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Abstracts for poster presentation at the Association of Breast Surgery Conference, 16th & 17th May 2016, Manchester Central

P002. How clean is breast surgery? An audit of surgical site infection rates in breast operations

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Background: Surgical site infection (SSI) is a serious and costly complication; delaying recovery, adjuvant treatment and altering cosmesis. The recorded incidence of infection in breast surgery is between 3% and 15%, yet it is regarded as a clean operation.

Aim: To quantify the SSI rate and identify factors that influences the risk of infection.

Methods: A prospective audit completing a full cycle, data collection in each cycle was 3 months, patients wound status was assessed in the clinic two to three weeks post-operative and confirmed by using a 30 day post-operative questionnaire, none of the responding patients were followed up by phone calls. The first cycle and the second cycle had 175 and 135 patients with a confirmed wound status respectively. All operations for benign and malignant breast disease as well as axillary operations were included except reconstructive breast surgery, pre-operative prophylactic antibiotics were routinely given to patients in the second cycle upon recommendations from the first cycle.

Results: In the first cycle the rate of confirmed wound infection based on clinical or microbiology evidence was 13%. Rate of wound infection in the group of patients receiving prophylactic antibiotics for various indications was less than the patient not receiving antibiotics 9% and 15% respectively. Prophylactic antibiotics were advised for patients undergoing surgery for benign and malignant breast disease. In the 2nd cycle the rate of wound infection decreased to 5.3% with statistical significance of $P<0.05$. No benefit found in benign breast procedure in both cycles.

Conclusion: The rate of SSI in breast surgery is higher than expected. Breast surgery shouldn't be categorised as clean surgery and prophylactic antibiotics will decrease the rate of infection.

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P003. Reducing length of hospital stay after breast reconstruction − Is it possible? Is it safe?

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Introduction: Historically patients have been admitted for several days post breast reconstruction, as it was perceived to be major surgery. Reducing hospital stay can improve patient outcomes and reduce cost. After successfully implementing a protocol to reduce length of stay (LOS) for breast cancer operations, we implemented the same for reconstruction. Pre and post intervention outcomes were assessed.

Methods: The interventions introduced in 2014 in a bid to reduce LOS were changing expectations, increasing number of breast care nurses in the community and utilising the surgical assessment unit for day attendance. We retrospectively compared primary breast reconstructions carried out in a single unit, by two surgeons, in 2010 (pre-intervention) and 2014 (post-intervention). Both immediate and delayed reconstructions were included.

Results:

	2010	2014
No. of patients operated	25	41
Mean length of stay (days)	4.5	1.1
7 day return to theatre	3 (12%)	0
30 day readmission	4 (16%)	4 (10%)

Reasons for re-admission in 2010 were seroma (2), wound infection (1) and implant infection (1). Similar reasons were noted in 2014; wound infection (2), seroma with pain (1) and side effects of analgesia (1).

Conclusions: Reducing hospital length of stay is possible, with no significant detrimental effect on patient outcomes and re-admission rates. It can be continued safely in patients undergoing primary breast reconstruction.

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P004. How achievable are ABS/BAPRAS guidelines for artificial dermal matrix assisted breast reconstruction?

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Introduction: Acellular dermal matrices (ADM) are being increasingly used for implant-based breast reconstruction. The reported benefits include a favourable aesthetic outcome and shorter length of hospital stay, however there are concerns over the short-term post-operative outcomes. We aim to audit our local rates against the joint ABS/BAPRAS guidelines in 2013.

Methods: A retrospective audit of all consecutive patients who underwent breast reconstruction using ADM (Strattice™) from Feb 2013 to Jun 2015 at the Royal Stoke University Hospital was done (N=56).

Results: Median age was 49 (range: 29-80) years; 47/55 (85.5%) were non-smokers; median BMI was 24 (19-37) kg/m^2; 31/56 (55.4%) had sentinel node biopsies, 14/56 had axillary nodal clearance, 11/56 did not require axillary interrogation. Median hospital stay after ADM was 2 (1−6) days. 49/56 had skin-sparing mastectomies, the remainder had skin reduction. Of these, 7/56 (12.5%) required return to theatre vs. target standard of <5%. 3/56 (5.4%) required explant vs. target standard of <5%, 3/56 (5.4%) had skin flap necrosis, 18/56 (32.1%) had erythema, 9/56 patients (16.1%) required seroma aspiration, and 4/56 (7.1%) developed haematomas.

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Conclusion: Our short-term complication rates are higher than the target standard; this may be due to the initial learning curve with ADM use. Further work is required to see whether these standards are achievable.

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P005. Post-operative follow-up practice of phyllodes tumour in the UK: Results from a national survey

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Introduction: Resected phyllodes tumours (PT) of the breast carry a small but significant risk of recurrence. Nevertheless, there are no national guidelines on the post-operative follow-up of these tumours potentially resulting in a wide variation in practice among breast surgeons in the UK.

Methods: A web-based questionnaire was sent to NHS breast surgeons across the UK to assess individual follow-up practices including availability of local guidelines, methods of follow-up and influence of risk factors.

Results: Only 38% from a total of 121 responses indicated the availability of local guidelines on PT follow-up. Modal follow-up duration for borderline and malignant disease was 5 years (53.7% and 79.3% of responses respectively), compared to 1 year for benign disease (43%) although 28% of respondents continue to review benign cases for 5 years. Less than 10% offered patient-directed follow-up for benign and borderline disease, mostly in NHS England. Within hospitals represented by more than one respondent in this survey, only 30% demonstrated consistent practices pertaining to length and frequency of post-operative PT follow-up. Around 25% of respondents from NHS England and NHS Northern Ireland reviewed patients clinically without routine imaging. Recurrent disease and margin status influenced the follow-up practice of 60% of respondents in our survey.

Conclusion: This survey highlights the wide variation in post-operative follow-up for PT within the UK. This may affect the detection of disease relapse or, conversely, result in wasted clinical resources and unnecessary patient distress. Evidence-based national guidelines are necessary to resolve this issue and inform best follow-up practice.

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P006. Long-term survival analysis of breast cancer patients treated with neoadjuvant chemotherapy

Asma Munir, Sujatha Udayasankar, Anita Huws, Gill Dazeley, Yousef Sharaiha, Simon Holt, Saira Khawaja
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Introduction: We present our experience of breast cancer patients who were treated with neo-adjuvant chemotherapy (NACT) and a correlation between the pathological complete response and overall survival in this group.

Methods: All patients who underwent NACT followed by definitive surgery during the period December 2008 to 2014 were included. The pathological response to NACT in the tumour and the axillary nodes [complete response (pCR), partial response (pPR)] was correlated with the disease free survival (DFS) and overall survival (OS).

Results: The median age of the 82 patients was 53 years. The tumour stage was 4.8% T1, 39.8% T2, 18.1% T3, 36.1% T4. The nodal status was 14.6% N0, 52.4% N1, 26.8% N2, 6.1% N3. The intrinsic subtypes at presentation were classified as ER/PR positive (50%), triple positive (10.9%), Her-2 enriched (10.9%), and triple negative (28%). A pCR was in 13 patients (pCR rate 15.9%). PCR was in 2.4% (1/41) of ER/PR positive patients, 33% of (3/9) triple positive patients, 55.5% of (5/9) Her-2 enriched, and 17.4% of (4/23) triple negative patients. At a median follow up of 27 months, (range 4−79 mo) the 5 year DFS and OS was significantly higher in patients achieving a pCR.

Conclusions: The pCR rate to NACT in Her 2 enriched breast cancer is considerably higher than in other subtypes of breast cancer. A pCR of both the tumour and axillary lymph nodes is a surrogate for both DFS and OS at 5 years in Her-2 enriched tumours and basal subtypes of breast cancer.

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P007. Use of ultrasound in assessment of male breast cancer

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Introduction: The primary aim of assessment of the symptomatic male breast is to exclude malignancy. This study looks at the sensitivity and specificity of ultrasound (USS) in the detection of malignancy in symptomatic male breast patients.

Method: Retrospective review of electronic health records of all male patients at Northumbria Trust Hospitals who underwent "breast USS" through the radiology department from 1 Jan 2013 to 31 Dec 2014. Findings of the USS were reviewed together with further histological investigations ordered.

Results: There were a total of 349 men who underwent an ultrasound of the breast.

97% of these were either normal (U1) or benign (U2). 115 of these 349 men (33%) underwent a further histological test and 6 malignancies were detected. Ultrasound was shown to be both sensitive (100%) and specific (100%) for malignant lesions (C4 &C5). Ultrasound findings also showed concordance with histological findings.

Conclusion: Ultrasound is an excellent diagnostic tool in symptomatic male breast patients. Thus, male patients who clearly have radiologically proven U2 lesions need not have a further histological assessment, thus saving the patient from unnecessary anxiety, and saving cost to the hospital. In view of these findings, our unit policy has been changed to use ultrasound as first line and no FNA unless radiological or clinical suspicion.

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P008. Comparative performance of axillary ultrasound in the preoperative diagnosis of metastasis in the two common Invasive Breast Malignancies

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Aim: To determine if the sensitivity of axillary ultrasound (AUS) combined with fine needle aspiration cytology (FNAC) is comparable in Invasive Lobular Carcinoma (ILC) and Invasive Ductal Carcinoma (IDC).

Method: Retrospective audit of 100 consecutive patients each with post-operative histology of ILC operated between December 2012 − June 2015 and IDC between August 2014 − November 2014. 196 patients underwent AUS. Nodes classified as indeterminate or abnormal underwent FNAC. Outcome was correlated with sentinel lymph node biopsy (SLNB) or Axillary Node Clearance (ANC) histology.

Results: AUS was negative in 61 ILC patients and suspicious or indeterminate in 35 patients. 4 did not have AUS. Pre-operative AUS and FNAC identified 16 of 35 (45.7%) node positive patients. Sensitivity was 42.86% (95% CI 26.32% to 60.65%), specificity 100% (CI 94.31% to 100%), PPV 100% (CI 78.20% to 100%) and NPV 75.90% (CI 65.27% to 84.62%). The average size of positive node tumours was 48.75mm and node negative 25mm. The average nodal burden in false

negative cases was 7.1 (1−18). AUS was negative in 65 IDC patients and suspicious or indeterminate in 35 patients. Pre-operative AUS and FNAC identified 20 of 35 (55.5%) node positive patients. Sensitivity in IDC was 55.56% (95% CI 38.10% to 72.06%), specificity 100% (CI 93.84% to 100%), PPV 100% (CI 83.16% to 100%) and NPV 78.38% (CI 67.28% to 87.11%). The average size of positive node tumours was 32mm and node negative 18mm. The average nodal burden in false negative cases was 2.1 (1−3).

Conclusion: Our study suggests that AUS has comparable sensitivity in ILC and IDC similar to other published studies.

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P009. The oncological outcomes of Breast Conservation Surgery (BCS) following Neoadjuvant Chemotherapy (NACT)

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Introduction: NACT has been proven to safely allow breast conservation by tumour shrinkage. We reviewed our outcomes in patients who had BCS following NACT and assessed factors influencing them.

Methods: This is a retrospective analysis of 80 patients who were treated with NACT over 4 years (07/2010 to 12/2014). BCS was performed in 22 patients and were included in this study. The demographics, biological markers, pathological responses, DFS and OS were evaluated.

Results: The median age was 50 (29−70yrs). There were 10 premenopausal and 12 postmenopausal patients. 19 lesions were $>$ 2cms. The mean size of the lesions on mammogram was 28mm. The post-chemotherapy mean histological size was 13mm. 20 patients had clinical nodal involvement pre NACT. All of the patients had an infiltrating ductal carcinoma with 11 being hormone receptor positive, 9 triple negative (TN) and 5 being Her2 positive. The tumours were grade 2 in 15 and grade 3 in 7 patients. 13 had FECT chemotherapy whilst others had ACT, TCH and dose dense ACP. All of them had clear surgical margins and adjuvant radiotherapy. The 5 patients who responded to NACT with no residual disease in breast were TN and 3 patients had heavy nodal disease. These latter patients succumbed to regional or distant metastases with the mean DFS being 27.5 months. The mean follow up in all our patients was 21.5 months and overall survival was 100%.

Conclusion: Our results confirm that if patients undergoing BCS following NACT are carefully selected, the recurrence rates remains low.

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P010. Patients' information on NHS Trust's website: Getting patients involved

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Background: The internet is a great source of information. Many patients will search the internet to learn about their symptoms, potential diagnosis, and different treatment options and to know more about the team looking after them.

Methods and materials: We carried out a pilot patient's survey for patients attending the breast care centre in March − April 2015. 82 patients were asked to participate in the survey by filling a questionnaire. Patients were asked about the reason for their visit (symptomatic, results or follow up clinic), age, whether they have checked our current page, whether they have checked the internet for specific information. Patients were also asked about the information they would like to have on our new web page.

Results: 82 patients participated in the survey. 90% patients were seen in one-stop clinics. Only 8 (9.7%) patients visited our current NHS webpage. 31 (38%) patients searched the internet for information regarding their current problem. Patients wanted information regarding breast self-examination; breast symptoms; their forthcoming clinic visit; our breast care team; patients' feedback from their experience in our centre; breast cancer treatment and trials in our unit.

Conclusion: It was found that there is a gap between the information needed by patients and the information given on the NHS Trust webpage. The first step to fulfill this gap should start by getting patients involved and update the webpage to cover most of the illness related issues (symptoms, diagnosis and treatment). As a conclusion, our new web page should reflect our patients' needs.

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P011. Survival analysis of patients receiving neoadjuvant chemotherapy in inflammatory vs non-inflammatory locally advanced breast cancer

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Background: The objectives of this study was to determine the recurrence and survival difference in women receiving neoadjuvant chemotherapy for inflammatory breast cancer (IBC) compared with non-inflammatory locally advanced breast cancer (LABC).

Methods: Patients with newly diagnosed stage III breast cancer who initially received neoadjuvant chemotherapy between 2008 and 2013 were identified. Disease free survival (DFS) and overall survival (OS) were estimated using the Kaplan−Meier curves and compared across groups using the log-rank statistic.

Results: A total of 55 patients with stage III breast cancer were identified. Of these, 22 (40%) women had an IBC and 33 (60%) women had a non-inflammatory LABC respectively. The median follow-up was 26 months (5−73 months). The 2-year overall survival rate was 73.7% (95%CI, 59.8%−74.2%) for the entire cohort. Among women with an IBC and non inflammatory LABC, the survival was 66.7% (95%CI, 43.7%−84.2%) and 79.9% respectively (95%CI, 61.8%−91.1%). In the multivariable model, patients with an IBC were not found to have an increased risk of death from breast cancer compared with patients with a non-inflammatory LABC [hazard ratio, 1.3; 95%CI, 0.4−4.2 (P =0.619)]. The 2-year disease free survival rates were 63.6% (95%CI, 40.8%−81.9%) and 63.6% (95%CI, 45.1%−79%) among women with IBC and non-inflammatory LABC respectively [HR 0.53 (95%CI 0.21−1.3, p=0.169)].

Conclusion: With the multidisciplinary management and taxane-based polychemotherapy regimens, our series showed that women with an IBC have no difference in survival outcomes compared with those with a non inflammatory LABC.

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P012. Appropriate DEXA scans for breast cancer patients? An audit of service improvement

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Background: Baseline dual energy X-ray absorptiometry (DEXA) scanning is recommended as standard of care in identifying patients at risk of low bone density and fragility fracture after the diagnosis of breast cancer, so they can be commenced on bone protective therapy. We audited our DEXA scan practice against NICE guidance with a target of 100% concordance and present findings of subsequent re-audits.

Patients and Methods: During a one year period (April 2012 − April 2013), a sample size of 100 patients with a new diagnosis of breast cancer were randomly selected from the hospital coding database. We gathered

information using electronic records, letters and imaging. This showed a poor compliance of 38% against guidelines. Our patients with low BMD at diagnosis of breast cancer were being under-diagnosed and therefore under-treated. We disseminated results to surgical and oncology departments produced posters for breast clinics summarising the guidelines and raised awareness of the NICE guidance at our breast MDT meetings.

Results: A re-audit of invasive breast cancer in Jan 2014 showed compliance of 90% compared to the baseline measure of 38%. In order to show that this improvement could be sustained, two further cycles were performed in February and March 2014, where the compliance was 92% and then 100% respectively. Therefore we demonstrate progressive improvement and ultimately full compliance over subsequent cycles.

Conclusions: A multi-disciplinary approach can help achieve a substantial improvement in the quality of assessment of bone quality in patients with breast cancer.

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P013. Is it time to review the role of axillary surgery in the management of DCIS

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Introduction: Nicholson et al, 2014 demonstrated that there was unnecessary axillary surgery for DCIS in the UK and should be limited to those having mastectomy or micro-invasion on core biopsy. The ABS Axillary Consensus proposed that if SLN positive for T1, grade 1 or 2, ER positive and HER2 negative tumours then further axillary surgery was not warranted.

Method: Retrospective audit 1st April 2014 to 31st March 2015 identified all cases of DCIS diagnosed at a regional screening unit. The imaging, final histology and surgery were collected.

Results: 75 patients with DCIS were identified. 74 had surgery. 13 had mastectomy with 61 receiving initial WLE, 8 of whom went onto receive mastectomy. In our series pre-operative DCIS was upgraded to invasive post-operatively in 13 cases (18%), measuring 1.2mm−8mm. Nottingham Prognostic Index (NPI): 5 EPG; 5 GPG; 2 MPG1 and 1 MPG2 (upfront ANC for axillary pre-operative C5). 23 cases had axillary surgery; 14 upfront SLNB before immediate reconstruction revealed 1 patient with 1 macrometastasis and 8 SLNB subsequent to tumour upgrade to invasive were all negative.

Conclusion: There was one macromet in 22 SLNB. What is acceptable benefit-risk ratio in this cohort? Nationally only 1% of SLN were positive.

We recommend pre-operative axillary US and if normal and subsequent invasive disease is low risk (− NPI <3.4) recommend no subsequent axillary surgery.

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P014. MacMillan beyond breast cancer treatment project

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Background: Approximately 2500 patients are diagnosed with breast cancer in South Wales each year (South Wales Cancer Network). Follow up tends to concentrate on clinical aspects of cancer recurrence, not necessarily addressing the holistic needs of the patient. There has been no systemic method of formally assessing the patient's needs and signposting to the appropriate support; enabling them to move out of secondary care and to live well "Beyond Breast Cancer Treatment".

Aims: Clear pathways, supporting information and signposting across treatment and follow up.

Individual holistic assessment for each patient at the end of treatments.

Individual handheld treatment summary and follow up plan for each patient.

Outline: Macmillan Cancer Care, in collaboration with Velindre Cancer Centre and Cardiff and Vale Breast Centre, have worked with Breast Care Nurses (BCNs) across South Wales to produce a consistent minimum content for patient centred holistic discharge. As patients move to monitoring and surveillance, they are offered the opportunity to attend a personalised "beyond treatment consultation" with their BCN, including a holistic assessment; a consultation tailored to each patient; and a personalised hand held patient plan.

Evaluation: Patient evaluation of the "beyond treatment" consultation:

Feedback from BCNs throughout South Wales. Questionnaire and verbal.

Outcomes: All patients undergoing breast cancer treatment in South Wales will be offered a beyond treatment consultation, undergo a holistic needs assessment and receive a handheld treatment summary and follow up plan.

Patients will feel more confident in dealing with any future concerns.

Less contacts with GP and BCN for reassurance.

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P015. Impact of nodal disease on the outcomes following neoadjuvant chemotherapy

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Introduction: Axillary nodal disease management has been evolving recently. We aim to look at the outcomes in patients having neo-adjuvant chemotherapy with nodal disease and the effects of complete Pathological Response (cPR).

Methods: The study included 80 patients treated with NACT followed by surgery from 2010−2014. We looked at axillary nodal assessment, treatment, tumour characteristics and the outcomes.

Results: Nodal disease was ascertained either clinically or histologically in 68 patients pre-NACT and with Sentinel Node Biopsy (SNB) in 12 patients post-NACT. 74 patients had Axillary Node Dissection (AD). cPR was achieved in breast and axilla in 10 patients. cPR of breast alone was achieved in 5 patients of whom 3 succumbed to nodal and distant recurrences. The mean Disease Free Survival (DFS) was 24 months; overall survival was 100%. In the 80 patients, there were 23 recurrences of which 11 were triple negative, 9 ER+ and 3 Her2+. 44 patients were T3/ T4 cancers. Following AD, 25 patients had 0 nodes and 24 were well. One patient recurred at 51 months. Of 26 patients with 1−4 nodes at AD, 19 were well and 7 recurred with mean DFS of 29.5 months. Of 28 patients with >= 5 nodes at AD, 13 were well and 15 recurred with mean DFS of 16.2 months. The mean follow-up was 28 months and overall survival of 78.7%.

Conclusion: TN cancers constituted 48% of the recurrences. Heavy nodal disease and non-responsiveness to NACT are associated with regional/distant recurrences and a decline in the mean DFS.

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P016. Transitional B-lymphocytes populations correlate with the development of Breast cancer related fatigue

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Introduction: Cancer Related Fatigue (CRF) is an increasingly recognised and distressing phenomenon common to most patients during cancer treatment. Chronic fatigue is experienced by over a third of cancer survivors' years following treatment, and has been linked to shorter survival in breast cancer. The aetiology of CRF remains poorly defined, however abnormalities of immunological cell number and function remain the focus of research as potential causative factors.

Methods: The lymphocyte phenotype of patients undergoing treatment for breast cancer both pre- and post-chemotherapy were compared to identify changes related to the development of fatigue. These results were compared with a cohort of patients newly diagnosed with Chronic Fatigue Syndrome (CFS) to identify similarities in lymphocyte phenotype. Fatigue and physical functional limitations were assessed by validated questionnaires: Chalder Fatigue scores and SF-36 respectively, and detailed lymphocyte phenotype was assessed using peripheral blood stained for lymphocyte cell surface antibodies and analysed with multi-colour flow cytometry (FACS Canto-II).

Results: Pre-treatment data are available for 43 breast cancer, 21 CFS patients, and 7 controls. Initial matched post-treatment data are available for 16 breast cancer patients. Lymphocyte numbers and subpopulations did not significantly differ between CFS and pre-chemotherapy breast cancer patients. However, we noted reduced transitional B-cell ($CD19^{+}$ $CD24^{hi}$ $CD38^{hi}$) populations correlated with the severity of diminished physical function in CFS patients ($r=0.82$, $p=0.006$) and in post-chemotherapy breast cancer patients, ($r=0.73$, $p=0.006$). IL-10 production by transitional B-cells correlated inversely with severity of fatigue in post-chemotherapy patients ($r=0.65$; $p=0.03$).

Discussion: The preliminary findings suggest transitional B cells may correlate with the severity of physical limitation in CRF and CFS, and require further study to assess their potential role in the aetiology of fatigue.

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P017. Does a pragmatic physiotherapist-led physical activity intervention work to improve the physical activity behaviour of breast cancer survivors?

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Introduction: The role of physical activity in the management of breast cancer has consolidated over the last decade. We designed a pragmatic physiotherapist-led physical activity intervention to enhance the physical activity behaviour of breast cancer survivors.

Patients and methods: All patients, who attended breast cancer follow up clinic more than one year after the diagnosis, were invited to take part in this intervention. 74 patients completed baseline assessments and 55 patients completed post 6-month intervention (retention: 74%). The intervention is shown in Table 1.

Results: There was improvement in overall physical activity and number meeting PA guidelines and the participants spent less time engaged in sedentary behaviour (i.e. time sitting). Mean improvement in 6-min walk distance was by 40m. There were significant improvements in mean HRQoL (FACT) outcomes; these improvements satisfy the minimal important difference criterion (BCS=2−3 points, FACT-G=5−6 points, FACT-B=7−8 points, and TOI=5−6 points) (Eton et al., 2005)

Conclusion: Patients in our pragmatic physiotherapist-led intervention improved on average overall PA, quality of life and cardiorespiratory fitness.

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P018. Prevalence of cardiovascular disease risk factors in breast cancer survivors

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Introduction: Cardiorespiratory Fitness (CRF) is associated with both increased breast cancer and CVD mortality risk, independent of adiposity. Women diagnosed with breast cancer experience an excess of CVD mortality. Therefore, the purpose of the current study was to examine the CRF levels and prevalence of CVD risk factors in a sample of breast cancer patients within one year of completing post-adjuvant therapy.

Methods: With local NHS ethics committee approval, 32 breast cancer patients (age=52±10 years; height=162±5.4 cm; mass=70.6±10.3 kg; BMI=27.2±4.4 $kg \cdot m^2$; chemotherapy received=16/32, 50%) underwent an incremental exercise tolerance test to symptom limitation to assess CRF (peak oxygen uptake, VO_2peak). Pre-test patient's height and mass measurements were taken and physical activity (PA) was assessed via International PA Questionnaire (IPAQ). We stratified CVD risk based on Wilkins et al., (2012) model (model 1), and an additional model (2) with insufficient PA and overweight/obesity included.

Results: Eight breast cancer survivors had pre-existing co-morbidities. According, to risk stratification model 1, only one (4%) participant had all optimal levels of included risk factors, however, 12 (48%) and 18 (72%) participants had at least one major risk factor based on model 1 and 2, respectively.

Conclusions: A relatively large number of our sample were exposed to an increased risk of CVD and breast cancer-related mortality and would benefit from CVD and breast cancer mortality risk lowering interventions.

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Table 1.

Method	Objective	Duration (min)	Adjunct	Instigator	Months of Intervention						
					0	1	2	3	4	5	6
Baseline assessment Face to face consultation	Goal setting Uptake of PA Safety information	30	Information booklet DVD (developed by Breast Cancer Care)	Trained member of the research team	√						
Support telephone call	Motivation Positive reinforcement Prevention of relapse	15	Standardised script	Trained member of the research team		√	√	√			
Mailed physical activity prompt	Continued encouragement	N/A	N/A	Member of the research team					√	√	
Return Assessment											√

P019. Volume replacement or displacement? A mature study of patient-reported outcomes

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Introduction: Oncoplastic breast-conserving surgery (OBS) allows radical excision of large tumours. Patient-reported outcomes following therapeutic mammaplasty (TM) and LD miniflap (LDm) procedures were compared, as patients may be suitable for either approach.

Methods: BREAST-Q© questionnaires[1] were sent to 333 women treated by therapeutic mammaplasty (TM,112) and LD miniflap (LDm, 221) since 1991. Qscore© software calculated scores/100 for breast appearance, and physical, emotional and sexual wellbeing.

Results: 150 (45%) women returned questionnaires (TM *v* LDm, 52% *v* 42%, age 59[39−83] *v* 49[30−70]yr, follow up 53[4−174] *v* 112[6−281] months). TM patients returned higher scores for satisfaction with breast appearance, similar scores for physical and emotional wellbeing, and lower scores for sexual wellbeing (TM *v* LDm: 70 *v* 64, 79 *v* 77, 79 *v* 76 and 51 *v* 57, respectively). Most patients would encourage others to have this type of surgery (TM *v* LDm, 90% *v* 74%) and would repeat their choice again (TM *v* LDm, 86% *v* 73%). More LDm patients (∼10%) reported back/shoulder symptoms 'most or all of the time', but few (<5%) were concerned about donor site appearance. Overall satisfaction with surgical outcomes was high, but greatest after TM (excellent/very good/good results TM v LDm, 96% *v* 88%).

Conclusion: Patients report high levels of satisfaction and long-lasting, positive outcomes after OBS. Donor site avoidance and breast reduction may explain greater satisfaction after TM.

[1]Pusic A et al. Development of a New Patient-Reported Outcome Measure for Breast Surgery: The BREAST-Q. *Plast Reconstr Surg* 2009;124:345−53.

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P020. Auditing false negative rate for breast cancer detection in a symptomatic triple assessment clinic − A novel "surrogate marker"

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Introduction: National Guidance for early detection of breast cancer (DOH 2010) recommends a False Negative Rate (FNR) for symptomatic clinics of less than 2 per 1000. This figure was derived from a prospective study using the screening principle of interval cancers occurring within 3 years of initial assessment and quoted 2.67 per 1000. This approach is difficult for busy units to emulate and demonstrate to commissioners a safe and efficient performance. We developed a novel method of assessing "surrogate FNR" retrospectively.

Methods: All female patients presenting for TA in two time periods (1 January 2006 - 31 December 2008; 1 January 2009 -31 December 2011) were included. Patients diagnosed with cancer in the second period were reviewed for previous attendance to TA.

Results: In the second period 23 patients diagnosed with breast cancer had been to TA within 3 years.

These patients fell into two groups: 'new' and 'missed or delayed' diagnosis. 15 patients had a new problem, i.e. different area of breast or contralateral breast. Eight had a 'missed or delayed' diagnosis. Four were referred with a lump but assessment was unremarkable. 87% had radiology; only 50% had a full TA. Two patients had subtle changes on review of previous mammograms. The FNR for our unit was therefore 1.1 per 1000 new referrals. Delay in diagnosis was 8−33 months, of whom 50% were node positive.

Conclusion: FNR is low but a crucially important performance indicator. Our surrogate method is simple and achievable in most breast units.

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P021. Five-year local recurrence for breast cancer: The presentation of our local data

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Background: Breast cancer is the most common cancer in women, affecting 1 in 8. Overall survival has now reached 80%, with improved targeted therapy. Although a large amount of data is collected for national audit, in the UK local recurrence rate is largely unknown.

Methods: Retrospective analysis of prospectively collected data for all patients diagnosed with breast cancer at our trust from 2005−2009 to enable 5 year follow up. Comparison to current literature, and statistical analysis of our results was performed using a standard statistical package.

Results: 1075 patients were identified. 137 (12.64%) patients had breast cancer related deaths, giving overall 5 year survival of 74.7%. 154 (14.3%) patients developed metastatic disease without local recurrence, and 19 (1.74%) local recurrence. Overall survival for patients with local recurrence dropped to 69.5%. 78.9% of patients self-presented with their recurrence out of the surveillance program. A multiple logistic regression model was created using the individually statistically significant variables (histological grade, Sentinel Lymph Node (SLN) positivity, tumour size). The analysis highlighted a likelihood ratio of 3.08 (95% CI 1.81−5.43) for SLN positivity, and 1.97 (95% CI 1.11−3.4) for tumour size; no other variables contributed significantly to the model.

Conclusion: Our local recurrence rate is significantly lower than the perceived rate of 1−2% per year. An overall analysis of all histological variables attributes more clinical significance when assessing an individual's probability of recurrence. Patient self-assessment detected the majority of local recurrence; questioning the benefit of annual clinician review and in keeping with the national drive.

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P022. Paravertebral blocks in Latissimus Dorsi breast reconstruction

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Aims: To compare outcomes of patients undergoing latissimus dorsi (LD) breast reconstruction managed with or without paravertebral block (PVB) regional anaesthesia.

Methods: In a retrospective study of 55 LD reconstructions: 27 patients received pre-operative PVB and 28 patients did not receive PVB. Both groups were prescribed a patient controlled analgesic system as well as routine oral analgesia. Length of stay (LOS), total morphine requirement (TMR), pain scores at 1hrs, 6hrs, 12hrs and 24hrs, complication rate and post-operative nausea and vomiting (PONV) were compared. Data was analysed using t-tests with level of significance $p<0.05$.

Results: The two groups were comparable in terms of mean age (PVB 56 +/− 9.9, without PVB 56 +/− 7.3) and mean BMI (PVB 26 +/− 4.39 without PVB 25 +/− 4.6). Three patients had failed PVB insertion and were excluded. There were 6 more delayed reconstructions in the group without PVB.

There were more complications requiring intervention in the group that received PVB (25%) than those without a PVB (14%) although this was not significant ($p=0.33$). There were no significant differences between LOS, TMR, PONV and pain scores at 1hr, 6hrs, 12hrs or 24hrs between patients that received PVB and those without.

Conclusion: We have observed no difference between patients managed with or without PVB according to the measured outcomes in patients undergoing LD reconstruction. Anecdotally, anxiety and reported pain scores may be reduced in those undergoing delayed reconstruction. A future study including patient reported outcomes may be useful to help clarify.

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P023. The impact of contrast enhanced ultrasound in the assessment of normal or benign axillas in patients with known breast cancer

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Introduction: Contrast enhanced ultrasound (CEUS) of the axilla can be used to identify the axillary sentinel lymph node. We introduced this into our practice in 2013. The purpose of our audit was to see the negative predictive value of CEUS biopsy of the SLN.

Methods: This was a retrospective audit. 117 patients with invasive breast cancer were identified at the breast MDT. All patients had a normal axillary US or negative biopsy. The US core biopsy, surgical sentinel node biopsy and subsequent axillary histology were documented.

Results: CEUS identified the sentinel node in 89% (104/117). 88/104 cases (85%) had a definitive biopsy (B2-B5) result with 14 being malignant and 74 benign. 16 were non diagnostic. The prevalence of axillary metastases at surgery was 32% (33/104) (24 macrometastases, 9 micrometastases or isolated tumour cells), of which 44% were detected by CEUS with 100% specificity. The negative predictive value of CEUS with core biopsy is 79% but 88% if only macrometastases are included. The subsequent nodal burden was higher in nodes positive on CEUS with eight having only 1−2 node positive and six - 3 or more nodes than those with false negative biopsies - Three with ITC, Fourteen with 1−2 nodes positive and Two - 3 or more nodes

Conclusion: CEUS and biopsy is a promising technique for reducing the false negative rate of imaging at the time of SLNB. It allows for differentiation of micro and macrometastases to assist planning of appropriate axillary surgery. The nodal burden is higher in those identified pre-operatively.

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P024. Reconstructive breast surgery: Compatibility of Strattice™ matrix with radiation therapy

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Introduction: Strattice is a porcine acellular dermal matrix used in breast reconstruction. It acts as a hammock for breast implants and to define the infra mammary fold.

Method: All patients underwent strattice based reconstruction between 2010−15. The strattice matrix was used to create the subpectoral pouch in which the implant was placed. Patients were divided into those who had immediate reconstruction and those who had previous mastectomies and delayed reconstruction. Indication for surgery, size of implant, follow up time and significant complications were recorded. Furthermore, patients were divided based on their adjuvant therapy, such as radiotherapy, and whether it was pre or post-operative.

Results: There were 76 cases with average age of 52 years (33−79). 36 cases had a skin sparing mastectomy with immediate reconstruction, 36 had delayed reconstruction, 2 had mastectomy and immediate reconstruction and 2 were re-do operations. 32 (42%) had radiation; 4 pre-reconstruction, 11 post-reconstruction and 17 had radiation to the chest wall after mastectomy. The average size of implant used was 422g (195−765). Follow up time was 27 months (1−62).

Complications	Total	% of total	Radiation
Extrusion	1	1.3 %	−
Infection	3	3.9 %	2/3
Poor skin compliance	5	6.5 %	4/5
Wound breakdown	2	2.6 %	2/2
Capsular contracture	1	1.3 %	1/1
Flap necrosis	1	1.3 %	0/1
Bottoming out	1	1.3 %	1/1

Conclusion: Radiotherapy is safe post-reconstructively but carries higher risk of complication after chest wall radiation. This elevated risk should be emphasised to the patients to help cope with these issues.

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P025. Patient satisfaction with cosmetic outcome after wide local excision and excision cavity reconstruction using tissue displacement: II. Remote Access

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Background: We previously reported patients' satisfaction with Cosmetic Outcome (CO) following Wide Local Excision (WLE) and Excision Cavity Reconstruction (ECR) using Direct Approach (DA) to the tumour, which leaves a visible scar[(1)]. We report here patients' satisfaction with CO after WLE and ECR using Remote Approach (RA) placing incisions away from the tumour site (Circumareolar, Inframammary or Axillary).

Methods: We audited CO satisfaction of a group of patients who underwent WLE and ECR using RA, scoring satisfaction in 10-marks score. We used the Mean of Satisfaction Scores and converted it to a Percentage (PMSS) in our calculations.

Results: 30 patients enrolled, one patient needed further surgery for margins and three patients did not have radiotherapy. With no-radiotherapy, PMSS was 96.6% vs 93.7% with radiotherapy. PMSS was 93% for right-sided tumours vs 94% for left-sided. PMSS was 94% for UOQ, 90% for UIQ, 97% for LOQ, 90% for LIQ and 100% for Central cancers. PMSS for cancers up to 2cm was 95.3% vs 92.6% for those above 2cm. 50% of patients were satisfied 10/10, 40% satisfied 9/10 and 10% satisfied 8/10. PMSS for circumareolar incisions was 94.4%, 93% for axillary, and 95% for inframammary. PMSS for patients younger than 60 years was 94.5% vs 93.6% for older patients. Overall PMSS for RA was 94% vs 93% for DA in our previous report.

Conclusion: ECR improves CO satisfaction for patients undergoing WLE. RA avoids visible scars on breast skin but only slightly improves CO satisfaction over DA, and may be considered for younger patients.

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P026. Outcome of dermal sling based breast reconstruction

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Introduction: Dermal sling is a de-epithelialised skin flap created for breast reconstruction. It acts as a cover for the breast implant placed in the submuscular pocket. The advantage of this technique is the use of redundant breast skin to act as support for the implant whilst also reducing size of the breast.

Methods: All patients undergoing this form of breast reconstruction from 2011- April 2015 were included. The indication of surgery (cancer and prophylactic group), implant sizes, adjuvant treatment given, follow up and significant complications were recorded.

Results: 23 patients underwent 28 procedures. 15 ladies had breast cancer and 13 had prophylactic surgery. Average size of implant used was 532g (295−765g). 5 received radiation to the reconstructed breast, 1 had previous wide local excision & radiation. 9 patients had adjuvant and 1 had neo-adjuvant chemotherapy. No loss of implant was seen after radiation treatment. Follow up was 49.3 months (7−56). Complications shown in Table.

Complications:

Necrosis of T junction	1(3.57%)previous WLE & radiotherapy
Infection/Cellulitis	3(10.7%) 1 implant loss (previous neo-adjuvant chemotherapy) 2 managed conservatively
Local recurrence of flap	2(7%) 1 locally excised 1 reconstruction taken down
Extrusion of implant/expander	2(7%)1 had prophylactic surgery and implant was replaced 1 implant was lost (cancer group with no adjuvant chemo/radiotherapy given)
Total Implant loss	3(10.7%)

Conclusion: We concluded that dermal sling reconstruction is a safe option despite adjuvant treatment and has a dual benefit of creating a smaller breast and avoids using biological or synthetic mesh: the long-term results of which are not known.

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P027. Patient Satisfaction with breast surgeon-led genetic counselling for genetic testing

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Introduction: It is recognised that women attending genetic services have heightened perception of the individual risk of developing cancer; through genetic counselling and testing, patients can be given the true knowledge of the individual risk, regular screening programmes and risk reducing interventions. The aim of this study was to assess the satisfaction of patients with the genetic services provided by breast surgeons in the UK.

Methods: A convenient sample of 100 patients, who underwent the gene test, consists of a panel of 25 genes (myRisk, Myriad Genetics) including the BRCA1 and BRCA2 were contacted for a telephonic interview to assess the level of satisfaction with genetic counselling offered by breast surgeons. The responses were recorded as modified Likert score (1 most dissatisfied and 10 most satisfied).

Results: So far, the response rate of this ongoing study was 53% and data is still being collected. The mean score (SD) of patient satisfaction with the information given to patients before consenting for genetic testing was 9 (3), the mean score of patient satisfaction with the process of testing was 9 (2) and the mean score of patient satisfaction with results was 8 (3). 12% of patients reported that they had to wait too long for the result and 6% of patients reported that they would benefit from a longer appointment for the results, even when the results were negative.

Conclusion: A vast majority of patients are satisfied with surgeon-led counselling for genetic testing for breast cancer. Patient preference is to have an in depth discussion with breast surgeons about the results, even when the genetic testing for any deleterious mutation is negative.

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P028. Lower bone mineral density at the spine in oestrogen/progesterone receptor negative breast cancer patients

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Aim: The aim of this study was to investigate the association between oestrogen/progesterone (ER/PR) receptor status and bone mineral density (BMD) in patients with breast cancer awaiting hormone therapy.

Method: In the current cross-sectional study, with institutional ethical approval, data were gathered on demographics, BMD of the left and right hip and spine via Dual Energy X-ray Absorptiometry (DXA), and breast cancer receptor status in 61 (mean$\pm$SD age, 60.6$\pm$11.7 years) patients. Independent t-tests were used to examine differences between ER/PR status in continuous hip and spine T- and Z-score variables. Chi square analysis was used to compare T-scores (≥ -1 vs. < -1) and Z-scores (≥ 0 vs. < 0) categories and ER/PR status.

Results: Of the 61 patients with breast cancer, 43 (71%) were ER-positive and PR-positive (ER+ and PR+) (age, 59.5$\pm$11.5 years), while 18 (29%) were ER-negative and/or PR-negative (ER-/PR-) (age, 61.8$\pm$12.9 years). On average, patients who were ER+ and PR+ had higher BMD than ER-/PR- patients [mean difference (SE), right hip z-score= 0.57 (0.36); right hip T-score= 0.69 (0.40); left hip z-score= 0.52 (0.34); left hip T-score= 0.67 (0.37); spine z-score= 1.13 (0.43); spine T-score= 1.23 (0.42)]. However, significant differences in BMD between ER/PR status were found only for the spine Z- and T-scores, $t(59) = 2.14$, $p<.05$, $d = 0.6$ and $t(59) = 2.44$, $p<.05$, $d = 0.67$, respectively. Similarly, there were significant associations only between ER/PR status and spine T-score category, $c(1) = 9.7$, $p<.01$. Based on the odds ratio, the odds of a breast cancer patient having a spine T-score < -1 was 6.4 (95% CI, 1.9$-$22.1) times higher if they were ER-/PR- than if they were ER+ and PR+.

Conclusion: Our data suggest patients with breast cancer who are ER-/PR- have significantly lower BMD at the spine but not the hip compared to ER+ and PR+ patients. The lower BMD of ER-/PR- breast cancer patients places them at a greater risk of developing osteoporosis and fragility fracture. These data suggest that ER-/PR- breast cancer patients may require a lower threshold for intervention to minimise future bone loss.

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P029. The impact of EpClin assay on treatment decision-making in women with estrogen receptor-positive, early breast cancer: The London Breast Institute experience

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Background: EndoPredict is a nouvelle 8-gene qRT-PCR assay performed on formalin fixed breast tissue. A level Ib evidence shows it is an independent prognostic parameter in ER-positive, HER2 negative breast cancer. The molecular-clinico-pathological EpClin score, outperforming all clinico-pathological risk factors, has not been used widely outside Germany.

Methods: We analysed the EpClin results of 53 ER-positive early breast cancer patients at our institute and examined the results' impact on decision making of chemotherapy. The associations between EpClin and clinicopathological characteristics were also determined.

Results: Among 53 patients (median age= 53), the median EPclin score was 3.4. 27 (50.94%) had high scores of >3.4, 24 of whom were advised to have chemotherapy; however, one declined. The remaining 3 had scores just above the threshold (3.4) and were advised to have extended adjuvant endocrine therapy. 14 patients (26.41%) were node positive, 2 of whom (14.28%) had low EpClin scores, so their treatment changed from chemotherapy plus hormone therapy to hormonal therapy. Likewise, 23 of the 33 (69.69%) node negative patients were shifted to hormonal therapy alone. All 6 patients (11.32%) with micrometastasis had high EPClin scores and received hormonal and chemotherapy. One node negative, grade 3 tumour with an intermediate Oncotype DX score (25) was reclassified as low risk (EPclin score=3.2). Compared with the Oncotype DX assay, EPClin assay

was more cost and time-effective (2250$ vs 3624$, and 1 week vs. 2 weeks result turnaround time).

Conclusion: The EpClin assay has a significant impact on treatment decision-making in ER-positive, early breast cancer.

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P030. A differential expression of miRNA in plasma and breast tissue: A potential biomarker

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Introduction: Breast cancer is a complex disease and is the leading cause of cancer mortality in women after lung cancer. A non-coding class of RNA called micro RNA (miRNA) is implicated in many diseases including breast cancer where it has been suggested as a potential biomarker.

Material and Methods: Total RNA was isolated from cancerous/border tissue samples and plasma of breast cancer patients, as well as from plasma of healthy women. Expression of a panel of miRNAs was investigated using TaqMan® real-time PCR. Data was analysed using REST software to measure relative differences in expression levels. Statistical significance was assessed using ANOVA.

Results: Data showed a differential expression of miRNAs in both plasma and tissue samples. Analysis identified two miRNA species that were significantly up-regulated in plasma samples of breast cancer patients compared to healthy women; let-7a (1.610, p=0.01) and miR-26b (1.759, p=0.0096) whereas miR-27a (0.622, p=0.0004) miR-222 (0.657, p=0.0286) were downregulated compared to healthy women. Data also showed that miR-21 (3.052, p=0.0014) and miR-429 (8.646, p=0.013) were significantly upregulated in cancerous tissue samples compared to healthy border tissue whereas miR-378 (0.111, p=0.0006) and miR-26b (0.395, p=0.0017) were significantly downregulated in the cancer tissue samples.

Conclusion: This study demonstrates a differential expression of cancer related miRNAs in plasma and tumour samples of breast cancer women and may serve as a basis for future studies to investigate the role of miRNAs in breast cancer which may use as a tool for early detection of the disease.

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P031. Plasma levels of mammaglobin-A, VEGF and PlGF in human breast cancer pathology and survival

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Introduction: Many different factors are involved in tumour invasion and metastasis. Human mammaglobin-A is specifically expressed in breast tissue, over-expressed in some breast cancers and has been associated with less aggressive phenotypes. Vascular endothelial growth factor (VEGF) and placental growth factor (PlGF) are involved in the development and growth of vascular and lymphatic endothelia.

Methods: Pre- and post-operative plasma samples from 80 patients undergoing breast surgery (benign or breast cancer) were analysed by ELISA for mammaglobin-A, VEGF and PlGF levels. Plasma levels were correlated with tumour pathology (Spearman's correlation coefficient) and 5-year disease-free and overall survival analysis was performed (Kaplan Meier, p<0.05). The study had research ethics approval.

Results: The median (range) observed plasma levels for each factor were:

Plasma Levels Median (range)	Mammaglobin-A (ng/ml)	VEGF (pg/ml)	PlGF (pg/ml)
Pre-op plasma	0.81 (0−10.1)	55.3 (2.7−275.1)	8.5 (1.4−19.1)
Post-op plasma	1.2 (0.2−8.5)*	60.1 (0−521.4)	8.9 (2.5−28.2)

* p<0.05 Wilcoxon

There was no association between plasma levels with tumour grade or metastasis, however pre- and post-operative VEGF levels were lower in benign samples than tumour samples (pre-op VEGF; benign: 28.2(4.4−98.4), grade 1: 61.1(6.6−275.1), grade 3: 70.9(8.5−267.9)pg/ml). Five patients had died and three were alive with tumour recurrence. Whilst no significant differences were observed between plasma levels of these factors and 5-year survival, these 8 patients all had detectable levels of mammaglobin-A in both plasma samples.

Conclusions: Differential plasma levels of mammaglobin-A, VEGF and PlGF were observed with tumour pathology and survival. Positive plasma mammaglobin-A expression may be associated with poorer survival.

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P032. Oncotype DX − changing management in node positive and node negative patients

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Introduction: Oncotype DX has been well described, although the UK experience has been limited. Recent NICE guidance has approved its use in a limited set of ER positive node negative patients.

Methods: Since 2012, our unit has been using Oncotype DX for node positive and negative patients with ER positive cancer. This retrospective review examines whether traditional prognostic tools (NPI, Adjuvant! Online & Predict) can select which patients should be tested and how Oncotype DX has changed management in both node positive and negative patients. NPI, Adjuvant! Online & Predict OS estimates were calculated and compared with the Oncotype DX Recurrence Scores & DFS estimates published from NASBP B-20, using the Fisher transformation test.

Results: Since 2012, 37 patients (36 female & 1 male patients [age ranges 22 − 69]) have had Oncotype DX testing in our unit. 23 had node negative (62%) and 14 had node positive disease (38%). There was no correlation between Oncotype DX Recurrence scores/DFS predictions and NPI, Adjuvant! Online & Predict OS estimates. Oncotype DX testing led to change in management in 11/37 (30%) of patients, including a number of node positive women, who no longer required chemotherapy.

Conclusion: There appears to be no reliable way of deciding which patients to test with Oncotype DX, and therefore we suggest that all ER positive patients should be tested. In line with the Manufacturer's database, Oncotype DX predictions appear robust in node positive patients with 1−3 involved nodes. Clinicians should consider using Oncotype DX in node positive patients.

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P033. Surgeon performed breast ultrasound can accurately diagnose symptomatic breast cancer

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Introduction: The role of breast surgeons performing diagnostic breast ultrasound remains controversial. There is no formal accreditation service for non-radiologists performing breast ultrasound. Concerns remain that

cancer patients may have missed or delayed diagnoses, when diagnostic ultrasound is performed by non-radiologists.

Methods: A retrospective audit of the most recent 61 GP referred cancer patients was performed in a single private breast unit, where the 3 consultant surgeons have been performing breast ultrasound for between 8−23 years. The treating breast surgeons routinely perform ultrasound examinations and guided core biopsies.

Results: The audit showed 63 cancers (2 bilateral, 61 unilateral) in 61 patients (2 male, 59 female) - 7 asymptomatic, 5 ipsilateral breast recurrences, 5 advanced and 46 symptomatic early cancers. The surgeons diagnosed 100% of cases preoperatively with ultrasound guided core biopsy. 61/63 (97%) of cases required one ultrasound guided core biopsy procedure, and 2 (3%) required a repeat. 61/63 (97%) were invasive carcinomas and 2 DCIS alone. 10 patients had tumours smaller than 15 mm. 19/58 (33%) primary cancers were node positive; 14/19 (74%) of node positive cases were diagnosed by the surgeons preoperatively with ultrasound guided axillary FNA/core biopsy. There were no cancers missed by the surgeons during the study period or during the last 5 years.

Conclusion: These data suggest that surgeons, who are experienced in breast ultrasound, diagnose breast cancers accurately, without missed or delayed diagnoses. Although breast surgeons can perform diagnostic breast ultrasound safely, all non-radiologists should audit their data to ensure compliance with diagnostic standards.

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P034. Breform polyester pre-shaped mesh − extending its uses for cancer patients

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Introduction: Several techniques have been used to combat repeat ptosis of the breast after mastopexy/reduction. Breform is pre-shaped polyester mesh, which has been used for over 10 years in aesthetic patients. This is the first report describing its use in breast cancer patients.

Methods: Since 2012, our unit has been using Breform mesh for contralateral symmetry procedures following mastectomy and reconstruction and therapeutic mammoplasty. It has also been used for reconstruction salvage. This study is a retrospective review of our experience with Breform examining indications, complications and technique.

Results: 11 cancer patients have had Breform mesh inserted. 1 patient had reconstruction salvage following implant herniation through a LD flap, with Breform as an onlay. 10 patients have had Breform for contralateral symmetry procedures (3 mastectomy/reconstruction, 7 therapeutic mammoplasty). The contralateral procedures for therapeutic mammoplasty women were performed at the same time as the cancer operation. One of the contralateral reduction patients was diagnosed with a mammographically occult 9mm node negative tubular carcinoma in the asymptomatic resection. The mesh was left in situ and she received adjuvant radiotherapy without any early morbidity.

There were no significant complications or delays to adjuvant treatment for any patient. No cases of repeat ptosis were identified after short-term follow up.

Conclusion: Breform mesh appears well tolerated in breast cancer patients with no significant extra morbidity. Cosmetic outcomes are excellent. Our early experience suggests that Breform may be a useful additional technique in selected breast cancer patients.

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P035. Postoperative breast imaging surveillance is unaffected by the use of Breform polyester pre-shaped mesh

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Introduction: Several techniques have been used to combat repeat ptosis of the breast after mastopexy/reduction. Breform is pre-shaped polyester mesh, which has been used for over 10 years in cosmetic patients. We have also reported its use in selected breast cancer patients. As with all implantable materials, concerns exist about possible interference with routine breast surveillance.

Methods: Since 2011, our unit has been using Breform mesh for aesthetic patients as well as for cancer patients, including contralateral symmetry procedures after mastectomy/reconstruction & therapeutic mammoplasty for unilateral breast cancer. This study examines the effect of the Breform polyester mesh on routine mammography and ultrasound.

Results: Since 2012, our unit has inserted 59 Breform meshes in 35 women (age 32−75). 24 patients have had aesthetic procedures (3 bilateral mastopexy & 21 bilateral breast reduction) and 11 had contralateral symmetry procedures (4 mastectomy/reconstruction, 7 therapeutic mammoplasty). The breast cancer patients continued to have routine surveillance mammography and ultrasound. Breform is radiolucent and does not appear to affect the quality of mammographic images. The mesh is isoechoic with breast parenchyma & does not cause significant acoustic artefacts on subsequent ultrasound imaging. 2 Breform patients have subsequently had core biopsies without problems.

Conclusion: Mammography, ultrasound and core biopsy are unaffected by the use of Breform mesh. This is reassuring not only for breast cancer patients, but also those who have this procedure for aesthetic reasons.

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P036. The role of breast MRI in altering pre-planned surgical treatment in elderly women with lobular cancer thought to be suitable for breast conservative surgery

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Introduction: The purpose of this study was to review the role of breast MRI in elderly women with invasive lobular cancer (ILC).

Materials and Methods: All breast MRIs between January 2013-July 2015 were cross referenced to the pathology database of lobular cancers in women >70 years. Clinicopathologic features, and imaging reports were analysed. This audit was set against CG80 NICE guidelines.

Results: 62 women >70 with ILC were identified by pathology. 51 had an MRI, all of whom were deemed suitable for breast conservative surgery (BCS). Eight women were not offered breast MRI. A further 3 refused the MRI. The mean age of women having MRI was 75.5 years. Following MRI a change in surgical plan was made for 5 patients (10%) due to additional disease identification. Three patients (6%) correctly underwent an initial mastectomy as a result of MRI findings. Moreover, 1 patient (2%) underwent previously unplanned simultaneous BCS to the contralateral breast at initial operation because of MRI findings. Overall, 9 patients (18%) having initial BCS underwent a second operation to get clear margins.

Conclusions: We offered MRI to 87% of women >70 with a preoperative diagnosis of ILC. We believe that this changed the surgical plan in 10% towards a more radical initial operation. Our subsequent reoperation rate for involved margins (18%) was lower than the 22% national average. We conclude that MRI was efficacious in evaluating the extent of disease in elderly women with ILC thought to be suitable for breast conservation.

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P037. 'Action Health' cancer patients in a cardiac rehabilitation setting − Does it work?

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Introduction: There are 2 million cancer survivors in the UK and this number is increasing by 3% per annum. The evidence suggests that physical activity can play a part in prevention, rehabilitation, recovery between treatments and prevention of recurrence. Cardiac Rehabilitation units are a national network of programmes that are potentially 'ready to go' in terms of offering a physical service to cancer patients. We set up a Cancer Rehabilitation Service 'Action Health' – It's Good to Move' in collaboration with Cardiac Rehabilitation Centre.

Patients and method: Patients referred for rehabilitation were provided 1–1 physical activity consultation. Based on their fitness level, comorbidities, patients were provided with an individualised 12 week physical activity plan aimed at gradual progression, specific intensity and pacing. A follow-up consultation was held at 6 months.

Results: 141 referrals were made for the Action Health; 29 patients declined to join and 22 dropped out. To date, 64 patients have completed a 12 week programme and 30 in the system. 8 patients had to interrupt the programme due to further treatment. Patient's acceptance for the Action Health was high. Some of patients feedback comments included, "…. has helped me regain control of my life." "I'm fitter now than before my cancer diagnosis!!" Of the 64 completers, 40 were still complying with physical activity at the 6 month follow-up.

Conclusion: Cardiac rehabilitation services are well placed to respond to cancer rehabilitation needs. Current experience suggests it can work and there is scope for cancer and cardiac teams working together to provide physical activity services.

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P038. A pilot study of risk stratified follow-up for early and locally advanced breast cancer patients

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Introduction: There is no proven value to the intensive clinical follow-up of primary breast cancer patients. There is an urgent need to free up capacity for two week wait referrals. The Macmillan Recovery package encourages self-management supported by the use of holistic needs assessments to ensure physical, emotional and psychological needs are met. We present a risk stratified breast cancer follow-up model utilising electronic Holistic Needs Assessments (eHNA).

Methods: Patients were stratified into risk groups by Nottingham Prognostic (NPI). Those with pre-invasive disease and in the good or excellent groups were allocated a 1 year clinical follow-up. Those in the moderate or high risk groups were allocated a 1 year and subsequent 5 year appointment, omitting a clinical examination in years 2, 3 and 4. eHNAs were carried out on existing follow-up patients attending for mammography and uploaded to www.mycareplan.co.uk. Concerns checklists were produced and used to tailor consultations, which were nurse led. Care plans were discussed with patients, generated and shared with primary care.

Results: Since implementation 147 checklists have been produced and used to identify patient specific concerns. 110 care plans have been produced. 88 patients did not have a completed care plan (refused or did not complete eHNA, missed appointment, administrative error, non-English speakers, capacity issues).

Discussion: Reducing clinical follow-up can increase anxiety. This approach ensures that consultations are of value and any unmet needs are identified. Working with Macmillan we are implementing the new system which seems to be acceptable to our patients.

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P039. National trends in immediate and delayed post mastectomy reconstruction in England; a seven-year population based cohort study

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In recent years, access to post-mastectomy reconstruction has improved. However little is known about the trend in type of reconstruction technique. Knowing this information is not only crucial for service planning, but also for ensuring the delivery of equitable care across the country. Our aim was to firstly examine reconstruction procedural trends in England, and second to evaluate regional variation.

Women with breast cancer who underwent unilateral index mastectomy between 2007 and 2014 were identified using the national Hospital Episode Statistics database. Women were grouped into categories based on reconstruction procedure. A multinomial model accounting for age, disease, comorbidities, ethnicity, and deprivation was developed. Adjusted rates of implant and free flap reconstructions were then calculated across Cancer Networks using the last 4 years of data.

Between 2007 and 2014, 21,862 women underwent immediate reconstruction and 7,750 delayed reconstruction. Immediate implant reconstruction rose significantly from 30%–54%, whilst free flap reconstruction increased marginally from 17%–21%. Adjusted immediate implant and free flap rates ranged from 17–68% and 9–63%, respectively, across regions. Free flaps dominated in the delayed setting rising from 25%–42%, with adjusted rates ranging from 23–74% across regions.

Significant regional variation exists in the type of reconstruction performed, suggesting that women have unequal and geographically dependent reconstruction procedures. These patterns need to be examined to determine if variation is related to service provision and/or capacity barriers. With the increase in immediate implant post-mastectomy reconstructions, likely attributable to ADM, long-term results need to be closely monitored to ensure we are not creating a significant future workload.

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P040. Breast screening: False negative assessment audit

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Introduction: False Negative Assessment (FNA) occurs when an inadequate screening assessment fails to diagnose cancer visible in retrospect, leading to subsequent interval symptomatic cancer or diagnosis at the next screening round. We reviewed FNA cases at our screening centre.

Methods: Cancer cases January 2014 to September 2015 inclusive were identified retrospectively via the NBSS database. Cases previously recalled for assessment who then subsequently developed a same site cancer at the next screening round or an interval symptomatic cancer were then extracted. These cases were reviewed individually by two researchers who determined if cancer was contingent on inadequate screening assessment and, if so, the reasons for this.

Results: 28 cases were identified of whom 16 (57%) were subsequently diagnosed with same-site cancer in a previously assessed area. These were therefore classed as FNA. Of these 16, 2 presented as interval cancer and 14 arose at next screening. Radiological manifestations of these 16 FNA cases were: 7 Microcalcifications (MCC), 6 masses, 1 distortion with mass, 1 asymmetry and 1 MCC with mass. FNA was deemed due to: 1) Failure to biopsy MCC interpreted as benign or malignant; 2) Failure to attend to discrepant abnormalities between different assessment

modalities; 3) Failure to act on new mammographic changes. Examples of each will be presented.

Conclusions: FNA audit and review is a powerful learning tool. Learning points to reduce the risk of FNA are described and illustrated.

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P041. Factors influencing the length of stay for breast cancer patients undergoing mastectomy: An independent sector perspective

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Introduction: Reductions in length of stay (LOS) are sought to improve capacity, productivity, and patient experience. A London-based private healthcare provider has observed a reduction in LOS for breast cancer patients undergoing conservation surgery, but not for mastectomy. Factors influencing LOS for mastectomy have been hypothesised and tested.

Methods: A bespoke SQL-server database has been constructed to collect breast cancer data; patients diagnosed with new primary breast cancer between 2010 and 2014 and undergoing mastectomy were selected for this study. 2013 cases onwards have been linked to Clinical Coding data to assess comorbidity. Analysis was performed using the R statistical computing environment. LOS in hours was analysed against cancer type (invasive vs in-situ), ASA class, surgery duration, age, funding, comorbidity (Charlson Index) and number of theatre visits. All factors have been assessed with and without reconstruction.

Results: Data has been collected and analysed for 700 breast cancer patients (average age at surgery 53, range 24−92). 664 cases (94.9%) had a single theatre visit, of which 465 (70.0%) underwent immediate reconstruction. LOS (median 100 hours) did not vary as a function of cancer type ($p=0.28$), ASA class ($p=0.09$), age ($p=0.66$) or comorbidity ($p=0.28$). LOS was significantly influenced by surgery duration, funding and number of theatre visits ($p<0.005$). Immediate reconstruction significantly affected both LOS and surgery duration ($p<0.005$).

Conclusions: Limited effect was observed in mastectomy cases for factors known to influence LOS (age, ASA, and comorbidity) in general. Further data collection and analysis is required to improve understanding of these findings.

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P042. Body composition changes in breast cancer patients: The CANDO-2 study

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Introduction: Increased recurrence and mortality is seen in those that gain weight following a breast cancer diagnosis. However, for any given weight change there may be considerable variation in body composition in both lean and fat compartments.

Methods: CANDO-2 (funded by Breast Cancer Now; NRES 14/SC/0213) is a prospective study designed to evaluate body composition changes in patients receiving neo-adjuvant or adjuvant chemotherapy. Body composition assessments including fat mass and fat free mass (using SECA mBCA 515 analyser), were taken prior to each chemotherapy cycle at routine clinic visits and according to established SOP's.

Results: Thirty-four patients were recruited. Complete data was available for 25 patients at analysis. The baseline mean BMI was 28.7(SD 6.4). When defining obese as BMI>30, 32% would be categorised as obese, however if obese was defined as percentage body fat>35%, 70% (24/34) were obese at baseline. There was an increase from baseline to end of study weight of 1.9kg (SD 3.24, $p=0.007$). The increase in fat mass (mean =1.1kg) was 1.5 times the increase in fat free mass (mean =0.8kg). However, the change in fat mass and fat free mass does not currently reach statistical significance ($p=0.093$ and $p=0.053$ respectively).

Conclusion: BMI is not a sensitive (46% sensitivity) marker for raised body fat percentage. Weight gain occurs in patients receiving adjuvant breast cancer treatment. This weight gain is largely an increase in fat mass rather than fat free mass. The use of the SECA mBCA 515 analyser was well tolerated by patients for detailed body composition analysis.

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P043. Breast pain referral rates − Variance between different GP practices: A prospective audit of 4771 referrals

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Background: NICE 2015 guidelines suggest referring patients to secondary care with a PPV >3% for breast cancer. Breast pain has a PPV <3% and should mostly be managed in primary care. Many patients are referred to secondary care contributing to the massive increase in referrals seen across the country.

Methods: We carried out a prospective audit between Jan and Nov 2015 of all new 2WW referrals to the Breast Unit at City Hospital Birmingham. Each referral diagnosis was recorded, allowing analysis of the data and mapping back to individual GP practices. Practices referring >30 patients were used in the analysis.

Results: 4771 patients were referred in 11 months by 253 GP practices. 50 practices individually referred >30 patients. These accounted for 3123 patients, range 30−182 referrals per practice. The average referral rate for breast pain (musculoskeletal and true breast) was 18.5% range 5−42%.

Conclusions: The percentage of breast pain referrals is high (18.5%). There is a wide variance in breast pain referral rates between practices (5−42%). To account for this there must be different management pathways occurring in different practices. Working closer with primary care and offering support and education may improve referral practice.

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P044. Implementing an immediate breast reconstruction best practice pathway − The London Cancer Alliance experience

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Introduction: Equity of access to Immediate Breast Reconstruction (IBR) is a key recommendation of The Model of Care for Cancer Services in London. An audit by the London Cancer Alliance (LCA) demonstrated a wide variation in IBR rates. As a result a working group was set up to agree basic principles and design a best practice pathway.

Methods: A prospective audit was conducted between February and May 2014 of women undergoing mastectomy with or without IBR. The results were presented at an LCA clinical forum and a subsequent multidisciplinary working group involving 14 London Trusts met to review a best practice pathway for IBR. This was integrated into the LCA clinical guidelines and LCA trusts were sent a letter requesting implementation of the best practice IBR pathway.

Results: The audit demonstrated a mean IBR rate of 35% (range 0−73%). Key factors were highlighted as contributing to lower IBR rates, these included: MDT not having an oncoplastic surgeon or did not have working links with nominated plastic surgery team, adjuvant radiotherapy

regarded as an absolute contraindication to IBR, capacity issues. These were addressed in the IBR best practice pathway which will be presented.

Conclusions: In 2012 ABS and BAPRAS published Oncoplastic Breast Reconstruction Guidelines. Despite this, Hospital Episode Statistics (HES) data for 2013−2014 indicate the national reconstruction rate is 24.2% with a regional variation of 12.9 - 60.5 %. Strategic Clinical Networks need to define local issues and can tailor guidelines to address local problems.

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P045. Blocking chronic breast pain with bupivacaine

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Introduction: The risk of developing persistent post-surgical pain varies from 5% after minor surgery to up to 50% for phantom limb or post-mastectomy pain. Chronic pain is defined as pain that persists past the normal time of healing, usually 3-months in the case of non-malignant pain. We hypothesise that preventing the onset of pain transmission prior to commencing surgery reduces the risk of persistent post-mastectomy pain.

Methods: This was a retrospective cohort analysis on the prevalence of chronic post-mastectomy pain within one District General Hospital over a 5-year period from 2009−2013. Specifically designed postal questionnaires were sent out to all eligible patients. If no response was received within a set time frame, one follow-up telephone call was made. Pain intensity was measured on a validated 11-point Pain Intensity Numerical Rating Scale (PI-NRS). All patients were operated on by 2 groups of surgeons - one group always instilled a local anaesthetic (LA) mixture into the mastectomy skin flaps pre-surgery and the other did not. Data was also collected on patient demographics, histology, postoperative complications and length of follow up. The primary end-point was a lack of persistent clinically significant pain 3-months post-mastectomy. Appropriate statistical analysis was performed on the data obtained with a p value of <0.05 being deemed significant.

Results: 221 mastectomies were carried out during this 5-year period with a 71% questionnaire response rate. 100% were female, with a median age of 66 years (Range 35−91 years). The median length of follow-up was 37 months (Range 1−87 months). Only 4.7% of patients who received pre-surgery LA complained of clinically symptomatic chronic post-mastectomy pain (cf. 16.4% who did not receive pre-surgery LA) p=0.03. There was no difference in tumour grade, type of axillary surgery or post-op complication rates between the two groups. The median chronic pain score in patients who had received LA pre-surgery was 3.2 (cf. 3.8 for those that did not) Range 0.00−7.00, p=0.44.

Discussion: Pain pathways, and hence the perception of pain, can be modulated, sensitised and altered as a result of neuronal plasticity. The role of local anaesthetics is to interfere with the conduction of pain impulses from the site of injury to the central nervous system, thus preventing the sensitisation as described above. The results from our study reveal that instilling local anaesthetic into the mastectomy skin flaps pre-surgery can significantly reduce the incidence of chronic post-mastectomy pain. However, the lack of variance in chronic pain scores between the two groups implies that neuronal sensitisation can be triggered by other factors.

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P046. Spectrum of BRCA mutations: An Irish cohort

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Introduction: There are over 2000 deleterious BRCA mutations associated with breast and ovarian cancer susceptibility, with many more Variants of Unknown Significance (VUS). Studies in countries such as Iceland have identified founder mutations with a high prevalence in their population group. There has been limited insight into the spectrum of BRCA mutations expressed in the Irish population.

Methods: A total of 38 patients who attended Beaumont Hospital breast cancer service between 2010 and 2015 underwent genetic testing for BRCA mutations. The results were compared to a similar study carried out in Galway by McVeigh et al[1]. The resulting mutations and their frequencies were then correlated with the results of a systematic review by Karami et al[2] of the most common mutations worldwide.

Results: Of the 38 patients tested, 26 different mutations were identified. Mutations c.427G>T (n=5), Exon 14-20del (n=3), c.5682c>g (n=3), c.8331+1G>A (n=2), c.4427dupA (n=2), c.7977-1G>C (n=2) and c.8297delC (n=2) were the most frequently encountered mutations. Exon 14-20del was found to be common to both Irish study cohorts. None of the above mutations were reported by Karami et al. Of the remaining mutations identified in the Beaumont study, one matched a European country and two matched Asian countries.

Conclusion: A broad spectrum of BRCA mutations was found in the Irish cohort in contrast with the Icelandic study. Mutations c.427G>T and Exon 14-20del are potential candidates for Irish founder mutations. A larger cohort sample is necessary to investigate whether these mutations account for a significant proportion of BRCA mutations in Ireland.

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P047. Predictive factors for non-sentinel node metastases in breast cancer: Preliminary results of a risk model

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Aims: To determine if CK-19 mRNA copy number and tumour related factors can predict non-sentinel axillary nodal involvement, in order to facilitate the formulation of local treatment guidelines for axillary clearance (ANC) following intra-operative analysis using one-step nucleic acid amplification (OSNA).

Methods: Patients due to have (SNB) at our institution for breast cancer as well as patients with high grade ductal carcinoma in situ with pre-operative negative assessment of the axilla were included. Alternate slices of each node were sent for assessment by either OSNA or Histopathology. Immediate ANC was performed if OSNA was positive. The CK19 m RNA nodal copy number, the total tumour load (TTL) measured by summation of m RNA copy numbers of all positive nodes, the nodal status at ANC and tumour characteristics for each patient was recorded. A model of risk probability was constructed using TTL and tumour related factors.

Results: 802 nodes were analysed from 508 patients who had SNB performed between 2011 and 2015. 124 ANC was performed. The concordance between OSNA and histology was 91.4% and negative predictive value (NPV) was 97%. TTL and LVI were identified as risk factors for non-sentinel nodal involvement. The risk probability model identified all patients with pN2 disease. Percentage risk for TTL less than 7,500 (LVI negative) was 12−16.7% compared to 69% and greater for LVI positive with TTL 50,000 or more.

Conclusion: A decision to perform ANC can be based on a risk stratification using TTL and LVI.

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P048. Low power photodynamic therapy for the treatment of primary breast cancer: Results from a breast cancer mouse model

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Background: Photodynamic therapy (PDT) has been used to treat skin metastases from many cancers including breast cancer. It has been associated

with inflammatory changes at the treatment site. We investigated the effects of low power PDT in a murine primary breast cancer model.

Methods: 8 weeks old balb/c mice were inoculated with 4T1 mouse breast cancer cells into the mammary pad. Intravenous administration of photosensitiser, Verterporfin, at concentration 10−15mg/kg was delivered under general anaesthesia when tumours were 6mm−10mm in diameter. Tumours were treated by various PDT Light doses at 960nm wavelength. 50 and 90 Joules @ 30, 50, 70 and 100 mW of power was administered via a laser fibre. The mice were sacrificed 5 − 7 days post PDT and treatment site and organs examined by histopathology.

Results: 15 balb/c mice were inoculated with 4T1 tumour cells, 2 of these mice were controls not treated with PDT. Median tumour size at PDT was 6 mm (range = 6−10mm). The percentage necrosis to breast tumour size varied between 25−75% following PDT, occurred at 30−100 mW, increasing with higher mW power. Examination of the spleen in the treatment group, showed no tumour invasion or depletion of blast cells. In contrast the tumour was aggressively invasive in controls including splenic invasion and blast cell depletion.

Conclusions: Low dose PDT treatment in murine primary breast tumours results in local tumour necrosis. Absence of splenic invasion by tumour in the treatment group possibly indicates a PDT mediated immune response and requires further investigation.

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P049. Real time intraoperative classification of breast tissue with the intelligent knife

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Introduction: Re-operation for close/positive margins following breast-conserving surgery occurs frequently (≈20−25%), is cost-inefficient, and leads to physical and psychological morbidity. Rapid Evaporative Ionisation Mass Spectrometry (REIMS) determines the structural lipid profile of tissues by the on-line analysis of electrosurgical smoke and uses this information for the rapid identification of dissected tissues. We evaluated its performance regarding real-time classification of heterogeneous breast tissue.

Method: 155 patients enrolled in this study comprising method optimization (n=40), construction of a tissue specific ex-vivo database (n=87), and intraoperative analysis (n=28). Electrosurgical aerosol produced from ex-vivo and in-vivo breast samples was aspirated into a mass spectrometer via a modified surgical hand-piece. Tissue identification results obtained by the multivariate statistical analysis of MS data were validated by histopathology. Intraoperative REIMS data was acquired from resection margins and time-synchronized to operative videos. Ex-vivo classification models were used to predict intraoperative margin status.

Results: An ex-vivo classification model using spectral data from healthy breast (n=561) and breast tumours (n=139) provided 92.1% sensitivity, 96.4% specificity and 95.6% overall accuracy. 17,974 spectra from 28 patients were obtained intra-operatively in real-time. The method demonstrated 100% sensitivity and 77.3% specificity regarding intraoperative positive margin detection. For histologically negative margins, misclassification (REIMS false positive) was observed for only 0.5% of total tissue dissection time (69/14,023 spectra).

Conclusions: The REIMS method has been optimized for real-time analysis of intraoperative heterogeneous breast tissue, and the results suggest spectral analysis is accurate and rapid for determination of oncological margin status intra-operatively as an "Intelligent Knife".

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P050. Systematic review and meta-analysis of the diagnostic accuracy of intraoperative margin assessment techniques

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Introduction: Existing intraoperative margin assessment (IMA) techniques have failed to penetrate practice due to various limitations including slow reporting speeds, technical demands and logistics. Emerging IMA technologies are being developed to reduce positive margin and re-excision rates and will be compared to existing techniques in terms of diagnostic accuracy. Therefore, we performed a systematic review and meta-analysis of the diagnostic accuracy of published clinical IMA techniques to act as a comparator for emerging IMA technologies.

Method: 1,651 studies were identified using electronic bibliographic searches (to July 2015) of Pubmed, Cochrane Library, Scopus and EMBASE. MESH terms and all-field search terms were searched for "Breast Cancer*" AND "Intraoperative*" AND "Margin*". Only clinical studies with raw diagnostic accuracy data as compared to final permanent section histopathology were included. A bivariate model for diagnostic meta-analysis was used to attain overall pooled sensitivity and specificity.

Results:

Table: Pooled diagnostic accuracy data of IMA techniques.

IMA technique:	No. of Studies	Sensitivity	Specificity
Frozen section	8	0.85 [0.76−0.91]	0.96 [0.92−0.98]
Cytology	9	0.87 [0.61−0.97]	0.95 [0.90−0.98]
Intraoperative ultrasound	2	0.91 [0.69−0.98]	0.87 [0.41−0.98]
Specimen X-ray	6	0.58 [0.49−0.66]	0.82 [0.69−0.91]
Optical spectroscopy	2	0.85 [0.74−0.91]	0.87 [0.65−0.96]

Discussion: Frozen section and cytology demonstrate high pooled sensitivity/specificity data but are resource intensive and turnaround times for results have prevented widespread adoption. Specimen X-ray has the lowest sensitivity/specificity but is routinely performed probably due to speed and availability. This represents the first diagnostic accuracy meta-analysis of existing IMA techniques against which emerging IMA techniques may be compared.

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P051. PECS 2 block for peri-operative analgesia in patients undergoing breast surgery

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Introduction: There are various ways of providing perioperative analgesia to patients undergoing breast cancer and reconstructive breast surgery. Few studies have shown that acute post-operative pain in patients could progress into persistent chronic post-operative pain. Traditionally paravertebral block has been used as an effective regional anaesthesia for major breast surgery like mastectomy and breast reconstructions. However, it is technically challenging to perform and relatively complex to learn. In recent years there have been growing evidences supporting the use of regional anaesthesia techniques such as PECS2 block to reduce peri-operative as well as chronic pain.

Methods: Ultrasound-guided PECS2 block is a relatively simple and quick technique where 20−30ml of 0, 25% chirocaine is required to achieve post-operative pain relief for approximately 10−12 hours.

Prospective data was collected on postoperative pain and nausea outcomes related to the type of surgical operation and analgesic requirement in 45 consecutive patients. Pain scores were monitored in recovery, in the day case discharge unit and day after surgery by telephoning the patients.

Results: Our result showed that approximately 75% (n=34) of our patients did well with post-operative pain relief and did not require any break through analgesia. Approximately 25% (n=11) of the patients required further analgesia with 12 to 24 hours post-operatively.

Conclusion: Our observation supports that PECS 2 blocks can effectively replace the traditional Paravertebral blocks for breast surgery. However further studies are needed for routine implementation of this technique.

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P052. Breast cancer recurrence following lipomodeling

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Introduction: Lipomodeling is used by breast and plastic surgeons in reconstructive breast surgery. Some clinicians remain concerned regarding its oncological safety.

Methods: A retrospective analysis of a prospectively maintained database was performed. All patients undergoing lipomodeling of the breast under a single surgeon from November 2007 to March 2015 were included. Minimum follow-up was 9 months, 218 patients had >3years and 132 patients had >5years follow-up. All cancer patients underwent mammograms pre-lipomodeling.

Results: There were 267 patients altogether. Indications included post-mastectomy reconstruction, congenital breast asymmetry and breast conserving surgery defects. 224 (84%) had a past history of breast cancer. Five (1.9%) patients developed breast cancer in the lipomodeled breast. Of these, 2 patients had had bilateral breast cancer in the past with one a BRCA1 gene carrier. All further breast cancers (local recurrences or new cancers) occurred within 5 years of the first lipomodeling procedure (median 31months [24−53months]). Time from the original breast cancer median 7.3years (5.25−28years).

Conclusions: Breast cancer occurrence in patients who have undergone lipomodeling is low, in this cohort <2%. All new breast cancers occurred in patients who had a previous breast cancer. This is a small heterogenous group of patients both in terms of previous history, histology and indications for lipomodeling. Whilst too small a group to draw any definitive conclusions two patients were clearly high risk with a past history of bilateral breast cancer in their thirties. Caution should perhaps be exercised in this group of patients and fully informed consent is vital.

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P053. Validation of the 3D laser as a tool to measure breast volume in women undergoing treatment for breast cancer and other breast diseases

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Introduction: The effects of breast cancer treatment (surgery & radiotherapy) can hugely impact on patients' quality of life. Breast volume measurement is a surrogate way of assessing the impact of these treatments that is objective and reproducible. The 3D laser is a non-invasive, repeatable, patient friendly way of measuring breast volume when other measuring modalities are inappropriate.

Aim: To determine the reliability and accuracy (compared to water displacement and mammography) of breast volume measurement using 3-D surface scanning.

Methods: 53 women undergoing mastectomy without reconstruction were entered into clinical trial 11/WM/0100. 3D images were acquired using Minolta VI9i. Images were taken of the anterior chest wall preoperatively and post-operatively. Water displacement volume of the removed breast was calculated and it was weighed fixed and fresh. Breast volumes were calculated from preoperative mammograms using the volume of the cone. Two surgeons independently delineated the breast boundary on each scan. Specialist software was used to isolate the breast and measure volume.

Results: Correlation between breast weight and calculated volumes was good for mammography. The correlation with the laser acquired 3-D data was less good.

Discussion: The 3D laser method of breast volume calculation can be used where it is not possible or desirable to use alternative methods such as after radiotherapy or reconstruction.

Conclusion: 3D laser acquired breast volume calculations are reliable and reproducible but there remains a discrepancy between these values and that of the current gold standard of mammography.

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P054. Screen-detected B3 lesions

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Introduction: B3 lesions account for 5% of breast core biopsies and encompass a heterogeneous spectrum of pathology. The management of these lesions is varied and non-standardised. We reviewed the outcome of screen-detected B3 lesions in this study.

Method: All screen-detected B3 lesions between January 2010 and September 2014 were included. All B3 biopsy findings were sub-divided into those with or without the presence of *atypia*. The local policy at this time was for all B3 lesions to undergo excision biopsy. We correlated initial histology from percutaneous biopsies to the definitive histology following surgical excision.

Results: Ninety patients with completed datasets were analysed:

	Malignant excised histology	Benign excised histology	Total
B3 *with 'atypia'*	23	36	
B3 '*no atypia'*	2	29	
Total	**25**	**65**	**90**

A malignant pathology was found in 28% of our screen-detected B3 population. Percutaneous biopsy showing *'no atypia'* had a negative predictive value for malignancy of 94%.

Conclusion: We conclude that the vast majority of screen-detected B3 lesions with *'no atypia'* on percutaneous biopsy have a benign histology. We are therefore currently performing second-line 10G vacuum-assisted biopsies (VAB) on these lesions. No further action is taken if the VAB samples remained as B3 with *'no atypia'*. Screen-detected B3 lesions with *'atypia'* should continue to be excised. Further study should be conducted to assess the efficacy and long-term safety of this practice.

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P055. An exploration of factors influencing reconstruction decisions in ethnic minority patients undergoing mastectomy for breast cancer

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Introduction: Research within our tertiary referral breast unit has identified disparities in the treatment of breast cancer between Asians and Caucasians. Significantly fewer Asian patients chose to have breast

reconstruction following mastectomy (34% Asian versus 62% Caucasian). The present study qualitatively explored factors influencing reconstructive decisions, following interviews with South Asian women.

Methods: 42 participants were invited and 12 semi-structured interviews were carried out after REC approval. Topics identified for discussion by a focus group included reconstructive and cosmetic surgery, body image, cultural/religious influences, potential barriers in accessing information, and whether participants would make the same decision retrospectively. Thematic analysis was performed by Research Psychologists using the Framework approach.

Results: Analysis identified a priority amongst these women to have their physical appearance reinstated, either by surgical or prosthetic means. Being available to maintain their roles and responsibilities within their families and wider community was also a driver in decision-making. Some were proactive in seeking further information about surgery. Most felt supported by an immediate family member or friend.

Conclusions: The decision to have reconstructive surgery is complex and multifaceted. Women often expressed the desire to maintain their roles in the community by electing for less invasive surgery. Male partners have a significant influence on decision-making, and education of both men and women may improve reconstruction uptake.

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P056. Men and breast cancer − What do we know and what do we need to do differently?

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Introduction: Rare, under-researched and underfunded, breast cancer in men is frequently overlooked within health and care systems. Increased prevalence and sustained professional and public interest in breast cancer in women has led to pervasive feminisation of the disease and related clinical practices, posing important ramifications for male patient-survivors.

Method: Our research adopts a critical health psychology perspective and is two-fold: 1) an international qualitative synthesis of 8 existing studies looking at men's experiences of coping with breast cancer, and 2) an ongoing study which involves collecting both verbal and photographic data from 32 British men who have experienced breast cancer. Integrating and triangulating the findings from the two study phases, we reveal how the marginalisation of men across the illness trajectory impinges on the male breast cancer experience and men's adjustment to illness.

Results: Findings from the qualitative synthesis demonstrate how current approaches to breast cancer care and advocacy serve to isolate men who develop the disease, potentially alienating and emasculating them. Patient management practices and informational resources intended for breast cancer patients unequivocally marginalise men. Preliminary findings from our work-in-progress confirm these earlier findings and further illuminate the difficulties encountered by male patient-survivors and some of their coping strategies.

Conclusions: We position breast cancer in men as a marginalised malignancy, with male patient-survivors on the periphery of optimal psychosocial care and support. We expand on ideas surrounding stigma, masculinities and marginalisation relating to breast cancer in men, and conclude with recommendations for advocacy and intervention for improved future care and breast cancer practices.

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P057. Changing trends in the management of breast cancer in the elderly: Impact on surgical workload

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Introduction: There is evidence that operative management of breast cancer in the elderly leads to superior outcomes and this has led to an increased proportion undergoing surgery. We reviewed the impact on surgical workload over a 16 year period.

Methods: The management of all patients over 70 was retrospectively audited. The number of patients undergoing surgery per year was assessed in three separate cohorts. Cohort A, 1997−2000, B, 2007−2010 and C, 2012−13 as well as in two separate age groups (70−79 years and 80 plus).

Results: 498 patients over the age of 70 were identified (49.8 per year). The total number per year for each cohort was 45 (A), 52 (B) and 55 (C). (22% increase between Cohort A and C). Most of this increase was seen in the 70−79 year age group - 24 (Cohort A) to 32 (Cohort C) − (33% increase).

The percentage undergoing surgery through the cohorts grew from 68% (A) to 72% (B) to 84% (C). The number undergoing surgery annually increased from 30 (Cohort A), 37 (B) to 46 (C) − a 53% increase. In the 70−79 age group, the annual number of cases per year rose from 19 in (Cohort A) to 29 (Cohort C) and for the 80+ group, from 11 (Cohort A) to 16 (Cohort C).

Conclusion: We have demonstrated a 22% increase in the number of elderly patients diagnosed over the study period. However, the number of surgical procedures has grown by over 50%. These older patients are increasingly complex and have more comorbidity. It is important that this significant change in workload is factored into the planning of future provision of breast cancer services across the country.

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P058. Management of breast cancer in the elderly: An audit of changes over a 16 year period

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Introduction: There is evidence that breast cancer in the elderly is under treated. Surgery is often withheld (due to comorbidity, patient preference & surgeon prejudice) and hormone therapy instituted. Evidence demonstrates the superiority of surgical excision and guidelines have changed. We reviewed our practice over a 16 year period to ascertain whether our management had altered.

Methods: The management of patients diagnosed with breast cancer over the age of 70 was retrospectively analyzed in a DGH Unit. Three separate cohorts of patients were studied. Cohort A; 1997−2000 (4 years), B; 2007−2010 (4 years) and C; 2012−13 (2 years). Patient numbers were documented and the proportion treated with surgery calculated for each cohort.

Results: 498 patients, over 70, were identified (49.8 per year) out of a total population of 1739 cancers (28.6%). 121 (68%) had surgery in Cohort A, 150 (72%) in B and 92 (84%) in C. 80% of 70−79 year olds had surgery in Cohort A which rose to 92% in Cohort C. Surgery in the 80+ age group increased from 53% in Cohort A, 61% (Cohort B) and 72% (Cohort C)

Conclusion: A clear trend of increasing surgical management of breast cancer in the elderly has been demonstrated; particularly evident over the age of 80. This probably reflects changing attitudes to the elderly, informed patient choice and enhanced anaesthetic support.

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P059. How accurate are breast multidisciplinary team records? Do they reflect the actual treatment received by our patients?

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Introduction: Development of electronic records within the multidisciplinary team (MDT) setting has enabled routine four month breast cancer treatment review. We aimed to evaluate how well treatment given to breast cancer patients resembles that agreed by the MDT and what factors influence deviation.

Methods: We undertook a retrospective review of electronic and paper records of all patients added to the Breast MDT for one year from November 1st 2014. Patient demographics, clinical findings, diagnostic imaging and pathology results were reviewed. MDT plans were recorded and patient letters were consulted to ascertain the treatment ultimately undertaken.

Results: 316 new breast cancer cases were added to the MDT in the study year. To date for 89% of patients, the treatment given at four months followed the MDT plan exactly. Among the 11% patients whose treatment differed from the plan, 62.5% were due to patient choice, and 37.5% were due to high risk co-morbidities and intolerance to treatment. 2% of all the records had discrepancies between clinic letters and original results.

Conclusions: Overall there is excellent adherence between the multidisciplinary plan and treatment administered. This study highlighted the value of routine four month treatment review to optimise patient care by ensuring correct plans have been implemented, accurate details recorded, errors highlighted and difficulties discussed. This review generated significant changes to our MDT proforma to improve patient records and ease of use and whilst not mandatory we would recommend this four month review at other units to aid optimal patient care.

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P060. The impact of raising the margin threshold for repeat surgery on the overall re-operation and conversion-to-mastectomy rates after breast-conserving cancer surgery

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Background: There has recently been a trend to accept narrower excision margins following Breast Conserving Surgery (BCS) for cancer. We evaluated the impact of this policy on re-operation outcomes.

Methods: Two periods characterized by a significantly different re-operation rate for close margins were compared. All operations until clear were traced and demographic, tumour type and size, margin width, mastectomy, and residual cancer data were collated.

Results: 463 cancers were treated with BCS between December 2011 and November 2013 and 340 between January 2014 and June 2015 (total 807). There was no difference between the two periods in patient demographics or cancer characteristics. The re-operation rate for close margins decreased by 43.4% from 53.5% to 30.3%, P=0.043. This was associated with a significant reduction in the number of operations per patient (1.26 vs. 1.18) (P=0.01) conferring an 8% capacity surplus. The conversion to mastectomy rate decreased significantly from 8.8% to 4.1% (P = 0.01). The residual cancer rate between the two periods was similar (58.6% vs. 46.1%, P=0.15), between involved and close margins across the whole study (57.3% vs. 48.5%, P=0.37), and between involved and close in either period separately (62.5% vs. 43.5%, P=0.14, and 47.4% vs. 60% P=0.47).

Conclusion: Raising the margin threshold for repeat surgery in patients who undergo BCS can improve breast service capacity and reduce conversion-to-mastectomy rate. Failure of residual cancer rate to rise could be the result of tissue handling error or poor selection criteria and has implications on current practice which is discussed.

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P061. Computational models deriving tumour to breast volume ratios from two-view mammography may aid oncoplastic decision-making

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Introduction: Breast conserving surgery (BCS) is the preferred strategy in the surgical treatment of breast cancer given the improved quality of life versus mastectomy. Decisions regarding suitability for BCS versus mastectomy are complex and include clinical and radiological assessment(s) combined with operator experience to judge resection volume and predict cosmetic outcomes. Algorithmic solutions for determining tumour:breast volume are objective and may aid clinical-decision making.

Methods: We developed methods using machine learning algorithms (Partial Least Squares Regression, Primary Component Regression, and Regression Tree), to compute breast volume, tumour volume and %tumour:breast volume ratios from two-view mammography images (CC, MLO) acquired in 17 patients. We then identified 25 consecutive breast cancer patients and calculated breast and tumour volume, %tumour:breast volume ratio and compared predicted surgical decisions (based on estimated % resection) with actual surgical decisions.

Results: The mean %tumour:breast volume did not significantly vary between algorithms [PSLR=8.01, PCR=8.33, RT=9.02, χ^2=5.12,p=0.77]. Of the 25 patients, 19 had data regarding definitive operative decisions, of which 42.1% (n=8) aligned with predictions, and 57.8% (n=11) were discordant. Of discordant cases, 10 patients underwent mastectomy despite relatively low mean %tumour:breast volume ratios (3.37−5.03%). One patient underwent BCS followed by re-excision of margins despite an estimated %tumour:breast volume of >20%(51−59%).

Conclusions: Algorithms that detect tumour and breast volume may make surgical decision-making more objective, based on more realistic estimates of resection volumes. Further work is required to determine significance of the discordance between predicted actual surgical decision-making focusing on repeat procedures and cosmesis.

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P062. A novel approach to obtaining funding for patient and public participation in research

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Introduction: Traditionally, research funding is provided by specialty specific associations (e.g. Association of Breast Surgery (ABS)), disease specific organisations (e.g. Breast Cancer Research), national research councils (e.g. Medical Research Council), small charities (e.g. Genesis Breast Cancer Prevention), the Royal Colleges and industry. More recently, crowdfunding has been successfully used to fund medical research. Our collaborative was recently awarded a £4,700 grant by ABS to investigate the public's perception of breast cancer research priorities. Our aim was to secure additional resources to enable the collaborative to supplement our grant funding and incentivise public participation.

Methods: Members of the collaborative approached local retail outlets and meeting venues to seek donations to the study. A number of national chains were sent requests by post.

Results: A total of 19 establishments were contacted. Donations were received from five establishments (26%). These were in the form of retail vouchers with face value of £650 and free use of meeting rooms (for the public participation events) to the value of £750. The retail vouchers will be used to incentivise public participation in our study. In addition, due to the relationships built up with those organisations, we have been able to recruit participants amongst their staff thereby enhancing the diversity of our participant pool.

Conclusions: Directly approaching local organisations to seek donations resulted in a 26% success rate and increased our funding by £1,400 (30%). Thus, a non-traditional approach to funding research is a viable option for researchers, especially for public participation studies.

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P063. Simple reconstructive techniques for conservative breast cancer surgery − A DGH experience

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Background: Patients undergoing breast conservation surgery (BCS) for cancer may benefit with the defect reconstruction using simple techniques to obtain optimal cosmetic & oncological outcome.

Aim: To determine feasibility simple oncoplastic level 2 reconstruction as a day case.

Material and Methods: A prospective series of patients eligible for BCS & likely to have poor cosmetic result were considered for oncoplastic reconstruction techniques. All patients had triple assessment for cancer diagnosis, preoperative counselling & consenting two weeks prior to surgery. Markings performed on the day of surgery. The oncological margin clearance & need for further surgery were discussed at MDT after histopathology. The cosmetic outcomes assessed at periodic intervals.

Results: 15 pts underwent type 2 oncoplastic surgery following BCS during 2014−15. Mean age 58 years. Median tumour size 25 (0−48) mm. Median specimen weight 48 (16−129) grams. Median specimen volume 107 (28−267) cm^3. Negative pathological margin 14/15 (93%) pts. Median hospital stay 0 days. 4 (25%) pts had surgery after neoadjuvant therapy. 5/15 (33%) tumours were grade III cancer. The oncoplastic approaches used; glandular rotational flaps 8, nipple recentralisation 2, perforator flaps 5. Median operating time 98 mins. Redo breast surgery 1/15 (6%). Complications; marginal flap necrosis & delayed wound healing 1, total flap failure 1. Cosmetic outcome very good and excellent 12. No drain used in this cohort.

Conclusion: Simple oncoplastic procedures to fill defects of BCS is feasible as a day case. A good oncological clearance (93%) and cosmetic outcome can be obtained when right patient is chosen.

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P064. The use of local anaesthetic infusion pumps in the oncoplastic breast reconstructive group

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Background: Numerous methods of peri-operative pain relief post mastectomy may be used. Patient controlled analgesia (PCA) and regional anaesthesia in the form of paravertebral blocks (PVB) are commonly utilised; however, these can carry significant morbidity and failure rates. The aim of this study was to examine the efficacy and complications associated with the use of local anaesthetic infusion pumps (LAP).

Methods: A comparative cohort study of patients were recruited between 2011 and 2015 with patients undergoing mastectomy with intraoperative placement of a LAP. Follow-up of these patients were carried out using post-operative pain scales and supplemental analgesia requirements using chart review. Patients scores were compared against a control group who did not receive LAP.

Results: In total 377 patients were recruited, 183 of which underwent reconstruction in the form of implanted based or LD flap reconstruction. There was no significant difference in the overall length of stay, and there was no overall difference in the pain scores between patients. In the LD reconstructive group, the length of stay, overall PCA doses/use were significantly less (4.17 vs 5.75 P value 0.0087, 5.51 vs 28.81 P value 0.02). There were 2 reported complications associated with mechanical failure of the local anaesthetic catheter.

Conclusion: Local Anaesthesia Infusion pumps provide a safe and effective pain relief without significant morbidity. LAP significantly improve the length of stay and reduces PCA doses in patients undergoing immediate breast reconstruction.

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P065. Analysis of treatment options and outcomes for operable ER+ve breast cancer in women aged 70 years and older

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Introduction: Older women with breast cancer are less likely to be offered surgery than younger women; only 30% undergo surgery ([1,2]). Although patient choice and co-morbidities are significant factors, age is an independent variable ([3,4]). We evaluated our local practice in women aged >70 years with operable ER positive breast cancer.

Methods: Women aged >70 years diagnosed with operable ER positive breast cancer between January 2014 − August 2015 were identified. We compared women undergoing surgery and those receiving primary endocrine therapy (PET), and analysed outcomes. We also obtained qualitative information from PET patients.

Results: 150 women aged >70 were diagnosed with operable ER positive breast cancer during the 20 month study period.

99 patients underwent primary surgery (average age 76.6 years), 50 received PET (average age 86.7 years) and one patient declined any treatment. Following surgery (n=99), 18 patients experienced a complication (e.g. haematoma, infection, delayed healing). 2 patients developed recurrence, and 2 have since died. Of patients choosing PET (n=50), 8 experienced side effects, 6 had tumour progression requiring change of therapy and 15 have died.

10 of 16 PET questionnaires were returned (62.5% response rate). 67% were offered primary surgery but chose PET. The main reasons were they felt 'too old' to undergo surgery, and that tablets were effective. However, 33% would consider surgery in the future if recommended.

Conclusions: Our study demonstrates a high uptake of surgery in women aged >70 years in our local population, with reasonable outcomes and low mortality rates.

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P066. Histological concordance of biopsy and excision histology of grade 1 screen detected breast cancers: A pilot study

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The 2012 Breast Screening review acknowledged overtreatment of invasive screen detected breast cancer as well as DCIS. To inform the design of a possible clinical trial that could address this, an audit was undertaken to assess the concordance between diagnostic biopsies which were reported as grade 1 and the subsequent excision histology of these screen detected cancers.

This was a retrospective analysis covering a 1 year screening period (2012−2013), and included all patients who were reported as grade 1 on diagnostic biopsy. Concordance between diagnostic biopsy and subsequent excision histology was recorded along with information regarding receptor and node status.

Of the 50 patients who had screen detected grade 1 biopsies, 76% (n=38) of the cancers were confirmed as grade 1 on excision. There was 100% (n=50) concordance when the diagnosis had been made by Vacuum

Assisted Core Biopsy (VACB). All 50 grade 1 cancers were oestrogen receptors positive and HER-2 negative. Two of the patients who were diagnosed by VACB diagnosis had positive sentinel node biopsies.

There was 76% concordance between diagnostic biopsy and excision histology overall. The concordance was 100% when VACB was the diagnostic technique. This data will inform future discussions about trial designs to address possible overtreatment in screen detected invasive cancer.

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P067. A direct comparison of surgical and non-surgical management of close anterior margins on local recurrence rates in breast conserving surgery

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Introduction: There is little evidence to support the management of patients with margin involvement after breast conserving surgery. This is especially true for anterior margins, for which it is thought that re-excision is less important. We present the first series comparing outcomes in two centres of the effect of surgical and non-surgical management of close anterior margins on local recurrence rates.

Methods: A review was undertaken of the records of patients who underwent surgery for breast cancer between 2000−8. Re-excision of close anterior margins was routinely performed at one unit but not the other. A close margin was defined as disease within 2mm of the resection margin. The data were compared using a Z-test.

Results: In total, 9,752 patient records were assessed. Three hundred and 11 patients had a close anterior margin with all other margins being clear after breast conserving surgery. Eighty patients underwent surgical re-excision of close anterior margins(RE) while 231 did not have re-excision surgery(NS). In the RE group, 8 patients had in-situ disease and 2 had in-situ and invasive disease at re-excision. Average follow-up was 6.6 years (range 6 months to 14.3 years). There was no difference in 5 year local recurrence rates between the two groups (RE 2.5% (2/80) vs. NS 3.0% (7/231), p=0.81).

Conclusions: Surgical management of close anterior margins does not reduce local recurrence rates when appropriate adjuvant therapy is used. Re-excision may therefore lead to poor cosmetic outcomes with no clear oncological benefit. Neither unit currently routinely re-excises close anterior margins.

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P068. A "Breast Specific" WHO checklist − Improving safety for breast cancer patients

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Background: The WHO surgical checklist aims to ensure patient safety, but specialties have modified the checklist (e.g. ophthalmic surgery) since it may fail to capture specific safety considerations. Following an incident, in which a patient was anaesthetised prior to radiological wire insertion, we modified the WHO checklist aiming to improve safety for patients undergoing breast surgery.

Methods: A Delphi approach with structured interviews with consultant breast surgeons, radiologists and anaesthetists was conducted to determine the aspects that required modification. The checklist was modified to include safety checks regarding the need and timing of radioisotope injections, wire insertions and post-operative requirements. This new redesigned checklist was used in parallel with the WHO surgical safety checklist and data was collected on team "briefing", "debriefing" and "team dynamics" for 28 breast surgical procedures. Comparison was made to data previously collected on the WHO surgical checklist alone.

Results: All patients had their wires and injections confirmed prior to induction. The theatre team was less confused regarding the need for these critical steps (14% improvement). Improvements were also observed in list punctuality (6%), effective team working (4%), list flow (5%) and staff morale (3%). Across both the WHO checklist and breast specific checklist, we observed consistently high levels of team coordination, team effort, cooperation, adaptability and initiative.

Conclusions: A breast-specific checklist may help improve safety of the surgical breast patient beyond the conventional WHO checklist, to prevent clinical errors and ensure effective team dynamics.

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P069. Is the size of sentinel lymph node macrometastasis predictive for further positive axillary nodes on surgical clearance?

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Background: In a number of patients the sentinel node (SLN) is the only node positive with no further LN involvement in the axillary clearance (ALND), exposing patients to potential morbidity due to additional therapy. The aim of this study was to determine whether size of the macrometastasis (SoM) is predictive of further axillary disease or recurrence.

Methods: Data from all patients with positive SLN proceeding to ALND from 2005−2015 in Tayside were analysed. Statistical analysis was performed using SPSS v22.

Results: Of 114 patients 46% were screeners, 54% symptomatic, of median age 59 years. Median tumour size was 25 mm (IQR 18-44); mean NPI was 4.88 (IQR 4.30-5.50). Ninety-four percent were ER pos/HER2 neg and 44% had LVI.

Median number of LN removed at SLN was 2; median number of LN removed at ALND was 19 (IQR 15-22). At ALND, 59% of patients had no further LN involved, 21% had 1 further LN involved, 20% had 2 or more LN involved. Median SoM was 5mm (IQR 3-8). Ninety percent had none to minor extracapsular spread. No correlation was observed between SoM and further axillary involvement (Kruksal-Wallis; p=0.114). At median 6.6 year follow-up, 4.4% of patients had an axillary recurrence, 1.8% had died of breast cancer. On univariate analysis there was significant association between SoM (<5mm/≥5mm) and disease recurrence (log-rank; p= 0.019).

Conclusion: The size of a macrometastasis in a positive SLN is associated with disease recurrence, but not correlated with further nodal burden within ALND.

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P070. Breast conservation surgical practice following introduction of intra-operative specimen Xray assessment

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Introduction: Re-excision rates across the UK vary considerably, with most units stating a figure of 1:6 (17%) to patients. This study sought to compare re-excision rates after breast conserving surgery (BCS) over two time periods before and after the introduction of specimen Xray intra-operatively assessed by the surgeon within theatre.

Method: A retrospective data collection for all patients undergoing BCS +/− localisation from March −Sept 2014 and March-Sept 2015.

Results: In total 366 patients had surgery for breast cancer during the two time periods: 2014 cohort BCS n=85/173 (49%), 2015 cohort BCS n=122/193 (63%; p=0.007). Of 189 patients undergoing BCS excluding therapeutic mammoplasty, 77 were from 2014, and 112 from 2015. There were higher numbers of impalpable disease in 2014 v 2015 (49% v 59%; p=NS).

The overall re-operation rate was 12%, with a trend to a reduction over time: 16% in 2014 vs 9% in 2015 (p=0.12).

Further cavity shavings were taken in 54% of patients with an increase from 2014 (43%) to 2015 (62%; p=0.01). There were 131 cavity shavings submitted, of which 17 (13%) had further disease, with no significant difference between the two time cohorts. Three patients in 2014 required more than one additional procedure to achieve clear margins compared with one in 2015 (p=NS).

Conclusions: BCS rates have increased over the two time periods. There is a trend towards fewer re-operations for positive margins with the use of specimen XRay, despite more impalpable disease in the second cohort. There was an increase in the rate of cavity shavings, which may impact the pathology services and the cosmetic outcomes.

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P071. Re-operation rates in therapeutic mammoplasty, can they be predicted? A large single-centre cohort

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Introduction: Therapeutic mammoplasty is safe with high patient satisfaction. Re-excision rates are low compared to the national wide local excision rate of up to 25%. Patients are offered therapeutic mammoplasty after review of tumour size and position, breast volume and discussion with the multidisciplinary team. Here we present a review of patients who required re-operation after therapeutic mammoplasty to ascertain whether there are any predictive histopathological or radiological factors for margin involvement.

Methods: All cases of therapeutic mammoplasty performed by a single surgeon over a three year period from 1st January 2013 were identified. Patient demographics, clinical details, pre-operative radiology, biopsies and final histopathology were recorded. Cases with margin involvement were assessed with both histological and radiological review and analysed for common factors.

Results: 81 patients underwent therapeutic mammoplasty in the study period to date. They included patients with multifocal disease, large tumours and large breast volumes. 88% of cases had uninvolved resection margins following primary surgery. Nine cases required re-operation of which seven had margin re-excision and two underwent completion mastectomy. No radiological or histopathological factors including tumour size and total breast volume could be identified to predict which patients would require re-operation.

Conclusion: The low rate of margin involvement in this series confirms that our current practice in patient selection for therapeutic mammoplasty is appropriate, can be determined by the multidisciplinary team and offers patients almost 90% chance of complete excision with a single operation. We have no evidence to suggest those cases requiring re-operation could have been predicted.

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P072. Retrospective analysis of the use of isotope injection as single tracer in sentinel lymph node biopsy

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Introduction: Use of both Technetium 99m isotope and patent blue dye is standard practice in localisation of the sentinel lymph node (SLN) in breast surgery. However the patent blue dye is associated with a significant risk of anaphylactic reaction and can detriment the physical view of the operative site during surgery. In our unit blue dye is used in selected patients. We aimed to review the long term effect of patients undergoing SLN biopsy without the use of blue dye compared to those undergoing dual tracer SLN biopsy.

Method: Blue dye injection was omitted in those with a strong signal in the axilla after isotope injection or had a past history of allergic reaction to multiple medications. Notes of all patients undergoing SLNB from 1/1/2011 to 31/12/2011 were retrieved and analysed for patient demographics and whether blue dye was omitted or not. Follow up data of these patients were analysed.

Results: 99 patients underwent SLNB during the study period. All cases were female. 34 patients had only isotope injected whilst 65 had both tracers injected. At 4 year follow up there were no regional or distant recurrence in the single tracer group (0%) compared to 2 patients developing distant recurrence in the dual tracer group (3%).

Conclusions: Omitting blue dye in selected patients appears to be safe and reduces the significant side effects of using blue dye in this group of patients.

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P073. Breast lesions of uncertain malignant potential (B3): Outcomes of a district general hospital

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Introduction: B3 lesions are traditionally subject to open diagnostic excision biopsy due to uncertain malignant potential. Surgical excision carries operative and anaesthetic risks, with potential for excision of benign lesions that may otherwise be observed, and may cause no detriment to the patient

Methods: A prospective study was performed of all patients presenting with B3 breast lesions on core biopsy via the Bedford Hospital Breast MDT database between November 2008 and July 2015. Data was collected using clinical notes and electronic patient records, with analysis of histological outcomes at surgical excision in comparison to core biopsy.

Results: 136 patients with B3 lesions on core biopsy were identified with a mean age of 55.8 years. Histological subclassification of these demonstrated common subtypes of B3 lesions including atypical ductal hyperplasia (ADH, 21%), radial scar or complex sclerosing lesions (RS/CSL, 18%), papillary lesions (PL, 18%), and cellular fibroepithelial lesions (CFL, 12%). 114 patients underwent subsequent surgical excision. Presence of ADH on core biopsy predicted malignancy at a rate of 50%. 94% of cases with CFL were benign at final histology. Overall, 11% of B3 lesions demonstrated invasive cancer on final histology, and 18% demonstrated ductal carcinoma in situ (DCIS).

Conclusion: Among B3 lesions, the presence of ADH was the strongest predictive factor for underlying malignancy, with cellular fibroepithelial lesions demonstrating the least malignant potential. All patients that underwent surgical excision of lesions that went on to demonstrate malignancy had breast cancer follow up. The vast majority of non-surgically managed lesions underwent radiographic surveillance.

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P074. Rapid Access Breast Clinic: Improving compliance with best practice

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Introduction: A previous audit on the accuracy of assessments in our Rapid Access Breast Clinic (RABC) identified several areas for

improvement. Particularly significant was that 25% of radiology reports lacked a formal suspicion score. We compared our practice to the *"Best practice diagnostic guidelines for patients presenting with breast symptoms"* (2010), and re-audited after increasing awareness of the issue.

Methods: All patients who attended RABC were identified over two months. Data was collected using clinic letters, radiology and pathology reports.

Results: Out of 154 patients, 112 had mammograms and 133 USS. P score was recorded in 95% of cases, R(M) in 98% and U in 99%. 12 mammograms were performed in women <40. 10 out of 12 had a P score ≤2. FNA was C1 in 3 out of 33 samples; one of these patients had a repeat biopsy. 13 cores were obtained and all discussed in MDT. 10 cancers were identified and all had axillary USS. 5 had axillary FNA or core, of which 80% were malignant.

Conclusions: Significant improvements in the compliance with guidelines had been achieved since the previous audit; in particular the 1−5 scoring for mammograms and ultrasound (breast and axilla) had reached the desired standard (>95%). It was also observed that every woman aged 35 to 40 had a mammogram irrespective of the level of suspicion. Mammograms in this group are only recommended when the score of suspicion is ≥ 3, which gives a trajectory for the next audit cycle.

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P075. Variation in the management of ductal carcinoma in situ: Results of the Mammary Fold National Practice Survey

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Introduction: Ductal carcinoma in situ (DCIS) accounts for approximately 10% of all diagnosed breast cancers and 20% of screen-detected breast cancers in the UK. The latest national guidelines were published in 2009. Our survey aimed to assess current variation in the management of DCIS with a view to informing future research and audit.

Methods: A national practice questionnaire was developed by the Mammary Fold Academic Committee (MFAC) steering group. The survey focused on pre-operative, operative, and post-operative management decision-making. By invitation of MFAC, trainees at UK breast units completed a one-off practice questionnaire on behalf of their multidisciplinary team.

Results: 76 of 144 UK breast units (52.8%) participated in the survey. Variation was observed in radiological pre-operative assessment with only 33/76 units (43.4%) performing routine ultrasound assessment of the tumour or axilla. There was no clear consensus regarding indications for mastectomy; multifocality (38.2%) and extensive microcalcifications (34.2%) were the most frequent indications. 34/76 units (44.7%) offered nipple sparing mastectomy. 33/76 units (43.3 %) perform sentinel node biopsy in the presence of a palpable/mass lesion and 51/76 (67.1 %) at the time of mastectomy. The most widely accepted pathological radial margins were 2mm (36.8%) or 1mm (22.4%). The commonest factors in decision-making for radiotherapy were tumour grade (51.3%) and size (35.5%). Only 12 units (15.8 %) routinely used the Van Nuys prognostic index. About half of all breast units offer clinical long-term follow-up. The majority of units perform annual mammograms for five (39/76) or ten years (10/76) after surgery.

Discussion: The survey demonstrates variation in the management of DCIS. MFAC aims to disseminate these results to influence the development and update of evidence-based guidelines to standardise practice and improve patient outcomes.

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P076. Early results of polyurethane covered implant based breast reconstructions in high-risk breast cancer patients

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Introduction: Complications following implant based breast reconstruction are dependent on patient factors, treatment factors and type of implant used. Higher rates of implant loss and capsular contracture are seen in women having radiotherapy. Polyurethane covered implants (PCI) have been shown to have lower rates of capsular contracture. We present early results and Patient Reported Outcome Measures (PROMs) in high-risk women who have undergone PCI based reconstructions at a district general hospital.

Methods: Data was prospectively collected for women undergoing PCI reconstruction under the care of a single oncoplastic surgeon. Patient demographics, procedures performed, complications and other treatments received (radiotherapy, chemotherapy) were noted. Clinical and photographic follow-up was carried out as per oncoplastic guidelines. Breast-Q, a validated PROM was sent out to all patients postoperatively.

Results: Between Oct-2013 and Dec-2015, 31 women underwent PCI reconstruction with a median length of follow-up of 10 months (0−26 months). The median age was 52 years (34−66 years). Sixteen women had unilateral and 15 bilateral procedures. 19 had undergone at least one previous breast surgery, of which 14 required capsulectomy for grade-4 capsular contracture. 20 women had radiotherapy (11 pre and 9 post implant insertion). Postoperatively, 2 women required lipomodelling for capsular contracture and one woman had an implant loss. The overall patient satisfaction rate was very high and formal PROMs are awaited.

Conclusions: Early results of PCI reconstruction found it to be safe, with excellent results in redo reconstructions and in patients receiving radiotherapy. Formal results of the Breast-Q questionnaire are awaited.

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P077. Familial breast cancer: Are we following NICE guidelines?

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Background: NICE guidelines on Familial Breast Cancer (FBC) were updated in 2013 and focus on classification and care of people at risk of FBC. This audit aimed to evaluate present Family History (FH) follow-up practice at University Hospital Birmingham (UHB), specifically looking at the referral to Clinical Genetics and surveillance strategies against the NICE Guidance.

Methods: The cohort was defined using the FH register at the Breast Unit of UHB. A retrospective review of management of this cohort by the Breast Unit between 2010 and 2015 was conducted using NICE guidelines 2013 on FBC as a standard. Data collected included − documentation of level of risk in the letters, referral to genetics, imaging modality used for surveillance and any new breast cancer diagnosis.

Results: Of the 462 with either a FH or known genetic mutation, 158 (34%) underwent formal genetics assessment. 114 (72%) of the ones who had formal assessment were undergoing correct surveillance according to NICE recommendations, 20 (13%) were under-screened and 12 (8%) were over-screened. 239 (52%) were added to the register based on risk assessment by the surgeons. There was incomplete FH documentation in 136 of these.

Conclusion: This audit demonstrated areas for improvement in risk stratification, referral and surveillance pathways. This will help provide appropriate and safe follow-up based on current guidance.

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P078. UK breast surgeons' views on the management of Ductal Carcinoma-In-Situ (DCIS): A nationwide cross-sectional survey

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Background: There is wide variation in the management of DCIS nationwide. We aimed to investigate whether the attitudes of surgeons towards different aspects of DCIS treatment varied by seniority of surgeon or by geographical region within the UK.

Materials and Methods: A nationwide online survey targeted at UK breast surgeons was distributed by the Mammary fold breast surgery organisation. The anonymous survey contained questions regarding demographics of respondents and specific questions regarding DCIS management that were identified as areas of uncertainty during a systematic search of the literature.

Results: Responses from 49 surgeons from across the country were obtained, of which 29 were consultants, associate specialists or post-CCT fellows and 20 were trainees. Approximately 57% were male and 63% of participants were based in district general hospitals with all training deaneries represented. Surgeons' views on the prognosis and management of DCIS varied geographically across the UK and terminology for DCIS varied with surgeon seniority. Surgeons' views particularly differed from national guidance on indications for SLNB, tamoxifen and follow-up practice.

Conclusion: Our survey reaffirms that, irrespective of national guidelines and attempts at uniformity, there continues to be a wide variety of views amongst breast surgeons regarding the ideal management of DCIS. However, by quantifying this variation, it may be possible to take it into account when examining long-term trends in treatments and outcomes within the UK.

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P079. Prognostic factors for male breast cancer: A breast unit's 10-year experience

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Background: Male breast cancer (MBC) is rare and accounts for ~1% of all breast cancers diagnosed in the UK each year. There is little information on prognosis of MBC in the UK. We aimed to investigate how the prognosis of MBC varies by patient, tumour and treatment factors.

Methods: We undertook a prospective cohort study of all MBC patients presenting to our centre over a 10-year period from 01/01/2005-31/12/2014. The primary outcome measure was disease-free survival. Comparisons of potential risk factors between those who had disease-free survival and those who did not were conducted using paired T-tests.

Results: 30 patients with MBC were identified. The mean age was 68.3yrs (range 43−88) and median follow-up time was 4.7yrs. 27 were unilateral and 3 were bilateral cases. All patients were ER-positive and 10 were node positive. All patients underwent mastectomy and axillary surgery. 7 had chemotherapy and 16 had radiotherapy. 3 patients had recurrence (10%) of whom 2 died from the disease (7%). The presence of invasive cribiform carcinoma and indeterminate sonographic lesions were significantly associated with recurrence or death ($p<0.01$). There were no other significant differences in all other risk factors examined.

Conclusion: All tumours were ER positive suggesting an underlying hormonal mechanism in developing MBC. The prognosis of MBC patients is similar to their female counterparts in terms of disease-specific survival rate when tumour size and axillary involvement are taken in account.

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P080. The impact of a change in margin width policy on rates of re-excision following breast conserving surgery (BCS)

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Introduction: The definition of an adequate surgical margin following BCS remains controversial despite published recommendations for acceptance of "no tumour at ink" (Ntink) for invasive carcinoma. Our group have previously shown that reducing the margin mandate from 5mm to 2mm does not influence rates of re-excision and now report the surgical impact of adopting this more stringent margin policy.

Methods: A retrospective analysis examined rates of re-excision over two sequential 12-month periods either prior to (GROUP 1; n=225) or immediately following (GROUP 2; n=238) a change in margin policy from 2mm to "Ntink". A total of 611 patients underwent surgery for symptomatic and screen-detected breast cancer amongst whom 463 received BCS. Wire-localisation was undertaken in 51% (114/225) and 42% (101/238) of patients in groups 1 and 2 respectively. Statistical analysis used Fisher-Exact test.

Results: Rates of re-excision were significantly lower for group 2 (32/238= 13%) compared with group 1 (48/225= 21%) [p= 0.02]. These figures included cavity re-excision and mastectomy and completion mastectomy with halving of the latter after margin policy change (13 versus 6 cases). Residual disease in re-excision/mastectomy specimens was significantly higher for group 2 (40.6%) compared with group 1 (16.6%) [p= 0.02] with 38% of residual malignancy in group 2 being DCIS only. Three patients in each group required 2 additional operations to achieve negative margins.

Conclusion: A minimum margin width of "Ntink" has reduced rates of re-excision and increased the proportion of residual disease in reoperation specimens. Longer term follow up is essential to monitor in-breast local recurrence.

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P081. Identifying recurrence in breast cancer patients from routinely collected data in England

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Background: Reliable information on invasive breast cancer (IBC) recurrence would assist management of the disease. Until now, recurrence information has not been available nationally, but the National Cancer Registration Service in Birmingham (NCRS) has collected high quality recurrence information for its local area. We used information from the NCRS to assess whether recurrences could be identified reliably from routinely collected data (RCD) that are available nationwide.

Methods: We studied 53,556 women living within the West Midlands and registered with IBC during 1997−2011. Data items suggesting recurrence were selected from RCD in the Cancer Analysis System (CAS), Hospital Episode inpatient Statistics (HES) (1997+), Radiotherapy Treatment Dataset (RTDS) (2009+), and Cancer Waiting Times data (CWT)

(2009+). This information was compared with the detailed recurrence information collected by NCRS.

Provisional results: There was complete agreement between RCD and NCRS for women who died within 3 months from IBC or another cause, and for those who received only palliative treatment. More than 92% of women recorded in the West Midlands as having recurrence in ipsilateral or contralateral breast/regional lymph nodes, distant metastasis, or another invasive cancer were identified as such from the RCD.

Conclusion: There is good agreement between recurrences indicated by RCD with those recorded in NCRS. This finding supports the potential of using RCD to derive recurrence information nationwide, for use in the future in descriptive and epidemiological studies and in randomised trials. Additional work is needed to confirm the accuracy of recurrences identified from RCD and to improve it further.

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P082. Local treatment with electrochemotherapy of superficial angiosarcomas: efficacy and safety results from a multi-institutional retrospective study

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Introduction: Angiosarcoma is an aggressive vascular neoplasm with a high propensity for local recurrence. Electrochemotherapy is an emerging skin-directed therapy, which exerts prominent anti-tumour activity through cytotoxic and antivascular effects. Its efficacy in patients with angiosarcoma has not been investigated.

Methods: Patients with superficially metastatic angiosarcoma who underwent electrochemotherapy from 2007 to 2014 were included in this multicentre retrospective analysis. Bleomycin was administered intravenously (15 IU/m^2) and delivered within tumours by means of brief electric pulses applied by means of a needle electrode, according to European Standard Operating Procedures for Electrochemotherapy. Tumour assessment was performed using RECIST (version 1.1). Toxicity (CTCAE, version 4.0) and local progression-free survival (LPFS) were also evaluated.

Results: Nineteen patients (13 with locally-advanced and 6 with metastatic disease) were treated, for a total of 54 target lesions. Tumour sites were: scalp (n=5 patients), breast (n=8), other skin sites (n=3), and soft tissue (n=3). Target lesions ranged in size from 1.5 to 2.5 cm (median, 2 cm). Treatment was well tolerated. After 2 months, an objective response was observed in 12/19 (63%) patients, complete in 8 (42%). Six patients had stable disease. The median time to response achievement was 31 days (range, 28−210). Seven patients received further cancer treatments after ECT. One-year LPFS within treatment field was 68%. Local symptom control included palliation of bleeding (5/19 patients) and pain relief (6/19 patients).

Conclusions: Electrochemotherapy may represent a new valuable locoregional treatment for patients with superficial angiosarcomas. Symptom benefits include bleeding control and local pain relief.

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P083. Axillary assessment in invasive lobular cancers

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Objective: Pre-operative axillary ultrasound (AUS) is used to stage the axilla and to prevent the need for further axillary treatment following sentinel lymph node biopsy (SLNB). AUS has a sensitivity of approximately 50% in invasive ductal cancers (IDC). It has been suggested that invasive lobular cancer (ILC) has a distinctive biological growth pattern, making axillary assessment more challenging. This study aimed to assess if AUS for ILC was less sensitive than IDC.

Methods: Patients diagnosed with lobular breast cancer were retrieved from our databases and further information obtained from radiology and pathology reporting systems. Data were collected regarding axillary imaging, fine needle aspiration cytology (FNAC), axillary surgery and nodal histology.

Results: From June 2013 − June 2014 102 patients were diagnosed with ILC or mixed IDC/ILC breast cancer in our unit. All patients underwent pre-operative AUS. Thirty-four patients had abnormal axillary imaging and subsequently had FNAC; 50% of these patient demonstrated malignant nodal involvement. 80% of all patients (82/102) underwent SLNB and 19% (n=19) underwent axillary clearance surgery. 23/82 patients (28%) had false negative radiological+/−cytological normal axillae and demonstrated $\geq$1 positive lymph node on SLNB. The sensitivity of AUS in patients with ILC was 42.5%.

Conclusion: Our results correlate with current literature sensitivity of AUS for ILC and for IDC. However, we believe that a false negative rate of approximately 25%, in both our study and the literature, indicates the need for improved accuracy of AUS. Our unit will be looking at the cortex thickness of axillary nodes to investigate if this improves sensitivity of AUS in ILC.

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P084. The role of upfront axillary sentinel node biopsy in breast cancer patients considered for mastectomy and breast reconstruction

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Introduction: Breast reconstruction should be offered to all suitable patients undergoing mastectomy for breast cancer either immediately or delayed according to the Association of Breast Surgery guidelines. However, post-reconstruction radiotherapy can compromise the aesthetics of immediate breast reconstruction and potentially result in increased reconstruction failure which may also compromise adjuvant treatment. One of the indications for post mastectomy radiotherapy is axillary nodal metastases. The aim of this study is to assess the value upfront axillary sentinel node biopsy (SNB) in breast cancer patients undergoing mastectomy and reconstruction in our unit.

Methods: Data of all patients who underwent upfront SNB for breast cancer prior to reconstructive surgery between March 2012 and April 2015 were collected retrospectively from an in-house database. Patient demographics, tumour characteristics, SNB results and details of reconstructions including post-operative complications were collected.

Results: 71 patients had upfront SNB procedures prior to mastectomy during this period.

53 (75%) patients had no sentinel node metastases and they then underwent skin sparing mastectomy with immediate breast reconstruction. Out of 53 reconstructions, 4 had post-operative complications resulting in implant loss (7% failure rate). 18 (25%) patients had metastases in sentinel nodes and they were offered delayed breast reconstructions.

Conclusions: Upfront axillary sentinel node biopsy helps to identify patients who will potentially require post-mastectomy radiotherapy. This

gives the opportunity to discuss the potential risks of immediate reconstruction, and also gives the option of recommending delayed reconstruction or immediate-delayed reconstruction in sentinel node positive patients.

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P085. Audit on use of Oncotype DX to guide multidisciplinary team regarding chemotherapy in early breast cancer

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Background: Oncotype DX assay can help a breast multidisciplinary team (MDT) decide if patients with early breast cancer will benefit from chemotherapy. The test costs around £2,500. National Institute for Health and Care Excellence (NICE) has issued guidance for use of Oncotype DX as an option to help MDTs decide whether to offer chemotherapy to patients. On average six chemotherapy sessions are needed for breast cancer (£4,000 per session). In our department this test is only offered to early breast cancer patients and our aim was to assess how it guided our MDT regarding chemotherapy.

Methods: All the patients who had an Oncotype DX assay were identified (2014−2015). Patients who did not have an Oncotype DX assay but had a Nottingham prognostic index (NPI) $\geq$ 3.4 were also identified (2013−2014). MDT outcome notes were retrospectively studied to note if Oncotype DX aided the MDT decision regarding chemotherapy.

Results: 39 patients had Oncotype DX assay performed and most had Grade 3 tumours (48.7%). This test informed decision in all patients except one (2.5%). In 23 patients (59%) recurrence score was low (<18) and guided MDT that chemotherapy will not provide any treatment benefit. 31 patients (79%) had radiotherapy and all had hormone therapy.

Conclusion: Oncotype DX test prevented chemotherapy in more than half of our early breast cancer patients. In addition, it is economical to use as it can save the National Health Service (NHS) about £20,000 per patient.

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P086. Rates of ipsilateral breast tumour recurrence (IBTR) following breast conserving surgery (BCS) and hypofractionated radiotherapy for ductal carcinoma in situ (DCIS)

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Introduction: The risk of IBTR following BCS for DCIS is dependent on both tumour and treatment-related factors including surgical margin width and adjuvant therapies. Treatment strategies should be risk stratified to avoid over/undertreatment with radiotherapy and hormonal treatment.

Methods: A retrospective analysis examined patients undergoing BCS for core biopsy proven DCIS between 1999 and 2010. The institutional database identified 1260 DCIS cases with or without invasion amongst whom 323 had pure DCIS, mainly screen-detected (>90%). A total of 176 patients were treated with BCS alone (27.5%) or combined with radiotherapy (72.5%) [15 fractions; total dose = 40Gy] and no hormonal therapy. Nine patients died from non-breast cancer causes leaving 167 uni- and 1 bilateral patient (168 cases) for analysis with high (72%), intermediate (17.8%) and low (9%) grade DCIS (or ungradeable).

Results: At median follow up of 126 months (range 46 − 180) 14 patients (8.33%) developed first event IBTR (non-invasive = 8; invasive = 6). Half of DCIS recurrences (4/8) occurred within 12 months with steady invasive recurrence up to 10 years of which 1 case died from distant metastases. There was no significant difference in rates of recurrence with (9/121) or without (5/46) irradiation (p=0.534).

Conclusion: These rates of local control with a target radial margin of 5mm and hypofractionated breast radiotherapy are consistent with published IBTR rates of approximately 1% per annum. The IBIS II study reported 10 year recurrence of 7 − 8% with routine hormonal therapy which may be unnecessary for some patients treated with BCS and radiotherapy.

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P087. Autologous Latissimus Dorsi breast reconstruction: Comparison of practice at a tertiary oncoplastic breast surgery unit with the National Breast Reconstruction Audit.

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Introduction: The National Breast Reconstruction Audit (NBRA: 2008−2011) reported demographics and outcomes for breast reconstruction in England & Wales. This was compared with data for patients undergoing autologous latissimus dorsi (ALD) reconstruction at the Canniesburn Plastic Surgery Unit in Glasgow, Scotland.

Method: Electronic patient records were accessed for each ALD from 1st January to 31st December 2014. These were compared with NBRA data using Fisher's exact or paired t test.

Results: 107 ALD reconstructions performed on 102 patients with median age 52 (range 29−71), by 12 surgeons. NBRA included data for 2551 pedicled flap reconstructions. There was no statistically significant difference (NSS) between NBRA and local patients for age, BMI, smoking or diabetes. Proportion of invasive cancer to DCIS was the same in both populations (76% invasive: 24% DCIS). Contralateral symmetrisation at time of reconstruction was performed in 13.6% nationally, and 11.3% locally (NSS). Patients at Canniesburn were significantly more likely to have immediate ALD (Canniesburn: 76.0% immediate vs 24.0% delayed; NBRA: 65.3% immediate vs 34.7% delayed; P<0.05). Nationally, a significantly greater proportion had expander or implant plus pedicled flap than locally (Canniesburn 18.7%; NBRA 46%; P<0.001). No difference was seen in complications including flap or donor site complications, transfer to HDU/ITU, return to theatre, or mortality.

Conclusion: While NBRA and local outcomes are similar for most parameters, patients at this tertiary centre are more likely to have immediate ALD, and less likely to have implant along with ALD. This may reflect local access to immediate reconstruction, and surgeon preference.

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P088. Excision margins in breast conservation therapy (BCT) − The effect of the Society of Surgical Oncology (SSO) and American Society for Radiation Oncology (ASTRO) consensus on our practice

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Introduction: Acceptable margin width following BCT is not clearly defined (NICE 2009, LCA 2013). One of the minimum standards in the ABS Surgical guidelines is that >95% of patients with invasive disease should have 3 or fewer therapeutic operations (EJSO 2009). In April 2015, our MDT standard for margins was changed to "clear at the inked margin" in line with the SSO and ASTRO consensus (Moran, 2014). An audit of margin re-excision rates was performed to assess the impact of implementing this change.

Methods: This was a retrospective audit of BCT patients from January 2012 to December 2014 (pre-change); and from April to December 2015 (post-change). In the first cohort, positive margins were defined as

<1mm for invasive disease and <2mm for DCIS. In the second cohort, positive margins were defined as tumour on ink.

Results: A total of 519 patients (418 pre-change, 101 post-change) were studied. In the first cohort, 14.8% (n=62) had positive margins. In the second cohort of patients 7.4% (n=7) had positive margins. In both cohorts, 100% of patients with invasive disease had 3 or fewer procedures.

Conclusions: Implementation of the change in our local MDT standard for margins has resulted in a significant reduction in the number of positive margins (14.8% versus 7.4%, p=0.0245, Fishers exact test). The benefits have included reduced re-excision rates, improved patient experience, better cosmetic outcomes, and decreased health care costs. The National Margins Audit in 2016 will demonstrate the impact that existing national variation in margin practice has on these outcomes.

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P089. Re-excision of margins following breast conservation therapy (BCT) − A review of current practice

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Introduction: In the UK, the recommended margin width in BCT is not clearly defined (NICE 2009, LCA 2013). In 2014, ASCO endorsed the SSO and ASTRO consensus for margins (no tumour on ink) (Buchholz 2014). This study examines the histology of positive margins and subsequent margin re-excisions to determine whether these procedures could have been avoided.

Methods: This is a retrospective study of BCT patients from January 2012 to December 2014. Positive margins are defined as <1mm for invasive disease and <2mm for DCIS.

Results: 423 patients were studied. 14.7% (n=62) had positive margins. Disease was present at the inked margin in 63% (n=39). In 37% (n=23) tumour was within 1mm of invasive disease or 2mm of DCIS but not on ink (close margins). All patients had subsequent re-excision. There was no difference in the presence of residual disease in those with inked or close margin involvement (36% versus 43%, p=0.6, Fisher's exact test). Further, the histology of the involved margin (DCIS/IDC) did not affect the presence of residual disease in the re-excision (45% versus 25%, p=0.17, FET).

Conclusions: 5.4% (n=23) of BCT patients had close margins and would have avoided a re-excision if the ASCO guidelines had been followed. This is supported by the finding of no residual disease in over 50% of re-excisions. The presence of residual disease is not affected by the degree of margin involvement (on ink or close). Surgical practice should evolve to accept the increasing role that adjuvant treatments including radiotherapy play in local control.

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P091. Local Anaesthetic in Breast Surgery − LABS Study

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Introduction: Post-operative pain affects up to 60% of women undergoing mastectomy and is a factor in chronic post-mastectomy pain. Local and systemic analgesia are used to minimise post-mastectomy pain. This multicentre randomised controlled study aimed to assess the administration of local anaesthesia (LA) by different routes and compare to systemic analgesia only. Ethical approval was granted by the South West Research Ethics Committee.

Methods: Patients undergoing mastectomy were randomised using minimisation through a secure website to three arms:

1. Wound infiltration of LA;
2. Drain administration of LA;
3. Systemic analgesia only.

Patients were grouped according to whether or not axillary clearance was performed.

All patients were offered simple and opiate analgesia in the postoperative period.

Data were collected including demographic and cancer details, analgesic and antiemetic requirements, drain outputs and seroma formation. Pain was assessed at four time-points in the 24 hours after surgery. Data was analysed using SPSS.

Results: Patient recruitment took longer than anticipated with difficulties encountered in opening the trial at all intended sites. 57 patients were recruited between April 2013 and December 2015. One patient withdrew and data was missing from 5; the final analysis included 51 patients, 17 in each group. Patient demographic and cancer details did not vary significantly between groups. There was no statistically significant difference in pain scores or duration of drainage between the groups.

Conclusions: In this study systemic analgesia was as effective as local anaesthesia after mastectomy. A larger sample size would be needed to confirm non-inferiority.

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P092. Thrombin clotting pathway and cancer stem-like cells: In vitro support for breast cancer anticoagulation

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Introduction: Cancer stem-like cells (CSCs) are tumour initiating, resistant to chemotherapy and play a role in metastasis. We have previously shown that Tissue Factor, the initiator of the thrombin pathway, regulates CSC activity in vitro. We hypothesise that novel oral anticoagulants (NOACs), by targeting specific factors in the thrombin pathway, may inhibit CSC activity.

Aims: In breast cancer cell lines, to determine the effect of i) thrombin and ii) Dabigatran, a direct thrombin inhibitor, on cancer stem cell activity.

Methods: MDA-MB-231 MCF-7, SKBR3 and MDA-MB-157 breast cancer cell lines were cultured with i) thrombin and/or ii) Dabigatran. Mammosphere forming efficiency (MFE), a marker of CSC activity, was calculated from the proportion of plated cells forming mammospheres in non-adherent culture.

Results: Thrombin increased MFE in the high-PAR-1 (thrombin receptor) expressing MDA-MB-231 and MDA-MB-157 cell lines, but not the low-PAR-1 expressing MCF-7 and SKBR3 cell lines as compared to untreated controls (MDA-MB-231 mean (range): thrombin treated: 0.91 (0.70-1.11) vs control: 0.73 (0.51−0.93)%, *p=<0.04*; MDA-MB-157: thrombin treated: 0.58 (0.45−0.69) vs control: 0.37 (0.31−0.47)%, *p=<0.001*).

Dabigatran abrogated the stimulatory effect of thrombin on MFE in thrombin-treated MDA-MB-231 and MDA-MB-157 cells (MDA-MB-231 mean (range) thrombin + Dabigatran: 1.10 (0.83−1.41) vs thrombin only: 1.45 (1.32−1.66)%, *p=<0.01*); MDA-MB-157 thrombin + Dabigatran: 0.48 (0.39−0.56) vs thrombin only: 0.58 (0.45−0.69)%, *p=<0.05*).

Conclusion: The stimulation of mammosphere formation by thrombin and reduction by thrombin inhibitor treatment indicates a functional relationship between cancer stem-like cells and coagulation. This suggests possible clinical utility of NOACs in targeting this cancer cell subpopulation.

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P093. Circulating tumour cells and hypercoagulability: A lethal relationship in metastatic breast cancer

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Introduction: Circulating tumour cells (CTCs) are a marker of poor prognosis and associated with increased risk of venous thromboembolism in metastatic breast cancer (MBC). We correlated presence of CTCs and hypercoagulability (D-dimer, fibrinogen, thrombin-antithrombin[TAT]) with survival in MBC.

Methods: CTCs (CellSearch), D-dimer, fibrinogen and TAT (ELISA) were measured at a single timepoint in 50 prospectively recruited MBC (median age 59, range 36−82) patients undergoing treatment. Survival data was determined at median follow-up of 366 days (range 58−986).

Results: To date, 25 patients have died (median survival 566 days, range 135−978). CTCs (>1/7.5ml) were identified in 13 patients (range 2−31) and were associated with increased hypercoagulability (D-dimer: median 1814(IQR 2700) vs 755(IQR 735)ng/ml, *p=0.004*; fibrinogen: median 4.2(IQR 1.9) vs 3.2(1.3)g/l, *p=0.05*; TAT: median 6.2(IQR 6.3) vs 4.7(5.2) ng/ml, *p=0.1*). CTCs were associated with visceral compared to bony metastases (p=0.03) and with a trend for reduced survival (295 days (CI:0−652) vs 737 days (CI:186−1288), *p=0.1*). There was no correlation between CTCs / hypercoagulability and ER, PR or Her2 status. All hypercoagulability markers were higher in patients dying within 1 year (D-dimer: 1098(IQR 1122) vs 723(IQR 735)ng/ml, p=0.03; fibrinogen: 4.4(1.1) vs 3.2(0.8)g/l, p=0.004; TAT: 8.1(6.3) vs 4.7(3.1)ng/ml, p=0.03. D-dimer >1500ng/ml was associated with reduced survival (295 days [CI: 0−615) vs 836 days [404−1267], *p=0.05*). D-dimer was associated with an increased risk of death (HR 1.3 per 1000ng/ml D-dimer, p=0.07).

Conclusion: The correlation between CTCs, hypercoagulability and reduced survival in MBC suggests a possible role for coagulation in metastasis and is a potential therapeutic target.

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P094. Can we safely discharge patients with Ductal Carcinoma In Situ (DCIS) after treatment?

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Introduction: There is debate about the relevance of follow up for patients after treatment for invasive and in-situ breast cancer. In particular there is no consensus on the length of surveillance and whether this can be carried out in our busy breast clinics or remotely. There is a view that some patients with DCIS can be safely discharged after treatment. The aim of this study is to review the outcome of patients with DCIS.

Methods: The database was searched for all patients with DCIS from January 1995 to December 2005 under a single surgeon. They were typically followed up for 5 years with annual clinical examination and mammography. We reviewed their outcome.

Results: There were 158 patients - 22 Low Grade (LG); 41 Intermediate Grade (IG); 80 High Grade (HG); 15 No Grade (NG). The mean age at diagnosis was 58 years. They were treated with mastectomy (MAST) or wide local excision, radiotherapy (except for LG or MAST). There were 18 recurrences (11%) − 5 in LG (23%); 3 in IG (7%); 7 in HG (9%); 3 in NG (20%). Of the 18 patients, 14 (78%) had local recurrence, 3 (17%) had metastatic recurrence, and 1 (5%) had both local and metastatic recurrence. The mean time to recurrence was 8 years (median 9 years).

Conclusion: There is no correlation between the grade of DCIS and subsequent recurrence. All patients with DCIS should have regular surveillance dictated by local guidelines.

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P095. Magnetic sentinel lymph node biopsy in a murine tumour model

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Introduction: Magnetic sentinel node biopsy provides a radioisotope-free alternative for staging breast cancer. This technique requires refinement to reduce the 'residual iron content' at the injection site by maximising lymphatic uptake to prevent 'void artefacts' on Magnetic Resonance Imaging (MRI), which could adversely affect clinical use. The impact of site and timing of injection of magnetic tracer was evaluated in a murine tumour model.

Materials and Methods: Murine melanoma derived B16 BL6 cells were cultured and subcutaneously injected into the right hind limb of 24 C57BL/6NCrSlc mice and allowed to develop *in vivo* for 7 days. Right-sided intratumoral and left sided subcutaneous injection of magnetic tracer (Sienna+, Endomagnetics, UK) and assessment of nodal iron uptake on Magnetic Resonance Imaging (MRI), surgical excision (using quantitative magnetometry) and histopathological grading at time frames up to 24 hours (<15 minutes, 1, 4 and 24 hours after injection) was performed.

Results: Rapid iron uptake on MRI, smaller observed 'void artefacts' ($P<0.001$) and a significant increase in iron content with time was identified using a subcutaneous ($r=0.937$; $P<0.001$) compared to intratumoral injection of magnetic tracer. The subcutaneous injection was not associated with any side effect profile unlike the intratumoral technique (haematomata in 11/24 procedures).

Conclusions: Subcutaneous injection and increasing time-delay between tracer injection and surgery is beneficial for lymphatic iron uptake. Reductions in residual iron content at the site of injection and consequent 'void artefacts' on MRI are needed for the magnetic technique to be compatible with the use of MRI in breast cancer management.

Additional ethical statement: The University of Tokyo Ethical Review Board granted approval for conducting animal studies (reference number; KA15-2).

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P096. Implication for the implementation of the new breast Two-Week Referral (TWR) pathway at Warwick Hospital

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Introduction: National guidelines for referral to Breast TWR services changed in 2010, to encompass ALL symptomatic breast patients. It is therefore unsurprising that breast services are under increasing pressure to meet these targets. Following recent NICE guidelines, new referral criteria were developed at Warwick Hospital to manage increasing referral numbers via the TWR system.

Aims: To determine whether the proposed changes to the TWR criteria would miss patients with breast cancer.

Method: A random sample of 500 patients was taken from a total of 2484 referred to Warwick breast TWR service between October 2014−October 2015. Clinical data including patient demographics, presenting complaint and final diagnosis was collated from electronic records.

Results: The F>M ratio was 34:1. Age range 12−89, and 66(13%) patients were below 30 years of age. The most common presenting complaints were breast lump 34%(n=177), breast pain 33%(n=166) or a combination of the two, breast lump and pain 18%(n=90). 31(6%) patients were diagnosed with breast cancer, 291(58%), with benign breast disease and 178(37%), with no disease. No cancer was diagnosed in any patient in

the <30 group. Only 51%(n=252) of patients would have been referred as per the new criteria.

Conclusion: Based on our proposed changes, 49% fewer patients would be referred via the 2-week wait pathway, which should help reduce time and financial pressures on this service. Importantly, no cancer diagnosis would have been missed using the proposed new referral criteria.

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P097. An audit: Assessment of the nodal burden for Invasive Ductal Carcinoma and Invasive Micropapillary Carcinoma of breast. Does the "micropapillary factor" contribute to the heavy axillary node involvement?

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Introduction: Micropapillary carcinoma is an aggressive, angio-invasive form of breast cancer. It accounts for 1.7% of all breast cancers with high rate of nodal metastases of 71.2%. It can present in pure and mixed forms. Literature reviews demonstrate that micropapillary component has an effect on nodal burden.

Aim: To identify nodal burden at the time of breast cancer staging and treatment for Invasive Ductal Carcinoma(IDC) and Micropapillary Carcinoma(MPC).

Methods: Retrospective data collection and analysis from 4/2009 to 4/2014 of patients with MPC and IDC. Patients with other types of breast cancer and post neoadjuvant chemo therapy were excluded.

Results: Data search detected 51 patients diagnosed with MPC and 637 with IDC. 35 patients had micro metastases following sentinel lymph node biopsy(SLNB) procedure with no further axillary clearance(ACL) in IDC group.

Table 1
Procedures

Procedure number	IDC(637 patients)	Micropapillary(51patients)
SLNB only	458(72%)	16(31%)
SLNB+ACL	87(14%)	15(30%)
Primary ACL	92(14%)	17(33%)
Total number of ACL	179(28%)	32(62%)

Table 2
Nodal burden

Nodal staging	IDC(637 patients)	Micropapillary(51patients)
N0	423(67%)	13(25%)
N1	147(23%)	16(31%)
N2	39(6%)	11(25%)
N3	28(4%)	9(17%)

Conclusion: Patients diagnosed with micropapillary carcinoma are twice as likely to be node positive at the time of the breast cancer diagnosis and treatment and have tendency to heavy nodal burden(N2/N3). In micropapillary carcinoma cases careful and thorough assessment of the preoperative US of the axilla should be considered due to likelihood of axillary lymph node involvement.

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P098. A 5 year blood transfusion audit − Do we need routine blood group and save for elective breast surgery?

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Introduction: Currently all the patients listed for mastectomy or breast reconstruction would have blood group and save (G+S) routinely twice before surgery. With improvement of surgical technique and use of diathermy, blood transfusion is very rare in breast surgery. G+S takes approximately 45 minutes and costs £3.00 per test besides staffing time. To identify requirement and cost effectiveness of routine G+S, we audited five years transfusion data.

Methods: Retrospective case note analysis of patients who had mastectomy or breast reconstruction from March 2010 to June 2015 focusing on timing of G+S, pre and postoperative haemoglobin, timing of blood transfusion and units transfused were recorded.

Results: Out of 829 patients 814 (98%) had pre-operative G+S. 73 (8.8%) patients were transfused in the ward. None required blood pre-operatively or within 4 hours of operation. 8 were transfused on the day of operation and the rest on second or third post-operative day. Cost of G+S for all patients was £4974 and for 73 who required transfusion £438.

Conclusions: Our audit demonstrated that blood transfusion requirement for elective breast surgery is low. As most of the patients (89%) were transfused second or third day of surgery, clinical staff would have time to arrange blood after surgery for those who required transfusion rather than routine pre-operative group and save. Transfusion requirement was more in the patients on anticoagulation medications and who had pre-operative anaemia. Considering the cost and time, routine pre-operative group and save is only indicated in selected patients.

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P099. Patient reported outcome following extended Latissimus Dorsi flap breast reconstruction

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Introduction: Autologous breast reconstruction using extended latissimus dorsi flap (ELD) has been a well-established surgical option for breast reconstruction for decades. With the advent of implant based breast reconstruction with acellular dermal matrix ELD flap breast reconstruction numbers are decreasing nationally. We present patient reported outcome of 85 ELD flap breast reconstruction.

Method: A validated breast reconstruction satisfaction questionnaire sent to all 73 patients who had ELD flap breast reconstruction from November 2011 to October 2014. Retrospective case note analysis also performed alongside.

Results: 73 women had ELD reconstruction with a total of 85 flaps. 50 immediate (10 bilateral) and 23 delayed (2 bilateral). Average hospital stay was 6 days (range 4−8). Median age 51 (range 31−73). Median follow up 21 months range (12 − 48 months). 34 patients had implant with ELD flap. 32 patients had nipple reconstruction. 5 had symmetrisation surgery in the form of contralateral breast reduction. 3 had breast wound infection and implant was removed in 1 patient. 78% returned patient's satisfaction questionnaire. 98% happy with their new breast and felt feminine. 95% would recommend other and 88% were happy with nipple areolar reconstruction service. We also noticed greater satisfaction in the patients with ELD flap without implant.

Conclusions: In carefully selected patients ELD flap breast reconstruction provides excellent aesthetic outcome. Reconstruction with ELD flap provides long term results and with very low complications. Although implant based reconstruction gaining popularity but ELD flap breast reconstruction still has a secure place in the reconstruction algorithm.

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P100. Day surgery for non-reconstructive breast surgery − Audit and patient satisfaction survey

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Introduction: Over the past decade, the mean length of stay (LOS) after breast surgery has nearly halved. Day surgery for breast cancer has been shown to be safe and become increasingly popular with good patient feedback. We present the audit results for non-reconstructive breast cancer surgery in the practice of a single oncoplastic surgeon.

Methods: All patients undergoing non-reconstructive surgery including wide local excision (WLE) or mastectomy with or without sentinel node biopsy or axillary clearance were prospectively entered into a database. Patient demographics, type of operation, LOS and any readmissions were noted. The time at which mastectomy patients returned to the ward was noted. Patient satisfaction questionnaires asking about − (i) adequacy of information given, (ii) any readmission, (iii) analgesic requirements and (iv) if they would opt for day surgery again were handed to patients upon discharge and collected anonymously.

Results: Between Sept-14 and Sept-15, 96 non-reconstructive breast operations were performed. Mastectomy patients planned for day surgery, on average returned to the ward postoperatively by 2pm. Two patients had unplanned overnight stay (1 following blue-dye reaction and 1 due to bleeding).

Table
LOS after non-reconstructive breast surgery.

Procedure	n	LOS=0	LOS=1	LOS>1 day	Median LOS
Mastectomy	26	16 (62%)	7 (27%)	3 (1%)	0 (0−4)
WLE	68	61 (90%)	7 (10%)		0 (0−2)

44 patients have returned the questionnaire with extremely high satisfaction rates for all the questions (range 93−100%) with all patients happy to recommend day surgery.

Conclusions: Day surgery for non-reconstructed breast surgery was found to be safe and highly acceptable to patients. With good planning, mastectomy patients had adequate time to recover after their operations and go home the same day.

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P101. Use of the handheld ultrasound-guided basket Intact Breast Lesion Excision System for the excision of breast cancers from patients suitable for primary endocrine therapy: Is this technically feasible?

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Introduction: The handheld Intact Breast Lesion Excision System (Intact) allows radiological excision of an entire breast lesion under ultrasound (USS) guidance for diagnosis and margin assessment. Its use excising benign breast lesions is established, and we have presented data demonstrating it as a reliable and effective tool in this context. The treatment of patients with primary endocrine therapy (PET) is the cause for debate, in particular whether denying surgical excision adversely affects outcome. The aim of the current study was to determine the feasibility of Intact excision of breast cancers from these patients.

Methods: All patients started on PET between 01/2013 and 06/2015 were identified from breast care nursing records. Their clinical and radiological records were analysed by a breast surgeon and radiologist to assess potential suitability for 20mm Intact excision.

Results: 77 patients on PET were identified. 14 patients (15 cancers) were identified as potentially suitable for Intact excision (18.2%). Contraindications included: too large (n=51), close to chest and/or skin (n=24), positive axillary nodes (n=10), unable to cooperate / unfit (n=10), multiple lesions (n=3), poorly defined / invisible on USS (n=2), and metastatic disease (n=2). Of those whose cancers were too large, 31 were less than 30mm. In 10 this was the only contraindication, making these potentially suitable for excision with the 30mm basket (in development).

Conclusions: We have demonstrated the feasibility of Intact excision of breast cancers in patients on PET. Questionnaires assessing patient acceptability are planned, prior to seeking ethical approval for a prospective trial.

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P102. Use of combination of modules of BREAST-Q in partial breast reconstruction with lateral chest wall perforator flap

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Introduction: Currently, there is no validated PROMS instrument for partial breast reconstruction with chest wall perforator flap (CWPF), which spares the latissimus dorsi (LD) muscle. CWPF expands options for breast conserving therapy (BCT) in high tumour:breast ratio.

Methods: The Breast-Q™ provides a Q-score that ranges between 0−100, with 100 being the highest score in both patient satisfaction and Quality of Life (QOL) domains. Eight patients completed a combination of post-operative BCT and post-operative LD flap modules of Breast-Q™.

Results: Mean post-operative Q-scores derived from eight responses were:

- Satisfaction with: breast=88.5, radiated breast=92, patient care, surgeon and staff>90
- QoL domain: physical well-being=82.9, psychosocial well-being=92.4, sexual well-being=77.7
- Back appearance=91.1, shoulder and back function=82.9.

The mean pre-operative extent of tumors (including two multi-focal) was 38.4 (18−76)mm and post-operative 9.5 (0−50)mm. One pathological complete response was in G3 triple-negative tumour with non-concentric imaging response following neo-adjuvant chemotherapy. Others included two G2 ILC, two NST and three High-Grade DCIS. Seven patients would have needed mastectomy or would have had significant defect/deformity without CWPF.

Conclusions: CWPF clearly avoided mastectomy or deformity following BCT with excellent post-operative patient-reported satisfaction with breast and chest/back wound. A future pre-operative BCT Q-score (under development by the Breast-Q team) could provide a useful comparison. Although limited by small numbers, this initial data provides useful new insights into this logical combination of Q-score modules. It could be tested in either a larger cohort or serve as a framework for the development of a new Breast-Q in CWPF.

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P103. Sentinel lymph node biopsy under ultrasound guided block allows for safe breast cancer surgery under local anaesthetic

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Introduction: Sentinel lymph node biopsy (SLNB) is the gold standard for staging the axilla in women with breast cancer with a clinical and radiological negative axilla. Elderly patients often have multiple comorbidities, making surgery under a general anaesthetic challenging. Local anaesthetic (LA) infiltration of the primary breast lesion under ultrasound (USS) guidance is easily performed, however SLNB under USS LA infiltration is challenging, as the sentinel node is identified by 'dual technique', not ultrasound.

We describe a novel block technique which can be used to perform SLNB under LA without interfering with the lymphatic uptake of radioisotope.

Method: Lignocaine with adrenaline (Xylocaine 1% 1:200,000) is diluted with Normal Saline making a concentration of 0.25%. At the level of the 5th rib, under USS, we identify the sub serratus anterior plane and

using an echogenic needle, infiltrate 20−30mls. This allows a block which covers the skin and axillary contents.

Results: We have utilised this technique on 15 patients (average age 72, 45−90 years) over 4 months requiring SLNB under LA. All patients had a '0' pain score in recovery, and none required further LA infiltration or additional analgesia. One returned to theatre for post-operative bleeding.

Conclusion: This technique allows simple, safe infiltration of the axilla, with little discomfort to the patient. As the local anaesthetic is not infiltrated directly into the axillary triangle, the tissue planes and lymphatics are not disrupted, ensuring accurate SLNB. This allows SLNB to be performed at the same time as wide local excision of the primary breast cancer under LA. Further audit of oncological results and patient satisfaction is required.

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P104. Does PETCT play a role in the routine surveillance of breast cancer patients?

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Aim: Our aim was to assess the appropriateness of surveillance PETCT's in breast cancer follow-up.

Method: One surgeon over a period of 6 years undertook a protocol of imaging his patients using PETCT's at completion of any chemotherapy and at years 2.5 and 5 post surgery. Such a protocol is not routine and it was deemed important to look at the impact of such imaging. The notes of all patients identified to have had a PETCT under his care were reviewed.

Results: 133 individuals were identified. 1 patient had known metastatic disease and the scans were part of assessing treatment response. 5 of these had DCIS and one had microinvasion. The mean number of scans was 2.1 (range 1 − 6).

Of the124 that we could gain NPI scores - the mean was 3.8 (2.1−7.2).

There was a significant risk of further imaging, surgery and endoscopy (20%, 23% and 8%). The vast majority of investigations were false positives (91%). LR or RR was identified in 8 individuals. (mean NPI 5.7)

2 other cancers were identified − a malignant melanoma and colon cancer. There was one false negative.

False positive surgery undertaken included a lung lobectomy, thyroid lobectomies, attempted adrenalectomy, groin and breast explorations.

One retained drain was identified on the 3rd PET (5 years post surgery).

Conclusions: The use of PETCT for routine surveillance appears to have a significant risk of extra surgery and imaging. Its role should be limited to high risk patients following MDT approval.

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P105. The role of therapeutic mammoplasty in a breast screening unit in the United Kingdom: a two-year review

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Introduction: Therapeutic mammoplasty (TM) is an oncoplastic technique used to combine breast cancer excision with breast reshaping surgery or breast reduction. Contralateral breast surgery (CBS) is often performed alongside TM to maintain symmetry. We reviewed our practice at a UK breast screening unit.

Methods: Data were collected retrospectively on all patients who underwent TM between 01/01/2013 and 31/12/2014. Information obtained included: patient age, use of guidewire localisation, tumour characteristics, whether and when CBR was performed and histology findings in the CBR specimen.

Results: Mean age was 58 years (37−73). 89 TM procedures were performed on 87 patients (two had bilateral procedures). A single guidewire was used in 59 (66.3%) patients; two wires were used in 6 (6.7%) patients. Invasive carcinoma was found in 67 patients. Patients without invasive disease included Ductal Carcinoma In Situ (DCIS) in 20 and "Other" diagnoses in 5 patients. Median total tumour size was 58mm (35−120). 63/85 (74.%) patients had CBS at the time of TM (62 reductions, one mastopexy); 9/85 (10.6%) had delayed CBS. One patient had CBS revision (further breast reduction). 13/85 (15.3%) patients had no CBS. All CBS specimens showed benign histology. Median specimen weight was 188.4g (7.8−1242) for TM and 257.2g (34.4−1600) for CBS.

Conclusion: TM is suitable for a wide range of screening and symptomatic patients. The majority of patients in our unit had CBS at the time of TM almost exclusively in the form of breast reduction surgery. It was rare for patients to require surgical revision of their contralateral breast.

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P106. Selective use of breast MR in all pathological subtypes has a high diagnostic yield.

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Introduction: Studies show that breast MRI can detect multifocal, multicentric and contralateral cancers not identified by other imaging modalities. Its routine use especially in the management of lobular cancer remains controversial. Low specificity may result in added investigations and an unnecessary change in the surgical management of the index cancer. This study outlines our experience of breast MRI in a cohort of primary breast cancer patients.

Methods: Patients diagnosed with primary breast cancer between 2011 and 2012 were identified from the cancer database. Patient demographics and details of tumour biology were recorded as well as radiological and operative details.

Results: Of 622 patients with primary breast cancer, 110 patients had breast MRI. Indications included NACT(n=39,35%), assessment of tumour extent(n=70,64%) and an occult primary(n=1,1%). Subsequently 25 patients required further investigation with a diagnosis of more extensive disease in 11 patients and 4 patients with contralateral cancer. Lobular cancers had a higher rate of more extensive disease than non-lobular subtypes (15%vs7%, p=0.19) and a higher rate of contralateral cancer detection (7.7%vs1.4%, p=0.09), although this did not reach significance. On the basis of the MRI scan 15 patients had their surgery changed from breast conservation to mastectomy. The final histology supports the diagnosis of more extensive disease in all of these patients.

Conclusion: Selective use of Breast MR in an experienced centre to assess the extent of disease in all breast cancer pathological subtypes is of value with 60% requiring further workup having additional malignancy. No unnecessary mastectomies were performed.

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P107. Aesthetic breast surgery under local anaesthetic with sedation: Clinical outcomes and patient experience

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Introduction: Since 2010 our unit has carried out over 1000 operations under local anaesthetic with sedation (LAS). We report our outcomes and patient experience in patients undergoing aesthetic breast surgery using this technique.

Methods: We undertook a prospective post-operative satisfaction questionnaire of patients undergoing aesthetic surgery under LAS, and identified those which had undergone aesthetic breast surgery. A retrospective review of these patients' records assessed clinical outcomes.

Results: Of 100 patients who completed questionnaires, 34 underwent aesthetic breast surgery, and of these the clinical data was available in 29 cases. Procedures included breast augmentation (n=21), removal/exchange of implants +/− capsulectomy (n=9), mastopexy (n=5), breast reduction (n=1) and lipomodelling (n=1). Median duration from completion of surgery until being ready for discharge was 70 minutes (range 45−205 minutes). One patient stayed in hospital overnight for social reasons. 38% (n=11) of patients required analgesia and 3% (n=1) required antiemetic in recovery. Complications included haematoma (3%, n=1), dehiscence (3%, n=1), and dressings beyond two weeks (7%, n=2). Average patient satisfaction with the LAS technique in breast patients was 9.7/10. Of 24 patients who had previously undergone general anaesthesia, 83% felt LAS was better, and none felt it was worse. 100% of patients would choose LAS again, and 100% would recommend the technique to others.

Conclusions: LAS is an effective technique for performing aesthetic breast surgery which is associated with a high degree of patient satisfaction and enables an expedited discharge.

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P108. The use of MRI scans in newly diagnosed breast cancer patients: An 8 year experience

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Introduction: MRI scans are used as a diagnostic tool in breast cancer patients to detect multifocality, multicentricity and bilaterality of disease. The aim of this study was to investigate whether performing MRI scans has had an impact on the management and treatment of breast cancer patients in our institution.

Methods: A retrospective data collection was performed between the years 2007−2014 on newly diagnosed breast cancer patients who have had MRI scans on the breast. Data collected included patient demographics, imaging and histology results and types of surgical operations performed. Comparisons were also made between mammograms and ultrasound results versus MRI results.

Results: Data was collected on 198 patients (range 23−82 years) over an 8 year period. MRI sensitivity for each breast scanned was 96% while specificity reached 86.7%. An increase in tumour size by more than 1 cm following an MRI, occurred in 11.5% of cases, additional ipsilateral tumours were discovered in 22% of cases, and contralateral tumours were found in 13% of cases. We found a false positive rate of 12.5% and a false negative rate of 7.5% (p=0.672).

Conclusion: MRI scans has influenced the management of breast cancer patients in our institution. The high specificity and sensitivity has allowed better-individualised treatment plans. However, patient selection remains important as this imaging modality may not always be indicated.

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P109. A review of BRCA gene carrier demographics in Wales

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Introduction: Women who inherit a mutated copy of the BRCA gene have a higher lifetime risk of developing breast cancer. No large epidemiological studies exist looking at BRCA carriers in the UK.

Methods: All patients with BRCA1/BRCA2 mutation identified between 1995−2014 were included. Individuals were identified from a prospectively gathered database. Genetics case-notes were obtained and retrospective analysis performed.

Results: 412 living females with median age of 43(18−81) at the time of testing were included. Of the 202 women who underwent *diagnostic* testing (symptomatic) 178 (88%) had breast cancer, 43 had ovarian cancer and 19 had both at time of testing. Median age at diagnostic test was 50(25−81). 50 women from the diagnostic group who had not already undergone bilateral mastectomies (29%) subsequently underwent risk-reducing mastectomies (RRM); median age at surgery 45(29−70). 79 women who had breast conserving surgery for cancer prior to genetic testing did not have subsequent RRM.

210 women underwent *predictive* testing (family history, asymptomatic), median age 36 (18−81). The most recent 50% (105/210) tests were carried out in the last 4 years. 10 women (5%) developed breast cancer after being tested, none had previously undergone risk-reducing surgery. To treat their breast cancer 6 underwent bilateral mastectomies and 4 underwent single mastectomies. 64 patients from the predictive group (30%) underwent RRM, median age at surgery 37(24−65).

Conclusion: This unique study of all BRCA mutation carriers in Wales shows considerable variation in their management and uptake of risk reducing surgery. This has significant implications for service allocation and screening demands for this high-risk patient group.

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P110. Preoperative role of Contrast Enhanced Mammography (CESM) in breast cancer

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Introduction: Currently further evaluation of complex breast cancer cases performed by MRI. It has high sensitivity but also known for high cost, long waiting time, issues with claustrophobia as well as slightly increased number of false positive results. CESM offers combined high quality digital mammogram and contrast enhanced image with similar to MRI performance for diagnosis and staging of breast cancer. The purpose of this study was to establish sensitivity of CESM in tumour sizing.

Methods: Prospective study from November 2014 to December 2015.
47 patients underwent CESM, 25 of them also had Breast MRI.

Inclusion criteria for CESM: P4/5 finding, age 40−70.

Exclusion criteria: diabetes, nephropathy, breast implants, allergy to iodinated contrast.

CESM two-view images were obtained 2 minutes after the intravenous application of Niopam 300. All imaging double red by two breast radiologists.

Results: 47 histopathological results compared to CESM predicted tumour size.

The combined CESM average lesion size - 26.2mm, histopathological - 25.1mm. One false positive and one false negative CESM result (8 mm each).

25 patients had CESM and MRI. CESM size prediction was better in 10 cases, 8 cases CESM comparable to MRI, 7 cases - MRI was more accurate.

Conclusion: Our preliminary findings suggest that there is a good agreement in tumour size obtained by CESM, MRI and histopathology. CESM in our opinion provides accurate, less expensive, fast and more comfortable experience for the patient and has potential to serve as a replacement for breast MRI.

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P111. The management of idiopathic mastalgia: A systematic review

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Introduction: Idiopathic breast pain is common, but can be poorly managed − with a lack of up-to-date treatment reviews to guide management.

Methods: Electronic literature searches of PUBMED, MEDLINE, Cochrane Database and Clinical Trials Registry were conducted (February, 2015) using the terms; mastalgia, mastodynia, cyclical and non-cyclical breast pain in accordance with PRISMA guidance. Manuscripts included RCTs, editorials, case reports and case series (with >20 subjects) between 1979−2015.

Results:

Treatment Method	Study design (no.)	Evidence Level	% patients with pain reduction *(side effects)*
Reassurance	Cohort (1)	III	70%
Brassiere	RCT(1) Cohort (1)	II	49% −85%
EPO	RCT (4)	II	None
Topical NSAIDS	RCT (2) Cohort (1)	II	92%
Acupuncture	Case Series (2)	IV	67% *(36% dropout)*
Kinesiology	Cohort (1)	III	60%; 18% resolution
Dopamine Agonists	RCT (6)	II	80% (Bromocriptine); 90% (Lisuride); 71% (Agnus-Castus) *(11% - dizziness and nausea)*
Gonagotrophin suppressant (Danazol)	RCT (2)	II	90% *(Androgenic)*
GnRH agonist (Goserelin)	Cohort (1)	III	81% *(Menopausal)*
Progesterone agonist	RCT (1)	II	33% *(Androgenic in 41%)*
Surgery	Cohort (1)	V	42% pain-free post mastectomies *(50% had post-op complications)*
Relaxation	RCT (1)	II	61%
Soya	RCT (2)	II	56%
Tamoxifen	RCT (3)	II	71% *(10% intolerance)*
SERMs: Ormeloxifene Toremifene)	RCT (5)	II	90% 64% *(Hot flushes)*

Conclusion: 70−85% of cases can be managed with reassurance and bra-fitting advice alone. Drug therapy should be balanced against side effects. NSAIDs and Ormeloxifene show greatest benefit with least side effects, however the latter has not been trialled or licensed in the UK.

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P112. Are National ABS/BAPRAS targets being met in the North West of England in implant based breast reconstruction?

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Introduction: Surgeons take precautions to prevent post-operative complications, however a recent covert surveillance audit of infection prophylaxis in implant surgery highlighted high inter-surgeon and intra-surgeon variability in practice. We assessed rates of post-operative infection, unplanned return to theatre, readmission and implant loss at three months with a multi-centre study in North West England to compare with the quality criteria set in ABS/BAPRAS Oncoplastic Breast Reconstruction Guidelines for Best Practice.

Methods: A retrospective review of implant based reconstructions, in 5 centres, between 01/01/12 and 31/12/12 was performed. Unplanned readmission, return to theatre, infection and implant loss at three months were assessed.

Results: 191 patients underwent implant based breast reconstruction. 58 (30%) pedicle flap, 16 (8%) dermal sling, 48 (25%) ADM and 68 (36%) implant alone. Complication rates are largely comparable to Best Practice guidelines (table 1), however infection rates (determined by reference to clinical signs of infection or further use of antibiotics) are high at 29 (15%).

Conclusion: Although our sample size is relatively small, the standard set in the ABS/BAPRAS guidelines for implant loss appears achievable in unselected breast units. The high infection rate undoubtedly reflects our broad definition of infection and retrospectively collected data, however this represents an area where improvement is required. Standardising practice with an evidenced-based 'Theatre Infection Checklist' to ensure best practice recommendations are followed may improve outcomes.

Table 1

	Outcome at 3 months % (n)	Quality Criteria %
Unplanned return to theatre	6 (12)	<5
Unplanned readmission	7 (14)	<5
Implant loss	4 (7)	<5

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P113. Tiloop® Bra Mesh Assisted Implant Based Breast Reconstruction (IBBR) and Post Mastectomy Radiotherapy (PMRT) − A single unit experience

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Introduction: IBBR is the most common approach to breast reconstruction in the UK. Indications for PMRT are also increasing. PMRT is associated with increased complications in IBBR (40−68%), and a 30% implant loss rate. Limited data exists on the effects of radiotherapy in IBBR using TiLOOP® Bra mesh.

Methods: Casenotes for patients undergoing TiLoop-assisted IBBR and PMRT in a single unit between January 2013−June 2015 were reviewed. Patient factors, surgery, mastectomy weight, implant used, final histology, complications (minor − conservative management, major − requiring additional surgery) and aesthetic outcome were recorded.

Results: 22/73 patients who underwent IBBR with Tiloop (3 bilateral) went on to have PMRT. 1/22 had previous radiotherapy. The median age was 51.5 (25−81), BMI 28.3 (19.2−40.3), all ASA 1 or 2, and 2 were smokers. Mean mastectomy weight was 655g (130−1272g). 14/22 had an axillary node clearance. 19/22 underwent a 2-stage procedure using an expander (300-800cc 133 SX Allergan), with on table fill volumes ranging from 100−600ml (29−77%). 7/22 (31.8% - 3 minor, 4 major) had a complication prior to radiotherapy, and 7/22 (31.8% - 7 minor) post radiotherapy. 4 implants were lost (18%), all prior to PMRT. Median follow up was 12 months (range 4−23). Aesthetic outcome was deemed satisfactory by the surgeon in 77% and patient in 72% at final follow-up. 8/22 were referred to plastics for corrective surgery or risk reduction mastectomy and reconstruction.

Conclusions: Irradiation of TiLoop-assisted IBBR is not associated with increased early complications. Patient and tumour factors are more

likely to determine outcome.

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P114. Drainless Breast Reconstruction: Can it be safe when ADM are used?

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Introduction: One of the most common reported side effects of acellular dermal matrix (ADM) use in breast reconstruction is seroma. Traditionally drains have been used post-operatively to reduce this. However, there is also evidence showing no increased rate of seroma with ADM use, no increased risk of infection with seroma and an increased risk of infection with drain use. This led us to think that there may be a degree of unnecessary drain use occurring in breast reconstructions

Methods: A prospective study over 1 year of immediate breast reconstructions by one surgeon in a single institution. Surgical and patient characteristics were recorded, along with clinical follow-up and complications. Inclusion criteria involved: 1) BMI < 35/low breast volume 2) Non-smoking status 3) No high risk co-morbidities.

Results: There were a total of 20 patients with 11 ADM / implant reconstructions. Clinical but asymptomatic seromas were seen in 6 cases (30%). None of these cases led to infection or implant loss, with 1 case needing a minor wound re-suture. Only one implant was lost and this was due to infection with USS confirming no seroma present at any point.

Conclusion: We may be overusing drains in breast reconstruction. In a specific set of patients, not using drains in breast reconstructions with ADM appears safe and causes no permanent complications. Though clinically seromas may be seen, these have been small, asymptomatic and needed no intervention in our experience. This is a small set of patients and further investigation with larger numbers and longer follow up is needed to fully confirm these results.

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P115. Does contralateral synchronous surgery delay adjuvant therapy for women undergoing immediate implant based reconstruction?

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Introduction: Many surgeons elect not to offer patients synchronous surgery on the contralateral breast when performing immediate reconstruction; one reason is to avoid possible delays to adjuvant treatment. We assessed the impact of synchronous surgery on delays to adjuvant chemotherapy/radiotherapy in implant-based reconstruction with a multicentre study in North West England.

Methods: A retrospective review of implant based reconstructions, in 5 centres, between 01/01/12 and 31/12/12 was performed. Delay to adjuvant treatment, complications, further surgery and implant loss were assessed in those having and not having synchronous surgery with their reconstruction.

Results: 103 patients underwent implant based immediate breast reconstructions for cancer, with minimum follow-up of 24 months. 17 (17%) had synchronous surgery. 7 (41%) risk-reducing mastectomy and implant based immediate reconstruction, 6 (35%) reduction mammoplasty and 4(24%) implant based augmentation. For patients receiving adjuvant treatment (n=40), in the contralateral surgery group 1 (10%) experienced a delay due to infection (in the index breast) compared to 3(10%) in the no synchronous surgery group.

Conclusion:

	Synchronous Surgery n(%)	No Synchronous surgery n(%)	P Value
Total	17 (17)	86 (83)	
Delay to adjuvant treatment	1 (10)	3 (10)	1
Delayed wound healing	4 (24)	13 (15)	0.5
Implant loss	2 (12)	10 (12)	1
Unplanned procedures	4 (24)	13 (15)	0.5
Unplanned for complications	1 (6)	7 (8)	0.6
Unplanned for cosmesis	3 (18)	6 (7)	0.6

Although our numbers are small, surgery on the contralateral breast at the time of implant based reconstruction appears feasible with no significant delay to adjuvant treatment.

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P116. Response to vaccination via tumour draining lymph nodes does not demonstrate a tumour suppressive effect in patients with breast cancer: A peri-surgical window study

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Introduction: Cancer modulates immune function via effects on draining lymphatics. Locoregional immune suppression through various mechanisms precedes establishment of lymphatic metastasis. Immunotherapeutic anti-cancer vaccines may prove useful adjuvants to current treatments however their efficacy depends on immunocompetence.

Methods: 23 early breast cancer patients were recruited into a prospective peri-surgical window study (NRES:11/SC/0509) and randomised to receive tetanus/diphtheria vaccine either ipsilateral to their cancer (N=11), contralateral (N=6) or no vaccine (N=6). Those vaccinated ipsilateraly received subcutaneous vaccination to the inner aspect of the upper arm to ensure axillary drainage. Vaccine response was assessed using a panel of 14 ELISA assays measuring Total IgG, IgM and IgG1-4 subtypes against vaccine components (Tetanus Toxoid (TTd), Diphtheria Toxoid (DTd)), as well as control protein (PPD).

Results: Baseline immunoglobulin levels were equivalent across the three cohorts. Peak response was seen 3 weeks post vaccination (mean fold increase:TTd=11.3,SEM 4.4. DTd=8.3,SEM 3.6). Magnitude of response to each vaccine component was compared using two-sample T-test with Holm-Šidák correction (alpha=0.05): No differences in response were detectable between ipsilateral and contralateral cohorts for either vaccine components, for any immunoglobulin subtypes at any time points analysed. Cluster analysis following data normalisation (mean=0 (variance=1)) using average linkage hierarchical clustering (Qlucore-omic explorer 3.1.1) failed to demonstrate differences between the two cohorts.

Conclusion: Presence of locoregional breast cancer had no detectable effect on vaccine response compared to that seen when cancer is present at a site distant to vaccination. Patients with early breast cancer are immune-replete and may be good candidates for vaccine-based cancer therapeutics.

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P117. Avoidance of axillary surgery in patients with invasive breast cancer. Long term follow-up of a cohort of 194 patients

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Introduction: We report long-term follow-up of patients treated by a single consultant who, before the advent of sentinel lymph-node biopsy (SLNB), did not perform any axillary surgery on those considered 'low-risk'. Criteria were: postmenopausal, <20mm grade1 or <15mm grade2, LVI-ve, ER+ve. Secondly we applied the SOUND-trial inclusion criteria to our cohort to try and predict the results of the trial.

Methods: A retrospective search of a prospectively-maintained database identified eligible women. Patients were censored when an event or death occurred or at last follow-up at breast clinic or GP.

Results: Between 05/01/1995-20/11/2006, 194 patients (199 tumours) were operated upon without axillary surgery. Median follow-up was 10.4years.128 patients met low-risk criteria and 71 didn't (patient choice=42, medical fitness=29). Median follow-up was 10.4years.

In total six axillary recurrences occurred, cumulative 5-year incidence was 2.2%. Four patients underwent 'salvage' ALND, one had an inoperable mass and one had distant metastases on staging. Median time from surgery to axillary recurrence was 29 months. Distant disease-free survival (DDFS) was 98.9%(95%CI:95.7−99.7) at 5yrs. Disease-free survival (DFS) was 91.7%(95%CI:86.6−94.9). Overall survival was 90.7%(95%CI:85.7−94.1).

135 patients met the SOUND criteria. There were 3 axillary recurrences (5year incidence, 1.6%) in this cohort and the 5-year DDFS was 100%

Conclusion: Axillary recurrence and DDFS in this low-risk cohort is favourable. In the modern era of breast cancer management it is possible to define a group of women in which axillary surgery can be omitted. We expect the SOUND RCT (no axillary surgery versus SLNB) will show non-inferiority.

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P118. Neo-adjuvant chemotherapy, tumour biology and the degree of response − A surgeon's perspective

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Introduction: Neo-adjuvant chemotherapy (NACT) may downsize tumour enabling breast-conserving surgery (BCS) dependent however on tumour biology. We present our experience of NACT.

Methods: NACT-treated patients over 2-years (March 2013 − February 2015) were identified from a prospective database, and information extracted from electronic medical records. Response was assessed as residual pathological tumour size as a proportion of the largest recorded pre-treatment imaging size. Patients with response less than the median for the group were compared with those with a median or greater degree of response. Analysis involved comparison of Proportions (two-tailed exact test) and multivariate analysis (logistic regression).

Results: Median response was 76.9% (n=93) including BCS (n=46) and mastectomy (n=47). Greater than median response was significantly related to Higher grade (67% vs. 21%, p=0.000), ER negativity (79% vs. 38%, p=0.000) and HER2 positivity (68% vs. 41%, p=0.018). None of the six Lobular cancers showed greater than median response (p=0.012). Only one of the 20 patients with a "luminal-A" subtype (defined as ER+, HER- and grade 1 or 2) showed a greater than median response (p=0.000). On age-adjusted multivariate analysis, Grade, ER, and HER2 remained independent correlates of response. The relationship persisted when Luminal-A subtypes were excluded from analysis. There was a significant correlation between BCS and actual response (OR 0.97/percent response, p=0.014).

Conclusions: Tumours with Luminal-A phenotype respond poorly to NACT. Tumour response can aid BCS, however, where a poor response is predicted, it is appropriate to consider oncoplastic techniques (such as mammaplasty, partial reconstruction with chest-wall perforator flaps etc) to enable BCS.

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P119. Use of triple assessment and predictors for breast cancer in patients under forty years of age

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Aims: A significant proportion of referrals to breast clinics are for patients under forty years of age despite breast cancer being uncommon in this group. ABS guidelines mention that components of the triple assessment can be selectively used in these patients. This study was designed to assess this assumption in a tertiary-care university hospital.

Methods: Data was retrospectively collected for all patients seen in the one-stop breast clinic between Jan 2014 to Aug 2015. Demographics, symptoms, diagnostics and treatment details were recorded. Subgroup and logistic regression analysis was performed to identify predictors for breast cancer.

Results: 3326 patients were included. 95.7% (3183) were first-time referrals. Median age was 29 years (IQR25-34). 57.9% (N=1927) had a breast lump and 4.0% (N=133) had high-risk family history. 79.9% (N=2657) had imaging and 18.0% (N=598) had biopsy. Breast cancer was diagnosed in 29 cases (0.87%). 3.3% (N=109) had surgery. Median referral-to-diagnosis time was 13 days (IQR9-14) and referral-to-surgery time was 44 days (IQR34-95).

Subgroup analysis: Patients with breast cancer were significantly older (33 vs 28years, P=0.016). All patients were first-time referrals with non-specific symptoms and P1/2 clinical examination, with cancer identified on imaging. Time-to-diagnosis (12 vs 14days, P=0.017) and time-to-surgery (37 vs 67days, P=0.012) was significantly shorter in the breast cancer group.

Regression analysis: Age (OR1.08,95%CI1.01-1.15) and breast lump (OR11.43, 95%CI2.72-48.07) were the only significant predictors of cancer on uni/multi-variable regression.

Conclusions: Triple assessment is the best practice for all patients in younger age group. This cohort should not be treated any differently regarding one-stop set up as the cancers detected were clinically P1/2. Missing cancers in this age group would have significant clinical and legal consequences.

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P120. Definitive reconstruction choice in women who undergo delayed immediate reconstruction with tissue expander and undergo post-mastectomy radiotherapy

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Introduction: Post-mastectomy radiotherapy (PMRT) is known to have an adverse effect on breast reconstructions. Tissue expanders (TE) are often used in patients who are likely to require PMRT in what has been described as "delayed-immediate" reconstruction. The aim of this

study was to analyse what definitive reconstructive surgery patients in our centre undergo after TE and PMRT.

Methods: Patients who had TE insertion and then PMRT were identified. Pre-operative clinic letters were analysed to identify the preferred definitive reconstruction and operation notes reviewed to assess which definitive reconstruction was actually undertaken.

Results: Between 01/2008-12/2010 42 patients underwent TE followed by PMRT. Median age at time of surgery 45 years (range 24−73). Median follow-up was 60 months (range 4−92). In 24 (57.1%) cases the aim was for implant definitive reconstruction. Subsequently 14 (58.3%) underwent implant reconstruction, 8 (33.3%) had autologous reconstruction, 1 (4.2%) still has a TE in-situ and 1 (4.2%) is lost to follow-up.

In 18 (42.9%) cases both autologous and implant were discussed and the decision was left open. Subsequently 11 (61.1%) underwent autologous, 4 (22.2%) implant, two (11.1%) have TE in situ and 1 (5.6%) patient is lost to follow-up.

Conclusion: Breast cancer reconstruction is a programme of care over a long period of time and is a dynamic process. For a variety of reasons such as patient choice and surgeon advice the original planned method of reconstruction may not be utilized and we believe patients must be counselled of this at the start of treatment.

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P121. Referrals to genetics services for young patients with Triple Negative Breast Cancer in Wales

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Background: Triple negative breast cancer (TNBC) is associated with BRCA gene mutations, particularly in young women. The 2013 NICE guidance on Familial Breast Cancer recommends these women should be referred to regional genetics services. The aims of this study are to assess whether Welsh patients are being appropriately referred and the proportion who are tested for, and found to carry, BRCA mutations.

Methods: Patients diagnosed with TNBC in Wales at age 40 or under between 1st January 2010 and 1st January 2015 were identified from all Welsh health boards and cross-referenced with the All Wales Medical Genetics Service patient records.

Results: Seventy-one women were identified, median age at diagnosis 36 (21-40). TNM staging was available for 51: T1=13, T2=28, T3=6, T4=4; N0=29, N1=18, N2=5. Three women presented with metastatic (M1) disease. 21 women (30%) underwent mastectomy, 32 (45%) had breast conserving surgery and 18 did not have/are yet to undergo surgical treatment. 50 women had adjuvant radiotherapy and 69 received chemotherapy (neoadjuvant or adjuvant). 45 women (63%) were referred to genetics. Thirty women attended and 22 were offered BRCA gene testing. Of those tested, 7 (29%) were found to carry a BRCA1 mutation, no BRCA2 mutations were identified.

Conclusions: Although not every TNBC is caused by a BRCA mutation, there is a clear association. Even in our small cohort, 29% of those tested carried a mutation. MDT members should remember to refer these high risk patients to genetics services, even if they do not have a significant family history.

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P122. Surgical outcomes following neoadjuvant chemotherapy for bulky breast cancers: South Devon's thirteen year experience

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Introduction: Neoadjuvant chemotherapy has been increasingly utilised in recent years to facilitate breast surgery in patients presenting with large or heavily node positive tumours.

Aim: To assess our use of neoadjuvant chemotherapy: pathological responses, five-year survival and local recurrence following breast conservation surgery (BCS).

Method: Breast cancer patients were identified from cancer data set and cancer registry (MDI and IHCS) between 31st December 2000 and September 2013 with a minimum follow-up of 12 months (median 2.8 years; range 1−5 years)

Results: 106 eligible patients were identified, all female, median age 51 (range 26−77). 21 (20%) patients had complete pathological response, 48 (45%) partial response and 36 (34%) poor response. Favourable factors were Grade 3 Ductal histology, ER positivity and Trial participation. 61 patients were down-staged to facilitate BCS and this was achieved in 45 (74%) the remainder requiring mastectomy (3 by choice). 32 patients were down-staged to enable mastectomy and this was achieved in 25 (78%) whilst 6 (19%) had such a successful response they were unexpectedly able to complete BCS. Local recurrence rate was 1.72% at 5 years compared to a national target of <3%. Of the 37 patients with a full 5 year follow up: Metastases were found in 24 (65%) and 18 (49%) patients survived 5 years or more with smaller tumour size being a favourable factor.

Conclusions: Neoadjuvant chemotherapy enables breast conservation surgery in 48% of patients. Local recurrence rates are well within National targets but the risk of early death from metastatic disease is high.

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P123. Referrals and outcomes for patients with incidental breast lesions found on CT imaging

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Introduction: In addition to conventional pathways, an increase in breast referrals from incidental lesions on CT scans, performed for non-breast pathology, has been reported([1]). Of these, 30% have been found to be malignant([2, 3]). Our Breast unit sees over 4500 one-stop clinic referrals and treats over 300 new breast cancer patients annually. Our aim was to report on the number of breast referrals received, as a result of incidental CT findings, and the subsequent patient outcome.

Methods: A retrospective observational study of patients referred to the breast unit with a CT detected breast lesion. Data was collected from a 12 month period: November 2014−October 2015.

Results: We received 23 such referrals during the study period, which made up 0.5% of all referrals. Indications for CT were a combination of routine follow up imaging and investigation for respiratory symptoms, lymphadenopathy and abdominal pain. All patients were subjected to triple assessment. 10 (43%) were diagnosed to have malignant disease. Of these, 5 (22%) patients had metastatic disease, 1 (4%) was a local recurrence and the other 4 (17%) had treatment for primary breast cancer.

Conclusion: The percentage of referrals to our unit was small, but in keeping with other reports([2]). The number of patients consequently diagnosed with breast malignancy was higher than past reports (43%)([2]), and a notable contribution to our workload. This emphasizes the importance of triple assessment in such cases, and the need to factor in the impact of this referral stream in planning future capacity.

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P124. ADM-based immediate breast reconstruction; is there a risk of explantation after 30 days?

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Introduction: Nationally up to 85% of women undergoing immediate breast reconstruction opt for an implant-based procedure. Acellular dermal matrix (ADM) has revolutionised this technique, offering a number of perceived cosmetic advantages compared to full muscle coverage, however the medium and long-term outcomes remain uncertain.

Methods: All cases where ADM was used in an immediate breast reconstructive procedure in a single breast unit from February 2009 to October 2015 were identified on a retrospectively collected database. Follow up data was completed to December 2015.

Results: A total of 349 immediate breast reconstructions (IBR) were performed in 257 patients (92 bilateral), with a median age of 48 years (range 24−76). Median follow up time was 35 months (range 1−80). 32 (12%) patients required emergency re-operation, of which 19 (60%) had their reconstructions salvaged. Final explant rate was 5% (n=13). Complications requiring emergency reoperation occurred at <1month in 14 patients (6 haematomas, 2 infections, 6 wound-breakdowns), 1−3 months in 12 patients (4 infections, 8 breakdowns) and >3 months in 6 patients (5 infections, 1 breakdown).

Conclusions: This represents the largest and longest series of immediate breast reconstructions using ADM reported in the UK. The overall explantation rate is low, but the risk is ongoing in the first 3 months, rather than just confined to 30 days post-surgery. Early surgical intervention is a useful tool in the successful salvage of postoperative complications and may improve overall outcomes. Clinician and patient vigilance during the first 3−month at risk period is key.

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P125. Factors associated with further axillary disease in patients with early breast cancer and positive sentinel node biopsies

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Introduction: The management of the axilla is evolving with increasing evidence that in early breast cancer, completion axillary node clearance (ANC) in the event of a positive SNB does not provide survival benefit (Z0011); and that radiotherapy may be superior in terms of reduced morbidity (AMAROS). This study examines some of the biological variables that may be associated with further nodal involvement in patients with positive SNBs.

Methods: This was a retrospective study of patients who had SNB between March 2014 and September 2015. Data collection included age, tumour size and grade, lymphovascular invasion, ER status, HER2 status, Ki-67 % and size of metastasis. Statistical analysis was performed using t-tests and Fisher's exact tests with p-values ≤ 0.05 considered significant.

Results: 203 patients were included in the study. 23% (n=27) had positive SNB. Of these patients, 70% (n=33) had completion ANC with further axillary disease found in 52% (n=17). Patients with positive SNB had significantly larger tumours (mean 34mm versus 20.45mm, p=0.0001). However, larger tumour size was not associated with further axillary disease (p=0.9). Lymphovascular invasion was the only variable associated with further axillary disease (p=0.03). The size of tumour metastasis in the sentinel node was not associated with further disease (p=0.48).

Conclusion: In this study, almost half of patients with positive sentinel nodes had no further axillary disease. This supports the increasing body of evidence that completion ANC may be overtreatment. The presence of lymphovascular invasion may have a role in guiding further treatment to the axilla in these patients.

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P126. Clinical outcome and patient satisfaction with the use of bovine-derived acellular dermal matrix (SurgiMend^{TM}) in implant based immediate reconstruction following skin sparing mastectomy in the setting of radiotherapy: a prospective, observational study

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Introduction: The advent of acellular dermal matrix devices (ADMs) has enhanced both the scope of implant-based immediate breast reconstruction (IBR) following skin sparing mastectomy (SSM) for the treatment or risk reduction of breast cancer, especially in the setting of radiotherapy. Currently, there are a wide range of options available for the use of ADMs.

Methods: This is a prospective observational single institution study of 118 consecutive patients undergoing a total of 164 SSM and IBR procedures either for treatment for breast cancer or for risk reduction, between 2012 and 2014. IBR was performed using an implant and bovine-derived ADM (SurgiMend™). Nipple sparing mastectomy (NSM) accounted for 103 procedures. IBR was performed as a single stage procedure in 23% of patients and 27% of patients received radiotherapy. The primary endpoint of this prospective study was the explantation rate and secondary endpoints included quality of life, patient satisfaction, aesthetic outcome assessed objectively, surgical complications, overall and disease free survival.

Results: At a mean follow up of 21 months, the explantation rate was 1.2% and the overall complication rate was 6.25%. Out of those who received radiotherapy (n=32), 27 patients received post-mastectomy radiotherapy and 5 received it prior to surgery. In this subgroup, we observed two complications including one case of partial wound dehiscence requiring surgical debridement and implant replacement in a patient who had undergone post-mastectomy radiotherapy and chemotherapy. One other patient who received radiotherapy prior to surgery developed capsular contracture after two years requiring capsulotomy and fat transfer. No patients who received radiotherapy lost their implants. The incorporation of the ADM was less complete in the radiotherapy subgroup. Overall survival was 99.2% and locoregional disease free survival was 98.3%.

Conclusions: SurgiMend™ is an effective adjunct to implant based IBR following SSM. It is associated with a very low rate of implant loss and a high level of patient satisfaction and is associated with a very low incidence of inflammatory reaction. Neither prior radiotherapy nor post-mastectomy radiotherapy (PMRT) represents a contraindication to its use.

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P127. An analysis of the mechanical strength properties of retrieved silicone breast implants in a single centre

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Silicone gel breast implants are commonly used in breast reconstruction following mastectomy in the UK. They are, however, associated with problems such as capsular contracture, leakage and rupture. The aim of this prospective study was to analyse the mechanical strength properties of retrieved implants to detect for weakening of the silicone shells which may leak to implant distortion and shell rupture.

Methods: Local ethical approval was granted. The inner gel was removed and shells cleaned with isopropanol. Samples from the anterior aspect of the retrieved implant shell were analysed for maximal tensile stress (n=6), elongation strain at break (n=6) and tear strength (n=3) using Instron 5565. Demographic and clinical data was recorded. A Spearman rank correlation was performed to analyse duration of implantation and mechanical properties.

Results: 9 silicone breast implants were retrieved and analysed. Mean patient age was 42 (29−53). Mean age of retrieved implants was 154 months (5 − 300). The most common indications for replacement were implant rupture (n=3), scheduled replacement (n=3) and capsular contracture (n=2). Maximal tensile stress ($R = -.75$, $p=0.013$), strain at break ($R = -0.87$, $p<0.001$) and tear strength ($R = -0.90$, $p<0.001$) significantly reduced with length of implantation.

Conclusions: This analysis of retrieved silicone breast implants demonstrates that the shells significantly weaken and become brittle predisposing them to leakage or rupture. As such further research into the development of newer more robust materials is needed to prolong the life span of breast implants reducing complications and the need for revision surgery in this cohort of patients.

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P128. A single centre, single surgeons' experience of Artiss® to reduce the rate of seroma in oncoplastic breast surgery

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Introduction: In the majority of patients, post-surgery seromas cause minimal discomfort and often resolve spontaneously or require percutaneous aspiration. Seromas, whilst not harmful, are a nuisance to patients, are associated with patient anxiety, may over-burden resources and may delay adjuvant treatment. Artiss® (Baxter Healthcare) is a fibrin-sealant which, when applied over the surgical site, sets over a 3-minute period aiming to seal the cavity and reduce seroma accumulation. The aim is to determine if Artiss® reduces seroma rate.

Methods: Artiss® was used by a single surgeon in patients undergoing oncoplastic breast surgery between October14 − March15. Artiss® was approved by the Joint Prescribing Committee and registered with the Audit Department. 2−4ml was applied depending on surface area prior to closure in suitable patients. The use of drains was at the discretion of the operating surgeon and were managed according to local protocol.

Results: Artiss® was used in 12 patients of which 4 were bilateral cases. Drains were used in 63% of cases.

A seroma was seen in 31% of cases (half of which had received a drain; half had not). The majority were asymptomatic and did not require drainage − however, two patients (17% - one with a drain and one without) required a single percutaneous aspiration of a symptomatic seroma.

Conclusions: Whilst this study was small, and therefore limited conclusions can be drawn, in this group Artiss® did not reduce the incidence of seroma in patients having oncoplastic breast surgery either with or without the use of a drain.

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P129. Pre-operative MRI in invasive carcinoma with lobular features

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Introduction: Invasive lobular carcinoma has a propensity towards multifocal and multicentric disease. Studies have suggested that invasive carcinoma with lobular features have similar biological characteristics as invasive lobular carcinoma. In our unit, patients with lobular features on core biopsy have a pre-operative MRI scan. The aim of this study is to assess the impact of contrast enhanced MRI on management of these cases.

Methods: Over a 3 year period from November 2012 to October 2015, all patients with invasive carcinoma and lobular features on biopsy were included. Demographic data, imaging, pathology and treatment details were collected from Clinical Information System.

Results: Out of 389 patients with breast MRI for invasive carcinoma, 44 patients with a median age of 57 years were included. 20 patients (45%) were symptomatic and 24 (55%) were screen-detected cancers. In 15 patients (34%), MRI findings were concordant with mammograms while 29 (66%) had additional findings (32% multifocality, 18% non-concordant size, 9% contralateral findings and 7% ipsilateral benign findings). In the non-concordant group, 62% underwent USS and 24% had biopsy following MRI. MRI findings changed the treatment plan in 21% patients (14% underwent mastectomy instead of wide local excision, 5% primary chemotherapy and 2% bilateral wide local excision).

Conclusion: This study has demonstrated that pre-operative MRI leads to additional investigations in the majority of cases. It changes management in a significant proportion and should therefore be considered as a part of the diagnostic work-up in the management of invasive breast cancer with lobular features.

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P130. Is sentinel lymph node biopsy a viable alternative to complete axillary clearance following neoadjuvant chemotherapy in women with node positive breast cancer at diagnosis? A meta-analysis

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Introduction: Patients presenting with clinically node positive breast cancer have traditionally been treated with a combination of systemic therapy and surgery. Most commonly, this has taken the form of surgery of the primary tumour with complete axillary clearance with neoadjuvant chemotherapy. Recently, there has been discussion which has suggested that complete axillary dissection may in fact be an overtreatment in some patients, following reports that some patients convert to node negative status following neoadjuvant chemotherapy. Therefore, the question has been raised as to whether sentinel lymph node biopsy may instead be used in such a situation in order to avoid the comorbidities associated with complete axillary dissection.

Methods: A computer aided search of the literature regarding the use of sentinel lymph node biopsy in patients initially diagnosed with node positive disease and undergone neoadjuvant chemotherapy was performed in order to identify the false negative rate, the lymph node identification rate and the pathological complete clearance rate.

Results: Twenty one articles were identified and analysed, yielding a total of 3398 patients. The mean false negative rate was 13.5% and the sentinel lymph node identification rate was 90.2%. In those articles that reported pathological complete clearance rate, the mean was 39.1% with a median of 34.6%.

Conclusions: The use of sentinel lymph node biopsy in the setting of clinically node positive breast cancer treated with neoadjuvant chemotherapy results in a reasonably low false negative rate and high identification rate. Despite this, these results do not yet match with the equivalent in node negative breast cancer, and may lead to an increased risk of locoregional recurrence although unlikely to have an effect on overall survival. In the future, optimisation of patient selection criteria and sentinel lymph node identification technique may result in lower false negative rates and therefore enable this to be a viable option for carefully selected patients.

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P131. Is the use of sentinel lymph node biopsy indicated in the setting of ductal carcinoma in situ? A meta-analysis

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Introduction: Currently, the management of ductal carcinoma in situ comprises wide local excision or mastectomy with or without the addition of radiotherapy in those patients undergoing breast conserving surgery. Ductal carcinoma in situ is by definition pre-invasive, and therefore in the past little attention has been given to the axillary lymph nodes after it was noted that omission of axillary dissection in those with pure in situ disease had no adverse effect on survival or recurrence. However, recent discussion has suggested that in some cases, the axillary lymph nodes may show evidence of invasive disease, despite the diagnosis of ductal carcinoma in situ. It has therefore been suggested that there may be a role for sentinel lymph node biopsy in patients with ductal carcinoma in situ with a high risk of invasive disease.

Methods: A computer aided search of the literature was conducted regarding the use of sentinel lymph node biopsy in the setting of ductal carcinoma in situ in order to identify how many patients with either a pre-operative or postoperative diagnosis of ductal carcinoma in situ had positive lymph node involvement. Separate analyses for preoperative and postoperative diagnoses were conducted. Patient factors were analysed to identify those factors which may be associated with a higher risk of nodal involvement.

Results: Thirty seven articles were identified and analysed, yielding a total of 7414 patients, of which 6863 underwent sentinel lymph node biopsy. Studies were organised according to whether the diagnosis of ductal carcinoma in situ was given preoperatively or postoperatively. In the pre-operative group, the mean number of biopsies positive for invasive disease was 5.5% with a median of 4.6%. In the smaller postoperative group, the mean was 2.85% with a median of 2.85%.

Conclusions: The use of sentinel lymph node biopsy in the setting of ductal carcinoma in situ is not currently standard practice; however it should be considered in a highly selected subgroup of patients in order to stage the disease accurately and avoid re-operation.

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P132. Initial experience of using the BREAST-Q as an outcome measure for patients undergoing Breast Conserving Therapy (BCT) and its correlation with panel assessment

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Introduction: The BREAST-Q is a validated PROM. A new BREAST-Q module has been designed for patients undergoing BCT, to date there are no published studies. Our aim was to investigate BREAST-Q results in our patients and whether results correlate with panel assessment of aesthetic outcome.

Methods: Ethical approval was gained. Patients attending for mammogram after unilateral BCT were invited to complete the BREAST-Q BCT. Answers for each domain were transformed to scores from 1−100, with a higher score indicating increased satisfaction/QOL. Panel assessment was undertaken using the Harvard 4-point scoring system.

Results: 207 women participated. Median age was 64.5years (IQR 55-71). Median time from surgery to study was 36months (IQR 17-48). Table 1 summarises results. A Kruskal-Wallis ANOVA revealed a significant association between panel score and satisfaction with breast ($H(2)= 25.046$, $p<0.0001$). Median score for 'how much your breasts look the same?' subscale was 3 (IQR,2-4) out of a maximum of four. There was also significant association ($H(2)=30.780$, $p<0.0001$).

Conclusion: To our knowledge this is the first report of results of the BREAST-Q BCT module. PROMs are important to gauge patient satisfaction, and have potential as routine outcome measures. Further assessment is required to establish whether they can replace evaluations such as panel assessment.

BREAST-Q	Median score	Interquartile-range
Satisfaction with breasts	68	55−80
Adverse effects of radiation	89	80−100
Psychosocial wellbeing	82	63−100
Psychosexual wellbeing	57	45−100
Physical wellbeing	78	67−86
Satisfaction with information	77	64−100
Satisfaction with surgeon	100	85−100
Satisfaction with team	100	100−100
Satisfaction with office-staff	100	100−100

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P133. An audit of Ultrasound in the Clinical Re-staging of the Axilla after Neoadjuvant Chemotherapy (NACT)

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Introduction: Ultrasound scan (USS) is the imaging modality of choice for staging the axilla prior to surgery in patients with breast cancer. With a more conservative approach to axillary surgery being considered after NACT, clinical re-staging becomes important in decision making.

Methods: Data was collected retrospectively on 226 patients who had proven axillary disease prior to NACT and underwent axillary lymph node dissection between January 2006 and November 2014. Patients were grouped according to whether the post-NACT, pre-surgery axillary USS (aUSS) was undertaken before or after December 2012 as this was when the radiologists were asked to report axillary response in detail.

Axillary USS and pathology reports were classified as positive or negative for residual abnormal lymph nodes and for residual disease respectively. Sensitivity and specificity of the aUSS were calculated for both groups, as were accuracy, precision and false negative rate (FNR).

Results: The sensitivity of aUSS before and after the change of practice were 54.5% and 74% respectively. The specificity was 59%, and 67% respectively. FNR was improved decreasing from 45.5% to 26%.

Conclusions: The improvement of the reporting of aUSS in response to clinical request makes it a useful tool in re-staging of the axilla. As recently published, patients with negative re-staging aUSS are likely to have a lower false negative rate of SLNB after NACT (Boughey et al). However, aUSS does not replace the need to identify and biopsy the node which was proven to be positive prior to NACT.

Reference

Boughey et al Axillary ultrasound after neoadjuvant chemotherapy. JCO 2015

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P134. Polyhedral Oligomeric Silsesquioxane Poly (Carbonate-Urea) Urethane (POSS-PCU) has superior mechanical properties compared to current breast implant silicone shells and shows promise as a next generation breast implant shell

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Implant based reconstruction is one of the most common forms of breast reconstruction following mastectomy used in the UK. Despite significant developments, 5th generation silicone shells are associated with the complications of shell rupture and poor cosmesis often requiring revision surgery. It has been shown that post mastectomy radiation increases the likelihood of implant based reconstruction complications often requiring revision surgery. External beam radiation significantly weakens the mechanical strength of silicone shells which may predispose them to early rupture. The aim of this study was to explore the use of POSS-PCU in the development of new generation breast implant.

Methods: POSS-PCU and samples of silicone shells from 5th generation breast implants were analysed for the mechanical strength properties − maximum tensile strength tolerated (n=6) and maximal tear strength (=3) − using an Instron 5565 machine.

An equal number of samples were then subjected to external beam radiation therapy at a dose of 40.05Gys and re-analysed.

Comparisons between the groups were performed using T tests.

Results: POSS-PCU was superior in terms of tensile strength (65.34MPa vs 10.03MPa, $p<0.001$) and tear strength (118.56N/mm vs 43.8N/mm, $p<0.001$). Both materials were significantly weakened by external beam radiation however POSS-PCU remained significantly stronger than silicone (33.71MPa vs 6.46MPa, $p<0.001$) (58.54N/mm vs 33.71N/mm, $p=0.011$).

Conclusions: The nano-composite polymer POSS PCU demonstrates superior mechanical properties in comparison to current day silicone implant shells and could play a role in the future design of breast implants especially for patients undergoing external beam radiation post-operatively.

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P135. Neoadjuvant chemotherapy versus neoadjuvant endocrine therapy in postmenopausal women with ER+ Her2- breast cancer and axillary involvement

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Introduction: Neoadjuvant systemic treatments are increasingly selected according to the different breast cancer phenotypes. As ER+ Her2- breast cancer is the commonest, and the response to NACT is often seen as disappointing, making the right choice is crucial.

Methods: Data was collected on postmenopausal, proven node positive patients who had received neoadjuvant treatment (either chemotherapy or letrozole) between January 2006 and February 2014 in our institution. Tumour characteristics and oncological outcomes were analysed.

Results: Forty-four and 24 postmenopausal women with proven axillary involvement had received Neoadjuvant Chemotherapy (NACT) and Neoadjuvant Endocrine Therapy (NAET) respectively. The mean age was 61 ± 11 and 71 ± 12 respectively ($p=0.0009$). The mean number of lymph nodes (LNs) harvested was 15.7 and 14.75 respectively ($p=0.5$). The mean number of positive LNs on pathology was 4.35 and 6.375 ($p=0.16$). However, there was pCR of the axilla in 8.3% of the NACT group and 20% of NAET patients ($p=0.13$). Kaplan-Meyer curves for event specific and overall survival were plotted with no significant difference between the treatment groups.

Conclusions: This exploratory analysis did not show that either mode of treatment was superior in terms of axillary outcome in this ER+ Her2- cohort. Although the sample is small, this is reassuring to postmenopausal women some of whom may be more suited to NAET than to NACT. Further analyses of survival in a bigger cohort including those without axillary disease at diagnosis and with longer follow up should nevertheless be undertaken to confirm this. In an era of emphasis on individualised treatment, neoadjuvant treatment choices should be tailored to the phenotypic subtype.

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P136. Treatment dose external beam radiotherapy significantly weakens 5th generation silicone breast implant shells

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Implant based reconstruction following mastectomy is one of the most common types of reconstruction performed in the UK. It is well documented that patients receiving post mastectomy radiation suffer more complications and poorer cosmetic outcome although the mechanisms for this remain to be elucidated. With increasing numbers of patients receiving post mastectomy radiation, the aim of this study was to investigate the effect of treatment dose radiotherapy on the mechanical strength properties of silicone breast implant shells.

Methods: Silicone shells from 5th generation breast implants were subjected to treatment dose external beam radiotherapy at a dose of 40.05 Gys. The strength of the silicone shell was determined by maximum tensile stress tolerated (n=6), maximal strain at break (n=6) and maximal tear strength (n=3). These were measured using Instron 5565 machine and compared against a similar number of non-irradiated shells.

Comparisons between the groups were performed using T tests.

Results: The strength of the silicone shell was significantly reduced following treatment dose radiotherapy. Maximal tensile stress tolerated was 6.46MPa vs 10.03mPa ($p=0.002$) and maximal tear strength was reduced to 33.7N/mm vs 43.8N/mm ($p=0.038$). The maximal strain tolerated before implant failure was significantly reduced following radiation therapy - 717 %increase vs 1101 %increase ($p=0.002$)

Conclusion: These results clearly demonstrate that external beam radiation therapy significantly weakens silicone breast implant shells and makes them more brittle. These results may explain why patients with implant based reconstruction treated with external beam radiotherapy post-operatively are more prone to implant rupture and complications.

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P137. Nipple reconstruction using the C-V flap technique: long term outcome and patient satisfaction in a District General Hospital

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Introduction: Numerous procedures are available for nipple reconstruction with C-V flap being a well-established technique. This study presents long-term follow-up data for nipple reconstruction using this technique.

Methods: Patients were identified by searching hospital database. Past medical history, type of reconstruction, pre or post- operative radiotherapy and complications were documented. All patients completed a questionnaire which focused on patient satisfaction using a visual analogue scale. Nipple measurements were taken with a caliper and compared with the opposite breast for symmetry. χ^2 test was used to compare the two sides with p value of ≤ 0.05 as significant.

Results: Thirty three CV flaps were carried out between 2006 and 2015. Mean and median follow-up was 4.6 and 4 years respectively (range 3−108 months). Twenty eight (84.8%) had Latissimus Dorsi (LD) reconstructions with implant, four (12.1%) had Transverse Rectus Abdominis Muscle (TRAM) reconstruction. Wound infection occurred in seven (21.2%) while five patients (15.2%) had complete or partial loss of nipple. Patient satisfaction was 82% with shape, 75% with projection, 54% with sensation and 72% with symmetry. Overall satisfaction was 82% with 89% happy to recommend this procedure to other women. Average projection of C-V flap was 0.85 cm (7−10mm) which was not statistically different when compared with the opposite nipple ($p=0.75$, $\chi^2=0.098$).

Conclusion: Long-term subjective evaluations of the C-V flap report a loss in nipple projection; however, overall patient satisfaction

at 4.6 years is good, as is the ability to restore symmetry with the opposite breast.

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P138. Infection prevention in breast implant surgery − A novel intraoperative checklist and review of the evidence

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Introduction: As a result of increasing use of implant-based breast reconstruction, complications such as infection are being encountered more frequently. Surgical Site Infections (SSIs) cause morbidity for the patient, can lead to capsular contracture or implant loss and are costly to healthcare systems. National Guidelines suggesting methods to reduce SSI related complications have been produced, but are limited in the scope of interventions covered and underlying evidence presented.

Methods: We performed a literature review encompassing a wide variety of possible SSI prevention strategies. We aimed to present summaries of the available evidence and give pragmatic recommendations as to their validity to use as guidelines for infection-prevention strategies for implant-based breast reconstruction.

Results: A lack of high-quality data relating to the benefit of SSI prevention strategies in implant-based breast reconstruction exists. Many papers relate to orthopaedic implant surgery, or clean surgery in general. Following review of the evidence, sufficient data exists to support use of perioperative antibiotics at implant-based breast reconstruction, with continuation for an extended period in "high-risk" patients. Alcohol containing skin preparations should be used over aqueous solutions. Laminar airflow use is desirable. Theatre traffic should be kept to a minimum, as should duration of operative procedure. The implant pocket should be washed prior to implantation. Double-gloving and conductive warming are also endorsed.

Conclusions: We have produced a novel Theatre Implant Checklist for intraoperative use for SSI prevention in implant-based breast surgery, with a set of pragmatic up-to-date guidelines, which allows the reader to evaluate the evidence upon which our recommendations are based.

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P139. Are Decisions Made at Multidisciplinary Team (MDT) meetings actioned?

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Introduction: MDT meetings are an important part of holistic patient care. Since a wide range of specialities are involved in cancer case management, it is vital that their MDTs are effective. This audit evaluated MDT practices to assess the care provided and the adherence to national recommendations.

Methods: 87 cases and 141 actions were analysed over a three-week period. Each MDT case was assessed prospectively to determine whether an MDT member who knew the patient was present, record decisions made, determine timelines for decision execution, and record the person responsible to action the decision. Prospective assessments were compared to computerised MDT records. Record review was conducted to see whether decisions were completed.

Results: Decisions were not actioned in only six patients. In 10% of cases we were unable to discern whether the decision was actioned. 81% of the cases were known to at least one core MDT member. However, only 16% of cases were given a timeline for completion. Only 30% of cases had a named speciality to complete the decision, and only half of those had an actual named responsible person assigned.

Conclusions: This audit demonstrates that a proportion of MDT decisions are not actioned, and that frequently timelines for action and responsible clinicians are not documented. The MDT co-ordinator, a cancer nurse specialist and the MDT lead should track actions to ensure they are actioned and a named core member should be made responsible for each decision.

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P140. Axillary ultrasound guided core biopsy to assess for lymph node metastases in breast cancer patients − What is the burden of disease?

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Introduction: The use of ultrasound guided core biopsy to assess for axillary metastatic disease in breast cancer patients has increased. Whilst recent studies have shown that certain patients with sentinel lymph node metastases may not require completion axillary clearance (AC) it remains unclear if patients with a positive pre-operative axillary ultrasound guided core biopsy (PAUCB) would satisfy such criteria. The aim of this study was to assess tumour characteristics and nodal burden in patients found to have PAUCB.

Methods: Data was extracted from a prospectively maintained database of a symptomatic breast unit between July 2013 − July 2015. Breast cancer patients who underwent pre-operative axillary ultrasound guided core biopsy were included. Tumour characteristics and nodal burden was recorded for all patients with PAUCB. Patients found to satisfy ACOSOG Z011 criteria that would not mandate completion AC were also identified.

Results: 160 breast cancer patients undergoing axillary ultrasound guided core biopsy were identified. 106/160 (66.25%) patients had a positive pre-operative axillary core biopsy. Of the 106 patients with PPACB, 63 (59.4%) proceeded to axillary clearance. Of those who underwent AC, patients were most likely to have Grade II Invasive Ductal Carcinoma and undergo mastectomy. The mean number of nodes excised during AC was 12 and the mean total number of positive nodes was 4. Less than 10% (n=6) of patients would satisfy ACOSOG Z011 criteria.

Conclusion: Breast cancer patients with positive pre-operative axillary ultrasound guided core biopsy are more likely to have aggressive tumour characteristics and nodal burden. Few would satisfy ACOSOG Z011 criteria.

Conflict of Interest/Disclosures: None

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P141. The incidence of invasive lobular carcinoma in a cohort of patients with bilateral synchronous breast cancers

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Introduction: Considerable ambiguity exists as to whether lobular carcinoma is associated with an increased risk of bilateral breast cancer. Our clinical impression is that the relationship between lobular phenotype and bilaterality may have been inflated. The purpose of this study was to evaluate tumour biology with respect to the histological sub-type and oestrogen receptor phenotype in a cohort of patients with synchronous bilateral breast cancer.

Methods: We retrospectively identified patients with a diagnosis of synchronous bilateral breast cancer by searching a pathology database of breast cancer patients (2009−2015). For each patient, right and left breast cancers were coded separately according to histological subtype and oestrogen receptor status. The frequency of ILC phenotypes (=1) and other phenotypes (=0) were computed and compared between the synchronous cohort and a cohort of

unilateral breast cancers (1998−2007). Oestrogen receptor status was coded positive (=1), negative (=0) or unknown (=99), and compared to receptor status in a cohort of 436 unilateral breast cancers.

Results: Lobular phenotype was observed in 18.6% (n=34) of 183 synchronous breast cancers, and 8.4% (n=91) of 1,087 unilateral breast cancers. Differences in observed frequencies of lobular carcinoma were statistically significant (X^2= 17.25, p<0.0001). ER negativity was observed less frequently amongst the synchronous bilateral cohort (15%) versus the unilateral cohort (24%).

Conclusions: Lobular phenotype was more frequently observed in a cohort of bilateral synchronous versus unilateral breast cancer. ER negativity does not appear to predispose to synchronous bilaterality. Further work is required to evaluate the impact of phenotype on metachronous breast cancer.

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P143. The use of drains following breast surgery and the incidence of seroma − A closed loop audit

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Introduction: It is not clear whether postoperative drains alter seroma formation after breast cancer surgery. We aimed to review the role of maximum 5-day versus maximum 3-day drainage in patients undergoing breast cancer surgery.

Methods: A prospective audit of all patients undergoing breast cancer surgery with mastectomy and/or axillary clearance was performed over two time points before and after a change in the local drain removal policy volume from <50mls daily or maximum 5 days (Policy 1) to <50mls daily or maximum 3 days (Policy 2). Statistical analysis including Kolmogorov-Smirnov test, Mann-Whitney and Chi-square test was performed using SPSS v22. The mean, range and percentage were used for descriptive statistics.

Results: Of 122 patients (61 patients each policy) reviewed, there were no significant differences in baseline patient, tumour and treatment factors between the 2 drain policy groups, nor any significant difference in seroma incidence (46 vs 52%, p=NS), number of aspirations (median 3 v 2; p=0.472), or volume of aspiration (716 v 588; p=0.086). Factors influencing seroma rates are shown in the table below.

Conclusion: Early removal of breast drains does not adversely affect the number and volume of seroma aspiration. Rates of seroma are influenced by surgical procedure and extent of axillary disease.

Factor	No seroma (n=62)	Seroma (n=60)	P value
Procedure Mx/ ANC/ both (%)	59.6/ 58.5/ 24.1	40.4/ 41.5/ 75.9	=0.004
Grade (1/2/3) (%)	2/ 42/ 48	5/ 33/ 53	=NS
Whole tumour size (mm)	37 (3−120)	41 (10−100)	=NS
NPI	4.62 (2.06−7.20)	5.10 (3.24−7.30)	=0.036
Number of positive nodes	2 (0−18)	4 (0−24)	=0.038
Neoadjuvant chemotherapy (%)	18	23	=NS
Volume on day of removal (mls)	53 (0−250)	74 (0−275)	=0.009
Total volume prior to drain removal (mls)	287 (0−2280)	424 (10−1840)	=0.001

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P144. Axillary recurrence in the OSNA Era: A four year follow up

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Introduction: Sentinel lymph node biopsy is the standard of care for axillary staging of clinically node negative breast cancer. OSNA was introduced in our hospital in February 2011 for intraoperative diagnosis of sentinel lymph nodes. Despite its uptake nationally, there are few studies reporting the clinical outcomes of this intraoperative diagnosis.

Methods: Consecutive patients who underwent OSNA for the first two years since its introduction in 2011 were included in the study. Presentations with recurrence of all types between 2011−2015 were retrospectively analysed against this cohort to ascertain the rate and type of recurrence and the conclusions which could be drawn on OSNA's clinical effectiveness.

Results: Of the 144 patients who underwent intraoperative OSNA in 2011−2013, 57 were positive and underwent immediate axillary clearance (39%). Of the remaining 87, there were 2 documented 'recurrences' (one regional and one distant). On closer inspection of the data, the regional recurrence was in a patient who was OSNA negative but was found to have pathological axillary nodes on a CT scan done for radiotherapy planning 3 months after initial diagnosis. By consensus this was deemed to be an escape metastasis and not a true regional recurrence.

Conclusions: Our data reveals that there were no true regional recurrences in the first four years since introduction of OSNA. We can therefore consider OSNA to be oncologically safe for the intraoperative diagnosis of sentinel lymph nodes. However, longer-term data is required to improve sample size and ascertain five-year recurrence rate in order to draw wider conclusions.

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P145. Why are mastectomies being performed in breast cancer patients in 2015? The National Mastectomy Decisions Audit (MasDA) − A trainee-led collaborative project

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Introduction: Over 19,000 patients undergo mastectomy per annum for invasive breast cancer or ductal carcinoma *in situ* (DCIS) in the UK. Several large published datasets have demonstrated considerable variation in mastectomy rates across UK. However, the reasons for this national variation remain unclear.

Aim: The Mastectomy Decisions Audit (MasDA) was developed to evaluate current UK practice in multi-disciplinary team decision-making for patients undergoing mastectomy. It assesses whether post-operative histology confirms the rationale for advising mastectomy and determines the proportion of mastectomies performed for patient choice.

Methods: This trainee-led, multi-centre, prospective, national audit was launched on 1st July, 2015. The protocol was developed with Independent Cancer Patients' Voice, and data collected using the Research Electronic Data Capture (REDCap™) application. Members of the ABS and Mammary Fold were invited to prospectively collate data on consecutive patients undergoing mastectomy for invasive breast cancer and/or DCIS with or without primary reconstruction over a 12-week data collection period.

Results: Seventy breast units across UK have participated in MasDA; 60 units have already completed data collection and final results will be available for analysis by February 2016. Information on over 1400 patients has been entered onto REDCap™ thus far. Results will be presented in Spring 2016.

Conclusions: The enthusiasm for this project amongst the breast surgery community has highlighted that clinicians and patients are keen to understand the reasons underlying the variation in practice that currently exists. The results will inform a new prospective clinical trial aimed at reducing variation and performing evidence-based surgery.

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P146. Reducing implant loss rates in breast reconstruction at the Royal Devon and Exeter Hospital: A complete audit cycle

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Introduction: Oncoplastic guidelines for best practice state that implant loss rate at 3 months following breast reconstruction should not exceed 5%. A retrospective audit conducted from January 2012 identified a loss rate of 17% (78 patients).

Method: A new protocol was introduced. Implants up to 500cc were used. Pre-operatively patients showered with chlorhexidine and avoided shaving or waxing. Teicoplanin and gentamicin were administered at induction. Intra-operatively theatre personnel were reduced to minimum and all wore facemasks. Skin preparation was changed to alcoholic chlorhexidine. Cavities were washed with gentamicin/vancomycin solution and scrubbed personnel changed gloves before handling implant. Clean drapes and new sterile instruments were used after opening implant. Implants were handled only by operating surgeon and bacteriostatic sutures were used. Post-operatively oral doxycycline was administered until drains removed.

Results: 18 patients underwent reconstruction using 18 implants over 6 months. (16 immediate, 2 delayed) following oncological (n=17) and risk reducing mastectomy (n=1). Mean mastectomy weight was 393.1 gm (range 184−500g), mean BMI was 28.4 (range 23−34.7). 2 patients were smokers, 6 had neoadjuvant chemotherapy. The implant loss rate at 3 months was 0%.

Conclusions: The change in practice has reduced the implant loss rate from 17 to 0% at 3 months, meeting the national standard. The rate of implant loss compared well to other series reporting rates between 12.5% and 34.6%[1 2]. The data collection and evaluation will continue to complete a full year of data.

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P147. Is a hospital revisit always necessary for women who have a biopsy after Breast Screening assessment?

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Introduction: The National Breast Screening Service specification mandates that all patients undergoing a needle biopsy following recall must attend a follow-up appointment for their histological result. We believe that offering a phone call or letter rather than a clinic revisit is an acceptable alternative when a benign result is most likely.

Methods: We included women with R1, 2 or 3 diagnosis from August 2014 − November 2015. Following radiological assessment all women were then seen by a consultant Breast Surgeon and Breast Care Nurse and counselled regarding potential outcomes. Options given were an appointment in a week, a phone call or letter from the consultant immediately after the MDT.

Results: Of the 198 R1,2,3 cases biopsied 51 women opted to be given their result by phone call or letter. Of these 25 (49%) were phoned and 26 (51%) preferred a letter. 44 (86%) had a histological B2 diagnosis, 1 B3 and 6 B5a/b. All patients with a malignant diagnosis were offered a follow-up appointment the same week. No women who had been given a benign result by letter or phone call requested a follow up appointment.

Conclusions: Our study has shown that many women prefer not to re-attend hospital to be given the biopsy result. This practice significantly improves the efficiency of our service. More importantly, most women avoid the inconvenience of a further hospital visit and this approach supports the concept of offering patient choice. Local feedback has been positive but a formal survey will be conducted by our regional QA team.

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P148. Radiation induced angiosarcoma of the breast: Eight cases which highlight a devastating complication of breast radiotherapy

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Introduction: Radiation induced angiosarcoma (RIAS) of the breast is a rare and aggressive tumour following external beam radiotherapy, with less than 200 cases reported in the literature. It presents diagnostic and therapeutic difficulties in addition to a poor prognosis. We describe our experience with 8 cases of this uncommon tumour.

Materials and Methods: In a breast unit that treats approximately 250 breast cancers a year, 8 cases of RIAS were seen over a 12-year period. We reviewed the presenting features of the original breast carcinoma therapy received as well as the presenting features of the RIAS and the outcome in these patients.

Results: Two patients had neoadjuvant chemotherapy, five had breast-conserving surgery, one underwent mastectomy with immediate reconstruction, one had bilateral mastectomies, another had no surgery after complete clinical and radiological response to chemotherapy. The dose of radiotherapy varied 40−60 Gy. The time between radiotherapy and angiosarcoma diagnosis ranged 60−84 months. The main presentation of RIAS was skin discolouration, oedema and thickened tissue with no focal lump on examination or imaging. Seven have died of metastatic disease, four within a year of diagnosis. Mean survival was 20 months, median 12 months.

Conclusions: Breast radiotherapy allows breast conservation, but can be associated with devastating complications such as RIAS. Awareness of this complication and vigilance is necessary to recognise and diagnose this disease in women being followed up after breast cancer treatment. Whether new radiotherapy techniques that allow partial breast radiation would help avoid this problem remains to be seen.

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P149. Current management of breast cancer in the elderly − A local experience

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Introduction: Breast cancer treatment in the elderly is controversial with variation of practice between hospitals being influenced by multiple factors. This study aimed to review the management of breast cancer in patients aged 70 years or above.

Method: Patients aged 70 years or older, treated for breast cancer between 2010−August 2015 were included. Median follow up was 25 months. Patients were divided in to three groups; Group A: 70−79 years (n=194), Group B: 80−89 years (n=123) and Group C: 90 years or older (n=39). Groups were compared for tumour characteristics, treatment and survival. Kaplan−Meier analysis was used for survival and Chi squared test for categorical data.

Results: Three hundred and fifty-six patients (median 79; iqr 70-101) were studied. Majority of tumours were invasive ductal carcinoma, ER positive and HER 2 negative with no age dependent variation. Surgery was the primary treatment in group A [78% vs. 54% in Group B & 18% in group C; ($p<0.001$)], while primary endocrine treatment (PET) was the mainstay in group C. Group B & C were more likely to have mastectomy (71% & 62%) compared to group A (44%) ($P<0.001$). Majority of patients undergoing breast-conserving surgery had adjuvant radiotherapy in Group A & B (90% & 80%; $p=0.005$). Overall 5 year survival was 69%, 67.7% & 49.3% in Group A, B & C with failure of PET being more common in group A (33%, $p=0.005$).

Conclusion: Advancing age alone should not preclude surgery for breast cancer. PET should be reserved for those unfit for surgery.

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P150. OSNA total tumour load can predict non-sentinel axillary lymph node involvement

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Introduction: In 2013, NICE recommended the use of one-step nucleic acid amplification (OSNA) as a technique for intra-operative nodal staging in early invasive breast cancer. The intra-operative reporting of macro-metastatic sentinel lymph node (SLN) disease permits immediate level-three axillary nodal clearance (ANC) in a single procedure. This study assesses the sensitivity and specificity of OSNA to predict further non-sentinel axillary lymph node (NSLN) metastases.

Methods: The pathology reports of 700 consecutive patients who received OSNA analysis for breast cancer at a single unit were reviewed. Patients who received neo-adjuvant chemotherapy, or underwent OSNA for extensive ductal carcinoma in-situ were excluded. Patients with at least one macro-metastasis (>5000 CK19 mRNA copies) on whole-node analysis underwent ANC. The total copy number (total tumour load, TTL) of the macro-metastatic SLN sample was compared with the NSLN status from routine histological assessment.

Results: 122/683 patients (17.9%) were found to have OSNA CK19 mRNA copy numbers indicative of macro-metastasis and underwent ANC. 50/122 (41%) patients had NSLN metastases on ANC. Sensitivity and specificity of OSNA v NSLN status were 0.78 (95%CI: 0.66−0.88) and 0.88 (95%CI: 0.86−0.91), respectively. PPV = 0.410 (95%CI: 0.322−0.503). NPV = 0.975 (95%CI: 0.959−0.986). Area under curve for Receiver Operating Curve (ROC AUC) = 0.86.

Conclusions: The ROC AUC of 0.86 for TTL indicates that SLN TTL represents a good correlation between OSNA copy numbers and NSLN metastases. OSNA based prediction may facilitate adoption of emerging recommendations for conservative management of the node positive axilla.

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P151. The role of MRI in the evaluation and management of patients with pathologic nipple discharge

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Introduction: In 10−15% of cases, pathologic nipple discharge (PND) is caused by an underlying malignancy, which is often not identified on standard evaluation. The aim of this prospective study is to determine the role of MRI in the management of patients with PND.

Patients and methods: 63 consecutive patients with PND and ductal epithelial or red blood cells present in their nipple smear, otherwise normal clinical examination and non-diagnostic mammogram and ultrasound that presented between December 2009 and May 2015 were enrolled in our study and were offered diagnostic microdochectomy. Pre-operative bilateral breast MRI was performed on all patients.

Results: Of the 63 patients enrolled in our study 10 (15.6%) had malignant histology. Of these, 8 had DCIS histologically confirmed only after microdochectomy. Pre-operative breast MRI was suspicious for cancer in 9 cases, 8 of which were confirmed histologically. The presence of an intraductal papilloma responsible for the PND was identified on MRI in 7 patients.

The sensitivity of MRI in detecting an occult malignancy was 80% (95% CI 44.39%−97.48%) with 98.11% specificity (95% CI 89.93%−99.95%) PPV 88.89% (95% CI 51.75%−99.72%) and NPV 96.3 % (95% CI 87.25%−99.55%). DCIS in all MRI-diagnosed cases had the appearance of a segmental abnormally enhancing area.

Conclusions: MRI in patients with PND and normal standard evaluation identified 80% of those with a malignancy. Furthermore, MRI demonstrated a benign cause of the discharge in 7 patients where a procedure less invasive than microdochectomy might have been appropriate.

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P152. Visual aides to enhance training breast surgery

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Introduction: Training within surgery is difficult and there are many challenges facing our profession in relation to this. There is a great need to enhance training so as to optimize learning and improve patient care. The need for improved quality of care and the diminishing training opportunities are key challenges. Within the field of breast surgery the amount of available information and the complexity of that information is increasing, making it even more difficult to understand, both for clinicians and, more importantly, for patients. Diagrams have the potential to serve as a helpful adjunct by distilling information and making it easier to understand.

Methods: We have developed a series of visual aides that aim to help trainees to assimilate information and then recall that information with greater accuracy both in the short term and the long term. Topics covered include relevant anatomy, trials, staging systems and adjuvant treatment side-effect profiles. We hope that these illustrations will aide clarity and will serve to improve the quality of consultations and also performance in the operating theatre.

Results: A complete set of diagrammatic aides have been created and key examples are presented.

Conclusions: We hope that this work will form the basis of a digital tool (eg smartphone application) that will serve breast surgery trainees. Such illustrations may be helpful in lots of other ways too, in relation to improving patient care. For example, enabling appropriate timely referrals,

enhancing learning, improving awareness of trials and also improving counselling of patients.

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P153. How commonly do CT scans detect incidental breast lesions and what are their outcomes?

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Background: The number of breast lesions detected incidentally on CT scans is unknown, with vastly differing incidences being reported. The aims of our study were to investigate the incidence of incidental breast lesions identified on CT scans and to establish whether these patients received appropriate follow-up.

Methods: We conducted a retrospective analysis of all female CT thorax scans, whose reports included the keyword 'breast', carried out over a five-year period. In order to identify incidental lesions we included only those scans whose indication was for reasons other than to detect breast pathology. Patients known to have previous breast disease were excluded. We used clinic notes, imaging reports and histology results to assess the outcomes of these cases.

Results: A total number of 4581 female CT thorax scans were performed between 1st January 2010 and 31st December 2014. 17 (0.37%) incidental breast lesions were identified. Two reports advised referral to breast services for suspicious lymphadenopathy. Only 7 (36.8%) patients were followed-up in the breast clinic. Three of these had a diagnosis of breast malignancy. The overall detection rate of incidental breast malignancy was 0.065%.

Conclusion: Our study indicates that breast cancers are rarely detected incidentally on CT scans and when found are infrequently followed-up. It is important that there are clear routes of referral to breast services for patients with incidental lesions.

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P154. A comparison between traditional handwritten and computer generated (OpInform.com) surgical consent forms

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Introduction: The Department of Health (DOH) has challenged the NHS with paperless transition by 2018. Currently, most NHS trusts use paper consent forms based on DOH templates. Handwritten forms can suffer from poor legibility and the adhoc nature of form filling can lead to errors of omission. We designed and piloted software (OpInform.com) for the digital creation of procedure specific, patient bespoke consent forms. Handwritten and OpInform consent forms were prospectively compared.

Method: A selection of handwritten "Consent Form 1" were assessed for patients undergoing breast surgery between 07/15-11/15 (n=66) at Imperial College NHS Trust. OpInform consent forms were introduced for optional use between the same period (n=83). All form entry fields for form demographics, surgeon sign off and patient sign off were recorded as being correct, incorrect, illegible or blank. Free text was recorded for the name of procedure, benefits and risks and these were coded as legible, illegible or blank. Forms that did not have correct or legible information were considered as containing errors.

Results:

Table
Form error rates.

Domain:	Handwritten (Total = 66)	OpInform (Total = 83)	P-Value Fisher's exact test
Form demographics	19(29%)	4(5%)	<0.0001
Surgeon sign off	20(30%)	2(2%)	<0.0001
Patient sign off	16(24%)	2(2%)	<0.0001
Errors in Procedure, Benefits & Risks	30(45%)	0(0%)	<0.0001
Any form error	45(68%)	8(10%)	<0.0001

Conclusions: The use of OpInform.com led to a significant reduction in error rates in all form fields. Electronic consent forms have advantages over handwritten forms and their adoption should be considered across the NHS.

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P155. Analysis of 168 cases of bilateral mammoplasty for cancer: Surgical and oncological outcomes

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Introduction: Therapeutic Mammoplasty represents a possible approach to optimise both oncological safety and aesthetic outcomes when tumour to breast ratio, tumour location or patient's choice pose a challenge to standard Breast Conserving Surgery (BCS).

Methods: Retrospective review of patients who underwent bilateral mammoplasty for unilateral or bilateral breast cancer at our institution from June 2009−November 2014.

Results: 168 patients underwent bilateral mammoplasty. 155 with simultaneous, 13 with delayed symmetrisation. 17 (10.1%) patients had bilateral breast cancer (9 incidental). Mean age was 55.9 (SD±9.4) years. 80 (48%) of patients had BMI>30kg/m^2, 44% were current/ex-smokers. Bra size was ≥C-cup. Median follow-up was 37 (range 25−51) months. Mean tumour size on imaging was 39mm,SD±25, 57 (33.9%) cases underwent neoadjuvant chemotherapy. Mean specimen weight was 321.8g,SD±271.3. Wise pattern technique was performed in 145 (86.3%) cases. Margin involvement occurred in 16 (9.5%). Re-excision was performed in 12 (7.1%) and 4 (2.4%) mastectomies were necessary. 71 (42.3%) patients experienced at least one complication. Most were minor complications, managed conservatively; 10 (5.6%) patients required surgical intervention. Adjuvant treatment was delayed in 6 (3.6%) cases for chemotherapy and 23 (13.7%) for radiotherapy. Local recurrence occurred in 3 (1.8%) cases, distant recurrence in 5 (2.3%) and 10 (6%) patients have died.

Conclusions: We believe that bilateral mammoplasty is a safe option with an acceptable oncological and complication profile. This is despite our patient cohort having high rates of BMI>30 or smoking history. However, multicentre prospective, ideally randomised, data are needed to accurately compare with mastectomy and reconstruction or standard BCS as the control group according to the indication and pre-specified surgical alternative.

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P156. Patient satisfaction after bilateral reduction mammoplasty for cancer

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Introduction: Therapeutic mammoplasty (TM) is an important option in breast cancer surgery. It allows breast conservation in patients with unfavourable tumour-to-breast ratio and aesthetic improvement in macromastia/ptosis. The study aim was to assess patient satisfaction in women who have undergone TM and contralateral symmetrisation using the BREAST-Q questionnaire. This is a validated patient-reported outcome measure (PROM), with a specific module for breast-conserving surgery.

Methods: All patients who underwent bilateral reduction mammoplasty for cancer from 06/2009 to 07/2014 were sent the questionnaire. Exclusion criteria were previous breast cancer or irradiation, recurrence, distant disease. Answers were transformed into scores out of 100 for each subscale according to the BREAST-Q protocol. Higher scores equate to higher satisfaction.

Results: 158 patients underwent the procedure and 125 fulfilled the inclusion criteria. 67 (53.6%) patients returned the questionnaire. Mean age was 56 years. Table 1 summarises the results.

Conclusions: Satisfaction with information and the team is high, but we could learn from the few unsatisfied patients. These results should be compared with those of patients with similar pathology undergoing WLE, unilateral TM or mastectomy+/−reconstruction. Thereby PROMs can help us to improve our practice and guide patient decision.

BREASTQ subscale	Median(IQR)	Mean	No answer
Satisfaction with breasts	77(57−91)	73.1	0
Adverse Effects of Radiation	89(73−100)	84.5	1
Psychological Wellbeing	76(63−100)	77	0
Sexual Wellbeing	54(40−64)	53.8	16
Physical Wellbeing	75(63−90.5)	75.6	1
Satisfaction with Information	84(40−100)	83	2
Satisfaction with Surgeon	100(64−100)	95.6	2
Satisfaction with Team	100(100)	92.8	1
Satisfaction with Office Staff	100(93−100)	93.4	0

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P157. Improvements in day-case surgery rates for breast cancer

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Introduction: Day-case surgery represents a safe and efficient management approach for non-reconstructive breast procedures. Patient satisfaction can be improved and financial benefits gained. NICE guidelines indicate that 15% of wide local excisions (WLE) and mastectomies should be day-cases. The aim of this study was to ascertain the day case rates for wide local excision in this unit and to investigate reasons for day case failure.

Methods: A retrospective audit of patients undergoing surgery for breast cancer in the 6 months to 31st July 2014 was carried out. All patients undergoing wide local excision, considered suitable for day-case surgery, were included. Patient demographics, length of stay, position on theatre lists and reasons for inpatient stay were recorded. The audit was repeated in the 8 months to 30th July 2015, following departmental presentation of audit findings. This coincided with introduction of iodine seed localisation and dedicated breast list anaesthetists.

Results: The first audit identified a day-case rate of 66% (86/130). Late position on the operating list was identified as a key factor in failure. Day-case rates increased significantly in the second audit (89.6%;138/154; p=<0.001). Latterly 12.9% (20/154) were last on the operating lists, significantly fewer than in the first audit (26.9%;35/154; p=0.002). Patients with iodine seed localisations were more likely to undergo successful day-case surgery.

Conclusions: Day-case rates for WLE in this unit have improved to above expected standards. Whilst the reasons for this are multifactorial, a team based approach and improved planning of lists (enhanced by iodine seed localisation) are likely to be significant.

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P158. SPAIR technique in oncoplastic breast surgery: The first case series

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Introduction: Therapeutic mammoplasty combines plastic surgical techniques with oncological breast cancer resection to obtain optimal margins and acceptable aesthetic outcomes despite larger tumour-to-breast volume ratios. The Short scar Periareolar Inferior Pedicle Reduction(S-PAIR) technique was described by Hammond in 1998. It combines avoidance of T junction scarring with a secure inferior pedicle. This is the first series reporting its application in oncoplastic breast surgery.

Methods: A consecutive, single surgeon series of prospective data on patients undergoing SPAIR mammoplasty for malignancy from February 2012 to November 2015 was collected. Data includes clinico-pathological factors and outcomes. PROMs data are being collected.

Results: Thirty-two procedures (18 unilateral therapeutic, 7 bilateral, of which 5 were synchronous and 7 symmetrising only) were performed. The median follow-up was 20(5.75−23) months. All breasts presented at least grade 1 ptosis and a range of cup size from B to J. The mean reduction specimen weight was 294±178.6g. In the therapeutic SPAIR series all tumours were located in the upper quadrants with an average cancer size of 36.4±15.6mm on preoperative imaging, 42.1±15.6mm at pathology. Two cases of margin involvement were treated by simple re-excision. There were only minor complications, all treated conservatively: 5(15.6%) cases of superficial dehiscence, 4(12.5%) of delayed wound healing, 5(15.6%) superficial infections, 3(9.3%) seromas. No breast recurrence has been reported.

Conclusions: SPAIR mammoplasty is a feasible and safe technique, which is applicable to ptotic breasts of all sizes to treat upper multifocal tumours. Our experience suggests that this technique is a useful addition to the oncoplastic repertoire.

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P159. Can we avoid needling in younger women presenting with clinically and radiologically benign non-cystic breast lumps?

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Introduction: Breast cancer is extremely uncommon in younger women. Combined clinical and radiological assessment is reliable in differentiating benign from malignant lumps. Despite this, all patients are still offered needle biopsy, even if the lumps have benign features. There is a progressive shift from fine needle to core biopsies, which is more traumatic and has resource implications.

Methods: List of cases biopsied over 5years [2008−2012] was obtained from the pathology database. Patients less than 35 years at the time of presentation were included in the data analysis. Percentage of

cancers in different age groups was calculated. All cases with the diagnosis of cancer were reviewed.

Results: In total, 863 cancers were diagnosed. There was no cancer diagnosis in less than 25years age-group. 0.9% of cancer diagnoses [8 cases] were women less than 35years of age. Of these, only one woman was less than 30 years. 5.3% were in the age group of 35−40 years and 93.8% of women with the diagnosis of cancer were above 40 years of age. All patients with the diagnosis of cancer, in the age group <35 years, had suspicious features on clinical examination or imaging.

Discussion: Breast malignancy is very uncommon in the younger women and is extremely uncommon in women less than 25 years of age. In our experience, in all these malignant cases imaging was abnormal/suspicious. In all other cases, benign pathology was predicted accurately with combined clinical and radiological assessment. Therefore, routine core biopsy should not be advocated to rule out malignancy.

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P160. The role of Galectin-7 in normal and DCIS-associated myoepithelial cells: predicting progression of DCIS

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Induction: There is growing concern around issues of over-treatment of DCIS.

Early studies focused on the genetic evolution of tumour cells in DCIS indicated no consistent differences between DCIS and invasive breast cancers.

Work within our lab has identified changes in the microenvironment of DCIS, in particular, alterations in the myoepithelial cell(MEC) population, switching from tumour suppressor to promoter. The most consistent change is up-regulation of β6 integrin by MECs: seen in >90%of DCIS associated with invasive disease and a subset of pure DCIS. We hypothesise that loss of Galectin-7 promotes the pro-tumourigenic effects of β6, leading to loss of the myoepithelial barrier.

Methods: Primary and immortalized MECs have been used to investigate the role of Galectin-7. Apoptosis in the MECs following TRAIL stimulation has been assessed with western blotting.

To assess the predictive capacity of changes in β6 and Galectin-7, staining in MECs in clinical samples of DCIS with long-term follow-up has been performed.

Results: Western blotting has confirmed primary MECs show high levels of Galectin-7. We have both successfully knocked down and developed a Galectin-7 plasmid, allowing us to manipulate the levels of Galectin-7. Western blotting indicates higher levels of apoptosis in β6+ve cells compared to β6-ve cells following TRAIL stimulation.

Staining of DCIS tissue has shown heterogeneous loss of Galectin-7.

Conclusion: Results support a relationship between β6-integrin and Galectin-7, suggesting increased susceptibility to apoptosis by DCIS associated MECs, thus destabilising the myoepithelial ductal barrier in DCIS. Predicting progression of DCIS to invasive disease could improve management of screening strategies.

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P161. Clinical impact of Oncotype Dx assay after integration in breast MDT

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Background: The Oncotype assay is a multi-gene assay and is validated to predict for recurrence risk in oestrogen positive, lymph node negative, HER2 negative breast cancer. It was approved by NICE in September 2013. The objective of this study was to define its impact in clinical practice after introduction into MDT.

Methods: Oncotype was introduced into our MDT after NHS funding was approved in April 2015. We analysed patients who passed through the MDT from April 2014 to date. We retrospectively identified those patients from April 2014 − April 2015 who would have been eligible for testing and documented their chemotherapy uptake. The second cohort of eligible patients was collected from April 2015 and the clinical impact of testing was identified. We also performed a retrospective analysis to determine the numbers of eligible patients who were not offered testing and used this information to improve its implementation.

Result: Currently we have twenty three patients who have Oncotype DX® testing and result of nineteen is available. 47% low recurrence score, 42% intermediate and 11% high score. The average turnaround time of the test is 11 days. Of these patients 79% (15 patients) did not receive cytotoxic chemotherapy on the basis of their recurrence scores. The sample patients from April 2014—April 2015 eligible for test were 70. We noticed the reduction of chemotherapy and cost effectiveness in breast cancer treatment pathway.

Conclusion: Recurrence score is a useful utility for personalized treatment decisions and our early result showed a reduction in adjuvant chemotherapy.

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P162. Improving decision-making in contralateral mastectomy requests: Comparison between contralateral risk estimates and retrospective MDT decisions

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Introduction: Requests for contralateral risk-reducing mastectomy (CRRM) following unilateral breast cancer have increased. The new Manchester guidelines for CRRM propose a calculation to estimate remaining lifetime risk of contralateral breast cancer (CBC). This study aims to guide CRRM decision-making based on risk assessment.

Methods: We computed the Manchester CBC risk calculation for patients requesting CRRM who were discussed at a network risk-reducing multidisciplinary team meeting (RRMDT) from Oct 2011−2014. Network policy for risk reducing mastectomy is to offer surgery if lifetime risk of breast cancer exceeds 30%. Prospective data regarding CRRM decisions for these patients were evaluated to determine whether decisions were concordant with CBC risk estimates. Decisions were deemed concordant if CRRM was offered when lifetime risk of CBC was ≥30%, and to when CRRM was declined when lifetime risk was <30%.

Results: 80 female patients were identified, in whom the median remaining lifetime CBC risk was 21.5%. Median age was 49 years. 69% (n=55) were known BRCA gene mutation carriers. The concordance between CRRM decisions and Manchester CBC risk calculations was 60% (n=48). A decision rationale was documented in all but one non-concordant case. Offering surgery only to women where lifetime CBC risk was ≥30% would have reduced our CRRM rate by 26% (n=21).

Conclusions: Patients with unilateral breast cancer requesting CRRM should have a formal assessment of the risk of loco-regional and systemic relapse. This study suggests that formal risk assessments may change RRMDT decisions, thus reducing both prophylactic mastectomy rates and associated hospital costs.

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P163. OSNA copy number as a predictor of significant non-sentinel lymph node metastases

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Aim: The majority of patients with macrometastases in their sentinel node have no further positive nodes at axillary clearance. A minority have significant disease burden in the axilla. OSNA copy number could be used to differentiate these patients to aid decision about further axillary management.

Methods: Data from 5 UK hospitals identified 154 patients who had demographic and tumour characteristics available and had macrometastases diagnosed using OSNA. All patients had completion axillary clearance. A retrospective 12 month cohort was used to interrogate the clinical effects of a new nomogram.

Results: 87/154 patients (56%) had no further macrometastases on axillary clearance (GpA). 67 had further positive nodes - 44 had a total of 2−3 positive nodes (GpB) and 24 had 4 or more involved nodes (GpC). The highest single node OSNA copy number was statistically significantly different between both GpA vs. GpB+C ((4.0E+05 (+/− 1.1E+05)) vs. (9.2E+05 (+/− 2.1E+05)) p= 0.02) and GpA+B vs. GpC ((4.8E+05(+/− 1.1E+05) vs.1.4E+06 (+/−3.7E+05) p=0.02). ROC graphs were plotted and the area under the curve (AUC) in these two scenarios was 0.69 and 0.77. The AUC for the MSK nomogram for this cohort of patients was 0.61. Using a copy number of 30,000 achieved sensitivity of 90% and specificity of 42% at identifying >3 positive nodes.

Conclusions: OSNA copy number can be used to help predict the overall disease burden in the axilla. This could help to ascertain which patients may benefit from further axillary treatment.

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P164. Contrast-enhanced ultrasound biopsy of sentinel lymph nodes in patients with breast cancer undergoing neo-adjuvant chemotherapy

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Background: At Maidstone and Tunbridge Wells NHS Trust, breast cancer patients with a normal grey-scale axillary ultrasound have sentinel lymph nodes (SLN) biopsied using contrast enhanced ultrasound (CEUS).

Material and Methods: Between November 2009 and February 2014, prospective information was collected from 39 breast cancer patients who had neo-adjuvant chemotherapy. At the time of diagnosis, after a normal axillary grey-scale ultrasound, patients had SLN biopsied in Maidstone Breast Clinic using intradermal microbubbles and CEUS. After primary therapy, patients went on to have standard surgical management.

Results: 37 patients had a successful core biopsy. 23 patients had an initial benign SLN core biopsy and went on to have a surgical SLN biopsy. Only 1 patient was found to have metastases in the excised SLN (1 macrometastasis and isolated tumour cells (ITC)). 14 patients had an initial malignant SLN core biopsy: 7 had a complete pathological response in the axilla, 1 had a single micrometastasis, 1 had ITC and 5 patients had residual high volume disease (2 or more macrometastases).

Conclusions: Patients undergoing neo-adjuvant chemotherapy with an initial malignant SLN core biopsy may benefit from a second SLN core biopsy post-treatment, as many will have a complete pathological response to neo-adjuvant chemotherapy in the axilla. For the same reasons, a CEUS guided SLN biopsy may also be advantageous for patients with pre-treatment abnormal grey-scale axillary lymph nodes once they have completed primary systemic therapy. By these means, patients may be selected for appropriate axillary treatment after neo-adjuvant chemotherapy.

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P165. Impact of MRI on management of mammographically occult breast cancer

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Introduction: Breast cancer can present unusually as mammographically occult lesions despite sometimes being clinically palpable or seen on ultrasound (USG) scan. Magnetic Resonance Imaging (MRI) is indicated for these mammographically occult lesions to identify and characterise the pathology. We wanted to assess the impact of MRI in management of these cases.

Materials and Methods: Over a period of 3 years (November 2011-October 2014) all breast MRIs were retrospectively reviewed and all mammographically occult cancer cases were identified and included in the study. Demographics, investigations and treatment details were collected from Clinical Information System.

Results: Out of 40 patients (37 symptomatic and 3 screening) with mammographically occult lesions, USG had identified the primary lesion in 32 patients (80%). In this group, USG findings were concordant with MRI in 90% (29 patients with +/- 10% difference in size), while 3 patients (9.4%) had nonconcordant findings (either multifocal lesions or a significant difference in size). Eight patients (20%) had both mammographically and USG occult breast lesions. MRI changed the management plan in total of 25% of cases. Interestingly, where the lesion was identified on USG, MRI altered management plans in only 6 % of cases.

Conclusions: MRI is indicated for mammographically occult lesions. Although MRI is a mandatory requirement for mammographically and USG occult lesions, its impact on management is low if the lesion is identified on ultrasound.

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P166. Multimodal sensing for the assessment of flap viability following autologous breast reconstruction: A feasibly study

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Introduction: Autologous free flap tissue transfer is an increasingly utilised technique for breast reconstruction. Whilst flap failure remains a significant complication of this surgery, there remains no current consensus for flap monitoring. Combined multimodal sensing could offer a more sensitive and reliable approach to flap monitoring.

Methods: (i) A prospective clinical audit of investigating adherence to local flap monitoring guidelines in a tertiary centre for plastic and reconstructive breast surgery was conducted. (ii) Feasibility study of multimodal sensing (Implantable Doppler and NIRS) in a patient undergoing autologous free flap breast reconstruction was performed following local research governance approval.

Results: (i) Seventeen flaps (14 patients) and 780 clinical monitoring events were examined. There were no flap failures but only 33% of monitoring events were performed on time and in 8% of cases findings were incorrectly assessed or documented. (ii) Loss of intraoperative ID signal provided a timely warning of anastomotic compromise, permitting successful revision. Persistent venous signal ID throughout the postoperative period (7 days) confirmed flap perfusion. NIRS demonstrated consistent relative haemoglobin and blood velocity for seven days following surgery.

SpO_2 and blood flow measurement demonstrated greater variability within the postoperative period. User feedback was generally positive with use of these technologies being both acceptable and "reassuring" to the patient.

Conclusion: This feasibility study has shown that multimodal sensing is both safe and reliable. As a result of observed shortcomings in the current practice of clinical monitoring, use of ID/NIRS may therefore support improved outcomes and patient care in the future.

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P167. Does the use of a bio-impedence device reduce the need for re-operation in breast conserving surgery? A pilot study

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Introduction: ABS guidelines 2009 and NICE guidelines 2015 recommend excision margins for breast conservation of 1mm for invasive and 2mm for DCIS. The minimum standard is 95% patients have $\leq$3 operations with a target of 100%. It is recommended that all breast conservation procedures undergo intra-operative radiology assessment. Despite this, approximately 20% of patients require re-operation to clear margins.

Methods: We piloted the use of a bio-impedence device (Clear Edge) and compared to standard of care for excision margin assessment (palpable and radiography) and the impact on re-operation rates. The pilot was undertaken between August and November 2015.

Results: The Clear Edge (CE) pilot was undertaken in 19 cases, it failed in 3 cases. During the same time frame 48 cases of breast conservation were performed with standard of care (SOC) margin assessment. In the CE group, 3 (18.75) had additional surgery despite intra-operative shaves taken based upon SOC and CE. The sensitivity of CE 80%, specificity 10%, PPV 30.77% and NPV 50% compared to the SOC margin assessment of the same cases with sensitivity 100%, specificity 38.46%, PPV 27.2% and NPV 100%.

In the SOC only cohort, 7 (14.5%) had additional surgery; 6 had SOC shaves, which demonstrated additional disease and at second operation only 1 had further disease. 1 case had no initial SOC shaves, however, required 3 operations to achieve clearance. The sensitivity of SOC alone 71.4%, specificity 58.54%, PPV 22.73% and NPV 92.31%.

Conclusions: The Clear Edge device did not prevent re-operation in this small pilot group compared with SOC. A larger prospective study should be undertaken to adequately assess the benefit of the device.

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P168. Upper Limb Lymphoedema after axillary surgery in Breast Cancer Patients: An analysis of referral trends over a three year period in a specialist breast unit

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Introduction: Surgical techniques in breast cancer (BCa) have seen a dramatic change recently with breast conserving surgery (BCS) and sentinel lymph node biopsy (SLNB). The ACOSOG-Z0011 trial reported equivalence in outcomes for certain patients with SLN metastases treated with axillary clearance (AC) or SLNB alone. Our aim was to investigate changes in lymphoedema referral patterns in BCa patients over the last three years in a specialist unit and to elucidate effects of SLNB, BCS and Z0011 trial publication on such patterns.

Methods: A retrospective study was performed over a three-year period (May 2012 - May 2015). Patients were identified using a prospectively maintained lymphoedema database and newly referred BCa patients with data availability were included.

Results: 138 patients meeting the inclusion criteria attended the service during this period. Majority of lymphoedema referrals involved patients who underwent AC (59%), compared to SLNB only (23%), and SLNB followed by AC (18%). There was a statistically significant difference in lymphoedema referral patterns after implementation of Z0011 with new referrals reduced by 20% compared to the pre − ACOSOG-Z011 era (Chi-sq;p=0.001). Volume of referrals post − AC reduced by 40% with concomitant 31% rise in those post − SLNB alone, reflecting changing surgical patterns.

Conclusion: The Z0011 trial in association with wider implementation of SLNB has led to a reduction in new lymphoedema referrals in patients with BCa. The pattern of lymphoedema referrals has also changed significantly.

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P169. Differential response of HER2 positive breast cancer with mammographic calcification to neo-adjuvant chemotherapy

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Aims: Neo-adjuvant chemotherapy (NAC) is frequently used in treatment of HER2+ breast cancer to downstage the disease and for breast conservation. Mammographic calcification usually represents DCIS and does not resolve after NAC. We wanted to investigate whether HER2+ cancers with mammographic calcification behave differently in their response to NAC.

Methods: This was a retrospective review of all HER2+ breast cancer patients who underwent NAC between 2007 & 2015. Data recording included details of demographics, mammographic appearance, radiological response, surgery and pathological response. Subgroup analysis was performed based on presence of mammographic calcification and cancer subtype (table).

Results: 101 patients were included. Mean age was 48.1years (SD10.6). 60.4% (N=61) had mammographic calcification. 60.4% (N=61) were luminal B, 1.0% (N=1) were luminal A, and 38.6% (N=39) were non-luminal HER2+ cancers respectively. Significant radiological response was observed in 46.5% (N=47) patients. 78.2% (N=79) had surgery and pathological complete response (pCR) was observed in 30.4% (N=24) of these patients. 17.7% (N=14) showed residual DCIS and 51.9% (N=41) had residual invasive disease. Non-luminal HER2+ cancers showed a significantly better pCR rates (table).

Variable		pCR		P value
	No	Yes	Residual DCIS	
Mammographic Calcification				
No(N=32)	16(50.0%)	13(40.6%)	3(9.4%)	0.135
Yes(N=47)	25(53.2%)	11(23.4%)	11(23.4%)	
Tumor Subtype				
Luminal A(N=1)	1(100%)	0	0	**0.040***
Luminal B(N=48)	31(64.6%)	10(20.8%)	7(14.6%)	
Non-luminal (N=30)	9(30.0%)	14(46.7%)	7(23.3%)	

pCR rates were halved in luminal-B (14.8%vs28.6%) and non-luminal (35.0%vs70.0%) cancers with mammographic calcification. Similarly, residual DCIS rates were doubled in luminal-B (18.5%vs9.5%) and non-luminal (30.0%vs18.5%) cancers with mammographic calcification.

Conclusions: HER2+ cancers with mammographic calcification behave differently to NAC. This should be taken into consideration when developing treatment algorithms for this subgroup.

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P170. Setting up of a new breast service in Mauritius − The experience of a British trained breast surgeon.

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Introduction: Until 2014 breast cancer (BC) in Mauritius was managed by non-specialist General surgeons (GS) with no guidelines as to the process and quality of care provided by these clinicians. The Ministry of Health appointed a British trained breast surgeon of Mauritian origin with the aim of bringing great cancer care in line with first world medicine.

Method: As part of the implementation of the National Cancer Control Programme, a Breast Surgeon was recruited in June 2014 and a new service was set up in the largest hospital on the island. We aim to highlight the work achieved over the past one and a half years by the team.

Results: A new range of investigations and treatment are currently being offered to BC patients including ultrasound-guided biopsies, breast conserving surgery, sentinel lymph node biopsy and intra-operative frozen section of sentinel nodes. A specialist breast care nurse has been successfully trained. A pilot screening programme for women at high risk of BC has been completed. Regular breast MDTs attended by oncologists, pathologists, radiologists and surgeons have been set up. Several patient education programmes on TV and radio and CME events aimed at junior/senior doctors have been organised at national level.

Conclusion: Despite these significant achievements, a lot still needs to be done to tackle the rising incidence of BC on the island. Nationwide awareness campaigns to educate the local population and physicians are ongoing and crucial for future success. A specialist oncology hospital with a dedicated Breast Unit is also currently in the pipeline.

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P171. A retrospective review of the management of newly diagnosed breast cancer cases in Mauritius between 2013−2014

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Introduction: Until 2014 breast cancer (BC) in Mauritius was managed by non-specialist General surgeons (GS) with no guidelines as to the process and quality of care provided by these clinicians. The Ministry of Health appointed a British trained breast surgeon of Mauritian origin with the aim of bringing great cancer care in line with first world medicine. We aim to review the management of BC cases by teams of GS across all public hospitals on the island.

Method: Between June 2013 and May 2014, 327 consecutive newly diagnosed cases of breast cancer were identified from the Central Pathology Laboratory where specimens from all public hospitals are processed. Computer records were examined and relevant data extracted.

Results: 272 patients (83%) underwent surgery. Table 1 summarises the other major findings of this study.

Table 1

	Percentage
Tumour size $\leq$ 2cm	27.5
Tumour size >5cm	17.3
Cases diagnosed by FNA only	20
Cases diagnosed without pre-op FNA/core biopsy	13.4
Cases with zero lymph nodes retrieved	24.2
National mastectomy rate	94.3

Conclusion: Despite the availability of radiotherapy and a significant number of early breast cancers, the mastectomy rate in Mauritius remains high. This is due to a lack of expertise of GS coupled with the absence of well-established guidelines. Training of local surgeons through CPD events in the up-to-date management of BC using international guidelines is of paramount importance. In the meantime, several measures have also been instituted including the recruitment of a Breast Surgeon in June 2014 and planned opening of a dedicated Breast Unit in 2016.

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P173. Bilateral mastectomy and reconstruction: Cross-sectional study of indications, methods and outcomes at a Tertiary Oncoplastic Breast Surgery Unit

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Introduction: Bilateral mastectomy and reconstruction is performed for treatment and risk reduction for breast cancer. A cross-sectional study evaluated practice at a tertiary unit in Glasgow, UK.

Method: Patients undergoing mastectomy and reconstruction from 1st January − 31st December 2014 identified from a prospective database. Clinical data gathered from electronic patient records.

Results: 78 reconstructions performed for 39 patients: 35 (90%) immediate; 4 (10%) delayed.

Median age 44 (range 24−68); median BMI 27 (range 19−35); 3 patients (8%) were smokers; none had diabetes. Preoperatively, all but one patient could climb stairs without stopping. Median hospital stay 4 days (range 1−10); no significant perioperative systemic morbidity, no deaths.

Mastectomy indication: 5 (13%) bilateral breast cancer; 13 (33%) unilateral breast cancer; 21 (54%) risk-reducing. Of those who had risk-reducing surgery on one or both sides: 27 (79%) BRCA 1/2 and 7 (21%) high risk non-BRCA. Reconstruction symmetrical for all but one patient: 20 had tissue expanders; 8 implants, 5 DIEP, 4 LD, 1 TUG, 1 pedicled TRAM plus contralateral DIEP. 26 complications requiring unscheduled surgical intervention occurred in 18/39 patients (46%): 6 breast washout/debridement; 6 evacuation of haematoma; 6 donor site washout/re-suture; 5 implants removed for infection; 1 for puncture; 1 port site revision; 1 skin graft. At 12−24 months following initial surgery: 5 (13%) had completed reconstruction; 23 (59%) awaited further surgery (10 expander exchange; 7 lipomodelling; 2 nipple reconstruction; 1 abdominal mesh reinforcement); and 11 (28%) were still under clinic review.

Conclusion: Bilateral breast reconstruction following mastectomy carried no significant systemic morbidity but a high rate of surgical site morbidity and secondary elective surgery.

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P174. Outcomes of 35 consecutive immediate breast reconstructions using tissue expander/ direct-to-implant and acellular dermal matrix without the use of surgical drains

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Methods: We present a retrospective review of 35 consecutive ADM-TE/DTI immediate breast reconstructions undertaken with no surgical drains at a single institution over 20 months.

Results: 58 ADM-TE/DTI breast reconstructions were undertaken in 35 patients (21 bilateral). The average age was 47.1 years (18.3 − 37.3), BMI 22.6 (18.3 − 37.3). Of the 35 patients, 9 (26%) had surgery for

risk reduction and 26(74%) for cancer. 12 patients had neoadjuvant chemotherapy (NACT) and 3 neoadjuvant endocrine therapy. Nipple preservation was performed in 27 of 35 (77%) patients. 17 (49%) had an infra-mammary fold, 8 (23%) circumareolar, 2 wise pattern and 1 lateral 'envelope' incision. 5 patients had axillary clearance, 17 sentinel node biopsy and 12 patients had no axillary surgery. Surgimend was used as the ADM in 34 of 35 (97%), with Strattice in 1 patient. 3 patients had TE and 32 DTI, the average implant was 404gm (245 − 695). The average mastectomy weight was 288gm(86−1160gm). All patients had 1 dose of intravenous antibiotics on induction and 2 post-operative doses.

Average duration of stay was 1.91 days (1−6) and 10 patients only stayed one night. The average follow up was 12.3 months. Post-operatively, 13 (38%) patients had a clinically documented seroma, of which 2 (5.8%) required an ultrasound-guided aspiration b/c discomfort. There was 1 case of red breast syndrome, which resolved with conservative management; 4 infections − 2 treated with oral antibiotics and 2 with intravenous antibiotics, and 1 case of full thickness skin necrosis secondary to a hot water bottle, necessitating explantation and reconstruction salvage to TUG autologous flap. There were no implant explantations at 3 months and 2 at 12 months.

Conclusion: This series of 35 consecutive patients demonstrates that immediate ADM-TE/DTI breast reconstruction can be undertaken safely, without the use of surgical drains.

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P175. The long term outcomes of patients treated with primary endocrine therapy for breast cancer.

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Introduction: Primary endocrine therapy is usually prescribed for elderly patients with breast cancer considered too frail for surgery. The majority respond well but some patients progress requiring either a switch of treatment or, in some cases, surgical intervention for local disease control. This study aimed to look at all patients treated with primary endocrine therapy over a six year period with a particular focus on their survival and how many ultimately required to have surgery performed.

Methods: All female patients treated with primary endocrine therapy in NHS Lanarkshire, diagnosed with breast cancer between January 2007 and July 2013, were identified from a prospectively collected database. Those with metastatic disease at diagnosis were excluded. Their progress and long term outcomes were detailed from each patient's electronic record.

Results: 270 patients with breast cancer were commenced on primary endocrine therapy during this time period. Age at diagnosis ranged from 43−101 years with a median age of 81 years. At the time of case review, 185 (69%) patients had died. Their mean survival from start of treatment was 660 days (range 4 to 2775 days). 33 (12%) patients progressed on therapy requiring a switch in endocrine therapy and 21 (8%) patients ultimately required to have surgery.

Conclusions: While some patients treated with primary endocrine therapy for breast cancer will have progressive disease requiring a switch of treatment or surgery, the majority will achieve disease control. It therefore provides an acceptable alternative to surgery in the frail, elderly population.

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P176. Under 30 one stop breast clinics: A new practical approach

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Introduction: Best practice guidelines dictate that both urgent and non-urgent breast referrals should be seen within 2 weeks which has led to immense pressure on the one stop breast clinics. About 20% of patients referred are below 30 years of age. Considering that the incidence of breast cancer in this subgroup is very low (0.62%) and they do not need mammograms, we piloted a separate specialist under 30 clinic.

Materials and methods: Weekly clinics run by an experienced breast specialist and breast radiographer were organised in a single room with a 15 minute slot for each patient. The equipment included ultrasound machine (small parts probe $\geq$10 MHz), adjustable couch and a desk with 2 computers shared by surgeon and radiographer. Patients were clinically assessed and scanned if necessary (biopsy if needed were organised at a later date). Patients were provided with verbal and written information and a summary of assessment and care plan sent to GP.

Results: 55 patients were seen in clinic in 2 months. Median age was 24 years, (range 12−30) (Female: male=54:1). Two cyst aspirations and 2 biopsies (for benign lesions) were performed. Scan was required in 78.7% and no patients were recalled for mammography.

Conclusions: One stop under 30 clinics run by an experienced doctor and a radiographer is practical, efficient, cost effective and convenient for patients. This can ensure optimum allocation of resources for one stop breast clinics.

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P177. A two month retrospective audit of referrals to Symptomatic Breast Clinic from the primary health care setting

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Updated Healthcare Improvement Scotland guidelines for suspected breast cancer (2014) serve to facilitate appropriate referral to the SBC and support primary care management when referral is not indicated. Effective implementation of these guidelines should improve access to SBC, and reduce unnecessary workload in secondary care. The purpose of this audit was to review the quality of SBC referrals over a defined time period.

Methods. A retrospective review of institutional databases and electronic referral forms was undertaken to assess referral compliance with HIS guidelines over a two-month period (August − September 2015).

Results: In the sample-set, there were 780 referrals of which 546 (70%) did not comply with HIS-guidelines. Specifically, 179 (32.8%) non-urgent referrals met urgent criteria, 367 (67.2%) of referrals were incorrectly referred, with 216 (58.9%) of these not meeting criteria for referral. Among the cases which did not meet the criteria for referral, the most frequent breast complaints included: cyclical breast pain <35yrs (24.1%), physiological nipple discharge (7%), and family history (10.2%).

Summary: Compliance to HIS referral-guidelines was low (30%), wherein 58.9% of patient referred over a two month period could have been managed in primary care alone.

Conclusion: The updated HIS guidelines have made little impact on the volume of work in our SBC, and compliance to recommendations is low. Ongoing efforts should be made to support evaluation and management of patients in the community.

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P178. Invasive lobular carcinoma and lobular carcinoma-in-situ: Is it on the rise? A retrospective review

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Introduction: Invasive lobular carcinoma (ILC) has historically posed unique radiological challenges and has accounted for 8−14% of new breast cancer diagnoses. Clinical impression is that ILC and lobular carcinoma-in-

situ (LIS) as a percentage of breast cancers is increasing. This may be due to recent advances in methods of diagnosis or may be a true increase.

Aim: Assess percentage of newly diagnosed ILD and LIS between 2009 and 2015 compared to all type breast carcinomas.

Method: A retrospective review was undertaken, using a prospectively maintained database, of a single surgical breast unit (merged with a second unit to become a regional unit between the two data collection periods). All diagnoses of new symptomatic breast carcinomas were included. Data was studied over a 12 month period between February 2009−2010 and October 2014−2015. Unpaired t-test and Fisher's Exact test were used for statistical analysis.

Results: A total of 283 new symptomatic breast carcinomas were diagnosed between 2009 and 2010; 595 new symptomatic breast carcinomas were diagnosed between 2014 and 2015. Median age in 2009−10 cohort was 61 and 2014−15 cohort 62 years (p value 0.503). 14.8% of new breast carcinomas were invasive lobular carcinomas or lobular carcinoma-in-situ between 2009−2010; 17.1% of new breast cancers diagnosed between 2014 and 2015 were ILC or LIS (p value 0.289).

Conclusion: The percentage of newly diagnosed ILC and LIS appears to have increased compared to all type breast carcinomas over the past 5 years however this is not statistically significant. Further research is indicated to evaluate this further.

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P179. Vitamin D deficiency and breast cancer prognosis: Investigating the link

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Introduction: The link between vitamin D and Breast Cancer is a source of debate. Evidence from in-vitro studies has tended to support the association of increased dietary vitamin D intake (and serum levels) with lower risk of breast cancer. Latterly it has been hypothesised that low serum vitamin D levels may be an adverse prognostic indicator.

Methods: We prospectively requested serum vitamin D on all patients with new diagnoses of invasive breast carcinoma from August 2014 to October 2015 to test this hypothesis. Vitamin D level was correlated with tumour grade, diameter, nodal involvement and Nottingham Prognostic Index (NPI). Vitamin D deficiency was defined as a serum measurement below 50nmol/L.

Results: A total of 247 patients were identified from the database. Of these, 153 had vitamin D levels below 50nmol/L (61.9%).

Nottingham Prognostic Indicator (NPI)	Patients with normal serum vitamin D (>50nmol/l) n=94	Patients with low serum vitamin D (<50nmol/l) n=153
Excellent (NPI >2.0 to <2.4)	19 (31%)	43 (69%)
Good (NPI >2.4 to <3.4)	26 (39%)	40 (61%)
Moderate (NPI >3.4 to <5.4)	40 (42%)	55 (58%)
Poor (NPI >5.4)	9 (38%)	15 (63%)

Discussion and conclusion: There was no significant difference in NPI between patients with normal and abnormal serum vitamin D level. Patients with a normal vitamin D level were at no increased risk of having a tumour of poorer prognosis. The study still had a higher than average proportion of patients with low vitamin D. Further work is required to assess these patients at 5 year follow up to assess whether outcome is related to vitamin D level at diagnosis.

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P180. Emerging trend of breast conserving treatment in a developing country. Single centre study of 2035 patients

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Introduction: Our institute was established in 1994. It is the only hospital in Pakistan where specialized breast oncological services are being offered. We started to practice breast conserving surgeries in 2004 in few patients. From 2006 we are on the mission of curing this lethal disease with breast conserving surgeries while preventing the patients from psychological and physical trauma of amputation of an organ.

Patients and Methods: A total of 2071 patients underwent 2074 breast conserving surgeries from 1st January 2006 till 31st December 2013. The decision of breast conservation was decided in multidisciplinary meeting. The demographics of patients, clinical and pathological characteristics of tumours, stage at presentation, Receptor status, treatment provided to patients and follow up details were extracted from the hospital database. The data was collected by fellow of breast surgery on a pre-designed Pro-forma. Twenty eight patients were excluded from the study due to lost to follow up. Five patients who died during chemotherapy were also excluded. Three patients had positive margins on their wide local excision and they chose to have Completion Mastectomy, so they were also excluded from the study.

Results: After exclusions, 2035 patients were selected who underwent 2038 breast conserving surgeries. Three patients had bilateral disease at presentation so they underwent bilateral procedures simultaneously.

All patients in this study are females. Median age was 47 years (range 20-85 years). We categorized the patients in stages according to TNM staging system. Total of 3.2% (n=64) patients had Stage 0 disease out of which 0.9 (n=18) patients had Tx tumours and 2.3% (n=46) had In situ disease. 9.3% (n=188) patients had stage I disease, 81.8% (n=1662) patients had Stage II disease, 5.1% (n=104) had Stage III disease while 0.7% (n=14) had stage IV disease. 92% patients had IDCa. Only 2.3% had ILCa. 66% patients were ER positive. 60% were PR +ve. 28% patients were Her-2-Neu positive. 29% patients had triple negative disease. Neoadjuvant treatment was offered to 42% of the patients to downstage the disease. Breast conserving surgery was offered to all the patients. 59.5% patients had node positive disease and they underwent wide local excision and Axillary node dissection while 40.5% had wide local excision only. Adjuvant therapy in the form of chemo and hormonal therapy was offered to 47.0% and 70.4% patients respectively. Only 2% patients were offered targeted therapy. Local recurrence was seen in 134 (6.6%) patients. Distant relapse was seen in 333 patients (16.3%). Factors promoting local recurrence among patients included larger tumour size, triple negative status, omitting ALND and not giving XRT. Overall survival for stage I was 92%, for stage II was 82%, for stage III was 73% and for stage IV was 49%. Worst prognostic factors for survival were stage of disease, triple negative status, Her 2 positivity and young age.

Conclusion: We conclude from our study that even for countries like Pakistan breast conservative surgery is a safe procedure in early stage breast cancer. Neoadjuvant chemo and XRT have a strong role to play in the management of such patients. However there is a high prevalence of triple negative patients in our population which have increased chances of recurrence and poorer survival rates. This special type of cancer requires further research into finding a more suitable treatment options for such patients.

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P181. Surgical interventions for breast cancer liver metastases − Results of a UK survey

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Introduction: There is currently a paucity of prospective data on hepatic resections for breast cancer liver metastases. Literature reviews of retrospective case series indicate improved survival through surgical intervention. The aim of this study was to establish current UK-wide surgical practice for hepatic resections in metastatic breast cancer patients.

Method: Hepato-pancreato-biliary surgeons across the UK were asked to complete an online survey sent under the umbrella of Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS/HPBGBA).

Results: 26 HPB surgeons (HBPS) responded (18 England, 6 Scotland, 2 NI-based). 74% of HBPS are working in high volume HPB centres (n>50 liver resections yearly for all types of cancer). Eighty-eight percent of HPBS are performing resections laparoscopically. 23 HPBS have performed resections +/− Radiofrequency Ablations (RFA) for breast cancer liver metastases (BLM). Within the last three years, <3 BLM resections were undertaken by 50% of HBPS, between 3−10 resections by 39%. Main selection criteria for BLM resections were performance status of patient (96%), achievable R0 resection, presence of other metastases (both 80%,) and response to systemic therapy (52% HPBS). Majority of HPBS (92%) are amenable for sharing clinical follow-up data for a national retrospective analysis and would be interested in participating in a future prospective UK-wide trial.

Conclusion: Only a small number of BLM resections are being currently undertaken in UK HPB centres due to lack of evidence and selection of suitable patients. However there is interest amongst HPBS in participating in a prospective trial to answer an important question: Is there a role for hepatic resections in metastatic breast cancer patients?

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P183. The evolving role of the breast care nurse: Comparing practice in 1995 to 2015

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Introduction: In order for Breast Care Nurses to be able to continually provide a high standard of care to their patients they have to be able to adapt their practice to meet the changing needs of patients, national and local policies, current research and resources. The role has changed significantly in the last 20 years and therefore this analysis will highlight past, present and future practice.

Method: Analyse the role in 1995 and then compare and contrast to the present day role and responsibilities of Breast Care Nurses both locally and nationally. In order to give a greater insight it is important to look at local and national policies, Breast Cancer Incidence, research studies and Breast Cancer Treatments in 1995 and 2015 in order to highlight how the role was utilised and developed.

Results: There have been significant changes to the role of the Breast Care Nurse and it is evident that these changes will continue to develop. Nurses in 2015 are carrying a larger case load and often have greater responsibility. The effective use of resources underpins every aspect of the role.

Conclusion: In order for Breast Care Nurses to continue to develop their role it is important to reflect on the changes faced within the last 20 years. Health Care Roles must be able to evolve to meet the needs of the patient and the service.

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P184. Hospital staff awareness of contraindications following axillary lymph node clearance

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Introduction: Lymphoedema is a significant and common (34%) morbidity affecting patients following axillary lymph node clearance (ANC). There is published guidance advising the use of the unaffected arm for blood pressure and venepuncture in patients at risk of lymphoedema following breast surgery.

Methods: An anonymous staff survey was performed at our hospital in two stages. The job role, specialty and answers to two questions regarding awareness of contraindication to blood pressure and venipuncture in the affected arms of patients following ANC were recorded. The second stage was performed following three educational interventions: 1) Presentation of audit results to junior doctors 2) Warning posters displayed on hospital wards 3) Educational email to hospital staff with audit results.

Results: Staff recruited included Junior doctors, nurses, HCAs and medical students. Stage I: 71 staff from the following specialties: Medicine-35%, Surgery-11%, Obs/Gynae-3%, Paeds-4%, A+E-4%, GP-3% and other-36%. Knowledge of contraindication to blood pressure (Yes 63%, No 37%) & blood tests (Yes 68%, No 32%). Stage 2: 81 staff from the following specialties: Medicine-45%, Surgery-38%, Obs/Gynae-4%, Ortho-3%, Paeds-3%, GP-1%. Knowledge of contraindication to blood pressure (Yes-83%, No-17%) & blood tests (Yes-86%, No-14%)

Conclusions: In the first round 1/3 of participants did not know the contraindications regarding blood pressure and venipuncture in patients post axillary clearance. Staff awareness was increased to at least 83% following interventions. Basic educational methods are successful in improving hospital staff awareness of contraindications for patients at risk of lymphoedema. Further work is required to establish how to maintain staff awareness.

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P185. Mainstreaming breast cancer genetics

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Introduction: The decision at Nottingham Breast Institute to offer BRCA 1 & 2 genetic testing to women up to 50 who were diagnosed with triple negative (TNBC) resulted in an unmanageable increase in referrals to the local genetics service. To manage the increased demand a training programme was put in place to enable Breast care nurse specialists (Bcns) to facilitate a faster service.

Method: In November 2015 following a training programme, a weekly clinic was set up. Patients diagnosed with TNBC, bilateral Breast cancer under 50, breast cancer under 30, or breast and ovarian cancer are offered a clinic appointment with the Bcns. Patients are consented and blood sent to the local genetics laboratory.

Results: Patients appreciate the continuity of care with Bcns and speedier genetic results enable patients to make informed treatment choices.

Conclusion: Mainstreaming demonstrates the future management of genetic testing for breast cancer patients.

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P186. A case study demonstrating tumour heterogeneity in protein kinase C in a triple negative metaplastic carcinoma

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Introduction: Most breast cancers are composed of a heterogeneous population of tumour cells which contribute to the diversity of the tumour. This is a key contributor to tumour aggression, immune evasion and resistance to systemic therapies. Core biopsies are routinely used to sample tumours pre-operatively, but it is well documented that they may not give a correct representation of the biology of the overall tumour. We were particularly interested in investigating the expression pattern of a group of proteins called PKC's. PKC's have an important role downstream of growth factor and adhesion signalling and have a well-established role in cancer progression.

Methods: Examining this specific and rare tumour which pre-operatively was identified as a triple negative metaplastic (spindle cell) carcinoma and 7cm in maximum dimension. Six sample areas were taken by a pathologist, identified as middle-anterior, middle-posterior, middle-inferior, middle-superior, mid-medial and mid-lateral. A random core was also obtained along with adjacent normal tissue from the same patient. RNA was extracted, cDNA made, RT qPCR was performed and the results analysed using REST software.

Results: We found that the expression pattern of each of the 9 PKC isoforms varied considerably throughout the tumour with PKC epsilon, zeta and delta being the most dysregulated.

Conclusion: Using the expression pattern of PKC's across this rare tumour, we illustrated that it is highly likely that different biological situations manifest in subsections of tumours at a particular moment in time and supports the idea that novel diagnostic methods and multimodal approaches may benefit the treatment of cancer.

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