



Abstracts for oral presentation at the Association of Breast Surgery Conference, 15th & 16th May 2017, Belfast Waterfront

Monday 15th May 2017, Session 2: Submitted papers. 09:00 to 10:30

1. Outcome following 150 prepectoral implant based breast reconstruction using Braxon[®] (ADM): UK experience

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Introduction: Prepectoral breast reconstruction is an evolving new technique that is replacing standard submuscular reconstruction. We report the UK experience of a novel muscle-sparing breast reconstruction procedure with a pre-shaped acellular dermal matrix completely wrapping the breast implant.

Methods: All patients who underwent a muscle-sparing breast reconstruction from Jan 2014 to Sept 2016 were included in the audit and the data was collected from the data base prospectively. All surgeons were mentored for the first five cases.

Braxon[®] is the only dermal matrix, which is pre-shaped and is 0.6 mm thick. The mesh is porcine derived ADM, which totally wraps the implant and is placed prepectorally over the chest wall to form a new breast.

Results: A total of 161 prepectoral breast implant reconstructions were carried out in five centres in the UK with a follow up of 3–35 months. 128 were unilateral and 24 were bilateral procedures. The age ranged between 30–76 years (median 56 yrs). The implant size varied between 120–540 cc (median 360 cc).

Complications included hematoma 1.8%, (n = 3), implant loss 3.7% (n = 6), seroma needing aspiration in 11% (n = 19) and superficial skin necrosis 1.8% (n = 3).

The outcomes have been excellent, with high patient satisfaction, less pain, a more natural shape and feeling with good cosmetic outcome.

Conclusion: The Braxon[®] wrap-around muscle sparing technique adds a new dimension to implant based breast reconstruction. It eliminates the problem of implant animation and procedure of choice in athletes, active patients who do not want disturbance of their musculoskeletal structure.

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2. Magseed – Safety and feasibility study of the use of magnetic marker seeds to localise breast cancers

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Introduction: Localisation of impalpable breast cancers is traditionally performed using wire localisation. Magseed is a steel marker clip (seed) which has been developed to be placed in the tumour and can be detected with a Sentimag (magnetic probe) which to the user is similar to finding a radioactive node. To obtain CE marking for use of the seed for lesion localisation we have undertaken a Phase II study of the safety and feasibility of using marker seeds to localise tumours in mastectomy.

Methods: Following ethical and MHRA approval we are placing Magseed into 25 women having mastectomy for breast cancer. Outcomes assessed include – detectability of the seed by breast volume and depth, migration, accuracy and safety of the seed; including tolerability and tissue response.

Results: Nine patients have completed the study with recruitment due to be completed by March 2017. 9/9 seeds were placed accurately with no significant migration. All seeds are easily detectable using the probe. There is minimal tissue reaction including fibrosis and lymphocyte infiltration around the seed on pathology.

Conclusion: Early experience of this technique suggests that the Magseed will be a safe and feasible method of accurately localising breast cancers. This study will be complete by March 2017 for presentation at the ABS in May 2017. If CE marked, further studies will be required to test the efficacy for wide local excision surgery. The seed is FDA approved and early use of the device suggests that it performs well for localisation.

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3. Three 3D measurements could replace panel assessment for evaluation of aesthetic outcome after Breast-Conserving Therapy (BCT)

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Introduction: There is no gold standard measure for aesthetic outcome in breast conserving surgery. 3-Dimensional Surface Imaging (3DSI) is an exciting technology with the potential to offer a solution. There are well established links between aesthetic outcome and psychosocial well-being. With excellent expected survival for breast cancer patients, the importance of aesthetic outcome is brought to the fore.

Methods: Ethics approval was granted. 3DSIs of 191 women, 1–6 years post BCT were analysed using VECTRA software and were evaluated by a panel (Harvard 4 point score). Univariate ordinal regression was used to test association between variables and panel score. Variables

with $p < 0.1$ were entered into a multivariate ordinal regression model to identify independent association.

Results: Variables that were associated with the panel score on univariate analysis ($p < 0.1$) included Nipple-Infra Mammary Fold (N-IMF) and Nipple-Sternal Notch (N-SN) ratios ($p = 0.075$, $p = 0.031$ respectively), projection ($p = 0.085$), IMF height ($p \leq 0.001$), volume symmetry ($p = 0.004$), shape symmetry (root mean squared) ($p < 0.001$), and proportion above the nipple ($p = 0.01$). Shape symmetry, N-SN ratio and IMF height remained statistically significant on multivariate analysis ($p < 0.001$, $p = 0.028$, $p = 0.037$, OR 0.685, 1.035, 1.220).

Conclusions: Shape symmetry, N-SN ratio and IMF height were demonstrated to be independently associated with panel score i.e. from these measurements, the panel score can be predicted, which may allow reproducible, standardised evaluation of aesthetic results. The ability to measure IMF height and shape symmetry adds weight to the use of 3D over 2D imaging.

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4. Breast arterial calcification on screening mammography can predict clinically significant coronary artery disease (CAD) in the BreastCheck screening cohort.

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Introduction: Breast arterial calcifications (BAC) are vascular calcifications observed at mammography. BAC has been associated with an increased risk of coronary artery disease (CAD). We aimed to investigate the association of BAC with findings on Computerised Tomography Coronary Angiography (CTCA) and thus CAD within the BreastCheck screening cohort.

Methods: Women aged between 50–64 who underwent CTCA between 2014 and 2015 were included. The BreastCheck mammography database was cross referenced to determine how many of these had both CTCA and digital mammography. BAC was scored as absent, mild, moderate or severe by specialist breast radiologists. CT coronary angiograms were scored according to the CAD-RADs system by specialist chest radiologists. Any findings significant in the CONFIRM trial were also recorded. History of chronic kidney disease, diabetes, hypertension, hypercholesterolaemia and smoking were recorded.

Results: 484 women had CTCA during that time period. 219 were within the 50–64 age category. Of these, 95 patients with no previous history of MI or CAD had both CTCA and mammography performed.

Using standard multiple regression BAC was independently associated with a finding of CONFIRM significant CAD on CTCA ($p = 0.008$) and with a CADRADs score of ≥ 3 ($p = 0.008$). Furthermore using the Pearson method there was a significant positive correlation between the patients BAC score and their CADRAD score ($p < 0.001$).

Conclusion: BAC diagnosed on 2 yearly screening mammography predicts CONFIRM significant CAD and CADRADs ≥ 3 disease. This information could be used to communicate cardiac risk to patients' primary care physician through the medium of the radiologic report to identify potentially undiagnosed CAD.

<http://dx.doi.org/10.1016/j.ejso.2017.01.023>

5. The potential role of three dimensional surface imaging (3D-SI) derived symmetry score of breasts as an objective measure of aesthetic outcome after breast conserving therapy (BCT)

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Introduction: Patient satisfaction with aesthetic outcome is important after BCT (surgery and radiotherapy) because of the correlation with

psychosocial recovery. However, to improve surgical outcomes, an objective measure is required. Assessment of images by a panel is costly, time-consuming and could potentially be replaced by a score derived from objective measurements. This may provide a standardised, quick and cost effective tool for clinical studies. This study investigated the correlation of breast volume symmetry (VS) and shape symmetry (SS) (measured by 3D-SI) with patient satisfaction (BREAST-Q-BCT questionnaire) and panel assessment.

Methods: Ethical approval was obtained. Women who had unilateral BCT 1–6 years ago were recruited. Participants underwent 3D-SI and completed the BREAST-Q. VS (smaller breast/larger breast $\times 100$), and SS (calculated by root mean squared) were analysed. Panel assessment of 3D images used the Harvard 4-point score.

Results: 200 women participated. Mean age was 60 years (SD11.1). Mean time from surgery was 35.5 months (SD17.8). Median score for 'Satisfaction with breasts' was 68 (IQR55–80). Median VS was 87% (IQR78–93), SS was 5.87 mm (IQR4.23–7.95). The table summarises the Spearman's correlations.

	Volume symmetry, VS (%)	Surface symmetry, SS (mm)
Panel assessment	0.199 (weak) ($P < 0.005$)	–0.527 (moderate) ($P < 0.001$)
Satisfaction with Breasts	0.187 (weak) ($P < 0.005$)	–0.229 (weak) ($P < 0.001$)

Conclusion: VS and SS as measured by 3D-SI are both correlated with panel assessment and patient satisfaction. The weak correlation with PROMs indicates that patient satisfaction cannot simply be defined by one or two objective parameters. SS correlated best with panel, hence we should strive to develop a 3D-SI tool based on symmetry to replace panel assessment and to use alongside, but not replace, PROMs.

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6. Rates of secondary surgery following immediate post-mastectomy reconstruction in English NHS hospitals: A national cohort study of 13,736 women

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A rise in immediate post-mastectomy implant reconstruction has been reported in recent years. Implant procedures allow for quicker patient recovery, avoid donor site morbidity, and have been shown to provide a greater initial cost vantage. However, these apparent benefits may not reflect the final outcome owing to revisional surgeries. Our aim was to investigate the rates of secondary surgery amongst women undergoing immediate post-mastectomy reconstruction in English NHS hospitals.

Women with breast cancer who underwent mastectomy with immediate reconstruction between 2007 and 2013 were identified using the national Hospital Episode Statistics (HES) database. Women were grouped into categories based on reconstruction procedure: implant, pedicled flap with or without implant, and free flap. The incidence of secondary surgery, defined as an operative breast complication/revision or secondary

ABSTRACTS

reconstruction with the same laterality, was then calculated and survival analysis performed.

A total of 13,736 women were identified. Mean follow-up was 3.7 years. Overall 35.8% of women had further surgery 15% being secondary reconstruction, however differences were observed across groups. (Table 1) Secondary autologous rates also varied. Women who underwent implant reconstruction had an increased relative risk and adjusted hazards ratio of 3.7 (95%CI:2.9–4.6) at 3 years comparative to women who received free flaps, $p < 0.001$.

Table 1

IR Category	Total n	90 days	1 year	3 years
Implant	4,061			
Secondary Reconstruction	1055	4.7%	15.7%	27.6%
Overall Secondary Surgery	2146	10.6%	32.1%	55.7%
Pedicled + I/E	3,536			
Secondary Reconstruction	524	2.1%	8.3%	14.8%
Overall Secondary Surgery	1376	6.4%	19.7%	38.1%
Pedicled flap	2,901			
Secondary Reconstruction	327	1.0%	5.2%	11.0%
Overall Secondary Surgery	720	4.7%	12.4%	24.4%
Free flap	3,238			
Secondary Reconstruction	220	1.4%	3.4%	6.9%
Overall Secondary Surgery	673	8.2%	13.5%	21.2%

Our findings indicate a significant future workload following post-mastectomy immediate implant reconstruction comparative to autologous procedures. The rates reported can be used to inform patients and to assess quality of care across service providers. Further investigation of the financial implications of our findings are required.

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7. Dedicated under 35 breast clinic: Is this the answer?

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Introduction: Approximately 50,000 new breast cancers are diagnosed each year in the UK. The incidence of new breast cancer rises with age with 62 women diagnosed per 100,000 each year under 40 (1277 cases approximately each year). The updated NICE guidelines advise urgent fast-track referral for all patients presenting with a breast or an axillary lump (with or without pain) aged over 30 years to be seen within 2 weeks.

We wanted to determine the efficiency of having a dedicated under 35 breast clinic, where all women under the age of 35 and all male breast patients were seen. Within our hospital this clinic is currently undertaken by a hospital fellow doctor and a specialist breast care nurse, with the support of ultrasound imaging only.

Methods: All patients who attended this clinic between September 2015 and August 2016 were included in the study. Demographic details and outcome were analysed from the cancer database.

Results: A total of 1144 patients were seen with 1059 females and 85 males. The age of female patients ranged between 16–34 years. The incidence of breast cancer was $< 1\%$ (9 patients) in female patients under 35 yrs and no male breast cancer identified. No patients have returned with a missed cancer (Follow-up range 4–15 months).

Conclusion: The under 35 clinic is an effective clinic to assess and provide reassurance to a majority of patients. It is cost effective and can easily be set up within the current NHS structure by middle grade doctors and nurse specialist nurses.

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8. Poor overall survival in male breast cancer patients negative for CK18 and CK19

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Introduction: Male breast cancer (MBC) is rare and currently managed based on information extrapolated from extensive research undertaken in female breast cancer (FBC). The aim was to evaluate the prognostic role of various established protein biomarkers in FBC identified from literature in a large cohort of MBC ($n = 428$).

Methodology: Immunohistochemistry was performed in tissue microarrays for ER α , PR, AR, CK5/6, CK14, CK18 and CK19. The clinical and pathological independent variables including age, tumour size, grade, nodal status, lympho-vascular invasion and TNM stage were evaluated against overall survival (OS) as the dependent variable. Ethical approval was obtained from Leeds (West) research ethics committee (06/Q1205/156).

Results: Median age of the cohort was 68 years. Most of the cases were positive for ER α (93%), PR (84%), AR (56%), CK5/6 (85%), CK14 (98%), CK18 (96%) and CK19 (97%). Survival analysis showed poor 5 year OS with CK19 ($p = 0.003$) and CK18 ($p = 0.05$) negativity. However only CK19 negative patients were found to have poor 10 year OS ($p = 0.002$). Age ($p = 0.001$), grade ($p = 0.04$), nodal status ($p = 0.09$), CK19 ($P = 0.006$), CK18 ($p = 0.06$) and Ki67 ($P = 0.07$) were retained in the model after univariate analysis. However on multivariate analysis only age ($p = 0.001$) and nodal status ($p = 0.04$) was shown to be predictors for 5 year OS.

Conclusion: There is a potential prognostic role for epithelial cytokeratins in MBC. Future studies with adequate power and longer follow-up are needed to validate the findings of this study.

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Monday 15th May 2017, Session 5: Submitted papers. 11:00 to 12:30

9. Close margins, radiotherapy and outcomes in screen-detected ductal carcinoma in situ (DCIS)

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Introduction: Concern continues that ductal carcinoma *in situ* (DCIS) detected through breast screening may be over-treated.

Methods: A prospective cohort study of DCIS diagnosed through the UK National Health Service Breast Screening Programme, April 2003 to March 2012, included diagnostic imaging, surgery, pathology and adjuvant

therapy data. Follow-up was linked through national databases to analyse recurrence and mortality. Study approval was by the UK Confidentiality Advisory Group.

Results: The 9,938 (77%) women, mean age 60 years (range 46–87), median follow up 5.34 years (range 6–116 months), comprised one third of all screen-detected DCIS diagnosed over this time. Breast conservation (BCS) was definitive surgery for 7,007 (70.5%), 62.3% of whom received radiotherapy; 13.8% were prescribed endocrine therapy.

Recurrence of DCIS or invasive breast cancer occurred in 6.8% (697/9,938), more commonly after BCS (7.8%) than mastectomy (4.5%; chi-square $p < 0.001$); 228 women (2.3%) developed contralateral DCIS or invasive breast cancer.

Breast radiotherapy after BCS was associated with a 3% absolute reduction in any ipsilateral recurrence ($p < 0.001$) and a 1.9% absolute reduction in ipsilateral invasive breast cancer ($p < 0.0001$), independent of width of excision margin. Those with close (0 to < 2 mm) margins not irradiated after BCS had more ipsilateral breast recurrences ($p = 0.008$).

Breast cancer deaths were rare (46; 0.5% of women). Radiotherapy after BCS was associated with a 1.8% absolute reduction in all-cause mortality (Kaplan-Meier $p < 0.001$) and a 0.2% absolute reduction in breast cancer mortality ($p = 0.43$).

Conclusions: Radiotherapy reduces recurrence, even with close surgical margins. Selecting who will benefit from radiotherapy, avoiding over-treatment, remains challenging.

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10. Variables associated with margin re-excision in breast conserving therapy (BCT) – Results from the National Margins Audit Sarah Tang^{1,3}, Sarantos Kaptanis^{2,3}, National Margins Audit Collaborative^{4,3}

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Introduction: The minimum margin width in BCT is unclear. ASCO endorses no ink on tumour for invasive disease and 2 mm for DCIS (2014, 2016). ABS recommends 1 mm for invasive and DCIS (2015). The impact of excessively wide margins include increased re-excision rates, poor cosmesis, additional morbidity, poor patient satisfaction, delay to adjuvant treatments and presents additional cost to the NHS.

Methods: All UK breast units were invited. Trainee leads were identified via the trainee collaboratives led by the London Surgical Research Group. Data on all WLEs (01/02/2016 – 31/05/2016) was captured in REDCap.

Results: 149 investigators in 79 units collected data on 2858 WLEs. The national re-excision rate is 17.7% (range 0 – 41.4%). Screen detection, pre-operative size, cavity shaves, specimen x-ray, therapeutic mastoplastic and junior surgeons are not associated with re-excision (p values > 0.05). DCIS ($p = 0.0001$), ILC ($p = 0.02$), higher grade ($p = 0.0016$), larger histological size ($p = 0.0001$), DCIS extending beyond invasive ($p = 0.0001$), margins < 1 mm ($p = 0.0001$), smaller specimens (0.0001), younger age ($p = 0.02$) and lower body weight ($p = 0.029$) are associated with re-excision (continuous – t test; categorical – chi square). If ASCO or ABS had been followed by all units, the re-excision rates would reduce to 15% and 14.8%. 65% of re-excisions are performed for ink on tumour.

Conclusion: The national re-excision rate is unacceptably high. Adherence to ASCO /ABS has a small impact because most re-excisions are performed for ink on tumour. Identification of patients at increased risk of re-excision, improved pre-operative sizing and use of additional tools for intraoperative margin assessment is required.

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11. The impact of surgical site infections on breast cancer recurrence rates – single centre experience

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Introduction: Recent evidence has suggested that the development of a post-operative surgical site infection (SSI) in breast cancer surgery may

predispose to increased breast cancer recurrence rates, particularly distal recurrence. In this large single centre study, we sought to prospectively examine the impact of SSI on recurrence rates in our patient cohort.

Methods: Data on all patients undergoing breast cancer surgery on their primary tumour was prospectively collected, excluding those patients with metastatic disease at presentation, from 2010 to October 2016. All data was analysed using GraphPad Prism software.

Results: A total of 1550 patients who underwent breast cancer surgery were identified. Of these, 77 patients (4.9%) had a surgical site infection documented. Of the total patient cohort, 116 (7%) re-presented with recurrent disease, either loco-regional (9) or systemic (107), within the study period. A recurrence rate of 18.2% was noted in the patients who had a recorded infection, compared to 7.5% in those in whom no post-operative infection was noted. On univariate analysis, post-operative SSI was significantly associated with future recurrence ($P = 0.0013$), both local and distant. A strong association was identified between SSI and systemic recurrence on Chi-Square analysis ($p = 0.0058$).

Conclusions: This large prospective study adds to current evidence suggesting the association between SSI and recurrence rates after breast cancer surgery, and highlights the strict need for infection risk factor identification and subsequent SSI prevention.

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12. National Margins Audit – current practice questionnaire

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Introduction: In the UK, the recommended margin width in breast conserving therapy (BCT) is not clearly defined. Following 2 meta-analyses, ASCO endorsed no ink on tumour for invasive disease and 2 mm for DCIS (2014, 2016). Wider margins do not reduce local recurrence rates. In 2015, ABS released its guideline of 1 mm for invasive and DCIS. The impact of excessively wide margins include increased re-excision rates, poor cosmesis, additional morbidity, poor patient satisfaction, delay to adjuvant treatments and presents additional cost to the NHS.

Methods: All breast units were invited to participate. A trainee lead was identified at each unit via the trainee collaboratives led by the London Surgical Research Group. The trainees completed current practice questionnaires and the data was captured in a secure online REDCap database.

Results: 79 units completed questionnaires describing the practice of 272 surgeons. 75% are screening units treating 373 cancers annually (range 70–900, median 342). 66% of cancers are treated by BCT (42–80%, median 70%). There is uniformity in practice for localisation of non-palpable lesions (99% wire guided) and intraoperative margin assessment (96% use specimen xray and 87% take cavity shaves only after clinical/radiological assessment). The MDT standards for margin width show variation that is more pronounced for DCIS (table). 3.9% of units follow the ASCO consensus with 50% following ABS guidelines. The national re-excision rate is 17.7%.

Conclusion: There is wide variation in accepted margin width. Analysis of variables associated with re-excision rates is necessary to explore the impact of pursuing excessively wide margins.

MDT Standard for margin width	Invasive Disease (%)	DCIS (%)
No ink on tumour	13.9	5.1
1 mm	77.2	53.5
2 mm	7.6	38
5 mm	1.3	3.8

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13. Tubular and mucinous breast cancer: Can sentinel node biopsy be safely omitted?

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Introduction: Tubular and mucinous breast cancers are known to be less invasive than other breast cancer types. With this in mind, we aimed to evaluate the prevalence of nodal disease in these patients and to identify whether there was a subset of patients in whom the additional surgery and potential morbidity of sentinel node biopsy could safely be omitted.

Methods: Patients who underwent axillary surgery for tubular or mucinous breast cancer in the West of Scotland between 2012 and 2014 were identified from a prospectively collected database. Data regarding clinicopathological characteristics of the breast cancer and preoperative ultrasound results were obtained from the same database and compared between the node positive and node negative groups.

Results: 199 patients with tubular (109) or mucinous (90) breast cancer, who underwent axillary surgery, were identified. 24(12%) patients had axillary node involvement. All tumours were ER positive and there was no significant difference between node positive and node negative patients in tumour type or Her2 status. Higher grade, larger tumour size and higher preoperative axillary ultrasound grade were associated with higher rates of node positivity than low grade, small tumour size, or normal axillary ultrasound. However, 14/135(10.4%) grade 1 tumours, 13/146(8.9%) tumours ≤ 20 mm and 14/176(8.0%) patients with a normal preoperative axillary ultrasound, had lymph node involvement.

Conclusions: From our data, we have not been able to identify a subgroup of patients with tubular or mucinous breast cancer in whom sentinel node biopsy could safely be omitted and therefore recommend its use in all patients.

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14. Digital procedure specific consent forms (OpInform) compared to handwritten surgical consent forms in breast surgery

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Introduction: Despite the objective for the NHS to become paperless by 2020, the vast majority of trusts continue to use handwritten consent forms. Furthermore, forms are frequently completed on an ad hoc basis under time pressured environments on the day of surgery, where the potential to omit relevant risks is high. We designed & implemented OpInform, a digital platform capable of producing patient bespoke, procedure specific consent forms and compared it to the use of handwritten forms.

Method: Breast surgical consent forms were prospectively assessed at Imperial College NHS Trust between July 2015 and March 2016. Surgeons were able to use handwritten or OpInform consent forms interchangeably during this period. All sections of the consent forms were assessed for errors (incorrect, illegible or blank information). Free text was recorded for operation name, risks and benefits.

Results: 254 forms were assessed. OpInform forms had significantly less error rates than handwritten forms (Table). OpInform forms tended to list a higher number of risks per form (median[range]), OpInform = 13[5–24] vs handwritten = 11[3–18].

Section:	Handwritten (Total = 121)	OpInform (Total = 133)	P-Value Fisher's exact test
Form demographics	24(20%)	5(4%)	< 0.0001
Surgeon sign off	26(21%)	3(2%)	< 0.0001
Patient sign off	19(16%)	3(2%)	< 0.0001
Errors in Procedure, Benefits & Risks	46(38%)	0(0%)	< 0.0001
Any form error	70(58%)	11(8%)	< 0.0001

Conclusion: OpInform, digital consent forms improve legibility and form completion rates whilst decreasing errors when compared to handwritten forms. The provision of an optional list of procedure specific risks helps to prevent unintentional omission. NHS adoption of OpInform should be considered.

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15. Core biopsy is more sensitive than fine needle aspiration for preoperative axillary staging in invasive breast cancer

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Introduction: Accurate preoperative staging of the axilla in breast cancer is important for decision making regarding neoadjuvant treatment and to avoid the additional surgery, with potential associated morbidity, of a sentinel node biopsy. Fine needle aspiration (FNA) or core biopsy of clinically suspicious nodes, or abnormal nodes on ultrasound, are variably used in different units. We evaluated our experience of the two methods in lobular and ductal breast cancer.

Methods: All patients who underwent axillary surgery for lobular or ductal breast cancer in the West of Scotland between 2012 and 2014 were identified from the prospectively maintained Managed Clinical Network database. Data including pathological tumour characteristics, preoperative ultrasound and core biopsy or FNA results, and final axillary pathology were extracted from the same database and analysed to compare the sensitivity of FNA or core biopsy in both cancer types. Statistical significance was determined using Chi squared test.

Results: 602 patients with invasive lobular and 4199 patients with invasive ductal cancer, who underwent axillary surgery, were identified. 26 lobular patients and 207 ductal patients underwent FNA while 74 and 821 had core biopsy respectively. FNA had a sensitivity of 55% in lobular cancer compared to 76% in ductal. In lobular cancer, core biopsy had a significantly higher sensitivity, compared to FNA, of 86% ($p = 0.003$), which was equal to the sensitivity (86%) in ductal cancer.

Conclusion: We recommend that, particularly in lobular cancer, core biopsy should be used in preference to fine needle aspiration for preoperative sampling of the axilla.

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16. Audit of the routine introduction of Oncotype DX testing in a single breast unit

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Introduction: Decisions regarding adjuvant chemotherapy in women with ER+, HER2-, lymph node negative, early invasive breast cancer is unclear. The recurrence score (RS) from Oncotype DX testing is used to help guide decisions based upon individual cancer genomics. Our aim was to audit the introduction of testing and assess whether patients' RS correlates with the uptake of adjuvant chemotherapy i.e. is it cost effective?

Methods: Routine testing for all eligible patients (NPI 3.4–5.4) was introduced in October 2015. The Oncotype DX requesting system was used to identify these patients. Further data was gathered from clinical letters and pathology results. Nottingham Prognostic Index (NPI) scores were calculated.

Results: 64 patients were included in this study over 14 months – 4 were excluded. The median age was 58 (range 42 – 70 years) and the median NPI 3.69 (range 3.40 – 5.26). The median RS was 16 (range 5 – 46). NPI does not predict the risk category. 70.3% of women did not receive chemotherapy.

Risk group	Low < 18	Intermediate 18–30	High >30
Total no. patients	36	22	6
No. receiving chemotherapy	4	9	6
Mean NPI	3.84	3.86	3.96

Conclusions: RS testing is aiding decision-making regarding adjuvant chemotherapy. Patients with higher recurrence scores are more likely to receive adjuvant chemotherapy. If NPI (3.4–5.4) had been used alone more women would have been offered chemotherapy, therefore it is cost effective. The 4 low risk women receiving chemotherapy could have avoided the cost of testing if the RS was not guiding the decision, this should be avoided.

<http://dx.doi.org/10.1016/j.ejso.2017.01.035>

Monday 15th May 2017, Session 9: BJS Prize papers. 14:45 to 16:15

17. A time for change; the need to modernise breast surgery training. Results of surveys of senior breast trainees and of current consultant practice

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¹ Mammary Fold, National Trainee Representatives, UK

² Education and Training Committee, Association of Breast Surgery, UK

Introduction: Due to the increasing specialisation of breast surgery, fewer breast consultants contribute to the emergency general surgery service. Breast trainees, however, provide emergency general surgery service during their full length of training. The aims of the surveys were to determine whether current general surgery CCT guidelines reflect training requirements of an oncological breast surgeon, and to determine current emergency general surgery service provision by breast consultants.

Methods: A 26 item questionnaire was created with guidance from the ABS Education and Training Committee and disseminated to Mammary Fold members. A second survey, via ABS regional representatives, gathered information on the proportion of consultant breast surgeons providing emergency general surgery service.

Results: 78% of senior breast trainees (>ST6, n = 70) considered current CCT requirements for emergency general surgery and breast surgery to be unrealistic and not reflecting current training needs. Although 43% aspired to be CCT competent in emergency general surgery, only 11% aspired to provide emergency general surgery consultant practice. Furthermore, only 13% (71 of 558) of surveyed consultant breast surgeons provide emergency general surgical service. Despite this, 64% of trainees sensed a need to prioritise emergency general surgery competencies, with almost 90% relying on fellowships to achieve oncological competencies.

Conclusions: A feasible option to modernise oncological breast surgical training to reflect current practice would be to reduce emergency general surgery CCT competencies (a view supported by 81% of trainees). A solution may be discontinuation of general surgical on-call after ST6 with the final two years of training dedicated to consolidation of oncological competencies.

<http://dx.doi.org/10.1016/j.ejso.2017.01.036>

18. Rapid Evaporative Ionisation Mass Spectrometry of surgical vapours towards an intelligent knife for precision breast surgery

Edward St John¹, Julia Balog^{1,2}, James McKenzie¹, Emma White¹, April Covington¹, Zsolt Bodai¹, Francesca Rosini¹, Rathi Ramakrishnan¹, Ara Darzi¹, Zoltan Takats¹, Daniel Leff¹

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Introduction: Re-operation for positive resection margins following breast-conserving surgery occurs frequently (average = 20–25%) and causes morbidity. Current margin assessment techniques are slow and labour intensive. Rapid Evaporative Ionisation Mass Spectrometry (REIMS) rapidly identifies dissected tissues by determination of tissue structural lipid profiles through on-line chemical analysis of electrosurgical aerosol toward real-time margin assessment.

Method: Electrosurgical aerosol produced from ex-vivo and in-vivo breast samples was aspirated into a mass spectrometer (MS) using a monopolar hand-piece. Tissue identification results obtained by multivariate statistical analysis of MS data were validated by histopathology. An ex-vivo classification model was created and used to classify an ex-vivo validation set. Intraoperative REIMS data was acquired during breast surgery. Tandem MS analysis of significant peaks was conducted to identify biochemical differences between normal and cancerous tissues.

Results: A classification model using histologically validated spectral data acquired from 932 sampling points in normal and 226 in tumour tissue provided 93.4% sensitivity and 94.9% specificity. Recognition accuracy with 260 new fresh and frozen breast tissues provided sensitivity of 90.9% and specificity of 98.8%. iKnife interpretation of intra-operative electrosurgical vapours, including data acquisition and analysis was possible within a mean of 1.80 seconds (SD ± 0.40). Tandem MS identified 63 phospholipids and 6 triglycerides species responsible for 24 spectral differences between tissue type.

Conclusion: The REIMS method has been optimized for real-time analysis of heterogeneous breast tissues. Ex-vivo results suggest spectral analysis is accurate and rapid enough for intra-operative determination of oncological margin status as an intelligent knife ("iKnife") for breast cancer surgery.

<http://dx.doi.org/10.1016/j.ejso.2017.01.037>

ABSTRACTS

19. Prevalence and tumour characteristics of contralateral breast cancer over 5 years in a tertiary-referral cancer centre

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Introduction: Following primary breast cancer, the risk of developing contralateral breast cancer (CBC) is approximately 0.6% per year. Higher rates are reported following primary tumours that are triple negative or those occurring in younger age groups. We aim to review the prevalence, method of diagnosis and tumour characteristics of CBC in our institution.

Methods: All breast cancers in our institution over a 5 year period (2011–2016, n = 1,484) were identified from a multidisciplinary meeting (MDT) database. Patient records were reviewed for evidence of a prior contralateral breast cancer in addition to patient demographics, tumour and treatment details.

Results: CBCs accounted for 7.8% of breast cancer diagnosis (116/1484) during this period. There was a significant difference in the mean recurrence interval for triple negative tumours (n = 6) compared with hormone receptor positive tumours (n = 110) (3.8 vs 12.4 years, p = 0.02). A significant difference was also found in the age of CBC patients at their primary tumour versus that of non-CBC patients (52.2 vs 61.7 years, p < 0.01). CBC was primarily diagnosed by surveillance mammography in 88% of cases with the remainder diagnosed clinically. Of the primary tumours with ER (n = 88) and Her2 (n = 42) receptor status available, 63% and 60% remained unchanged respectively.

Conclusion: The high prevalence of CBC at a mean interval of 12 years highlights the need for long term surveillance of breast cancer patients. Routine follow up of breast cancers in our institution includes annual mammography until 75 years of age. This remains the principal method of diagnosis among this group.

<http://dx.doi.org/10.1016/j.ejso.2017.01.025>

20. Radioactive iodine-125 seed localisation of breast carcinoma in advance of the day of surgery reduces pre-operative anxiety levels

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Introduction: The Newcastle Hospital Trust is the first in the UK to implement a service to localise non-palpable breast carcinoma using radioactive iodine-125 seeds (RSL) as an alternative to guide wire localisation (GWL). The patients undergoing RSL had the localisation procedure 7–14 days pre-operatively. The aim of this project was to assess whether this new method of localisation has an effect on the pre-operative anxiety of patients.

Method: The State-Trait Anxiety Inventory (STAI) is a commonly used measure of current anxiety in medical conditions. We asked 50 consecutive patients undergoing either RSL or GWL to complete the 20 point STAI form Y self-evaluation questionnaire on the morning of surgery. The range of scores are 20–80, with the higher score indicating greater anxiety.

Results: 49 questionnaires were completed sufficiently to be analysed (25 undergoing RSL and 24 GWL). The mean anxiety score for RSL was 35.68 (95% CI 31.35–40.01), compared to 43.91 (95% CI 41.38–46.44) for GWL (p = 0.001).

Conclusions: This study demonstrates that the pre-operative anxiety levels of those patients undergoing RSL are lower when compared to patients who have undergone GWL. We propose that this reduction in anxiety is attributable to the localisation taking place in advance of the day of surgery.

<http://dx.doi.org/10.1016/j.ejso.2017.01.039>

21. Development and validation of a predictive risk model for acute skin toxicity in patients undergoing breast radiotherapy

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Background: Clinically significant side-effects from radiotherapy affect around a quarter of breast cancer patients and may have a considerable impact on outcomes from breast surgery. Breast surgeons are invariably influenced in their clinical decision-making by the potential impact of post-operative radiotherapy on breast cosmesis and quality of life. If patients at high risk of radiation toxicity could be identified pre-operatively, this could be taken into account when discussing surgical treatment options. The aim of this study was to develop a predictive model for acute skin toxicity in patients undergoing breast radiotherapy.

Methods: Using multivariate logistic regression and backwards elimination, the risk model for acute skin toxicity (acute desquamation) was first developed in patient cohorts treated by breast-conserving surgery and whole breast radiotherapy in three European centres (Leicester, Heidelberg/Mannheim, Cambridge) and internally validated (total n = 2,012). It was externally validated in breast cancer patients enrolled in the multi-centre REQUITE cohort study (n = 2,062).

Results: The final model with the variables age, biologically effective dose (BED), cup size, BMI and presence/absence of diabetes, smoking, and hypertension proved to give best prediction of acute skin toxicity with a c-statistic (AUC) of 0.79 in the development and 0.75 in the validation cohort and was well calibrated (Hosmer-Lemeshow p = 0.53).

Discussion: A predictive model for radiotoxicity has the potential to give breast surgeons important information when planning surgery to optimise breast cosmesis. The addition of prognostic genetic markers investigated as part of the REQUITE study is likely to improve model performance. Similar models can be developed for other toxicity endpoints, such as breast fibrosis, and should also be validated for patients undergoing chest wall radiotherapy and breast reconstruction.

<http://dx.doi.org/10.1016/j.ejso.2017.01.040>

22. Can axillary node clearance (ANC) be avoided in selected clinically node positive breast cancers (cN+BC) after neoadjuvant therapy (NAT)?

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Introduction: ANC is the surgical treatment of choice of cN+BC. Studies have suggested that in patients clinically node negative, but with a low nodal disease burden on sentinel lymph node biopsy, ANC can be safely avoided. ANC has significant morbidity and our aim is to identify a subgroup of cN+BCs with particularly low nodal disease burden after NAT, in which a more selective surgical treatment of the axilla could be considered.

Methods: 64 patients diagnosed on axillary node cytology with cN+BC between 2011 and 2016 were included. All patients underwent NAT and ANC. The number of positive nodes on the ANC specimen was recorded. Percentages were compared with Fisher's exact test.

Results: 26.5% patients underwent endocrine manipulation only, 39.1% chemotherapy and 34.4% chemotherapy and Herceptin. In the first group the complete response rate was of 11.7%, in the second 24% and in the third 40.9%. Only one positive node was found in 35.3%, 20% and 31.9% of the cases respectively. More than 70% of

HER-2 positive patients had only 0 or 1 positive node, showing a significantly lower nodal disease burden after NAT, than HER2 negative patients ($p \leq 0.05$).

Conclusions: This group could be considered for targeted dissection of the axilla, including selective excision of the positive node and sentinel lymph node biopsy with dual tracer.

<http://dx.doi.org/10.1016/j.ejso.2017.01.041>

23. A systematic review and meta-analysis of aberrant lymphatic drainage in recurrent breast cancer

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Background: Sentinel node biopsy (SNB) in recurrent breast cancer offers targeted axillary staging compared with axillary node clearance (ANC) or no treatment. The evidence for lymphatic mapping in recurrent breast cancer is reviewed, focusing on aberrant drainage and its implications for patient management.

Methods: A meta-analysis of studies evaluating lymphatic mapping in recurrent breast cancer was performed. Outcomes included sentinel node identification, aberrant lymphatic pathways and metastatic node rates in aberrant drainage and ipsilateral axilla. Pooled odds ratios (ORs) and 95 per cent confidence intervals (c.i.) were estimated using fixed-effects analyses, or random-effects analyses in the event of statistically significant heterogeneity.

Results: Seven studies reported data on lymphatic mapping in 1053 patients with recurrent breast cancer. The sentinel node identification rate was 63.3 (95 per cent c.i. 60.3 to 66.3) per cent, and significantly greater when the original axillary surgery was SNB compared with ANC (OR 2.97, 95 per cent c.i. 1.66 to 5.32). The rate of aberrant lymphatic drainage identification was 25.7 (23.0 to 28.4) per cent, and significantly greater when the original axillary surgery was ANC (OR 0.27, 0.19 to 0.38). The metastatic sentinel node rate was 10.4 (8.6 to 12.3) per cent, and a significantly greater metastatic nodal burden was identified in the ipsilateral axilla (OR 6.31, 1.03 to 38.79).

Conclusion: Lymphatic mapping is feasible in recurrent breast cancer. It avoids ALND in over 50 per cent of patients who have undergone SNB, and allows the 4 per cent of patients with metastatically involved aberrant

nodes to receive targeted surgical and adjuvant therapies.

<http://dx.doi.org/10.1016/j.ejso.2017.01.042>

24. Outcomes of primary endocrine therapy for operable breast cancer in the elderly: Initial results from the regional North East study

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Background: Elderly patients are more likely to be diagnosed with oestrogen receptor (ER) positive breast cancers. Anti-oestrogen therapy (Primary endocrine therapy, PET), is commonly given to elderly patients too unfit for surgery, or with a short life expectancy. The disadvantage of PET in comparison to surgery is that the strength of local control diminishes over time. The consequences of treatment failure can be catastrophic for the patient, which ultimately makes case selection paramount.

Methods: A North East of England PET outcomes study is underway, retrospectively collecting data specifically on treatment failures in patients with ER positive cancers treated in the region's three largest breast units between 2005 and 2015.

Results: 292 patients have been identified. Median age 83 (56–100) with a median follow up of 32 months (1–126). Median tumour size 28mm(4–100), with 80(27.5%) with axillary-node metastases. 175(59.9%) patients died, with a mean time to death of 34 months (2–123). 25(8.5%) patients died with their disease uncontrolled (mean time to death 38 months), whilst 39(13.3%) required further treatment (surgery or radiotherapy). Mean time to further treatment was 32 months. 18(6.1%) had disease progression.

Conclusions: Our failure rates are low in comparison to those previously reported (failure rates:15–84%, and progressive disease: 2–31%). Failure is on average seen at 3 years, which would support guidance that PET should be reserved for patients with a life expectancy of 2–3 years. A population size of over 500 patients is predicted (the largest non-comparative cohort), which will include further analysis of predictors of treatment failure.

<http://dx.doi.org/10.1016/j.ejso.2017.01.043>

Tuesday 16th May 2017, Session 22: Submitted papers. 14:30 to 16:00

25. Local retrospective 5 year audit of breast cancer recurrence in patients post surgery (wide local excision/mastectomy) for Ductal Carcinoma In Situ (low, intermediate & high grade)

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It is recognized that Ductal Carcinoma In Situ (DCIS) can recur after surgical excision.

The National Institute of Clinical Excellence in their *Diagnosis and Treatment of Early and Locally Advanced Breast Cancer* guidelines (CG80 2009) recommends that 'all breast units should audit their recurrence rates after treatment for DCIS'.

Local recurrence within 5 years in patients after breast conserving treatment for DCIS should be less than 10% (Quality Assurance guidelines for surgeons in Breast Screening 2009)

The aim of this audit was to look at local recurrence rates of DCIS 5 years post surgery in patients diagnosed 1st July 2009 to 30th June 2010: To determine if recurrence is DCIS or invasive cancer; to determine site of

recurrence – local, regional or distant; to determine time to recurrence post-surgery (months)

44 Female patients were identified and included within the audit. At the time of diagnosis the age of the patients within the audit ranged from 36 to 79. The 5 year local recurrence rate for all patients with DCIS was 5% (2 out of 44). No recurrence was seen in patients treated by mastectomy, only those undergoing breast conservation surgery, giving a 5 year recurrence rate of 8% in this sub-group. Both of these recurrences were detected through mammographic surveillance as part of their breast cancer follow up.

This audit shows that the rate of local recurrence after surgery for DCIS falls well within the quality assurance standards.

<http://dx.doi.org/10.1016/j.ejso.2017.01.044>

ABSTRACTS

26. Correlation of BCCT.core objective scoring software for aesthetic outcome after breast conservation with panel assessment and patient satisfaction

Rachel O'Connell, Rosa Di Micco, Stephanie Dean, Komel Khabra, Nandita deSouza, Nicola Roche, Katherine Krupa, Anna Kirby, Lisa Wolf, Peter Barry, Jennifer Rusby

Royal Marsden NHS Foundation Trust, Sutton, UK

Introduction: The BCCT.core is a software system developed to objectively evaluate the aesthetic surgical outcomes of breast conserving surgery using two-dimensional (2D) photographs. The aim of this study was to investigate the correlation between BCCT.core scores, patient satisfaction and panel assessment.

Methods: Ethical approval was obtained. Women who had unilateral BCT 1–6 years ago were recruited. Participants underwent medical photography and completed the BREAST-Q. Panel assessment used the Harvard 4-point score. Photographs were analysed using the BCCT.core software. Spearman's rho correlation coefficients were calculated to evaluate the relationship between domains.

Results: 200 women participated. Mean age was 60 years (SD = 11.1). Time from surgery was 35.5 months (SD = 17.8). Median score for 'Satisfaction with breasts' was 68 (IQ = 55–80). The number of patients with a panel score of poor/fair/good/excellent were 8 (4%), 62 (31%), 78 (39%) and 52 (26%) respectively. The number of patients with a BCCT.core score of poor/fair/good/excellent were 4 (2%), 42 (21%), 104 (52%) and 50 (25%) respectively. Correlation between BCCT.core and 'satisfaction with breasts' was weak (0.392, $P < 0.001$), but correlation with panel was moderate (0.508, $p < 0.001$).

Conclusion: Correlation between the objective BCCT.core and patient satisfaction with aesthetic outcome is weak. Either BCCT.core misses information about appearance, being only 2 dimensional, or other factors such as texture and movement cannot be captured in images. Thus patient satisfaction data remains important for clinical trials and audit. However, correlation with panel was moderate, indicating that BCCT.core offers a cheap and time efficient alternative to a panel assessment. Further work in the area of objective outcome is needed to improve and make objective scoring more sophisticated.

<http://dx.doi.org/10.1016/j.ejso.2017.01.045>

27. Self-Directed Aftercare: An audit which shows the pilot introduction of Patient Group Recovery Health Needs Assessment clinics being acceptable to our patients and meets the Department of Health, Social Services and Public Safety five standards

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Southern Health and Social Care Trust, Northern Ireland, UK

Issue: Growing waiting list for patients to be seen by Breast Care Nurse Specialist post treatment. Waiting list of 156 patients. HNA group sessions of ten patients commenced 4/7/16. Over the months of July and August 124 patients were offered the choice of attending group HNA sessions. Total number of patients seen = 117 (group sessions), (7 opted for one-to-one session)

Audit Aim: This audit was initiated to find out the views/satisfaction of the local community of patients who received review through our pilot nurse-led Health and Needs Assessment group sessions.

Purpose: To determine if the service has met the patients' expectations and to use this information to decide if the introduction of group sessions would be acceptable/worthwhile.

Response Rate: 85 questionnaires given out at group sessions and 85 completed questionnaires returned.

Outcomes: Overall patients very satisfied with group sessions. There will always be a small number of patients who will request a one-to-one HNA session. Patient information documentation has been reviewed to ensure patients understand content of sessions. Patients in the future will be seen in a timely fashion. BCN surprised at power of peer input and advice, and patients sharing of own experiences of cancer journey. Patients

can empower each other. Breast Care Nurses now have gained time to pursue other duties.

Conclusion: This audit clearly shows that the introduction of HNA group sessions has indeed been very worthwhile and is acceptable to our patients. The patients are very happy with the service offered. The audit determined group sessions enjoyable and patients gained support and learning from their peers. None of the five standards were compromised in any way (www.nidirect.gov.uk/patientstandards).

<http://dx.doi.org/10.1016/j.ejso.2017.01.046>

28. Challenges of setting up a breast unit in a low to middle income country: Lessons learned from Ghana

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Introduction: Women in low to middle income countries (LMICs) are yet to benefit from advances in breast cancer treatment. Global Surgery 2030, the landmark initial report of The Lancet Commission on Global Surgery, describes the role of surgery in improving the health of individuals and the economic productivity of countries. To this end, our group describes their experience of setting up a Breast Care Unit in Akosombo, Ghana.

Method: Four working visits were conducted to Ghana from 2013–2015 by a UK-based Breast team, culminating in the opening of the Unit. Breast care nurses, a Ghanaian-trained Breast Surgeon and breast radiologist have been trained. Histopathology and Oncology links were made with neighbouring Ghanaian centres. Clinical breast screening (history and examination) and symptomatic clinics are conducted. Imaging is requested where affordable and clinically indicated. This has been partnered with Public Awareness talks and training seminars to healthcare professionals.

Results: Since April 2015, a total of 7,500 people have received Breast Cancer Awareness Lectures in 21 locations around Ghana. Over 1550 screening patients and 250 symptomatic patients have been registered, with 51 biopsies taken. 27 women were diagnosed with breast cancer, with 13 mastectomies and 25 excision biopsies. In November 2016, the first implant-based reconstruction was undertaken, to the authors' knowledge.

Conclusions: This dedicated Breast Unit has improved standards of breast care available to women in the region. With limited tumour-localising facilities and radiotherapy suites, a challenge remains with breast conserving options. Greater financial resources are needed to improve breast cancer treatment for women in LMICs.

<http://dx.doi.org/10.1016/j.ejso.2017.01.047>

29. Role of the Breast Clinical Nurse Specialist in bilateral risk reduction mastectomy decision-making

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Introduction: Women with increased risk of breast cancer seen at The Royal Marsden to discuss bilateral risk reducing mastectomy are supported by the multidisciplinary team. Breast Clinical Nurse Specialist (BCN) support includes psychosocial assessment and providing patient information. The aim of this study was to evaluate patient experience of BCN support and identify additional needs.

Methods: Consecutive patients aged over 18 who attended clinic to discuss bilateral risk reduction mastectomy at the Royal Marsden Hospital between 1.1.13 and 31.12.14 were identified; information, questionnaire and return envelope sent to each eligible individual.

Descriptive statistics were used to analyse outcomes of the data collected.

Results: 95 patients were identified. Ages 20–69. 97% had gone on to have surgery. 92% found a one to one appointment with a BCN helpful (agree or strongly agree). 86% only accessed photos via BCN, only 7% said photos had not influenced their decision making. 92% who met women exploring/ who had undergone this surgery said this was helpful (agree/ strongly agree). 50% who used Breast Cancer Care ‘Someone Like Me’ service found it useful to their decision making. 79% women had not accessed it. 76% were satisfied with information provided post operatively.

Conclusions: Patients reported a positive experience particularly the one to one appointment with the BCN and post operative information. Photos were shown to influence decision making.

Areas for improvement including providing information on Breast Cancer Care ‘Someone Like Me’ service.

<http://dx.doi.org/10.1016/j.ejso.2017.01.048>

30. Differences in post mastectomy reconstruction rates between Asian and Caucasian patients: A 5 year institutional review

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Background: Post-mastectomy breast reconstruction is an important treatment option for women with breast cancer with psychosocial, emotional and quality of life benefits. Despite this, Asian patients are one-fifth as likely as Caucasian patients to undergo reconstruction after mastectomy.

Methods: This study aimed to assess the difference in breast reconstruction rates between Asian and Caucasian patients treated at Bradford Teaching Hospitals between May 2011 and December 2015. All patients undergoing mastectomy were identified using a prospectively collected departmental database. Further data was obtained via retrospective electronic case note review. Statistical analysis was undertaken using the SAS programme. Patients were stratified by age, self-reported ethnicity, axillary surgery and reconstruction. Relative odds were calculated using univariate and multivariate logistic regression analyses with adjustment for known confounders. An Urdu speaking breast care nurse was employed throughout this period to facilitate communication and patient decision making.

Results: 506 patients underwent Mastectomy over 5 years. 72(14%) Asian v. 434(85%) Caucasian. Overall median age is 64 years(SD1.1). Asian median age is 62 (SD0.9), versus Caucasian 65(SD1.2). Total axillary clearance rate was 30% (42% Asian v.30% Caucasian). Overall reconstruction rate was 126 patients(28.9%). Only 6 of 72 Asian patients (< 1%) underwent breast reconstruction versus 121 of 434 Caucasian (28%) (p < 0.04) Odds ratio 0.68, (95% confidence interval 0.57–0.79).

Conclusions: There is a significant difference in post-mastectomy reconstruction rates between Asian and Caucasian patients. This difference is likely to be multi-factorial. Higher rates of axillary clearance in Asian patients might suggest later disease presentation and/or higher rates of subsequent adjuvant therapy, both of which, can impact on the suitability of breast reconstruction. Strategies aimed at reducing racial disparities in breast reconstruction should include symptom awareness to enable earlier presentation and facilitated communication to ensure informed decision-making.

<http://dx.doi.org/10.1016/j.ejso.2017.01.049>

31. Promoting breast awareness with female teenagers and the provision of breast health lifestyle advice

Lucy Montgomery

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In a [Breastcancer.org](http://www.breastcancer.org) survey of 2,500 females aged 9–18, nearly 30% believed they might currently have breast cancer. As a Breast Care Nurse

Specialist I have been invited for the past 3 years to deliver breast awareness sessions at a local College, each year to over 100 pupils aged 17 and 18. I compiled and delivered an age relevant power-point breast health presentation which was very positively received and provided each pupil with age relevant written information.

Starting in schools is an ideal place to promote breast health awareness, as this is a time when teenagers acquire lifetime habits and attitudes (Navido and Wills, 2000). Research shows that when girls enter their teens they often adopt unhealthy eating habits, drink more alcohol and become less physically active. These lifestyle patterns can become fixed for life.

Breast Cancer Care’s pilot study highlighted the need for teenage-friendly appealing breast health information. My literature search revealed a dearth of teenage appropriate breast health resources. With the lifetime risk of 1 in 8 females developing breast cancer, providing girls with information can empower them to establish healthy lifestyle behaviours to reduce the risk of developing breast cancer.

From conducting my breast awareness sessions to approximately 300 teenage girls I am convinced of the need to make breast health promotion resources available for this group, nationally through appropriate written information, presentations, workshops or apps. I have revised my presentation to include breast health apps/websites, the most popular mode of communication for this age group.

<http://dx.doi.org/10.1016/j.ejso.2017.01.050>

32. Short message service (SMS) messaging to a personal device is an acceptable and preferred mode of communication for invitation to surveillance mammography and ‘normal’ results

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93% of 30–75 year olds resident in the United Kingdom own a mobile phone and 71% of adults possess a smart phone. SMS or text messages have become an acceptable form of communication for data-sensitive information from other essential services, such as banks and dental practices. The concept of utilising SMS messaging is not novel in healthcare and has been used to communicate blood results to transplant recipients, and patients requiring dialysis or long-term anticoagulation.

We identified an opportunity to improve both cost and time efficiency involved in the communication with patients within a busy breast services department responsible for the diagnosis and management of approximately 390 breast cancers per annum. Over a period of 3 months all patients attending the breast services department were invited to complete a feasibility questionnaire. Patients were asked to rank in order of preference modes of communication for invitation to follow-up mammography and receipt of ‘normal’ results.

We analysed the estimated differences in time and cost to process a receipt of invitation or result between SMS and conventional mailed format.

Our results indicate that text messages were not only an acceptable method of communication, but the preferred method. SMS was estimated to improve time of delivery of a ‘normal’ result after surveillance mammography from over 2 weeks to 3 days, at a fraction of the cost.

Concerns regarding confidentiality and data protection have been addressed by financial services and in other areas of the NHS. Several patients reported considering SMS preferential to mail to a shared address, often involving a substantial time delay between investigation and result.

We believe further patient and department education regarding the benefits to health services utilising SMS will encourage crucial further integration of software systems and streamlining by IT devices within the NHS.

<http://dx.doi.org/10.1016/j.ejso.2017.01.051>