptomatic' groups, the NHSBSP pathological classification was used to further divide the groups into six subtypes (the five mentioned above and 'miscellaneous'). After surgery, a final diagnosis of invasive or *in situ* carcinoma was also noted.

Results: B3 comprised 3.8% (131/3440) of all core biopsies in the time period. There were 78 specimens from symptomatic patients (59.5%) and 53 from screening patients (40.5%). Unexpectedly, there was no statistically significant difference between papillary and fibroepithelial diagnoses between 'screening' and 'symptomatic' groups (47% vs 42%, p=ns). Likewise, there was no difference between the groups for atypia, lobular neoplasia and sclerosing lesions (49% vs 51%, p=ns). Cancer was found in 20.5% of the 'symptomatic' patients and 17% in the 'screening' group. DCIS vs invasive cancer was diagnosed 25% vs 75% 'symptomatic' and 34% vs 66% 'screening'.

Conclusions: Mode of presentation ('screening' or 'symptomatic') is neither a distinguishing factor for breast pathological subtype, nor for cancer diagnosis, in B3 breast core biopsies.

14. Granulomatous mastitis - A novel method of treatment

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North Yorkshire, UK

Introduction: Granulomatous mastitis is a rare, benign but disfiguring inflammatory disease affecting the breast. Various treatment options described in the literature include conservative treatment, surgical excision including mastectomy and treatment with prolonged high dose systemic steroids or other immunosuppressive drugs. Such treatment is often unsatisfactory as surgery is associated with a high incidence of wound problems and recurrence of the condition, whilst prolonged high doses of systemic steroids can result in significant side effects.

Methods: We describe the clinical presentation of 4 patients with this condition and their treatment with a novel technique not previously described in the literature. All 4 patients had histological confirmation of diagnosis and tests to exclude an infective cause for their symptoms. After full multidisciplinary discussion and fully informed consent all 4 patients were treated with ultrasound guided aspiration of inflammatory cavity contents followed by instillation of long acting steroids into the inflammatory breast cavity.

Results: All 4 patients had a complete clinical and radiological response to instillation of steroids into the inflammatory breast cavity. None of them had any local or systemic side effects from this treatment and response was maintained at follow up of more than a year in all 4 patients.

Conclusion: We report a novel, innovative yet simple treatment for granulomatous mastitis without significant side effects. This has the potential to radically improve the management of this disfiguring condition, though clearly experience with a larger number of patients with longer follow up is needed to confirm these initial excellent results.

15. Does the use of 'KliniTray' to orientate wide local excisions in breast cancer improve the rate of clear margins and reduce re-excision rates?

Jessica Phillips, Christina Moody, Christopher Hillary, Laura Dakin, David Chadwick, Stephen Holt, Iman Azmy
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Introduction: The National Institute of Health and Clinical Excellence recommends minimum margins of 2mm in breast conserving cancer surgery, with clear margins reducing rates of local recurrence. Appropriate specimen orientation allows accurate margin identification and is an Association of Breast Surgery standard. Standard methods of orientation include intra-operative suture or clip application. The 'KliniTray' (KT) system involves immediate intraoperative orientation on a tray using pins remaining in situ through radiology until histopathology. We aimed to identify whether improved specimen orientation results in improved clear margin rates and reduced rates of re-excision.

Methods: 100 consecutive specimens from wide local excisions from December 2010 were orientated using the 'KliniTray'. Margin status and need for re-excision was assessed with the multi-disciplinary team. Comparison was made with a 2006 audit using standard orientation methods (SO) and 152 specimens. Statistical analysis used a p value of less than 0.05 as significant.

Results: The 'KliniTray' group had a reduced re-excision rate (SO 22% vs. KT 11%; p=0.03). Involved circumferential margins were spread equally, whilst standard orientation techniques found clustering at inferior and superior margins. Margin width has significantly improved with the 'KliniTray' technique, with positive ($\leq$2mm) margins SO 29% vs. 15% (p=0.02).

Conclusion: 'KliniTray' use has significantly reduced re-excision rate, involved margins and clustering of reported margins. This suggests improved histopathological interpretation of margins due to more exact specimen orientation. In practice this allows improved accuracy when re-excision is needed and increased confidence in stating anterior or posterior margin involvement.

16. Comparison of Metasin versus Genesearch© (Veridex) in Intraoperative Analysis (IOA) of Sentinel Lymph Nodes (SLN) in Breast Cancer (BC)

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There are various methods of IOA, however, our unit utilizes qRT-PCR (Quantitative Reverse-Transcriptase Polymerase Chain Reaction). On instigation of qRT-PCR assay at the Queen Alexandra Hospital, Genesearch© was utilized, however, this is no longer commercially available, & therefore the use of Metasin has been commenced. This study compares the two assays.

Methodology: A large case study of 1167 SLN cases, a total of 2018 SLNs was analyzed. The sensitivity & specificity of both assays were assessed. Concordance of qRT-PCR with final histology was comparatively assessed. Thus the percentage (%) of SLN cases correctly staged using both assays was calculated.

Results: A total of 733 SLN cases with 1317 SLNs were analyzed using Genesearch©. A total of 434 SLN cases with 701 SLNs were analyzed using Metasin. The table below refers to total SLNs for each assay.

	Genesearch©	Metasin
Sensitivity (%)	94.76	93.69
Specificity (%)	96.00	97.40
Concordance (%)	95.98	97.15

The 'False Negative' rate (due to sampling error) was 0.68% for Genesearch©, & 0.92% for Metasin. Thus 99.32% of patients using Genesearch©, & 99.08% of patients using Metasin will have been correctly staged.

Conclusion: The current Metasin assay is a sensitive & specific assay for continued use in the IOA of the axilla in BC. It also maintains the 99% accuracy of staging of the axilla shown with Genesearch© i.e. 99% of all patients will have had their definitive treatment of the axilla at first operation.

17. Skin-reducing mastectomy (SRM) with immediate implant based reconstruction is oncologically safe

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Introduction: SRM with immediate implant based reconstruction is a single stage procedure which offers acceptable cosmetic results. The dermal-fat flap allows for more natural ptosis and total implant coverage, but the technique has not gained widespread acceptance due to concerns regarding ischaemia of the flap and concerns regarding local recurrence. The aim of this study was to assess the oncological safety of this technique.

Methods: We performed a retrospective review of a prospectively maintained database of women undergoing SRM with implant based reconstruction between March 2006 and September 2011. Data was collected on demographics, operative treatment, histopathological assessment, adjuvant treatment and complications. All women were discussed at the breast multidisciplinary meeting and decisions regarding adjuvant treatment were made on oncological grounds.

Results: SRMs with immediate implant based reconstruction were performed on 162 breasts in 138 women with an average age of 50.5 years. Over half of the women underwent reconstruction of the breast using a fixed volume implant. Data on adjuvant radiotherapy was available in 120 women and 45 received it to the reconstructed breast. Seventeen women developed capsular contracture (grade 2-4). There were no delays in adjuvant treatment due to reconstructive techniques being used. One woman developed local recurrence despite receiving adjuvant chemotherapy and radiotherapy and one woman developed distant metastases in the absence of local disease from which she subsequently died.

Conclusions: SRM with immediate implant based reconstruction offers acceptable oncological outcomes in the short-term. Ongoing follow-up is required to assess for long-term outcomes.

18. Radiotherapy: Patient Reported Outcomes following Post Mastectomy Breast Reconstruction

Aasma Al-Allak, Marcus Galea
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Introduction: Patient satisfaction with their breast reconstruction is a 'holistic' entity that must be distinguished from aesthetic, photographic and professional satisfaction. Radiotherapy to the chest wall either pre or post mastectomy reconstruction is quoted as resulting in a less good functional outcome, requiring additional procedures and with more pain.

Patients and Methods: 131 live women with a Latissimus Dorsi (Lat Dorsi) pedicled reconstruction between 1996-2008 were sent a questionnaire. 70% had immediate reconstruction, 88% had an implant assisted procedure, 40% had radiotherapy; split 45% pre reconstruction and 55% post reconstruction

Results: 86 women returned a completed questionnaire: 66% response rate. Median follow up 5yrs. There were no differences in the mean scores between the two groups for recovery to normal activities of daily living, driving and return to work; nor in the scores for confidence wearing different types of clothing.

Aesthetics	With R/T		Without R/T
With Bra (Excellent / good)	88.2%	p = N.S	74.9%
Without Bra (Excellent/Good)	43%	p = N.S	56.2%
Compared to Normal breast	27.5%	P = 0.007	57.2%
Consistency Firm	67.6%	p = N.S	56.2%
Assessment of end result >7/10	79.6%	p = N.S	81.2%

Post op Complications: With R/T; 61%: without R/T; 56%, p=N.S

Conclusions: Radiotherapy does not decrease patient self reported outcomes of post mastectomy Lat Dorsi Breast Reconstruction. These data differ from other publications; self reported outcomes may be better than expected because of pre-operative priming by the surgeon to expect less good results.

Session 11 – Submitted Papers Monday 21st May 2012, 16:30 to 18:00

19. Breast oncological surgery and local recurrence in a Prospective study of Outcome of Sporadic versus Hereditary breast cancer (POSH)

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Introduction: POSH (MREC: 00/06/69) is a national, epidemiological study of 3024 women diagnosed with invasive breast cancer between 18-40 years.

Aims: Compare clinical characteristics of patients within the POSH cohort with national data from the 'All breast cancer report' (October 2009). Analysis was performed to determine factors that influenced selection of resectional breast surgery (mastectomy v breast conservation), and determinants of local and loco-regional recurrences within this young early-onset breast cancer cohort.

Methods: Women were recruited between 2001-2008. For this study 613 patients were excluded: those over 40 (N=49), those presenting with distant metastases (N=76), receiving neo-adjuvant chemotherapy (N=449) and where surgical, histological or chemotherapy details were unknown (N=49), leaving 2407 patients for analysis.

Results: A similar proportion of both patient groups received mastectomy. Factors associated with mastectomy were tumour size, multifocal, ER status and nodal status. 82% and 90% of POSH patients received adjuvant radiotherapy and chemotherapy respectively, whereas 64.5% received hormone therapy. Factors associated with higher risk of local recurrence after BCS are ER status, nodal status, and clear margins (p= <0.001, 0.003, 0.041 respectively). Chest wall radiotherapy following mastectomy was associated with a lower local recurrence rate (p=0.01)

Conclusions: Younger patients are treated surgically similarly to the national symptomatic population despite an excess of otherwise poor prognostic features which appear to be the main determinant of outcome. Different factors are associated with BCS and mastectomy in regard to local relapse. Distant disease recurrence was more likely than local recurrence in all groups regardless of local surgical treatment.

20. Family History Clinic: Delivering an efficient, cost effective service

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Introduction: The regional genetic service performs a risk assessment of patients with a family history of breast cancer (using their own protocol) and refers raised and high risk patients for mammogram+/- MRI to our Breast Unit. In preparation of the migration of these patients to the NHSBSP a review of the service and comparison with the NICE criteria was carried out by a trained nurse practitioner. A pilot audit by the author tested out the Tyrer Cuzick programme, 14/18 high risk patients undergoing MRI did not meet criteria for MRI screening. Consequently the breast MDT recommended a review of all family history patients in 2010.

Methods: Patients attending the family history clinics completed a questionnaire devised to capture the requisite information for the programme, following this, risk assessment was performed.

Results: *New referrals* 56 patients- 23 high risk. Of these; 5 (21%) met the Tyrer Cuzick risk stratification for MRI screening. Consequently, significant reduction in MRI requests as previously all 23 patients would have had MRI. *Follow Up patients* 622- 262 high risk. Of these; 57 (22%) matched the programme for MRI. Subsequently, 97 patients had MRI screening stopped following discussion with the author. Cost saving at approximately £170.00 per scan = £16,490

Conclusions: A validated tool such as Tyrer Cuzick should be used to categorise risk and eligibility for MRI. Triage by a trained Nurse Practitioner can provide a cost effective service.

21. Important increase in breast cancer incidence in South Asian women

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Introduction: Breast cancer incidence in the UK resident population of South Asian (SA) ethnicity has been lower than that in indigenous women. Leicester has had a large SA population since the 1960/70s and a Breast Cancer Unit which has collected comprehensive data since 1997. We examined the annual incidence of new breast cancer diagnoses in females from 1998 to 2009 inclusive.

Method: Ethnicity was assigned in 98% of cases. Population denominators were estimated using a bespoke tabulation of 2001 census data, adjusted for population growth.

Results: The mean age-standardised incidence in SAs increased by 7.8% per annum, controlling for deprivation (p<0.001); there was no corresponding change within the white population. At the end of the study period there was no significant difference in incidence rates between the Leicester, Leicestershire and Rutland (LLR) white and SA populations (p=0.728).

Table: LLR directly standardised breast cancer incidence rates per 100,000

	White		South Asian	
Period	Observed	95 % confidence interval	Observed	95 % confidence interval
1998-2000	112.1	106.5-128.0	59.8	46.1-76.2
2001-2003	121.8	115.9-127.8	70.6	56.0-87.8
2004-2006	127.5	121.6-133.5	100.1	82.6-120.1
2007-2009	127.3	121.5-133.3	132.4	112.5-154.7

Conclusions: SA women can no longer be considered at reduced risk of breast cancer.

22. Clinical Outcome and Patient Satisfaction Following Implementation of Day Case/23 Hour Breast Surgery Pathway at a University Teaching Hospital

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Introduction: The Royal Liverpool University Hospital initiated 23-hour discharge (short-stay) for non-reconstructive breast cancer surgery in November 2010. Nationally, compliance rates range from 20% to 80%. We audited consecutive procedures over 4 months assessing local compliance, complication rate and patient satisfaction.

Methods: Data were collected for all procedures undertaken between November 2010 and March 2011. Resection type, axillary procedure, length of stay and complications were recorded. Following discharge, standard questionnaires were completed by telephone interview assessing overall patient satisfaction. All data were anonymised and inputted onto a customised database.

Results: 137 patients were audited. Median stay was 1 day (range 0-9 days). 31 patients (23%) were discharged on the same day whilst 71 (52%) required an overnight stay; representing a 75% compliance rate. All same-day patients had local resections with sentinel node biopsy. No re-admissions occurred for short-stay patients. 12 short-stay patients (12%) required antibiotics for a wound infection, as compared to 7 (32%) non short-stay patients. Of the 99 patients (72%) responding to the questionnaire, 18 were same-day discharges whilst the longer admissions accounted for 81, giving a response rate of 58% and 77% respectively. All short-stay patients felt adequately informed and involved in their care, with 95% feeling involved in their discharge decision. This was comparable to the non short-stay patients. Re-audit data from June/July confirm readmission and satisfaction figures.

Conclusion: Same day discharge was well received by patients with no increase in complication rates. Short-stay surgery is efficacious for selected patients when supported by multidisciplinary team input.

23. Predict: a population-based validation of a prognostic model for early breast cancer that includes HER2

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Introduction: Predict (www.predict.nhs.uk) is an online, prognostication and treatment benefit tool based on tumour size, grade, lymph node status, ER status and mode of detection. The aim of this study was to incorporate the prognostic effect of HER2 status in a new version (Predict+), and compare its performance with the original Predict and Adjuvant models.

Method: The prognostic effect of HER2 status was based on an analysis of data from 10,179 breast cancer patients in the Breast Cancer Association Consortium. The hazard ratio estimates were incorporated into Predict. The validation study was based on 1,653 patients with early stage invasive breast cancer identified from the British Columbia Breast Cancer Outcomes Unit. Predicted 10-year overall survival (OS) and breast cancer specific survival (BCSS) for Predict+, Predict and Adjuvant were compared with observed outcomes. A goodness-of-fit test was carried out using a chi-squared test based on the observed and predicted number of events.

Results: All three models performed well for OS and BCSS but both Predict models provided better breast cancer specific survival estimates than Adjuvant. In HER2 positive patients, the total number of breast cancer specific deaths predicted by Predict+ was within 5.0% of observed (71 v 75, p=0.64) compared to 20% for Predict (n=60 v 75, p=0.08) and 29% for Adjuvant (53 v 75, p=0.01).

Conclusion: In the subset of patients with HER2 positive tumours Predict + performed substantially better than the other two models. Predict+ is the first clinical breast cancer prognostication tool that includes tumour HER2 status.

24. A retrospective audit of outcomes for immediate breast reconstruction

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Introduction: The National Mastectomy Audit has been landmark as it is for the first time we have data regarding reconstructions in the UK. The proportion of mastectomy and immediate reconstruction patients, who had at least one complication, ranged from 15-18% in the National Mastectomy Audit 2011. There is limited data on newer techniques such as reconstructions using acellular dermal matrix. Literature reports complication rates varying from 3.2 − 48.7%. These figures are not insignificant and lead us to audit our results

Method: A retrospective analysis of immediate breast reconstruction performed between October 2009 − May 2011 in our unit by four breast surgeons was done and all complications were assessed.

Results: 76 patients underwent immediate breast reconstruction in the period. 67 were unilateral and 9 were bilateral. Reconstruction procedures involved autologous flaps, implant based surgery using Strattice ™ or Permacol™ and expanders. The mean period of follow up is 12 months (4-20 months). The complications noted are given in Table 1.

Conclusion: Immediate breast reconstruction is a safe procedure but is associated with significant complications. Our figures are in conformity with the national data and literature.

Table 1

Surgery	Wound infection	Seroma	Further surgery, washout ± removal of implant	Other complication	None
Autologous LD flap (n=28)	2 (7.4%)	5 (18.5%)	3 (11.1%)		8 (29.6%)
Strattice implant (n=21)	4 (19.05%)	4 (19.05%)	4 (19.05%)	Nipple areolar necrosis 1	8 (38.1%)
Permacol implant (n=24)	2 (8.3%)	3 (12.5%)	4 (16.7%)		15 (62.5%)
Expander (n=3)					3 (100%)
Overall (n=76)	8 (10.5%)	12 (15.8%)	11 (14.5%)		45 (59.2%)

25. A Multi centre prospective longitudinal study evaluating the integration of Patient Reported Outcomes (PROMS) with key clinical outcomes after immediate Latissimus dorsi (LD) breast reconstruction and adjuvant treatment

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Introduction: NICE recommends that the majority of women should be offered immediate breast reconstruction with its potential to improve health related quality of life (HRQL). There is conflicting evidence with a lack of 'hard' data to best inform clinicians and their patients. Our aim was to evaluate the effects of implant-assisted LD (LDI) versus autologous LD (ALD) breast reconstruction on HRQL over 12 months.

Methods: A prospective longitudinal multicentre study commenced in early 2007. Patient reported outcome measures using the EORTC C30 (general HRQL), BR-23 (breast + arm symptoms), FACT B (breast cancer), Body Image Scale (BIS) and HADS, were completed pre-operatively and at 3, 6 and 12 months after surgery. Early and late surgical complications were categorised according to the Dindo/Clavien classification. Longitudinal analyses tested the effects of all treatment variables (surgery, RT, chemo), age and time on HRQL domains (3 to 12 months). Significance was set at $p=0.01$.

Results: 182 patients (100 ALD, 82 LDI) were recruited. Only role functioning and pain was worse in ALD compared to LDI. Chemotherapy patients reported poorer overall HRQL ($p<0.001$). Radiotherapy had no effect on HRQL and older patients had less anxiety ($p=0.01$). Early surgical complications impacted on many HRQL domains whereas late complications only adversely affected breast symptoms and body image ($p<0.001$). Significant improvements over time were seen for overall HRQL and other domains ($p<0.001$).

Conclusion: There is an important need for cumulative clinical evidence in this field on which to base patient informed consent and clinical recommendations.

26. Adipose derived regenerative stem cells in breast surgery – current applications and future perspectives.

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Introduction: Adipose derived regenerative cells (ADRCs) are of increasing interest to both biologists and clinicians. ADRCs have been used with success in a number of clinical trials involving tissue reconstruction. A review of the literature has been undertaken to reveal the biology of ADRCs and evaluate the true potential of these cells in breast reconstructive surgery. A single unit's experience of the use of ADRC enhanced fat grafting in reconstructive breast surgery is detailed with reference to current literature and ongoing trial data.

Methods: A Medline review was performed of all literature pertaining to "adipose derived stem cells", "ADRCs", "fat grafting" and "lipofilling". A prospective trial of ADRC enhanced fat grafting has been performed between September 2008 and December 2011. ADRCs were isolated using Cytori's Celution® system.

Results: 32 patients and 34 breasts received ADRC enhanced fat grafting with a mean volume of 280ml. One patient required a second treatment. Indications included correction of partial mastectomy defects for both benign and malignant disease, congenital hypoplasia, fat only breast reconstruction using a Brava® system and for revision of previous breast reconstructions. Over 80% of patients report good to excellent results. Three patients demonstrated mild fat necrosis.

Conclusions: The clinical application of ADRCs in breast reconstruction shows promise that it can deliver good volume replacement with a natural feel in a single treatment. Critical review of the literature shows uncertainty about the biology of these heterogeneous cell populations and, as yet, a paucity of quality clinical data to support their use.

P27. Fluorescence mapping with indocyanine green (ICG) for sentinel lymph node detection in early breast cancer-results of the ICG-10 study.

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Introduction: Dual localization methods with blue dye and isotope are commonly employed for sentinel lymph node (SLN) biopsy but identification rates exceeding 95% are reported using the fluorescent tracer indocyanine green (ICG) as a navigation system. An updated analysis is presented of a feasibility study to determine sensitivity and safety of ICG fluorescent mapping when combined with conventional tracer agents.

Methods: Following approval from LREC and MHRA, 99 women with clinically node negative breast cancer (94 unilateral; 5 bilateral) underwent SLN biopsy using triple localization with blue dye, radioisotope and ICG. Subcutaneous lymphatics were visualized with a Photodynamic Eye camera and sensitivity of individual tracers alone and in combination calculated.

Results: Fluorescent lymphatics were visualized transcutaneously in all 104 procedures. A total of 202 nodes were defined as sentinel (blue and/or radioactive) with an average of 1.94 sentinel nodes per procedure. Amongst these, 25 contained either macrometastases ($n= 16$) or micrometastases ($n=9$), yielding procedural and node specific positivity rates of 17.3% (18/104) and 12.4% (25/202) respectively. Detection rates were: radioisotope alone 77.2%, blue dye alone 93.6%, blue dye and radioisotope 72.8%, ICG alone 100%, ICG and blue dye 93.6%. All 25 positive nodes were fluorescent and no serious adverse reactions occurred.

Conclusions: These results confirm high sensitivity for fluorescence in SLN identification. The combined nodal sensitivity for ICG and blue dye (93.6%) was higher than for blue dye and radioisotope (72.8%) and the former combination might avoid the need for radioisotope and encourage more widespread adoption of dual localization approaches.

28. Recent experience of neoadjuvant chemotherapy for breast cancer at a UK teaching hospital

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Introduction: The most recent UK (NICE, 2009) guidelines recommend neoadjuvant chemotherapy as the most appropriate initial treatment for locally advanced breast cancer followed by mastectomy. Neoadjuvant chemotherapy should also be offered to patients with early breast cancer who are considering breast conserving surgery that is not advisable at presentation. However, the evidence base is still gathering. This study reviews the recent experience of neoadjuvant chemotherapy in a large UK breast unit.

Methods: Retrospective chart review of patients who received neoadjuvant chemotherapy for breast cancer at University Hospitals of Leicester between January 2008 and March 2011. Patients were identified from the unit database.

Results: Of 2,489 new patients with breast cancer seen during the study period, 156 patients received neoadjuvant chemotherapy. 20 patients had lobular-type cancers, and the remaining 136 patients had ductal- or mixed-type histology. 18 patients (12 %) achieved complete pathological response, with only one patient in the lobular subgroup (5 %). 19 patients

(12 %) never proceeded to surgery, eight of whom died during the study period. In total to date, 19 patients (12 %) have died including one death due to complications from chemotherapy. 41 patients (26 %) were able to undergo breast conserving surgery (BCS), including three patients with lobular cancer. In the subgroup undergoing BCS, surgical margins were involved in five patients, including in all patients with lobular cancer.

Conclusions: In our experience, patients receive neoadjuvant chemotherapy for breast cancer for a variety of indications. Compared to our standard population of breast cancer patients, early mortality remains relatively high, whereas BCS rates are relatively low. BCS after neoadjuvant chemotherapy was unsuccessful in all cases of lobular-type cancer.