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Abstracts for oral presentation at the Association of Breast Surgery Conference & AGM, 15th & 16th June 2015, Bournemouth International Centre

Monday 15th June 2015, Session 2: Submitted Papers. 09:00 to 10:30

1. Mammographic malignant calcifications and neoadjuvant chemotherapy – Should we be doing more biopsies to reduce mastectomy rate?

Hawwa Shillingford, Philip Drew, Sheikh Ahmad, Rachel English, Iain Brown, Polly King

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Introduction: Increasing numbers of patients now receive neoadjuvant chemotherapy (NAC) to downstage disease or decrease the extent of surgery. Data on the histopathological correlation of mammographic (MMG) microcalcifications after neoadjuvant chemotherapy remain sparse. The aim of this study was to examine the pathological response to NAC in patients with a significant degree of MMG calcifications.

Methods: Consecutive patients undergoing NAC over an 18 month period in a single unit were studied using data from a prospectively maintained neoadjuvant database. Data on MMG calcifications, surgical procedure and pathological assessment were recorded.

Results:

Number of patients	56
Median size of tumour prior to NAC (mm)	32
Microcalcification on MMG (no. of pts)	28
Calcification extending beyond tumour (no. of pts)	15
Median size of calcification beyond tumour (mm)	50
Malignant calcification on initial biopsy (no. of pts)	7
Mastectomy (no. of pts)	17
Breast conservation (no. of pts)	25
Surgery downsized (no. of pts)	4
Median size of tumour post NAC	8.5

Of the 15 patients with significant microcalcification extending away from the tumour the pathological mean size of residual disease post NAC was 8mm with 5 patients having a path CR

Conclusion: This small study suggests that by performing post NAC biopsies of microcalcification we may be able to reduce further the mastectomy rate.

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2. Indocyanine green (ICG) fluorescence mapping for sentinel lymph node (SLN) biopsy in early breast cancer

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Introduction: A recent feasibility study (ICG-10) has confirmed high sensitivity of ICG fluorescence mapping for sentinel SLN detection in early breast cancer with 95% of nodes both blue and fluorescent. This follow-on study has specifically evaluated a combination of ICG and blue dye for SLN localization.

Methods: Fifty consecutive patients (49 female; 1 male) with unilateral clinically node negative invasive (37) and non-invasive (13) breast cancer underwent SLN biopsy with blue dye and ICG. Median patient age was 48 years and median invasive tumour size 19mm for primary surgical patients. All patients had a normal pre-operative axillary ultrasound. Nodal and procedural detection rates were calculated for ICG alone and in combination with blue dye.

Results: A total of 87 nodes were retrieved with an average nodal count of 1.8 per patient (range 1–4). Eighty four nodes were blue and fluorescent and 3 fluorescent only. Nodal detection rates for ICG alone and combined with blue dye were 100% (87/87) and 96% (84/87) respectively. Metastases were present in 18 nodes (all blue and fluorescent) with 10 patients node positive overall (20%). The procedural detection rate for blue dye and ICG was 96% (48/50) and 2 patients had fluorescent only nodes which were deemed sentinel (4%).

Conclusion: Fluorescent imaging with ICG is a sensitive, valuable and safe method for SLN biopsy. A combination of blue dye and ICG is a useful dual approach when radioisotope is unavailable. ICG has the potential to be a sole tracer agent with improved patient convenience and costs.

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3. Long-term clinical and patient reported outcomes (PROs) after immediate latissimus dorsi breast reconstruction and adjuvant treatment in multicentre prospective cohort study

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Aims: To evaluate the long-term impact (at two and three years post-operatively) of two common types of breast reconstructions (BRR): implant-assisted latissimus dorsi (LDI) and autologous LD (ALD) flap procedures including adjuvant treatments (chemo and radiotherapy), late surgical complications and age on patient-reported outcomes (PROs). The secondary aim was to describe levels of PROs at both time points.

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Understanding these effects will inform the selection of core PROs for future studies.

Methods: Multi-centre prospective cohort study (2007 − ongoing). The European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaires QLQ-C30 and QLQ-BR23; Functional Assessment of Cancer Therapy − Breast (FACT-B) and Hospital Anxiety and Depression Scale (HADS), were completed pre-operatively and at 2 and 3 years after BRR.

Results: 206 patients (93 LDI and 113 ALD) were recruited (2007 to 2013); 66% were lymph node negative; 34% received radiotherapy (RT). Women with adverse clinico-pathology were more likely to have ALD. Each surgical group at two and three years showed clinically important ($P < 0.01$) improvements over time in emotional scales, but worse physical functioning, social well-being, body image and anxiety. Multiple regression analysis of all patients showed independent adverse effects at two years of RT on social function ($P = 0.002$), and at 3 years of chemotherapy on arm symptoms ($P = 0.005$) and younger age on physical well-being ($P = 0.006$). After adjusting for clinical and demographic characteristics, women who had ALD BRR had significantly improved sexual functioning ($P = 0.003$) at 3 years relative to those who had LDI BRR.

Conclusion: Clinically important changes occurred in core domains of functioning, breast surgery symptoms and psychological distress. These are therefore applicable PROs in future studies of BRR.

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4. Analysis of void artefacts in post-operative breast MRI due to residual SPIO after magnetic SLNB in SentiMAG Trial participants

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Purpose: Magnetic sentinel lymph node biopsy (SLNB) is currently being performed in clinical trials and has the potential to replace the radioisotope technique. The new magnetic technique consists of a periareolar subcutaneous injection of magnetic tracer, a superparamagnetic iron oxide (SPIO), which accumulates in the sentinel lymph nodes and can be detected by a magnetometer. However, SPIO left at the injection-site can complicate post-operative assessment with magnetic resonance imaging (MRI), as SPIO is known to cause void artefacts. The purpose of this study is to investigate the clinical relevance of SPIO-injection on subsequent MRI of the breast.

Methods: In this study all post-operative breast MRIs requested on SentiMAG Trial participants recruited at Guy's and St. Thomas' Hospitals and University Hospital of Wales at Llandough were reviewed. A total of 10 MRIs in 6 patients were analysed for injection-site void artefacts in the axial plane in the slice with the largest artefact. Comparison was done in a T1W FS DCE sequence imaged at 1.5T. Parameters investigated were size, location, time elapsed since injection, changes over time and clinical importance (artefact > 5 mm).

Results: Void artefacts were found in all analysed studies. One patient had had preoperative MRI which showed no artefact. The mean size was 60.3 ± 14 by 37.8 ± 13 mm in the axial plane in the breast, which is at least a third of the cross-sectional area of the breast. The artefact location for all artefacts was subareolar, extending radially into the outer quadrants, corresponding to a periareolar injection. One study, 25 months after injection, showed an artefact of 62 by 37 mm. Another study showed no decrease in size when comparing 3 consecutive studies spanning a time period of 10 months. All found artefacts were of clinical consequence (> 5 mm). However, none of these artefacts were reported as incidents or as having impacted clinical management.

Conclusions: Void artefacts resulting from injections containing 2 mL of SPIO cause susceptibility artefacts in subsequent breast MRI large enough to potentially obscure important clinical findings at least up to 25 months after injection. Therefore more research into dosage of SPIO, or scanning parameters after magnetic SLNB is needed.

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5. Adjuvant taxanes play a key role in the development of upper limb breast cancer-related lymphoedema

Massi Cariati[1], Salena Bains[1], Maarten Grootendorst[1], Amalinda Suyoi[2], Mike Peters[3], Peter Mortimer[4], Paul Ellis[2], Mark Harries[2], Mieke Van Hemelrijck[1], Arnie Purushotham[1]

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Introduction: Despite affecting approximately a quarter of all patients undergoing axillary lymph node dissection, the pathophysiology of breast cancer-related lymphoedema (BCRL) remains poorly understood. More extensive loco-regional treatment and higher body mass index have long been identified as major risk factors. This study aims to identify risk factors for BCRL with a specific focus on the potential impact of chemotherapy on the risk of BCRL, in a cohort of consecutive patients treated between 1st January 2010 and 31st December 2012.

Methods: Data were collected with regard to tumour-, patient-, and treatment-related characteristics. The diagnosis of BCRL was based on subjective and objective criteria. Multivariate Cox proportional hazards regression was used to assess the association between treatment and risk of BCRL.

Results: In all, 27.1% of all patients (74 of 273) developed BCRL over the study period. Administration of taxanes showed a strong association with the development of BCRL, as 33.5% (52 of 155) of patients who received taxanes developed BCRL. Multivariate Cox regression analysis demonstrated that patients receiving taxanes in the adjuvant setting were nearly three times more likely to develop BCRL than patients receiving no chemotherapy (HR: 2.82 (95%CI: 1.31−6.06)), this increase not being observed in the neo-adjuvant setting.

Conclusion: Our findings suggest that adjuvant taxanes play a key role in the development of BCRL. This may support the use of taxanes in the neo-adjuvant rather than adjuvant setting in women in whom this may be deemed to be of therapeutic benefit.

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6. Case mix does not fully explain variation in rates of non-surgical treatment of older women with operable breast cancer

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Introduction: The use of primary endocrine therapy (PET) as an alternative to surgery for older women with operable breast cancer varies widely in the UK. Whilst this may be appropriate for frailer patients, for some it may result in treatment failure, contributing to the poor outcomes

seen in women over 70. It has been suggested that case mix may partly explain this variation in practice.

Methods: Data from two UK regional cancer registry offices were analysed to identify whether variation in treatment observed between 2002 and 2010 at hospital and clinician level persisted following adjustment for case mix. Expected case-mix adjusted surgery rates were derived by logistic regression using the variables age, proxy Charlson Co-morbidity Score, deprivation quintile, method of cancer detection, tumour size, stage, grade and nodal status.

Results: Data on 17154 women over 70 with ER+ operable breast cancer were analysed using control charts. There was considerable variation in surgery rates at hospital and clinician level, with 39/68 (57.4%) of hospitals and 73/167 (43.7%) of clinicians falling outside the 95% limits. High variation remained after adjustment for case mix at hospital level (30/68; 44.1% remaining outside of the 95% limits), but was substantially reduced at clinician level (17/167; 10% remaining outside of the 95% limits).

Conclusion: This study demonstrates variation in selection criteria for operative treatment of older women with early breast cancer, which may result in under- or over-treatment. It emphasises the urgent need for evidence based guidelines for treatment selection criteria in older women with breast cancer.

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7. Positive pre-operative axillary ultrasound guided fine needle aspiration cytology is associated with higher axillary disease burden in breast cancer patients compared with those detected by sentinel lymph node biopsy

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Introduction: Recent evidence indicates that breast cancer (BC) patients with a positive sentinel node (SLNB) may not benefit from axillary clearance (AC). Whether such an approach could be applied to patients with axillary metastases on ultrasound-guided fine needle aspiration cytology (FNAC) is uncertain. The aim of this study was to determine nodal burden in patients with positive axillary FNAC compared with those with a positive SLNB.

Methods: A retrospective study was performed involving patients with BC between 2007–2013 who had either ultrasound-guided FNAC or SLNB. Patient, tumour characteristics and nodal burden were examined in all patients who underwent AC.

Results: 784 patients were eligible for analysis. 348 (44%) had positive FNAC and 436 (56%) had a positive SLNB. FNAC-positive patients were more likely to undergo mastectomy (Chi Square test; $p < 0.001$), have lymphovascular invasion ($p = 0.007$), a negative ER status ($p < 0.001$) and positive HER2 status ($p < 0.001$). Median total lymph nodes (LNs) excised was 23 in both groups. Median involved LNs was 4 (range 1–47) in FNAC-positive patients vs. 2 (range 1–37) in SLN-positive patients (Unpaired t-test; $p < 0.0001$). Median involved LNs in level 1 was 3 in FNAC-positive patients vs. 1 in SLNB-positive patients ($p < 0.0001$). 49% of SLN-positive patients had 1 involved LN, 28% had 2, and 23% had ≥ 3. 13% of FNAC-positive patients had 1 involved LN, 12% had 2 and 74% had ≥ 3.

Conclusion: FNAC positive patients have higher axillary burden than patients with a positive SLNB. 75% of SLN positive patients may fulfill ACOSOG Z0011 criteria and not require further surgery.

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8. Multisite breast tumours: Management and outcome

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Introduction: Mastectomy has been regarded as the standard surgical management of multifocal, multicentric and multiple tumours. Recently, breast conservation has been employed as an alternative although the outcome of this approach is not clear. The aim of this study was to assess the management and outcome of patients diagnosed with multisite tumours.

Methods: Three separate cohorts (2007, 2010, 2013) of patients with invasive breast cancer were analyzed retrospectively. Characteristics of those with multisite disease identified pre-operatively, as well as post-operatively, were recorded.

Results: A total of 200 patients were diagnosed with multisite tumours: 63/673 in 2007, 66/681 in 2010 and 71/763 in 2013.In 22 patients at least one focus of disease was due to DCIS.

The proportion of patients identified pre-operatively as having multisite disease increased significantly over time (62% in 2007, 79% in 2013; $p = 0.03$). The proportion diagnosed pre-operatively (with multisite disease) who had been managed with breast conservation, also increased over time (12.8% in 2007, 55.4% in 2013; $p < 0.0001$). Local recurrence rate for all multisite cancer patients treated with breast conservation was 3% and with mastectomy, 5% ($p = 0.72$). Survival outcome was poorer for those patients treated with mastectomy (79% vs 94% for breast conservation; $p = 0.0023$) likely due to higher risk disease at presentation.

Conclusion: Breast conservation is often feasible in patients with multisite tumours.

This approach appears to be a safe alternative to mastectomy in selected patients

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Monday 15th June 2015, Session 4: BJS Papers. 11:00 to 13:00

9. Global abnormalities in lymphatic function occur following systemic therapy in breast cancer patients

Salena Bains[1], Mike Peters[3], Charles Zammit[3], Nicola Ryan[3], James Ballinger[2], Daphne Glass[4], Sarah Allen[2], Anthony Stanton[5], Peter Mortimer[5], Arnie Purushotham[1]

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Introduction: Breast cancer-related lymphoedema (BCRL) is a result of interaction between several pathophysiological processes, and not simply a 'stopcock' effect resulting from removal of axillary lymph nodes. The aim is to test the hypothesis that there is a constitutional 'global' lymphatic dysfunction in patients developing BCRL.

Methods: Lower limb lymphoscintigraphy was performed in women who had axillary nodal clearance at least 3 years previously: 15 patients with BCRL and 15 without. None had clinical abnormalities of the lower limbs. The control group comprised 24 women with no history of cancer or lower limb lymphoedema. ^{99m}Tc-Nanocoll was injected subcutaneously

into the first web-space of each foot followed by whole-body imaging. Scans were reported as abnormal if there was delay in lymph transport or re-routing through skin or deep system. Quantification was expressed as percentage injected activity accumulating in ilio-inguinal nodes.

Results: Ilio-inguinal nodal accumulation at 150min was significantly lower in patients with BCRL compared to those without (2.7±2.5% *versus* 5.9±4.8%, $p = 0.006$). Abnormal lower limb lymphoscintigraphy was observed in 17/30 patients. Of these, 10/15 patients had BCRL and 7/15 patients did not. None of the 24 control subjects had abnormal scans.

Conclusion: BCRL patients showed reduced lower limb lymph drainage supporting the hypothesis of a predisposition to BCRL. A surprisingly high proportion of breast cancer patients also demonstrated lymphatic dysfunction despite clinically normal lower limbs. Possible explanations could be a systemic effect of breast cancer or its treatment or an unidentified association between breast cancer and lymphatic dysfunction.

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10. Can MRI be used to determine pathological complete response following neo-adjuvant chemotherapy for breast cancer?

Rajiv V. Dave, Rebecca Millican-Slater, Tim Perren, David Dodwell, Kieran Horgan, Nisha Sharma
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Introduction: Neo-adjuvant chemotherapy (NACT) is increasingly offered to patients with breast cancer, and it has been suggested that patients with radiological complete response may be spared surgery. We aimed to analyse whether MRI findings can predict PCR following NACT.

Methods: This was a retrospective analysis of a prospectively maintained database. Most patients had NACT with 6 cycles of EC/DC+/-Trastuzumab and response was monitored using MRI. For univariate analysis $\chi 2$ and Fisher's exact test was used for categorical data.

Results: 309 patients had NACT from December 2007 to August 2014. Baseline MRI prior to embarking on NACT was achieved in 247 patients. MRI concurred with size on mammography/USS in the majority of cases (84%) and upgraded the overall size of the lesion in 15% (50% of unifocal lesions on USS upgraded to multifocal/multinodular).

In the 247 patients who had baseline MRI, a radiological response seen on the 2nd MRI (early responders, n = 125), was predictive of eventual PCR (p = 0.000). Patients with Her2+ve non-luminal (65%), triple negative disease (TNBC) (62%) and Luminal B Her2-ve (63%) tumours were more likely to be early responders on MRI.

In those patients with no early response, 77% had a change in their treatment regimen. Although treatment change at this stage resulted in significantly improved 'late' radiological response (70% vs 48%, p = 0.048), this change did not result in a higher chance of PCR (14.8% vs 8.7%, p = 0.357).

Conclusion: Early response on MRI is predictive of PCR, particularly within the non-luminal Her2+ve and TNBC molecular subtypes.

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11. Intra-operative Rapid Evaporative Ionisation Mass Spectrometry: A future intelligent knife (iKnife) for oncological margin control?

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Introduction: Positive tumour margins following breast conserving surgery is a risk factor for local recurrence. Rapid Evaporative Ionisation Mass Spectrometry (REIMS) uses mass spectrometric analysis of electrosurgical aerosol for breast tissue identification in near real time.

Method: Aerosol produced by electrosurgical diathermy in a variety of frozen, fresh and in-vivo breast samples was analysed by on-line mass spectrometry using a modified surgical handpiece (Aug 2013−Jan 2015). The data was evaluated using multivariate statistics. Following approval by the Research Ethics Committee, 89 patients undergoing breast surgery were enrolled in this study.

Results: A real-time tissue identification method and associated data analysis algorithm was developed for the intraoperative margin assessment of breast cancer patients undergoing surgical treatment. The technique was used for the analysis of fresh ex-vivo breast tissue samples (IDC, ILC, DCIS, fibroadenoma & normal). Multivariate statistical analysis of data revealed 97.75% correct classification of healthy, benign and malignant tissue. This model was used for intraoperative analysis in 10 patients. Spectral data was obtained in both cutting and coagulation modes and the algorithm correctly identified negative margins in all patients on the timescale of 1−5 seconds/analysis.

Conclusions: We have successfully adapted our iKnife technology for margin assessment in breast cancer surgery. Preliminary data suggests that the technique not only gives superior results for the identification of normal, benign and malignant ex-vivo breast tissues, but also provides intraoperative results in near real-time. Further work is aimed at determining whether iKnife can detect positive margins, prior to routine use for operative guidance.

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12. Attitudes towards breast conservation in patients aged 70 and over with breast cancer

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Introduction: The majority of breast conserving surgery (BCS) is performed in younger women. There is little published information about the views of women aged ≥70 regarding BCS and the factors which influence their decision about the type of surgery to choose.

Methods: A questionnaire was sent to patients who were aged ≥70 at the time of breast cancer surgery in NHS Lanarkshire between 1999 and 2013. This detailed surgical recommendations, treatment expectations and other factors which may have influenced any decision made e.g. travel for radiotherapy and potential side effects.

Results: Responses were received from 339 patients, 192 of whom had a mastectomy with the remaining undergoing BCS. Eighty-six percent of both groups were recommended their surgical management by the surgeon. In the mastectomy group 18% would have preferred BCS had it been an option, with 40% willing to have neoadjuvant endocrine therapy to facilitate this. Only 14% would have considered neoadjuvant chemotherapy with the same aim. Almost half of the mastectomy patients said that the risk of local recurrence following BCS was a factor which influenced their decision. Despite our BCS patients having to travel a considerable distance daily for radiotherapy, only 4% found it problematic. Eighty-eight percent of patients who had BCS were happy with their treatment decision, 72% being happy with the cosmetic outcome.

Conclusion: BCS is something that patients aged ≥70 are interested in considering. More than a third of patients requiring mastectomy would be willing to take neoadjuvant endocrine therapy to attempt to facilitate BCS.

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13. Local recurrence after mastectomy undertaken for ductal carcinoma in situ between 2000 and 2010

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Introduction: Local recurrence after mastectomy for ductal carcinoma in situ (DCIS) was historically <1%, however with the increasing use of skin sparing mastectomy (SSM) recent SEER data has indicated 5-year local recurrence rates are higher at 5%.

Methods: We undertook a retrospective analysis of patients who underwent a mastectomy for pure DCIS at one breast unit between 2000–2010 to assess the effect of SSM compared to simple mastectomy on local recurrence. Pathology data was collected on; histological type, grade, size, presence of micro-invasion, excision margin and molecular phenotype.

Results: One hundred and ninety-seven patients had a mastectomy to treat DCIS between 2000–2010. Median follow up time was 65 (0–152) months. Kaplan-Meier analysis demonstrated an 8-year recurrence rate of 5.6% (n = 8) all of which were invasive ductal carcinoma. SSM had an 8-year local recurrence rate of 9.7% (8/102) compared to 0% for simple mastectomy (0/95) (P = 0.013, LogRank test).

Analysis of close excision margins, <1mm, showed that there was no difference between SSM 20.6% (21/102) and simple mastectomy 22.1% (21/95) (p = 0.793, Chi^2). Univariate factors predicting recurrence included age less than 50 (Chi^2, p = 0.055) and all recurrences were high grade DCIS (Chi^2 p = 0.053). Women under the age of 50 were more likely to have an SSM, 77.3% (34/44) compared to those over 50, 44.4% (68/153) (Chi^2, p = <0.001).

Conclusion: 8-year local recurrence following mastectomy for pure DCIS was 5.6% in line with emerging US data. Local recurrence was higher after SSM compared to simple mastectomy. Post-reconstruction mammography is indicated after SSM for pure DCIS.

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14. Pooled long term outcomes from two randomised trials of axillary node sampling with axillary radiotherapy if node positive versus axillary node clearance in patients with operable breast cancer

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Introduction: Management of the axilla in invasive breast cancer remains an area of on-going controversy and debate. We provide long-term follow-up from two randomised trials comparing management of the axilla.

Methods: 855 patients with T1/-T2/-operable T3, N0/-1, M0 breast cancer underwent mastectomy or breast conservation surgery with an axillary node sampling procedure. 62.5% of patients were node negative and were randomised to axillary node sample (ANS) alone vs axillary node clearance (ANC). 37.5% of patients were node positive and randomised to ANS followed by AXRT vs ANC. Follow up to death or 20 years was available in 799 women. Median follow-up was 19.4 years, mean follow-up 19.92 years.

Results: There was no evidence to suggest worst breast cancer survival for ANS vs ANC in node negative patients HR = 0.88 (95% CI = 0.58–1.34, p = 0.55) or for ANS + AXRT vs ANC in node positive patients HR = 1.07 (95% CI 0.77–1.50, p = 0.69).

There were more axillary recurrences in patients having ANS vs ANC in node negative HR = 3.53 (95% CI 1.29–9.63, p = 0.014) and node positive patients having ANS +/- AXRT vs ANC HR = 2.64 (95% CI 1.00–6.95, p = 0.05).

There was no metastasis-free survival advantage for ANC vs ANS+/- AXRT in node negative or positive patients HR = 1.03 (95% CI 0.70–1.51, p = 0.88) and HR = 1.03 (95% CI 0.75–1.43, p = 0.85) respectively.

Conclusions: ANS +/- AXRT is not significantly different from ANC in terms of overall, breast cancer specific and metastasis-free survival although significantly fewer regional axillary recurrences for ANC than ANS +/- AXRT.

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15. Implications of incidental metastases to internal mammary lymph nodes in breast cancer patients undergoing free abdominal tissue transfer breast reconstruction

Amr Elshayeb, Haitham Khalil, Marco Mahalias
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Introduction: The significance of internal mammary lymph nodes metastases (IMLNs) remains unclear. The aim of this study is to determine the clinical implications and patient outcomes following harvest incidentally found IMLNs at the time of abdominal free flaps breast reconstruction (FFBR).

Methods: All IMLNs found by the oncoplastic breast surgeons as a part of either immediate or delayed free flap breast reconstruction (FFBR) using internal mammary (IM) recipient vessels between 2009 and 2014 were recorded. Patients with positive IMLNs for metastases were reviewed by the breast cancer multidisciplinary team (MDT) for adjuvant treatment, the accuracy of staging and any changes in the management plans.

Results: During the study period 200 free DIEP and MS-TRAM flaps breast reconstructive procedures were performed. 129 immediate and 71 delayed. Internal mammary lymph nodes were incidentally found in 64 patients. A single node was harvested in 40 patients and 2 nodes were harvested in 24 patients, among whom 5 cases diagnosed with positive IMLNs metastases. Tumour staging was T2 in 3 cases & T3 in the other 2 cases. There were no complications as a result of IMLN harvest. Four patients were given additional adjuvant postoperative chest wall radiotherapy and 1 case has had additional chemotherapy due to positive axillary node metastasis. One case with IMLN invading the sternum diagnosed by preoperative staging CT scan necessitates partial sternectomy and immediate free flap chest wall reconstruction. IMLN metastases were not related to tumour location. One of the 5 patients has died of metastatic disease at 8 months after breast reconstruction. The other 4 patients are alive at 22 and 30 months after reconstruction with no distant metastases.

Conclusion: Incidental positive IMLNs metastases were found in 5 patients out of 200 free flap breast reconstructive procedures, resulting in upstaging the disease and influencing the treatment plans for these breast cancer patients. Therefore IMLN should be looked for carefully in preoperative CT staging and during IM vessels recipient exposure and submitted for pathological assessment and breast MDT due to the additional staging information provided and implication upon the predicted prognosis.

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16. Predicting outpatient demand from past performance – A correlation of two million breast referrals in NHS England with internet search activity

Loaie Maraqa, Richard Johnson, Ashu Gandhi, Nigel Bundred
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Introduction: Fluctuations in internet search volumes have been shown to be powerful predictors of evolving influenza epidemics in the

USA. We postulated that similar variation may affect other healthcare areas such as breast cancer referral rates.

Methods: UK Google Trends was used to examine internet search activities for breast cancer between October 2009 and May 2014. Overall search volumes and trend variations were compared to symptomatic and suspected breast cancer referrals across NHS England, as obtained from the Department of Health. A model to predict future peak clinic activity across England was developed and applicability for individual hospitals assessed.

Results: There were more than 1.98 million referrals to breast clinics across NHS England. Average number of new referrals per month was 35,000 (range = 29,000 to 47,000). These were sensitive to seasonal variation that mirrored internet activity. Changes in internet search volumes strongly correlated with subsequent fluctuations in clinic referrals, Pearson correlation = 0.62, $P < 0.0001$. The developed internet model could predict future clinic activity with a lag time of approximately one month and average mean difference of −0.68, SEM 1.35 (95%CI −3.40 to 2.04). The model demonstrated that the sudden increase of 10,000 referrals in April 2014 compared to previous years was linked to doubling of internet activity. Similar internet search behaviour was mirrored in Ireland.

Conclusion: Changes in internet search volumes can assist in predicting future clinic demands. These findings may help healthcare providers when developing capacity and demand models in UK breast units.

http://dx.doi.org/10.1016/j.ejso.2015.03.017

17. Exploring variations in the provision and practice of implant-based breast reconstruction in the UK: Initial results from the iBRA National Practice Questionnaire

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Introduction: The introduction of lower-pole sling procedures has revolutionised the practice of implant-based breast reconstruction (IBBR), but data regarding the availability and practice of these procedures across the UK is limited.

The iBRA (implant Breast Reconstruction evAluation) study is a trainee-led national prospective audit that aims to explore the practice and outcomes of implant-based breast reconstruction (IBBR) to inform the feasibility of undertaking a randomised trial comparing novel techniques. We report the early results of the first phase of the iBRA Study, a National Practice Questionnaire (NPQ) which aims to comprehensively describe current national practice.

Methods: A questionnaire developed by the iBRA Steering Group was completed by trainee and consultant leads at breast and plastic surgical units across the UK. Simple summary statistics were calculated for each survey item to evaluate variations in service provision, practice and adherence to guidelines.

Results: To date, 44 units have completed the NPQ. Variation was demonstrated in the provision of novel techniques for IBBR especially the availability of biological (n = 32, 72.7%) and synthetic (n = 10, 20.5%) meshes and in patient selection criteria for these procedures. There was lack of consistency in peri and post-operative management particularly duration of antibiotic use (induction only vs. 14 day course) and drain policy (no drains vs 2 drains for 14 days). Few units (n = 14, 37.8%) had written guidelines or management protocols and only half of units (n = 20) prospectively audited their outcomes.

Conclusions: Early analysis of the iBRA NPQ has demonstrated marked variation in the provision and practice of IBBR. The prospective audit phase of the iBRA study will determine the safety and efficacy of different approaches to IBBR and allow evidence-based best practice to be explored.

http://dx.doi.org/10.1016/j.ejso.2015.03.018

18. Careful patient selection is critical in preventing complications after acellular dermal matrix assisted implant-based breast reconstruction

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Background: Acellular dermal matrix (ADM) assisted implant-based breast reconstruction has been taken up widely and relatively quickly by many reconstructive surgeons in the United Kingdom. Published data have demonstrated somewhat high complication rates associated with this technique. We reviewed the outcomes for ADM assisted implant-based breast reconstructions performed in our unit.

Methods: All ADM assisted reconstructions performed in our unit were identified from a prospectively maintained database. Complications were recorded as well as patient co-morbidities, surgical technique and adjuvant therapies.

Results: 53 ADM assisted reconstructions were performed in 46 patients (42 therapeutic and 11 prophylactic mastectomies). All patients were non-smokers, had not had previous radiotherapy, had no significant medical co-morbidities, and had a BMI in the range of 19−24. Eight patients had a post-operative complication (15.1%) from which 4 patients required a second operation. Two (3.8%) implants were lost (1 delayed wound healing (DWH) and 1 skin necrosis), both in patients who had previously undergone breast augmentation. One wound required revision for DWH (1.8%) and one patient required evacuation of a haematoma (1.8%). Three (5.7%) patients had a minor delay in receiving adjuvant treatments.

Conclusion: Our results demonstrate a significantly lower implant loss rate ($P < 0.0482$, $p < 0.0001$) and complication rate ($p < 0.0074$) for ADM assisted implant-based breast reconstructions compared to recently published data, and our figures are within the target standards from the NMBRA. These results support a policy of careful patient selection to be key in reducing complication rates and implant loss with this technique.

http://dx.doi.org/10.1016/j.ejso.2015.03.019

19. A review of PREDICT using the POSH cohort (women aged 40 years or younger at breast cancer diagnosis)

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Introduction: Breast cancer is the most common cancer in women in the UK, with over 50,000 new cases each year. PREDICT (www.predict.nhs.uk) is an online prognostic tool developed to help determine the best available treatment and long-term outcome for early breast cancer. This study evaluates how well PREDICT performs in estimating survival in a large cohort of younger women recruited to the POSH study.

Methods: The UK POSH cohort includes data from 3000 women aged ≤40 years at breast cancer diagnosis. Study endpoints were overall- and breast cancer specific-survival at 5-, 8-, and 10-years. Evaluation of PREDICT included comparison of the number of predicted versus observed events and model discrimination.

Results: PREDICT provided accurate 8- and 10-year survival estimates for younger women. However, 5-year estimates were less accurate, with the tool overestimating survival by 25%, and by 56% for patients with ER positive tumours. PREDICT also underestimated survival at 5-years for patients with ER negative tumours.

Conclusions: PREDICT is a user-friendly and reliable tool for providing accurate long-term survival estimates for younger women with breast cancer. However, the model requires further calibration for more

accurate short-term estimates. Prediction in the short-term may be most relevant for the increasing number of women considering risk-reducing bilateral mastectomy.

Acknowledgements:

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http://dx.doi.org/10.1016/j.ejso.2015.03.020

Monday 15th June 2015, Session 12 Submitted Papers. 17:00 to 18:30

20. Breast surgeons' attitudes towards bilateral risk reducing mastectomy – A comparison between the UK, the US, France and Germany

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Introduction: Bilateral risk-reducing mastectomy (BRRM) confers the greatest risk-reduction in women at high-risk of developing breast cancer. Uptake of BRRM is influenced by the attitudes of these women as well as the breast surgeons offering these procedures. We followed up an international study to assess any differences amongst breast surgeons in the US and 4 countries in Europe.

Methods: An International Cancer Risk Communication Study (InCRisC) questionnaire was sent to 5941 breast surgeons (US n = 2648, Europe n = 3293). Personal and occupational characteristics were recorded and knowledge of cancer genetics and attitudes to BRRM were assessed using clinical vignettes.

Results: 1660 breast surgeons responded (US n = 439, Europe n = 1221). 98% of surgeons from the US actively took a family history of the father, compared to 90% in the UK and Netherlands, with only 72% and 57% from Germany and France respectively. Country of residence and knowledge of breast genetics was associated with a positive attitude towards BRRM. Almost 100% of US and Dutch surgeons reported a positive attitude towards BRRM, followed by 97% in the UK, 78% in France and lowest in Germany (66%). US surgeons were most likely to order *BRCA* testing (70%) compared to 26% in the UK and 57% in Germany. Over 50% of UK surgeons would definitely not request *BRCA* testing.

Discussion: Considerable variation in attitudes towards BRRM exists between Europe and the US. This variation is multi-factorial based on cultural and professional experiences but ultimately objective evidence should govern surgeons and their attitudes towards risk-reducing surgery.

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21. Assessing technical skills in oncoplastic breast surgery: Procedure specific global rating scales for wide local excision are construct valid

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Introduction: Simulation enables safe deliberate-practice and facilitates objective assessment of technical skills. However, before assessments on simulators can be incorporated into trainee review of progress and competence, reliability and validity needs to be demonstrated. Construct validity is the ability of the simulator to differentiate experienced from inexperienced surgeons. The aim was to evaluate construct validity of assessments of technical skills in oncoplastic wide local excision (WLE).

Methods: Thirty-four surgeons (expert surgeons = 12; specialty trainees (ST) = 12; core trainees (CT) = 10) performed a wide local excision of 25mm palpable breast lesion located 30mm from the nipple areolar complex in the 3 'o' clock position, on an in-house synthetic breast simulator. Procedures were video taped (blinded) and were retrospectively reviewed and independently rated against procedure-specific global ratings of performance (VAS) by two expert breast surgeons. Specimen radiographs were obtained and macroscopic distance (mm) from "tumour" to resection margin in four cardinal directions was recorded. Specimen weights (g) and whether visible "tumour" was evident at the resection margin (Y/N) was recorded.

Results: Video based rating scores varied hierarchically depending on operator expertise ($p < 0.05$). Statistically significant differences were observed on pair-wise comparisons between each grade of surgeon for scores in 'exposure', 'skin flap development', 'glandular remodelling', 'skin closure' and 'final product' review ($p < 0.05$). There was no significant difference in specimen weights between operator grades, although specimen weights in CTs were lighter on average [median weight (g) experts = 38.0, ST = 39.4, CT = 31.0, $p = 0.172$]. Compared to experts (median = 9mm), wider margins were observed amongst STs (median = 12.5mm) and narrower amongst CTs (median = 7.1mm), $p = 0.001$. There was no significant difference between experience groups in the frequency of macroscopic margin positivity ($X^2 = 0.223$, $p = 0.203$).

Conclusion: Specimen weights, and gross margin positivity did not significantly differentiate between operators. However, video ratings of performance do differentiate operators based on technical skills in WLE and may be used for trainee assessment.

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22. Partial breast reconstruction: An alternative to mastectomy?

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Redundant skin folds on the lateral chest wall are suitable donor sites for partial breast reconstruction in women with outer quadrant tumours in small-moderate, non-ptotic breasts. We have performed partial breast reconstruction with lateral chest wall perforator flaps over last three-years in women with breast cancers where wide local excision would have resulted in poor aesthetic outcome.

Data on clinicopathological features, complications and aesthetic outcome were collected prospectively. Patients were asked to complete an anonymised Body Image Scale. A visual analogue scale evaluating cosmetic results was completed by two observers.

29 patients underwent surgery involving perforator flaps. All except 1 received radiotherapy. The median size of the tumour on pre-operative imaging was 35 mm. Adequate radial margins were achieved in all but two

and these patient underwent further excision successfully. There are no recurrences to date after a media follow-up of 24 months. The complication rate was low and a high satisfaction score has been reported by the patients. The overall cosmetic effect was good to excellent on combined rater scores.

Wide excision combined with LICAP flap reconstruction provides effective oncological treatment and results in good cosmesis as judged by patients and clinicians. We have established a safe service in our unit with high patient satisfaction. This procedure offers an option to conserve breasts in selected group of women with breast cancer where the tumour size borders on to mastectomy.

http://dx.doi.org/10.1016/j.ejso.2015.03.023

23. The importance of choice: A prospective evaluation of factors affecting preference for immediate, delayed or no breast reconstruction in the context of mastectomy and post-mastectomy radiotherapy for breast cancer

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Introduction: Women with locally extensive breast cancer requiring mastectomy and post-mastectomy radiotherapy (PMRT) face many conflicting issues affecting their choice of immediate versus delayed versus no breast reconstruction (BR). This study assessed women's reasons and priorities in choosing the timing and type of BR in a setting where all options were discussed with all women.

Methods: Fifty-two women from a metropolitan breast oncology practice were recruited pre-operatively after making a decision about BR. Participants completed a questionnaire evaluating the factors affecting their decision, with responses classified into eight issue-based domains (feeling normal, feeling good, being practical, influence of others, expectations, fear, timing and unnecessary). Ethics approval was granted through the University of Sydney.

Results: There were 33 immediate BR (IBR = 63%), seven delayed BR (DBR = 13%) and 12 no BR (NBR = 23%). Using the Chi square test, older women were more likely to choose NBR ($p = 0.005$), while women living with a partner were more likely to choose IBR ($p = 0.032$). The most relevant domains for both IBR and DBR were 'feeling good' and 'feeling normal'; and for NBR were 'unnecessary' and 'being practical'. Although all women understood, pre-operatively, the potential aesthetic limitations of PMRT, 63% still opted for IBR.

Conclusions: These data will enable clinicians, researchers and women with breast cancer to gain a clearer understanding of the factors that impact on the choice and timing of BR, a major cancer survivorship decision. To facilitate better understanding, we have developed refined questionnaires to be tested in ongoing research in a more heterogeneous population.

http://dx.doi.org/10.1016/j.ejso.2015.03.024

24. What outcomes should be measured in reconstructive breast surgery? The BRAVO (Breast Reconstruction and Valid Outcomes) Study

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Introduction: Appropriate outcome selection is essential if research is to guide decision-making and inform health policy. Systematic reviews (SRs) in reconstructive breast surgery (RBS), however, demonstrate marked heterogeneity of outcome reporting such that results from individual studies cannot be compared or combined. The development and use of a core outcome set (COS) may improve the situation. The BRAVO study aimed to use robust consensus methodology to develop a COS for RBS.

Methods: A long-list of outcomes was identified from systematic reviews and stakeholder interviews. Outcomes were categorised into health domains and used to inform a questionnaire survey. Key stakeholders were purposively sampled and sent the questionnaire (round-1). This asked them to prioritise the outcomes. Results were analysed and fed back to participants in a second questionnaire (round-2). Respondents were asked to re-prioritise outcomes based on the feedback received.

Items considered 'very important' after round 2 were discussed at patient and healthcare professional consensus meetings after which the COS was agreed.

Results: 148 items were combined into 34 domains within 6 categories. 303 (51.4%) participants (215/434 (49.5%) patients;88/156 (56.4%) professionals) completed and returned the round 1 questionnaire and 259 (85.5%) re-prioritised outcomes in round 2. 15 items were excluded based on questionnaire scores and 19 items were carried forward to the consensus meetings at which a COS containing 11 key outcomes was agreed.

Conclusions: The BRAVO Study has used robust consensus methodology with key stakeholders to develop a COS for RBS. Widespread adoption of the RBS-COS by the reconstructive community will improve the quality of outcome assessment in effectiveness studies. Future work will evaluate how these key outcomes should best be measured.

http://dx.doi.org/10.1016/j.ejso.2015.03.025

25. Current approaches to breast reconstruction in women at risk of post-mastectomy radiotherapy

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Introduction: Decision-making for women requiring reconstruction and post-mastectomy radiotherapy (PMRT) includes oncological safety, cosmesis, patient choice, potential delay/interference with adjuvant treatment and surgeon/oncologist preference. This study aimed to quantitatively assess current approaches to reconstruction, drivers behind decision-making and to ascertain if surgical volume influenced choice.

Methods: A questionnaire was used to collect information from UK members of the Association of Breast Surgery in 2014.

Results: Delayed breast reconstruction (DBR) was offered more commonly than immediate implant, delayed-immediate or immediate autologous reconstruction ($p < 0.05$). Cosmesis was thought to be equivalent between IBR and DBR by 15% of surgeons, 26% believe IBR and DBR offer similar Health-related Quality of Life. Surgeon volume had no effect on reconstruction choice. Common decision-making drivers included negative effects of radiotherapy upon reconstructive and cosmetic outcome. The majority of surgeons (77%) believe the current evidence base is insufficient to guide decision-making.

Conclusions: DBR remains the commonest surgical approach in this difficult clinical scenario. Surgeons are using a variety of newer techniques such as Delayed-Immediate Reconstruction and Dermal matrices to

ameliorate the effects of PMRT. Multiple drivers exist in decision-making, mostly associated with surgical and radiotherapy outcomes, rather than patient-reported outcomes.

http://dx.doi.org/10.1016/j.ejso.2015.03.026

26. Family history programme of Milton Keynes Hospital – How do we perform and compare to FH01 study?

Farah Husain Syed, Amanda Taylor, Angela Sheldrick, Kian Chin, Amanda Havard
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Introduction: Breast cancer is the most common cancer in women. Only 5–10% have a family history. NICE recommends that patients with moderate and high risk should have mammographic surveillance from the age of 40. The Milton Keynes Hospital (MKHG) family history programme started in 2005. This study looks at the performance of the clinic for patients from January 2007-December 2012.

Aim: To assess the MKGH family history programme's effectiveness and interval cancers.

Methods: Risk was assessed by BOADICEA. The data was obtained from systems available in MKGH for recording patients' case notes, radiology and histopathology including EDM, InSight and Ice respectively and analysed. Results compared with FH01 study.

Results: Total of 424 patients attended. The age range was between 32–50. All patients had annual mammograms. Eighty five (20%) of the patients were recalled and further assessed by mammograms, ultrasound and MRI. Twenty five (29%) had biopsy. Ten cancers were found. Twelve patients (2%) presented symptomatically and 2 patients were diagnosed with cancer. Sensitivity of the programme is 83% (10/12).

Conclusion: Results were compared with FH01 study, FH01 study detected 77% cancers on screening. Our detection rate was 84%. Interval cancers in FH01 study were 20% versus 16% in our study. Screening sensitivity in FH01 was 79% and 84% in our study. We conclude that our programme is effective in detecting breast cancer in patients with family history and results are comparable with large trials like FH01 study.

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27. All-in-one or one at a time – Single stage dermal flap and nipple reconstruction with simultaneous contralateral reduction versus a multi-stage approach

Kate Williams, John Murphy, Ashu Gandhi, Vinod Mathen, James Harvey
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Introduction: The inferior dermal flap is an implant-based reconstruction suitable for women with ptotic breasts, who will have significant asymmetry until contralateral symmetrisation is performed. We compare two prospective cohorts of women; a single-stage inferior dermal flap breast and nipple reconstruction with simultaneous symmetrisation procedure, and a multi-stage approach where the final reconstruction was planned to be undertaken in several procedures. We aimed to elucidate differences in surgical morbidity, cost, time to adjuvant treatment and time to completion of definitive reconstruction.

Methods: Women undergoing unilateral mastectomy and immediate reconstruction with dermal flap and implant between November 2012 and Dec 2014 were identified using a prospective database. Kruskall Wallis and Fisher's exact test were used to assess statistical significance.

Results: 27 patients were identified; 15 underwent multi-stage, and 12 a single-stage approach. Median follow-up time was comparable (12.5 versus 17 months, $p = 0.87$). Combined median operating time for the multi-stage was significantly longer than the single-stage approach (270 versus 180 minutes, $p < 0.001$). Seven patients undergoing the multi-stage (47%) had minor complications compared to three (25%) of the single-stage approach. No patients required revision and no adjuvant therapy was delayed. Patients undergoing the multi-stage approach waited on average 6.5 months to completion of definitive reconstruction and had more post-operative visits (median 8 versus 3.5, $p < 0.05$).

Conclusions: Single-stage "total reconstruction" is a technically feasible and safe procedure, and, does not delay adjuvant therapy. There are potentially cost-savings to the Health Service or Insurance provider, and, this approach avoids a significant period of asymmetry.

http://dx.doi.org/10.1016/j.ejso.2015.03.028

Tuesday 16th June 2015, Session 22 Submitted Papers 14:30 to 16:00

28. Younger women together: A pilot 2-day psycho-educational event for young women with metastatic breast cancer (mbc)

Emma Pennery, Sylvia Ward, Grete Brauten-Smith
Breast Cancer Care, London, UK

Introduction: Breast Cancer Care (BCC) runs events for young women with breast cancer and for women with metastatic breast cancer (mbc) across the UK. A pilot event for younger women with mbc was held in October 2014.

Aims: To explore the feasibility of a 2-day, psycho-educational event for young women with mbc and to test its impact on the participants against pre-set objectives.

Method: Event details were circulated to breast care nurses and via the BCC website, Helpline and other services. The event was free for women aged 45 or under with a diagnosis of mbc. It was held in a central London hotel, over a Friday and Saturday. The programme consisted of plenary and parallel breakout sessions run by expert speakers. Examples included 'Medical management of mbc in younger women', 'Palliative care', 'Sexuality & intimacy' and 'Talking with children'.

Findings: 38 young women with mbc from all over the UK attended each of the two days. Their ages ranged from 27–45 years. 29/38 agreed or strongly agreed their understanding of mbc and its treatment had increased. 36/38 agreed or strongly agreed the event met their needs and expectations. Between 82% and 100% agreed or strongly agreed each session was useful and relevant to their needs. 35/38 would recommend it to others.

Conclusion: The pilot was a great success. Participants could share their concerns and felt less isolated. Most felt more empowered and informed as a result of attending. Breast Cancer Care plans to hold another event in 2015.

http://dx.doi.org/10.1016/j.ejso.2015.03.029

29. Challenging current assumptions about the basis of the surgical relationship with new breast cancer patients

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Introduction: Cancer clinicians are exhorted to build clinical relationships with their patients over time by using patient-centred communication skills and, in particular, addressing patients' emotional needs. An alternative view is that patients' sense of relationship is a response to clinicians' expertise and authority and therefore is normally present from the start.

Method: Following research ethics approval, women (N = 133) over 18 years old and due to undergo surgery for primary breast cancer were recruited consecutively from pre-operative clinics. We measured the intensity of patients' sense of relationship with their surgeon after their first brief meeting, using a standardised questionnaire (Working Alliance Inventory) in order to compare it with reports published over the last 15 years which used the same questionnaire with patients in other types and stages of clinical relationship.

Results: Patients' alliance (strength of relationship) with their surgeons was very high (mean 6.13, SD 0.8, on a 1−7 scale), after only a relatively brief meeting. Previous reports using the same measurement scale mainly described relationships characterized by many hours of talk addressing patients' emotional needs. Mean alliance in the present study was nevertheless very high compared to those reports, being at the 90th percentile of those reports.

Conclusion: Patients with breast cancer feel an intense sense of relationship with the surgeon from the first meeting, consistent with the view that their sense of relationship arises primarily from their recognition of the surgeon's expertise and authority. The challenge for surgeons is therefore not usually to 'build a relationship' but to recognize and support the sense of relationship that patients have from the start.

http://dx.doi.org/10.1016/j.ejso.2015.03.030

30. Information on breast reconstruction for patients over the age 70. Have we got it right?

Vanessa Hewick, Geeta Shetty
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Background: Uptake of reconstruction varies across the UK and amongst different age groups. It is common knowledge that older women have a poor uptake. We conducted a survey to assess patients satisfaction with the information received on reconstruction who underwent a mastectomy over the age of 70, between 2011 and 2013.

Methodology: An anonymised questionnaire with 18 structured questions was sent to patients who underwent mastectomy with no reconstruction. There is no standard to compare to but we aim to achieve 100% satisfaction.

Results: 92 questionnaires were sent with a 56.7% (n51) response rate, average age being 78.5 years. 38 (74.5%) thought they were given the right amount of information about reconstruction before mastectomy but 8 (15.7%) felt it was not. 43 (84.3%) had discussions with either surgeons or breast care nurses (BCN) and 22 (43.1%) also had written information. Only 6 (11.8%) were shown pictures of reconstruction and 27 (52.9%) responded not.

19 (37.2%) said they were not offered the choice of immediate reconstruction and 22 (43.1%) chose not to have reconstruction when they were offered. For 27 (52.9%), cancer treatment was sole priority. 28 (54.9%) were not concerned about cosmetic appearance after mastectomy and 19 (37.2%) worried about the length of recovery and complications.

Overall 58.8% (n30) were satisfied with the choices offered, however 6 (11.8%) were very dissatisfied. 38 (74.5%) felt overall care was excellent.

Summary/Recommendation: Although 43 (84.3%) discussed reconstruction with surgeons or BCN, only 38 (74.5%) thought they received the right amount of information. We need to ensure all patients receive adequate information either by surgeons or BCN and improve on written information.

http://dx.doi.org/10.1016/j.ejso.2015.03.031

31. Advanced Nurse Practitioners − New roles and outcomes in symptomatic breast clinic

Janice Brown, Diane Bonnington, Sheila Shokuhi, Monika Kaushik
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Introduction: Advanced Nurse Practitioner (ANP) roles were introduced into a large training hospital's clinic alongside medical colleagues. The breast unit receives approximately 7280 new referrals per year with a breast symptom. The need to ensure competence of clinical examination was essential to ensure safe practice. Effectiveness of the role needed to be measured to ensure ANPs were working autonomously.

Methods: An audit was conducted and data was retrospectively collected from 485 patients' medical notes post symptomatic clinic visit. Those that had a biopsy were re-audited to correlate the final histology of the biopsy with the overall differential diagnostic score following clinical examination.

The inclusion criteria were patients aged 30 years and above, referred by GP with a breast lump.

Results: The ANP Team's clinical assessments were accurate with histology on 189 of 190 patients. The SPRs clinical assessments were accurate on 96 of 106 patients. The Clinical Assistants accurately assessed 102 of 108 patients examined. The Consultants examined 75 of 81 patients accurately. 38% of patients were seen by ANPs of which only 2.8% needed medical review.

Conclusion: The audit findings concluded that The ANP role is safe and effective in the symptomatic breast clinic. The concordance of examination and finally histology measured a high level of accuracy. It also proved that ANPs can work autonomously as very few patients required a medical review after assessment by The ANP.

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32. Patient satisfaction with nurse-led telephone results clinic

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Introduction: Our unit started conducting breast care nurse (BCN)-led telephone results clinic (TRC) in March 2013. We described our experience and reported patient feedback with this new service.

Method: Suitable patients with likely benign results were identified during initial outpatient visit. With the patient's consent, a pre-determined time slot chosen by the patient was arranged. The telephone conversation was conducted in a quiet environment, with a designated office desk and computer access. Each patient was allocated a 10-minute time slot. A satisfaction survey was performed before the end of the telephone call. Appropriate documentation was completed and filed following the consultation. A patient letter and information leaflet were also posted on request.

Results: 48 consecutive patients over a 3-month period were invited to participate in this prospective audit. There were 27 patients from the symptomatic service (56%), and 21 from breast screening (44%). 3 patients declined to participate in the survey. All the remaining 45 patients were completely satisfied with this format of results notification, and with the amount and quality of information given.

Discussion: Patients appreciated the choice and convenience of TRC. They have reported savings in time off work, travelling expenses and childcare. Patients do no mind being rung by BCNs, and have a degree of control and flexibility with their appointment. On occasion patients were not contactable on the agreed time and had to be re-rung.

BCNs have also found the experience rewarding, with an enhanced breast diseases awareness and patient communication. In conclusion, a BCN-led TRC is an efficient and appreciated way of communicating benign result.

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33. Positive mental health in women living with breast cancer across geographic locations of residence: A data linkage study using the Scottish Health Survey

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Aims: Breast cancer campaigns and support groups emphasize the importance for breast cancer patients to stay positive. However, existing research on mental well-being of breast cancer patients focuses on the negative aspects of mental health, such as psychological distress, depression, and anxiety. This study aims to compare levels of positive mental health across breast cancer survivors living in primary cities and the rest of Scotland by time since diagnosis.

Methods: Drawn from the 2008 to 2011 Scottish Health Survey (SHeS), the sample included 295 breast cancer survivors and 11,960 women with no cancer. The sample was categorised into four groups: 1) No cancer; 2) Breast cancer diagnosed 1 to 4 years ago; 3) Breast cancer diagnosed 5 to 10 years ago; and 4) Breast cancer diagnosed over 10 years ago. Positive mental health was measured using The Warwick-Edinburgh Mental Well-being Scale (WEMWBS). Control variables included age, marital status, ethnicity, education, smoking, drinking, occupation, and self-assessed general health.

Results: Contrary to expectations, linear regression results showed that compared to the no cancer group, women who were diagnosed with breast cancer 1 to 4 years ago (B = 3.51, 95%CI = 0.70,6.32) or 5 to 10 years ago (B = 4.40, 95%CI = 1.29,7.51) reported significantly higher levels of positive mental health. This was observed in women who lived in primary cities, and not in women who lived in the rest of Scotland.

Conclusions: Breast cancer patients living in primary cities in Scotland displayed higher levels of positive mental health in the first ten years of diagnosis. Further research is warranted to examine the disparities in positive mental health between breast cancer patients living in primary cities and the rest of Scotland.

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34. Clinical audit of the assessment of osteoporosis by axial DXA scanning and treatment/prevention of bone loss in post menopausal women, commenced on adjuvant treatment for breast cancer with aromatase inhibitors

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Patients starting an aromatase inhibitor (AI) with early invasive breast cancer should be offered a 'baseline' dual energy x-ray absorptiometry (DXA) scan within 3 to 6 months of starting treatment (National Institute for Clinical Excellence 2009 CG-80). The UK expert group (2008), NICE (CG-80 2009) also recommends bone protection therapy for women commenced on an AI over the age of 75 years, with major risk factors, irrespective of baseline bone mineral density.

A retrospective audit was conducted, 100 consecutive female patients with ER +ve breast cancer on adjuvant AI treatment attending clinical follow up, seen by the Advanced Nurse Practitioner between September 2012 to April 2013 (results published January 2014).

Audit tools include: audit pro forma designed locally; individual medical and electronic patient records.

78 patients had a baseline DXA scan performed within 3 to 6 months of commencing an AI; 9 patients received a DXA scan after 6 months, ranging from 7 to 48 months from commencing an AI; 1 patient had a DXA scan requested but did not attend. Of the remaining 12 patients on an AI who had not had a DXA at any time, 6 patients were under 75 years, 3 of whom were not on any forms of osteoporosis prophylaxis and no clear explanation why a DXA scan had not been carried out. 2 patients over 75 years were receiving bisphosphonate treatment and 1 patient was receiving palliative care.

Conclusion: Adherence to guidelines is quite good but could be improved.

Outcomes: 1) DXA pathways have now been agreed locally. 2) The e-prescribing system is being updated to add an electronic prompt to request a DXA scan when prescribing an AI. 3) To complete the audit cycle a re-audit to assess the impact of these changes is scheduled for January 2015.

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35. The future fertility of younger women (YW) with breast cancer: Patient and healthcare professional (HCP) perspectives

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Introduction: Approximately 5,600 women aged 45 and under are diagnosed annually with breast cancer in the UK. To support them, Standards of Care (SoC) for YW, highlighting the care and support all YW with breast cancer should receive and topics important to them.

Method: To update the SoC, an online survey was circulated to YW with breast cancer using social media. A survey tailored to HCPs was circulated to surgeons, oncologists and nurse specialists via professional groups.

Results: A total of 176 YW and 50 HCPs completed the surveys. The key issues for most YW related to future fertility and lack of discussions about treatment potentially affecting their fertility.

When HCPs were asked if teams routinely discussed this issue, only two thirds (66%, n = 33) said they did, leaving a number of YW unaware that treatment may affect their future fertility.

The most startling finding was that the majority (88%) of YW reported not being offered a referral to a fertility specialist to discuss the option of preserving fertility. This was linked to HCPs reporting a lack of clear fertility referral pathways.

Conclusion: It is essential for breast surgeons, oncologists and nurse specialists to discuss fertility and offer all YW referrals to fertility experts. Although fertility preservation is not always appropriate, YW deserve to have this discussion, especially as onco-fertility is an ever advancing area.

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Abstracts for poster presentation at the Association of Breast Surgery Conference & AGM, 15th & 16th June 2015, Bournemouth International Centre

P001. Rural-urban differences in screening mammography uptake in Australia and Scotland

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Introduction: Previous research has shown that the uptake of health screening programs can be influenced by various demographics, such as deprivation, gender and, more recently, rural residence. This study tested the hypothesis that rural populations had lower uptake of screening mammography in the Scottish and Australian setting.

Methods: Scottish data is based upon information from the Scottish Breast Screening Programme Information System describing uptake among women residing within the NHS Highland Health Board area who were invited to attend for screening during the 2008 to 2010 round (N = 27,416). Australian data were drawn from the 2010 survey of the 1946−51 cohort of the Australian Longitudinal Study on Women's Health (N = 9,890 women).

Results: Contrary to our hypothesis, results indicated that women living in rural areas were not less likely to attend for screening mammography compared to women living in urban areas in both Scotland (OR for rural = 1.17, 95% CI = 1.06−1.29) and Australia (OR for rural = 1.15, 95%CI = 1.01−1.31).

Conclusion: The absence of a lower attendance of screening mammography among women living in rural areas suggests that mobile breast screening units serving rural areas of both Scotland and Australia can be effective in ensuring adequate service provision and may provide a model in other international contexts. In conclusion, mobile units are useful in reducing inequalities relating to healthcare service access for the rural population.

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P002. Single-institution experience with an under age 40 symptomatic breast clinic

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Background: Experienced sonographers have extended their role within the symptomatic breast service. A study was undertaken to ascertain whether they could provide the radiology support to women under 40 years who do not require mammograms. The aim is to measure the effectiveness of this breast clinic to ensure that radiology is providing a good service and to ensure that cancers are being detected within the population.

Methods: Under 40 years clinics started in August 2005. These included only female patients with symptoms referred by their GP. Sample size was 613 patients. Breast diaries were reviewed to ascertain core biopsies performed and reports of histological diagnosis.

Results: 64 (10%) core biopsies were taken 38 (59%) ultrasound guided by the sonographer and 26 (41%) freehand by the consultant surgeon. Three core biopsies (4.6%) were repeated. Three out of 613 patients (0.4%) showed breast cancer, one with high grade DCIS, one with grade III invasive ductal carcinoma and one with grade III invasive ductal carcinoma with metastatic lymph node which has been detected clinically and radiologically. 44 patients with fibroadenomas, five with fibrocystic changes, three with hamartomas, the rest with lipomas, phylloides tumour, inflammation, papillary lesion, fat necrosis, tubular adenoma, infarcted lymph node.

Conclusions: Under 40 breast clinic led by a surgeon and supported by sonographers is able to provide a comprehensive service with accurate diagnosis within all relevant guidelines. It is effective in ensuring cancers are being detected within the target population and in providing an excellent service.

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P003. Oncotype DX testing: Our experience at the Royal Bolton Hospital

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Introduction: Oncotype DX is NICE approved as a diagnostic tool to assess risk recurrence in women with early breast cancer. It predicts potential benefits of adjuvant chemotherapy. We looked at correlation between multidisciplinary team (MDT) decision and Oncotype DX risk recurrence score (RRS) in all intermediate risk early breast cancers treated at Royal Bolton Hospital (RBH) between February and August 2014.

Methods: We requested Oncotype DX tests as per NICE Guidance. MDT decision regarding adjuvant chemotherapy was recorded in advance of the Oncotype DX report. The subsequent test result was correlated with the clinical decision. Data was collected prospectively. 6 of 32 patients were excluded for inappropriate test request.

Results:

	MDT recommended chemotherapy	MDT did **not** recommend chemotherapy
High Risk (RRS) > 31	n = 3 (11.5%)	n = 2 (7.68%)
Intermediate or Low Risk (RRS) < 31	n = 12 (46.2%)	n = 9 (34.6%)

Patients with Intermediate RRS 18-31 are reputed to have little chemotherapy benefit however these remain the hardest group to advise. There were 4 cases in which Oncotype DX did not recommend chemotherapy but the clinical decision was to treat. In these cases, RRS was between 18−20 and the decision was made with the patient following an informed discussion.

Conclusion: Our results show a reduction of adjuvant chemotherapy use in patients with intermediate risk breast cancer when utilising Oncotype DX. Over £20,000 was saved in this cohort. Further studies and long term follow up of patients is needed to convince specialists that chemotherapy can be omitted in patients with an intermediate RRS 18-31

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P004. Management of partial breast defects following breast conserving surgery in patients with previous augmentation mammoplasty

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Introduction: The efficacy of breast-conserving surgery (BCS) for the local control of early breast cancer has been repeatedly evidenced. The incidence of breast cancer in women with implants is increasing and will continue to do so for the foreseeable future due to the marked increase in breast implant insertion in recent years. Undoubtedly, the clinical management of such patients may be difficult, as aesthetic results are likely to be a major concern for women who have already undergone cosmetic surgery to the breast. There is no consensus on surgical approach to this scenario.

Patients and methods: Between 2009 and 2014. Fifty patients with previous bilateral augmentation mammoplasty were diagnosed with early breast cancer and treated with Wide Local Excision (WLE). The predominant pathology was DCIS (85%). The mean greatest tumour dimension was 1.32cm. Out of the 50 patients 11 patients their histopathology revealed microscopically positive margins, necessitates removal of implant during the WLE procedure. 7 patients (63.3%) with sub-glandular implant and 4 patients (36.3%) with retro muscular implant. 72% of cases their tumour was in the upper outer quadrant of the breast. WLE sites were not drained, nor deep re-approximation of breast tissue has been performed, the implant's capsule was not resected unless it is involved with tumour tissue. There were no local nor systemic recurrence in all patients, at the time of the completion of this study. There was no correlation between postoperative adjuvant therapy and aesthetic outcome. The partial breast defect & contralateral symmetry represent a reconstructive challenge. The reconstructive techniques used in the 11 patients varied from muscle sparing Latissimus Dorsi (LD), implant based mastopexy, and lipofilling mammoplasty. The cosmetic outcome after breast reconstruction & contralateral symmetry were evaluated using patient's satisfaction questionnaires during their follow up visits.

Results: Satisfactory aesthetic results were achieved in 9 (81.8%) out of 11 patients without significant clinical complications.

Conclusion: Breast conservative surgery can result in an unacceptable aesthetic outcome in previously augmented breasts. Each deformity must be assessed on an individual base. The availability of a range of reliable techniques could allow achievement of optimal results and symmetry with the contralateral breast. However, the supreme aim is to ensure oncological safety margins.

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005. An audit of Acellular Dermal Matrix (ADM) assisted breast reconstruction procedures – Are antibiotics unavoidable?

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Introduction: The use of ADM grafts in breast reconstruction has been widely adopted in the UK. Following the National Mastectomy and Breast Reconstruction Audit, joint guidelines from ABS and BAPRAS were published in 2013 with regards to the use of ADMs in breast reconstruction. The aim is to audit clinical outcomes in our district general unit against these guidelines.

Methods: Data was collected retrospectively from medical records over a one-year period. Indications; cautions; surgical technique; postoperative infection; implant loss; patient reported outcome measures; unit and organisation criteria were recorded.

Results: 23 consecutive patients were included. Median age was 52 years (40–69); Median BMI 24 (18.5–43). 14 (60.8%) had immediate reconstruction with expander or dual chamber implant, 5 (21%) had delayed 2nd stage reconstruction and 4 patients (17.3%) had risk-reducing mastectomy. There was 0% return to theatre for local complications; target <5%. There was a 4% rate of implant loss within 3 months; target <5%. 100% received written information about breast reconstruction. 2 (8.6%) had proven wound infection; target <10%. 5 (23%) took a further course of antibiotics for suspected wound infection with a simultaneous possible diagnosis of 'Red Breast Syndrome.'

Conclusion: Our unit is meeting the targets for safe use of ADMs. The high antibiotic use for suspected infection is reflected by the possible presence of Red Breast Syndrome post-operatively. The debate lies in the need for antibiotics in this instance, against the risk posed by no antibiotics to the possible loss of implant in an obviously erythematous breast.

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P006. Is it time to abandon use of fine needle aspiration cytology in the one-stop breast clinic?

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Introduction: Fine-Needle Aspiration (FNA) is a first-line investigation in patients presenting to a breast clinic. Some will require further tissue investigations, usually a Core Biopsy (CB). The aim of this study is to determine concordance between FNA and CB.

Methods: Using electronic records, data on patient demographics, FNA and core biopsy cytology grades were collated on 598 consecutive patients seen in breast clinic over a year. Kappa statistical analysis was undertaken to determine concordance between FNA and CB.

Results: 99 patients had an FNA and CB. Cytology was inadequate (C0-1) in 47 (47.5%); benign (C2) in 9 (9.1%); indeterminate (C3) in 33 (33.3%); suspicious (C4) in 5 (5.1%) and malignant (C5) in 5 (5.1%). On core biopsy: of the C1 patients (47), 23.4% had malignancy and 8.5% were indeterminate. For those with C2 or C3 (42), all but 2 patients (1 malignancy and 1 indeterminate) had normal or benign pathology on core. 90% of patients who scored C4 or C5 had malignancy confirmed on CB.

Kappa statistical analysis showed the agreement was 4.8% ($p = 0.028$). Sub-group analysis of those patients who had an adequate sample (52.5%) demonstrated an agreement rate of 12.0% ($p = 0.001$).

Conclusion: FNA has a high rate of sample inadequacy. It is not safe to rely on a C1 result since a quarter of such results may prove malignant on core biopsy. Overall agreement is poor between the two tests. The use of FNA in the breast clinic could be discontinued in favour of more rapid reporting of CB.

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P007. Does the presence of ductal carcinoma in-situ (DCIS) affect breast cancer sizing on pre-operative MRI?

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Introduction: MRI for the assessment of breast cancer has been performed in our district general unit for 18 months. It is thought that MRI may overestimate cancer size, potentially due to abnormal enhancement surrounding the tumour. This may be explained by the presence of DCIS. This study's aim is to determine whether the presence of DCIS affects the accuracy of MRI cancer sizing.

Methods: Retrospectively consecutive MRI breast reports from a single consultant radiologist were studied from 2012 to 2014. These were identified from the Hospital computer-based radiology software. MRIs assessing cancers were identified and the tumour size recorded from the

report. Tumour type and true size was recorded from the pathology reports. An over- or underestimation of size was taken as greater or less than 5mm from the true pathological size.

Results: 185 MRIs were studied; 58 were cancers. 8 had complete pathological response from neoadjuvant chemotherapy and were excluded. DCIS was present in 17/50 cancers. 3 (6%) and 4 (8%) were over- and underestimated respectively. Without DCIS there was an over- and underestimation in 9 (18%) and 5 (10%) patients respectively.

Conclusion: We have not demonstrated a detrimental effect of DCIS in the accuracy of sizing breast cancers from MRI. This may be explained by the inclusion of areas of abnormal enhancement surrounding tumours in the final size estimate by the radiologist. Therefore, ambiguous areas surrounding the tumour should be considered for inclusion in final size estimates in order to avoid possible involved margins following surgery.

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P008. Evaluation of oncoplastic volume displacement techniques in the management of early breast cancer among females with large volume breasts

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Introduction: Oncoplastic breast volume displacement surgery represents the integration of plastic surgery techniques into early breast cancer surgery in order to preserve aesthetical outcomes without compromising local control of disease. It is based on tumor free margins, immediate breast reconstruction, and immediate symmetry. The size and location of the tumour in women with large volume breasts are the main factors that were considered in this study to evaluate those techniques.

Methods: This study has been conducted on 20 patients during the period from 2012 to 2013. Patient selection criteria included: early breast cancer (DCIS & Grade I invasive duct or lobular carcinoma), breast defects compared to the remainder of the breast volume are less than 30% after tumour excision, patients wish reconstruction, but declining implants & autologous tissue transfer. Criteria of exclusion included: small volume breasts, previously irradiated breasts, tumors involving the Nipple Areola Complex (NAC), multifocal tumour, large skin resection beyond the mammoplasty area, previous breast aesthetic surgery. After careful preoperative planning and patient counselling, the 20 patients have been managed with the following volume displacement techniques: 7 cases (35%) Matrix rotation, 2 cases (10%) Shutter technique with NAC repositioning, 5 cases (25%) Batwing mastopexy, 4 cases (20%) Reduction mammoplasty, 1 case (5%) Dermo-glandular flap and NAC repositioning, and 1 case (5%) Round block technique. No re-excision needed to achieve tumour free margins. Adjuvant therapy started timely postoperative without delay, except in 3 cases (15%) with complications, 2 cases (10%) have suffered wound infection, have been treated with antibiotics and 1 case (5%) mastectomy flap necrosis, managed later on with pedicle Latissimus Dorsi muscle (LD) reconstruction. The cosmetic results were evaluated using post-operative patient questionnaire sheet and objective grading system according to the method described by Strasser. EJ 1999

Results: Satisfactory aesthetic results were achieved in 16 cases (80%), fair result in 1 case (5%) and poor results in 3 cases (15%).

Conclusion: Volume displacement techniques yet inferior to volume replacement techniques regarding their aesthetic outcome, they are safe, feasible, easy and cost effective techniques, give a good aesthetic outcome without jeopardizing the oncological safety.

http://dx.doi.org/10.1016/j.ejso.2015.03.044

P009. Analysis of core biopsy of breast lump between age 25 and 30 years. Is it time to change the unit policy?

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Introduction: Theoretically, if the breast lump shows a typical feature of fibroadenoma on ultrasound under age 25 years, then they are not required to biopsy. Nevertheless the incidence of cancer in this age group is very less; there is limited evidence to support this. In our unit it is a policy that once women reach 25 years, we recommend core biopsy of these lesions.

Our aim is to analyse the clinical, radiological and histopathological association of breast lump in age group between 25 and 30 years.

Methods: 72 consecutive patients recruited retrospectively between 2008 and 2013. Data collected from Trust database, using histological coding. Demographics, clinical details and histological details collected from trust electronic system. Statistical analysis was carried out.

Results: Out of 72 women who had biopsy for breast lesions 68 revealed benign histologically. All 28 women who had typical features of fibroadenoma on US revealed fibroadenoma on core biopsy. Among other U2 lesions (n20); one had papillary lesion, another (US consistent with post lactational changes) was positive for malignancy and rest were either normal or benign tissue on histology. 10 women who had U1 lesion on free hand core biopsy revealed either normal or benign tissue. 14 had U3 lesions, among them 7 had benign pathology.

4 (5.5%) were diagnosed with cancer, among them one woman had an ultrasound features of post lactational changes (U2) and another two women's ultrasound features were indeterminate.

Conclusion/Recommendations: Our study showed 28 (38.8%) women who had typical features of fibroadenoma on US could have avoided biopsy. One should try and avoid free hand core biopsy when US is normal as the yield of sinister pathology is very low. It's not only inconvenience for women but also reduces the workload of out radiologist and pathologist in an already strained system. We recommend reviewing the departmental policy for biopsy of lesions which are typical of fibroadenoma on US between age 25 and 30 years.

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P010. Is MRI leading to potentially unnecessary mastectomies? A non-screening unit's experience

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Introduction: MRI has been shown to potentially overestimate the size of invasive breast cancers, which in turn may lead to a decision for mastectomy over breast-conserving surgery (BCS). MRI breast has been available for 18 months at our unit and the aim of this study was to assess whether its use has lead to unnecessary mastectomies.

Methods: Retrospectively consecutive MRI breast reports from a single radiologist were studied from 2012 to 2014 using the hospital computer-based radiology software. Normal or benign scans were excluded. The surgery type, size and type of cancer was recorded from the MRI, initial assessing ultrasound and pathology report. A size of greater or less than 5mm between the MRI and pathology size comparison was taken to represent an over or underestimation of size respectively.

Results: 185 scans were studied, of which 58 were cancers. 8/58 had a complete pathological response from neo-adjuvant chemotherapy. Median tumour size by MRI 44mm (5−100mm); by US 24mm (5−60mm) and histology 40mm (4−105mm). 35 patients underwent mastectomy and 15 BCS. 9 (25.7%) mastectomies had an overestimation of tumour size by MRI, in which 4 (11.4%) had the pre-op tumour size deemed >40mm when in fact it was <40mm. 6 (17.1%) mastectomies had an underestimation of size.

Conclusions: MRI is an extremely useful adjunct in the symptomatic breast service, providing a potentially more accurate means of cancer size assessment than ultrasound. The number of potentially unnecessary mastectomies is small, and does not take into account patient choice in terms of surgery.

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P011. Levels of evidence in plastic surgery – Trends and comparison with five other surgical specialties

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Aims: Categorising research by level of evidence (LEV) is a key evidence-based medicine (EBM) initiative within Plastic Surgery and beyond. Our objective was to assess how the LEV in plastic surgery has changed from 2003 to 2013, compared with 5 other specialties.

Methods: A search of all articles published in the top three general plastic surgery journals by 2013 Impact Factor (IF) was conducted for 2003 and 2013. The search was systematic and issue-by-issue, with articles then being labelled as LEV 1–5 as defined by the American Society of Plastic Surgeons. Comparisons were made with five other surgical specialties.

Results: The mean LEV for plastic surgery improved by 4.1% from 3.86 to 3.70 in 2003 to 2013. Journals representing all six specialties included in this study have improved their mean LEV (range 3.7%–10.9%). Plastic Surgery ranks 5/6 of specialties in order of the mean LEV achieved in both 2003 and 2013. Overall, the specialty journals decreased the proportion of level five evidence they published and increased the proportion of level two and three evidence, except for plastic surgery, where only level three evidence increased significantly. There was a slight trend towards higher LEV with higher weighted or mean IF but this did not reach significance ($p = 0.065$ and 0.079 respectively).

Conclusions: EBM is an integral part of safe surgical decision-making and has been heralded as a revolution of modern healthcare. Plastic Surgery is tending towards higher levels of evidence but the pace of change is slow. The specialty must continue to drive towards higher LEV to improve the corpora of research for evidence-based decision making.

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P012. The need for core outcome reporting in autologous fat grafting for breast reconstruction

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Introduction: There is growing interest in autologous fat grafting (AFG) for breast reconstruction. This systematic review examines the range of outcomes used across studies of AFG, their definitions and whether there is a need for a core outcome set to aid reporting.

Methods: Following the protocol of our previous systematic review, a search of 20 databases (1986 to March 2014) returned 35 studies which met the inclusion criteria for our systematic review. These were assessed independently by two authors. Disagreements were resolved by consensus.

Results: Of 35 studies, 27 (77%) were case series, 5 (14.3%) were cohort studies and 3 (8.6%) were case reports. A total of 51 different outcomes were reported. These studies each reported a median of 5 separate outcomes (range 2–14), of which a median of 3 outcomes were defined (range 0–14). A median of 2 outcomes per paper were pre-specified in the study methods (range 0–12) and a median of only 2 outcomes per paper (range 0–12) were both defined *and* pre-specified. The most commonly reported outcome in studies of AFG was that of "Operative details", reported by 26 studies, and 8 different outcome definitions were used. "Cancer recurrence" was reported by 20 studies, with the use of 10 different outcome definitions. Overall, there was a poor proportion of defined and pre-specified outcomes that employed a wide range of different outcome definitions.

Conclusion: There is a need for a core outcomes set for autologous fat grafting to minimise outcome and reporting bias and aid evidence synthesis.

http://dx.doi.org/10.1016/j.ejso.2015.03.048

P013. Breast cancer presentation in the over 70s

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Introduction: Older patients with breast cancer generally present later with more advanced disease. We aimed to explore the presentation of the over 70s with breast cancer, along with attitudes towards screening.

Methods: A questionnaire was sent to patients aged ≥70 at the time of breast cancer diagnosis in NHS Lanarkshire between 2006 and 2013. This detailed reasons and timing of presentation, in addition to thoughts about screening.

Results: Three hundred and fifty-two questionnaires were sent to women with a mean age of 76, 230 were returned (65%). 64% routinely examined themselves with 70% identifying a lump themselves. Distressingly only 36% of these patients were aware of the other signs/symptoms of breast cancer. The majority of women sought medical attention early, with 39% seeing someone within days. Personal concern was the greatest prompt for presentation (68%) followed by family or friend concern (10%). Eighty-three percent routinely attended screening when invited, with a further 3% willing to attend if the service was routinely offered to the over 70s. Although the majority (60%) were not aware that they could opt into the screening service when over 70.

Conclusion: Despite the belief that most older women are less breast aware most of our patients routinely examined themselves, identified pathology, and promptly sought medical advice. This is the case despite most women having no knowledge of other signs and symptoms of breast cancer. Our cohort has also shown that they are keen to continue screening over the age of 70 if it was routinely offered.

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P014. Factors associated with patients in the Scottish Highlands who chose mastectomy when suitable for breast conservation

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Introduction: This study aimed to assess the pre-operative pathological and geographic factors associated with choosing MX rather than BCS in a single centre that serves a large geographical area encompassing urban, rural and remote island populations.

Methods: A retrospective analysis of all patients suitable for BCS diagnosed between January 2011 and December 2013 was undertaken. Patients who chose MX were identified from the electronic patient record. Pre-operative pathological features were compared using the Pearson chi squared test as were the distance to the treatment centre from the patient's home.

Results: 446 patients suitable for BCS were identified of which 46 (11%) chose to undergo MX. Patients choosing MX were more likely to present symptomatically (29 patients, 63% vs 170 patients, 42%, $p = 0.009$). MX patients were more likely to have tumours larger than 20mm at diagnostic imaging (27 patients, 59% vs 106 patients, 26%, $p = 0.001$) and positive pre-operative axillary staging (12 patients, 26% vs 45 patients, 11%, $p = 0.004$). Patients choosing MX lived more remotely from the treatment centre with 9 (19%) patients living 100 miles or more away vs 58 (14%) patients and 10 (22%) patients living within remote island populations vs 33 (9%) of BCS patients, however this just failed to reach statistical significance, $p = 0.051$.

Conclusion: Symptomatic presentation, larger tumour size and positive pre-operative axillary staging were associated with patients choosing MX rather than BCS. There was a trend for MX patients to live remotely. Further study that will investigate how these factors influenced the patient's choice of MX will now be undertaken.

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P015. Patient's perception of digital mammography

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Aim: To explore the logistics of change to digital mammography in a cohort of breast cancer patients

Method: 45 breast cancer patients on follow up were assessed using a questionnaire filled in immediately after having the first digital follow up mammogram. All patients had previous experience with analogue mammography. All patients attended the same institution and encountered the same medical and non-medical personnel.

Results: When asked to compare the digital to the analogue mammogram, the digital was believed to be shorter (79% of patients), more comfortable (81%), requiring less compression (76%) and 41% believed it is quieter, as opposed to 40% who found no difference in noise. Regarding whether the operated side was more uncomfortable, on a scale 1−10 the rating was 3.5, showing minimal discomfort. Having the mammogram results back promptly was very important, rated 9.3 (scale 1−10). As one would expect, both the radiographer's approach and the surgeon-patient relationship were much appreciated factors in patient satisfaction; rated 8.7 and 9.7 respectively (scale 1−10).

Conclusion: Overall, digital mammography significantly improves patient experience along all factors assessed (duration, comfort, compression, and noise). Previous surgery does not have a significant negative impact on the digital mammogram experience. Prompt communication of the results always leads to patients' satisfaction. Relations with the staff (mammographer and surgeon) are, as expected, the cornerstone of the patients' experience.

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P016. Exploring the potential of using the trainee collaborative model to deliver high-quality, large-scale prospective multicentre studies in reconstructive breast surgery: The iBRA (implant Breast Reconstruction evAluation) study

On behalf of the Breast Reconstruction Research Collaborative
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Introduction: The introduction of techniques to augment the subpectoral pocket has revolutionalised the practice of implant-based breast reconstruction (IBBR), but evidence to support the safety and efficacy of these techniques is lacking. High-quality data are required, but large prospective cohort studies are expensive and time-consuming to run. Adoption of the trainee research collaborative model may effectively overcome these barriers. We report early experience with the iBRA (implant Breast Reconstruction evAluation) study which has employed this innovative methodology in breast surgery for the first time.

Methods: The iBRA study has 4 phases that aim to inform the feasibility and conduct of a future RCT: Phase 1 − A national practice questionnaire (NPQ): Phase 2 − A prospective audit of consecutive patients undergoing IBBR; Phase 3 − An IBBR-RCT acceptability survey to explore patients' and surgeons' views of proposed trial designs and Phase 4 − design of the definitive RCT.

Trainee leads have been identified at each centre via the Mammary Fold and Reconstructive Surgery Trials Network. Leads are responsible for completing the NPQ with the support of a lead consultant and identifying patients for the prospective audit, collecting in-hospital and 30-day outcome data and obtaining consent for patient-reported outcome questionnaires.

Results: Between May-Dec 2014, 90 units have agreed to participate and 67 have contributed to the NPQ. Over 100 collaborators have recruited 328 patients from 35 centres and the study is running 6-months ahead of schedule.

Conclusion: The iBRA study has demonstrated that the trainee collaborative model is an effective means of delivering large-scale prospective studies in breast surgery. Trainee engagement may represent the future of high-quality surgical research.

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P017. Intra-operative imprint cytology of the sentinel lymph node in ultrasound-negative axillae: How many second operations are avoided?

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Introduction: In patients with a positive sentinel lymph node (SLN), intra-operative testing of SLN allows an axillary clearance in the same sitting. However, a second operation may then become necessary for re-excision of margins of the primary tumour. Axillary ultrasound (US) now identifies approximately 50% of positive axillae pre-operatively. Our aim is to study how many second operations are avoided by intra-operative imprint cytology (IOIC) in those with US-negative axillae.

Materials and methods: We identified all patients who underwent IOIC over a 6-year period at our institution after a negative pre-operative axillary US from a prospectively entered database and reviewed their details.

Results: There were 423 patients with a median age 61 years (range 25−90). SLN biopsy was done using blue dye and isotope. IOIC was negative in 344 patients, indeterminate in 10 and positive in 69; all with a positive imprint had axillary clearance in the same sitting but 12 patients had to return for surgery for close margins. In total, 79 of 423 returned for a planned second operation.

Discussion: Intra-operative testing needed to be done on 423 patients to prevent 57 reoperations. Imprint cytology is neither costly nor time consuming and thus we feel that it is still a worthwhile addition to breast cancer surgery. However, this may not be true for more expensive tests that are more time consuming to perform, such as RNA-based tests.

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P018. A national survey of UK breast trainees' opinions on the Greenaway report and training implications of the 2013 ISCP curriculum

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Introduction: The Greenaway report and 2013 ISCP curriculum expose a tension between general surgery and subspecialty training. A national survey of UK breast trainees was conducted to determine opinion on the ability of current training programmes to meet general and subspecialty demands. Opinions also sought on the implications of the Greenaway recommendations for trainees in the specialty.

Methods: Online questionnaire developed by authors on behalf of the Mammary Fold and distributed to membership after an initial pilot. SurveyMonkey used to produce and analyse questionnaire.

Results: 72 breast trainees responded (47% of membership). 50% did not feel confident of achieving general surgery competencies on completing current specialist training. The ability to achieve indicative logbook numbers for index emergency operations was identified as major trainee concern. Variability in the training of breast trainees by consultant emergency surgeons is reported. The majority of trainees feel an oncoplastic fellowship is required to be competent in the subspecialty. 90% of trainees expressed concern at Greenaway proposals to shorten specialist training to 4–6 years. Concerns regarding quality assurance of subspecialty training, if delivered locally after completion of training (CCT) raised by the majority of respondents.

Discussion: Majority of respondents to this national survey of breast trainees are not confident that their current general surgery training programmes will be able to deliver both general and subspecialty training. Recognition of this by training programme leads may ensure delivery of tailored placements to provide breast trainees the opportunities to achieve the required general and subspecialty competencies.

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P021. Are Becker™ expander/breast implants *really* used for long-term reconstruction?

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Introduction: The Becker™ expander/breast implant (BEI) functions as a tissue expander and a long-term adjustable gel breast implant. Our aim was to look at whether BEIs are being used as permanent implants.

Methods: Patients were identified using the theatre diary. Follow up data was obtained using the hospital's electronic records.

Results: 41 patients underwent mastectomy and BEI placement in 2012/13 (19 unilateral, 22 bilateral). Median post-operative follow-up was 23 months (range 12–35m). 24/41 (58.5%) patients underwent re-operation at median 8m postoperatively. The most common reason for re-operation was consultant-planned replacement with permanent prosthesis (10/24, 41.7%). Permanent prosthesis implantation was also performed for correction of asymmetry (4/24, 16.7%), deflation of BEI (3/24, 12.5%) and port malfunction/discomfort (3/24, 12.5%). 5/24 (20.8%) patients required BEI removal due to infection (4 patients) or delayed healing (1 patient) and 1/24 (4.2%) proceeded to tissue flap reconstruction. Of the 17/41 (41.5%) patients who had not yet undergone re-operation by the time of follow-up, 3/17 (17.6%) are awaiting surgery to convert to permanent breast prosthesis, 2/17 (11.8%) await re-operation for deflation and 1/17 (5.9%) awaits symmetrising surgery. Therefore the total number of patients who have either undergone or are planning re-operation for removal/exchange of BEI is 30/41 (73.2%). The shortest median period to re-operation was for infection/delayed healing (2m) and the longest period was for deflation (14m). Planned replacement was undertaken at median 9m postoperatively.

Conclusions: 73.2% of patients undergo removal/exchange of BEI. In most cases, it appears the BEI was used only for its expander function. Should we change our practice to a more cost-effective alternative tissue expander at index operation?

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P022. A review of the oncological and surgical complications associated with lipomodelling for breast reconstruction in breast cancer patients

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Introduction: Breast reconstruction after cancer surgery is becoming increasingly popular and various surgical techniques have been developed. Lipomodelling is one such technique however its safety remains controversial. Therefore this literature review aimed to assess the oncological and surgical safety of lipomodelling for breast reconstruction in breast cancer patients.

Methods: Database searches (Cochrane library, MEDLINE, EMBASE, CINAHL, AMED and Open Grey) were conducted to determine studies meeting the eligibility criteria from January 2000 to February 2014. In addition reference lists and conference proceedings were hand-searched. Complications of interest were either oncological e.g. tumour recurrence or related to the surgical procedure e.g. fat necrosis or cyst formation.

Relevant studies were assessed for quality using the MINORS tool, the relevant data was extracted and a narrative synthesis performed.

Results: A total of 205 articles were identified from the combined database searches of which 44 made it through to stage two (eligibility) of the review. 31 of these studies were excluded leaving 13 studies to be assessed for quality.

Five studies were included in the final review with a total of 1073 patients. All studies reported oncological events post-lipomodelling; 25 local recurrences, 20 regional recurrences and 29 distant metastases.

Minor post-operative surgical complications were reported in 4.9% patients (cysts, fat necrosis or site-infections).

Conclusions: Evidence from the review would suggest that lipomodelling is a safe technique however prospective randomised controlled trials with long term follow-up are required to validate the efficacy and oncological safety of this technique in practice.

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P023. ZOO11 trial: Does it influence our clinical practice in the UK?

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Introduction: Sentinel lymph node (SLN) biopsy is the current standard of care for the staging of breast cancer patients and axillary lymph node dissection (ALND) is reserved for patients with positive nodal disease in our practice. However the ACOSOG ZOO11 trial showed that ALND could be spared in certain groups of patients despite positivity. This was considered as a practice changing trial and our aim is to assess the impact of this trial in our clinical practice.

Methods: All patients diagnosed with breast cancer between April 2009 and March 2013 were included and considered eligible if they met ACOSOG ZOO11 criteria. Demographics, tumour characteristics, grading and receptor status of these patients were then assessed.

Results: Of the 1499 women diagnosed with invasive breast cancer, 918 patients (61.2%) underwent sentinel node biopsy. Of these, only 55 women had axillary nodal metastases with the SNB positivity rate of 6%

(55/918). Of the 55 patients, 22 patients were excluded (Eleven patients had mastectomy, six had more than two nodes involved, four had neo adjuvant chemotherapy and one declined surgery) leaving 33 patients. Therefore 2.2% (33/1499) of the cohort met the inclusion criteria for the ACOSOG Z0011 trial.

Conclusions: In this observational study, only 2.2% (33/1499) of the patients were identified as per the ZOO11 criteria. This means only a very few number of patients could be spared from axillary lymph node dissection. So clearly it is not a practice changing trial in the axillary surgical management of our cohort of patients.

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P024. Are patients diagnosed with breast cancer aged 70 and above receiving gold standard care?

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Introduction: Survival rates for patients aged 70 and over diagnosed with breast cancer are lower than those seen in women ten years younger. Because of this, breast cancer care for these patients has been called into question over the years.

Patients and methods: Case notes of 104 patients aged 70 and over diagnosed with breast cancer between January 2012 and December 2013 were reviewed to assess the care provided. This care was compared to the gold standard defined by NICE guidelines (CG80 & 81) for diagnosis and treatment for early, locally advanced and advanced breast cancer and the ABS surgical guidelines for management of breast cancer.

Results: 76% of patients received gold standard care with an overall primary surgery rate of 69%. Importantly, for the remaining 24% where a deviation from standard care was observed, a valid reason for this was documented and was due to either poor health or patient choice in all cases.

Conclusion: Comparing to recent regional figures available in a 2014 Lavelle et al article; the rate of patients receiving primary surgery was lower in our audit. Importantly however, Lavelle and colleagues concluded poor health and patient choice couldn't explain why patients in their study over the age of 85 were not receiving gold standard care. Our audit shows that for all patients in this age group diagnosed at Salford Royal, there was always a documented reason for deviating from standard treatment and these reasons could fit into the categories of poor health or patient choice.

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P025. The efficacy of axillary ultrasound in nodal staging in symptomatic breast cancer

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Introduction: The aim of the study was to evaluate our ability to accurately predict axillary nodal metastases using standard breast imaging and needle biopsy.

Methods: We reviewed the data of patients presenting between January 2013 and December 2013 with symptomatic breast cancer. Patients had preoperative core biopsy or FNA of radiologically suspicious axillary lymph nodes and surgical axillary staging. Patients who refused or were unfit for treatment, with in-situ carcinoma, with recurrent disease, or who received primary hormonal therapy or neoadjuvant therapy were excluded.

Results: Sixty-eight patients, who presented with 69 primary breast tumours were included in our study. In 33 cases the axilla was found to be radiologically suspicious. Ultrasound-guided needle-core biopsy or FNA was carried out in 28 cases. 25 patients with either biopsy-proven axillary metastases and/or abnormal ultrasound underwent axillary clearance, thereby avoiding a second operation, and were node-positive on final histology. Three patients with pre-operative abnormal ultrasound who did not undergo biopsy/FNA, and 5 patients with preoperative abnormal ultrasound and negative biopsy/FNA, underwent axillary clearance and were found not to have axillary metastases on histology. Axillary ultrasound on its own without needle biopsy had a sensitivity of 80.0% and a specificity of 76.9%. However ultrasound combined with Core/FNA had a sensitivity of 87.0% and a specificity of 100%.

Conclusions: Axillary ultrasonography and core biopsy/FNA in combination are useful for preoperative treatment planning. Ultrasound alone is not a reliable staging tool.

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P026. Final diagnoses following indeterminate B3 breast core biopsy

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Introduction: Triple assessment of breast lesions comprises; clinical examination, radiology and needle biopsy. Where the results are in concordance, management can be planned.

Methods and results: We report the outcomes of 154 consecutive indeterminate B3 core biopsies taken between June 2009 and 2014, 68 symptomatic and 86 screen detected. 15 patients did not undergo operative excision following further investigation and multidisciplinary review, 2 underwent vacuum assisted biopsy to confirm a benign radial scar and papilloma. Operative excision was performed in 137, identifying:

Invasive carcinoma	10	Benign breast disorders:	
Invasive ductal	8	Epithelial hyperplasia	31
Invasive lobular	2	Radial scar	27
Ductal carcinoma in-situ	21	Papilloma	13
High grade	3	Lobular neoplasia/LCIS	7
Intermediate grade	9	Fibroadenoma	6
Low grade	9	Benign Phyloides tumour	5
		Fibrocystic change	7
Sarcoma/Malignant Phyllodes	2	Other	8

31 (23%) of B3 core biopsies were identified by operative excision, to be invasive or in-situ breast cancer, which if diagnosed preoperatively, would have allowed a therapeutic operation. 97 were benign, and operative excision biopsy could have been avoided. 27 of 60 (45%) of the excision biopsies for microcalcification were malignant, compared to 8 of 50 (16%) for asymmetric density and 5 of 27 (19%) for distortion.

Conclusion: Vacuum assisted biopsy, is not currently routinely used by Breast Test Wales, funding and adoption is urgently required.

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P027. An evaluation of breast cancer response to neoadjuvant endocrine treatment with letrazole and the requirement for subsequent surgical management and re-operation

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Background: Where surgery is possible in newly diagnosed breast cancers neoadjuvant treatment may be offered to downstage bulky disease and enable breast conserving surgery particularly in women with smaller tumours in relatively smaller breasts. The action of neoadjuvant endocrine treatment on the primary tumour is however unpredictable. We examined patients' response to primary letrazole and subsequent surgery.

Results: 46 patients with complete data were assessed for their response to treatment. In cancers with a pre-treatment ultrasound size of <20mm, only 32% reduced in size compared to their final histological evaluation, versus 70% between 20−30mm and 63% >30mm (average size reduction; 35, 30

and 23% respectively). 5 patients (8%) had a >50% reduction from their initial imaging to final histological size. 3 patients (5%) showed a complete radiological response however none showed a complete histological response. 39 patients were offered breast-conserving surgery (36 WLE, 3 therapeutic mammoplasty), of which 8 required re-excision of margins (30% in <20mm, 25% in 20−30mm, 16% in >30mm tumours). Only one patient needed a completion mastectomy. Only one patient had a local recurrence after negative margins at WLE (1.5%).

Conclusion: Breast conserving surgery continues to provide good surgical outcomes for invasive breast cancers but patients should be counselled about risks of incomplete excision. Neoadjuvant treatment is effective in debulking tumours pre-operatively and is suggested to have a greater effect on larger disease. In our data, smaller tumours of <20mm diameter were more likely to require re-excision of margins compared to tumours between 20−30mm following neoadjuvant letrazole.

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P028. Comparison of three acellular collagen matrix materials to assist implant-based breast reconstruction

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Introduction: The Edinburgh Breast Unit performed 419 implant-based breast reconstructions assisted by the use of acellular collagen matrix (ACM) between July 2008 and July 2014. Three types of matrix have been used for 402 of these procedures. The present study aimed to compare the use and outcome of Permacol, Strattice and Veritas to assist implant-based breast reconstruction.

Methods: Cases of implant-based breast reconstruction using Permacol, Strattice and Veritas ACMs performed in Edinburgh were analysed with 6 months follow up.

Results: Permacol (P), Strattice (S) and Veritas (V) were used in 72, 220 and 110 breast reconstructions respectively. Patient and breast weight, indications for mastectomy and proportion of bilateral cases did not differ between groups. Smoking, use of chemotherapy, incision used, associated axillary surgery, nipple preservation and use of fixed volume implant or expander did vary between groups apparently reflecting changes in practice over time. Rates of postoperative erythema varied significantly between groups (P 15.3%, S 7.7%, V 0.9%, chi = 13.6, p = 0.0011). Surgeons ranked materials V 1, S 2 and P 3 (chi-35.3, $p < 0.0001$). There was no difference in rates of unplanned surgery at 6 months (P 25%, S 27.7%, V 31.8%, chi = 1.1, p = 0.58) or implant loss at 6 months between groups (P 12.4%, S 11.4% and V 12.5% , chi = 0.1, p = 0.95).

Conclusions: While differences exist in the characteristics of ACMs available to assist implant-based breast reconstruction and surgeons have clear preferences, there were no differences in outcome in terms of failure rate or unplanned reoperations in the present study.

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P029. Does micro-invasion with DCIS on core biopsy from breast patients indicate whether sentinel lymph node biopsy (SLNB) should be performed?

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Introduction: The significance of micro-invasion on pre-operative core / Vacuum biopsy performed on breast patients is unknown. The aim of this study is to determine whether SLNB performed in these patients adds any clinical significance.

Methods: An analysis of treatment pathways was performed for consecutive breast patients with screen detected DCIS & micro-invasion confirmed on core/vacuum biopsy on the histopathology database.

Results: 152 consecutive breast patients with DCIS on core biopsy were identified between January 2011−December 2014. 22 patients had confirmed micro-invasion associated with DCIS. 15 patients underwent wide local excision (WLE) & 7 had Mastectomy. Post-operative histology confirmed 12 (55%) patients with invasive disease, 3 patients with micro-invasion & DCIS and 7 patients with DCIS alone.

14/22 (64%) had SLNB performed (median SLNB − 2 nodes), 12 at initial surgery (6 mastectomies & 6 WLE) and 2 were delayed based upon the final histology confirming invasive disease. Of the 6 undergoing WLE & SLNB; 4 patients underwent axillary staging as recommended by the Multi-Disciplinary Team and 2 were patient choice.

Of all the SLNB, only 1 patient had micro-metastasis, the remainder were negative.

Conclusions: All SLNB performed were noted to be negative, suggesting axillary staging has no clinical value in this patient group. This suggests patients can be safely managed avoiding the potential morbidity of SLNB. However, it is noted that 55% patients were found to have invasive disease on final histology, and would have required subsequent SLNB. This potentially has implications regarding the cost effectiveness for subsequent procedures.

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P030. Breast calcification: does size matter? A retrospective audit to identify the appropriateness of biopsy in small cluster breast microcalcification

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Introduction: Breast calcifications are calcium salt foci that may occur anywhere in breast tissue. They are normally non-palpable, asymptomatic and can indicate benign or malignant disease. They are increasingly diagnosed due to the NHS breast screening programme and the introduction of digital mammography. Increasing diagnosis has led to an increase in the number of stereotactic biopsies performed. These are a safe way to ensure sufficient tissue is obtained for diagnosis. Increasing biopsies lead to increasing workload and costs for units providing this service. This audit seeks to determine whether those screening mammograms containing calcification of less than 5mm go on to have benign pathology and could therefore avoid biopsy.

Methods: Retrospective audit of all women recalled for stereotactic core biopsy following screening mammogram pick up of breast calcification less than 5mm during August 2012−2013 using NBSS database. Demographic data and pathological specimen results recorded.

Results: Of 295 women biopsied, 70 had microcalcification less than 5mm. 37 patients with 4−5mm calcification were benign but 8 women with microcalcification 4−5mm had pathology of B3 or B5. 25 women with calcification 3mm or less showed benign pathological diagnoses.

Conclusions: Number of biopsies performed could be reduced by 10% which equates to savings of £3000−6000 per year, additionally preventing anxiety surrounding further intervention. Further retrospective research needed to assess whether trends are similar with larger population. Stereotactic core biopsy could be avoided in screening population with breast microcalcification less than 3mm unless significant history; proving beneficial for the unit and the patient.

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P031. Axillary recurrence in breast cancer patients after a negative sentinel lymph node biopsy (SLNB)

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Introduction: Randomised clinical trials support the safety and efficacy of SLNB in early breast cancer. Published rates of axillary recurrence range from 0−1.4% with an average of 0.3% for a systematic review with 34 months follow up.

Methods: A retrospective analysis examined axillary recurrence in 304 clinically node negative patients undergoing SLNB for symptomatic and screen-detected breast cancer between January 2004 and December 2006 without pre-operative axillary ultrasound. Sentinel node negativity included isolated tumour cells [≤0.2mm] but not micrometastases [≤2mm]. Median patient age was 60 years (range 24−93) and tumour diameter 15mm (range 1.5−40) with 80% undergoing conservation surgery. Fifteen patients with DCIS (or micro-invasion) on final histology were excluded together with 23 deceased patients without evidence of disease recurrence. Most patients (>90%) received adjuvant systemic therapy. Follow up was measured from time of surgery to last documented patient contact.

Results: At 82 months median follow up (range 20−193) only one case of axillary recurrence has occurred (1/266). This first site of treatment failure occurred at 4 months and was likely a false negative result. This patient remains alive and well at 98 months following axillary dissection, chemotherapy and extended endocrine therapy. Sixteen patients have died with distant recurrence and other regional nodal disease (supraclavicular/internal mammary) developed in 2 patients.

Conclusion: This low rate of recurrence (0.38%) accords with published reports having shorter duration of follow up. Axillary ultrasound de-selects some patients for SLNB and reduces any residual non-sentinel tumour burden.

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P032. A protocol for contralateral risk reducing mastectomy: The Manchester guidelines

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Introduction: Rates of contralateral risk-reducing mastectomy (CRRM) are rising, despite a decreasing global incidence of contralateral breast cancer. Reasons for requesting this procedure are complex and we have previously shown a variable practice amongst breast and plastic surgeons in England. We propose a protocol, based on a previous national survey and the Manchester experience of CRRM.

Method: We reviewed the literature for risk factors for contralateral breast cancer and have devised a 5-step process that includes history taking, calculating contralateral breast cancer risk, counselling, multi-disciplinary assessment and consent. Members of the multi-disciplinary team included the breast surgeon, plastic surgeon and geneticist who formulated the guidelines.

Results: A simple formula to calculate the life-time risk of contralateral breast cancer has been devised. This allows stratification of breast cancer patients into different risk-groups: Low, Above Average, Moderate and High Risk. Recommendations vary according to different risk-group.

Conclusion: These guidelines are a useful tool for clinicians counselling women requesting CRRM. Risk assessment is mandatory in this group of patients and our formula allows evidence-based recommendations to be made.

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P033. Further surgery for clearance of margins after breast conserving surgery: Tumour size matters

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Introduction: Patients undergoing breast conserving surgery should routinely have tumour excised with microscopically radial clear margins. If this cannot be achieved by one operation, patients should undergo further surgery (ABS guidelines). An audit was performed to study the re-operation rate and factors contributing to more than one surgery in a cohort of unselected patients undergoing breast conserving surgery.

Methods: A cohort of 187 consecutive patients operated on by one surgeon in one single institute was studied. All patients were diagnosed pre-operatively with core biopsy and a mammogram and ultrasound (US) were performed, 24 patients also had a MRI. Margin assessment was microscopically with standard HE on fixed specimens postoperatively. A margin less than 2 mm was an indication for further surgery. Several tumour related factors were studied and significance was calculated with Fisher's exact test in a 2 by 2 table comparing patients with and without re-operation.

Results: Median pre-operative tumour size was 10 mm (range 4−60 mm) on mammogram and 10 mm on US (range 3−36 mm). Re-operation was performed in 29 patients (15.5%),

5 required 3 operations. Indication was 0−1 mm margin in 13 cases, 1−2 mm in 4 cases, and DCIS at margin in 12 cases. Fourteen patients (7%) ended with a mastectomy. Residual cancer was found in 85% (12/14) of patients who needed mastectomy, and in 53% with re-excision only (8/15). The only significant difference related to further surgery was size: 24 out of 50 patients with a size on histology > 20 mm needed further surgery, versus 5 out of 108 with tumours ≤ 20 mm ($P = 0.001$). A histology size 1,5 times larger compared to imaging size was also significant more frequent in patients with re-operations. (≥1.5 times larger 23 out of 60 re-operations, vs < 1.5 6 out of 90, $P = 0.001$). Type of cancer, DCIS in core, microcalcification in core, infiltrative pattern on core, diagnosis screen detected or symptomatic, use of pre-operative MRI, nodal status, ER/Her2 status, weight excision, and pre-operative size on imaging were not different between the two groups.

Conclusion: Further surgery is required in 15% of patients for clearance of margins. Larger tumour size and underestimation of size pre-operatively are more frequent in patients who need further surgery.

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P034. Preoperative axillary staging − Can core biopsy become the gold standard?

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Background: Axillary lymph staging is an important factor in influencing prognosis and treatment of breast cancer. Preoperative axillary staging has become the established standard of care. The aim of our study was to determine the efficacy of axillary node biopsy preoperatively using fine need aspiration cytology (FNAC) vs wide bore core biopsy (WBN)

Method: A retrospective study was performed between August to Sept 2014. The data was obtained from the computer database and records. All patients who had pre-operative FNAC / WBN were included in the study. The accuracy of preoperative axillary staging were compared to the post operative histology of the axilla.

Results: A total of 81 patients were included as they had a sonographically potential abnormal axillary lymph nodes and proceeded to definitive surgery. We found that WBN had a sensitivity of 100% vs FNAC of 72% and both had a 100% specificity. The PPV of was 100% for both methods. The NPV of WBN was 100% for WBN vs 72% for FNAC.

Further analysis demonstrated that 35% of patients that underwent FNAC required a repeat procedure compared to 2.6% of patients that had a WBN. None of the 38 patients that had WBN required a second

operation while 7 patients (7/43) that had negative cytology at FNAC had positive lymph nodes identified at SLNB and therefore required a second surgical procedure (ANC).

Conclusion: WBN has been found to be a superior interventional technique when interrogating the axilla. We therefore recommend that wide bore core biopsy should be adopted routinely in preoperative axillary staging. It reduces the need for second procedure, improves patient pathway and be cost beneficial to the health care.

http://dx.doi.org/10.1016/j.ejso.2015.03.072

P035. Reaching a national consensus on the surgical management of multiple ipsilateral breast cancers (MIBCs): Perceptions by patients, healthy volunteers, surgeons and breast cancer associations

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Aims: To develop a pragmatic randomized trial evaluating the clinical safety of breast conserving surgery (BCS) versus the standard of mastectomy in treating all types of MIBCs (multifocal and multicentric), it was important to assess the perceptions of patients and public on the current evidence and rationale for a new trial.

Methods: A Bristol Online Survey (October-November 2013) was designed by the Trial Management Group (TMG) including questions on: use of MRI, perceptions of biological differences between unifocal and MIBCs, and surgical recommendations for the treatment of multifocal (MF: foci in same quadrant) and multicentric (MC: foci in separate quadrants) cancers. Four separate focus groups ($n = 30$) where scheduled involving breast cancer patients, healthy volunteers and patient advocacy groups.

Results: 176 surgeons (46%) responded. 19% of surgeons regard the current clinical evidence as 'sufficient', compared to 40% who disagree and 41% who are 'unsure'. Surgeons thought that MIBCs should be treated 'differently' (45%) from unifocal cancers or they expressed 'uncertainty' (47%). The overwhelming majority (85%) indicated that they would treat MIBCs by Mastectomy. A minority of surgeons recommended BCS in 22% of MF cancers, compared to 8% of MC cancers. 67% per cent of surgeons thought that a trial addressing the clinical safety of oncoplastic BCS was an important clinical question.

PPI groups strongly supported the chance for BCS providing they could be reassured of safety measures within a trial. They wanted full information of all potential trial benefits.

Conclusions: There is a strong case for a feasibility trial supported by national perceptions. Surgeons are more 'uncertain' about the treatment of MF compared to MC cancers.

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P036. Audit of breast local recurrence rates in a District General Hospital

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Introduction: The aim of breast cancer surgery is to achieve good local control of the primary tumour and regional nodes. The START trial showed excellent rates of local recurrence following breast conservation in the UK. Revised Association of Breast Surgery (ABS) Guidelines recommend minimum local recurrence rates of $<5\%$ and target rates of $<3\%$ at 5 years for both mastectomy and wide local excision (WLE). We audited 5-year local recurrence rates following breast cancer surgery in a district general hospital to assess compliance with these guidelines.

Methods: Patients undergoing breast cancer surgery within the Trust between January 2007 and December 2008 were identified. Electronic pathology reports and regional care records were searched to identify patients who developed a local recurrence. Chart review of those patients was performed. End-point was death or 5 year follow-up appointment.

Results: 210 primary breast cancers were treated surgically in 209 patients between 1st January 2007 and 31st December 2008. The recurrence rate was 3.4% in the mastectomy group and 0.8% in the WLE group. Median time to local recurrence was 3.75 months (range 1 to 8 1/2 months). The only patient with local recurrence in the WLE group had declined radiotherapy. All patients recurring in the mastectomy group had grade three, node positive, ductal carcinomas and 2 out of 3 had undergone neoadjuvant chemotherapy. These two patients also had triple negative disease.

Conclusions: Recurrence rates for WLE & mastectomy meet the standards recommended by ABS. All observed recurrences occurred in high risk patients.

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P037. The cost of risk reducing mastectomy and immediate reconstruction *versus* surveillance

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Introduction: Risk reducing mastectomy (RRM) and reconstruction is on the increase, with significant resource implications. The overall costs of RRM with immediate latissimus dorsi reconstruction (LDR) or subpectoral reconstruction (SPR) were compared with surveillance and chemoprevention.

Methods: Fifty patients undergoing 100 RRMs and LDR or SPR between 1991and 2011 were identified from a prospectively collected unit database and all patient episodes were recorded until July 2014 (median follow up 86 [range 21−247] months). A financial analysis was performed using national tariffs to calculate the overall cost of the initial surgical procedure, outpatient attendances, and all subsequent surgical interventions. The overall cost of surveillance and chemoprevention in these patients was calculated, including the cost of treating the predicted number of breast cancers in this group.

Results: In total, 72 LDRs and 28 SPRs were performed, resulting in an overall treatment cost of £861,555 (£17,231/patient). The inpatient tariff for either LDR or SPR, or for unilateral or bilateral cases, was the same during the period of study. The mean cost for subsequent procedures was £4,253 for SPR *versus* £4,664 for LDR. The estimated overall cost for surveillance was £112,401 (£2,248/patient), including £72,126 for imaging, £6,266 for Tamoxifen and £34,009 to treat 5 predicted cancers.

Conclusions: Seven years following RRM and immediate reconstruction, surgical intervention was almost 8 times more costly than non-surgical strategies, and LDR cost 10% more than SPR. This differential may change over time as the costs of treating new and recurrent cancers in the surveillance group continue to rise.

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P038. 'Can free nipple graft be used successfully in therapeutic mammoplasty?'

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Introduction: The presence of the nipple on any pedicle can make volume distribution more difficult in a therapeutic mammoplasty. A tumour directly behind the nipple may conventionally require excision of the nipple-areolar complex with the lesion. Free nipple grafting allows greater flexibility of pedicle use as well as resection of central tissue with

sampling of ducts from within the nipple. Anecdotally free nipple graft take may be worsened by radiotherapy.

Methods: A retrospective case review of patients who received a therapeutic mammoplasty for treatment of breast cancer with free nipple grafting performed by two consultants in the West of Scotland from 2012 to 2014. All patients recruited had completed radiotherapy. Participants were contacted, consented and invited to have photographs taken. A grid was superimposed over the photos to help look for percentage of depigmentation. Three individuals assessed the photos independently. The participants were also asked to fill in a questionnaire to judge their satisfaction with their nipple graft.

Results: Photographs of the grafted and control nipple-areolar complex were taken and compared using the grid with depigmentation being used as a proxy for failure of graft. There were varying degrees of graft take and patient satisfaction. Nipple projection was compromised in all cases.

Conclusions: Free nipple grafting is a valuable technique when carrying out therapeutic mammoplasty. Patient satisfaction rates were acceptable in relation to general aesthetics, height and colour.

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P039. Breast pain under the age of 35 years – To scan or not to scan?

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Introduction: Breast cancer is the most common cancer diagnosed amongst the female population in the UK. Increased awareness and availability of screening services has led to the increased number of referrals from the primary care to one-stop breast clinics. A London cancer guideline states that patient under the age of 35 years presenting with breast pain with no abnormal clinical findings does not require radiological imaging.

The aim of this audit is to look at the incidences of abnormal finding and outcome in this group of patients. This is to establish if the guidelines can be adopted into our clinical practice safely.

Methods: Between January and March 2014, of the 1800 new patients seen, 110 patients presented with breast pain under the age of 35. Data from 90 patients were collected to include risk factors, clinical and radiological findings, and outcome.

Results: Of the 90 patients, 79 (89.8%) presented with pain only and 11 (12.2%) presented with pain and lump. At examination, 84 (93.3%) had no palpable abnormality (P1). Of this group, 77 (91.7%) were U1 and 7 (8.3%) were U2. 77 patients (85.5%) had bilateral imaging. 13 patients (14.4%) had unilateral imaging. 13 patients (14.4%) had benign findings (U2) and 3 patients had core biopsy, which confirms fibroadenoma. Of the 13 patients with U2 findings, 7 were in both breasts, 4 were on contralateral breast, and 2 on ipsilateral breast.

Conclusion: Our current practice of performing USS on all patients did not detect any pathology that requires treatment. 97.8% of patients were discharged from the one stop breast clinic on first visit. This prompts us to review our current clinical practice. In accordance to guidelines, we should only be performing USS if clinical examination revealed any abnormality. Perhaps a modification of that practice would be to only offer unilateral USS. This may in turn reduce the time and cost pressure on the breast radiology department.

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P040. Pre-operative information for breast surgery patients – There's an app for that

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Introduction: Mobile 'apps' are novel healthcare tool to disseminate information. Here, we review patient responses to a new app designed by medical professionals to support the delivery of information in the pre-assessment setting.

Methods: We designed an interactive patient information app using the Keynote application© on an iPad tablet iOS 7. The app used 3 key pathways: lumpectomy, wide local excision +/- sentinel lymph node biopsy (SLNB) and wire-guided wide local excision +/- SLNB. We invited patients undergoing pre-assessment prior to the aforementioned breast surgical procedures to complete a survey before and after use of the app. We recorded feedback relating to the usefulness of the information provided and the ease of use of the app.

Results: Forty female patients were questioned between November 2013 and July 2014. All patients understood why they where having their operation. Only 50% of patients reported that they read all of the information leaflets given to them. 57.5% of patients had previously used an iPad. 97.5% of patients reported that it was 'easy' or 'very easy' to use. 92.5% of patients found the information included useful. 65 % of patients reported that it was 'better' or 'much better' to use. 92.5% of patients would recommend it to others.

Conclusion: Our results show that patients feel that this is useful resource and positive addition to the perioperative pathway. The ward and theatre photographs were consistently highlighted as being extremely helpful. This app may have wider benefits in complementing the consent process and decreasing levels of pre-operative patient anxiety.

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P041. Correlates of body image difficulties following breast cancer surgery

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Introduction: Women surviving breast cancer often have psychological morbidities and body image difficulties at diagnosis, during treatment and even after recovery. The body image difficulties include stigma and vulnerability issues, along with a plethora of fears related to cancer. The study aims to find the associations of increased body image problems in this group of women.

Methods: The current study is a prospective study of patients undergoing surgical treatment for breast cancer, done in Eastern India after institutional ethical clearance (EC/TMC/02/12). Women ($n = 134$) undergoing surgery for breast cancer were enrolled for the study. All women were interviewed at their first post operative visit to the hospital by a trained clinical psychologist. The following instruments were used – Hospital Anxiety Depression Scale, Body Image after Breast Cancer scale and Rosenberg Self Esteem scale, along with socio-demographic, disease related and treatment related variables. Univariate analysis was done by Pearson's correlation coefficient and Student's t Test and multivariate linear regression was done to find the risk factors of body image problems.

Results: Increased stigma was associated with increased depression scores ($r = 0.37$, $p = 0.001$) and poorer self esteem ($r = 0.25$, $p = 0.001$). BCS patients perceived more stigma due to the disease and this may have influenced their treatment choice ($x^2 = 6.16$, $p < 0.01$). A multiple regression was run to predict increased stigma due to body image problems. Younger women, with increased depression score, and who opted for BCS, were associated with increased perceived stigma in a multivariate analysis ($R^2 = .35$, $p < .0001$).

Conclusions: All women with breast cancer should be screened for depression and anxiety and assessed for body image problems. Younger women opting for breast conservation surgery may still have unmet emotional needs on completion of surgery and should have access to psychological interventions to address affective symptoms and body image problems.

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P042. One Step Nucleic Acid Amplification copy number as a predictor for non-sentinel lymph node positivity

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Introduction: OSNA (One-Step Nucleic Acid Amplification) is an established technique for intra-operative assessment of sentinel lymph node (SLN) metastasis, used in 26 hospitals in the UK. The Z0011 and AMAROS trials prompted controversy over whether axillary lymph node dissection (ALND) should be performed at all. Currently we use a CK19 copy number of > 5000 (macrometastasis) to identify patients requiring ALND. We investigated whether a higher copy number of 7700 is a better predictor of non-sentinel lymph node (NSLN) positivity.

Methods: Prospective data was collected on 721 patients who underwent OSNA investigation from 2010 to 2014. 238 patients (33%) had positive SLNs. Of these 103 (14%) had macrometastasis (>2mm) and were investigated to determine how a cut off of 7700 copy number would have altered their outcome.

Results: Of the patients with macrometastasis, 65 (63%) had no NSLN involvement (NSLN −ve group). 38 (37%) had NSLN positivity (NSLN +ve group). The cut off of 7700 better predicted patients in the NSLN +ve group (negative predictive value: 0.78, false negative: 0.05, false positive: 0.62). In the range between 5000−7700, two patients in the NSLN +ve group would not have undergone axillary dissection, whereas seven patients in the NSLN −ve group would avoid unnecessary dissection.

Conclusion: Revised cutoff of 7700 copy number would save 9 women from dissection, but would miss 2 patients with NSLN involvement. These women had low burden disease (which would not have dissection under POSNOC criteria). A copy number of 7700 appears to be a better discriminatory test with a higher negative predictive value and a lower false negative rate.

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P043. Specialist Masters Degree in Oncoplastic Breast Surgery: An update of student engagement and feedback

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Introduction: The Specialist Mastership Degree Course in Oncoplastic Breast Surgery launched at the University of East Anglia (UEA) in 2010. This unique programme blends online learning with practical workshops and lectures. Designed to flexibly complement limited medical training, it prepares students for consultant practice via a two year PG Diploma or a three year Mastership.

Now in its fifth year, we present an update of student engagement and feedback.

Methods: Figures were obtained from UEA Admissions department and Learning and Teaching Hub. Student feedback was obtained prospectively by the MS e-learning team and an independently commissioned research group at University Campus Suffolk.

Results: To date, 102 students have enrolled for a postgraduate qualification in Oncoplastic Breast Surgery (21 PG Diploma, and 81 Masters). 88 students are from the UK, 5 European and 10 international.

5 students have successfully completed their studies- 3 students gained a Masters award, and 2 a PG Diploma. 3 students have exited with a PG Cert.

Of 77 students in the first four cohorts, 9 have withdrawn due to failed assessments and 2 for personal reasons. 5 are currently intercalating.

Feedback for all modules has improved year-on-year due to dynamic changes to both course delivery and assessment structure.

Conclusion: The Masters programme in oncoplastic breast surgery has become established as the only globally accredited higher qualification in this specialty, with the support of our professional bodies and expert faculty. Applicant numbers are increasing annually, and the first international programme will commence in India in July 2015.

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P044. The value of Oncotype DX testing in a District General Hospital

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Introduction: Oncotype DX is a 21 gene array test that can be used to aid the decision for adjuvant chemotherapy following surgery for breast cancer. The testing is recommended for breast cancers that are oestrogen receptor positive, human epidermal growth factor receptor negative without lymph node involvement where the chance of recurrence is intermediate as predicted by a Nottingham Prognostic Indicator of 3.4 or greater. The use of Oncotype DX testing has been recommended by NICE but is not funded by NHS England.

The purpose of this study is to establish the value of Oncotype DX testing in our unit.

Methods: The pathology database was searched to identify patients diagnosed with breast cancer who had surgery as their first treatment over a three year period. The pathology reports were obtained and those suitable for Oncotype DX testing were identified. The electronic patient records were reviewed, noting those who were unsuitable for chemotherapy due to comorbidities, those suitable for chemotherapy and those who underwent chemotherapy.

Results: Over 3 years 588 patients were identified who had surgery as their first treatment. 102 (17.3%) of these patients met the criteria for Oncotype DX testing. Of these patients 20 (19.6%) would not have been offered chemotherapy or Oncotype DX testing due to comorbidities. Of the 82 suitable to undergo Oncotype DX testing, chemotherapy was given to 24 (29%) of them.

Oncotype DX testing costs £2580 and after the test 34.7% are likely to be offered chemotherapy. The cost of Oncotype DX testing to our unit over 3 years would be £211560 and 29 (34.7% of 82) patients would be offered chemotherapy.

Discussion: The use of Oncotype DX will increase costs to our unit both for the test and the small increase in chemotherapy usage. Although the cost increases the use of the test could allow better targeting of chemotherapy to those at highest risk of recurrence.

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P045. Vitamin D deficiency treatment improves non-cyclical breast pain

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Introduction: Non-cyclical mastalgia (NCM) is a common presenting complaint, which has a poorly understood and can be difficult to manage in the outpatient setting. Is there an association between NCM and Vitamin-D deficiency? If so, will treatment improve NCM symptoms?

Methods: Retrospective pilot survey of all patients with NCM seen at City Hospital within a two year period. All patients had Vitamin-D levels checked and the results were subsequently relayed to GPs for appropriate management. A total of 110 surveys were sent to all Vitamin-D deficient patients. Final response rate was 62%.

Results: A total of 68 patients with NCM, Vitamin-D deficiency and completed questionnaires were included. 63% of patients were prescribed Vitamin-D supplementation by their GP and complied with the therapy. 51% of these noted complete or near complete remission of all symptoms following therapy. 26% noted a pain score of <5 following therapy. 23%

noted a residual pain score of >5 despite therapy. 3 out of the 18 patients who did not receive Vitamin-D supplementation noted spontaneous improvement in their pain.

Conclusion: There appears to be a correlation between Vitamin-D deficiency and NCM. This is supported by; an improvement in symptoms of NCM noted in 77% of patients following Vitamin-D supplementation; and only 17% of spontaneous improvement without treatment ($p < 0.01$ Fisher exact test). Further analysis is required to quantify this correlation and the degree of improvement, which may heavily impact morbidity from NCM and rapid access clinic pressures and demands.

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P046. Lymphaticovenular anastomosis improves quality of life in patients with secondary lymphoedema

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Secondary lymphoedema affects around 125,000 people in the UK. Lymphaticovenular anastomosis (LVA) is a super-microsurgical treatment for lymphoedema. To our knowledge, all studies on LVA to date have used volumetric measurements of the limb as their outcome measure. The deleterious effects of lymphoedema go beyond the physical effects of increased size of the affected limb. We aimed to assess the effect of LVA on quality of life for patients with secondary lymphoedema using validated patient reported outcome measures.

We prospectively recorded both lymphoedema-specific (LYMQOL) and general quality of life before LVA and at the first post-operative clinic visit. We used descriptive statistics to determine the change in quality of life, the global rating of change (GROC) reported by patients and changes in limb measurements.

At a mean of 5 months post-op, the LYMQOL increased by an average of 15 points (absolute increase 15%; relative increase 26%). Similarly, there was an average 1.32-point increase in general quality of life (absolute increase 13%; relative increase 30%). The average reduction of excess volume of the affected limb of unilateral cases was 52.6%. The GROC showed 75% of patients had a perceived improvement and volumetric measurements demonstrated improvement in 83% limbs.

These results from this small study of minimally invasive surgery for lymphoedema show great promise in terms of improving patient reported quality of life and volumetric measurements.

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P047. Outcomes in loco regional breast cancer recurrence

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Introduction: Breast cancer survival data is widely available but there is less information available on local recurrence rates. Breast cancer recurrence (BCR) was highlighted in the Breast Cancer Care's campaign in 2006. Through 'Improving Outcomes: a Strategy for Cancer' in 2011 a better understanding of BCR was advocated. We present the 5 year locoregional recurrence rate (LRR) in a large screening and symptomatic unit.

Methods: All patients diagnosed with breast cancer between September 2008 and September 2009 were included. Type of recurrence, presentation, management and outcomes were identified from patient's casenotes.

Results: 353 patients were diagnosed with breast cancer in the 12 month period. 278 underwent surgical treatment in our unit. The age range was 31–90 (median 60 years). The median time of follow up was 61 months. The majority of recurrence was systemic (5.4%). Locoregional recurrence occurred in 2.9% overall.

	Screen detected	Symptomatic	Total
Wide Local excision	2.1% (n = 2/91)	3.2% (n = 1/31)	**2.5% (n = 3/122)**
Mastectomy	2% (n = 1/50)	3.8% (n = 3/80)	**3.1% (n = 4/130)**
Skin sparing mastectomy	0% (n = 0/14)	9.1% (n = 1/11)	**4% (n = 1/25)**
Duct excision		0% (n = 0/1)	**0% (n = 0/1)**
Total	**1.9% (n = 3/155)**	**4.0% (n = 5/123)**	

Time to recurrence was 25–55 months (median 47). 62.5% of locoregional recurrences were identified through self examination. 5 year disease free survival in patients undergoing surgery was 88.5% and 5 year survival in patients with LRR was 62.5%.

Discussion: Overall a low LRR has been seen but once seen it is associated with an increased mortality rates.

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P048. Service evaluation of the use of blue dye for sentinel lymph node biopsy for breast cancer in a single unit in a UK hospital

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Introduction: NICE recommends that sentinel node biopsy is performed using radioactive isotope and patent blue dye. In our unit over the last year there have been two cases of anaphylaxis following the injection of the patent blue dye. Despite subsequent confirmation that the reactions were not due to the blue dye, it was decided to perform a review of the practice of using both the blue dye and radioactive isotope.

The aim of the review was to discover if using the blue dye increased the yield of sentinel nodes compared to using the isotope alone.

Methods: A retrospective case note review was conducted of cases having a sentinel node biopsy between December 2010 and May 2014. The information collected at the time of surgery included the number of nodes removed, the in vivo and ex vivo radioactive count and intensity of blue staining for each node. This was used to calculate the number of nodes that were either, hot (positive radioactive signal) and blue, hot and not blue, cold (no radioactive signal) and blue, cold and not blue.

Results: A total of 490 nodes where identified in patients who had both radioactive isotope and blue dye. 51 nodes were excluded due to incomplete records, including 40 nodes not having the intensity of blue staining recorded.

Of the 439 nodes, 373 (84.9%) were both hot and blue. 47 (10.7%) nodes were hot but no blue dye was detected. 9 (2.1%) nodes were both isotope and blue dye negative.

10 (2.3%) nodes were blue but cold.

Conclusion: Blue dye may not be required in selected cases where there is a good radioactive signal.

We concluded that using use blue dye in cases where no radioactivity was detected after isotope injection allows the identification of sentinel lymph nodes in these cases. Non use of the blue dye would result in no detection of the sentinel node.

The practice of the unit has been changed since this analysis. All cases who have no radioactive isotope signal detected immediately prior to surgery selectively receive blue dye. This reduces the use of blue dye minimising the chances of an allergic reaction.

A prospective study will be conducted to see the impact of the change in the use of blue dye on the yield of sentinel nodes.

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P049. Liver resection for metastatic breast cancer

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Introduction: Breast cancer liver metastasis (BCLM) occurs in 2–12% of patients. With advances in technique, patients having liver resection now benefit from reduced post-operative morbidity and mortality. We determined the patterns of disease presentation in patients undergoing liver resection for BCLM and subsequent outcomes.

Methods: We identified patients who had liver resection for histologically-proven BCLM from March 2002 to March 2011 (n = 15), using a prospectively maintained database. Survival data was analysed using Kaplan-Meir method.

Results: BCLMs occurred from primary breast cancer resections performed between January 1998 to May 2010, of which the majority were surprisingly G2 and hormone receptor (HR) +ve, with low stage (N1) nodal disease. Nine patients presented synchronously; in n = 1 the breast primary discovered after resection of BCLM. Six patients presented metachronously with a mean disease-free interval (DFI) of 28±11.8months; 2 patients developed locoregional recurrence within that interval. Presentation of BCLM was solitary (n = 6), bilobar (n = 3), or multiple unilobar (n = 6). The median number of metastases was 2 (1–10), with a mean size of 28±4.8mm. Mean overall survival after BCLM resection was 57.8months, with a 3-year survival of 60% and a 5-year survival of 33%, with a trend toward improved survival in patients with synchronous disease and solitary metastases. Seven (47%) patients recurred following liver resection, with a mean DFI of 14.3±1.9months.

Conclusion: Liver resection for BCLM should be considered in selected patients, particularly those with synchronous, solitary metastases. The overall survival is comparable to that for colorectal cancer, although recurrence rates are high.

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P050. POSNOC inclusion criteria may predict nodal burden on axillary clearance

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Background: The role of axillary node clearance (ANC) following positive Sentinel Lymph Node Biopsy (SLNB) is being debated. Our participation in the POSNOC trial has prompted a review of our ANC results, in order to better inform our patients during recruitment. We aimed to determine outcome following ANC after SNLB in a historical cohort who meet POSNOC inclusion criteria.

Methods: We retrospectively analysed our experience of SNLB between July 2008 to 2013. A total of 1152 breast cancer patients underwent SLNB using the dual technique. For univariate analysis, X^2/Fisher's exact test was used for categorical variables and t-test for continuous variables.

Results: Of 1152 SLNB performed, 224 were positive for metastatic disease. 200 patients were anaesthetically capable of progressing to ANC. The POSNOC group was defined as; age>18 years, max tumour size ≤50mm, number of positive nodes on SLNB ≤2, no extracapsular spread and no contralateral disease. On univariate analysis, other than the inclusion criteria, there were no differences in other clinicopathological variables between those that met inclusion criteria and those that didn't. On axillary node clearance, the POSNOC-suitable patients had lower burden of positive n-SLN than those that were POSNOC-unsuitable (17% vs 11%, p = 0.000), and lower recurrence (0.75% vs 3.2%), but this did not reach statistical significance (p = 0.238).

Conclusion: In our cohort of 200 SLNB, those patients that met POSNOC criteria had a lower burden of positive n-SLN on ANC. This is reassuring to patients who may eventually enter into a no-treatment arm of POSNOC, and receive systemic therapy alone.

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P051. Neo-adjuvant chemotherapy in breast cancer; predictors of pathological complete response

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Introduction: Pathological complete response (PCR) following neo-adjuvant chemotherapy (NACT) for breast cancer is associated with increased survival and reduced recurrence. We analysed the results of NACT in our institution, with particular consideration to predictors of PCR.

Methods: Data from patients undergoing NACT was prospectively collected, and this 7-year data (2007–2014) was analysed. Most patients had NACT with 6 cycles of EC/DC+/-Traztuzumab and response was monitored using MRI. For univariate analysis χ^2 and Fisher's exact test was used for categorical data. Multivariate analysis was performed using binomial regression.

Results: In the study period, 309 patients had NACT. Following treatment, 210/309 had residual invasive disease and 79 had PCR/residual DCIS only. In 20/309 cases, patients had either no surgery or data was incomplete. For the purpose of analysis, pathology was grouped as 1) Residual invasive disease and 2) PCR/residual DCIS only. PCR could not be predicted by age, mammographic density or grade on mammography/ultrasound. PCR could however be predicted by high grade (G3; 35.2%, p = 0.002) and molecular subtype; Her2+ve = 67.7%, triple negative (TNBC) = 30.8%, Luminal B/Her2+ve = 34.7%, Luminal B/Her2-ve = 20% and Luminal A = 7.1% (p = 0.000). These were all independently prognostic in a multivariate model.

Conclusion: Certain characteristics favour the likelihood of PCR after NACT. In contrast to prognostic calculation prior to adjuvant chemotherapy, NACT identifies high-grade aggressive cancers with favourable prognosis by attainment of PCR. Further study is required to understand why NACT does not improve overall survival of the total cohort.

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P052. Patterns of recurrence in ER+ve breast cancer; clinicopathological predictors of early vs late recurrence

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Aims: The majority of recurrences in ER+ breast cancer occur >5 years after diagnosis. Current practice is 5 years of adjuvant Tamoxifen, although recent studies suggest that 10 years may be more effective. We determined the patterns and predictors of late recurrences in patients with ER+ve breast cancer.

Methods: N = 272 coded recurrences from Jan 2009–Jan 2014 were identified from the 'infoflex' system, resulting from breast cancer resections from Jan 1993 to Jan 2013. Data for receptor status was available in 175/272 patients, of whom 124 were ER+ve (Allred score ≥3). For univariate analysis, X^2/Fisher's exact test was used for categorical variables. Survival was calculated using log rank test.

Results: There was no difference in site of recurrence (distant vs locoregional, p = 0.346) and overall survival following recurrence (30 vs 31 months, p = 0.873) in ER+ve/ER-ve tumours. ER+ve tumours were more likely to recur late (>5 years;47% vs 27%, p = 0.012). Late recurrence was not predicted by size of tumour (p = 0.314), type of resection (WLE vs mastectomy, p = 0.631), or tumour histological type (p = 0.399). Patients with G1 disease (p = 0.027), no lymphovascular

invasion (LVI), no +ve nodes on SLNB ($p = 0.008$) and <50% +ve non-sentinel nodes on ANC were more likely to recur late, although the total number of recurrences in these patients was lower.

Conclusion: Patients with less aggressive disease (lower stage and grade) recurred late. This may be influenced by tumour biology; low-grade and stage tumours being supressed by anti-oestrogen therapy and the immune system, until an eventual 'escape' phase.

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P053. Genetic testing in triple negative breast cancer patients: Are we compliant with NICE guidelines?

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Introduction: NICE guidelines published in June 2013, recommend referral to genetics services for patients with triple negative breast cancer (TNBC) under the age of 40. Increasing evidence suggests this should be extended to those below 50, which is our practice. The aim of this study is to review compliance up to the age of 50.

Method: The histology database was searched for TNBC patients diagnosed between June 2013 and November 2014. We reviewed those aged <40 years and <50 from the local breast cancer family history database with data from family history clinics (FHC), family history questionnaires (FHQ) and genetic testing (GT) at Guys Hospital. The data was analysed for compliance with NICE guidelines and incidence of genetic mutations.

Results: There were 71 patients with TNBC. 4 (6%) were < 40 years and 15 (21 %) were <50.

2 patients <40 years were referred to the FHC. None had GT. 1 patient did not return her FHQ. For TNBC < 50, 10 (67%) were referred to FHC. 1 had GT and was positive for BRCA1 mutation. 7 patients (47%) did not return their FHQ. 1 patient was referred directly to Guys Hospital for GT.

Conclusions: At this early stage following the guidelines, the majority of patients below the age of 50 with TNBC were referred to the genetic services. A significant number did not return their family history questionnaires. The only BRCA 1 mutation was in a patient aged between 40 and 50 years. Compliance could be improved by direct referral from the Breast multidisciplinary meeting to genetic services.

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P054. Development of a fully integrated system for the collection, storage, analysis and presentation of Breast Cancer Surgical Data

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Introduction: A London based private healthcare provider has a well-established Quality Assurance programme for Breast Cancer, a key element of which is the collection of data to measure outcomes for all surgical cases. A software solution has been developed to support this QA programme with data collection, analysis and presentation.

Methods: A comprehensive cancer dataset has been defined to include the Cancer Outcomes and Services Dataset (COSD), National Cancer Audits and local data items. A SQL server database has been constructed from this dataset and tumour specific user interfaces built in Microsoft Access. Cases for inclusion are identified from pathology, clinical coding and billing records. Case information is then gathered from the medical record. MDT software has been constructed along similar lines, enabling further case identification and data collection. Data is analysed using a combination of SQL scripts and the R statistical computing software environment. Individual Surgeon reports are generated for data validation purposes.

Results: Data has been collected and analysed for ~1500 Breast Cancer surgical cases. A data cube of outcomes is produced nightly by the database for all measures in the Breast Cancer Quality Framework. An interactive Microsoft Excel dashboard has been developed allowing users to review outcomes for a variety of tumour characteristics, patient demographics and procedural information.

Conclusions: Outcomes produced to date have enabled identification of outliers in performance and facilitated reliable inter-hospital comparison for the first time. Results have been reviewed by individual hospitals and action plans developed to address issues identified.

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P055. Are screening detected breast cancer populations homogeneous or is there a post code lottery?

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Introduction: A post code lottery is believed by some to exist in cancer. One effect of this may be delays in presentation resulting in cancers with poorer prognosis. Screening detected breast cancers should avoid this because regardless of social background the majority are below the level of clinical detection, therefore they represent a vehicle for studying cancer population characteristics not influenced by external social factors, in theory they should be homogeneous. However in large metropolitan screening areas populations may be ethnically diverse which may cause heterogeneity.

Aim: The aim of this study was to see if the pathological characteristics of tumours varied with the post code of the patients in the screening population.

Methods: The records for all patients with screening detected invasive cancers over a three year period were searched to obtain details of post code, tumour size, histological grade and nodal status. These were then correlated and analysed by post code.

Results: Five hundred and fifty screening tumours were identified spread over 34 post code areas. The average size of tumours was 23mm (range 13−33mm). The average histological grade percentages were G1 26% (range 0−66%)G2 58% (range 27−80%)G3 17% (range 0−38%) Node positive accounted for 31% (range 0%−54%)

Conclusions: Tumour size was relatively consistent between all post codes, however much more variability was seen with regard to grade and node status. Whilst some of this variability may have been accounted for by differences in sample size between post codes, there were a number of cases in which the same sized populations had significantly different distributions of grade and node status. This suggests biological post code differences may exist at an early stage. Larger studies are needed to confirm this but with an increasingly ethnically diverse population this may explain why screening data from the same region may vary year on year depending on which post codes are included in data.

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P056. Value of vacuum-assisted core biopsy of indeterminate (B3) lesions of the breast

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Introduction: B3 lesions are lesions of uncertain malignant potential. These could change into a malignant lesion, be associated with a malignancy or represent a marker of increased risk of breast cancer. Vacuum-assisted core biopsy (VAB) reduces the need for a surgical biopsy.

Aim: Our study aims to review the use of VAB to determine if it alters the management of B3 lesions.

Methods: All B3 lesions diagnosed on stereo or ultrasound core biopsy at our breast unit between January 2012 and September 2014 and who went on to have a VAB were included in this study. The final outcome

of those patients who had a VAB was compared with their initial core biopsy and the final histology in those patients who had a surgical procedure.

Results: A total of 56 patients were identified. Following MDT discussion, 34/56 (60%) patients underwent VAB whereas 22/56 (39%) patients had an excision biopsy. Eleven (32%) patients who underwent VAB were downgraded to a benign diagnosis B2 and discharged. After VAB, one patient was upgraded from B3 papillary lesion with no atypia to DCIS. Two patients had a final diagnosis of DCIS after excision biopsy when the VAB maintained their B3 status with atypia ADH. None of the patients had an invasive cancer on final diagnosis.

Conclusion: One third of patients were downgraded by VAB and therefore avoided having an excision biopsy. However patients with a final B3 diagnosis on VAB may still have significant pathology and excision biopsy is still required in unclear cases.

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P057. Comparing the case mix and survival of women receiving breast cancer care from one private provider with other London women with breast cancer: A population-based cohort study

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Introduction: This study tested for the first time the exchange and transfer of data for women receiving breast cancer care from one London private provider to the cancer registration service in order to compare survival with other London women with breast cancer.

Methods: Data were extracted for 2005 to 2011 from a private hospital by a cancer registry officer using established registry methods and matched against the national cancer registry and the NHS demographic service to determine whether patients had known dates of death.

London women diagnosed during the same period using data extracted from the cancer registry and the survival of the two groups compared.

Results: Kaplan–Meier survival curves showed that the overall survival of women receiving private care was better than for other London women. Cox regression analysis found that the survival advantage for those receiving only private care compared with other London women (hazard ratio 0.48, 95% confidence interval (CI): 0.32–0.74) was attenuated (0.79, 95% CI: 0.51–1.21) after adjustment for age, socioeconomic deprivation, year of diagnosis, stage of disease and treatment.

Conclusions: Women with breast cancer receiving care from the private provider have a better survival than other London women, which is partly explained by demographic, disease, and treatment factors. Larger studies using similarly quality assured datasets should explore the influence of ethnicity, tumour characteristics, and specific treatment pathways.

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P058. Therapeutic Mammaplasty – Current practice and coding

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Introduction: Therapeutic Mammaplasty (TM) is a useful technique in the armamentarium of the oncoplastic breast surgeon (OBS). There is limited guidance on patient selection, technique, coding and management of involved margins. The practices of OBS in England remain unknown.

Methods: Questionnaires were sent to all OBS involved with the Training Interface Group. We assessed the number of TM cases performed per surgeon, criteria for patient selection, pedicle preference, immediate vs. delayed contralateral symmetrisation, use of routine pre-operative MRI, management of involved margins and clinical coding.

Results: We had an overall response rate of 50%. The most common skin resection technique utilised was wise pattern followed by vertical scar. Superior-medial pedicle was preferred by the majority of surgeons (62%) followed by inferior pedicle (21%). Lobular histology was the main indication for use of pre-operative MRI. 96% of respondents mentioned that breast surgeons undertake this procedure independently, whereas only 3% operate jointly with plastic surgeons. Most surgeons coded this procedure as a reduction mammaplasty and/or wide local excision. 20% of surgeons would always proceed to a mastectomy following an involved margin, whereas the majority would offer re-excision based on several parameters. The main absolute contraindication to TM was tumour:breast ratio >50%. One in five surgeons would not perform TM in smokers and multi-focal breast cancer.

Discussion: There is a wide variation in the practice of TM amongst OBS. Further research and guidance would be useful to standardise practice, particularly management of involved margins and coding for optimal reimbursement.

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P059. Polyurethane coated implants – A more effective alternative to silicone? A systematic review

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Introduction: The European Commission approved the use of polyurethane (PU) implants once key concerns regarding carcinogenic properties were discharged. We have performed a systematic review to compare the effectiveness of silicone and PU coated implants in breast augmentation and reconstruction patients.

Methods: A systematic review was performed using PRISMA guidelines. Electronic literature search was performed in March 2014 and only studies reporting a minimum of 100 implants were included. Outcomes of interest included revision, capsular contracture and minor complications.

Results: 34 studies reported data, including eight prospective cohort studies (including four FDA core studies) and 26 retrospective cohort studies. Capsular contracture rates (grade III/IV) following reconstruction are 10–16% in silicone coated implants at six years and 0.4–6.3% in PU implants at four years.

Revision rates after breast reconstruction are 43–55% for silicone-coated implants at six years and 1% in one study of PU implants (at four years).

There is no data comparing revision rates or capsular contracture rates by implant type for breast augmentation.

There is no data comparing rippling, infection, seroma and rupture rates.

Conclusions: FDA core studies offer prospective data on outcomes for silicone-coated implants. There are only seven included studies on PU implants with heterogeneous patient groups. We are unable to identify evidence to demonstrate a benefit of PU implants in breast augmentation patients. There is poor quality evidence that PU implants are superior at preventing revision surgery in breast reconstruction patients and three small studies suggesting a benefit in reducing capsular contracture.

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P060. Inflammatory breast cancer diagnosed between 2007–2013 in the Edinburgh Breast Unit – Multimodality treatment and outcomes

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Introduction: Inflammatory breast cancer (IBC) is an aggressive form of locally advanced breast cancer. The purpose of this study was to

determine management and outcomes of patients with inflammatory breast cancer treated with combined-modality therapy with particular focus on those having breast conserving surgery.

Patients and methods: Between January 2007 and December 2013, out of 4473 patients diagnosed with cancer there were 345 patients with T4 tumours, 74 of whom had clinical features of inflammatory breast cancer (IBC) (21.4% of T4 cancers, 1.7% of all cancers). Patients were treated to best response with combined modality therapy and data collected and analyzed.

Results: Mean age at diagnosis was 59.7 (range 31–91). Median follow-up time was 41 months. 17 patients had distant metastases at presentation. 51 patients were treated with initial chemotherapy, 19 patients with initial endocrine therapy, 3 with radiotherapy and 1 palliative care only. 57 patients underwent surgery – 45 mastectomy and 12 breast conserving surgery (BCS). In the BCS group, all had neoadjuvant therapy. Of patients who had BCS, 2 have had local recurrence (12 and 29 months after initial surgery). The mean survival for the whole group was 44 months (range 0–94). Of the 17 who had distant metastases at presentation, median survival was 23.1 (0–82) months.

Conclusions: Patients diagnosed with inflammatory breast cancer have relatively poor survival but good response to treatment and prolonged survival is not infrequent. Breast conserving surgery is possible in very selected patients.

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P061. Implementing a mammography quality assurance programme to improve technical image quality and reduce technical repeats across an independent sector hospital group

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A significant variation in mammography technical repeat rates and image quality, by hospital and by mammographer, was observed during peer review visits within our network of hospitals.

A mammography quality assurance programme was established including peer audit of image quality and technical repeats. Monthly mammography technical repeat rates were collated and quarterly image quality reviews consisting of 30 annoymised images for each mammographer implemented.

Quantative measuring of the success was determined by the monitoring technical repeat and image quality rates. Peer review visits showed the technical repeat rate across the group as 13% in December 2011. By December 2013, this had decreased to less than 3.5%. Using a Perfect, Good, Moderate and Inadequate system of image quality grading, the perfect and good rate was 60% in the final Quarter of 2011. This result had increased to 88.1% by the final quarter in 2013.

The implementation of the quality assurance programme has led to a reduction in the technical repeat rates and improvement in image quality. Most importantly however, this quality assurance programme has led to an improved service to patients with a reduction in exposure to radiation and an increase in efficiency throughout our hospitals.

The quarterly image quality reviews, which have provided a learning environment for mammographers to discuss image quality and identify trends. It is now important that this initiative continue so further improvements can be made.

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P062. Ultrasound-guided core biopsy proven lymph node involvement predicts heavy nodal status at axillary node clearance in patients with early breast cancer

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Introduction: Axillary node clearance (ANC) is standard practice following positive ultrasound-guided core lymph node biopsy (CB) or positive sentinel lymph node biopsy (SLNB). Whilst ANC remains the mainstay of treatment for individuals with heavy nodal disease, increasing evidence supports the safety of avoiding extensive axillary surgery in patients with low axillary burden (ACOSOG Z0011 criteria). We aimed to identify factors that predict heavy nodal involvement (≥4 positive nodes), including tumour factors and mode of diagnosis of nodal involvement.

Methods: Patients undergoing ANC between April 2009 and May 2013 were identified from a prospectively maintained database. Total number of involved nodes was recorded as the outcome variable. Following neo-adjuvant chemotherapy, presence of nodal fibrosis was considered representative of an involved node.

Results: 355 patients were identified (198 primary ANC; 140 ANC following chemotherapy). In univariate analysis using binary logistic regression, predictors of heavy nodal involvement were: diagnosis by CB, older age (years), larger tumour size (mm) and lobular disease (all $p < 0.05$). In multivariate analysis, after adjusting for tumour size, diagnosis by CB (odds ratio [OR] 2.90 ; 95% CI 1.60–5.26) and lobular histology (OR 2.41; 95% CI 1.13–5.17) remained significant predictors of heavy nodal burden. In a predictive model for heavy nodal status based on core biopsy, lobular type and tumour size, the area under the receiver operator characteristic curve was 70.2%.

Conclusion: In patients with early breast cancer, a diagnosis by core lymph node biopsy and lobular histopathology predict greater nodal involvement.

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P063. Surgical management of breast cancer following neoadjuvant endocrine therapy (NET): Our clinical experience

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Background: There is a growing body of evidence to support the use of neoadjuvant endocrine therapy (NET) to downsize large breast cancers and enhance rates of breast conserving surgery (BCS) in oestrogen receptor positive (ER+ve), lower grade or lobular cancers in post-menopausal women. We reviewed our local experience to assess whether patients who have undergone NET ultimately undergo BCS.

Methods: We reviewed our prospectively complied departmental database from January 2011-November 2014 to identify patients who had received NET. Patient demographics were recorded. Ultrasound was used to document initial cancer size and to monitor size during treatment. The primary outcome measure was the rate of BCS following NET.

Results: In this period 17 patients treated with NET all progressed to surgery. All had ER +ve breast cancer. 5 (29%) were lobular cancers. 13 patients were treated with anastrazole and 4 with letrozole. The mean length of treatment was 11 months (range 3–24 months). Median age was 67 (range 57–77 years). The mean initial tumour size on USS was 21.5mm (range 11–30mm). There was an overall response rate of 94% (16 patients) and 88% (15 patients) ultimately had BCS. 2 patients who had undergone BCS required a further cavity shave.

Discussion: NET offers increased opportunity for BCS in women presenting with ER positive breast cancer which is large in relation to their breast volume.

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P064. A single oncoplastic surgeon's experience of 117 therapeutic mammoplasties in a District General Hospital

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Introduction: Therapeutic mammoplasty is an oncoplastic technique extending the indications for breast conserving surgery. We audited our re-excision rates and associated risk factors.

Methods: A retrospective review of all therapeutic mammoplasties by a single surgeon. Data was extracted from operating diaries, computerised records and hospital notes.

Results: 117 therapeutic mammoplasties were performed on 115 patients (median age 59 years, range 32−77years). The median radiological size was 26.7mm (range 0−133m). 22 patients received neoadjuvant chemotherapy (NACT). 13 pts had lobular cancer.

Wise Pattern and Vertical scar techniques were used.

The median wide local excision weight was 94g (range 21−732g) and the median total weight was 110.6g (range 21−1129g). The median tumour size excised was 27mm (range 0−130mm); 4 patients had a complete pathological response from NACT.

83 patients (70.9%) required no further surgery. 16 patients (13.7%) required a re-excision for positive margins, and 18 patients (15.4%) underwent completion mastectomy.

Of those needing further surgery 8 had lobular cancer and 8 received NACT; 10 had incomplete excision due to DCIS, and 18 had a >10mm discrepancy between radiological and pathological size.

Conclusion: 85% of patients had successful conservational surgery, the majority at first surgery. Re-excision rates are similar to that of simple wide local excision. Potential risk factors for re-excision are lobular carcinoma, NACT and extensive DCIS.

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P065. Comparison of radial margins in therapeutic mammoplasty and wide local excisions for invasive breast cancer

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Introduction: Both therapeutic mammoplasty (TM) and standard wide local excision (WLE) can be used for the surgical treatment of invasive breast cancer. Experience suggests that TM is associated with fewer positive margins requiring less re-excision of margins when compared with WLE but good quality supporting evidence is lacking.

Methods: A retrospective analysis was carried out using our prospectively compiled computer database to compare outcomes of TM with a control group comprised of 96 consecutive patients undergoing WLE during a 6-month period in 2013/14. The primary outcome measure was positive margins (<2mm in all cases) requiring re-excision.

Results: 44 patients underwent TM over a four year period and 96 patients had WLE during the 6 month period. Patients undergoing TM had a mean age of 44 (32−69) whilst WLE 61 (39−95). The median tumour size was 23mm (5−60mm) in the TM group compared to 15mm (3−47mm) in the WLE group. TM specimen median weight was 139g (14.5−719g) versus 22.5g (4−85g). 2 patients (4.5%) had an involved radial margin in the TM group versus 25 patients (25%) of the WLE group. One TM patient achieved clear margins after 1 further excision and the second underwent completion mastectomy. However, in the WLE group 20 had 1 margin excision; 5 patients required a second re-excision and 4 required mastectomy.

Conclusion: Even ignoring aesthetic considerations, TM offers a more successful outcome in obtaining clear margins compared to standard WLE. It should be more widely offered in the management of larger cancers in suitable cases.

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P066. Use of Oncotype DX assay reduces adjuvant chemotherapy in breast cancer treatment

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Introduction: The future of breast cancer adjuvant treatment lies in molecular profiling of tumours to determine their prognosis and sensitivity to chemotherapy.

Oncotype DX is a 21 gene assay recommend by NICE to guide adjuvant chemotherapy decisions for people with oestrogen receptor positive (ER+), lymph node negative (LN-), human epidermal growth factor receptor 2 negative (HER2-) early breast cancer at intermediate risk. This assay comes at a significant cost but has been shown to be economical due to reduced chemotherapy usage.

Aims: Audit the use of Oncotype DX assay against NICE guidance.

Compare the assay score with traditional prognostic tools such as Nottingham Prognostic Index (NPI), Adjuvant! Online and Predict.

Methods: Patients records, identified through Genomic database, were searched for histology, demographics and adjuvant treatment decision.

Results: From November 2012 to May 2014 Oncotype DX assay had been performed on 38 patients' tumours, median age 50 (42−75). 16 of these patients were node positive (3 macrometastases, 13 micrometastases) which does not comply with NICE guidance.

76% did NOT receive chemotherapy following the assay; this represents a 40% reduction in expected use. There was no correlation of Oncotype DX score with the traditional prognostic tools

Conclusions: Oncotype DX assay should be used in all patients, including LN+, considered for chemotherapy.

This study highlights that tumour histology does not necessarily reflect molecular profile, chemosensitivity and patient outcomes and concurs with data from NSABP-B20.

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P067. Breform polyester mesh for bilateral breast reduction and mastopexy − Early UK experience

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Introduction: Conventional breast reduction and mastopexy is plagued with problems of recurrent ptosis and pseudo-ptosis. Using a preformed polyester mesh (Breform) to prevent this has been previously described, but it has been rarely used in the UK. We present the first UK series for this new technique.

Technique: Using a Wise pattern incision, the skin flaps are elevated over a NAC and central parenchymal mound pedicle from the 2nd rib down to the inframammary fold, being careful not to narrow the breast base plate. The lateral cutaneous nerve to the nipple is preserved. The Breform mesh is stapled to the chest wall and the skin flaps closed over a vacuum drain.

Results: Since 2012, 14 women (aged 35−75) have had Bilateral Breform procedures (2 mastopexy alone & 12 reductions) in our centre; all had completed their families prior to surgery. Largest cup size pre-reduction was a 36J cup. Hospital stay was 1 night only in all cases.

There were no major complications (major wound breakdown, mesh exposure/removal, infection etc). 2 patients required scar revision. 3 reduction patients required seroma drainage & 3 had minor T-junction wound problems. Over the short follow up period, no patient has developed recurrent ptosis or capsule formation and several women now do not routinely wear a bra.

Discussion: This small series suggests that Breform reduction/mastopexy is well tolerated with a low complication rate. This series requires longer follow up, but early results are similar to those reported by the original Breform designers & surgeons.

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P068. Therapeutic mammoplasty – A patient perspective

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Introduction: Therapeutic mammoplasty offers the advantage of removing cancer as well as preserving the aesthetic appearance of the breast. We report patient experience following therapeutic mammoplasty in a DGH looking at length of stay, satisfaction, complications and any delay in adjuvant treatment.

Methods: Data on patients who underwent therapeutic mammoplasty over 18 month period were compared with an equivalent number of patients who had standard breast conserving surgery. Patients in the study group were sent validated Breast Q™ questionnaire. Questions were based on eight domains including patient awareness of body image after surgery and patient views on medical team involved.

Results: Twenty seven out of 50 patients responded (54%). 81% of patients felt their involvement in preoperative information and planning was excellent. 56% agreed that outcome of surgery was exactly how they had envisaged. 67% of patients felt confident in a social setting and in party clothes. 63 % felt self-assured. The majority (65%) felt sexually confident at all times and 80% were pleased with the outcome. However, 20% were dissatisfied, who developed breast asymmetry and required symmetrisation procedure. 74% patients, who had therapeutic mammoplasty were discharged on the same day as compared to 100% who had standard WLE were discharged within 23 hours. 12 patients in the therapeutic mammoplasty group stayed overnight because of social circumstances. One patient had a haematoma. No delay in adjuvant treatment noted between two groups.

Conclusion: Therapeutic mammoplasty helps in avoiding mastectomy with reasonably high (80%) patient satisfaction scores.

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P069. Is scintigram necessary prior to sentinel node biopsy?

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Background: A peer reviewed study found in 228 patients only 92% of scintigrams identified sentinel node adding very little to patient management and concluded its use was unnecessary.

Aim: The aim of our audit was to ascertain the role of scintigrams prior to sentinel lymph node biopsy by identifying any difference in the yield of sentinel nodes and axillary clearances if scintigram is performed or not.

Method: Patients who had dual method sentinel lymph node biopsy in 2010 and 2013 at UHNS under a single consultant were included. In 2010 there was no scintigram performed and in 2013 scintigrams were done on all patients. 99 patients from 2010 and 87 patients from 2013 were compared. The number of failed localisations, number of nodes harvested and subsequent axillary clearance were collected.

Results: There were two failed localisation in 2010 and one in 2013 group. Numbers of nodes harvested were similar with no significant difference in the yield of number nodes removed. There were 27% single and 73% multiple nodes identified in post scintigram group vs 32% single and 68% multiple nodes in the no scintigram group. Axillary clearance rate was 19% vs 22% in scintigram vs no scintigram group with no difference in subsequent axillary clearances.

Conclusion: Scintigram did not improve the sentinel node detection, number of nodes yielded and further axillary clearance. It is time consuming, expensive and result inconvenient to the patients with no added benefit to the procedure. Routine use of scintigrams needs to be reviewed.

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P070. A chart for rapid comprehensive assessment and planning for oncoplastic and reconstructive breast surgery

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Introduction: Assessment for oncoplastic and reconstructive surgery can be time consuming and subjective with a steep learning curve. An organised approach to assessment may help minimise these limitations of current routine practice.

Methods: A useful author-used chart incorporating essential variables of the two components of clinic consultation (history and examination), provides parameters that contribute to planning and charting goals of possible oncoplastic options.

Results:

History=

S-**S**urgery from the past including donor sites (e.g., abdominal)

S-**S**icknesses including diabetes, family history (unilateral/bilateral, conserving/mastectomy)

S-**S**moking, medications

S-p**S**ychological status (patient decision-making ability)

S-**S**ocial including work, pleasure activities (e.g., cancer on dominant side)

S-**S**ize – Bra cup

S-(**s**)Expectations of patient (physical, body image)

Examination=

S-**S**houlder limitation or **S**pine deformity (pseudo-asymmetry)

S-**S**cars (and size/volume of past tissue removed)

S-**S**kin **S**tretch(-ibility) and (**S**un Burn) from Radiotherapy for recurrence (elasticity, dermal thickness)

S-**S**ize (of tumour, breast and patient/BMI)(replacement or displacement or mastectomy) S-**S**ite of tumour

S-**S**agging (ptosis)

S-**S**ymmetry (charting existing a/symmetry)

Post patient-decision preparation and Goals of surgery

S-**S**ize (base **S**tand/vertical and base **S**ide-ways measurement) (e.g. implant reconstruction)

S-**S**ticking in front (projection)

S-**S**hape including NAC

S-**S**ensitivity/Shade (colour) of nipple-areola complex (in reduction, nipple-sparing mastectomy)

S-**S**uckling function (ductal damage/loss e.g., reduction in childbearing age) S-**S**ymmetry

S-**S**car minimisation (e.g., vertical scar mammaplasty)

Conclusions: This chart may allow rapid yet comprehensive oncoplastic assessment minimising inadvertent exclusion of any common variable. In future, when prospectively validated, it may enable junior trainees/breast care nurses establish baseline facts which may allow an experienced surgeon balance risks and differentiate between options helping arrive at a shared-decision with the patient.

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P071. Axillary lymph node surgery in breast cancer patients: Yield of lymph node metastases at initial axillary surgery and subsequent axillary clearance

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Introduction: In our Trust, all breast cancers undergo pre-operative axillary staging with ultrasound and, where appropriate, needle biopsy. This triages patients to sentinel lymph node biopsy (SLNB) or more invasive axillary node clearance (ANC). Where SLNB demonstrates node metastasis, patients may require a second surgical procedure (ANC) or axillary radiotherapy, both associated with additional patient morbidity. We present an audit of our practice, particularly the yield of positive nodes at SLNB, ANC, and subsequent ANC, performed after a positive SLNB.

Methods: Multidisciplinary meeting records identified screening and symptomatic patients with primary breast cancer treatment including axillary node surgery between 01/01/2013 and 31/12/2013, and their node pathology results. Neoadjuvant chemotherapy patients were excluded. Descriptive statistics were performed.

Results: 298 patients underwent axillary node surgery, all radiologically staged preoperatively. SLNB was performed in 243 (81.5%) patients, with the following pathology: 200 (82.3%) patients node negative, 7 (2.9%) micrometastasis only, 30 (12.3%) 1−2 nodes contained macrometastases, 6 (2.5%) >2 nodes. Four patients with positive SLNB (1−3 nodes positive) went on to axillary radiotherapy only. From the patients who had ANC following positive SLNB, the majority yielded no further positive nodes, with micrometastases found in 5.9% and a single macrometastasis in 17.6%. ANC was the first surgical axillary procedure in 55 (18.5%) patients (0 micrometastases, 22 1−2 macrometastases, 33 >2 macrometastases).

Conclusions: The yield of metastatic lymph nodes at follow up ANC is low, causing harm without benefit in most patients. Further multidisciplinary discussion, investigation and guideline reformulation is needed to optimise patient outcomes.

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P072. Suspected breast cancer after breast screening recall assessment. Receiving the biopsy results: An audit of patient choice

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Introduction: In NHSBSP, although mammograms are offered locally by mobile units, patients who are recalled have to attend the main screening centre for assessment. In case of large screening centres like ours, some patients have to travel large distances to get there. When cancer is suspected and biopsy is performed, patients have to make another long journey to hear the results before being referred to the local breast unit. We performed an audit to find out how patients like the biopsy results delivered.

Methods: Patients with suspicious imaging at assessment who had a biopsy were counselled by the doctor and the breast care nurse (BCN) with regards to the probability of a malignant outcome. They were then offered a choice of receiving their biopsy results by phone call by BCN, face to face with a screening doctor or with their local breast surgeon. BCN contact details are given for further on-going support.

Results: 172 patients were offered the choice between October 2013 and March 2014. 164 chose to receive the results by phone call, 7 requested face to face meeting and only 1 (with special needs) received the results by the local breast surgeon.

Conclusions: Patients who are appropriately counselled with regards to the probable outcome of a malignant diagnosis would like to receive the news of biopsy confirmation of their breast cancer by telephone. This is contrary to popular belief that cancer diagnosis should always be delivered face to face.

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P073. Oncoplastic volume replacement using local perforator flaps

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Introduction: Patients undergoing breast conserving surgery require tumour excision with replacement of the resected tissue to ensure good long-term cosmesis following radiotherapy. Adequate volume replacement can be challenging using local mobilization of glandular tissue alone in the smaller non-ptotic breast. This can be addressed by importing tissue and we describe our unit experience using local perforator flaps.

Methods: Patients undergoing partial mastectomy defect reconstruction with loco-regional perforator flaps were identified. In our unit the LICAP, LTAP and TDAP flaps were used. For the majority of the cases of BCS a two-stage approach was adopted to ensure complete surgical excision and avoid flap compromise if subsequent axillary dissection was required.

Results: Between January and November 2014, ten patients underwent unilateral breast reconstruction using eight LICAP flaps, one LTAP flap and one TDAP flap. In eight cases surgery was performed following wide local excision of breast cancer and the mean excision volume was 52g. One LTAP flap was performed to augment a previous implant based reconstruction. One TDAP flap was performed for segmental breast reconstruction following partial DIEP flap failure.

All flaps were transferred successfully and the donor sites were closed primarily. One patient had incomplete tumour excision necessitating further excision and one patient required a completion axillary node clearance, both performed at the second stage. There were no post-operative complications and adjuvant therapy was not delayed. The cosmetic outcomes were good and to date no patients have required further revisional surgery.

Conclusion: Local perforator flaps are reliable and useful for the correction of breast deformity with minimal donor morbidity. Success depends on patient selection and coordinated planning.

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P074. Pre-pectoral implant placement with total acellular dermal matrix cover − A new technique for implant based breast reconstruction

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Introduction: The conventional approach to implant based breast reconstruction involves sub-pectoral implant placement with partial detachment of the pectoralis major (PM). This may be accompanied by total submuscular implant placement or a lower pole acellular dermal matrix (ADM) sling. Compared to pre-pectoral implant placement, the advantage of an improved cosmetic result comes with the disadvantages of PM functional impairment, breast animation and postoperative pain. A considerable number of women do not want their PMM detached for these reasons.

We report a novel technique of pre-pectoral implant placement with total implant coverage by ADM.

Methods: This technique was used in a total of 12 breasts in 9 patients (6 unilateral and 3 bilateral) January-November 2014. In 5 cases this followed skin-sparing-mastectomy with direct-to-implant reconstruction. In 3 cases the technique was used for revision of previous implant based reconstruction and in 1 case for revision of breast augmentation.

A cohesive gel anatomical implant was placed in the pre-pectoral plane and completely covered with ADM. We utilised a contour and an 8 x 16cm sheet of Strattice™, which were sutured together and to the fascia of the PMM and inframammary fold to contain the implant.

Patients required an overnight stay in hospital and simple analgesics. They were discharged with a drain(s) and prescribed prophylactic antibiotics.

Results: The cosmetic outcome and patient satisfaction have been good to date. There has been no evidence of animation, implant dislocation, implant rim visibility or palpability or significant capsular contracture. There have been no complications in this series.

Conclusion: Pre-pectoral implant placement with total ADM coverage represents a novel approach with good cosmetic results whilst avoiding the disadvantages of PM detachment. Whilst our small series has shown promising results longer term follow up and further studies are required.

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P075. A predicitive model for axillary non-sentinel node involvement by one-step nucleic acid amplification (OSNA) and tumour-related factors in the treatment of breast cancer

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Introduction: Recent surgical trends have advocated selective use of axillary nodal clearance (ANC) in the treatment of breast cancer following sentinel lymph node biopsy (SNB). We aimed to determine the effectiveness of one-step nucleic acid amplification (OSNA), CK 19 mRNA copy number and tumour-related factors in predicting non-sentinel axillary nodal involvement, in order to formulate local guidelines for ANC.

Methodology: Patients due to undergo SNB at our institution for invasive breast cancer as well as selected patients with high grade ductal carcinoma in-situ (DCIS) 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 mRNA copy number of all nodes, their sum for each patient − the total tumour load (TTL), total nodal status at ANC and tumour characteristics including grade and receptor status were recorded. A model of risk probability was constructed using TTL and tumour-related factors.

Results: 695 nodes were evaluated from 381 patients who had SNB performed between 2011 and 2014. The concordance between OSNA and histology was 91% and Positive predictive value (PPV) and negative predictive value (NPV) were 77% and 97% respectively. Patients with pN1 disease with TTL less than 1400 did not have additional non-sentinel lymph node involvement. The risk model used TTL and tumour grade and identified all patients with pN2 disease and above as requiring ANC.

Conclusion: In future patients will be offered ANC based on our model of risk stratification while axillary surgery in other groups may be omitted.

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P076. Electrochemotherapy for cutaneous metastases in breast cancer: Experience from a designated treatment centre

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Introduction: Electrochemotherapy (ECT) has been recommended by NICE (UK) for treatment of breast cancer skin metastases. This study assessed how breast cancer patients were benefited and identified potential problems.

Methodology: Patients with cutaneous metastases from breast cancer, who fulfilled the NICE (UK) and local guidelines, were offered treatment. Gabapentin was given prior to general anaesthesia. An intravenous Bleomycin 15,000IU/m^2 was given as a bolus. Treatment was commenced 8 minutes later with Cliniporator™. Electrical pulses were delivered via an electrode inserted through the skin surface. Treatment response, complications, post-operative pain and length of in-patient stay (LOS) were recorded with 6 month post-treatment follow up. Patients recorded symptoms post treatment.

Results: 12 patients received 15 treatments from 2011−2014. 41 separate areas were treated; 9 patients had diffuse lesions and 3 had discrete nodular cases. 11 patients were being treated with ECT for the first time and 3 patients required 2 treatments. Median LOS was 3 days with improvement in all treated areas. 9 patients had complete response. In 6 patients there was no disease progression for 6 months and 2 further patients where the disease was stabilised for 4 months. There were no deaths or immediate adverse events from ECT. 4 patients with extensive diffuse chest wall disease reported persistent discomfort post treatment.

Conclusion: Electrochemotherapy is safe and effective but requires appropriate patient selection for treatment, pre-emptive analgesia and post treatment support and follow up in order to maximise the benefits and minimise potential side-effects.

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P077. Neoadjuvant chemotherapy for stage II and III breast cancer increases breast conservation in all intrinsic breast cancer subtypes

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Background: Neoadjuvant chemotherapy (NAC) is increasingly being used to treat early breast cancer. One of the main benefits to the surgeon is the potential to down-size the tumour, thus facilitating breast-conserving surgery (BCS). Although the practice of BCS following NAC is now widely established, there is relatively little data on the impact of intrinsic breast cancer subtype on BCS conversion rates. The aim of this study was to evaluate differences in BCS rates between intrinsic breast cancer subtypes in patients undergoing NAC, in addition to clinical outcome.

Methods: A total of 185 consecutive patients with T2 tumours or above, who underwent NAC at our institution between January 2008 and December 2011 were included in this study. Intrinsic breast cancer subtype was determined using the St. Gallen clinico-pathological approximation.

Results: BCS was successful in 23.8% of all patients (40% if tumour stage T2, 5.1% if tumour stage T3 or above; $p < 0.001$, Fisher's exact test). Between intrinsic subtypes, there was no statistically significant difference in re-excision ($p = 0.68$) or successful BCS rate ($p = 0.81$). pCR rate was 13%. Triple negative-like and HER2-positive-like subtypes were associated with pCR. Luminal A-like and Luminal B/HER2-positive-like cancers demonstrated significantly better overall survival than other subtypes.

Conclusions: Our results support the widening indications for NAC in breast cancer. Patients should not be excluded from NAC with the intention of down-sizing the tumour based on their breast cancer's intrinsic subtype.

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P078. Lipomodelling for congenital breast asymmetry

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Introduction: Poland's syndrome, hypoplasia and tuberous breast anomalies result in breast asymmetry. Implant reconstruction has previously been the mainstay of treatment but is associated with short and long-term complications. We present our experience of lipomodelling as an alternative to implant procedures to correct congenital breast asymmetry.

Methods: Thirteen consecutive patients undergoing lipomodelling without an implant for congenital breast asymmetry were included in this study. All patients were offered alternative procedures including augmentation, mastopexy and/or contralateral surgery prior to proceeding with lipomodelling. Data was collected prospectively. Fat harvest and transfer was performed as described by Coleman and Delay.

Results: Thirteen patients underwent lipomodelling between February 2008 and December 2013. Their median age was 25 (16−37) and BMI was 26 (21−36). Nine patients had breast hypoplasia and 4 had tuberous breast deformity. The estimated median volume difference was 70% (20−80). The median number of sessions required to achieve satisfactory symmetry was 2 (1−5). The median total transfer volume per patient was 367mls (76−938). Six patients required lipomodelling only while 7 had concurrent mastopexy/ contralateral reduction procedures. A BMI of less than 25 did not increase the number of lipomodelling sessions required (2.3vs.2.5, $p < 0.76$). One patient developed a donor site infection that required antibiotic therapy. There were no other complications.

Conclusion: Lipomodelling should be considered as an alternative to implant based correction of congenital breast asymmetry. It produces excellent results (photographic outcomes presented) with minimal morbidity and scarring. It is effective in all patient groups regardless of age, BMI or the extent of asymmetry.

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P079. Routine cavity shaves in therapeutic mammoplasty – Can we avoid a second procedure?

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Introduction: Therapeutic Mammoplasty (TM) is used to combine breast cancer excision with breast reduction surgery in women with large breasts. With TM, surgical excision margins may be variable depending on tumour size and position within the breast. Re-operations to excise positive margins can prove technically difficult for the surgeon and sub-optimal for the patient. We reviewed our own practice to determine whether routine cavity shaves prevent further operations.

Methods: Data were collected retrospectively over a two year period from 01/01/2013 to 31/12/2014. Histology reports were viewed, recording cavity shave margin data and any subsequent breast operations. A total of six margins were included: anterior, posterior, superior, medial, lateral and inferior. Routine cavity shaves were not taken for small tumours in en bloc resections. Local guidelines at the time of the study stated acceptable excision margins were 1mm for invasive disease and 2 mm for in situ disease.

Results: 89 procedures were performed on 87 patients (two bilateral cases). During TM, 56 (62.9%) of these procedures included cavity shaves as follows: 1 margin – 16 patients, 2 margins – 11 patients, 3 margins – 12 patients, 4 margins – 14 patients, 5 margins – 3 patients, 6 margins – 1 patient. 25/56 (44.6%) of these patients had positive margins from the initial cancer resection. Of these 25 patients, 17 (68%) patients had clear new margins after taking into account cavity shavings, preventing a second operation. 8/25 (32%) patients had disease at the new margin following cavity shave; of these, 3 patients successfully underwent margin re-excision and 5 patients had completion mastectomy.

Conclusion: In TM cases where surgical margins may be in doubt, routine cavity shaves can reduce the risk of subsequent operations.

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P080. Plasma and tissue expression of mammaglobin-A in human breast cancer

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Introduction: Human mammaglobin-A has been shown to be specifically expressed in breast tissue, over-expressed in some breast cancers and associated with less aggressive phenotypes. Mammaglobin-A protein expression has rarely been measured in plasma samples and it is not known whether the levels correlate to breast tumour expression and or the tumour histopathology.

Methods: 80 patients who had undergone breast surgery (benign or breast cancer) were randomly selected after stratification for tumour grade. Paired breast (tumour) tissue and pre-operative plasma samples were analysed for mammaglobin-A protein expression by immunohistochemistry and ELISAs respectively. Expression was compared with histological and clinical parameters; tumour grade, type, size and receptor status (where available). The study had ethics approval.

Results: Positive mammaglobin-A expression was observed in 52% tissue samples and 81% pre-operative plasma samples. There were no associations between the tissue or plasma mammaglobin expression with tumour histological grade, receptor status, or size. For histological grade, positive mammaglobin expression was observed in 50% benign tissue samples, 50% grade 1, 58% grade 2 and 42% grade 3 tumour samples and in plasma; 75% benign, 87% grade 1, 86% grade 2 and 71% grade 3 tumours.

There was no significant correlation between paired tissue and plasma mammaglobin expression; 9% patients were mammaglobin-negative for both samples and 43% were mammaglobin-positive (Chi-squared, $P < 0.05$).

Conclusions: Positive mammaglobin-A protein expression was found in the majority of plasma samples from breast cancer patients. However, this expression did not correlate with the corresponding tissue expression or tumour histopathology.

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P081. A review of adolescent breast disease and management in a paediatric surgical unit

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Introduction: The majority of teenage girls in the UK with breast lumps are seen and managed under standard adult protocols. The aim of this study was to review management of adolescent girls presenting with breast disease to a paediatric surgical unit to quantify the issue and allow development of an Adolescent Breast Clinic.

Methods: A retrospective case note review was carried out of adolescent girls (11–17 years) referred with a primary breast symptom to a tertiary Paediatric Surgical Service.

Results: Between 2001 and 2014, 261 girls, mean age 14, were reviewed. The rate of referral has significantly increased in the last four years. In all cases the underlying pathology was benign, principally fibroadenoma 88 (33%) and pubertal changes 82 (32%) The remaining 91 cases (35%) comprised minor problems such as eczema, accessory nipples and vascular abnormalities. Imaging was undertaken in 49 patients. There were 23 operations performed where the presenting symptom was a breast lump: fibroadenoma (18), intra-ductal papilloma (2), harmatoma (1), hypertrophied breast tissue (1) and 1 case of Pseudo Angiomatous Stromal Hyperplasia.

Conclusions: Adolescent breast disease is dramatically different from adult breast disease; all cases had benign pathology. As such, the routine triple test of adult practice is inappropriate. Standardisation of clinical assessment and indications for investigations and operative intervention in this specialist field should be developed with a focus on thorough clinical assessment and appropriate reassurance for the patient with benign disease but also addressing the concerns and education of parents and referring clinicians.

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P082. What influences clinicians' treatment preferences for older women with operable breast cancer? An application of the discrete choice experiment

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Introduction: The use of primary endocrine therapy (PET) as an alternative to surgery for older women with operable breast cancer varies from 10–40% in the UK. Guidelines state that only patients with "significant comorbidity" or "reduced life expectancy" should be treated this way and age should not be a factor.

Methods: A Discrete Choice Experiment (DCE) was used to determine the impact of key variables on healthcare professionals' (HCP) treatment preferences for operable breast cancer in older women. Distribution was by postal questionnaire via the Association of Breast Surgery (ABS). Multinomial logistic regression was used to identify associations between the outcome variable (treatment) and clinical characteristics (patient age, comorbidity, cognition, functional status, cancer stage, cancer biology).

Results: 258/641 (40.2%) questionnaires were returned. Five variables (age, co-morbidity, cognition, functional status and cancer size) independently demonstrated an association with treatment preference ($p < 0.05$). On multivariate analysis, functional status was omitted from the model due to collinearity, with all other variables correlating with a preference for operative treatment over no preference ($p < 0.05$). However, only co-morbidity, cognition and cancer size correlated with a preference for PET over no preference ($p < 0.05$).

Conclusion: The majority of respondents selected treatment in accordance with current guidelines. However in some scenarios, opinion was divided and age did appear to be an independent factor that HCPs considered when making a treatment decisions in this population. This study demonstrates that HCP preferences for managing older breast cancer patients are not uniform, which may contribute to the treatment variation seen in this population.

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P083. Breast oncological surgery in a resource poor country – Patient presentation and early outcome

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Introduction: India has a rising incidence of breast cancer, currently estimated at 145,000 patients annually. Centres or surgeons providing specialized breast oncosurgery within a multidisciplinary team are rare. We describe a consecutive series of patients, treated in the first 3 years of the service, at a specialist oncology hospital.

Methods: Presenting and pathological data for all patients having surgery for breast cancer in a 3 year period were analysed.

Results: This series includes 1010 consecutive patients. The median age at presentation was 53 years, with 12% of patients aged below 40 years, and 54% post menopausal. 1% were male. 65% of patients had primary surgery, the remainder had NACT (FEC-T if tolerated). 55% of tumours were G3, 76% ER/PR positive and 31% Her2 positive. 12% were triple negative. Adjuvant therapy was protocolised, (FEC, with T if node positive) and hypofractionated radiotherapy (40Gx15 + 12Gx4 cavity boost). A minority received trastuzumab.13, 53 and 33% of women having primary surgery were in good, intermediate and poor Nottingham Prognostic groups. 88% of tumours in the primary surgery group were T1/T2 and 45% were node negative. 53% of 352 patients having NACT had T4 tumours, pCR was achieved in 22% of the whole group. Overall 43% of women had breast conservation surgery (50% in primary surgery group), with oncoplasty as required. 10% of women having breast conservation had re-excision to achieve negative margins. 90% of women who had NACT with the intention of breast conservation achieved this, using oncoplastic volume replacement if tumour size remained unfavourable. Impalpable lesions (4%) and DCIS alone (2%) were rare. At early follow up (average 17m), 23 patients developed local recurrence (2 following breast conservation) and 81 patients had metastatic disease.

Conclusions: Patients in this series presented younger than in Western data, with more G3 tumours and higher NPI scores. ER/PR positivity was similar. Local recurrence and metastasis were low, and correlated with disease status at presentation.

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P084. Patient survey on the use of Liquibond glue dressing in surgical breast practice

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Aim: To gain an insight into patients' experience on the use of glue dressing and its comparison with the standard shower-proof dressing.

Methods: Prospective study carried out after obtaining approval from audit department. Pre-operatively, patients having breast and axilla surgery were invited to take part and were given information on type of dressings. Post-operatively, one wound was dressed with standard shower-proof dressing and other with Liquibond. 45 patients participated over six months period.

Results: Response rate was 69%. Pre-operatively 90% of patients understood the reason of comparing two types of dressings and 84% felt that both dressing were adequately described to them.

Postoperatively, 97% felt that wound is adequately protected. 97% did not experience any problems with cleansing skin around the site of the glue dressing as compared to 93% with standard dressing. 97% were happy with appearance of glue dressing as compared to 90% with standard dressing. 35% of patients felt that glue dressing improved their confidence to get back to performing usual daily tasks while 55% found there was no difference. 10% had mild redness and itching sensation with glue dressing. 36% found it more painful to remove shower proof dressing as compared to 3% with glue dressing.

Conclusion: Both types of dressings met with high satisfaction levels but 35% favoured the glue and felt more confident in resuming normal daily activities; Glue dressing also avoids unnecessary visits to GP surgery for wound checks.

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P085. Indication for breast conservation for lobular cancer may be extended when oncoplastic techniques used

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Introduction: Incomplete excision rate for lobular cancer is much higher compared to other types of breast cancer, since lobular cancer is frequently occult on imaging. This, and the inability to downstage lobular cancer with neoadjuvant therapy, leads to the highest mastectomy rate of all subtypes. We investigated whether the application of level 2 therapeutic mammoplasty (TM) would extend the indication for conservation with lobular cancers.

Methods: Retrospective analysis of patients undergoing breast surgery for lobular cancer during a 4-year period was carried out. Pathological and preoperative radiological results were analysed in the context of final surgery and tumour excision margins. Mann-Whitney and Chi-square tests were used, level of significance was $p = 0.05$.

Results: 135 patients underwent surgery for lobular cancer (lumpectomy:66; TM:19; mastectomy:50). TM was offered for significantly larger tumours than lumpectomy (28.29mm (10–62) vs. 19.96mm (5–57); $p < 0.01$; vs. mastectomy:37.56mm (5–110); $p = 0.096$). Incomplete margins were found with significantly smaller tumours when lumpectomy was applied compared to TM (25.94mm (6–56) vs. 38.6mm (30–45); $p = 0.031$). Conservation was achieved with significantly bigger tumours when TM was used (25.46mm (10–62) vs. 17.66mm (5–57); $p = 0.032$). Multifocality, however, significantly increased the chance for incomplete excision even after TM (4/7; $p = 0.019$).

Conclusion: Using TM breast conservation can be achieved for significantly larger lobular cancers. Further, application of level 2 oncoplastic techniques may decrease incomplete excision rate in smaller cancers, which are routinely treated with lumpectomy now. In addition, a proportion of lobular cancers offered mastectomy upfront may be conserved with level 2 oncoplastic surgery, hence decreasing mastectomy rate.

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P086. High incomplete excision rate is strongly associated with lobular subtype, node positivity and tumour size, but independent of hormonal and HER-2 status

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Introduction: Incomplete excision (IE) and final mastectomy (M) rates depend on numerous factors including pathology, patients' breast size, choice of operation and comorbidities as well as surgical technique. Here, we investigated the association between histopathological characteristics and incomplete excision as well as mastectomy rates.

Methods: Data of 1389 consecutive patients underwent surgery for (non)invasive breast cancer between January 2008 and June 2012 was analysed. Statistical significance was calculated using Chi-square and Z-tests with a significance <0.05.

Results: Overall incomplete excision rate was 13.74% (131/953), and mastectomy rate was 35.35% (491/1389). Higher incomplete excision and mastectomy rates were strongly associated with lobular subtype (IE: 26.03% (19/73); M:51.22% (63/123); $p < 0.01$ vs. other subtypes), node positivity (IE: 25% (36/144) vs. 10.43% (68/652); $p = 0$ and M:60.69% (193/318) vs. 25.65% (216/842); $p = 0$) and tumour size (IE:T3 80% (4/5) vs. T2 22.51% (43/191) vs. T1 9.23% (55/596); all $p < 0.01$; and M:T3 95.35% (41/43) vs. 59.46% (242/407) vs. 16.16% (112/693); all $p = 0$). Incomplete excision rates were independent of hormonal and HER-2 expressions (ER+:12.55% (89/709) vs. ER-:16.67% (15/90); $p = 0.27$ and HER2 neg:12.67% (91/718) vs. HER2 pos:16.67% (13/78); $p = 0.32$) and it was just higher in grade 2 and 3 cancers (14.6% (60/411); $p = 0.037$ and 16.22% (36/222); $p = 0.021$ vs.G1:6.86% (7/102). However, hormonal and HER-2 expressions as well as tumour grade were in strong association with mastectomy rate (ER+: 33.28% (335/1007) vs. ER-:48.75% (78/160); $p < 0.01$; HER2 neg:33.43% (341/1020) vs. HER2 pos:49.65% (71/143); $p < 0.01$; G3:50.49% (205/406) vs. G2:30.77% (172/559) vs. G1:14.28% (17/119); all $p = 0$).

Conclusion: Higher incomplete excision rate is strongly associated with lobular subtype, node positivity and tumour size, but independent of hormonal end HER-2 expression, while tumour grade is not a strong predictor. However, all histopathological characteristics are strong predictors of final mastectomy rate.

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P087. A retrospective analysis of 50 consecutive duct excisions in a single centre

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Introduction: Nipple discharge accounts for 3–9% of referrals to the breast clinic and 10–20% of patients with a pathological discharge have an underlying malignancy, although several studies have shown this rate to be much lower when examination and imaging are normal. The aim of this analysis was to try and identify any pre-operative factors which could predict a malignant diagnosis after duct excision for nipple discharge.

Methods: The electronic case notes were examined on 50 consecutive patients who had undergone duct excision. Data was collected on presentation, examination findings, radiological findings, cytology, post-operative histology and outcome.

Results: 50 duct excisions were performed between 10/01/2012 and 28/11/2014, 2 major duct excisions and 48 microdochectomies. All patients had presented with nipple discharge which was described as bloody by 32 of the 50 patients. Mammography and USS only identified an abnormality in 2 patients. Seven patients had a post-operative diagnosis of Ductal Carcinoma in situ, 21 had an intraductal papilloma, 7 had benign papillary hyperplasia and 15 had ectactic ducts or normal breast tissue. There was no association between the colour of the discharge, examination findings, imaging or the pre-operative cytology and the final diagnosis.

Conclusions: There was a 14% incidence of DCIS in this series.

Pre-operative imaging and cytology for patients presenting with nipple discharge does not predict the final outcome.

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P088. Circumferential High Intensity Focused Ultrasound (HIFU) in the treatment of breast fibroadenomata: The HIFU-F trial

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Introduction: Breast fibroadenomata (FAD) are the most common breast lesions in women. High intensity focused ultrasound (HIFU) is a non-invasive ablative technique that can be used to treat FAD but is associated with prolonged treatment times. In the HIFU-F trial, we performed circumferential HIFU treatment in order to isolate the FAD from its blood supply, thereby reducing the treatment time compared to whole lesion ablation.

Methods: Patients over 18 years diagnosed with symptomatic, palpable FAD visible on ultrasound (US) were recruited. Patients were treated using the US-guided Echopulse device (Theraclion, France) using local anaesthesia only. Primary outcome measures included the reduction in treatment time and decrease in FAD volume as recorded by US. This study received ethical approval (REC 13/LO/1221).

Results: From December 2013, 28 patients (mean age 30.4 years, SD 7.3 years) underwent HIFU treatment. Circumferential treatment significantly reduced the mean treatment time by 34.3% (SD 19.0%, $P < 0.001$, two sample T-test). US demonstrated a mean reduction in FAD volume of 39.9% (SD 25.5%, $n = 18$) at three months and 53.3% (SD 28.1%, $n = 12$) at six months. Follow-up at three and six months showed resolution of pre-treatment pain in 8/10 patients. Short term complications at two weeks ($n = 27$) were erythema ($n = 7$), ecchymosis ($n = 10$), skin numbness ($n = 1$), hypo-pigmentation ($n = 1$), skin dimpling ($n = 1$) and a first-degree skin burn ($n = 1$). Only altered skin pigmentation persisted at three months (6/18 patients) and six months (3/12 patients).

Conclusion: Circumferential HIFU ablation of FAD is feasible with a significant reduction in treatment time and low side-effect profile.

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P089. Liposuction and fat transfer for breast oedema and fat necrosis

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Introduction: Breast oedema and/or erythema develops in 10–21% of patients after breast conserving surgery and radiotherapy. Despite the significant morbidity it is under recognised and largely ignored. There are few effective treatment options.

A small number of patients develop large areas of fat necrosis after breast conservation surgery and radiotherapy resulting in deformity and pain. No recognised treatment exists.

The aim of the study was to evaluate the efficacy of liposuction and fat transfer in the treatment of breast oedema and fat necrosis.

Methods: Eight patients underwent liposuction and/or fat transfer for breast oedema, morphea and/or fat necrosis. Their records were reviewed retrospectively.

Results: Two patients developed significant oedema, erythema and pain after surgery compounded by the effect of radiotherapy. Both had an estimated 30% increase in breast volume.

A third patient developed major oedema, pain and breast shrinkage in the year following breast conservation and radiotherapy.

Five patients developed significant areas of fat necrosis following breast conservation (with or without therapeutic mammaplasty) and radiotherapy.

These patients underwent 1−4 episodes of liposuction and fat grafting.

All experienced a reduction in breast pain. Photographs show resolution of distortion, erythema and oedema in all patients. Symmetry was achieved in all but two patients who had undergone contralateral symmetrisation procedures.

Conclusion: Liposuction and fat transfer (grafting) is effective in patients with significant morbidity due to breast oedema and fat necrosis.

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P090. Breast cancer awareness in young women − A national survey 2014

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Aims: CoppaFeel! is a charity improving breast cancer awareness in young women. With funding from the charity, a national survey of young women's perceptions of breast cancer was conducted. It looked at attitudes to the risk of developing breast cancer, knowledge of the symptoms, the degree of self-checking for signs of breast cancer and the perceived barriers to accessing medical advice. Finally, we assessed the impact of breast awareness charities.

Methods: Between 27th June and 9th July 2014, 1337 women were randomly surveyed online nationwide. The questionnaire consisted of 43 questions and was carried out by Vision Critical, an independent market research company. Inclusion criteria were women aged 18−30 years with a mix of working status and social class. 328 (25%) were students where CoppaFeel! has on site university presence.

Results: In summary, 22% felt there was a chance of developing breast cancer in their lifetimes. 58% felt confident recognising the signs and symptoms of breast cancer yet 68% had never checked their breasts. 39% felt the biggest barrier to accessing medical advice was concern over wasting the doctor's time. 26% reported being prompted to self-check by television programmes, 9% by charities and 8% by doctors.

Conclusions: Despite being the most common cancer diagnosed in women under 40, a vast proportion of young women have a poor understanding of breast cancer, its signs and symptoms, how to check their breasts and when to seek medical advice. CoppaFeel! was founded for these reasons and continues to educate and empower young women.

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P091. Outcomes of immediate breast reconstruction using different techniques: A systematic review of comparative studies

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Introduction: The choice of procedure for immediate breast reconstruction is mainly between autologous or implant-based techniques, with many women suitable for both. We systematically reviewed all published literature comparing the clinical and patient-reported outcomes (PROs) of these different techniques.

Methods: Ovid SP versions of EMBASE and MEDLINE databases were used to identify all studies which met the inclusion criteria published between January 1995 and December 2013. Key words used were "breast", "reconstruct", "immediate," "outcome", "satisfaction", "PROMs"," Patient reported outcomes", "complications". Two authors performed the search and extracted data separately.

Results: The search yielded a total of 12 articles. 7/12 compared clinical outcomes between the two techniques and 5/12 compared PROs. All of the clinical outcome papers were retrospective single-centre case series. 4/7 found a significant difference in clinical outcomes of which 3/4 reported worse outcomes in the implant based group. The 5 studies which compared PROs were heterogenous in terms of the method used for comparative assessment. Of these 5 studies, 2/5 showed no significant difference between the two groups, 2/5 showed improved outcomes in the autologous group and 1/5 showed equivalent outcomes apart from two domains (role functioning and pain) which were worse in the autologous group.

Conclusions: There is insufficient high quality evidence in the literature to enable an objective comparison to be made between the outcomes of the different types of immediate breast reconstruction techniques.

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P092. Outcomes of immediate breast reconstruction using an implant and acellular dermal matrix: A systematic review of the different products currently in use

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Introduction: Over the last 10−15 years there has been a significant increase in acellular dermal matrix (ADM) use for breast reconstruction, which has lead to the introduction of multiple alternative ADM products. We conducted a systematic review of studies reporting on the outcomes of ADMs currently used for immediate implant-based breast reconstruction.

Methods: Ovid SP versions of EMBASE and MEDLINE databases were used. Search terms were: (("breast" OR "breast reconstruction") AND ("acellular dermal matrix" OR "acellular dermis" OR Strattice OR Surgimend OR Alloderm OR Human acellular dermis OR cadaveric dermis or acellular dermis-assisted or Dermamatrix or FlexHD or Neoform)). Strict inclusion and exclusion criteria were applied, data was abstracted using a pro forma and risk of bias was assessed using the Down's and Black checklist.

Results: A total of 27 studies met inclusion criteria. 18/27 were retrospective case series and 9/27 were cohort studies with a non-ADM control group. There were no randomised controlled trials. There were 2 studies on bovine ADM use and 6 on porcine ADM use, with the remainder reporting on human ADMs. Significant risk of bias was demonstrated in the cohort studies, mainly as a result of allocation bias and a lack of information related to the distribution of potential confounders.

Conclusions: There remains very little high quality evidence for the outcomes of breast reconstruction using an ADM, particularly for non-human ADMs. High risk of bias means individual study results cannot reliably be combined in the form of a meta-analysis.

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P093. Modified periareolar mammaplasty (MPM) for wide local excision of breast cancers in the upper half of the breast

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Introduction: Oncoplastic techniques are increasingly used in breast conserving surgery for better aesthetic outcome following breast cancer treatment without compromising oncological principles. This modified periareolar mammaplasty (MPM) gives excellent access for wide local excision, avoids scar on the breast mound and also gives a pleasing aesthetic outcome. We have critically evaluated our technique including oncological and aesthetic outcomes over a 14-month period.

Methods: Details of patients who underwent MPM between Oct 2013 and Dec 2014 were retrieved from our prospectively collected breast cancer operations database. Patient's operative details including the duration of operation, specimen weight, histopathology data, adjuvant therapy details and follow-up visits were updated. Medical photography was reviewed for all patients.

Results: 25 women underwent MPM. The median age was 60 yrs (range 37−82). The median specimen weight was 34g (range 17−76). Along with breast cancer surgery, most of them had axillary staging according to standard practice. Two patients had re-excision of margins and one patient underwent completion skin sparing mastectomy for involved margins. Postoperative recovery and wound healing were uneventful except one patient had infection of axillary wound. 23 patients underwent radiotherapy to the breast remnant. Medical photography shows excellent aesthetic outcomes.

Conclusion: MPM is a type of therapeutic mammaplasty which is easy to learn and reproduce, and a useful adjunct to oncoplastic breast conserving surgery.

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P094. Clinical feasibility of Cerenkov Luminescence Imaging (CLI) for intraoperative assessment of tumour excision margins and sentinel lymph node metastases in breast-conserving surgery

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Introduction: Cerenkov Luminescence Imaging (CLI) is a molecular imaging technique that detects light emitted by Positron Emission Tomography (PET) radiopharmaceuticals.

This first-in-woman study evaluates ^{18}F-FDG CLI for intraoperative assessment of tumour margins and sentinel lymph node (SLN) metastases with a view to reducing re-excision rates.

Methods: To date 8 of 30 patients have been recruited (REC reference 14/WM/0050). Patients received 5 MBq/kg ^{18}F-FDG 1−2 hours prior to surgery. ^{99m}Tc dose was increased to 150 MBq to facilitate SLN detection against the gamma-probe background signal (cross-talk) from ^{18}F-FDG. The cross-talk was evaluated in a separate lead-in study of n = 20 patients.

Tumour specimens and SLNs were imaged with a CLI imager (Lightpoint Medical Ltd, UK) intraoperatively immediately after excision. Normalised decay-corrected radiance (ph/s/cm^2/str/MBq) was calculated for each ROI. Radiation doses to all staff were measured.

Results: Elevated radiance was identified in the primary tumour (26.7 ROI SD 3.2), and the only metastatic (8mm) SLN (42.1 ROI SD 9.1) compared with negative SLNs (16.2 SD 12.5).

The mean ^{18}F-FDG cross-talk in the lead-in study was 348 cps and 357 cps in left and right axilla, respectively. SLN detection was successful in all patients undergoing CLI despite substantial ^{18}F-FDG cross-talk.

Table
Staff radiation doses

Staff	Average dose per procedure (μSv)	Maximum dose (μSv)
Surgeon	28.6	64
Anaesthetist	8.6	15
Anaesthetist assistant	6.4	11
Scrub nurse	1.8	5
Recovery nurse	6.6	17

Conclusions: Intraoperative ^{18}F-FDG CLI is a feasible and low risk procedure. Despite significant cross-talk, SLN biopsy can be performed successfully using 150 MBq ^{99m}Tc and blue dye.

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P095. Chemotherapy trends in early breast cancer in the under 55s in 2014

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Neoadjuvant chemotherapy (NACT) is increasingly employed for early breast cancer in younger women with the potential benefit over adjuvant treatment (ACT) of conserving the breast and monitoring response. With wider ranging indications for NACT, is the use of ACT in the under 55s diminishing?

Methodology: Clinico-pathological characteristics of patients under 55 undergoing chemotherapy in our unit over the last year were analysed, to review selection criteria for ACT in this age group.

Results: 195 patients under 55 were diagnosed with breast cancers in 2014. 37 under 55 received NACT. 122 Patients under 55 consulted an oncologist for consideration of ACT and 54 patients (60%) received it. 68 patients did not receive ACT, due to personal choice or "adjuvantonline" / oncologist opinion not being persuasive. ACT in the 54 patients was preceded by breast conserving surgery (BCT) in 28 patients, and by mastectomies (Mx) in 26. Of the 26 who had Mx, 12 were considered obligate mastectomy candidates regardless of potential NACT response. 11 chose to have Mx, with 8 of those 11 being offered NACT. In 3 patients, Mx was performed for widespread DCIS and chemotherapy was not anticipated pre-operatively. Of the 28 patients who underwent BCT, NACT was not discussed as they were already conservable and MDT saw no benefit.

Conclusions: The majority of younger women with early breast cancer treated with chemotherapy still receive it as an adjuvant treatment. 52% of women receiving adjuvant therapy do so as they are considered conservable without discussing primary systemic therapy, whereas 22% were deemed not conservable even with NACT. Adjuvant administration therefore remains the mainstay of systemic chemotherapy in this cohort of women.

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P096. Would application of ASCO guidelines on the axilla in early breast cancer result in under-detection in the UK? A retrospective review

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Background: Axillary management in breast cancer is evolving. Recent ACSO guidelines have suggested that axillary node clearances (ANC) are not necessary in the positive axilla in early breast cancers with small nodal burdens, undergoing breast conserving surgery (BCT).

According to ASCO guidelines, G1-2, T1-2 tumours with 1 or 2 SLN macrometastases, undergoing BCT should not undergo ANC. We compare current practice in a screening population against these guidelines.

Methods: We retrospectively analysed all patients with invasive breast cancer under the regional screening programme (2011−2014), looking specifically at management of patients who would not be offered ANC under ASCO guidelines.

Results: 687 screening patients were diagnosed in the time frame. 516 had normal axillary USS and 143 − abnormal.

Of the 516 normal USS, 79 (15.3%) had malignant sentinel lymph nodes (SLNB), (45 (57%) were macrometastases of which, 93% had 1−2 positive nodes. 34 (43%) were micrometastases). 86 abnormal USS had SLNB, 16 of which were malignant, 12 macrometastases (100% 1−2 positive nodes).

36 of the malignant *macro*metastatic SLNB met ASCO guidelines. 24 of those received ANC (67%), 7 (30%) of which were positive, 2 with heavy nodal burdens (10/14 and 5/20). The remainder had 1 positive node.

Conclusion: Under updated ASCO guidance on SLNB in early breast cancer, we are over-treating the majority of screening patients. However, had these guidelines been followed, 19% of our patients would have had a missed diagnosis of further axillary disease, and in 5% a significant nodal burden would have remained undetected. As clinicians, there is a responsibility to balance and articulate that trade off when discussing axillary management with patients.

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P097. Intra-operative assessment of excision margins in breast conserving surgery for breast cancer using ClearEdge imaging device

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Background: Breast conserving surgery (BCS) involves removal of a breast cancer to clear margins. Excision to clear margins is essential to reduce the risk of local recurrence. Currently margin status is determined in the pathology lab several days after surgery. The reoperation rate for involved margins after BCS in the UK, Europe and USA varies between 20%−40%. The *ClearEdge* Imaging device developed by LS BioPath examines the margins of excised breast tissue intra-operatively.

Aim: The primary aim is to validate the safety and accuracy of the *ClearEdge* device used intra-operatively to image the margins of lumpectomy specimens.

Patients and methods: In Phase 1 nine surgeons excised margins on the basis of the specimen X-Ray but not on results obtained from the *ClearEdge* device in 54 patients. Margin assessment on X ray imaging and using the *ClearEdge* device was compared to permanent section pathology. The rate of re-operations based on the specimen X-ray and the *ClearEdge* device was also compared. In Phase 2 of the study in 64 patients surgeons acted on the results obtained with the *ClearEdge* device as well as the specimen X-ray and excised further tissue if margins were deemed close by either technique.

Results: The sensitivity false positive (FP), false negative (FN) positive and negative positive predictive values (PPV and NPV) were significantly better with the *ClearEdge* device than for X-ray.

Margins	Sensitivity	FP Rate	FN Rate	PPV	NPV
ClearEdge	84.3%	18.1%	15.69%	67.19%	92.23%
X-Ray	24.7%	10.89%	75.73%	48.08%	73.91%

Phase 2 has been completed. There was a reduction in the rate of re excision following intraoperative use of the *ClearEdge* device from 29% in Phase 1. Comprehensive analysis is underway and will be available by the meeting.

Conclusion: *The ClearEdge* device can be used safely by surgeons. It has a high sensitivity and specificity in assessing margins. It has the potential to significantly reduce re-operation rates in patients having breast conserving surgery for breast cancer.

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P098. One-step nucleic acid amplification: CK 19 copy number as a predictor of further axillary involvement

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Introduction: In 2013, the National Institute of Clinical Excellence (NICE) endorsed the use of One step nucleic acid amplification (OSNA) in clinical practice. Our study aims to seek a correlation between the OSNA results, indicated by CK 19 mRNA copy numbers and the likelihood of non-sentinel axillary involvement in patients with macro-metastases.

Methods: A prospectively maintained database of all patients having a SLN biopsy for breast cancer between 2011 and 2014 was reviewed. The relationship between mRNA copy number in node positive patients and the presence of metastases in additional lymph nodes at ANC were correlated.

Results: A total of 100 patients were identified. Patients' ages ranged from 33- 86 years. A median of 2 SLNs were removed per patient (range 1−4). The ANC yield was 6−34 nodes (mean 14.9) with positive nodes on final histology ranging from 1−33 nodes (mean 3.96). 28 patients had no further disease on final histology of their ANC. 7 of these had OSNA counts of <8600 copies/μL. 21 patients had counts of >8600 copies/μL.

Conclusions: From our study we found that a copy number of <8600 copies/μL on its own could reliably predict the absence of further axillary disease in 7% of patients. We conclude that in patients with macro-metastatic disease in the SLN, the CK 19 copy number on its own is not useful to predict further nodal involvement. We feel that there may be other prognostic factors that in combination with the CK 19 copy number may yield a higher correlation.

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P099. Are patients satisfied with quality of service and clinical outcomes? The use of Breast-Q questionnaire in therapeutic mammoplasty

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Aim: To evaluate patient's quality of life, self-esteem impact and patient's satisfaction of patients who underwent a therapeutic mammoplasty (TM) procedure by mean of the BREAST−Q® (BQ) questionnaire and to compare it with the UK National Breast reconstruction Audit 2011 (NBRA 2011) outcomes.

Method: We contacted censored patients (n = 100) who underwent a TM during 2007–2012 inviting them to participate by asking them to complete a questionnaire. The BQ software was used to translate scores from qualitative to quantitative variables being compared with NBRA 2011 outcomes. BQ scores ranged from 0–100 and based in two domains:

1) Health related quality of life (QOL); 2) Patient satisfaction.

Results: The overall aggregate response rate was 76%. Sexual well-being and breast post-operative appearance satisfaction scored the lowest with 58 and 67 respectively. Satisfaction with senior surgeons, medical team as well as other staff scored the highest, near 100 each. NBRA recommends a score over 80 for satisfaction with pre-operatively information, our actual score was 79. The lowest scores were for expected postoperative pain, time for recovery and the impact surgery might have for further imaging during the follow up.

Conclusion: The BQ questionnaire, although originally not designed for TM, has proved to be a useful tool to assess quality of life and patient's satisfaction as well as a service benchmarking when compared to the NBRA 2011. This study has highlighted areas which need to be addressed to improve our quality of service.

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P100. Management of positive sentinel node biopsy. Audit of practice 2010–2012

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Introduction: Management of positive sentinel node biopsy (SNB) is currently under review, questioning the role of axillary nodular clearance (ANC) as the standard of care in some cases.

Aim: To audit our practice of the management of positive sentinel node biopsy (SNB) comparing 2010–11 vs. 2012 periods.

Method: We reviewed 297 patients (2010–2012), all with clinically negative axilla who underwent breast surgery and positive SNB. This cohort was split in two periods; 2010–2011 and 2012. Patients who received further axillary surgery (ANC) were compared with those who did not (nANC) in terms of the following variables: age, size of tumour, preoperative radiological diagnosis, adjuvant treatment given and oncologic follow up.

Results: ANC was performed in 58% during 2010–11 and 33% in 2012 ($p < 0{,}002$). Patients who underwent ANC were younger ($p < 0{,}001$) and tumours larger (30,5mm vs. 22,5mm; $p < 0.001$). Chemotherapy was given to 77% of ANC and 38% to nANC ($p < 0.001$). 40% of ANC patients received tamoxifen whereas 53% received letrozole ($p < 0{,}008$). No differences were detected in local recurrence, distant metastases and survival among groups.

Conclusion: A significant reduction of ANC was observed in positive SNB patients from 2012 when compared to those from 2010–11. Patients who underwent ANC were younger and their tumours larger. There were no differences in distant or local recurrences in either group; however a longer follow-up would be required.

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P101. The impact of generic tamoxifen brand switch on side effects and patient compliance in hormone receptor positive breast cancer patients

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Introduction: In 2006 Nolvadex was discontinued and replaced by a variety of alternative generic tamoxifen brands for the adjuvant treatment of breast cancer. Anecdotally, patients are switching brands and taking alternative medications to reduce symptoms. However, more severe side effects may equate to better relapse prevention.

This study evaluates factors affecting generic tamoxifen adherence.

Methods: Consecutive disease free ER positive patients (stage I-III) were invited to respond to a questionnaire. 165 of 327 questionnaires were returned (50% response). Pearson's χ^2 test was used for data analysis.

Results: 59% of all patients experienced side effects associated with tamoxifen treatment of which 53% were severe. Patients experiencing differential symptoms dependent on tamoxifen brand, reported more severe side effects ($p = 0.02$). Non-prescribed supplements were taken by 42% of all patients with no reported improvement in climacteric symptoms ($p = 0.05$). The concomitant use of SSRIs appeared to have no effect on symptoms. A significant number of patients considered discontinuing tamoxifen because of the side effects ($p = 0.001$), yet; this did not translate into discontinuation or non-adherence ($p = 0.8$ and 0.08 respectively).

Conclusions: Severe tamoxifen side effects are commonly experienced by breast cancer patients and are altered by change in tamoxifen brand in a significant minority.

Most patients will continue to take tamoxifen, despite side effects, to avoid cancer relapse. Supplementation and antidepressants did not improve tamoxifen related side effects. Further studies are needed to validate our preliminary findings.

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P102. Therapeutic mammoplasty: Use of wire localization and margin involvement

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Aim: To analyse the results in a series of breast cancer patients treated with lumpectomy in combination with either uni- or bilateral therapeutic mammoplasty (TM) in two groups of patients according to the diagnostic method: symptomatic (SYG) and screening (SCG).

Method: We reviewed TMs casuistic from 2007 to 2012 (n = 101 patients). Two groups were defined according to the source of diagnosis: SCG; n = 65 and SYG; n = 36. Demographic and clinical variables, wire localisation, involved margins, re-excision rates, surgical techniques, hospital admissions, adjuvant treatments, complications, cosmetic re-operation rates and follow-up were statistically analysed in the whole series and thereafter the groups were compared.

Results: The uni-variable analysis did not detect differences amongst groups barred for the presence of DCIS in the core biopsy ($p < 0.005$) and the number of wires used for localisation ($p < 0.001$) which was higher in SCG. Re-excision rate for the whole series was 9.8%; 19.4% for SYG and 4.8% for SCG ($p < 0.034$); axillar clearance 22.2% for SYG and 6.3% for SCG ($p < 0.042$) whereas distant metastasis were more frequent in SYG 14.3% ($p < 0.005$). Multivariate analysis differentiated two independent variables; the number of localization wires used and margin involvement. These findings did not affect the incidence of local recurrence and overall survival.

Conclusion: In our series TM has demonstrated to be oncologic safe, with low re-excision and local recurrence rates when compared with published series. Nevertheless our results showed SYG had significant higher rates of margin involvement than SCG likely as a result of less use of wire localisation than in symptomatic patients.

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P103. The use of SentiMag in identifying the sentinel lymph node: Warwick experience

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Introduction: SentiMag is a new system for the detection of the sentinel lymph node (SLN) in patients with breast cancer. The new technique uses 2 devices: a subcutaneous injection of a magnetic tracer into the breast and the use of a hand-held device (a magnetometer) to detect the SLN intra-operatively. We used SentiMag and compared it to the standard technique (radioisotope alone in our unit) used in breast cancer patients. We looked at the localisation rate of SLN detected with both the standard and the SentiMag technique.

Methods: We prospectively collected and analysed data from 22 patients listed for SLN biopsy for which we used both the SentiMag and the standard radioisotope as employed in our unit.

Results: Age 37−78 years

Tumour size on imaging 8mm−48mm (Mean 17.35mm)

Time of injection to start of surgery 7min−46 min (Mean 22.7 min)

Pre-operative Sentimag hot spot in 14 (64%) patients

Pre-operative Gamma probe hot spot 20 (91%) patients

Final detection rate for SentiMag in our group of patients was 12/22 (55%)

Conclusions: SentiMag had a detection rate of 55% compared to 95% of the standard technique. Nodes were only identified by change in colour and increased signal in 5/22 patients using the SentiMag technique. The size of the axillary incision was larger when using the SentiMag as compared to the standard technique. In our group of patients it was observed that even after harvesting the SLN there was still an increased signal in the axilla when using the SentiMag probe.

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P104. Use of medical terminology. Are we talking too much jargon to patients?

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Aims: Patients' understanding of their medical problems is essential. Information must be conveyed in a comprehensible manner to facilitate informed decision-making and consent, compliance with treatment and reduction of anxiety. In this study, we sought to evaluate patients' understanding of common terms used by breast surgeons in order to identify words which may need to be defined and explained during a clinic consultation.

Methods: A written questionnaire was given to all new patients in the waiting area prior to their breast clinic consultation during a six week period. Patients were asked to define twelve medical terms which are commonly used. The questionnaires were reviewed by two independent assessors with each question given an outcome of correct, partially correct, incorrect or blank. Any discrepancy in outcome between the examiners was discussed to gain consensus for a final outcome for each question.

Results: 102 consecutive patients were given the questionnaire; 7 declined or were unable to complete it. Of those who completed the questionnaire the mean age was 46.8 years (range, 16−90), 87 (91%) were female and 85 (98%) spoke English as their first language. 88% defined 'Surgeon' correctly whereas 'Radiographer' and 'Radiologist' were correctly defined by only 19% and 29% respectively with many confusing the two roles. 26% correctly defined 'Pathologist' and 41% 'Oncologist'. Two-thirds of patients correctly defined 'Benign' (66%) and 'Malignant' (65%). 'Mammogram' and 'Ultrasound' were correctly defined by 39% and 8% respectively. 21% of patients correctly defined 'Multi-Disciplinary Team Meeting'. 1 in 5 patients correctly defined 'Chemotherapy' (20%) and 'Radiotherapy' (19%).

Conclusions: This study has identified that many of the medical terms used in a consultation are not understood by patients. To provide optimal care, it is important for doctors to communicate clearly with patients and ensure medical terms are fully understood throughout the treatment process. Education must be incorporated as a routine part of the consultation to enhance the patient experience and ensure they can actively participate in making informed decisions about their care.

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P105. Evolution of trends in breast reconstruction in a tertiary referral centre

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Introduction: Breast reconstruction is an important component of multidisciplinary breast care, affording clearly defined psychosocial and aesthetic benefits to women undergoing mastectomy. Evolving practice has resulted in an increasing range of reconstructive options available to breast cancer patients. The aim of this study was to examine the practice of breast reconstruction over the last decade at a specialist tertiary referral Breast Cancer Centre.

Methods: A prospectively maintained breast cancer database was reviewed to collate data on all patients who underwent breast reconstruction between 2004 and 2014. Data on patient demographics, mastectomies, breast reconstruction timing and technique were analysed.

Results: 546 (56.28%) of 970 patients who underwent mastectomy had a breast reconstruction. 90.5% of breast reconstructions were immediate. There was a marked increase in breast reconstruction rates from 13 (17.57%) in 2004 to 68 (46%) in 2013. 19.57% of breast reconstructions were performed by plastic surgeons and 80.43% by oncoplastic surgeons. Reconstructive techniques included: Implant (28%), LD (62%) DIEP (7%), TRAM (3%). There has been an increase in the % of implant based reconstructions in recent years, compared to LD flaps, which comprised 88% of reconstructions performed in the first 5 years of the series compared to only 41% in the latter 5 years. The age of patients undergoing reconstruction ranged from 21 to 86 years, however the mean age of patients undergoing mastectomy and reconstruction (46.64 years) was significantly lower than mastectomy alone (62.99 years).

Conclusion: In conclusion breast reconstruction rates are increasing with a transition of recent trends toward immediate implant-based reconstruction.

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P106. Low Risk Breast Clinics: An alternative to One-Stop Clinics for a selected patient group

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Introduction: Breast Cancer is the leading cause of female cancer worldwide, causing 29% of new female cancers in Scotland with lifetime risk 11.6%. With priority on prompt referral/specialist review, pressure on the breast service is high.

We aim to demonstrate that "Low Risk" Breast Clinics provide a useful alternative to Triple Assessment clinics, and their utilisation is effective in reducing strain on the breast service.

Methods: Low Risk Clinic without radiology was created, where patients unlikely to have breast cancer were reviewed. Low Risk deemed as 1) Female aged <35; 2) Any symptom other than discreet lump; 3) Male

Retrospective analysis for all attendees (n = 458), March−December 2014. All attendees included. Analysis of age, urgency, symptoms, clinical findings, need for imaging/biopsy, diagnosis and outcome for all 458 patients. Data was analysed and clinic efficacy evaluated.

Results: 458 patients (F = 448 M = 12). 427 (93.23%) fit low risk criteria.

Most common referral symptom: pain (n = 221, 48.25%)

Most common diagnosis: No abnormality (n = 159, 34.72%)

77 (16.81%) required imaging and 21 (4.59%) biopsy.

384 (83.84%) discharged at first appointment, 6 (1.31%) discharged with referral to other speciality, 14 (3.06%) for family history screening, giving a total of 404 Patients (88.21%) not requiring triple assessment or further appointment. Only 3 (0.66%) cancer diagnoses: none fit low risk criteria.

Conclusion: Low Risk Clinics provide a viable alternative to triple assessment, with high discharge at first attendance and low need for imaging/biopsy. They allow greater flexibility in clinic timing and can relieve

pressure on triple assessment clinics.

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P107. Can axillary lymph node clearance be avoided in select sentinel lymph node positive patients?

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Introduction: The Z0011 study demonstrated no significant difference in overall or disease free survival between patients with early stage (T1−2) breast cancer (BC) treated with axillary node clearance (ANC) and those treated with sentinel lymph node biopsy (SLNB) alone. ANC is associated with substantial surgical morbidity in comparison to SLNB. The aim of this study was to ascertain whether further axillary surgery could have been avoided in a select SLNB-positive patient group.

Method: Radiological and pathological data of patients diagnosed with BC between 1/4/2011 and 31/3/2012 was collected retrospectively from the breast unit database. All patients underwent axillary ultrasound, FNA or core biopsy of axillary lymph-nodes and then SLNB and/or ANC as per NICE guidance. Tumour characteristics of the SLNB-positive and ANC-negative patient subgroup were then compared with ANC-positive patients using the Z0011 study as a guide.

Results: The study included 199 BC patients identified during this period, of which 43 underwent ANC. 22 BC patients had positive lymph-nodes on USS and pathology and had ANC without SLNB whilst a further 21 had positive SLNB and then ANC. 16 patients (76.2%) of the SLNB-positive subgroup were not found to have any positive lymph-nodes on ANC and had potentially avoidable further axillary surgery. Within this subgroup there were IDC(12), ILC(2), Mixed(2), ER-positive(16), HER2-positive(1), Grade 1 & 2(13) and grade 3(3).

Conclusions: It is clearly evident that further axillary surgery could have been prevented in 81.25% of SLNB-positive patients with grade 1 & 2 tumours. A study with a larger patient group is currently under way.

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P108. Introducing PROMs to the Royal Devon & Exeter Hospital: A service development project

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Introduction: The current financial climate necessitates CCGs purchasing high quality care. Patient reported outcome measures (PROMs) are an important measure of quality. The aim of this project was to collect PROMs on patients undergoing breast reconstruction. The aim was to measure patient satisfaction and assess the effectiveness of paper data capture.

Methods: The well-validated Breast Q PROM was selected. Patient pro formas were approved by the ethics committee and a licence to use breast Q was obtained. All breast reconstruction patients were invited to complete pre-operative PROMs by the breast reconstruction or preassessment nurse during 2014. Post-operative questionnaires were sent by post.

Results: 94 patients underwent breast reconstruction during 2014. 30 patients completed a pre-operative Breast Q. The post-operative Breast Q return rate was 50%. 13/15 patients had immediate and 2/15 had bilateral reconstruction. 8 patients had free flaps, 2 had ALDs and 5 had implant-based reconstruction. There was no significant difference between the group's pre- and post-operative Breast Q scores. Mean post-operative satisfaction scores were as follows: outcome 80±20, breast 67±23, information 81±13, surgeon 95±20. Physical well being (chest) scores remained at 76 in both groups. Physical well-being (abdomen) scores fell from 82±26 to 58±26 in patients undergoing free-flaps.

Conclusion: Patient satisfaction scores have been high. However, paper Breast Q PROM completion rates have been poor (32%), with a 50% return rate in the post-operative group. The Breast Q will be introduced on iPads and patients will be asked to complete these during clinic appointments to improve data capture.

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P109. Causes of failed sentinel lymph node biopsy in breast cancer patients

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Introduction: Sentinel lymph node biopsy (SLNB) using a dual technique of radio labelled colloid injection and patent blue dye has been routinely performed in our Trust since 2004. We audited our practice to identify factors that might predict failure of the technique.

Methods: Consecutive patients who had undergone breast isotope injection over 8 years (2005−2012) were identified. Where sentinel node biopsy had failed, data were collected to record demographics, past history and outcomes. All surgeons had undergone appropriate training.

Results: Over eight years, 2070 SLNBs were performed by six surgeons. Failed SLNB occurred in 46/2070 (2.2%) of cases, mean patient age 61 years. When SLNB failed, axillary node sample (ANS) was performed in 33 patients, axillary node clearance (ANC) in 13. Further macro metastases were present in 6/46. Nine patients (20%) had a history of previous surgery on the ipsilateral breast. Probe failure occurred in 2 patients. We found a significant rise in SLNB failures in 2008. Departmental audit revealed new staff performing isotope injection. Once this had been identified and appropriate training undertaken the failure rate subsequently reduced.

Conclusions: SLNB is successful in 97.8% of our patients. Previous ipsilateral breast surgery led to a SLNB failure rate of 20%. The importance of the audit loop is highlighted by investigating a sudden peak in failures, identifying and attending to the problem with subsequent improvement in results.

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P110. Role of the Memorial Sloan Kettering (MSK) nomogram in guiding the management of sentinel node positive breast cancer

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Aim: Sentinel node biopsy (SNB) is the standard approach for axillary staging in early breast cancer patients with a preoperatively negative axilla. National guidelines recommend further axillary treatment with either completion axillary node clearance (cANC) or axillary radiotherapy. We audited our management of positive sentinel nodes.

Methods: All patients who underwent further axillary treatment for positive sentinel node biopsies between January 2013 and December 2014 were reviewed. Data collected included demographics, histology, pre-operative and post-operative staging and treatment. All nodes were analysed using serial haematoxylin-eosin. The Memorial Sloan Kettering (MSK) nomogram for predicting further nodal metastases was then applied retrospectively.

Results: 179 patients had SNB of whom 21 (11.7%) [median age 58; range 30−77] underwent cANC for positive SNB. Only 5/21 (24%) [median MSK predicted risk 22%; range 17%−74%] had further metastatic nodes in the cANC. There was no direct correlation with any single variable for predicting further metastases in the cANC. However, using the MSK nomogram, patients who scored below 15% had no further nodal metastases ($p = 0.06$ Fisher's exact, AUC = 0.791), and 8/21 (38%) patients would have avoided cANC if this threshold was used.

Conclusion: 76% of the patients did not benefit from having cANC. The presence of further nodal metastases appears to be multifactorial and the MSK nomogram might be useful in predicting this, however a larger sample is needed to define the threshold. The definitive role of cANC post-SNB is currently a subject of much contention. The recently started POSNOC study is likely to shed light on this.

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P111. The primary endocrine clinic − An institutional review

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Introduction: Primary endocrine therapy (PET) is used in breast cancer, for patients deemed unsuitable for surgery due to co-morbidities or frailty. A review of the first 12 months of a nurse-led primary endocrine clinic was performed to determine whether the clinic was effective and whether referrals and patient selection was appropriate. To determine frailty, the Vulnerable Elders score (VES-13), a short frailty-screening tool, was used for new referrals.

Methods: Patients currently on PET were identified from a prospectively collected database, including those who began treatment prior to the initiation of the clinic and VES-13 scoring. Demographics and treatment information including duration, therapeutic agent, changes in treatment, VES-13 score and discharge to GP, was determined from patient records. Missing information was sought from the patient's GP.

Results: 128 patients were identified; 49 patients previously on PET and 79 new patients. Average age was 83 and 82 years respectively. 62.0% had a VES-13 score recorded. 91.8% were deemed frail (VES-13 >3). 94.0% were on aromatase inhibitors with an average treatment duration of 2.4 years. 15.7% had treatment agent changed and 10.1% were referred for other treatment. Mortality was 11.8%. 11.0% were discharged to the GP.

Conclusion: These results demonstrate that a nurse-led clinic for PET is effective and patients were appropriately selected. It highlighted the difficulty of implementing a screening tool as well as areas for improvement. Development of the service includes involvement of geriatric services with cognitive assessment as well as the safe discharge of patients on PET to the community.

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P112. Optimising the enhanced recovery programme at Royal Bolton Hospital for non-reconstructive breast surgery

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Background: Enhanced recovery programmes following surgery are becoming increasingly common and same day discharge after non-reconstructive breast operations is acknowledged as best practice. The aim of our study was to evaluate barriers to same day discharge at Royal Bolton Hospital following breast surgery, with a view to improving rates of day case surgery from 49.9% over Jan−July 2013.

Method: Prospective study of patients identified as appropriate for same day discharge over a 6 week period. Clinical information was collected alongside patient questionnaires about their post-operative recovery.

Results: 58 patients were identified; 100% of questionnaires were returned, with response rates of individual questions varying. 45% stayed overnight. 98% and 96% reported adequate analgesia and nausea control respectively. 86% were offered early oral fluids, 61% early food and 60% early mobilisation. 56% of afternoon operations stayed overnight compared to 21% of morning operations.

Conclusion: Analgesia and nausea control were not barriers to discharge in this study. Other factors such as the time of surgery and early post-operative oral intake and mobilisation were identified as potential barriers. Following our study a multi-disciplinary Enhanced Recovery Steering group was formed and several changes were introduced to the Breast Unit. Rates of day case surgery in non-reconstructive breast surgery subsequently rose to 81.3% over the first 9 months of 2014.

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P113. The impact of "Be Clear on Cancer" campaign on breast care services in a district general hospital

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Introduction: "Be Clear on Cancer" was a national campaign to raise awareness of breast cancer in women >70. Cancer Research UK ran this campaign from 03 Feb−15 Mar 2014. Our study assesses its impact on breast care services.

Methods: Pilot-based BCOC campaign guidelines for NHS Trusts were used for this retrospective audit. New patients referred to breast clinic over 4 months from Feb 2014 were included, and compared to the same period in 2013. Information was recorded for referrals, biopsy rates and pathological diagnoses. Intra & inter-group comparisons were performed.

Results: 1646 patients were included. An increase of 25.2% (n = 184) was observed in referrals in 2014 (n = 915) compared to 2013 (n = 731). Biopsy and cancer detection rates went down in 2014 (Table 1).

Table 1
Overall year based comparison

Parameter	Year		P-value (X^2-test)
	2013 (n = 731)	2014 (n = 915)	
Patients over 70	81 (11.1%)	133 (14.5%)	0.038*
Biopsy performed	121 (16.5%)	127 (13.9%)	0.152
Malignant pathology	66 (9.0%)	47 (5.1%)	0.002*

Intra-group comparison: A higher than predicted increase of 64.2% (N = 52) in total referrals, and 8% (N = 44) in two-week wait referrals was observed in over 70s group.

Inter-group comparison: Despite the overall reduction, cancer detection rates remained significantly high in >70s (P = 0.001, X^2-test, Table2).

Table 2
Inter-group comparison

Parameter	2013		2014	
	>70 (N = 81)	<70 (N = 650)	>70 (N = 133)	<70 (N = 782)
2-week wait	52 (64.2%)	360 (55.4%)	96 (72.2%)	446 (57.0%)
Biopsy performed	31 (38.3%)	90 (13.7%)	39 (29.3%)	88 (11.2%)
Malignancy	25 (30.9%)	41 (6.3%)	26 (19.5%)	21 (2.7%)
Malignant/ biopsy	25/31 (80.6%)	41/90 (45.6%)	26/39 (66.7%)	21/88 (23.9%)

Conclusions: Although "Be Clear on Cancer" campaign resulted in a significant increase in breast cancer referrals, it did not translate into an increase in biopsy or cancer detection rates in the over 70s.

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P114. Acellular dermal matrix versus latissimus dorsi breast reconstruction: An investigation of the costs

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Introduction: The use of acellular dermal matrix (ADM) is now widespread in breast reconstruction. This is reflected by many centres now using implant with ADM as their primary reconstructive option, as opposed to the autologous LD flap. However, cost comparisons have not yet been made in a large UK population.

Methods: A retrospective analysis was performed of 5 years of data from immediate breast reconstructions by 5 surgeons in a single institution. All unilateral implant with ADM reconstructions were compared with all cases of LD flap reconstruction. Surgical and patient characteristics were recorded with complications. Costs of initial surgery, follow up, revisional surgery and materials were calculated.

Results:

	Implant & ADM n = 105	LD n = 78	p
Age (mean)	53	50	
No. of Complications (Clavien-Dindo Grade II and Above)	25 (22%)	19 (24%)	
No. of Revisions (median)	1	1	
Cost of Initial Surgery	3580	5527	0.00001
Cost of In-Patient Stay	1148	1985	0.00001
Cost of Revision Surgery	1943	1401	0.14131
Total Cost	6741	9266	0.00001

LD reconstruction was shown to be more expensive to our hospital trust due to higher initial costs. Despite concerns of higher revision rates raising costs in implant and ADM reconstruction, this was not found to be the case in our cohort.

Conclusion: Reconstruction with implant and ADM is replacing LD as the dominant method of breast reconstruction in the UK. Despite concerns regarding increased complication rates and need for revision, we have shown that for our hospital trust, ADM provides a cost effective alternative.

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P115. The cytokeratin-19 mRNA copy number from one step nucleic acid amplification (OSNA) analysis of sentinel lymph nodes can be used in multiple ways to predict further axillary lymph node metastasis in patients with invasive breast cancer

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Introduction: In Sentinel lymph node biopsy, One-step nucleic acid amplification (OSNA) of cytokeratin-19 (CK-19) mRNA greater than 5000 indicates presence of macro-metastasis, usually necessitating axillary node clearance (ANC). The aim of this study was to calculate the optimal cut off Copy Number value for predicting additional non-sentinel lymph node metastasis ($nSLN_{Mets}$).

Methods: 783 lymph nodes from 426 patients who underwent SLNB using the OSNA assay from February 2013 to October 2014 were analysed. Multivariate logistic regression analyses were used to test whether Total Tumour Load (TL_{Total}), Maximum Tumour Load (TL_{Max}), and Mean Tumour Load (TL_{Mean}) were independent predictors of $nSLN_{Mets}$. Youden's Index was used to calculate the optimal cut off copy number. Bootstrapping was implemented to calculate 95% confidence intervals of the new cut-off value.

Results: 72 of the 426 patients had ANC and were included in the study. TL_{Total} ($p = 0.008$), TL_{Max} ($p = 0.009$), and TL_{Mean} ($p = 0.014$) were all independent predictors of $nSLN_{Mets}$. TL_{Mean} had the best cut-off of 19000 (15000−640000) with sensitivity 87.10%, specificity 65.85% PPV 65.9%, NPV 87.1%. In comparison, the standard cut off of 5000 had a sensitivity of 90.62%, specificity of 15.00% , PPV of 46.03% and NPV of 66.67%

Conclusion: The CK-19 mRNA copy number can reliably be used to predict $nSLN_{Mets.}$ In our centre a higher cut off value of 19 000 (TL_{Mean}) would prevent a significant number of unnecessary ANC in patients who have no further $nSLN_{Mets.}$ Large multi-centre studies are required to calculate the optimal cut-off value.

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P116. Effects of trastuzumab treatment on the patterns of survival and metastasis in Her-2 positive breast cancers

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Introduction: Accumulating evidence suggests that breast cancer subtype determines the timing, pattern and outcome of metastatic disease. The aim of this study was to assess the patterns of Her2 +ve breast cancer subtypes (Her2-over-expressing and Luminal B), with specific emphasis on relapse patterns prior to and following the introduction of trastuzumab treatment.

Methods: Analysis of 469 patients with Her2-positive breast cancer treated at a tertiary referral unit from 1992−2014. Overall survival (OS), disease free survival (DFS) and patterns of relapse were compared between Luminal B and HER2 overexpressing subtypes before and after the introduction of trastuzumab.

Results: 61.2% of tumours were Luminal B and 38.8% HER2-overexpressing. Luminal B cancers displayed a significant improvement in both OS & DFS at 2 and 5yrs, following introduction of trastuzumab. Conversely, HER2-overexpressing cases displayed improvement in DFS at both time points, however, there was no significant difference in OS at 5yrs (46.8% vs 42.4%).

Patterns of metastasis were subtype dependent; Luminal B tumours had higher rates of bone relapse, (n = 29, 11.1%), while Her2-overexpressing most commonly metastasised to the lung (n = 13, 7.8%). Significantly, brain metastasis was >3 times more likely to occur in HER2-overexpressing cancers (1.9%LumB vs 7.2%Her2+). Following the introduction of trastuzumab treatment there was a dramatic reduction in distant metastasis rates in both subtypes, excluding brain which increased (3.7% vs 4.2%).

Conclusions: Her2 positive breast cancer exhibit distinct patterns of distant recurrence according to molecular subtype. Insights into the preferences for different metastatic sites will provide exciting avenues for future research.

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P117. Clinical impact of PET-CT on patient management in metastatic breast cancer

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Introduction: To assess the impact of ^{18}Fluorine-2-deoxy-D-glucose (FDG) positron emission tomography-computed tomography (PET-CT) on the clinical management of primary and metastatic breast carcinoma.

Methods: One hundred and sixty patients with metastatic breast carcinoma who underwent FDG PET-CT at a single large tertiary referral centre between January 2008 and August 2014 were retrospectively analysed.

Sixty patients who had all the relevant information on the hospital electronic patient record were selected. Findings on FDG PET-CT were compared with CT/magnetic resonance imaging (MRI) and impact on subsequent patient management was evaluated. Impact was stratified as: (1) major—detection of occult disease or characterisation of indeterminate lesion(s) on CT/MRI; (2) minor—confirmation of suspected metastases seen on CT/MRI; (3) no impact.

Results: Sixty patients underwent seventy six FDG PET-CT scans during the study period. 49 cases were performed for suspected disease recurrence, 8 for pre-operative initial staging, 2 for staging prior to post-operative adjuvant therapy and 1 for detection of unknown primary. In 29 cases (48.3 %), FDG PET-CT had a major impact on subsequent patient management. FDG PET-CT had a minor impact in 20 cases (33.3%) and no impact in 11 cases (18.3%).

Conclusions: PET-CT influences essential clinical decisions in a significant proportion of metastatic breast cancer patients through detection of unsuspected metastases and characterisation of indeterminate lesions.

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P118. Improving breast services – It's in the DNA

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Introduction: All breast referrals must be seen within 2 weeks. The sheer volume of referrals from primary care makes this a challenging target to achieve. It is therefore extremely important that clinics are utilised appropriately and that every effort is taken to minimise non-attendance. Current hospital policy is to re-appoint all patients referred under the 2 week rule who do not attend (DNA) their first appointment. The purpose of this audit was to review all the DNAs and see if giving a second appointment is cost effective or is in fact a useful policy.

Method: A retrospective review of all new breast referrals who did not attend their appointment over a 12 week period (01/08/14–31/10/2014) was performed.

Results: A total of 56 clinic appointments were not attended by patients over the 12 week period. Only 33.9% (n = 18) of those appointments re-issued were attended. Out of those patients who attended no cancers were identified and 44.4% (n = 8) had no clinical/radiological abnormality.

Conclusion: Our hospital policy of automatically sending a second appointment does not work for breast 2 week referrals and is a major waste of resources. It is misinterpretation of National Guidelines that "no DNA should be discharged without Consultant review of the referral information." Accepting Consultant review rather than blanket policy would have saved our Trust approximately £14,000 in 3 months.

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P119. Covert surveillance of infection prophylaxis measures applied during implant surgery

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Introduction: Infective complications following breast-implant surgery are difficult to treat and can lead to explantation. We aimed to establish current use of all infection-prophylaxis measures, specifically adherence to ABS Oncoplastic guidelines for MRSA, MSSA screening and prophylactic antibiotics and to assess application of other infection-control precautions.

Methods: From May-December 2014, prospective infection-prophylaxis data was collected in real time during breast-implant surgery, across six UK breast units.

Results: 63 patients under 19 Consultants had 81 implant procedures (36 bilateral): 46 immediate reconstructions (31 ADMs), 21 implant exchanges, 10 augmentations and 4 delayed reconstructions. All patients (100%) were MRSA screened and given perioperative antibiotics. Two of six units used disposable gowns and drapes. Three units used laminar-flow and for 32/47 (68%) of their cases. 56/63 (89%) received postoperative antibiotics, median 5 days (range 0–14). Among the 14 consultants performing more than one procedure (range 2–16), only one used exactly the same precautions when siting an implant, commonest inconsistencies being cavity washing, re-draping and method of glove change.

Precautions	No. Patients (%)
MSSA screening	10 (16)
Closed-glove technique	43 (68)
Warning signs on theatre door	45 (71)
	No. Procedures (%)
All staff masked when implant opened	68 (84)
Re-prepping of skin	63 (78)
Cavity washing	71 (88)
Implant washing	41 (51)
Gloves changed prior to implant handling	80 (99)

Conclusions: ABS guidance for MRSA (but not MSSA) screening and IV antibiotics were met in all cases. Considerable inter-surgeon, and more surprisingly, intra-surgeon variability of infection-prophylaxis measures exists amongst surgeons. This may be due to lack of evidence to support interventions.

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P120. We should look for high risk sentinel lymph node positive patients

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Introduction: With the publications of Z0011 and Amaros the role of completion axillary lymph node dissection (cALND) in the sentinel lymph node (SLN) positive patients is being questioned. Criticism has been levied at Z0011 but many centres are selectively omitting cALND. We were concerned that a small but significant population of high risk patients would have their outcomes affected by omission of cALND. Treatment algorithms change for patients with 4 or more positive nodes. Critics of cALND claim that these patients have a poor prognosis so identifying them is not relevant.

Methods: We reviewed our prospectively collected OSNA data from December 2008–September 2014. Patients with 4 or more positive lymph nodes were reviewed.

Results: 34.8 % (458/1315) of patients had positive SLN of whom 454 had cALND. 12.7% (58/454) had 4 or more positive nodes. 20.7% (12/58) of these had only micrometastases in the SLN. 49/58 of these high risk patients had complete follow up data. 76% (37/49) were alive and well, 16% (8/49) were alive with recurrent disease and only 8% (4/49) had died. 78% of the patients who had minimum 3 years of follow up were disease free.

Conclusions: Z0011 was not adequately powered to detect this small but important group of patients. Treatment algorithms for radiotherapy change with 4 or more positive lymph nodes and data shows that the use of radiotherapy for local control impacts on survival. It is essential that this high risk group are identified so that they can receive adequate adjuvant therapy.

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P121. The importance of a chaperone − Ways to improve underuse
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Introduction: The importance of chaperones during intimate examination is well recognised. In addition to providing reassurance and support for the patient, chaperones offer protection to the doctor as well. As a result of this, documentation of chaperones in notes is essential.

Methods: This 3 stage cross sectional study was completed in a tertiary breast service unit acting as the main referral service for North West London. An initial retrospective analysis was performed and results from this found 0% documentation about chaperone use.

Interventions were made:

- Stage 1: The findings from the initial cycle and chaperone guidelines were presented to the department along with the introduction of a "chaperone stamp" to clinical notes and a "memo pamphlet".
- Stage 2: "Chaperone stamp" alone − data collected 1 year after initial data collection.

Results: Stage 1: 69.9%; ($p < 0.001$; CI 59.04% to 80.76%) and Stage 2: 76.6% ($p < 0.001$; CI 66.7% to 87.13%) both demonstrated increase in documentation of chaperone use compared to initial practice. A 6.7% difference in documentation of chaperone preference was observed between the two post intervention data sets, this was not a significant difference; ($p = 0.226$, CI −15.71% to 2.31%).

Conclusions: In modern healthcare environments where patient choice and autonomy are paramount it is essential that clinicians who regularly perform intimate examinations fully comply with chaperone guidance. The authors would suggest that a pro forma approach, such as our chaperone stamp, is an efficacious way to comply and facilitate early identification of any issues with compliance, thus ensuring safeguarding of patients and staff involved in intimate examinations.

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P122. An initial experience using a titanium-coated polypropylene mesh (TiLoop® Bra) for implant based breast reconstruction
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Introduction: Titanium-coated polypropylene mesh (TCPM) is considered as an alternative to acellular dermal matrix (ADM) in implant based breast reconstruction (IBBR). TCPM is used as a hammock to envelop the lower pole of the implant or expander, as with the ADM. The aim of this study is to examine the limitations and complications of TCPM for IBBR and associated risk factors.

Methods: A retrospective analysis of 23 patients who underwent immediate or delayed IBBR using TCPM was carried out. Primary endpoint considered the incidence of removal of implant or expander with or without mesh.

Results: 26 procedures IBBR with TCPM was carried out in 23 patients, 3 had bilateral procedures. Time from procedure was a median of 413 days (range 47- 764). 4 reconstructions failed and implants were removed. 2 patients were smokers, 1 had radiotherapy prior to reconstruction and 1 had recurrent seroma and removal was after 12 months. 3 other patients developed seroma and 2 developed skin necrosis. 16 out of 23 patients had immediate breast reconstruction after have skin sparing mastectomy, only 1 requiring contralateral reduction. 3 underwent delayed reconstruction using expander with TCPM.

Conclusion: Careful selection of patients needs to be carried out to ensure possible prevention of failure of reconstruction accounting for factors affecting wound healing. Advantages include remote scar mastectomy, good inframammary fold definition and ptosis, cost reduction, acceptability in patients who prefer not to have animal products. Results seem promising, however, larger sample size and longer follow up is required.

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P123. What is the diagnostic value of red blood cells seen in nipple discharge cytology?
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Introduction: Nipple cytology (NC) is routinely used to assess patients presenting with spontaneous nipple discharge (SND). The presence of red blood cells (RBC) in NC has routinely prompted further intervention. We evaluated the diagnostic value of RBC found in NC.

Methods: A retrospective review of all patients who presented with SND between 2009 and 2014 was conducted. Clinical and radiological findings, NC and excised histology were cross-referenced for analysis.

Results: A total of 482 NC were included (mean age 45 years, range 15−99). 223 samples were reported normal, 38 insufficient and 221 NC were positive for the following: RBC (164), epithelial cells (25), papillary cells (17) and atypia (15).

173 patients proceeded to have surgery. The following histology were found: 16 carcinoma, 11 DCIS, 3 atypical ductal hyperplasia, 66 papilloma, 1 tubular adenoma, 1 fibroadenoma, 59 duct ectasia and 16 benign breast changes. Defining all malignant pathologies and papilloma in the excised histology as true positive: the presence of RBC in NC has a sensitivity of 67.7%, specificity of 39.0%, positive predictive value (PPV) of 58.0%, and negative predictive value of 49.2%. RBC was present in NC for 18 of the 27 malignancies.

Conclusions: 27 out of 482 (5.6%) of our patients with SND were found to have a malignant pathology. Although RBC in NC has a poor PPV in our study, it was the sole abnormality in 6 patients with malignancies. We therefore conclude that the presence of RBC in NC increases the index of suspicion, and should prompt further intervention.

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P124. Can increasing Body Mass Index (BMI) affect the accuracy of pre-operative axillary ultrasound scan in breast cancer patients?
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Introduction: Accurate pre-operative diagnosis of axillary nodal metastases may avoid further surgery. Obesity may obscure the visualisation of these nodes and can therefore reduce diagnostic accuracy of potential nodal spread.

The aim of this study was to assess the relationship between patient body mass index (BMI) and subsequent accuracy of pre-operative axillary ultrasound scan in patients with breast cancer.

Methods: Between January 2014 and June 2014, all patients who were diagnosed with breast cancer were retrospectively identified using an electronic patient database. Demographics, BMI, pre-operative imaging and histopathological results were analysed. Logistic regression was performed to explore if patient age, BMI and size of primary tumour may affect correct identification of axillary spread.

Results: Of 159 patients identified, mean age (S.D.) was 61.0 (13.1) and median (i.q.r) BMI was 27.6 (24.6−31.6). More patients had a correct US diagnosis than those with an incorrect US diagnosis (98 vs 43 $P < 0.001$). BMI was similar between these two groups (Correct 27.7 (25.4−32.1) vs incorrect 27.2 (24.2−31.5) $P = 0.360$). When controlling

for BMI, age, histology and primary tumour size, neither independent variables were statistically significant.

Conclusion: BMI does not appear to influence the pre-operative diagnostic accuracy of axillary US. Therefore, regardless of BMI, axillary node ultrasound plays an essential role in determining further management in patients with breast cancer.

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P125. Presentation of breast diseases in Ghana – A trainee's experience

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Introduction: Breast cancer is still perceived as a taboo amongst many Ghanaian women, commonly resulting in a delayed and advanced presentation. Breast screening and access to specialist care are not widely available. We described our experience of conducting one-stop self-referral breast clinics in rural Ghana.

Methods: Three separate voluntary working visits were carried out between October 2013 and October 2014. A total of 25 clinics were conducted. Clinical findings, imaging and therapeutic intervention (when performed) on all patients seen were included.

Results: 210 patients (mean age 40) were included (206 female, 4 male). 86 patients were clinically screened and 124 patients presented symptomatically. Median duration of symptoms before attending clinic was 6 months (range 0.25 to 384 months). Clinical presentation included: pain in 67%, a lump in 52%, skin changes in 11% and nipple symptoms in 9%. Symptoms were unilateral in 79% of patients. Likely clinical diagnoses included: mastalgia 41%, benign breast lump 12% and cancer in 12%. The median size of palpable lumps was 35mm (range 5mm to 300mm). 27 patients were referred to regional centres for further assessment and 9 patients underwent an excision biopsy locally. Of those clinically screened, 83% had a normal examination and 17% benign changes.

Conclusions: Presentation of breast disease in West Africa is delayed and severe. Diagnostic adjuncts such as imaging, simple biopsies and pathology services, as well as possibility of performing therapeutic interventions are limited. There is a striking difference in culture and beliefs in the perception of breast health.

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P126. Should more large breast cancers with calcifications receive conservation after NACT?

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Neoadjuvant chemotherapy (NACT) is increasingly offered to patients with operable breast cancers for a number of indications, including early access to systemic treatment and potential downsizing. The presence of calcifications adds complexity to the estimation of tumour size before and after NACT.

Methods: All NACT patients from 2007–2013 were analysed for tumour mammographic, MRI appearances, surgical and postoperative histology all details recorded.

Results: There were 307 NACT patients. 121 had malignancy associated mammographic calcification; 49 had a mastectomy where the area of micro calcification was >40mm. 17 of these 49 theoretically, on review of the mastectomy histology, had a sufficient response to NACT which would have allowed breast conservation. 10 of these 17 had no residual invasive or in situ carcinoma.

Conclusion: A substantial minority of NACT patients respond sufficiently to NACT to safely benefit from breast conservation but the current lack of knowledge on how to safely assess post NACT calcification prevents that patient quality benefit. More detailed investigation on methods to assess micro calcification-associated malignant response to chemotherapy is required.

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P127. Procedure-specific electronic consent forms (OpInform.com) reduces errors in consenting practice for breast surgery

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Introduction: Consent forms, mandated by the Department of Health, structure the discussion of a procedure's risks and benefits and provide medico-legal evidence of the consent process. We performed a prospective, closed-loop audit to assess the consent forms of patients undergoing breast surgery before and after the introduction of a web-based platform to generate procedure-specific forms.

Methods: Hand-written consent forms for breast surgery were prospectively audited in a blinded fashion at two NHS Trusts (12/2013–01/2015). Assessments comprised the completion of individual form fields that were recorded as correct, incorrect, illegible or blank. Free-text entries for procedure risks were also evaluated. Responses were grouped into four domains (patient details, procedure details, surgeon sign-off and patient sign-off) and were considered "failed" if they were not correctly documented. The audit was repeated at one Trust where surgeons had switched to using a web-based tool generating procedure-specific consent forms (OpInform.com).

Results: 176 consent forms were audited – 147 hand-written and 29 electronically-generated. 56% of all hand-written consent forms were missing important risks as assessed by two blinded consultant breast surgeons. The domain failure-rates for hand-written forms were: patient details, 37%; procedure details, 33%; doctor sign-off, 8%; and patient sign-off, 8%. Illegible handwriting accounted for 47% of failures. In contrast, there were no domain failures for electronically-generated consent forms, 0%.

Conclusions: Hand-written consent forms suffer from inconsistencies in terms of completeness, clarity and legibility. Implementation of electronically-generated, procedure-specific forms minimise domain failures and may improve the quality of consent practice.

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P128. Sentinel Lymph Node Biopsy for ductal carcinoma in-situ: Should we be doing it?

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Introduction: Despite national guidelines, the indication for Sentinel Lymph Node Biopsy (SLNB) for ductal carcinoma in situ (DCIS) remains controversial. Recent literature supports changes to current practice in management of the axilla in the setting of invasive breast cancer and questions remain regarding the need to perform SLNB in DCIS. The aim of this study was to measure the incidence of sentinel node positivity for breast cancer patients with pure DCIS.

Methods: A retrospective audit of a prospectively collected database and case notes of patients who had undergone breast surgery with SLNB, from 2004 to 2013 at our unit, that had pure DCIS on final

histology, was done. The node positivity rate was assessed and data on clinical presentation, size of tumour, type and grade of DCIS was also recorded.

Results: One hundred and thirty six patients with pure DCIS had undergone SLNB as part of their cancer surgery. Seventy six (56%) of these patients presented via the national Breast Screening Program. Sixty four patients (47%) had wide local excision (WLE) and 72 (53%) had mastectomy. Mean tumour size was 28mm (SD 20mm) and 40mm (SD 23mm) in the WLE and mastectomy groups respectively. 61% of these patients had high nuclear grade DCIS. None of the patients had positive SLNB either intra-operatively or on final histology.

Conclusion: Our audit did not identify any positive sentinel nodes in patients with pure DCIS on final histology. This challenges the current practice of performing SLNB in patients with non invasive breast cancer.

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P129. If Patient Initiated Follow-Up and 5-year mammograms are in place, is routine annual follow-up also necessary for breast cancer patients after completing treatment?

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Introduction: There are over 50,000 new cases of breast cancer annually in the UK. After completion of treatment, patients receive 5-year annual follow-up mammograms as recommended by NICE. There are, however, no specific guidelines on frequency or duration of clinical follow-up.

Patient Initiated Follow Up (PIF) relies on patient education on vigilance to signs of recurrence. Here, we present our departments' experience of PIF alongside 5-year mammograms on detection of local and regional recurrences of breast cancer.

Methods: A search was performed from our contemporaneously updated PIF database for all patients who have completed three years of clinical annual follow-up (n = 590). The modalities of re-presentation of patients who had local or regional recurrences were collated alongside demographic and histological data.

Results: At 3 years, overall recurrence rate was 3.7% (n = 22). Of these patients 5 (23%) were detected via mammography, 12 (55%) represented via patient initiation and 2 (9%) were detected via clinical follow up alone at the first annual review. Overall 590 patients were followed up to detect 2 recurrences clinically. The single patient who represented clinically was 80 years old, whereas average age for mammography was 61 and PIF was 53, however, this was not significant p = 0.10.

Conclusion: Clinical follow-up of patients who have completed treatment can represent a significant burden on the Breast Cancer service provision. We postulate that blanket annual clinical follow up for more than 1 year is unnecessary for almost all patients.

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P130. Negative pressure wound therapy (NPWT) on complex closed breast incisions promotes wound healing

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Introduction: Oncoplastic techniques allow patients to have breast cancer resection whilst preserving cosmesis. However, these procedures can result in complex wounds which may lead to higher wound complications rates. As a consequence patients require specialist wound care which could delay adjuvant therapy. We sought to assess whether negative pressure wound therapy (NPWT) on closed incisions in complex breast wounds promotes wound healing.

Methods: 24 consecutive patients had oncoplastic breast procedures over a 20-month period. All patients had simultaneous symmetrising surgery. The therapeutic breast had a PICO® dressing applied whilst the contralateral symmetrising breast reductions were dressed with conventional dressings. Patient demographics, comorbidities, procedures and resection weights were recorded. Wounds were assessed on days 6 and 12 post operatively. Outcome measures included delayed healing, wound breakdown and delays to adjuvant therapy.

Results: The rate of delayed healing was 4.2% on the therapeutic side and 16.7% on the symmetrising side. One patient had an episode of fat necrosis on the therapeutic side. The average time to healing was 10 (6−12) days on the therapeutic side and 15.6 (6−70) days for the contralateral procedure. There was no correlation between age, BMI, tumour grade, size or resection weight and wound breakdown.

Conclusions: The results suggest that NPWT reduces the incidence of delayed healing in this cohort of patients with the associated benefits, both to the patient and institution. The PICO® system is tolerated well and initial analysis suggests it is cost effective.

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P132. The first UK experience of iodine seed localised excision of breast carcinoma − Initial results

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Introduction: Screen detected and impalpable breast tumours suitable for breast conservation surgery have traditionally been localised using a radiologically placed guidewire. Here we present our initial experience and results of Iodine-125 seed localised excision of breast carcinomas.

Methods: Data has been prospectively collected on all patients undergoing Iodine-125 seed localised breast excisions since we introduced the service in our unit on 25/09/2014. All Iodine-125 seeds were placed into the carcinoma using USS guidance between 7 and 14 days pre-operatively and removed after intra-operative localisation using a gamma probe. Data included: age, procedure performed, tumour type, grade and size, total specimen weight and whether patients required a second procedure to re-excise margins.

Results: 25 patients, all female, have undergone Iodine-125 seed breast carcinoma excision, 19 with available histology to date. 18/19 patients had wide local excision; one had therapeutic mammoplasty. 18 patients had Sentinel Lymph Node Biopsy and one had Axillary Lymph Node Dissection. All 19 patients had invasive carcinoma: 16 ductal, one lobular, one tubular, and one apocrine. Grade 1 tumour was found in 11/19 patients, Grade 2 tumour in 3/19 and Grade 3 tumour in 5/19. Median tumour size was 13mm (3.8−32) and median specimen weight 28.7g (10.6−79). Only 1/19 (5.3%) patients required a second procedure, which was for re-excision of lateral margin (predicted tumour size 9mm, total tumour size on excision 25mm). Updated results to follow.

Conclusions: Iodine-125 seed localisation is a safe and easy technique to aid excision of impalpable breast lesions. Specimen weights remain low and re-excision rates so far are favourable compared with published data for wire-guided procedures.

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P133. Bone health management in patients on aromatase inhibitors

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Introduction: Aromatase Inhibitors (AIs) are the standard of care for postmenopausal women with early breast cancer. AIs improve survival but can adversely affect bone health. NICE guidelines suggest that all patients

on AIs should have baseline dexa scan within 3 months of commencement. Calcium tablets or bisphosphonates should be given if osteopaenia or osteoporosis is identified. We aimed to compare our current practice with NICE guidelines (CG80).

Methods: Patients were prospectively identified from breast follow up clinics during a 4 month period (August 2014−November 2014). Demographics, adjuvant therapy and bone health management plans were recorded and analysed.

Results: 22 patients were identified. Median age was 66, range [55−92]. 18% were on neoadjuvant hormonal therapy. The majority of patients (86%) were on letrozole whereas 7% of patients were on exemestane and 7% on anastrozole. A clear bone health management plan was achieved in 30% of patients. 45.5% (10/22) of patients had a baseline DEXA scan, 40% (4/10) of those within timeframe. 70% (7/10) of patients had normal baseline DEXA scan and all have received lifestyle advice. Osteoporosis and osteopaenia was reported in 20% (2/10) and 10% (1/10) of patients respectively. All patients with osteoporosis were on bisphosphonates. In patients with osteopaenia there was no evidence of information for receiving additional calcium medications.

Conclusions: Baseline bone health is poorly characterised in this series. It is crucial to assess bone density and a clear system needs to be developed in order to optimise bone health.

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P134. Does immediate breast reconstruction delay adjuvant therapy?

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Introduction: Immediate breast reconstruction (IBR) improves quality of life but may prolong recovery and delay adjuvant therapy (AT).

Aim: To determine if IBR delays the start of AT.

Material and methods: Retrospective audit from January 2009 to August 2014 of post-mastectomy patients recommended to receive adjuvant chemotherapy or radiotherapy.

Standard: NICE guideline of 31 days from surgery to AT.

Sample size: For a two-sample, two sided t-test (5% significance, 80% power) is 192.

Statistics: ANOVA, Fishers Exact test, Boot strap analysis

Results: 192 patients (64 in each group- post simple mastectomy, implant/expander and flap). Mastectomy patients were significantly older, more likely to be smokers with higher nodal stage. The groups were comparable with respect to BMI, ASA grade, previous radiotherapy, contralateral surgery, tumour type, size, grade, ER, HER-2 status and LVI. Only six patients following implants and one patient post flap met the 31 day target. No mastectomy patients received AT within 31 days. This was mainly due to service delivery delays. Mastectomy patients had a significant delay (63.2;33−202 days) compared to implant (52.82; 26−136 days) and flap procedures (50.61; 29−89 days)($p = 0.004$). Complications were observed more frequently following implant (28%) and flap surgery (19%) as compared to mastectomy alone (12%) ($p = 0.005$).

Conclusion: Majority of patients undergoing mastectomy, with or without IBR will have a delay to the start of adjuvant therapy beyond 31 days, mostly due to service delays. This delay was significantly more in non-IBR patients though complications were more after IBR.

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P135. Vacuum-assisted biopsy is a viable alternative to surgical biopsy in the investigation of breast lesions of uncertain malignant potential

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Introduction: In patients presenting with a breast lesion, when initial core biopsy histology falls into the category of "uncertain malignant potential" (i.e. a B3 lesion), the next line of investigation has traditionally been a surgical biopsy (SBx). Vacuum-assisted biopsy (VAB) may be a viable minimally invasive alternative to SBx for B3 lesions. The primary aims of this study were to establish whether VAB reduces the need for surgical biopsy and determine VAB sensitivity for carcinoma following initial B3 histology.

Methods: B3 lesion data was collected from 2004 to 2013 retrospectively, from a single institution that utilises both VAB and SBx.

Results: A total of 413 lesions were categorised B3 on initial biopsy. Mean age was 61 years (range: 24−91 years). Mean follow up was 52 months (range: 19−60 months). 156 patients (38%) underwent VAB. Only 20% of patients underwent VAB in 2004, with an exponential increase to 95% by 2013. VAB histology revealed twelve carcinomas, all of which progressed to surgical excision. In six cases, a SBx was required following VAB in order to provide further diagnostic information. In one case, carcinoma was missed on VAB.

Conclusions: The exponential increase in VAB use over time suggests that the procedure is well tolerated. The results demonstrate a VAB sensitivity of 92% for carcinoma diagnosis. In 96% of cases (150 of 156), VAB results were conclusive enough to avoid a subsequent SBx. This data suggests that VAB may be a preferable alternative to surgical biopsy for many B3 lesions.

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P136. The value of axillary surgery in invasive tubular breast cancer

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Introduction: Invasive tubular breast carcinoma (ITC) has low rate of axillary metastasis and excellent prognosis. It has been suggested that operative axillary staging and/or clearance (ANC) can be omitted in ITC. Despite this; axillary management protocols of ITC are no different compared to other types. We wished to retrospectively evaluate the role of axillary surgery in ITC.

Methods: All cases (January 2005-August 2014) of ITC suspected on core biopsy (CB) or confirmed on final histology (FH) were included. Ascertainment was through our histology database. Tumour characteristics and treatment details were collated.

Results: ***(CB):*** 39 possible ITCs were treated of which 11 were not true ITCs on FH (false positive rate = 28.2%). 5/39 (12.8%) were node-positive, all of which were ductal on FH.

(Final histology): 58 ITCs were identified. All cases had operative node sample (ANS) except one case identified preoperatively as node-positive. In total; 4/58 (6.9%) were node-positive. With subsequent ANC, all 4 cases demonstrated a total of ≥2 positive nodes (2 nodes (n = 3), 6 nodes (n = 1)). The Nottingham Prognostic Index (NPI) was upgraded in only 1/4 (25%).

Node positive cancers were significantly larger; 27mm/16−33mm (median/range) compared to node-negative cancers; 10mm/1−20mm (median/range) ($P < 0.0001$). All ITCs ≤15mm were node-negative.

Conclusion: Node metastasis is uncommon in confirmed ITC and did not occur in small tumours. CB is unreliable in identifying ITC pre-operatively; therefore axillary staging may not be omitted based on CB alone. There may be a place for omission of ANC or axillary staging in small completely excised ITCs (e.g. following excision biopsy).

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P137. Does introduction of Vacuum Assisted Biopsy (VAB) change rate of indeterminate breast lesions?

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Introduction: Vacuum Assisted Biopsy is increasingly used as a diagnostic tool for mammographic screen detected breast lesions. Our unit introduced VAB in June 2013. The aim of our study was to identify the rate of indeterminate (B3) biopsy results prior to and after the introduction of VAB.

Methods: Our prospective screening database identified all stereotactic biopsies from June 2012 to May 2013 and all VABs from June 2013 to May 2014. The electronic pathology database and patient notes were used to review the histology of all B3 lesions over this time.

Results: 136 Patients underwent stereotactic biopsies and were compared to 204 undergoing VABs. Mean age of patients was similar (60 versus 58 for stereotactic: VAB).

There was no difference in the B3 rate for the 12 months prior to and after VAB introduction (12.5% vs 13.2%). There was an increased B2 detection rate (43.4 to 57.3%) and a reduced B1 rate (8.6 to 4.4%) with VAB use.

Of those undergoing repeat biopsy, with VAB only 2 had a different result compared to 4 in the stereotactic group. On excision of the B3 lesions, 6 of the 28 VAB (21%) and 5 of the 17 (29%) stereotactic group had their histology upgraded to malignant.

Conclusion: Introduction of VAB showed no difference in the rate of B3 lesions reported. However an increase in B2 results with reduced B1 rates could reduce the need for repeat biopsies and diagnostic surgical excision.

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P138. Do patients diagnosed with phyllodes breast tumours need long term follow up?

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Introduction: There is currently no national consensus on the follow up of phyllodes breast tumours.

Our unit protocol is for benign phyllodes breast tumours to be treated with marginal excision and for borderline/ malignant tumours to have margins similar to invasive breast tumours. Patients are then followed up routinely with clinical and mammographic surveillance.

The aim of our study was to review all patients who had been diagnosed with phyllodes tumour over a 20 year period and look at the classification, excision margins and recurrence rates.

Methods: Histology was reviewed from our prospectively collected breast database and all phyllodes tumours from 1996 to 2015 were identified.

Patient demographics, classification of tumour, excision margins & recurrence rates were recorded from the pathology database and patient notes.

Results: 74 phyllodes tumours were identified. 54 benign, 9 borderline & 11 malignant Phyllodes tumours were excised.

There were 4 local recurrences, 1 in the benign group (1.8%), 1 in borderline group (11%) and 2 in the malignant group (18%). The only patient with recurrence in the benign phyllodes group did not have secure margins and pathology report confirmed transection of the tumour.

Conclusions: Benign Phyllodes tumours have a very low rate of recurrence and do not recur when excised completely. Short or long term follow up is not required in this patient cohort but patients with borderline or malignant lesions should remain under review.

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P139. A radical approach to the management of radiotherapy induced angiosarcoma of the breast: A combination of wide excision and reconstruction

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Angiosarcomas are rare tumours of endovascular origin and occur as either primary tumours or more commonly, as secondary tumours following adjuvant radiotherapy for breast cancer. Radiotherapy-associated angiosarcomas are associated with a poor prognosis and are often diagnosed late due to the innocuous nature of the clinical signs, which are similar to post-radiotherapy skin changes in the early stages. Simple mastectomy or local excision has been the preferred surgical management, with or without axillary lymph node clearance. In some studies local recurrence rate is quoted to be as high as 92%, with involved margins at excision associated with poor survival.

Over the last 18 months, 7 patients (4 primary excisions and 3 excisions for local failure) with radiation-induced angiosarcomas have undergone radical excision of much of the radiotherapy field in order to gain clearance and minimize local recurrence. In the 4 patients that underwent primary wide excision all had adequately clear margins. Three patients referred after failure of local treatment had previously had a simple mastectomy and marginal clearance with early evidence of recurrent disease. We performed radical resection, including pectoralis musculature, for this subgroup of patients and achieved clear margins in two. The third patient, with two previous marginal excisions, had positive deep margins extending to the chest wall, which ultimately proved unresectable. The mean time from radiotherapy to presentation was 7.4yrs. The average defect size created following wide excision of the angiosarcoma was 550cm^2 and can present reconstructive challenges for this group of patients. Four patients underwent a primary latissimus dorsi flap reconstruction. Three patients had a split skin graft primarily applied to the defect.

In our region we currently advocate early referral of radiotherapy-induced angiosarcomas to the specialist sarcoma MDT. We recommend wide excision of the radiotherapy field in order to gain clearance and minimize local recurrence. This surgery should be planned in conjunction with plastic surgeons, as the subsequent defect can be a challenge to reconstruct.

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P140. Central round block repair of large breast resection defects: Aesthetic and oncological outcomes

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Introduction: The central round block repair is a volume displacement technique that can be used to reconstruct large wide local excision (WLE) defects in breasts with moderate ptosis/hypertrophy. This is a modification of the mammaplasty technique described by Benelli where significant volumes can be excised, the skin adjusted and the breast re-coned through a de-epithelialised concentric ring. There are no long-term studies showing the oncologic safety or the aesthetic outcomes of this technique. This study reviews a single institution's experience.

Methods: A review of 57 consecutive patients who underwent central round block repair under the care of a single surgeon with a minimum of 6 months follow-up. All patients had DCIS, stage I/II invasive breast cancer or a phyllodes tumour.

Results: Median age was 51 yrs (range 22−86) and follow-up 4 yrs (range 0.6−6.6). Median specimen weight was 50g (range 25−361gm) and tumour size 25mm (10−75mm). Estimated volume of breast excised was 17.8% (6.3−31.1%). 12/57 patients had incomplete margins. 5 had re-excision to achieve clear margins and 7 required mastectomy. There were 3 clinically significant seromas, 3 infections and 2 wound

dehiscences. 1 patient had local recurrence during the follow-up period, 3 developed distant metastases and 1 patient died. Aesthetic data was completed for 35/50 patients. 12 (34%) had no measurable asymmetry. Only 2 patients requested symmetrising surgery.

Conclusions: Central round block reconstruction of large defects after WLE is a safe technique with good aesthetic outcomes. Contralateral symmetrising surgery is required less often compared with other therapeutic mammoplasty techniques.

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P141. Multicentre audit of acellular dermal matrix (ADM) assisted, implant-based breast reconstructions

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Introduction: This retrospective audit was designed to assess the practice for ADM-assisted breast reconstructions according to "Joint ABS/BAPRAS guidelines for ADM assisted breast reconstruction" published in 2013.

Methods: Standards were identified for demographics, information, operation, outcomes and satisfaction. Data was collected from case-notes and electronic records for five oncoplastic consultants, across three hospitals in two NHS Trusts.

Results:

Demographics: 103 patients were included. Mean age was 51 (SD10) years. Median BMI was 24 (IQR 21−27). 10% (n = 10) were current smokers. 17% (n = 17) had bilateral procedures. 94% (n = 92%) were discussed in MDT pre-operatively. ADM were only discussed in MDT in 25% (n = 24).

Information: 90% (n = 90) patients received written information. 98% (n = 101) received information regarding implant, 67% (n = 69) for ADM origin and 89% (n = 91) for revision possibility.

Operation: Surgery was performed as day-case in only 4% (n = 4). Median stay was 1 day (IQR 1−7). All patients had prophylactic antibiotics. Median specimen weight was 370grams (IQR 260−560). ADMs used included Strattice (51%, n = 51), Surgimend (38%, n = 39), Permacol (2%, n = 2), Tiloop (5%, n = 5) and Seri (5%, n = 5). Drains were used in 92% (n = 95) for median of 7 days (IQR 5−13).

Outcomes: 50% (n = 52) had seroma. 17% (n = 17) had wound infection and 32% (n = 33) received therapeutic antibiotics. 18% (n = 19) has re-operation, but only 5% (n = 5) within 30 days. Implant loss rate was 11% (n = 13) while ADM loss rate was 4% (n = 5). 77% (n = 10) of implants lost were within 3months. Implant loss rate was significantly higher in active smokers.

Satisfaction: Pre and post-operative photography was performed in 73% (n = 75). Patient satisfaction was recorded in 57% (59).

Conclusion: ADM-assisted breast reconstructions produce good results. Smoking remains the most important risk factor for implant loss. Improvement can be made to provide more information, MDT discussion, reduce implant loss and increase patient satisfaction.

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P142. Long term axillary recurrence rates and distant metastases in women treated for invasive breast cancer and who did not undergo axillary surgery

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Introduction: In the era of ACOSOG Z0011 and a more minimal approach to axillary surgery we report long-term follow-up of a patient cohort treated by a single consultant who before the advent of sentinel lymph-node biopsy (SLNB) did not perform ALND on those considered low-risk. Postmenopausal women with <20mm grade 1 or<15mm grade 2, LVI-ve, ER+ve invasive carcinomas were considered low-risk.

Methods: A retrospective search of a prospectively maintained database identified women with invasive cancer who did not undergo ALND or lymphatic basin radiotherapy. Clinic letters and pathology reports were reviewed to classify patients fulfilling low-risk criteria.

Results: Between 05/01/1995−20/11/2006, 199 primary tumours (194 patients) were operated upon without ALND. 126 patients (128 tumours) met low-risk criteria and 68 (71 tumours) didn't but did not undergo ALND (patient choice, 39 or medical fitness, 29). Median follow-up was 76 months.

Six (3%) axillary recurrences occurred, 1 (0.8%) was in a low-risk patient. Four recurrences were found on clinical examination, 1 on ultrasound and 1 on self-examination. Two of these patients went on to develop distant metastases. Median time from surgery to axillary recurrence was 29 months.

In total, 8 (4%) patients developed distant metastases, 3 (2%) from the low-risk group. Median time from surgery to distant metastases was 85 months.

Conclusion: Axillary and distant recurrences in this low-risk cohort of patients were low. In the modern era of multidisciplinary management of breast cancer it may be possible to define a group of women in which axillary surgery can be omitted. We await the outcome of the current SOUND RCT comparing no axillary surgery with SLNB.

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P143. SF3B1 mutation is a predictor of BRCAness in ER positive breast cancer

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Introduction: 30% of all breast cancers have either a BRCA1/2 mutation or some level of BRCA1/2 pathway dysfunction. They all share the BRCAness phenotype of sensitivity to DNA-damaging agents. Recently, a novel role for BRCA1 has been identified in which it binds to a splicing complex containing SF3B1, which facilitates the efficient splicing of DNA repair genes. We hypothesised that *SF3B1* mutation may result in a BRCAness phenotype and evaluated its role in response to DNA-damaging chemotherapy.

Methods: RNA from 295 breast cancers was profiled on the ALMAC Breast Cancer Disease Specific Array to obtain molecular profiles. Targeted re-sequencing of *SF3B1* was also performed. The most common SF3B1 mutation (K700E) was modelled by knocking out endogenous SF3B1 and/or transiently over expressing SF3B1-K700E in breast cancer cell lines and comparing with wildtype SF3B1.

Results: We identified 21 mutations in SF3B1 in 275 of the breast cancers, 19 (90%) of which were ER positive. No difference in overall survival was observed between patients with an SF3B1 mutated or wildtype SF3B1 breast cancer. Functional analysis of alterations in gene expression for SF3B1 mutated breast cancers showed alterations in the expression of DNA damage repair genes.

Knocking out SF3B1 resulted in a DNA damage repair deficiency (DDRD) to both DNA-damaging chemotherapy and radiotherapy in several breast cancer cell line models and a reduction in homologous recombination (HR) mediated DSB repair in SF3B1 deficient cells. In three breast cell line models, transient over-expression of K700E-SF3B1 resulted in a DDRD when compared with over-expression of wildtype SF3B1. Transient expression K700E-SF3B1 resulted in suppression of HR mediated DSB repair in comparison to wildtype-SF3B1.

Conclusion: SF3B1 mutation has been identified in 8% of breast cancers, but predominantly in ER positive breast cancers. Cell line modelling and expression profiles have demonstrated downregulation of the HR mediated DNA repair pathway.

The presence of SF3B1 mutations may predict a BRCAness phenotype and suggest that DNA-damaging chemotherapy may be the most appropriate treatment.

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P144. Axillary surgery in the over 80s – Is there any bearing for adjuvant chemotherapy?

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Introduction: In the UK, 1 in 3 breast cancers is diagnosed in women over the age of 70 years. Axillary surgery may be indicated for local control or to guide systemic therapy. However, these patients are often not considered for adjuvant chemotherapy due to co-morbidities/limited physiological reserve and in the past patients older than 80 years have been excluded from the majority of trials in axillary surgery (ALMANAC, MILAN, GIVOM). We examined the role of axillary surgery in octogenarians diagnosed with breast cancer in our unit and evaluated whether this had any effect on the type of adjuvant treatments offered.

Methods: We assessed tumour characteristics, type of axillary procedure, adjuvant therapies offered in 73 consecutive breast cancer patients aged 80 years and above over a 6-year period.

Results: Seventy three octogenarians underwent axillary surgery during this period. The mean age was 84.7 years (range 81–93). The average tumour size was 28.9 mm. The tumour was ER+ in 49/73 (67%) and HER2+ in 17/73 (23%) patients. A third of patients underwent SLNB and the remainder had axillary clearance. 22/73 patients had histopathologically involved nodes and 8/73 had tumour in 4 or more nodes. Only 1 patient was given herceptin and adjuvant chemotherapy. 20/73 patients received post mastectomy radiotherapy.

Discussion: In our experience, the information from axillary surgery did not influence decision on adjuvant chemotherapy in the elderly. The ABS consensus meeting on the management of the malignant axilla may help to offer further guidance in this patient group.

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P145. Therapeutic mammoplasty: Role in breast conserving surgery and oncological consideration

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Background: Therapeutic mammoplasty has allowed breast-conserving resection of large and multifocal tumours relative to breast size that would otherwise undergo mastectomy. The aim of this study was to investigate rates of re-excision, subsequent mastectomy and complications.

Materials and methods: This study retrospectively analysed all patients having therapeutic mammoplasty between 2009 and 2014 in a District General Hospital.

Results: Eighty-three women had therapeutic mammoplasty (mean age 63, range 40–95). The mean weight was 126g (range 14g to 794g). Seventy-six (92%) were for invasive cancer, 7 (8%) for DCIS alone. Five patients had neo-adjuvant chemotherapy (6%), 34 (40%) had adjuvant chemotherapy, 67 (81%) had hormone treatment, 10 (12%) had herceptin therapy and 64 (77%) had adjuvant radiotherapy. Ten patients (12%) required re-excision of margins, 10 (12%) went on to have completion mastectomy. Six patients (7%) had wound infections (2 deep and 4 superficial infections), three patients had fat necrosis and three with minor wound dehiscence.

Conclusion: Therapeutic mammoplasty allows breast-conserving surgery in large and multifocal tumours with low re-excision rates and low rates of complications delaying subsequent adjuvant therapy.

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P146. A retrospective closed loop audit assessing the impact of intra-operative specimen radiography cabinet (Faxitron) on re-excision rates in breast conserving surgery

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Aim: To determine if the introduction of digital specimen radiography margin assessment (Faxitron cabinet X-ray) in our unit has had a bearing on operative time, number of intra-operative margin shaves and rate of re-excision in breast-conserving surgery.

Standard: ABS guidelines for surgical management of breast cancer 2009 recommends intra-operative specimen radiography for both impalpable and palpable lumps to assess adequate radiological margins.

Methods: Retrospectively sampled data from 100 sequential patients receiving breast-conserving surgery (Wide Local Excision or Therapeutic Mammoplasty) in the 6 month period prior to the introduction of a Faxitron cabinet and 100 sequential patients in the 6 months following its introduction.

Results: There was no significant change in operative time between the two groups. The number of cases with intra-operative margin shaves increased from 16.8% pre Faxitron to 50.6% with a reduction in histologically proven positive margins and a significant reduction in re-excision rates and further surgery from 25.3% to 12.9% respectively.

Discussion: Introduction of the Faxitron cabinet has led to increased margin shaves and reduced re-excision rates in our unit. Most likely this is due to the surgeon having immediate specimen imaging aiding the decision regarding need for further margin shaves. The reduction in re-excision is positive both psychologically to the patient who only undergoes one intervention and to the Trust which saves theatre time and money.

Conclusion: Intra-operative radiological margin assessment with a Faxitron cabinet has decreased the rate of re-excision without affecting the operative time.

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P147. Nipple sparing mastectomy – Initial experience of oncological safety and complications

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Background: Nipple sparing mastectomy (NSM) has now gained popularity as part of breast reconstruction surgery. The aim of this study was to investigate oncological safety, aesthetic outcome and complications.

Materials and methods: This study retrospectively analysed all patients having NSM between February 2012 and July 2014 in a District General Hospital. Inclusion criteria were peripherally located breast cancers with a distance from tumour to nipple > 2cm on mammogram. Retro-areolar tissue was sent for histopathology analysis.

Results: Forty women had 50 NSMs (mean age 54, range 38–74). Thirty had a unilateral procedure (75%) and 10 had bilateral procedure (25%). Reconstruction was performed with a sub-pectoral implant in 42 cases (84%) and a latissimus dorsi (LD) flap in 8 cases (16%). Twenty-eight was for invasive cancer (56%), 4 for DCIS (8%), 1 for LCIS (2%) and 17 were risk reducing (34%). Three patients had neo-adjuvant

chemotherapy (8%), 11 had adjuvant chemotherapy (28%), 25 had endocrine treatment (63%), 5 had HER-2 therapy (13%) and 9 had adjuvant radiotherapy (23%). Three needed to have the nipple removed due to involvement of the retroareolar tissue (6%), 4 had nipple necrosis that resolved (8%), 3 had a deep infection that required removal of the implant (6%) and 1 went on to have an LD flap due to a chronic seroma (2%).

Conclusion: Nipple sparing mastectomy can be offered as part of breast reconstruction with good cosmetic result, oncologically safe with minimum morbidity.

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P148. Estimation of implant size based on mammograms in immediate breast reconstruction – A retrospective study

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Introduction: Estimating implant size after mastectomy is usually done using implant sizers intraoperatively. Mammographic measurements have been reported to provide reliable estimates of breast volumes. In this context, we assessed if mammograms could be used pre-operatively to predict implant sizes to aid breast reconstruction planning.

Methods: Demographic data, mammographic measurements, implants sizes and mastectomy specimen weights of 20 patients between 2013–2014 was collected from hospital records. We used a widely accepted formula (Breast volume = $\pi/4 \times (W \times H \times C)$ W = breast width, H = height, C = compression thickness) and found this to not reflect actual implant sizes used. A simple formula based on height and width in the cranio-caudal view was derived to estimate the size of the implant [calculated size = π x height x base width] and compared with the actual implant size used.

Results and discussion: In 75% of patients, the formula could predict the implant size within a range of +/- 50. Mean size of implant used was 307 and of the calculated size was 338. In the remaining 25% there was correlation between the calculated size and the specimen weight. The proposed formula is fairly accurate for breast cup sizes of C or less.

Conclusions: This formula using the cranio-caudal mammographic view is practical, reliable and quick in the assessment of implant sizes pre-operatively. It does not require compression thicknesses or softwares which may not be widely available. Further validation studies using a larger sample are required.

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P149. Breast lymphoma: A single-centre case series

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Introduction: Breast lymphoma is a rare cause of breast disease, generally affecting the older female population with a reported incidence of 0.04–0.53% of all breast neoplastic lesions. Data is scarce about this condition, especially in relation to presentation. This is a retrospective, single centre-case series about the presentation and diagnosis of 15 cases of breast identified over a year period

Method: Data of 24 patients, suspicious of breast lymphoma presented from January 2007 until September 2013, were collected from review the patient notes, MDM and biopsy results. Nine patients were subsequently excluded as they did not show irrefutable evidence of a primary breast lymphoma diagnosis.

Results: 87% of patients were female and 54% presented in their fifth decade of life. 67% of patients presented with a painless lump which arose mostly from the right breast (60%). There was an 80% preponderance for the lesion to arise in the superior lateral quadrant. Asymmetry and palpable nodes presented in 27% and 20% respectively. 33% of patients had normal mammogram results. CT chest-abdomen-pelvis showed lymphadenopathy in 100% of cases, 66% of which showed axillary lymph nodes and 27% of which showed para-aortic lymph nodes. As predicted the largest group were diagnosed with a diffuse large B-cell lymphoma (40%). There was no patient in this study who had a previous history of breast implants.

Conclusion: Breast is rarely involved with lymphoma disease, however, we have collected 24 cases in 6 years time where the lymphoma presented initially as breast lesion.

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P150. Suitability of breast surgery patients undergoing day case surgery at Poole Hospital

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Introduction: Day case surgery is shown to be safe in appropriately selected patients, maximises service delivery and cost-effectiveness, and is positively welcomed by patients. The majority of breast surgery is suitable for day case management with national targets set by the British Association of Day Surgery for many procedures.

An audit was undertaken to ensure that we are choosing suitable patients for day case breast surgery in Poole Hospital.

Method: Audit of all elective patients undergoing breast surgery between January–November 2014 at Poole Hospital to evaluate the number of patients who had day case surgery booked appropriately. Further analysis of any patients where intended management was changed from day case preoperatively to an inpatient stay postoperatively.

Results: 417 breast surgery cases were analysed. 15 (3.6%) had a change in management from planned day case to an actual inpatient stay postoperatively. 9 (2.2%) were due to inadequate recovery time which included pain, tachycardia, nausea and vomiting, and not passing urine. 3 (0.7%) were due to a change in procedure requiring overnight observation, 2 (0.5%) due to allergic and anaphylactic reactions, and 1 (0.2%) did not have a documented reason.

Conclusion: Results demonstrate that the vast majority of breast surgery patients are appropriately selected for day case management.

Most cases of failed day surgery were due to inadequate recovery time, which could be addressed by ensuring all day case patients are first on the list or scheduling day case lists in the morning only.

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P151. Is intraoperative assessment for sentinel lymph node metastases really beneficial in the post-AMAROS era?

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Background: Intraoperative assessment (IOA) e.g. OSNA system is recommended by NICE during sentinel lymph node biopsy (SLNB). It allows axillary node clearance (ANC) during the same procedure in patients with positive SLNB. However OSNA is costly and controversy exists whether all patients need completion ANC in the light of recent Z0011 and AMAROS trial findings. We studied what proportion of patients in our cohort would have actually benefitted from IOA if we had IOA.

Method: All patients undergoing operation for breast cancer under two oncoplastic surgeons over 12 months' period were studied.

Results: 97 patients had axillary staging: 73 underwent SLNB, 21 had ANC and 3 patients had axillary node sampling (ANS), including 2 pregnant patients. 14 of 73 (20%) SLNB patients were positive. 3 patients had completion ANC, 11 patients had axillary radiotherapy and 1 patient had micrometastasis and did not have further treatment. ANS in 3 patients were negative. In the primary ANC group, 12 patients had metastasis on core biopsy or suspicious nodes on ultrasound scan. All had positive nodes

on ANC. 9 elderly and frail patients chose to have ANC rather than SLNB to avoid a second operation. 2/9 patients in this group had positive nodes, 7 were negative for metastasis.

Only 3/15 SLNB positive patient had ANC and would have benefitted from IOA. However 7/9 node negative elderly frail patients would have also benefitted with IOA by avoiding ANC with its potential complications.

Conclusion: In our cohort only 10/97 (10%) patients would have benefitted from IOA.

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P152. Is lipomodelling after breast cancer safe?

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Introduction: Lipomodelling is the process of relocating autologous fat and is now widely used in reconstruction following breast cancer surgery within the United Kingdom, despite limited data on long term safety and outcomes. The aim of this audit is to establish the main complications associated with lipomodelling especially the breast cancer recurrence rates.

Method: We retrospectively audited 140 lipomodelling procedures carried out in a district general hospital over a 6 year period. Audit standards were based on the joint guidelines from the ABS and BAPRAS.

Results: The majority of procedures 83% were performed for asymmetry after implant reconstruction followed by deformity after wide local excision in 9% of cases. Other indications included to improve soft tissue coverage after implant reconstruction (4%), to augment the volume after autologous reconstruction (3%) and lastly for contour deformity after breast reduction (1%). The number of lipomodelling procedures performed on a patient ranged from one to five sessions with 59/140 (42%) of patients only having one session. 81% of individuals did not report any recipient site complications. The main recipient site complications comprised of fat necrosis (9%), bruising (5%), pain (3%), infection (1%) and calcifications (1%). 9% of individuals had donor site complications which included bruising (6%), pain (2%) and infection (1%). 3/140 (2%) of individuals had a local recurrence. Overall, 88% of individuals had either a very good or good outcome.

Conclusion: Lipomodelling after breast cancer is a safe procedure with no increase in local recurrence and providing a very good outcome.

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P153. Use of acellular dermal matrix (ADM) in nipple reconstruction following breast reconstruction; the 'central-pillar technique'

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Introduction: A number of techniques for reconstructing the nipple-areolar complex have been developed, but no single method reliably yields a consistent aesthetic result with low morbidity and durable nipple projection. In a recent retrospective study, the factor patients disliked most about their nipple reconstruction was the lack of projection. We propose the use of a nipple shaped cylinder of layered acellular dermal matrix (ADM) as an augment to nipple reconstruction.

Methods: 10 patients were recruited to have nipple reconstruction following either skin sparing mastectomy, ADM and implant reconstruction or central excision. Nipple projection and diameter were recorded before, immediately after and following surgery at 6 and 12 months.

Results: Of the 5 patients undergoing a nipple revision (one bilateral) – the average nipple height at the end of the procedure was 11.5mm. 12 months following revision surgery the average nipple height was 5.3mm. 3 patients had a further nipple revision between 6 and 12 months. In the nipple revision group, nipple diameter immediately following surgery was 11.5mm, and 9.2mm at 12 months. 4 patients undertaking a primary nipple reconstruction, 2 were bilateral, and of these, immediately following reconstruction the nipple height measured 10.2mm. At 12 months, the average nipple height was 5.2mm. Nipple diameter following surgery measured 10.2mm and 9.2mm at 12 months.

Conclusion: We describe a case series of nipple reconstruction using an ADM as an augment, to improve durability of nipple height and diameter. Further improvements in surgical technique will hopefully result in better projection using this novel approach

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P154. Implant breast reconstruction with and without acellular dermal matrix – Audit and comparative analysis

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Introduction: The most common form of immediate breast reconstruction after mastectomy is implant based. Acellular dermal matrix (ADM) has become a very popular addition to this type of reconstruction. The vast majority of published data relates to an ADM product which is not in use in the UK. With this in mind we audited our initial experience with Strattice and compared the outcome to that of non-ADM implant breast reconstruction.

Methods: All consecutive patients with ADM assisted implant breast reconstruction until July 2014 were retrospectively audited against 'Oncoplastic breast reconstruction' and 'ADM assisted breast reconstruction' guidelines. Furthermore a comparison was done to all non-ADM implant reconstructions. Group difference analysis and logistic regression were used to examine the data.

Results: The audit showed that unplanned return to theatre (6.9%), implant loss (6.9%) and therapeutic antibiotic use (37.9%) were higher than the suggested targets. The analysis showed no significant difference between ADM and non-ADM cases for erythema, seroma, skin necrosis, infection, implant loss, re-operation, therapeutic antibiotic use, or time to start of adjuvant therapy ($p > 0.05$ for all). Postoperative clinic visits were increased for the ADM group and this was close to becoming statistically significant ($p = 0.053$). On univariate and multivariate regression ADM was not a significant predictor for any of the above mentioned outcomes. On multivariate regression smoking was an independent predictor of infection ($p = 0.0103$) and skin necrosis ($p < 0.0001$), and prior breast radiotherapy was an independent predictor of seroma ($p = 0.0054$).

Conclusions: ADM and non-ADM immediate implant breast reconstructions were comparable in terms of early postoperative complications and ADM (Strattice) did not significantly increase the complications.

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P155. The use of Titanium mesh (TiLOOP®) in immediate breast reconstruction; low cost, low complications

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Introduction: Immediate Breast Reconstruction (IBR) is increasing. One-stage implant-based procedures are facilitated by non-autologous lower-pole coverage (Acellular dermal matrices and synthetic materials i.e. TiLOOP®). Published data regarding these materials is limited and costs vary.

Methods: Consecutive series of short-term outcomes of mastectomy and definitive implant-based IBR with TiLOOP® at a single institution. Patients were identified through theatre records and implant registries November 2013 to January 2015. Data was extracted from electronic

patient records, nursing and medical notes. Data analysed using SPSS version 22.

Results: Twenty-one patients with 26 TiLOOP® assisted reconstructions with a mean follow up of 194 days (range 9−430) were analysed. Patients were a median age 51 (range 32−79) and median BMI of 25 (range 21−34). The majority had physical hobbies (n = 16), no major comorbidities (n = 17) and one was a smoker. The majority (n = 19) stated the desire for a simple reconstructive option and were satisfied with their current breast size (n = 18). 19 had *in-situ* or invasive breast cancer (n = 13 screen-detected), 2 were risk reducing (proven BRCA mutation). Complications included: 1 haematoma; 5 seromas requiring single (40−150ml) aspiration; 3 with seroma treated as suspected minor infection with oral antibiotics. One implant loss was seen in this series. There was no correlation of complications with cup size, comorbidities or smoking status.

Conclusions: TiLOOP® is an economical non-autologous material available to provide lower-pole support and facilitate one-stage implant-based IBR, which is associated with a low complication rate.

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P156. Sentinel lymph node biopsy: What to do with the 1 of 1?

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Introduction: Recent guidelines suggest that women with 1−2 positive sentinel lymph nodes (SLN) can forgo completion axillary lymph node. Is this reasonable if only one SLN is identified and it is positive? We aim to identify the proportion of women undergoing SLN biopsy who only have one node identified which is positive and the proportion of non-sentinel lymph node (NSLN) metastases at completion axillary node dissection (cALND).

Methods: We identified women with early breast cancer with only one SLN identified which was positive from three hospitals between 2009−2014. Data were analysed to identify the proportion of women with NSLN metastases and to determine factors predicting NSLN metastases.

Results: 115 women had only one SLN identified which was positive. 92 (80%) underwent cALND. 41 (44.6%) were found to have additional NSLN metastases. 19 (16.3%) were found to have ≥4 nodal metastases in total. The presence of extranodal extension (ENE) in the SLN was significantly associated with NSLN metastases (66.7% vs. 34.9%, p = 0.039). Presence of LVI showed a trend towards a significant association with NSLN metastases (p = 0.084). Only having a micrometastasis in the single SLN showed a trend towards no further NSLN metastases (15.4% vs. 46.2%, p = 0.062)

Conclusions: Women with only one sentinel node identified which is positive are likely to have further NSLN metastases. In particular the presence of ENE significantly increases the risk of additional NSLN metastases. Women with a micrometastasis only in the single SLN could potentially avoid additional treatment to the axilla.

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P157. Identifying factors within the sentinel lymph node biopsy to guide decisions regarding additional axillary treatment in women with early breast cancer

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Introduction: Increased focus on reducing morbidity in women with early breast cancer has led to studies designed to investigate reducing unnecessary treatment. It is important to identify factors that can guide treatment decisions so women get appropriate oncological treatment with minimal morbidity. We aim to identify factors that can guide decisions regarding additional axillary treatment in women with a positive sentinel lymph node (SLN) biopsy.

Methods: Women diagnosed with early breast cancer and a positive SLN were identified from 3 hospitals between 2009−2014. Data were analysed using a positive SLN:negative SLN ratio (PSLNR) of ≤0.5, extranodal extension (ENE) and size of the nodal metastasis as the variables. Association with non-sentinel lymph node (NSLN) metastases was analysed using the Chi squared test.

Results: 418 women had a positive SLN. Of these women 319 underwent a completion axillary lymph node dissection (cALND). 117 (36.7%) had NSLN metastases. A PSLNR ≤0.5 was significantly associated with reduced NSLN metastases (21% vs. 52.9%, p < 0.001). The presence of ENE was significantly associated with NSLN metastases (56% vs 29.3%, p = 0.001). Micrometastasis in the SLN was significantly associated with reduced NSLN metastases (13.9% vs. 38.9%, p = 0.004).

Conclusions: Factors within the SLN biopsy can guide decisions regarding the requirement for further axillary treatment. Further axillary treatment could potentially be omitted in women with a PSLNR ≤0.5 or micrometastasis only in the SLN. Women with evidence of ENE in the SLN should be considered for additional axillary treatment.

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P158. Has the use of in-theatre intra-operative specimen x-ray reduced our re-operation rates in breast conserving surgery?

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Introduction: Breast conservation (BCS) is the treatment of choice for early-stage breast cancer. Clear margins at first operation reduce local recurrence, improve long-term breast conservation and cosmesis. The gold-standard intra-operative confirmation is with departmental x-ray. Recently, in-theatre assessment (Faxitron) may be alternatively used. This cabinet x-ray system allows immediate assessment of tumour-margins and may reduce re-operation rates, anaesthetic time and cost.

Aim: To determine if the re-operation rate decreased and breast conservation rate increased following the introduction of Faxitron.

Method: A retrospective case-note review of consecutive patients undergoing a wide local excision (WLE) for carcinoma-in-situ or invasive carcinoma both before and after the introduction of Faxitron was performed. All image-guided specimens also underwent standard departmental x-ray.

Results: In cycle 1, 52 patients had BCS with departmental x-ray. 28.9% required a second operation (13.5%-cavity shaves,15.4%-mastectomy) and a further 13% of those requiring a second procedure required a third (mastectomy). In cycle 2, 60% of 70 patients underwent resection with in-theatre Faxitron assessment. 21.4% required a second procedure (14.3%-cavity shaves, 7.1%-mastectomy) and none required a third. Faxitron was only used in 60% for logistical reasons.

Conclusion: Faxitron is effective, accurate and at least comparable to standard departmental x-ray; it is therefore safe to use alone in margin assessment. This series suggests that Faxitron may reduce re-operation rates (28.9%vs21.4%, p = 0.68) and increase overall breast conservation (80.8%vs91.4%, p = 0.11). This needs to be formally assessed in a prospective study. However, in the interim we should aim to increase Faxitron use to all WLE specimens and cavity shaves.

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P159. Isotope-only localisation of sentinel lymph node biopsy − A safe alternative to dual technique

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Introduction: Isotope and blue dye dual localisation in sentinel lymph node biopsy (SLNB) gives localisation rates of over 98% and is recommended by the ABS guidelines. However blue dye carries a risk of adverse reactions. We stopped routine use of blue dye in 2011 but patients without a clear isotope signal from the axilla do have blue dye injection. We investigated outcome of isotope only SLNB.

Methods: All patients intended for isotope only SLNB between July 2010 and April 2012 were included from a prospectively maintained database. Localisation and recurrence data were collected. Potential predictive factors for failure of isotope localisation were assessed using Fisher's exact test. SLN yield and axillary disease burden were also collected.

Results: 438 SLNB were performed in 431 patients (2 men and 429 women). Median age was 57 (range 26−91). Isotope-only localisation rate was 97% (425/438). Median SLN yield was 2 (range 0−5). At 40 months median follow up (range 33−54) axillary recurrence rate was 0.6% (never as first site of recurrence). In-breast recurrence was 1.5%, contralateral cancer 2.1%, distant recurrence 4% giving a disease free survival rate of 92.4%. Breast cancer mortality was 2.7%.

Predictive factors for the failure of isotope-only localisation included previous breast or axillary surgery ($p = 0.0001$ and $p = 0.0022$ respectively) and isotope injection on the day before operation ($p = 0.0002$). Factors that did not influence success of isotope only localisation included patient age, BMI, neoadjuvant treatment, type of breast operation and tumour pathology/receptors.

Conclusion: Isotope-only SLNB has a high localisation rate and spares the majority of patients the risk of blue dye adverse reactions. The low axillary recurrence rate suggests that clinically relevant nodal disease has not been overlooked, confirming that this is feasible and safe alternative to dual technique.

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P160. Preoperative axillary ultrasound scan in a screening unit, a retrospective analysis

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Introduction: UK guidelines state all patients diagnosed with invasive breast cancer should have a preoperative axillary US scan, PAUS, and if appropriate fine needle aspiration (FNA) or biopsy should be carried out. The accuracy of PAUS varies because of its operator dependency. The detection rate of PAUS in identifying positive axillary lymph nodes was studied.

Method: Histopathology results were studied retrospectively and lymph node positive (LN+ve) cancers were identified. PAUS, type of surgery and final tumour characteristics were recorded. Thickening of the cortex >2.3mm, was considered abnormal, prompting a biopsy. The nodal status as assessed by PAUS was compared with final histology. Only patients with LN + ve on core were offered axillary lymph node clearance (ANC).

Results: 205 patients were diagnosed with LN+ve breast cancer (2012−2014). The mean age was 61 (range 31−90).68% were symptomatic. 105 patients were LN +ve on PAUS. 97 had core biopsy and 8 had FNA. 98 patients (96%) had ANC. 3 of 7 who had sentinel lymph node biopsy (SLNB) required ANC. Two (66%) of these had further macrometastasis.

A total of 100 patients had negative PAUS. All had SLNB. 21 patients had ANC, for positive macro-metastasis following SLNB with 6 (28.5%) showing further lymph node involvement. 79 patients had SLNB and/or sampling. 59 (73%) showed micro-metastasis and 20 had micro-metastasis and isolated tumour cells. The identification rate of PAUS was 48%.

Conclusion: Our results were compliant with national guidelines of preoperative axillary staging. PAUS detection rate remains operator dependent.

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P161. Lymph node burden and harvest is not impacted following neo-adjuvant chemotherapy for breast cancer

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Introduction: Several studies report a significantly lower yield of lymph node harvest from axillary lymph node dissection (ALND) following the administration of neo-adjuvant chemotherapy (NAC) for breast cancer. ABS guidelines recommend that >10 lymph nodes should be harvested at axillary dissection. The objective of this study was to examine the impact of neo-adjuvant chemotherapy on the lymph node yield and extent of axillary involvement compared to contemporaneous controls.

Methods: Retrospective review of pathological data and case notes of 103 patients who underwent ALND dissection for non-recurrent breast cancer over a one year period (2012−2013) was undertaken. Results were analysed with the Mann Whitney test.

Results: Of the 104 patients who met the study criteria, the mean overall lymph node yield was 12.75 (±6.51). 33% of cases had a prior sentinel node biopsy before definitive axillary clearance and the remaining 67% were demonstrated to have nodal metastases on FNAC or core biopsy. 15 (14.4%) patients received neo-adjuvant chemotherapy and had a median lymph node yield of 11 (IQR 10−15) with a median of 3 (IQR 1−5) positive nodes. The lymph node yield of the 88 patients who were chemotherapy naïve at axillary dissection was 12 (IQR 10−16) with a mean number of 2 (IQR 1−7) positive lymph nodes. No statistical difference in the lymph node yield ($p = 0.653$) or number of positive nodes ($P = 0.757$) retrieved were noted between the two groups.

Conclusions: In our study lymph node yield or positivity was not impacted by the use of neo-adjuvant chemotherapy.

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P162. Evaluation of the early post-operative effectiveness of a novel muscle-sparing breast reconstruction technique − Using Braxon (acellular dermal matrix)

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Introduction: We report initial results of a novel muscle-sparing subcutaneous implant breast reconstruction technique using a new Braxon® ADM

Methods: All patients who underwent muscle-sparing breast reconstruction in 2 Breast Units in 2014 were included in the study. The Braxon mesh which comes pre-shaped completely wraps the implant which is placed on the muscle, without detaching the pectoralis major. It is rehydrated in saline in 10 minutes.

Results: A total of 22-patients underwent mastectomy and Braxon ADM plus implant reconstruction, 5 bilateral and 17 unilateral; a total of 27 reconstructions. The rate of implant loss was 3.7% (n = 1 due to wound breakdown), seroma 14% (n = 4) and infection 0%.

Excellent cosmetic outcomes so far were obtained with a low complication rate. None of the patients reported experiencing pain or the "dancing breast syndrome" at 1 month

Conclusions: The initial experience appears highly satisfactory. A feasibility study for a randomized trial comparing Braxon with submuscular /ADM implant reconstruction is planned

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P163. Is breast MRI useful in invasive lobular carcinoma?

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Introduction: Breast magnetic resonance imaging (MRI) is highly sensitive in detecting invasive lobular carcinoma (ILC) of the breast. We investigate the use of breast MRI in ILC and in what proportion of patients it influences a change in the management.

Methods: A prospective cohort study over a 58-months period, including all consecutive patients with ILC having breast MRI scans.

Results: A total of 334 bilateral breast MRI scans were performed. 72 (21.5%) of these were for the assessment of histologically confirmed ILC and were eligible for evaluation. All these MRI scans were carried out within 2 week of patients given the diagnosis (median 5.5 days). Age range of these patients was 24−83 (median 56.5) years. 19 out of 72 patients in ILC group (26.4%) had change in their planned operation from wide local excision (WLE) to a different operation based on the MRI. This included 7 patients with multifocal cancers, 10 patients with significantly larger size of the cancer shown on the MRI than mammogram/ ultrasound and 2 patients with contralateral malignancy. Instead of simple WLE, different operations in these 19 patients included 15 mastectomies, 1 double wire guided WLE, 1 therapeutic mammoplasty and 2 bilateral operations.

With regards to the size of cancers, MRI (median 25mm) correlated significantly better with histopathology (median 23mm) than mammogram (median 17mm) and ultrasound scans (median 14.5mm). Over a median 37 months follow up (range 20−78), 2.7% mortality rate (2/72) was observed with no loco-regional recurrence or distant metastases.

Conclusions: One out of every four patients (26.4%) with ILC had a change in planned operation, including 20.8% needing mastectomies instead of planned WLE due to MRI findings, hence proving its usefulness in ILC.

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P164. The approach to involved anterior margins after breast conserving surgery; whether or not to re-excise

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Involved radial margins after breast conserving surgery routinely undergo re-excision. However, appropriate management of involved anterior margins (IAM) remains a topic of controversy. It has been suggested that re-excision of IAM yields low rates of residual malignancy and may only be necessary in selected patients.

The aim of this study is to examine the management of involved anterior margins after breast conserving surgery at SVUH and to analyse the rate of residual disease in re-excised anterior margins.

A retrospective review of all patients having breast conserving surgery at St Vincents University Hospital from January 2008 to December 2012 was performed. Data collected included patient demographics, tumour characteristics, margin positivity, re-excision rates and definitive histology of the re-excision specimens. An involved margin was defined as <2mm.

A total of 930 patients were included with an average age of 65 (29−94). Of these, 121 (13%) had an IAM. Further re-excision of the anterior margin was carried out in 37 (30.6%) and a further 16 (13.2%) proceeded to mastectomy. Residual disease was found in 18.5% (7/36) of those who underwent re-excision and 7/16 (43.75%) of those who underwent mastectomy. Overall, 11.57% (14/121) of patients with IAM were subsequently found to have residual disease.

There is currently no consensus regarding the management of IAM. These findings suggest that further research is warranted to identify those patients with IAM who may benefit from further surgery.

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P165. One Step Nucleic Acid amplification testing for CK19: Single copy number >5,000 copies/μL vs Total Tumour Load of 15,000 copies/μL

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Background: The diagnostic criteria for OSNA proposes cut-off values of >5000 copies/μL of CK 19 mRNA as macro-metastases. Practice in our centre is to perform axillary node clearance (ANC) on patients with a copy number of >5000 in any node. A recent study has suggested an alternative method using the total copy number of all sentinel nodes (Total Tumour Load) with a cut-off of 15,000 copies/μL.

Method: We analysed data from all patients who underwent ANC for breast cancer from 2011 to 2014. Total tumour load (TTL) for CK19 copies was calculated by taking the total number of CK19 copies from all sentinel nodes for each patient. A comparison was then made between the patients selected for ANC using >5,000 copies/μL in any node and the TTL of <15,000 copies/μL method.

Results: 98 patients with an OSNA result of >5000 copies/μL underwent ANC. Mean patient age was 58 yrs (+/- SD 13.2) with ages ranging from 33−86. 53 had no further positive nodes on ANC. Of these, 6 patients had a TTL <15,000 copies/μL. However a further 6 patients with TTL <15,000 copies/μL had further positive nodes on final histology of ANC.

Conclusion: Using TTL, 6 of our patients with copy numbers of >5,000 in a single node could have avoided an ANC. However this method would have failed to identify 6 patients with further positive nodes. Further prospective data is needed to determine if patients can be identified as low risk of further nodal disease by the TTL criteria.

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P166. Review of three-dimensional (3D) surface imaging for oncoplastic, reconstructive and aesthetic breast surgery

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Introduction: Three-dimensional surface imaging (3D-SI) is being marketed as a tool in aesthetic breast surgery. It has recently also been studied in the objective evaluation of cosmetic outcome of oncological procedures. The aim of this review was to evaluate the current use of 3D-SI in oncoplastic, reconstructive and aesthetic breast surgery.

Methods: Peer-reviewed studies published were identified from PubMed. Two reviewers independently screened all abstracts and selected relevant articles using specific inclusion criteria.

Results: 3553 citations were identified by the search. These were filtered resulting in 52 articles relating to 3D-SI for breast surgery being identified. These covered accuracy and reproducibility (15), breast volume and symmetry assessment (11), pre-operative planning (7), using 3D-SI as an objective outcome measure in reconstruction (6) and in fat grafting (5), comparing different surgical techniques (5), analysing morphological changes over time (4), assessing breast conserving therapy (1). Twenty nine centres performed the studies, 7 studies were based in UK, 17 in the USA and 28 elsewhere in the world. A median of 16 patients (range 0 to 197) were involved in these studies. One study was multi-centred. There were no randomised control trials evaluating the use 3D-SI.

Conclusion: There is a growing body of literature regarding 3D-SI. However, evidence of its superiority over current methods of clinical decision making, surgical planning, communication and evaluation of outcome is required before it can be accepted into mainstream practice.

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P167. Patient satisfaction following immediate breast reconstruction using 2 stage implants

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Introduction: Studies have shown that breast reconstruction is an important determinant of long-term health, and is recommended for all patients without contraindications following mastectomy. The aim of this study was to ascertain the level of patient satisfaction with the cosmetic outcomes following immediate breast reconstruction (IBR).

Methods: Data was collected for 127 patients, treated by IBR under a single surgeon between January 2009 and May 2014. Nineteen patients were excluded (10 failed IBRs, 9 expanders not exchanged), the remaining 108 were sent the BREAST-Q questionnaire; 74 were returned, 5 were unanswered.

Results: Sixty nine questionnaires were included (64%) with a mean patient age 49 (30–73) years. Forty four (64%) reconstructed breasts matched or superseded the patients' natural cup size; the largest implant used was 795cc – which gave its recipients at the most, a DD cup. Of the patients whose reconstructions did not match, 68% had at least a D cup naturally. Following IBR, thirty three (48%) women had further elective surgery to the contralateral breast. With regards to shape, size and alignment, 57 (83%), 50 (72%) and 37 (54%) of patients reported that they are at least somewhat happy with each of these elements respectively, and no patients reported very unsatisfactory results with their appearance when clothed. Despite encouraging results only 75% reported their reconstructions matched their expectations

Conclusion: This study has shown that IBR offers cosmetically acceptable results, especially if the natural breast was small. However there is clearly an opportunity for progress with regards to meeting patient expectations.

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P168. The ability of human observers to discriminate cosmetic outcomes of DIEP breast reconstruction following mastectomy

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Aim: Most systems for assessing cosmetic outcomes of breast reconstructions use humans as assessors. The validity of such systems was dependent on the ability of individuals to discriminate between good and bad cosmetic outcomes consistently within individuals and between individuals, which had never been studied. The aim of this study was to test the hypothesis that individuals were capable to discriminate cosmetic outcomes with strong intra-assessor and inter-assessor reliabilities.

Methods: Clinical photographs of 20 women who underwent free DIEP-flap breast reconstruction were selected from a series of 96 to ensure a full range of aesthetic outcomes. 24 assessors ranked the clinical photographs in order according to the following parameters on 2 separate occasions: (A) Overall appearance, differences in size, shape and position between the reconstructed and natural breasts, and (B) Overall appearance, shape, deformity and scarring of the reconstructed breast.

Each photo received a score from each ranking activity, which was equivalent to the respective rank position. The primary endpoints were (a) median Spearman's rank correlation coefficients (r_s) between the 1st and 2nd rankings of each individual assessor and (b) Kendall's coefficient of concordance for ranks (W) for inter-observer concordance, for all of the above parameters. For the hypothesis to be accepted, median r_s and W had to be greater than 0.70 and 0.50 respectively for each of the cosmetic parameters.

Results: Median r_s and W for each parameter were recorded in Table 1.

Table 1

	r_s	W
Bilateral breasts		
Overall appearance	0.85	0.75
Difference in size	0.86	0.75
Difference in shape	0.89	0.79
Difference in position	0.87	0.77
Reconstructed breast		
Overall appearance	0.88	0.74
Shape	0.92	0.80
Deformity	0.90	0.83
Scarring	0.80	0.62

The median r_s and W of all parameters were >0.70 and 0.50 respectively, thus supporting the hypothesis.

Conclusion: Human assessors were capable to distinguish cosmetic outcomes of breast reconstructions with strong intra-assessor and inter-assessor reliabilities thus validating their ability in assessing cosmetic outcomes of breast reconstructions.

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P169. In patients with micrometastatic sentinel lymph node biopsies, involvement of the non-sentinel lymph nodes cannot be predicted by clinicopathological variables

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Background: The Sentinel Lymph Node Biopsy (SLNB) procedure is recognised to be an accurate method of staging the axilla in patients with early stage breast cancer. There remains a debate as to whether patients with micrometastases should undergo completion axillary lymph node dissection (CALND). We aimed to assess the indicators for positive non-sentinel lymph nodes (n-SLN) following CALND.

Methods: We retrospectively analysed our experience of SNLB between July 2008 to July 2013. A total of 1152 breast cancer patients underwent SLNB. Statistical analysis was performed using Fisher's exact and χ^2 for categorical data.

Results: Out of 1152 SLNBs performed, 224 (19.5%) were positive for metastatic disease; macrometastases in 150 (67%), micrometastases in 72 (32%) and ITC in 2. CALND was not performed in 20 cases, largely due to concerns regarding fitness for anaesthesia. Macrometastases on SNLB were more likely to predict positive n-SLN on ANC {macrometastases; 39/141 (27.7%) vs micrometastases; 9/62 (14.5%), $p = 0.029$}. On univariate analysis, positive n-SLN in CALND for patients with micrometastases on SLNB was not predicted by grade (G0-G2; 6/43, and G3; 3/19, $p = 0.565$), size of primary breast tumour (<40mm; 8/58, ≥40mm; 1/4, $p = 0.475$), lymphovascular invasion (5/30 vs 4/31,), age (<50 years; 3/24 vs ≤50 years; 6/38, $p = 0.496$), or number of positive SLNB. Recurrences were detected in 4 patients, of which 1 was in a patient with micrometastases on SLNB.

Conclusion: In our series, 14.5% (9/62) of patients with micrometastases had positive n-SLB on CALND, which was not predicted by any clinicopathological characteristics.

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P170. Impact of neoadjuvant chemotherapy on axillary lymph node yield in breast cancer

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Introduction: Axillary lymph node (LN) status is an important prognostic indicator in breast cancer. Neoadjuvant chemotherapy (NAC) not only causes down staging of the primary tumour but also alters axillary disease status and morphology. Our research group has previously published on histo-morphological changes in axillary LNs, including scarring following NAC. The aim of this study was to assess the impact of NAC on axillary LN yield.

Methods: A retrospective case control study was performed comparing breast cancer patients undergoing axillary lymph node dissection (ALND) following NAC to those without NAC, between 2009 and 2013. The primary outcome was median LN number reported; secondary outcomes included proportion of patients incompletely staged (<10 LNs) and proportion of positive LNs. Linear regression analysis was used to control for age, operating surgeon, and tumour prognostic features.

Results: There were a total of 50 and 61 ALNDs in the NAC and control group respectively. The median LN yield was significantly lower in the NAC group, 15 vs. 19, $p = 0.002$. There was a significantly greater proportion of incompletely staged patients in the NAC group 7 (14.0%) vs. 2 (3.3%), $p = 0.046$. The proportion of positive LNs was not significantly different 21% vs. 15%, $p = 0.143$. Linear regression revealed NAC was an independent predictor of reduced LN yield ($B = -4.214$, $p = 0.008$).

Conclusions: NAC alters the morphology of the axilla and reduces the LN yield in ALND for breast cancer. Fewer nodes may be obtained in complete staging of the axilla following NAC.

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P171. Lympho-vascular invasion (LVI) is a powerful predictor for nodal metastasis and should be considered in the decision-making for further axillary surgery

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Introduction: Sentinel lymph node biopsy (SLNB) is standard practice for axillary staging with 25–30% having positivity. The appropriateness of SLNB is determined by tumour size. However, there is an ongoing debate of identifying predictive value of factors such as LVI in lymph node metastases. The purpose of this study is to identify key predictors of nodal metastases.

Methods: A prospective study of 513 patients undergoing SLNB was undertaken between January 2011 and December 2013. Histopathology reports were reviewed to record lymphovascular invasion (LVI), tumour size, grade, Ki67, hormone receptor status and HER2 status. Peripheral absolute lymphocyte and monocytes were obtained to calculate lymphocyte:monocyte ratio (LMR).

Results: Thirty per cent of patients with invasive breast cancer had positive SLNB. Univariate analysis revealed that tumour size and LVI demonstrated positive SLNB ($p = 0.008$ and $p = <0.05$, respectively). Multivariate analysis revealed that LVI was significantly correlated with SLNB positivity. Ki67, HER2, hormone receptor status and LMR did not demonstrate predictive value.

Multivariate Variable	P value	Confidence Intervals
Tumor Grade	0.415	−0.037–0.090
Tumor Size	0.783	−0.053–0.070
Lymphovascular Invasion	**< 0.05**	**0.196–0.371**
Oestrogen receptor status	0.271	−0.59–0.209

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Multivariate Variable	P value	Confidence Intervals
Progesterone receptor status	0.862	−0.095–0.113
Human epidermal growth factor receptor 2	0.577	−0.079–0.044
Lymphocyte: Monocyte ratio	0.600	−0.054–0.093
Ki67	0.180	−0.076–0.014

Conclusions: LVI is a strong independent predictor of lymph node metastases in comparison to other existing clinic-histopathologic factors. Knowledge of lymph node status combined with the presence or absence of LVI can predict which subset of patients will have better outcomes and can aid in the decision-making for further axillary surgery.

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P172. Impact of Oncotype DX on the decision for adjuvant chemotherapy: Retrospective analysis of the Salford Royal Foundation Trust cohort

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Introduction: Oncotype DX is a predictor for recurrence of breast cancer. It is utilised to inform decisions for chemotherapy treatment, and licensed by NICE for use in patients with ER positive, LN negative and HER-2 negative disease. Patients are then subdivided into low-, intermediate-, and high-risk groups.

Methods: Using Electronic Patient Record, notes of breast cancer patients at Salford Royal that underwent Oncotype DX profiling from July 2011-December 2014 were accessed. This was audited against the NICE guidelines and risk stratification for Oncotype DX; to assess how many patients in this cohort could safely avoid chemotherapy. Patients' NPI was also calculated and compared against the chemotherapy outcome based on the Oncotype DX risk stratification.

Results: 26 patients (30 cancers cumulatively) were referred for profiling. 15 of the 26 patients (57.7%) safely avoided chemotherapy following patient and MDT approval, including 6 of the 7 node positive patients. Since profiling began there have been zero recurrences.

The mean risk stratification score was 18.65; with 12 low-, 10 intermediate-, and 4 high-risk patients.

11 patients were classed within the intermediate risk group; with 4 patients (36.3%) safely avoiding chemotherapy in this sub-cohort. Zero patients had an NPI >5.4; however 18 were classed into the moderate prognostic group (NPI 3.4–5.3). Of these, 12 patients (66.7%), based on the Oncotype DX risk stratification, could elect or be recommended to safely avoid chemotherapy.

Conclusions: Oncotype DX profiling has enabled the majority of patients in the SRFT cohort to safely avoid chemotherapy, and its associated side effects, whilst being cost effective.

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P173. Investigation of coding and HRG/income for oncoplastic procedures

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Introduction: It was found that our breast unit has not been coding our mastectomies and reconstructions properly and a potential loss in money was calculated.

Aim: To look at all our mastectomies and immediate reconstructions and see whether they have been coded properly on the OPCS system

Method: All skin sparing mastectomies and immediate reconstructions with ADM/Implant that were performed over a 6 month period were taken from our central database and the OPCS and HRG codes were compared and to look at the reason why they were inappropriately coded.

Results: There were 24 cases covering all 3 consultants. 9 achieved the correct HRG code (JA16Z Mastectomy and reconstruction − £6415). The remaining cases did not get a reconstruction HRG but instead JA07 and JA06 codes which are the HRGs usually assigned to mastectomies. The lost income on these 15 cases alone is about £80,000.

Conclusion: Interventions were made and a re-audit will be performed of coding and HRG allocation for 3 months after these interventions.

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P174. Role of PEC block in recovery after mastectomy

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Mastectomy is one of the common surgical procedures and accounts for significant bed occupancy. The aim of this audit was to review our practice of analgesic administration to the patients undergoing the procedure and its effect on the length of stay.

Methods: Notes of 50 random patients who had undergone mastectomy in a 6 month period were reviewed to collect details of pain scores, analgesic requirements, duration of recovery and hospital stay. Patients having primary reconstruction were excluded.

Results: A total of 47 notes were reviewed. Twenty two patients had, in addition to GA, regional analgesia (RA) in the form of Pectoralis (PEC) block. The remaining 25 did not had any PEC block but had local anaesthetic (LA) infiltration (n = 12), LA through drain (n = 9) or no LA (n = 4). There was no significant difference between RA and Non RA group in terms of recovery pain scores and morphine requirement in recovery. RA group had significantly less morphine intra-operatively compared to others. Recovery stay was slightly longer and slightly more patients needed morphine on first postoperative day in Non RA group. More patients in Non RA group stayed in hospital for more than two days (Table 1).

Conclusions: In this audit PEC block significantly decreased morphine requirement in perioperative period, though it did not translate to significant reduction in recovery stay. This emphasises the need for a more holistic approach in order to reduce hospital stay and regional block can be an important part of care.

Table1

Group	RA group (n = 22)	Non RA group (n = 25)
Number needing intraoperative morphine	9	25
Average intraoperative morphine use (mg)	4.1	8.6
Recovery pain score (0−10)	2.7	3.1
Recovery stay in minutes	43	50
Number who stayed in hospital for more than 2 days	7	13

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P175. MAMMO-50: Mammographic surveillance in breast cancer patients over 50 years of age − The results of the 2 year feasibility study

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Introduction: For breast cancer patients 50 years and older at diagnosis, there is no evidence or consensus amongst surgeons on risk-factors for optimum frequency or duration of follow-up including mammography.-Mammo-50 aims to provide sound cost-benefit evidence whilst investigating alternative methods of follow-up

Methods: A Multi-centre, randomised controlled, phase III trial of annual mammography versus 2 yearly for conservation surgery and 3 yearly for mastectomy patients. There is also an observational cohort study of those eligible patients for whom the surgeon or patient opts for continued mammography as local practice. A 2 year feasibility study aimed to set up at least 100 actively recruiting centres by month 24. In addition user perspectives and acceptability of questionnaire-based reported outcomes were explored.

Results: To date (January 2015) 432 patients (73%) have been randomised between the two arms and 163 patients (27%) entered cohort study. 66 sites are open to recruitment with additional 28 in site set-up, which indicates the target of 100 centres recruiting will be met. Of patients randomised, 77% have undergone conservation, 87% have invasive disease, 81% aged 55−75 years, 84% ER +ve and 74% undergoing hormone therapy. Focus groups occurred, exploring experiences and perceptions of the trial and follow-up options (e.g. telephone, written or internet contact). Patients enter the trial due to altruism. Those entering cohort favour frequent check-ups

Conclusions: This is a popular and important trial which will continue through the pilot phase, providing surgeons with valuable risk-adjusted information to guide their future practice.

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P176. Tumour biology affects nodal burden and complete pathological response after neoadjuvant chemotherapy in breast cancer patients with axillary nodal metastases

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Introduction: Few studies have focused on effects of tumour biology on surgery type and rates of pathological complete response (pCR) in breast cancer patients with nodal metastases who undergo neoadjuvant chemotherapy (NAC). The aim of this study was to examine the impact of different biological tumour characteristics on extent of breast surgery, nodal burden and rates of axillary pCR in breast cancer patients with nodal metastases who undergo NAC.

Methods: A retrospective study of a prospective database identified breast cancer patients with positive axillary fine needle aspiration cytology (FNAC) between 2007−2012. Patients who underwent NAC and axillary lymph node dissection (ALND) were recorded and tumour characteristics analysed. Extent of surgery and pCR rates after NAC by biologic subtype were compared.

Results: 111 patients with breast cancer and nodal metastases underwent NAC and subsequent ALND. 58 patients (52.3%) were [ER+HER2-], 31 patients (27.9%) were [ER+HER2+], 16 patients (14.4%) were [ER-HER+] and 6 patients (5.4%) were [ER-HER-]. Axillary pCR was significantly higher in the [ER-HER+] group compared to the [ER+HER2+] and [ER+HER2-] groups (87.5% vs 48.4% vs 12.1%; Chi-Square Test; $p < 0.001$). Tumour biology did not affect extent of surgery. Nodal burden (Mean positive nodes) was significantly lower in the [ER-HER+] group compared to the [ER+HER2-] group (0.19 vs 7.46; Unpaired T-Test; $p < 0.001$) and [ER+HER2+] group (0.19 vs 1.96; $p = 0.01$).

Conclusion: HER2 positivity is associated with increased rates of axillary pCR and reduced nodal burden after NAC. Patients with HER positivity could be amenable to less aggressive axillary surgery post NAC.

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P177. Microvascular breast reconstruction and lymph node transfer for postmastectomy lymphoedema patients – Does it affect quality of life?

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Introduction: Lymphoedema is said to affect 4% of patients seeking breast reconstruction. It is a debilitating condition that causes considerable patient distress and impact on quality of life. Several recent studies have highlighted the quantitative benefits of autologous lymph node transfer in these patients. The aim of our study is to provide quality of life data regarding the effects of autologous lymph node transfer in conjunction with DIEP breast reconstruction.

Methods: The study was conducted at the Queen Elizabeth Hospital Birmingham using a consecutive series of patients undergoing a DIEP breast reconstruction with autologous lymph node transfer. They were all operated on by the same surgeon between 2012 and 2014, with a minimum follow up of 3 months. Each patient was asked to complete a prospective pre and post-operative EQ5D-5L, LYMQOL and a quality of life questionnaire specific to their surgery. Statistical analysis was performed using the Wilcoxon signed-rank test.

Results: There was a significant difference ($p < 0.01$) between the pre and post scores for usual activities, pain, anxiety and the overall health scores (EQ5D-5L). LYMQOL, a 61-question tool, showed a significant change in the mean pre and post-operative scores ($p < 0.01$). From our questionnaire, the most significant pre-operative symptom was swelling followed by heaviness, altered sensation, aching, functional problems, pain and infection-related problems, with mean pre-operative severity scores (MSS) of 6.7, 6.7, 6.1, 6.0, 5.5, 3.9, and 1.3 respectively. Post-operative MSS were reduced for all symptoms: swelling (MSS 2.1; $p < 0.01$), heaviness (MSS 1.6; $p < 0.01$), altered sensation (MSS 1.6; $p < 0.01$), aching (MSS 1.1; $p < 0.01$), functional problems (MSS 1.3; $p < 0.01$), pain (MSS 0.75; $p < 0.01$) and infection-related problems (MSS 0.06; $p > 0.01$).

Conclusion: Lymph node transfer has been previously shown to reduce quantitative measures of lymphoedema. We feel that quality of life improvements are clinically more relevant than absolute limb volume itself. We have demonstrated in our small series that quality of life is significantly improved following this technique.

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P178. The Breast Care Nurses role in a holistic approach to assessing elderly patients with a diagnosis of breast cancer in a dedicated clinic

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Introduction: More than 80% of breast cancers occur in women above the age of 50. Of these, 35% of cancers are over the age of 70. Despite the many advances in breast cancer treatment over the years, there has been little meaningful improvement in breast cancer specific mortality in the elderly. Studies have shown that a high percentage of elderly breast cancer patients do not receive standard treatment. In routine clinical practice there is no formal comprehensive assessment to assess the general fitness of elderly patients in order that patients receive the most appropriate treatment.

Method: Patients are seen in a dedicated comprehensive multidisciplinary clinic by a Consultant Breast Surgeon, experienced Consultant Physician, an Anaesthetist and a Breast Care Nurse. As part of the holistic assessment patients are assessed and their physical and mental fitness scored. To assess the patient's physical fitness the Bartel Index and Instrumental Activities of Daily Living Index are used. A mini-mental state assessment tool and Geriatric Depression Score are used to assess mental function and a standard questionnaire is used to assess co- morbidities (Charlson Index). Anaesthetic assessment provides a detailed anaesthetic plan and American Surgical Anaesthetic (ASA) grade. The Breast Care Nurse is involved in assessing these patients by using the standardised questionnaire. Initial analysis indicates that a patient with a mini-mental state score less than 20/30, a Bartel Index of less than 12/20 or an ASA grade greater than 3 are at high risk (>50%) of death within 2 years. The worse the scores and the more scores that were poor, the worse the survival. No other measured factor, including patient age, proved statistically significant associated with poor 2 year survival.

Conclusion: Between Jan 2005 and Jan 2013 559 patients have attended the clinic. Following assessment, 342 pts underwent surgery (61.2%). 217 patients either declined surgery (after being offered surgery) and treated with PET (38.8%). In our unit the women can be reassured that they have gone through a thorough assessment which allows them to make a confident and informed decision for the optimal treatment.

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P179. Nordic walking as a physical activity intervention for aromatase inhibitor associated arthralgia: A feasibility study

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Background: Women taking aromatase inhibitors for breast cancer commonly experience joint pain and stiffness (AIAA), which can cause problems with adherence. There is evidence exercise might be helpful, and Nordic walking (NW) could provide benefits over normal walking alone.

Methods: A feasibility study was carried out in a sample of women with AIAA using a randomised control design. Forty women were randomised to intervention (six week supervised group NW training once per week with an increasing self managed element, followed by six weeks 4 x 30min/week self-managed NW); or enhanced usual care. Data were collected on recruitment and retention, adherence, safety, and research design issues. Outcome data including pain and physical activity levels were collected at baseline, six and twelve weeks.

Findings: Recruitment (25%) was comparable to other breast cancer exercise studies, demonstrating interest in NW despite arthralgia. Attrition was low (10%) and safety demonstrated. Although adherence was high for weekly supervised NW (>90%), it was low for the self managed component, with most women (70%) only managing one session per week. However, women in both intervention and control groups increased overall activity levels from baseline. Improvements in pain were demonstrated in both the intervention and control groups, possibly as both increased their physical activity.

Conclusions: Our findings indicate that women with AIAA may not adhere to an intensive programme of self-managed NW; however, increasing physical activity is feasible, and may improve symptoms. A

future trial should test a physical activity intervention including a supervised component throughout to maximise adherence.

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P180. Audit of referrals to a family history clinic

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Background: Guidelines were issued by NICE in 2004 and further updated in 2006 and 2013 for the management of women with a family history of breast cancer. This led to the establishment of a dedicated breast cancer family history clinic in this district general hospital. The experience from this risk assessment clinic and how it has evolved is presented here.

Material and methods: The clinic was originally set up with a research grant from the QUEST cancer research charity. Women with a family history of breast cancer were referred to this clinic by their general practitioner or breast clinician. Women were asked to complete a family history questionnaire. This questionnaire assisted in creating a pedigree for each woman. Originally in late 2006 these patients' pedigrees were handwritten, then entered onto Progeny software, but by August 2009 this was replaced by FaHRAS software which is still in use. Using the NICE guidelines the women were categorised into population, moderate and high risk groups and managed accordingly.

Results: Between August 2009 and December 2014 a total of 1262 patients have been assessed in the clinic. A further 64 were referred directly to the regional genetics service. An additional 191 were declined at the initial triage stage as population risk. Of those seen, 165 (13%) are near population risk, 474 (38%) are moderate risk and 623 (49%) are high risk. A total of 550 patients were referred to or had been seen by the regional genetics service. Of them, 181 were offered testing for the BRCA gene mutations. Of these, 145 have been tested, 58 BRCA 1 or BRCA 2 mutation carriers were identified, 43 tested negative (including those tested for Ashkenazi Jewish mutations only) and 44 were inconclusive (including variant of unknown significance).Since testing positive for a BRCA mutation, 10 women have undergone bilateral salpingo-oophorectomy (BSO) alone, 5 have had risk-reducing bilateral mastectomy (RRM) alone, and 4 have had both BSO and RRM.

Conclusion/Summary:

- The family history clinic provides a comprehensive service to women with a breast cancer family history encompassing specialised risk analysis, clinical and radiological assessment and appropriate counselling.
- There is a high demand for this service in a district general hospital
- A significant proportion of these women will require genetic counselling
- A number of these women will go on to require further specialist management such as risk-reducing surgery.

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P181. Integration of physical activity into breast cancer care pathway "Can-Move" programme

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Introduction: Cancer survival is improving due to early diagnosis, and improved treatment. This means that more patients are living with the long term effects of cancer including fatigue, weight gain, psychological issues etc. In the past patients were advised to rest during and after their treatment but there is growing evidence suggesting that staying active during and after treatment can significantly reduce the negative side effects of cancer.

Recent review of evidence (Macmillan 2012) demonstrates that moderate exercise can have a beneficial effect. 150 minutes of exercise per week can reduce breast cancer mortality by 40%. A Pilot study "Can-Move" was commenced locally in February 2014 to provide a structured programme of 12 weeks exercise designed for patients diagnosed with breast, colorectal and prostate cancer. It is delivered by an exercise specialist from the active life styles team.

Methods: The breast team has been recruiting into this programme.

Physical activity is discussed with individual patients during their holistic needs assessment at time of diagnosis. Following agreement between the clinical nurse specialist and the patient appropriate referral is made to the "Active Lifestyles" team. The patient is assessed and a physical activity plan is designed and tailored to suit the individual.

Results: 1st March−September 2014,129 total number of referrals, (71 Breast patients)

90% report an increase in physical activity levels from the baseline.

86% report enhanced confidence to self-manage their condition using physical activity.

89% report enhanced wellbeing scores on WEMWBS.

Conclusion: Staying active/ exercising enhances the wellbeing of patients with cancer. This Pilot study has been extended to March 2016.

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P182. Evaluation of the benefits of breast reconstruction information evenings

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Introduction: Women considering breast reconstruction face many difficult choices. Breast reconstruction information evenings were initiated at the Royal Devon & Exeter Hospital (RD&E) in 2011 to provide information and peer support for women considering breast reconstruction. They are facilitated by the Breast Reconstruction Nurse Specialist and supported by medical and nursing staff. Information evenings are held three times a year at the local cancer support centre and are advertised in advance. The aim of the audit was assess the value of peer support and the benefit of providing information in a group setting.

Method: Questionnaires were handed out to all women at consecutive information evenings between July 2011 and November 2014. The audit was based on the standard hospital design for auditing support groups.

Results: 10 meetings have been held at the RD&E attended by a total of 171 women. The response rate was 58%. (100/171) 100% (100) of respondents would recommend the evening to other women considering breast reconstruction. 90% (90) women valued meeting and talking to the patient volunteers and seeing the results of surgery. 80% (80) women valued talking to healthcare professionals in this setting. 60% (60) women felt the evening supported their decision to go ahead with breast reconstruction.

Conclusions: Women value peer support from women who have already had a breast reconstruction. This may help in their decision making. Women valued the opportunity to talk to healthcare professionals. Providing information on breast reconstruction in this format has been well received.

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P183. Implementing short-stay major breast surgery − The challenges and the achievements

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Introduction: Short-stay major breast surgery was introduced to Pennine Acute Hospitals NHS Trust in 2011 in answer to the Government's Quality Improvement programme. The recommendation was for 80% of patients, who were undergoing a mastectomy or wide local excision plus axillary surgery, to have their procedure as a day case. As our Trust covers a wide geographical area and caters for patients who have lower incomes and

increased health issues this was certainly a challenge. Another difficult challenge was to ensure that all hospital personnel involved in the patient's journey were dedicated to achieving this nationally set target. The date for completion of the implementation was December 2013. In April 2011 Pennine Acute Hospitals NHS Trust used a multidisciplinary approach to redesign and implement a new breast surgical pathway, to enhance recovery through early discharge, whilst continually striving to provide high levels of quality care and patient satisfaction. After introduction of the pathway the team aimed to evaluate the patient experience to guide us in improving patient care.

Methods/data collection: Questionnaires were distributed for 3 months with a response rate of 97%. Stages of data collection included before surgery, during the hospital stay, before discharge and after discharge from surgery. Patients were asked to comment on their overall experience and provide detailed information of how we could improve their care. A five point Likert scale was used with free text sections to enable quantitative and qualitative data collection.

Results: Overall it was identified that more than 90% of patients felt that the information, standard of care and level of support at diagnosis, admission and discharge was good or excellent. 50% of patients felt that the day case environment was unsuitable for purpose and this has now been addressed by the Trust.

Future implications: Potential improvements were identified in relation to the giving of appropriate information literature to the patients and information booklets have now been developed.

Implementation of the pathway has proved to be more successful than anticipated. On-going patient feedback has ensured that patient satisfaction is an integral part of further improving the patient experience. All improvements suggested are considered and if thought viable were piloted.

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P184. Surgical pathway pilot and audit

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Introduction: In 2009, intradermal microbubbles injection and contrast-enhanced ultrasound/biopsy was introduced to increase the accuracy of pre-operative sentinel node identification. The technique successfully predicts node status and reduces the rate of completion axillary surgery, but the treatment pathway lengthens by up to 15 days, resulting in breaches. The pilot aimed to establish if pre-booking tests, appointments and admission dates would reduce breaches.

Method: Patients at one Trust site were compared with a group from the other site. The Breast CNS and patients discussed and agreed appointments for the microbubbles test, results clinic and admission date at the biopsy results clinic. An e-diary was used to check available operating time. Radiology appointments were booked/cancelled and operation lists updated by the BCNs and team secretary as needed e.g. a positive microbubbles biopsy requiring ANC.

Results: Pre-booking treatment pathways reduces the time within the 62-day target by an average of 10 days, and within the 31-day target by an average of 7 days. Late cancellations of Nuclear Medicine appointments are rare and can be accommodated by the department, whilst the effect on operating lists is minimal; the time allocated for SNB or ANC being similar. Patients do not appear to be confused by the extra information and our observation is that they respond positively to knowing their treatment plan in advance.

Conclusions: Pre-booking treatment pathways reduces the number of target breaches and enhances patient satisfaction. The principles can be used for planning more complicated pathways e.g. patients requiring pre-operative staging.

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P185. Family History Clinic: Establishing a nurse led NICE compliant service

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Introduction: Following publication of the National Institute for Health and Care Excellence (NICE) 2013 led to a change in local pathways. Regional genetic service only accepting high risk referrals from July 2014, prior to this they assessed all referrals.

Our family history service is provided by a Nurse Practitioner: this outlines how the NP has coordinated the family history service development.

Method: Arranged educational update for the breast service regarding implications of NICE guidance from regional clinical geneticist.

Local referral framework agreed for referral from primary to secondary care and for referral from secondary to tertiary care in line with NICE (2013).

Process mapping session with key professionals.

NP triaging referrals, matching against NICE (2013) criteria

Developed family history questionnaire to capture information for risk assessment prior to clinic visit.

Screening staff devised computer programme for moderate risk surveillance, all family history patients put onto automatic recall systems.

Referral form for surveillance imaging devised in consultation with Radiologist and Geneticist

Meeting with commissioners to agree commissioned service and improved communication in collaboration with Lead Consultant Breast Surgeon.

Worked with interface pharmacist and GPs to develop shared care framework for prescribing Tamoxifen.

Results: Nurse led service established with key personnel having identified roles.

Lead Consultant Breast Surgeon and NP are points of contact for primary care leading to improved communication.

Developed close working relationships with Consultant Geneticist and genetic counsellors.

Teamwork and coordination by NP has developed a NICE compliant service.

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P186. A comparison of audits of a secondary breast cancer support group

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Introduction: Evidence shows that professionally facilitated support groups enable women to cope more effectively with existential concerns, physical effects and treatment side effects following a diagnosis of secondary breast cancer.

The secondary breast cancer support group at the Royal Devon & Exeter Hospital was set up in 2009 using the Supportive Expressive Model of David Spiegel. The aim of the studies was to assess the value of this group.

Method: The audits were conducted against standards set in NICE Guidelines. 12 Questionnaires were sent to group members in July 2011 and 8 returned 11 sent in July 2014 and 10 returned.

Results: Both groups thought attending the group helped them cope with having cancer 88% (2011) 99% (2014).

Conclusions: Our audits demonstrate that the secondary breast cancer support group is a suitable venue to discuss difficult and distressing issues and that women find the group helpful in coping with a diagnosis of secondary breast cancer.

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