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# Abstracts for poster presentation at the Association of Breast Surgery Conference, 16th - 18th May 2021

## P01. CAN ONE-STEP NUCLEIC ACID AMPLIFICATION ASSAY PREDICT 4 OR MORE POSITIVE AXILLARY LYMPH NODE INVOLVEMENT IN BREAST CANCER PATIENTS: A SINGLE CENTRE RETROSPECTIVE STUDY

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**Introduction:** One-step nucleic acid amplification (OSNA) assay is a proven, accurate intra-operative method for the detection of lymph node (LN) metastases. The aim of this study was to assess if the Total Tumour Load (TTL) as calculated by OSNA could be used to predict N2 stage disease i.e. ≥4 LN containing metastases, in invasive breast cancer patients.
**Method:** Between 2011 and 2019 at St Richards Hospital Chichester, all macro metastasis-positive OSNA cases for invasive breast cancer were retrospectively reviewed. The association between clinicopathological variables and ≥4 LN containing metastases was analysed using regression analysis.
**Results:** 134 patients with positive SLN on OSNA undergoing axillary node clearance were analysed. 53% has no further positive LN, 25% had ≥4 lymph nodes positive. TTL was calculated as the aggregate of cytokeratin-19 mRNA copy count of all sentinel lymph node tissue analysed via OSNA. TTL ≥1.1x10^5copies/μl and lymphovascular invasion (LVI) were both significant predictors of N2 stage disease on both univariate (TTL p=0.04, LVI p=0.005) and multivariate (TTL p=0.008, LVI p=0.039) regression analysis.
**Conclusion:** Total tumour load via intraoperative OSNA assay can be used as a tool to aid prediction of 4 or more positive axillary lymph node involvement in invasive breast cancer.

## P02. BREAST CANCER ASSESSMENT PROTOCOL: IS ROUTINE SONOGRAPHIC EVALUATION OF CLINICALLY NORMAL AXILLAE NECESSARY?

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**Introduction:** Axillary US is often part of the routine assessment of the clinically negative axillae in primary breast cancer. The decision to proceed with axillary lymph node dissection (ALND) is based upon the US result and any guided biopsy.
**Objective:** To ascertain the burden of disease in the axilla of cN0 patients with US detected disease. In subjecting all of these patients to ALND are we over treating them?
**Materials and Methods:** We retrospectively identified 345 female patients who underwent axillary lymph node dissection between January 2015 and August 2019, 89 of those met our inclusion criteria. They were divided into two groups: Those with clinically palpable axillary disease preoperatively (n = 41), and those with a normal clinical axillary examination (n = 48). We assessed the number of positive axillary lymph nodes dissected between the two groups.
**Results:** In the cN0 group the mean value of excised disease-positive axillary lymph nodes was 3.6 (range 1-22), while in the cN1 group it was 8.0 (range 0-59). The results were statistically significant (p=0.008). However, further analysis showed that 25 patients of the 41 who had T1/T2 tumour had 3 or more positive lymph nodes.
**Conclusion:** Our study suggests that the presence of clinically palpable axillary lymph nodes appears to be correlated to a higher number of positive lymph nodes. However, in cases of non-palpable sonographically positive lymph nodes there might still be significant axillary disease, even in T1 and T2 tumours. Therefore, we still support the routine use of pre-operative sonographic.

## P03. AXILLARY TUMOUR BURDEN IN LOW-RISK BREAST CANCER PATIENTS WITH AN ABNORMAL PRE-OPERATIVE AXILLARY ULTRASOUND: ARE SOME PATIENTS BEING FAST-TRACKED TO A CLEARANCE?

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**Introduction:** Management of the axilla in cancer is becoming increasingly conservative, especially in patients with 'low axillary burden' (two or fewer macro-metastatic nodes) at SNB. There are concerns that low risk patients with abnormal axillary ultrasounds may be 'fast-tracked' to ANC, with an increased risk of morbidity. We assessed axillary burden in patients who underwent WLE and ANC.
**Methods:** A retrospective case-note review (and collection of clinicopathological data) was performed on 38 breast cancer patients who underwent WLE and ANC following positive axillary ultrasound with positive cytology/histology between 2012 and 2019.
**Results:** Median age was 56 years (range 37-82). Mean tumour size was 25.8 mm (range 12-70). Six cancers (15.8%) were ER-negative and 2 (5.3%) HER2-positive. Eight (21.1 %) patients had palpable axillary nodes pre-operatively. Twenty (52.6%) had a single abnormal node identified on ultrasound and 17 (44.7%) had more than one abnormal node. Twenty (52.6%) patients had two or fewer macro-metastatic nodes, with 5 patients (13.2%) having no positive nodes at ANC. The median number of nodes in those who had greater than 2 positive nodes was 8 (range 3 to 15). Eleven (28.9%) patients developed local or distant recurrence and 8 (21.1%) died. The number of positive macrometastases was not associated with OS or DFS.
**Conclusions:** In patients suitable for breast-conserving surgery, over half had low axillary burden at ANC. In the era of personalised medicine and increasingly conservative management of the axilla, further work needs to be performed to identify patients being 'fast-tracked' to a potentially unnecessary ANC.

## P04. PRE-OPERATIVE AXILLARY STAGING IN INVASIVE LOBULAR CANCER: A RETROSPECTIVE SERIES

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**Introduction:** Accurate preoperative staging of the axillary lymph nodes (ALN) in breast cancer is crucial to inform surgical approach to the axilla. Invasive lobular cancer (ILC) is particularly challenging in this prospect

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both radiologically and cytologically.
**Aim:** The aim of this study is to assess the sensitivity of standard Axillary US (AUS), examine the role of second look AUS, MRI, and a relaxed US-guided axillary biopsy strategy following ILC diagnosis.
**Methods:** A 4-year retrospective cohort of ILC was identified using pathology search engine. Stage IV ILC and extremely frail patients exempted from full axillary assessment were excluded. Radiology and histology reports were reviewed.
**Results:** 128 cases were identified, 34 excluded (16 advanced; 18 frail). Of the remaining 94 cases, 35 had metastatic ALN confirmed in post-operative pathology (37%). The first AUS correctly identified 10 patients with pathological ALN giving a sensitivity of 29% and specificity of 100%. 13 patients had suspicious ALNs on MRI, 11 of them had ALN metastasis. 53 had apparently normal ALN on MRI but 11 had pathological ALNs (sensitivity 50%; specificity 95%). Second look US, guided by MRI findings, changed the sensitivity and specificity to 46% and 93% respectively. 8 patients with normal axillary imaging underwent US-guided biopsy of the lowest ALN, four detected metastatic ALNs.
**Conclusion:** Second look AUS and low threshold to pre-operative ALN biopsy promotes accurate per-operative staging of the axilla in ILC and may prevent a second surgery.

## P05. IS PRECAUTIONARY AXILLARY LYMPH NODE (ALN) FINE NEEDLE ASPIRATION (FNA) OR BIOPSY NEEDED IN PATIENTS WITH T2 LESIONS AND ABOVE

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**Introduction/Aim:** Bigger breast tumours have a higher tendency of ALN involvement in most cases. Our study aims to find out the relation between tumour size and axillary involvement, to establish whether precautionary ALN biopsy is needed in T2 lesions and above (≥) which will avoid a second axillary surgery.
**Methodology:** A retrospective study from August 2018 to July 2019 was conducted. Breast cancer diagnosis were divided into screening and symptomatic cohorts. The size of the breast lesion and the axillary involvement were investigated.
**Results:** In the screening cohort, 121 cases were analysed. 14 patients had positive ALN in the final histology. 6/14 (42.9%) patients had a tumour less than (<)2cm. 8/14 (57.1%) patients had a tumour ≥2cm. 10/14 (71.4%) had positive lymphovascular invasion and 100% were estrogen receptor (ER) positive. In the symptomatic cohort, 150 patients were analysed. 39 patients had positive ALN in the final histology. 12/39 (30.8%) patients had a tumour <2cm. 27/39 (69.2%) patients had a tumour ≥2cm. 21/39 (53.8%) had positive lymphovascular invasion and 32/39 (82%) were ER positive.
**Conclusion:** In both cohort, tumours ≥2cm have an increased (60-70%) tendency to ALN involvement especially with lymphovascular involvement and ER positive receptor status. Our study highlighted usage of MSKCC nomogram to predict the probability of lymph node involvement is beneficial. The nomogram has a predictive value of nearly 70% in both cohorts and was able to correctly identify the need for lymph node biopsy in patients with ≥T2 lesions.

## P06. FIRST DO NO HARM: REDUCING MORBIDITY FROM EXCISION BIOPSY OF AXILLARY LYMPH NODES

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**Background:** Often no guidelines exist within a hospital for the appropriate pathway for unexplained axillary lymphadenopathy. Excision biopsy of axillary lymph nodes is a morbid procedure. It is frequently done on the emergency list by the on call surgical registrar or at the end of a busy breast list. We should think again.
**Aims:** To ascertain whether ultrasound guided biopsy of axillary lymph nodes (USS Bx) is sufficient to diagnose various malignancies.
**Methods:** All patients in WAHNHST who underwent USS Bx of an axillary node between October 2015 and October 2020 were reviewed (> 7000 patients). Those with a simultaneous new breast cancer were excluded.
**Results:** 184 remaining patients were reviewed in detail. Most presented with a palpable axillary lump or an incidental finding on CT scan. A diagnosis from USS Bx was achieved in 182 patients (99%). 90 samples (49%) were normal or reactive nodes and MDT was happy with that. 94 were pathological (51%), with diagnoses including lymphoma (46), melanoma (9), sarcoma (1) and a range of metastatic carcinomas including breast (26) lung (4), and smaller numbers of prostate, ovarian, renal, basal cell and colorectal carcinomas. Only 1 patient (0.5%) needed a formal excision biopsy to clarify diagnosis and commence treatment.
**Conclusion:** USS Bx is sufficient to obtain a diagnosis in most cases. Excision biopsies should be reserved for patients in whom USS Bx has not yielded enough information.

## P07. OUTCOMES IN METASTATIC AXILLARY NODES FOLLOWING NEO-ADJUVANT CHEMOTHERAPY FOR BREAST CANCER - A NINE YEAR REVIEW FROM A SINGLE CANCER CENTRE

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**Introduction:** Neo-adjuvant chemotherapy is increasingly employed in breast cancer treatment. In the neo-adjuvant setting, chemotherapeutic drugs effect tumour apoptosis, eliminating systemic micro-metastases and killing circulating tumour cells. Chemotherapy can reduce tumour size, facilitating breast conservation with improved cosmetic outcome. It also provides opportunity to assess tumour response in-vivo.
**Aim:** To determine the outcomes of axillary metastases to neo-adjuvant chemotherapy in primary breast cancer patients.
**Patients and methods:** Retrospective analysis of patients treated with neo-adjuvant chemotherapy between January 2011 and December 2019, was undertaken. Patients with stage 1 or 2 breast cancer with axillary node macro-metastases on pre-chemo sentinel node biopsy, Ultrasound-guided fine-needle aspiration or core biopsy irrespective of primary tumour characteristics were included. Patients with Her-2 positive cancers recommended neo-adjuvant chemotherapy with Herceptin were also included. Patients with recurrent cancer were excluded.
**Results:** One hundred and fifty-five patients underwent neo-adjuvant chemotherapy between 2011 and 2019. 118 patients satisfied the criteria for inclusion. Age range 31 years to 75 years (Mean = 52, median=60, mode= 49) 59% (n=70) patients had no further metastatic lymph nodes, with 40% (n=23) showing treatment effect within nodes. 41% (n=48) had residual metastatic disease in the lymph nodes.
**Conclusion:** Our results show 59% of patients had no residual axillary disease following neo-adjuvant chemotherapy. Preliminary analysis of follow up data show a positive correlation to disease free survival in this group of patients. Whilst de-escalation of axillary treatment is underway, completion axillary clearance is still indicated in patients with high risk disease and provides useful prognostic information.

## P08. MANAGEMENT OF THE AXILLA AFTER NEOADJUVANT CHEMOTHERAPY- CHOOSING THE CORRECT SURGICAL OPTION

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**Background:** Management of the axilla after neoadjuvant chemotherapy (NACT) is still a contentious area despite recent recommendations that sentinel lymph node biopsy (SLNB) may be safely performed after completion of NACT with normal imaging +/- biopsies. We reviewed our

unit's practice.
**Method:** Patients who received NACT January 2015- December 2019 were included. Patients received anthracycline/taxane based regimen. HER2 positive patients also received Trastuzumab +/- Pertuzumab. Standard practice for SLNB after NACT was dual localisation with radioisotope and blue dye and removal of minimum 3 nodes.
**Results:** 76 patients received NACT. Median age 45 (23-75) years. Pre-NACT T-stage; 1(11), 2(36), 3(14), 4(11), X(4). Receptor status ER+HER2-(21), ER+HER2+(23), ER-HER2+(11), Er-HER2-(21). 65 patients were node positive pre-NACT. 34 patients had abnormal nodal imaging post-NACT and underwent axillary lymph node dissection (ALND); of these 28 (82%) had positive nodes. 42 patients underwent SLNB. 8 had positive nodes (19%): One patient that had normal nodal imaging pre-NACT (micro-metastases). Seven patients had abnormal nodal imaging pre-NACT, but radiological response post NACT. All these patients underwent completion ALND except one (patient choice). The overall pathological complete response rate was 36%. This rose to 55% amongst HER2 positive women. 69 patients (91%) are alive at median 42 months. Only one death occurred in the SLNB group (patient had involved SLN, but chose not to have ALND).
**Conclusion:** SLNB after NACT appears to be safe. This is an evolving practice but patient selection is key; the majority of patients undergoing most appropriate surgery following post NACT imaging as a guide.

## P09. SINGLE BLUE DYE TECHNIQUE FOR SENTINEL LYMPH NODE BIOPSY DURING THE COVID PANDEMIC

Katie Campbell, Nader Touqan, Cliona Kirwan. *Manchester University Foundation Trust, Manchester, United Kingdom*

**Introduction:** In response to the COVID-19 pandemic, many centres have adopted patent blue single technique for sentinel lymph node biopsy (SLNB) due to logistical challenges of accessing or administering isotope whilst minimising patient exposure to COVID. We aimed to assess the efficacy of blue dye alone in real-world practice, compared to the standard practice of Tenetium99 isotope with or without blue dye.
**Methods:** A retrospective analysis of 100 consecutive breast cancer patients from a single unit who had SLNB utilising patent blue dye only were compared to 261 patients who underwent Tenetium99 isotope SLNB, from a historic cohort. Numbers of sentinel and non-sentinel nodes harvested were compared.
**Results:** 16 (16%) patients had no SLN identified in the patent blue group, compared to 6 (0.4%) in the isotope cohort. Median number of SLN removed was 3 (range 1-4) compared to 2 (range 1-6) in the isotope cohort. The median of total nodes removed was 3 (mean=2.86, range 1-11) compared to 2 (mean= 2.16, range 1-7). 22 patients (26%) had additional non-sentinel nodes removed compared to 50 (20%) in the isotope group.
**Conclusion:** Although the use of single blue dye technique was a practical requirement, in current real-world practice, blue dye is associated with increased LN removal and likely greater axillary dissection. This provides evidence to support the need for improved localisation techniques.

## P010. INDOCYANINE GREEN AS AN ALTERNATIVE TO RADIOISOTOPE IN BREAST CANCER SENTINEL NODE BIOPSY: A SINGLE CENTRE EXPERIENCE DURING COVID 19 HOSPITAL SITE RELOCATION

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**Introduction:** Multiple feasibility and multicentre studies have confirmed high sensitivity of indocyanine green (ICG) fluorescence mapping for sentinel node detection in early breast cancer. Due to relocation during the COVID 19 pandemic, we adopted the ICG method in combination with blue dye.
**Methods:** All consecutive patients undergoing sentinel node biopsy (SNB) for early breast cancer in NHS Tayside were included in a prospective audit of surgical and pathology findings. All patients had normal preoperative axillary ultrasound, and injection of patent blue dye and ICG. Approval was obtained from the local Caldicott guardian for collection and use of personal data.
**Results:** Of 101 cases, all were female patients of mean age 62 years (range 27-87). 89 patients underwent primary SNB, 9 had SNB post neoadjuvant treatment, 3 had repeat SNB for failed SNB (n=1) or previous ipsilateral SNB (n=2). In 6 cases neither blue dye nor ICG was present in the axilla. Of the 95 SNB cases in this series surgeons documented retrieval of 181 nodes: 131 with both ICG and blue dye, 29 nodes ICG only, 3 nodes blue dye only. Histopathology revealed 19 cases had nodal metastases (20.0%) including 4 cases with micrometastases and 1 with isolated tumour cells. The mean nodal count was 2.1 per case (range 1-6).
**Conclusions:** SNB for breast cancer can be safely performed with ICG and blue dye with a short learning curve, as represented by node positivity and node retrieval rates comparable to previous multicentre studies of standard and/or ICG SNB.

## P011. IS REPEATING AXILLARY US FOR SCREEN-DETECTED CANCERS IN THE TREATING HOSPITAL NECESSARY?

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**Introduction:** Jarvis Breast Centre (JC) is a breast screening centre for women living in Surrey and Hampshire. All newly diagnosed breast cancer patients have Axillary USS at JC. The Axillary USS is repeated at Frimley Park Hospital (FPH) before treatment to check for nodal spread and to escalate management. The aim of our study is to compare results of axillary USS of both institutions to determine whether repeat scan is necessary.
**Methods:** A retrospective study looking at individuals diagnosed with breast cancer at JC who were then referred on to FPH between 01/01/19 - 31/12/19. Data collection was done using FPH's EDMS and ICE Software. Axillary USS, FNA and histology were recorded. Data analysis was done using Microsoft Excel.
**Results:** 132 women were identified. 125/132 women were deemed to have a negative result (95%) however 90 patients had a repeated scan at FPH (68%). 17/90 of patients had positive histology when they were negative in JC and had a repeated scan at FPH (19%). 46/132 patients who had negative results at JC and did not have a repeat USS at FPH (35%). Of those who did not have a repeat scan, 5/46 patients had positive histology (11%). There were 17 FNAs completed and 3/17 were positive. 8 /11 patients were axilla USS positive in JC but negative USS in FPH.
**Conclusion:** Patients who are USS positive at JC do not need to have a repeat scan at FPH however individuals who are USS negative at JC may consider a repeat.

## P012. FIVE-YEAR REPORT ON AXILLARY RECURRENCE AFTER NEGATIVE SENTINEL LYMPH NODE BIOPSY FOR BREAST CARCINOMA

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**Background:** The exclusion of axillary lymph node clearance (ALNC) in patients with breast carcinoma when sentinel lymph node biopsy (SLNB) comes back negative has reduced arm morbidity and lymphedema significantly. The rate of axillary recurrence is substantially lower than expected in the early follow-up reports with a median false-negative rate of 6.7 per cent for SNB. Axillary recurrences may develop late therefore, long-term follow up reports are needed.

**Methods:** Our study included 1150 women diagnosed with breast carcinoma and no discrete axillary lymphadenopathy felt clinically. These patients underwent SLNB. ALND was performed only in patients who came back positive for sentinel lymph node metastasis. The Kaplan-Meier (KM) survival analysis has been used to analyze "time-to-event" data. The primary endpoint was the rate of axillary recurrence and the secondary endpoint was breast cancer-specific survival.
**Results:** 724 sentinel lymph node-negative patients with 749 breast carcinomas were analysed. The median follow-up time was 65 months. 11 patients were diagnosed with isolated axillary recurrence. Significant axillary recurrences' risk factors were multifocal/multicentric carcinomas and high tumour grade in final histology. Also, our study has shown that the removal of more than two sentinel nodes reduced the risk. Four out of 11 patients (36 per cent) died as a consequence of axillary recurrence at a delayed setting.
**Conclusion:** In a 5-year period, the axillary recurrence's risk is lower than expected when SLNB comes back negative. Axillary recurrences at a delayed setting lead to a significant risk of death due to breast carcinoma.

## P013. THE SENSITIVITY OF ULTRASOUND AXILLA IN STAGING INVASIVE LOBULAR CARCINOMA

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**Introduction:** Staging the axilla preoperatively is vital in determining the operative management of axilla and the usefulness of neoadjuvant treatment. The lobular type of invasive breast carcinoma is more challenging to detect due to its molecular biology. The aim of this study is to explore the sensitivity of ultrasound axilla in staging invasive lobular carcinoma ILC in a single unit.
**Methods:** A retrospective approach looking at all ILC between January 2016 and May 2019. Patients with mixed cancers and those who did not proceed to axillary surgery were excluded. Results of ultrasound assessment and biopsy were compared to histology postoperatively and review of images of all false negative results was performed.
**Results**: 79 patients, age 30-89, 26 patients (33%) had nodal involvement at surgery. 21 patients had positive ultrasound (US) features and underwent core biopsy. US axilla had 50% sensitivity and 85% specificity with accuracy of 73%. A review of the ultrasound images of all lymph nodes that were false negative showed fatty lymph nodes with narrow cortices. All had normal or absent vascularity. One examination did not have lymph node vascularity performed. Size of metastatic deposit in false negative nodes ranged between 1.4-10 mm.
**Conclusions:** There are no standards to compare the sensitivity of US in staging the axilla to. However, US axilla has shown 50% sensitivity in detecting ILC in our centre, which has favourable results compared to the most recent studies (32.1% and 28.3%). Random biopsies in the axilla will probably not improve sensitivity but more research is needed to prove this.

## P014. THE USE OF SENTINEL NODE BIOPSY (SNB) AND OSNA FOR THE ASSESSMENT OF SENTINEL LYMPH NODES IN BREAST CANCER PATIENTS TREATED WITH NEOADJUVANT CHEMOTHERAPY (NACT)

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**Introduction:** Within our unit NACT patients with N0 disease at presentation undergo SNB post NACT. Those with 1-2 positive nodes undergo targeted sentinel lymph node biopsy (t-SNB) with involved nodes clipped at diagnosis. Patients with $\geq$ 3 abnormal nodes have an axillary clearance (ANC). Intraoperative assessment of the nodes with OSNA is performed for both SNB and t-SNB. We aim to evaluate outcomes of patients undergoing SLNB or t-SLNB and OSNA after NACT.
**Methods:** RSCH NACT patients treated from Jan 2015 to December 2020, were identified from a prospective database. Following local audit approval data (audit number 1138) to those who underwent SLNB or t-SLNB + OSNA were selected.
**Results:** 108 patients with a mean age of 52 years matched the selection criteria. 42 had TNBC, 41 Her2+ (29 ER+/Her 2+, 12 ER-/Her2+) and 25 had ER+/ Her2- breast cancer. 76 were N0 and 32 were N+. 9/76 who underwent SNB+OSNA and 13/32 undergoing t-SLNB+OSNA had micro/macrometastases and had an ANC. Of these 3 had further disease in the axilla, 2 from the t-SNB group and 1 from the SNB group. At an average follow up of 32 months (range 1-73 months) 7/22 who were node positive had recurrence (3 involving ipsilateral axilla) compared to 7/86 who were node negative (none in the axilla). This difference was statisitically significant p=0.02 using Chi square test.
**Conclusion:** OSNA can identify residual axillary disease. Knowledge that those with node positive disease have a higher rate of recurrence should influence further management.

## P015. CORRELATION BETWEEN NODAL PATHOLOGICAL RESPONSE ON OSNA AND SURVIVAL IN BREAST CANCER PATIENTS WITH 0-2 POSITIVE NODES AT PRESENTATION, POST NEOADJUVANT CHEMOTHERAPY (NACT)

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**Introduction:** Pathological response to chemotherapy plays an important role in prognostication, especially in TNBC and Her2+ breast cancers. We looked at patients with 0-2 lymph nodes positive pre NACT to assess impact of nodal response using OSNA on disease free and overall survival.

**Table 1**
(recurrence)

| Final Nodal Status | No recurrence | Recurrence | Total |
|---|---|---|---|
| OSNA negative | 79 | 7 (8%) | 86 |
| Micrometastasis | 9 | 3 (33%) | 12 |
| Macrometastasis | 6 | 4 (66%) | 10 |
| Total | 94 | 14 | 108 ($p = 0.007$) |

**Table 2**
(Disease Specific Survival)

| Final Nodal Status | Alive | Death due to disease recurrence | Total |
|---|---|---|---|
| OSNA negative | 84 | 2 (2%) | 86 |
| Micrometastasis | 10 | 2 (20%) | 12 |
| Macrometastasis | 8 | 2 (25%) | 10 |
| Total | 102 | 6 | 108 ($p= 0.01$) |

**Methods:** Following local audit approval, from a prospectively maintained dataset 108 women were identified with 0-2 nodes positive receiving NACT at RSCH from Jan 2015 to 2020.
**Results:** Mean age was 52. 87 were grade 3, 19 grade 2 and 1 grade 1. 105 were IDCA of which 42 were TNBC, 41 were Her2+ (29 ER and Her 2+, 12 ER- Her2+) and 25 were ER+ Her 2-. 76 were N0 and underwent SNB after NACT. 67/76 N0 patients had negative nodes on OSNA (Copy number <250), 6 had micrometastasis (copy number 251-5000) and 3 had macrometastasis (copy number >5000). 32 were node positive, 30 were clipped for targeted SNB post NACT (t-SNB). Of these, 19 were converted to node negative on OSNA (59.4% pCR), 6 had micrometastasis and 7 had macrometastasis. Those with micro/macrometastasis underwent ANC. Average follow up was 32 months (range 1-73). Comparison of recurrence and survival differences are summarised in tables 1 and 2. There was a significant correlation with OSNA result and disease free (p=0.007 and overall survival (p=0.014)).
**Conclusion:** Response to NACT on OSNA in the axilla significantly correlates with disease free and overall survival. Further information on ITCs within the node negative group may stratify this further.

## P016. AUDIT OF AXILLARY ULTRASOUND ASSESSMENT AND MANAGEMENT OF THE MALIGNANT AXILLA

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**Background**: Pre-operative axillary ultrasound (US) is now the standard of care for patients with early breast cancer. Sensitivity of US is limited because nodes are poorly conspicuous mixed echogenic structures. Operator experience, patient habitus and tumour type all affect detection. RCR guidance suggests a threshold for intervention on axillary US which is sensitive but avoids many axillary node clearances (ANC) for low volume disease and sentinel node biopsies needing subsequent ANC. This audit evaluates how sensitivity of axilla US impacts on operative outcomes in our patients.
**Methods:** Audit of axillary US assessment in symptomatic patients using the RCR template. 50% sensitivity is target. 12 months data collected including patients with breast malignancy who had SNB/ANC; their pre-operative clinical and US assessment findings and axillary surgery outcomes.
**Results:** 268 breast cancers assessed in 2019. 198 cases had axillary surgery; 126 were symptomatic. The prevalence of node positive patients in the operated symptomatic patients was (52/126) 41.3% (18% in screen detected cancers). 36/52 (69.2%) patients' axilla ultrasound were graded A3-A5 and 32/51 (62.3%) confirmed L5/C5. 132/172 negative sentinel node biopsies (76.6%); 9 patients had targeted SNB following L5/C5; 31/163 cases had positive SNB (19%); 6 patients (3.5%) had subsequent ANC. 25 patients had axillary node clearance as their first operation; 6 (24%) patients had 1 or 2 positive nodes.
**Conclusions:** Patients with positive nodes at SNB had few second axillary operations following MDT discussion. All patients with low axillary burden at ANC had tumour factors increasing recurrence risk.

## P017. THE IMPACT OF ONE STEP NUCLEIC-ACID AMPLIFICATION (OSNA) AVAILABILITY ON MANAGEMENT OF THE AXILLA IN EARLY BREAST CANCER

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**Introduction:** Our tertiary breast unit discontinued the use of intra-operative OSNA assessment of sentinel lymph node biopsies (SLNB) in March 2020 due to a perceived reduction in benefit. This coincided with COVID-19 increasing pressure on theatre time. We aimed to assess the impact of OSNA availability on the management of the axilla.
**Methods:** Retrospective audit (registered locally) of 456 patients that underwent an axillary procedure in a single NHS trust were included; 335 from 01/01/2019- 31/12/2019 and 121 from 01/03/2020 -31/10/2020. The two groups were comparable in terms of patient demographic and cancer characteristics.
**Results:**

| | 2019 (n= 335) | 2020 (n =121) |
|---|---|---|
| Axillary Node Clearance (ANC) | 15.22% (51) | 4.96% (6) |
| SLNB | 10.45% (35) | 54.55% (66) |
| SLNB + OSNA | 65.37% (219) | 0% |
| SLNB + OSNA + ANC | 5.26% (12) | 0% |
| SLNB + OSNA + Axillary RDT | 3.58% (12) | 0% |
| SLNB + RDT | 1.19% (4) | 13.22% (16) |
| SLNB mean number of nodes | 3.42 | 2.68 |
| Patients with positive nodes | 30.24% | 21.21% |
| Mean age at diagnosis (yrs) | 60 (22 - 83) | 62 (24 - 91) |

**Conclusions:** The percentage of patients receiving axillary radiotherapy (RDT) following a positive node on SLNB more than doubled in 2020 with less than a third undergoing ANC compared to 2019. Only 5.26% of patients proceeded to ANC on the basis of OSNA result and only 1 patient underwent delayed completion ANC in 2020. We note a 9% reduction in node positive patients. According to the AMOROS study the increased use of axillary RDT provides comparable long-term outcomes and less morbidity. The lack of long-term follow-up is a limitation of this study.

## P018. USE OF MAGTRACE® OUTSIDE ITS LICENSING PERIOD TO SAFEGUARD BREAST CANCER PATIENTS DURING THE COVID PANDEMIC DOES NOT REDUCE EFFICACY

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**Introduction:** Dual technique is the current standard for sentinel node biopsy (SNB) in breast cancer patients in the UK, but breached our trusts preoperative infection control guidance during the COVID pandemic. Magtrace® injection (SPIO) was adopted as a viable alternative and a prospective database had previously been established in August 2019 to gather data on this novel technique. Magtrace® is usually administered close to surgery, with 5 minutes of post-administration massage. However, due to the COVID pandemic, the delay between Magtrace® and surgery was outside of the licensed 7 day period. Primarily, we aimed to evaluate Magtrace® efficacy within cases of varying lengths of delay between Magtrace® administration and surgery.
**Method:** We analysed clinical data from 214 patients receiving Magtrace® for SNB, with subsequent histological or intraoperative analysis. We compared determinates of Magtrace® efficacy for Magtrace® administrated within 24 hours of surgery, <7 days preoperatively and outside the licensed 7 day preoperative period. Comparative statistical analyses was performed between cohorts A and B, and cohorts C and D using Fisher's exact test and Independent t-test.

**Results:**

| Magtrace® administered | <24 hours preoperatively (A) | 24 hours preoperatively (B) | p | <7 days preoperatively (C) | 7 days preoperatively (D) | p |
|---|---|---|---|---|---|---|
| Intraoperative nodal detection (%) | 83 | 96 | ** | 90 | 96 | ns |
| Mean number of sentinel nodes retrieved (n) | 2.09 | 2.40 | * | 2.23 | 2.42 | ns |
| Nodal positivity rate (macro and micrometastases) (%) | 29.2 | 35.2 | ns | 34.1 | 32.0 | ns |
| Block dissection rates % (n) | 15.61 (13) | 10.4 (13) | ns | 12.8 (21) | 10 (5) | ns |

ns = non significant * = 0.01 ** = <0.001

**Conclusion:** Our results suggest improved sentinel node detection rate if Magtrace® was administered 24 hours preoperatively with no detriment if given outside of the 7 days licensing window. Flexibility with timing of administration can therefore be considered without worsening outcomes in sentinel node biopsy of breast cancer patients with preoperative Magtrace® injections.

## P019. DISCORDANT CHEMOSENSITIVITY PATTERN IN T4B LESIONS IS RELATED TO MORPHOLOGIC HETEROGENITY AND DISTRIBUTION OF CANCER STEM CELLS IN TUMOR MICROENVIRONMENT

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**Introduction:** Optimum NST induced cytoreduction in T4b breast cancer is a challenge. The response pattern is discordant in the skin and parenchymal core of the cancer.
**Aim**: To study the morphologic heterogeneity at the core and peripheral part of the tumor.
**Methodology:** 45 patients with post NST T4b lesions were included in the study. Tissue was taken from the skin involved zone and core of the residual tumour. The tissues were studied histopathologically with reference to density of malignant cells, tubule formation, nuclear pleomorphism, mitotic score, lymphocytic infiltration and blood vessels at the periphery of cell clumps. The results were analysed using t-test (first three) or chi-square (last three) using SPSS version24.0. The cancer stem cell population at inner and outer aspect was studied using CD 44 IHC marker.
**Results:** 45% luminal, 40% were Her2-positive enriched and 15% TNBC were found. The density of malignant cells (p 0.023), mitotic score (p 0.0184), nuclear pleomorphism (p 0.0290), and vascular congestion (p 0.0233) was significantly more persistent after chemotherapy at the dermal component while tumor-infiltrating lymphocyte (p 1.0) and tubule formation (p 0.25) was insignificant. T outer CSC was significantly more than Tinner CSC (p=0.01). The effect was independent of biological subtypes (p 0. 32).
**Conclusion:** Breast cancer is less sensitive to NST in presence of gross skin involvement. The disease shows a heterogenous pattern and response to treatment in T4b lesions. It may be attributed to the cancer stem cell distribution in the micro environment and blockade of dermal microcirculation.

## P020. DEFINING MOLECULAR SIGNATURES TO PERSONALISE MANAGEMENT OF PATIENTS WITH EARLY BREAST CANCER

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**Introduction:** A breast screening review highlighted the need to reduce overdiagnosis. Ductal Carcinoma In-Situ (DCIS) contributes significantly to overdiagnosis. We hypothesise loss of Galectin-7 in myeoepithelial cells (MECs) modifies the microenvironment, destabilizes the MEC interface through changes in adhesion and ultimately may lead to loss of the MEC population through apoptosis.
**Methods:** Galectin-7 expression was assessed in a series of pure DCIS samples (low risk model) and DCIS with invasion (high risk model). Sections were stained for Galectin-7 and each duct scored. Normal primary MEC (endogenously high in Galectin-7) were isolated from reduction mammoplasty tissue. Galectin-7 was knocked down with siRNA and apoptosis assessed using cleaved PARP and cleaved caspase-3. Adhesion assays assessed the effect of Galectin-7 on MEC layer integrity. RNA sequencing assessed the global impact of Galectin-7 loss.
**Results:** There was significantly greater loss of Galectin-7 in DCIS with co-existent invasion compared to the pure DCIS.

| | Pure DCIS | DCIS with associated invasion | p Value |
|---|---|---|---|
| Galectin-7 Positive DCIS ducts | 338 | 144 | 0.0014 |
| Galectin-7 Negative DCIS ducts | 99 | 646 | 0.0002 |

Functional assays demonstrated Galectin-7 siRNA sensitised MECs to apoptosis. They were less adhesive and more migratory to laminin and more adhesive and less migratory to Collagen I. RNA sequencing demonstrates silencing Galectin-7 increased LOX expression - a key regulator of the collagen matrix of the microenvironment.
**Conclusion**: This study shows that loss of MEC Galectin-7 is associated with DCIS progression. Loss predisposes MEC to apoptosis and switches adhesion from basement membrane to interstitial matrix, all of which destabilizes this key interface in DCIS. Galectin-7 has the potential to be used in a risk stratification tool for DCIS.

## P021. IN-HOUSE IN-SITU HYBRIDISATION ACCELERATES INDETERMINATE HER2 LESION RESULTS

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**Introduction:** NICE guidelines 1.6.5 recommend: 'that the HER2 status [should be] available and recorded at the pre-operative multidisciplinary team (MDT) meeting when systemic treatment is discussed' to optimise decision-making regarding neoadjuvant therapy. Indeterminate HER2 lesions, however, require further testing by in-situ hybridisation (ISH). This may lead to delays in treatment decision-making, particularly if the testing is outsourced. Our institution has recently switched to using an in-house assay. We compared time to ISH results over two periods before and after the introduction of in-house testing to evaluate if this improved the availability of HER-2 results, in line with NICE guidelines.
**Methods:** This audit was approved by our local audit group. All breast cancer patients discussed at MDT over a two-month time period before (1/11/18-31/12/18) and after (1/9/20-30/10/20) the introduction of in-house ISH testing were identified retrospectively. The numbers of patients requiring ISH and the median time from biopsy to ISH report were compared in the two groups using Mann-Whitney U test.
**Results:** 106 cases were assessed before the intervention, 39 (37%) of which required ISH with a median wait time of 30 days (13-87). 90 cases

were assessed after the intervention, 13 (14%) of which required ISH with a median wait time of 7 days (5-16) ($p<0.01$).
**Conclusions:** By setting up an in-house ISH test, we were able to significantly reduce the delay between biopsy and HER2 status result for patients with borderline HER2 results. HER2 status is now available at the pre-operative MDT meeting to optimise treatment decision making.

## P022. LACTATE CONCENTRATION IN BREAST CANCER USING ADVANCED MAGNETIC RESONANCE SPECTROSCOPY

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**Introduction**: Elevated lactate production is linked to tumour proliferation and poorer patient prognosis. Biochemical quantification of lactate is invasive, and double quantum filtered (DQF) magnetic resonance spectroscopy (MRS) allows accurate non-invasive quantification of lactate. We applied DQF MRS to study lactate concentration in high and low grade human breast cancer.
**Methods:** Thirty female patients (15 grade II and 15 grade III) with invasive ductal carcinoma participated in the study. Freshly excised whole breast tumours were scanned on a clinical 3 T MRI scanner using DQF MRS, and lactate concentration was subsequently quantified. Tumour proliferative activity marker Ki-67 and Nottingham Prognostic Index (NPI) were assessed histologically.
**Results:** Lactate concentration was significantly higher ($p = 0.0349$) in grade III ($7.7 \pm 2.9$ mM) than in grade II ($5.5 \pm 2.4$ mM). NPI was significantly higher ($p = 0.0001$) in grade III (4.50, 4.44 – 5.02) than in grade II (3.62, 3.46 – 4.29). Ki-67 was significantly higher ($p = 0.0002$) in grade III (22.9%, 16.7-40.2%) than in grade II (9.7%, 6.3-16.4%). There was a significant correlation between lactate concentration and NPI ($\rho = 0.3618$, $p = 0.0495$). There was no significant correlation between lactate concentration against Ki-67 ($p = 0.1023$).
**Conclusion:** Lactate concentration was significantly higher in grade III breast tumours and was correlated with NPI. Lactate concentration from DQF MRS is a non-invasive marker sensitive to breast tumour grade with significant prognostic value. This paves the way for potential clinical assessment of tumour aggressiveness and monitoring of disease progression and treatment.

## P023. INTRA-TUMOURAL LIPID COMPOSITION AND LYMPHOVASCULAR INVASION IN BREAST CANCER VIA NON-INVASIVE MAGNETIC RESONANCE SPECTROSCOPY

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**Introduction:** Lymphovascular invasion (LVI) is associated with increased risk of recurrence and metastasis, with deregulation of saturated fatty acids (SFA) and monounsaturated FA (MUFA). Currently LVI is estimated in core biopsy, while definitive LVI can only be determined after surgery. Double quantum filtered correlation spectroscopy (DQF-COSY) allows accurate non-invasive quantification of lipid composition. We applied DQF-COSY to examine the role of lipid composition in LVI.
**Methods:** Thirty female patients (13 LVI negative and 17 LVI positive) with invasive ductal carcinoma were enrolled. Lipid spectra were acquired from whole breast tumours using DQF-COSY on a clinical 3 T MRI scanner, and SFA, MUFA and triglycerides (TRG) were subsequently quantified. Tumour proliferative marker Ki-67 was assessed histologically.
**Results:** MUFA were significantly lower ($p = 0.0189$) in LVI positive (0.37, 0.25 – 0.64) than LVI negative (0.63, 0.49 – 0.96). TRG were significantly lower ($p = 0.0226$) in LVI positive (1.32, 0.95 – 2.43) than LVI negative (2.5, 1.92 – 4.15). There was no significant difference in SFA ($p = 0.6009$) between LVI negative (0.50, 0.36 – 0.57) and LVI positive (0.53, 0.41 – 0.58). There were no significant correlations between lipid composition against Ki-67 expression.
**Conclusion:** LVI positivity in breast cancer was associated with lower MUFA and TRG, but not with SFA. The reduction in MUFA and TRG in LVI positive tumours showed that lipogenesis is replaced by lipolysis during LVI development. Lipid composition quantified using DQF-COSY is a sensitive marker of LVI, in turn providing a potential prognostic tool.

## P024. POST MENOPAUSAL WOMEN WITH MYOFIBROBLASTOMA OF THE BREAST - MANAGEMENT DILEMMA

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**Introduction:** Myofibroblastoma (MFB) of the breast is an uncommon benign indeterminate mesenchymal tumour with equivocal radiological, immunochemical and varying histopathological morphology. Their accurate diagnosis and treatment presents a challenge. In light of its rarity, diagnostic excision with a margin to reduce the risk of local re-occurrence is recommended however subsequent management is uncertain.
**Methods:** We report two cases of post-menopausal women presenting to our symptomatic clinic with an equivocal feeling lump without regional nodal involvement. Mammography and Ultrasound both showed large well-defined mixed density indeterminate masses without microcalcification or evidence malignancy. Core biopsies showed tissue of moderate cellularity and fibrofatty stroma with no atypia or pleomorphism (ER positive, PR negative and low proliferation indices). Although the morphology and immunochemistry were suggestive of mammary-type benign MFB, it was not possible to establish a definite diagnosis. Excision of the lesions with a margin was recommended.
**Results:** Both cases underwent surgical excision for diagnostic certainty. The pathology confirmed well circumscribed lesions without lymphovascular / perineural invasion or malignant features in keeping with completely excised Myofiobroblastomata. The post-operative results were discussed at Multidisciplinary Meetings and while the 83 year old patient was reassured and discharged, the 65 year old was advised to have yearly mammographic surveillance.
**Conclusions:** Although the therapeutic recommendation for MFB is wide local excision, post-surgical surveillance continues to be subject to debate. Whilst recurrence and malignant transformation are unlikely it should always be considered.

## P025. PATIENT SATISFACTION WITH A TELEPHONE-BASED BREAST PAIN CLINIC

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**Introduction:** With Covid-19 significantly impacting our clinical practice, telephone clinic consultations were established to safely assess and manage new breast pain (BP) referrals outside one-stop clinics. To evaluate patient experience and optimise care, we developed a patient satisfaction questionnaire.
**Methods:** Strictly triaged referrals with isolated BP were allocated an ANP-led telephone clinic. A patient-focus group was involved in designing a validated questionnaire. All BP patients receiving telephone consultation gave permission to be sent this electronic questionnaire via text message following the appointment.
**Results:** Of 90 questionnaires sent, 37 (41%) were returned. The majority (n=34, 94.4%) were satisfied with the waiting time for their appointment, with two (5.6%) dissatisfied. Telephone clinics were conducted at the allocated time for 25 (67.6%) patients, with delays up to 15 and 30min reported by 8 (21.6%) and 4 (10.8%) patients, respectively. 23 (62.2%) patients were concerned about not meeting a clinician face-to-face, however, consultations did not feel rushed in 36 (97.3%), and 33 (94.3%) patients felt they saved time holding their appointment from home (78.4%) or work (21.6%). 18 (48.6%) patients found telephone clinics more convenient and 12 (32.4%) were unsure. Overall, patients rated their care as good (89.2%) or

satisfactory (10.8%) and 36 (97.3%) would recommend our new service to others.
**Conclusion:** Streamlining BP patients into telephone clinics enhances one-stop clinic capacity for patients with more clinically worrying symptoms. The telephone clinic is well received by patients. Despite initial concerns at not meeting clinicians face-to-face, most patients were reassured by the service and almost all would recommend it to other women.

## P026. DO PATHWAYS IMPROVE PATIENTS' OUTCOMES? AN EVALUATION OF THE EFFECTIVENESS OF A PATHWAY FOR THE MANAGEMENT OF BREAST INFECTIONS

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**Introduction:** Patients presenting to the emergency department with breast infections are managed by on-call general surgeons rather than breast specialists. We have implemented a guideline-based pathway in our district general hospital to assist on-call general surgeons in managing patients appropriately. The aim of this study was to evaluate its effectiveness in improving patients' outcomes.
**Methods:** A pathway was introduced based on NICE CKS guidance. A retrospective review of patients' medical record was carried out at three time intervals: 50 patients before the implementation of the pathway and 50 patients each twice afterwards. Approval was sought from the audit department. Outcome measures included: use of breast ultrasound, time to ultrasound, compliance with antibiotic guidelines, rates of surgical drainage, rates of admissions. Statistical analysis of the results was performed and a p-value of $<0.05$ was considered statistically significant.
**Results:** Several statistically significant improvements were found. The proportion of patients having an ultrasound scan improved from 76% to 96%, patients requiring surgery reduced from 62% to 10%. Compliance with antibiotic therapy improved from 74% to 92. The average wait for ultrasound from the first presentation shortened from 58 to 24 hours. The rate of inpatient admission before the pathway increased from 24% to 34% ($p=0.3$), however on review of the admissions, these had appropriate indications (e.g. sepsis). The re-audit showed a sustained improvement in all outcomes.
**Conclusions:** The introduction of breast infection pathway sustainably reduced the rate of avoidable surgery, increased the utilisation of ultrasound facilities and improved compliance with best practice.

## P027. GRANULOMATOUS MASTITIS AND ERYTHEMA NODOSUM – A RARE CO-EXISTENCE

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Granulomatous mastitis (GM) is a rare, benign breast condition, which commonly presents similarly to inflammatory breast cancer as a painful, erythematous lump with associated swelling and possible abscess formation. A literature search identified less than 30 reported cases of erythema nodosum (EN) associated with granulomatous mastitis. Five patients diagnosed with GM on core biopsy were identified within a five years period. Of these, two were diagnosed with also developing EN. The project was designed to establish patterns in the patients diagnosed with these two conditions in co-existence. Of the five patients, all were non-smokers, had breastfed children and had a BMI<30. The age at diagnosis ranged between 28-44 years. GM has a higher prevalence in those of Asian, Hispanic or Arabic origin. 80% of the patients diagnosed were within this demographic. 1 patient had an associated abscess at presentation, and aspirated pus confirmed growth of Corynebacterium kroppenstedtii which has been associated with the condition. There were 2 patients diagnosed with EN of which 1 patient also developed oligoarthritis. Both patients had involvement with dermatology and rheumatology specialties and underwent other investigations to exclude other granulomatous conditions, including chest x-rays and blood tests. Treatment for the condition was determined on a case by case basis. Both patients with associated EN were given naproxen and prednisolone. The duration of withstanding the extramammary features was limited to around 3 months, however duration of breast disease was significantly longer. One of these patients remains under review and one has been successfully treated and discharged.

## P028. MEDICATIONS ASSOCIATED WITH GYNAECOMASTIA IN CURRENT PRACTICE

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**Introduction:** Gynaecomastia is a relatively common disorder seen in the rapid access clinic. Prescription medications can account for about 20-25% of causes. Traditionally there are certain group of medications, which are classically known to be associated with gynaecomastia. The aim of this study was to find out which group of medicines are more commonly associated with gynaeco mastia in our current practice.
**Method:** Data was retrospectively analyzed from the clinic proforma for all gynaecomastia patients who presented to the fast track breast clinics between 2015 to 2018 in our hospital.
**Result:** In our cohort there were 111 patients. Median age was 61 (range 18 to 87 years). The commonest presentation was breast pain and lump in 47% patients ($n=52$) followed by only breast lump in 42% patients ($n=47$). 84.5 % patients presented with unilateral complaints whilst rest had complaints on both sides. History of medications was not available in 24 patients and 20 patients were not taking any medications at the time of presentation. The remaining 67 patients were taking either one (25.4%) or multiple (74.6%) medications. The commonest medicine was Statin (43.3%) followed by Proton pump inhibitor (29.9%), spironolactone (11.9%), Calcium channel blocker (10.4%), Finasteride (7.5%) and Digoxin (6%).
**Conclusion:** Statins and proton pump inhibitors were more frequently associated with gynaecomastia in our current practice than the traditionally known medicines like spironolactone, cimetidine or digoxin.

## P029. AN 11-YEAR UNIT EXPERIENCE ON MANAGEMENT AND OUTCOME OF B3 LESIONS WITHOUT ATYPIA USING THE LEEDS MANAGEMENT PATHWAY AT ST JAMES UNIVERSITY HOSPITAL IN LEEDS

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**Introduction:** Since April 2009 all radial scars and papillomas with no atypia diagnosed at breast screening are referred for vacuum assisted excision (VAE) rather than surgery where VAE is possible.
**Methods:** All patients diagnosed with screen detected papilloma and radial scar with no atypia between 2009 to 2020 were included.
**Results:** 607,993 women were invited for screening and 440,351 attended. 20,941 were recalled for second stage screening (4.76%). 10,288 had a biopsy with 993 lesions diagnosed as B3 (9.65%). Of these, 200 were radial scars or papillomas with no atypia (20.1%) There were 120 B3 papilloma no atypia. 92 had VAE and were discharged. 2 had VAE and surgery due to atypia at VAE and surgery was benign. 24 had surgery instead of VAE and all were benign. 25 women during the surveillance period were referred for further investigation due to mammographic abnormalities (screening or presented symptomatically) and 16 had biopsies of which 2 were benign, 6 were B3 and benign on VAE and 8 invasive cancers (not at site of VAB). From 80 B3 radial scars no atypia, 48 had VAE and were discharged. 5 had VAE and surgery due to atypia at VAE and 25 had surgery instead of VAE. All were benign. During the surveillance period 8 were recalled and 5 had a biopsy, 3 of which were B2, 1 B3 and benign on VAE and 1 cancer in the contralateral breast.
**Conclusion:** VAE in managing B3 lesions with no atypia is a safe alternative to surgery.

## P030. THE POTENTIAL IMPACT OF AI BASED COMPUTER AIDED DETECTION ON INTERVAL CANCERS RATES IN A POPULATION BASED SCREENING PROGRAMME

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**Introduction:** Interval cancer (IC) review is a key component of quality assurance in screening programmes. Study aims were to 1) assess whether AI based computer aided detection software (CAD) could identify relevant findings on prior screens 2) compare CAD with reader categorisation of IC.
**Method and materials:** A retrospective study of anonymised images (necessity for informed consent waived). Consecutive ICs with diagnostic and prior screening mammograms (PS) and controls with subsequent normal screens were identified through NHS BSP. BI-RADS density, CAD global scores and prompts were recorded. Prompts were deemed true positive (TP) if corresponding to the site of subsequent IC. CAD specificity set at 96% (matching 4% UK recall rate). Prompts on PS were compared with NHSBSP classification (true interval (TI), minimal signs (MS), false negative (FN), occult). ROC curve analysis and $Chi^2$ tests used at 95% significance.
**Results**: Median CAD scores from 300 ICs and 852 controls: controls, 4.22; PS, 7.53; IC, 9.69. NHSBSP categorisation: 149 TI (50%), 49 MS (16%), 60 FN (20%) and 42 occult (14%). AUC for all IC was 0.72 (95% C.I. 0.68-0.75). Of 109 FN/MS cases, CAD correctly identified 21 (19%) at 96% specificity. 15 (71%) were grade 1/2. CAD flagged 14/149 (9%) TI; 9/14 were grade 3 (p 0.097). For the occult group diagnosed <1y after PS (n=45), AUC was 0.73 (95% C.I. 0.66-0.81); for BIRADS density, only 0.59 (95% C.I. 0.5 - 0.99).
**Conclusion:** AI-based CAD localises some cancers on PS missed by readers, showing potential to triage for enhanced screening.

## P031. IS CLINICAL ASSESSMENT NECESSARY IN ADDITION TO MAMMOGRAPHY IN THE ASSESSMENT OF THE ASYMPTOMATIC PATIENT WITH A STRONG FAMILY HISTORY OF BREAST CANCER?

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**Introduction:** 1 in 5 women under 50 has a family member who's had breast cancer. These women may be suitable for additional screening as a result of their strong family history (FH). In our trust population we estimate there to be approximately 17,500 women who would meet the NICE guidance for enhanced early screening. This project aimed to establish the clinical detection rate of new breast cancers in our FH clinics and to establish if we are following ABS guidelines in respect to FH clinics.
**Methods:** 252 patients were identified as having attended the FH clinic over a 3-year period. There were 378 mammograms performed as a result of these reviews. Positive mammographic findings were then correlated with the clinical findings for these patients.
**Results:** From these 3 cancers were detected, 2 of which were detected radiologically with no clinical findings. The clinical detection rate was therefore 0.4% in 3 years. The review also highlighted a wide variation in the approach to reviewing these patients and that we were failing to meet ABS guidelines through the lack of provision of a single point of contact within the trust.
**Conclusions:** We are only seeing a fraction of the women estimated to qualify for enhanced early screening for FH. Of those reviewed in a face-to-face clinic we have a very low clinical detection rate. Does an annual pick up rate of 0.13% justify the clinic and the associated costs? We propose it is time to re-think the way we manage these patients.

## P032. THE ROLE OF P-CADHERIN IN EARLY BREAST CANCER RISK STRATIFICATION

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**Introduction:** A review of breast screening highlighted the need to reduce overdiagnosis. Ductal Carcinoma In-Situ (DCIS) contributes significantly to overdiagnosis. We aim to develop an immunohistochemistry panel to risk stratify DCIS. The role of myoepithelial P-cadherin in DCIS risk stratification will be investigated. We hypothesise that there is destabilisation of the myoepithelial cell (MEC) basement membrane interface leading to progression to invasive disease. P-Cadherin positivity is a good prognostic sign.
**Methods:** We have a dual approach investigating the expression of P-Cadherin in clinical samples and the biological function in primary myoepithelial cells and relationship with Galectin-7 using immunofluorescence. There were 2 groups pure DCIS (low risk model) and DCIS with associated invasion (high risk model). Sections were stained for P-cadherin. Each case was given a global score of the percentage of DCIS ducts, which were P-cadherin positive.
**Results:** DCIS with associated invasion exhibited a greater number of ducts with loss of P-Cadherin

| MECS P-Cadherin positivity | Pure DCIS | DCIS with associated invasion |
|---|---|---|
| Negative | 1 | 7 |
| 1-20% | 0 | 4 |
| 21-40% | 0 | 3 |
| 41-60% | 2 | 5 |
| 61-80% | 7 | 1 |
| 81-100% | 6 | 1 |

The effect of knocking down Galectin-7 in primary myoepithelial cells on P-Cadherin expression at the cell-cell junction was investigated using immunofluorescence, using the ratio of nuclei staining to cell-cell junction staining, myoepithelial cells treated with non-targeting siRNA had a ratio of 0.96 whilst primary myoepithelial cells treated with Galectin-7 siRNA had a ratio of 0.12 (p value of 0.0003).
**Conclusion:** The role of P-Cadherin in DCIS risk stratification relationship with Galectin-7 is potentially a very interesting finding further work is required to further validate this.

## P033. PALPABLE DISEASE IN WOMEN WITH SCREEN DETECTED BREAST CANCER. IS THERE A NEED FOR EDUCATION ON BREAST AWARENESS?

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**Introduction:** In the UK, three yearly screening mammograms are offered to all women aged 50-70, with the aim of detecting breast cancers early. Cancers detected through screening mammograms may be palpable on examination. Such palpable cancers could be detected early if caught on self-breast examination and referred through a symptomatic clinic. The aim of this study was to identify the proportion of palpable disease in screen detected breast cancer with potential implications on timing of diagnosis.
**Method:** A retrospective audit on all patients diagnosed with screen detected breast cancer from January 2015 to December 2019 in a single breast screening unit was carried out. Clinical assessment (P score) was recorded following identification of a likely breast cancer on screening mammogram pre-biopsy. Data was also recorded on tumour characteristics.
**Results:** Out of 1154 women with screen detected breast cancer, 315 (27%) had clinically palpable breast lump. Of these, 22 (7%) had P2 lumps; 75 (24%) P3; 129 (41%) P4 and 89 (28%) P5 lumps. The average size of radiographically detected lesion was 24 mm. Palpable axillary disease was noted in 31 (2.6%) patients, which was further confirmed on ultrasound biopsy.
**Conclusion:** More than a quarter of patients with screen detected cancer had a clinically palpable breast lump. Despite a willingness to participate in breast screening, many women do not identify palpable disease themselves, perhaps reflecting a lack of knowledge on breast awareness, fear or

over-reliance on the screening program. Greater efforts are needed in education of women in breast awareness.

## P034. BREAST DENSITY NOTIFICATION: A UK PERSPECTIVE WITH DATA FROM A NATIONAL SURVEY

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**Introduction:** Increased breast density can mask breast cancer on mammography and is also an independent risk factor for cancer, prompting patient advocacy groups to call for breast density notification as part of screening programs. This survey attempts to understand clinician views regarding breast density notification in the UK.
**Methods:** Two separate breast density surveys were distributed to radiologists and breast surgeons between May 2019 and May 2020. Invited participants were members of the British Society of Breast Radiology and Association of Breast Surgery.
**Results:** 232 completed questionnaires were returned from 109 (71%) surgeons and 123 (41%) radiologists. A fifth of surgeons reported patients ask about breast density. During consultation with women with increased breast density, 31% of surgeons reported routinely discussing reduced mammographic accuracy, 14% discuss increased risk of developing cancer and 20% recommend further imaging. Radiologists displayed a similar preference to discussing risk of 'masking' over risk of breast cancer (69% vs 36%) and 50% recommend further imaging. 52% of surgeons and 28% of radiologists felt women should not be informed of their breast density scores as we cannot facilitate supplementary imaging on the NHS. In terms of choice of supplementary imaging breast surgeons preferred MRI (69%), while the radiologists suggested Digital Tomosynthesis (42%).
**Conclusion:** Almost all respondents of this survey call for guidelines and consensus statements in the reporting and management of UK patients with increased breast density (90%). With patients demanding more involvement in decisions regarding their health, we need to open discussions regarding the appropriateness of our current stance of non-disclosure.

## P035. ANAPHYLAXIS RATE TO BLUE DYES IN SENTINEL LYMPH NODE MAPPING IS 19-TIMES HIGHER IN BREAST CANCER THAN MELANOMA - SYTEMATIC REVIEW AND META ANALYSIS

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**Introduction:** Blue dyes (BD) are widely used to help identify sentinel lymph nodes in oncological surgery. The rate of severe allergic reactions to BD remains a controversial topic, the true incidence and influencing factors uncertain. This study aimed to quantify this rate in sentinel lymph node biopsy (SLNB) for cancer. Secondary outcomes were identification of factors that influence this risk.
**Methods:** Systematic review and meta-analysis were conducted to identify all studies reporting the incidence of severe adverse reactions and anaphylaxis to BD (patent blue, isosulfan blue, methylene blue and indigocarmine), when used for SLNB. Collected data included cancer and dye type, volume and method of injection. Incidence was estimated using the arcsine method of statistical analysis.
**Results:** 109 studies documenting 94 episodes of anaphylaxis in a total of 61,951 SLNB procedures were included resulting in a weighed anaphylaxis rate of 0.061%. SLNB for breast cancer carries an anaphylaxis risk of 0.083% (n=40,268), 19-fold higher than in melanoma surgery (0.0043%, n=12,471). Low dye volume (<2mL) and intradermal injection are both associated with lower rates of anaphylaxis (0.031% and 0.0068%). Isosulfan blue appears the most anaphylactogenic amongst dyes with a rate of 0.16%. No reported cases of death occurred from BD reactions in this cohort.
**Conclusion:** Anaphylaxis to blue dyes is rare. However, a 19-fold higher incidence in breast compared to melanoma surgery may result from larger dye volumes, deep tissue injection and dye choice. Altering practice accordingly may reduce the incidence of anaphylaxis to blue dye in SLNB for breast cancer.

## P036. THE IMPACT OF BREAST CANCER SURGERY ON FUNCTIONAL STATUS IN OLDER WOMEN

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**Introduction:** While surgical treatment for breast cancer has better clinical outcomes, older women may undergo primary endocrine therapy due to concerns around frailty and functional decline. Post-operative decline in functional status (FS) is documented in some cancers, however, the full impact of breast cancer surgery is less understood. A systematic review of the literature was performed to examine evidence for impact of breast cancer surgery on FS in older women.
**Method:** PubMed and Embase databases were searched using the terms: (older OR elderly) AND ('functional status' OR 'physical activity' OR 'activities of daily living' OR ADLs) AND (after OR following) AND 'breast cancer' AND surgery. Eligible studies were performed within the last 10 years; included patients over 65 years old undergoing breast cancer surgery; included stratification of results by age; measured FS pre-operatively and at least six months post-operatively. Meta-analysis was not performed due to heterogeneity of studies.
**Results:** 10 studies including 9014 women were appraised. Two represented level-II and eight level-IV evidence. The studies covered the themes: physical activity, quality of life (QOL), fatigue, cognition. Physical activity was negatively impacted by surgery and this was compounded by extent of surgery. There was conflicting evidence for impact of surgery on QOL, fatigue and cognition.
**Conclusion:** Possibility of a decline in FS should be discussed in all older women considering breast cancer surgery. Structured exercise programs could mitigate negative effects of surgery on physical activity. Further work is required to establish impact of breast cancer surgery on QOL, fatiguability and cognition.

## P037. WHEN IN DOUBT, RAISE DIEP FLAP ON THE LEFT - A CLINICAL STUDY

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**Background:** Our recent radiological study, which compared bilateral deep inferior epigastric perforators (DIEP) size on magnetic resonance angiogram (MRA) and computed tomography angiography (CTA), have demonstrated that perforators on the left side tend to be larger than the right. This study aims to develop a method for measuring perforator size intraoperatively and to examine the correlation between clinical and radiological perforator sizes.
**Method:** DIEP perforator size was measured in 9 consecutive bilateral DIEP free flap breast reconstruction cases. A single operating surgeon measured the diameter of left and right DIEP perforators on MRA/CTA scans. After DIEP perforators were dissected, vessels were rested from handling for at least 10 mins. A 3 mm nylon tape (Ethicon) and a ruler were used to measure the perforator circumference. Perforators diameter was derived from dividing circumference with $\pi$.
**Results:** Independent sample t-test was run to compare the left and right DIEP perforator size. Eight cases were included as one perforator was

damaged during dissection. Mean clinical perforator diameter was 5.25mm (4.46-6.05) on the left, and 4.30mm (3.82-5.41) on the right. Left perforators were significantly larger, M=0.95, 95% CI [0.25,1.66], p=0.012. Linear regression was run to predict clinical perforator size based on MRA/CTA measurements. A significant equation was found, $F(1, 16) = 31.504$, $p < .0005$, $R2 = 0.663$. Predicted intraoperative perforator size = -4.495 + (2.945 x Radiological diameter).
**Conclusion:** Left DIEP perforators are often larger than the right. This knowledge has led us preferentially raise left-sided DIEP if MRA/CTA were unavailable.

## P038. SURGICAL MANAGEMENT OF BREAST CANCER IN WOMEN OVER 90: ARE WE NEGLECTING LOCAL CONTROL IN THIS VERY ELDERLY SUBGROUP?

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**Introduction:** Over 3% of patients diagnosed annually with breast cancer in the UK are aged over 90. An increasing number of these patients are suitable for surgical local control. However, this very elderly subgroup is mostly excluded from trials, and data to inform their care is lacking. We examined our surgical practice in patients over 90.
**Methods:** A retrospective case-note review (and collection of clinico-pathological data) was performed on 32 patients aged 90 years and over who had surgery for non-metastatic breast cancer between 2007 and 2017.
**Results:** Median age was 90 years (range 90-99). Median number of comorbidities was 2 (range 0-6). Mean tumour size was 35mm (range 5-85). Twenty-seven (84%) patients underwent a mastectomy, and 5 (16%) patients had a WLE. Eleven (34%) patients had a SNB, 15 (47%) had an ANC and 6 (9%) had no axillary surgery. Twelve patients (38%) had positive axillary lymph node metastases. No patients suffered significant complications in the immediate post-operative period. Twenty-one patients (66%) had adjuvant endocrine therapy and 9 (28%) had adjuvant radiotherapy. No patients had chemotherapy. Eight (25%) patients developed local or distant recurrence and 21 patients (66%) died. Mean DFS was 46.4 months (95% 31.1-61.7 months) and Mean OS was 45 months (95%CI 31.7-59.7 months).
**Conclusion:** Medically fit patients over 90 with early-stage, nonmetastatic breast cancer may benefit from definitive surgical local and axillary disease control. Our data shows this results in significant age-appropriate disease-free survival with low levels of surgical related complications comparable to that of younger patients.

## P039. THE QUALITY OF LIFE (QOL) FOLLOWING BREAST SURGERY IN FEMALE-TO-MALE (FTM) PATIENTS WITH GENDER DYSPHORIA

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**Introduction:** Gender dysphoria (GD) is the feeling of conflict between one's gender identity and their assigned sex. It is a condition recognized by the DSM-V2, associated with an increased risk of suicidal ideation and self-harm, thereby requiring multidisciplinary management. Evidence on the efficacy of mastectomy improving QOL in FtM gender dysphoric patients is building, but currently sparse.
**Methods:** A retrospective, questionnaire-based study was performed using a modified BREAST-Q questionnaire. The questionnaire addressed 3 main components of QOL - breast aesthetic satisfaction, psychosocial, and sexual wellbeing. 220 patients operated on by a single surgeon in Hull University Teaching Hospitals (HUTH), between June 2011 and August 2018, were identified and sent a questionnaire.
**Results:** 71 patients (32%) responded, of the age range 21–56 years (median = 27). All 3 domains of QOL demonstrated high scores. Patient QOL scores were unaffected by (i) waiting times, (ii) when preferred procedure was not done, (iii) differing performed procedures and; (iv) length of stay in hospital (1-2 days vs 3 -7 days). Patients with ruching following surgery had significantly poorer breast aesthetic satisfaction (p=0.04). In patients requiring revision surgery, psychosocial wellbeing was worse (p<0.03); conversely, sexual wellbeing increased as number of follow-up surgeries increased (p=0.02). There was no difference in healing times between procedures.
**Conclusion:** Overall, there was high satisfaction with QOL following treatment at tertiary gender surgical centre in HUTH. Ruching should be avoided/corrected to improve QOL. Furthermore, the relationship between QOL and follow-up surgery was unexpected, thereby, warranting further investigation into its cause.

## P040. EVALUATION OF LONG-TERM OUTCOME FOLLOWING THERAPEUTIC MAMMAPLASTY: THE EFFECT OF WOUND COMPLICATION ON THE INITIATION OF ADJUVANT THERAPY AND SUBSEQUENT ONCOLOGICAL OUTCOME

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**Introduction:** Therapeutic mammaplasty (TM) facilitates large tumour resection whilst maintaining optimal aesthetic outcome. It carries higher wound complication risks, which may delay the initiation of adjuvant therapy. The impact of this delay on oncological outcome requires evaluation.
**Methods:** Data were collected for consecutive patients receiving wise pattern TM at the Leeds breast unit (2009-2017). A prospectively maintained database was used to determine tumour characteristics, complication rates, receipt of adjuvant therapy (radiotherapy or chemotherapy), and breast cancer recurrence or death. Kaplan Meier survival analysis was performed.
**Results:** 114 patients (median age 54 years old) underwent TM. The commonest histological subtypes were IDC (61.7%), ILC (13%), and DCIS (13%). 88.2% had ER+ cancer and 14% had HER2+ cancer. 26.3% had multifocal cancer. The median whole tumour size was 30mm. The median Nottingham Prognostic Index was 4.2. The local recurrence rate was 4.4% (median follow up 6.1 years). The 5-year disease free survival (DFS) and breast cancer-specific survival (BCSS) was 90% and 94% respectively. Wound complication rate was 21% (n=24); the commonest were wound infection (11.4%; n=13) and T-junction breakdown (10.5%; n=12). Due to complications, 6 patients (5%) required further surgery. Patients with complications commenced adjuvant therapy 23 days later on average. However, this delay did not affect DFS or BCSS (Log-rank test; p=0.84 and p=0.11 respectively). This was confirmed on multivariate Cox regression analysis.
**Conclusion:** Our results demonstrate the oncological safety of TM. Although complications led to a modest delay in the initiation of adjuvant therapy, this did not affect oncological outcome.

## P041. SYSTEMATIC REVIEW OF SURGICAL AND PATIENT REPORTED OUTCOMES OF NEOADJUVANT ENDOCRINE THERAPY FOR BREAST CANCER

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**Introduction:** Neoadjuvant endocrine therapy (NET) represents a treatment option for downstaging in postmenopausal women with ER-positive early breast cancer. It is available where chemotherapy is not indicated or not judged to be of benefit, and NET produces equivalent clinical and radiological responses to neoadjuvant chemotherapy but with lower toxicity. However, comparison of NET to standard of care surgery first followed by adjuvant therapy is less clear, particularly in relation to surgical outcomes including breast-conservation, re-excision and positive margin rates, quality of life (QoL) and recurrence.
**Methods:** A systematic review following PRISMA guidelines to evaluate the effect of NET on surgical outcomes QoL and recurrence (Prospero registration ID: CRD42020209257). We searched PubMed and EMBASE to

identify clinical trial and cohort studies between 1946 to 05/10/2020. Identified records were manually screened by title, abstract and full-text review by two independent reviewers. Data extraction will be conducted using a pre-piloted data collection tool. Risk of bias will be assessed using Cochrane Collaboration tools.
**Results:** The search identified 2368 articles. After removing duplicates, 1610 articles were eligible for title screening. Title screening resulted in 323 articles eligible for abstract screening and 35 eligible for full-text review. Eight papers were identified by reference checking, and in total 23 papers were eligible for final review. Data extraction and evidence synthesis is currently in progress.
**Conclusion:** Understanding surgical and patient-reported outcomes with NET may impact surgical practice. The evaluation of current evidence will also inform future trials assessing the impact of NET on surgical outcomes and QoL.

## P042. BREAST CANCER MANAGEMENT IN OVER 70s - A SINGLE CENTRE REVIEW

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**Aim:** The national audit of breast cancer in older patients (NABCOP) was established in 2016 to evaluate age disparity in the care received by women diagnosed with breast cancer in NHS hospitals. Our aim is to evaluate the process and outcomes for women aged 70 and older, diagnosed with breast cancer in a single centre, compared to NABCOP 2020.
**Methods:** All consecutive women aged 70 or over diagnosed with breast cancer, from 2016 - 2019 were reviewed. Data was collated from an institutional database. Patients with metastatic disease at time of diagnosis, previous diagnosis of breast cancer or a concomitant primary malignancy were excluded.
**Results:** A total of 298 patients aged 70 or over were included in the data, comprised of 5.4% ductal carcinoma in situ (DCIS) and 95.3% early invasive breast cancer (EIBC). Screening as a route to diagnosis was noted in 15.1%. A larger proportion of patients received triple diagnostic assessment on a single visit (100% vs 68%) and reported contact with a clinical nurse specialist (100% vs 96%). The proportion of women with operative management in both the EIBC and DCIS group was higher than NABCOP (72.5% vs 71% and 87.5% vs 82% respectively). 15.4% of patients did not undergo surgery through personal choice.
**Conclusions** Overall, we found that our operative statistics and treatment allocations matched and exceeded those stated in the NABCOP. Routes to diagnosis followed the expected pathways. Recommendations for ongoing practice included the incorporation of preoperative frailty.

## P043. IMPACT OF COVID-19 PANDEMIC ON OUR BREAST CARE SERVICES

Samreen Khan, Steven Goh. *Peterborough City Hospital, Peterborough, United Kingdom*

**Background:** Our breast unit treats around 500 new breast cancers in a typical year. We assessed the changes brought about to our service provision as a result of the COVID-19 pandemic.
**Materials and Methods:** Retrospective audit on data collected prospectively between April and September 2020. Outpatient attendance and surgical procedures were compared to data from the same interval in 2019.
**Results:**

| | April - Sept 2019 | April - Sept 2020 |
|---|---|---|
| Number of operations | 370 | 185 |
| Mastectomy : BCS ratio | 30 : 70 | 40 : 60 |
| Number of outpatients | 6231 | 5066 |
| New symptomatic cancers | 130 | 139 |
| Number of patients screened | 8636 | 1912 |
| New screen detected cancers | 60 | 25 |

Essential cancer service was maintained at 60% capacity at the onset of the lockdown, between April to June 2020. Our workload returned to near pre-pandemic level from July 2020. Oncoplastic procedures were reintroduced from August 2020.
**Conclusion:** The number of new symptomatic breast cancers diagnosed in the study period was comparable to the previous year. Despite a reduced service, there is minimal backlog of new cancer patients awaiting surgery. Some patients were denied immediate breast reconstruction in the beginning of the pandemic, and these will need to be rescheduled. Adjusted referral criteria for adjuvant treatment meant few patients did not receive radiotherapy, and others have had a reduced therapeutic dose. The potential longer term repercussions of these changes are yet to be seen. Further studies will be needed to evaluate true impact of the pandemic.

## P044. COVID-19 AND PERIOPERATIVE OUTCOMES AFTER BREAST RECONSTRUCTION DURING THE SARS-COV-2 PANDEMIC: A PROSPECTIVE COHORT STUDY

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**Introduction:** Surgical guidelines have been altered in light of the SARS-CoV-2-pandemic. In March 2020, these guidelines advised against all breast reconstruction in the United Kingdom with the aim of protecting patients and resources. As breast reconstruction is regarded as integral to breast cancer recovery, rapid but safe reintroduction is a priority. We present a study that describes how breast reconstruction was reintroduced and benchmark peri-operative outcomes during the first wave recovery phase in a large UK Cancer Centre.
**Methods:** Local audit committee approval (ID: BR_2021_169). Prospective cohort study of patients undergoing autologous or implant +/- Acellular Dermal Matrix (ADM) breast reconstruction between June 1st and August 31st, 2020. We defined a composite primary outcome to include positivity for COVID-19, adverse pulmonary outcomes, clinically manifest thromboembolism or mortality.
**Results:** Fifty breasts were reconstructed in 42 patients (62% autologous; 38% implant-based). This represents a 40% reduction in activity when compared with the same timeframe for 2019. All tested negative for COVID-19 based at pre-operative clinical screening and by RT-PCR swabs for COVID-19 RNA 72 hours prior to surgery. No patients were diagnosed with COVID-19, experienced adverse pulmonary or clinically manifest thromboembolic outcomes or died within 30-days post-operatively. There were no cases of flap or implant loss and the return-to-theatre rate was 2%.
**Conclusions:** Our data show that both autologous and implant-breast reconstruction can be performed safely with low risk of post-operative COVID-19 infection when performed within a COVID-19-protected pathway and should continue to be offered to women undergoing mastectomy at this time.

## P045. SHOULD AN MDT BE RECOMMENDING CHEMOTHERAPY IN THE ABSENCE OF A GENOMIC ASSAY IN ER POSITIVE, HER2 NEGATIVE BREAST CANCER PATIENTS?

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**Introduction:** National guidelines (NICE) approve the use of genomic assays to advise adjuvant chemotherapy use in addition to endocrine therapy in lymph node-negative, ER positive, HER2 negative breast cancer patients, who have an intermediate risk of distant recurrence via Nottingham Prognostic Index (NPI) and/or PREDICT.
**Methods:** Prospectively collected databases held locally in Swansea and Oxford were collated and retrospectively reviewed comparing the MDT

intended management prior to Oncotype DX Recurrence Score® testing and actual management with knowledge of the RS® in patients treated for ER positive HER2 negative breast cancer between 1/1/2013 and 31/12/19. Patients with micrometastases were reviewed as lymph node negative.

**Results:**

ET denotes endocrine therapy.

| **Total Population** | **n=442** |
|---|---|
| Management Impacted | 251 (57%) |
| Planned ET alone | 126 (29%) |
| Actual ET alone | 176 (52%) |
| **Node-Negative** | **n=341** |
| Management Impacted | 176 (52%) |
| Planned ET alone | 125 (37%) |
| Actual ET alone | 245 (72%) |
| **Node-Positive** | **n=101** |
| Management Impacted | 75 (74%) |
| Planned ET alone | 1 (1%) |
| Actual ET alone | 74 (73%) |

An NPI >3.4 and <5.4 correlates to intermediate recurrence risk.

| Node-Negative, NPI<3.4 | n=58 |
|---|---|
| Management Impacted | 20 (34%) |
| Planned ET alone | 46 (79%) |
| Actual ET alone | 50 (86%) |
| Planned ET escalated to ET + Adjuvant Chemotherapy | 8 (17%) |

**Conclusions:** A significant management impact was observed, reducing use of adjuvant chemotherapy within both node-negative and node-positive patients. Additionally, several patients deemed ineligible for assay use under current guidelines due to low NPI scores had their treatment escalated as a result of concerning tumour genomics. Further analysis regarding the suitability of NPI as a gatekeeper of genomic assay use is required.

## P046. RADIOFREQUENCY SEEDS COMPARED WITH WIRE-GUIDED LOCALISATION FOR OCCULT BREAST LESIONS: INITIAL EXPERIENCE

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**Introduction:** Wire guided localisation (WGL) has been the mainstay for localisation for clinically occult breast lesions, though scheduling issues remain, particularly during covid-19. Hologic LOCalizer uses radiofrequency seeds (RFS) which can be inserted into the breast any time before surgery. We aim to demonstrate the feasibility of RFS localisation in our unit.

**Methods:** Retrospective study of all breast lesions operated with RFS or WGL between March 2020 and November 2020. Demographics, clinical characteristics and outcomes were measured. Positive radial margin was defined as tumour <1mm from ink. Surgeons and radiologists did not change. Statistical comparisons were made using X2-squared analysis or unpaired two-sample t-test. Significance was determined to be at $p \leq 0.05$.

**Results:** There were 19 RFS and 38 WGL procedures performed. No significant differences were noted in baseline demographics. Mean total histological tumour size was 15mm in the RFS group and 18mm in the WGL group (p 0.139), while mean total specimen excision weight was 52.3 grams vs. 51.4 grams, respectively (p.0.988). No significant differences were noted in tumour grade or receptor subtype. Close margins were present in 15.8% of RFS group and 18.4% of WGL group (p.0.805). No significant difference was noted in the operative time between the two techniques (RFS 59.2 mins vs. WGL 59.9 mins, p. 0.911).

**Conclusion:** Our initial experience demonstrates RFS to be safe and accurate with comparable surgical endpoints to WGL. Operative scheduling was simplified, while rates of close margins were similar to those seen after many years of experience with WGL.

## P047. DRAIN USAGE AND ASSOCIATED COMPLICATIONS IN MASTECTOMIES AND AXILLARY CLEARANCE DURING THE 2020 COVID-19 PANDEMIC

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**Introduction:** During the COVID-19 pandemic, NHS hospitals were advised to suspend all non-urgent elective surgery from April 15th. Urgent cancer treatment continued unaffected, with extra capacity provided within private sector hospitals. Research has shown drain usage is controversial in breast surgery. Consequently, drain usage was discouraged, aiming to reduce face-to face contact. We examined seroma and haematoma rates in postoperative patients undergoing procedures where drains would normally be placed, alongside the prevalence of ongoing drain utilisation during this period.

**Method:** All operations performed during the COVID-19 pandemic between the 15/4/2020 and the 3/7/2020 were identified. Patients undergoing mastectomy and/or axillary clearance were identified, with operation notes and follow up letters reviewed until 6 weeks post procedure. Rates of seroma and haematoma requiring intervention in patients who had and hadn't had drains inserted were compared using a chi-squared test.

**Results:** 22 patients had mastectomies during this time (with 3 additionally having an axillary clearance). Drains were used in 15 patients. Of those with a drain, 1 required intervention for seroma/haematoma (6.7%), compared to 3 without drains (42.9%, p= 0.04).

**Discussion:** In a small sample size, a seroma/haematoma rate of 45% (10 patients), was found amongst patients having mastectomies. However, of these only 4 required intervention. Evaluation of the results showed there is a statistically significant difference between the need for intervention for those with and without drains. As a result, since the pandemic first wave, most surgeons within our unit have reverted to the use of drains in higher risk procedures.

## P048. IS MAGSEED AN ALTERNATIVE TECHNIQUE OF LOCALISATION OF IMPALPABLE BREAST LESIONS? A SINGLE CENTRE EXPERIENCE

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**Introduction:** In breast conserving surgery, precise localisation of impalpable lesions is crucial and using traditional guidewires has many limitations, which Magseed localisations may overcome. This study aims to evaluate precision of Magseed placement, conversion to wire localisation, intra-operative Magseed detection with excision of index lesion and re-excision rates at University Hospitals of Morecambe Bay.

**Methods:** A retrospective study of 136 women who underwent Magseed localisation of impalpable lesions from November 2018 to February 2020 was undertaken. Approval from Trust audit department was sought prior to accessing electronic patient records and PACS. Grossly inaccurate Magseed, which precluded safe excision, were excluded. Simple descriptive summary statistics and correlation analysis was used for each outcome.

**Results:** A total of 149 Magseeds were inserted 1-29 days preoperatively (median 8 days) in 136 women. Seven patients underwent bilateral seed placement and six patients required bracketing with Magseeds for multicentric disease. The accuracy of Magseed placement was 85.9% (n=128). Ultrasound guided localisations (n= 65/68, 95.5%) were more accurate than stereotactic localisations (n= 66/81, 81.4%). Twenty-one were converted to wires due to inaccurate deployment (n=17, 11.4%) and preoperative percutaneous detection failure (n=4, 2.6%). Index lesion was

successfully excised in 99.2% (n=127). Complete excision of lesion with clear margin achieved in 84.3% (n=108) and re-excision rate was 14.8% (n=19). Magseed retrieval rate was 99.35% (n=148).
**Conclusion:** Magseed is a safe and reliable technique with comparable outcomes to wire localisations. Ultrasound guided localisation was more accurate and a definite learning curve was recognised to optimise outcomes.

## P049. HOW COMMON IS UPGRADE FROM DUCTAL CARCINOMA IN SITU (DCIS) TO INVASIVE CARCINOMA FOLLOWING MASTECTOMY FOR DCIS ONLY?

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**Background:** According to NICE guidelines patients who are having mastectomy for DCIS should be offered sentinel lymph node biopsy (SLNB). The aim of our study was to investigate the incidence of upgrade from DCIS to Invasive carcinoma (IC) in the final post mastectomy histology and the proportion of patients who have a positive SLNB.
**Methods:** We conducted a retrospective review analysing patient with DCIS who underwent total mastectomy over the last 10 years. Information was obtained from Somerset cancer database and the hospital clinical web portal.
**Results:** In all 145 patients were identified with pre-mastectomy diagnosis of only DCIS either on core biopsy or excision biopsy. The mean age was 57.5 years (range 26-85). Five patients underwent mastectomy due to incomplete excision margin, 3 patients had recurrent DCIS and the rest underwent mastectomy due to the extent of disease or patient's choice. SLNB was performed in 128 patients (88.2%). 17 patients did not have SLNB. Post-mastectomy histology showed invasive carcinoma in 37 patients (25.5%). 5 out of 37 (13.5%) invasive cancer patients had positive SLNB. Overall, 3.9% of patients (5/128) who had mastectomy for initial diagnosis of DCIS had positive SLNB.
**Conclusions:** In our cohort nearly 90% of patients having mastectomy for preoperative diagnosis of DCIS had SLNB. The incidence of upgrade to invasive carcinoma occurred in 1 in 4 cases (25.5%). SLNB was positive in 1 in 25 patients. This information is vital in preoperative counselling and consenting process.

## P050. BREAST CANCER MANAGEMENT DURING A PANDEMIC: A DGH EXPERIENCE

Anu Sandhya, Helen Dent, Tania De Silva. *East Surrey Hospital, Redhill, United Kingdom*

**Introduction:** COVID-19 has put a strain on regular healthcare worldwide. The delivery of breast cancer care has changed significantly to reduce the risk of transmission of COVID-19 and immunosuppression secondary to cancer treatment. This study shares a DGH experience of the effect of covid-19 on decision making in breast cancer treatment during the pandemic and a description of novel ways of service delivery to reduce the delay in treatment.
**Methods:** This is a single centre retrospective cohort study. Patients referred under TWR from 16th March to 15th July 2020 were included. We triaged our patients using telephone consultation and utilised the local temporarily closed screening centre for symptomatic patient triple assessment. Cancer surgery was delivered in a regional cold site where patients and staff were Covid tested. We referred to national ABS guidelines in our treatment decisions. The primary outcome was changes in treatment pathway for cancer patients. Secondary outcomes were number of patients referred, cancers diagnosed, and breaches in 62 day pathway.
**Results:** 1231 symptomatic patient were referred under TWR of which 91 patients were diagnosed with breast cancer. 10 patients had bridging endocrine and a further 10 were denied immediate reconstruction. 14 patients had short course radiotherapy rather than the conventional protocol. There were 22 breaches in the 62-day pathway.
**Conclusion:** COVID-19 changed our practice but we were able to continue to offer cancer services throughout the pandemic, without significant delays. The long term effects of these changes in the treatment pathway have yet to be determined.

## P051. FLUORESCENCE GUIDED SURGERY IN BREAST CANCER: A SYSTEMATIC REVIEW OF THE LITERATURE

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**Introduction:** Fluorescence Guided Surgery (FGS) is a novel technology, which uses a fluorescent probe to illuminate tumours in the infrared spectrum, thus aiding localization and resection. FGS has particular potential in surgeries where the diseased tissue needs to be resected without taking a surplus of surrounding healthy tissue, as in breast conserving surgery (BCS). In this systematic review, we evaluated all fluorophores trialled in-vivo for fluorescence guided BCS.
**Method:** A literature search was performed using Embase, Medline, Scopus, and Web of Science databases for all relevant studies up to June 2019. MESH terms used were "surgery" AND "cancer" AND "fluorescence" AND "near infrared". For each fluorophore identified, the pharmacological characteristics, target, sensitivity, specificity, tumour background ratio, and safety profile were assessed.
**Results:** A number of exogenous have been trialled for FGS in human breast cancers (Table 1). ICG and MB are non-specific, whereas the remaining fluorophores actively target specific overexpressed receptors or enzymes. Bevacizumab-800 and LUM015 have exhibited the greatest efficacy. All drugs were available as intravenous formulations given preoperatively. Minor transient adverse events (nausea, hypotension, pruritus) but no severe adverse events were reported.

**Table 1**

| Fluorophore | Target | Patient Number | Dose (mg/kg) | Tumour Background Ratio | Sensitivity (%) | Specificity (%) | Study |
|---|---|---|---|---|---|---|---|
| AVB620 | Matrix metalloproteinases | 15<br>12 | 1-16*<br>8* | 0.6-1.9 | N/A | N/A | Unkart 2017 |
| Bevacizumab-800 | Vascular endothelial growth factor (VEGF a) | 19<br>26 | 4.5<br>4.5-50 | 1.8-9<br>1.79-3.07 | 98<br>87.5 | 79<br>88.9 | Koch 2017<br>Koller 2018 |
| EC17 | Folate receptor | 3 | 0.1 | 2.3 | 100 | N/A | Tummers 2016 |
| Indocyanine Green (ICG) | Systemic vasculature | 3<br>9 | 0.25 | N/A<br>3.3 | N/A<br>94.2 | N/A<br>31.7 | Intes 2003<br>Veys 2018 |
| LUM015 | Cathepsin | 10 | 0.5-1 | 2.05 | N/A | N/A | Smith 2018 |
| Methylene Blue (MB) | Systemic Vasculature | 24 | 1 | 2.3-2.6 | 83.3 | N/A | Tummers 2014 |

**Conclusion:** In this review of fluorophores used in FGS for BCS, reviewed studies are largely phase 1-2. Poor tumour identification was observed in certain agents either due to limited expression of the target or the overlapping illumination spectra of the fluorophore and breast tissue. Well-powered clinical trials are required prior to adoption in the clinical setting.

## P052. FEASIBILITY AND SAFETY OF BREAST CANCER SURGERY DURING THE SARS-COV-2 PANDEMIC

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**Introduction:** During the SARS-CoV-2 pandemic, services in the NHS were re-configured including cancer surgery. We present our experience in breast cancer surgery performed at the private hospital considered as a COVID-19 free hub to cope with limited resources and the acute hospital.
**Methods:** An observational study of patients undergoing breast cancer surgery during the pandemic between March 17th, the first case of COVID-19 in hospital, and June 30th.

**Data collected:** Demographics, co-morbidities, type of operation, pre and post op COVID status, post-operative complications. Patients were followed up 2 weeks post-operatively via telephone conversation or clinic appointment. Screening protocols included CXR &/or swabs.
**Results:** 117 patients (pts) of which 41pts (35%) were operated on at the acute hospital and 76pts (65%) at the private hospital. One male patient and the median age was 59 years (36 - 89). 35pts (30%) were ASA 1, 78pts (67%) ASA 2, 4pts (3%) ASA 3. None of the patients had COVID-19 related symptoms or re-admissions in the 2 weeks post-surgery. One post-neoadjuvant chemotherapy patient had SARS-CoV-2 positive swab test pre-operatively, another patient had typical radiological changes of COVID on staging CT but consecutive negative swabs. Both patients were postponed for 4 weeks then achieved 2 negative swab results and resolution of CT changes. Trainees were involved in the majority of operations on both sites minimising the impact on training.
**Conclusion:** In our experience breast cancer surgery during the COVID-19 pandemic has been demonstrated to be safe and not training averse. It eliminated any backlog and limited potential consequences.

## P053. PROSPECTIVE SINGLE-CENTRE QUALITATIVE SERVICE EVALUATION ON MAGSEED FOR WIDE LOCAL EXCISION

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Magseed is an effective non-inferior alternative to wire guidance (WGL) that enables intraoperative localisation of tumours during breast conserving surgery (BCS). The COVID-19 pandemic has necessitated a Magseed pathway in our hospital to enable patients to self-isolate pre-operatively. Previous studies have not evaluated patient experience; thus, here we report the qualitative data on patients' perspectives regarding Magseed. A prospective service evaluation of BCS patients was conducted between 1st July 2020 and 1st December 2020 (Audit Committee Approval Registration No 410). Data was collected on patient demographics, tumour specification, and procedural outcomes. Qualitative results were obtained using binary outcomes and 10-point Likert scales. 41 women were included, with median age 62 years (IQR 53-69) and median BMI 27.3 kg/m2 (IQR 22.6-30.8). 29 patients had IDC, 5 had other invasive carcinomas, 4 had preinvasive disease, and 3 had benign lesions. 25 patients were ER+, 21 PR+, 3 HER2+, and 1 was triple negative. Median waiting time between insertion and operation for Magseed was 13 days (IQR 4-119). 11 patients had close margins, 6 of whom required re-operative intervention. 1 (2.4%) seed was misplaced, 4 (10%) found the procedure uncomfortable, and 2 (5%) had complications (1 difficult insertion, 1 developed pain). All excisions had successful retrieval. After an explanation of Magseed and WGL techniques, 43/49 (88%) patients said they preferred the Magseed approach. Magseed localisation methods are acceptable to staff and patients based on our prospective service evaluation. Magseed enables pre-operative self-isolation in the era of Covid-19 in view of safer surgical outcomes.

## P054. RETROSPECTIVE AUDIT OF IMPLANT SALVAGE USING PERI-PROSTHETIC IRRIGATION SYSTEM AND CONVENTIONAL WASH OUT IN IMMEDIATE BREAST RECONSTRUCTION

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**Introduction:** Implant related complications leading to implant loss are a major morbidity in immediate breast reconstruction (IBR). Various techniques have been advocated to improve implant salvage. The objective of our study was to assess if the peri-prosthetic irrigation system is an effective adjunct to conventional technique of wash out in improving implant salvage.
**Methods:** The study included patients undergoing implant reconstruction from January 2015 to November 2020. Conventional technique of implant wash out and exchange with systemic use of antibiotics was used until May 2019. Following that, peri-prosthetic irrigation with Vancomycin (1g/L normal saline over 24 hours) for 2 days was added as an adjunct. Treatment details and clinical outcomes were compared between the groups. The study was submitted to the audit department and approval was obtained.
**Results:** During the study period 335 patients underwent IBR. Sixty-five patients (19.4%) returned to theatre due to post-operative complications of which 45 (13.4%) were due to infection. Conventional technique was used in 38 (84.4%) patients and peri-prosthetic irrigation was used as an adjunct in 7 patients (15.6%). Sixteen (42.1%) in conventional group and all 7 (100%) in the irrigation group had successful implant salvage. No patients had complications due to antibiotic irrigation.
**Conclusion:** Peri-prosthetic irrigation system is a simple, safe and an effective adjunct to conventional techniques in improving implant salvage in IBR.

## P055. THE EFFECTS OF THE COVID-19 PANDEMIC ON BREAST CANCER SERVICES AT A TERTIARY UNIVERSITY HOSPITAL

Aonghus Ansari, Mini Sardar, Tim Rattay, Ahmed Gaber, Monika Kaushik. *Glenfield Hospital, Leicester, United Kingdom*

**Introduction:** The COVID-19 pandemic significantly impacted the treatment of breast cancer. Management deviated from standard practice. The Association of Breast Surgery (ABS) advised - aim for day case surgery with priority given to: estrogen receptor (ER)-ve, HER2+ve, and pre-menopausal ER+ve patients. Neoadjuvant chemotherapy was advised for inoperable disease only. Oncoplastic procedures and breast reconstruction was not advised. ER+ves were to be considered for bridging endocrine treatment. We audited this change in practice.
**Method:** Prospective audit of patients with breast cancer seen at University Hospitals of Leicester under the implemented ABS recommendations from March to July 2020.
**Results:** 110 patients were seen. Median age was 63yrs. 79 were post-menopausal. 27 patients had Grade 1 (low if DCIS), 60 had Grade 2(low if DCIS) and 22 patients had Grade 3 (high if DCIS) tumours. 91 patients were ER+ve, 9 HER2+ve. 38 patients received standard management, 72 patients received altered management. 58 had bridging endocrine therapy (Median length of days 68). 60 patients had delayed surgery (>31 days from diagnosis). 6 patients eligible for immediate reconstruction underwent mastectomy without reconstruction. 5 patients had altered adjuvant radiotherapy (hypofractionation: 5 Fractions) and 1 patient suitable for adjuvant chemotherapy was not offered it.
**Conclusion:** 70.9% of our patients received altered management. The impact in delays of breast cancer surgery on survival remains unknown. It will be worthwhile to follow these patients long term to see the effects of these changes.

## P056. AUDIT ON RECORDING POST-OPERATIVE COMPLICATIONS IN BREAST SURGERY

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**Introduction:** Post-operative complications rate is used as a marker of quality assurance in surgery. Association of Breast Surgery (ABS) oncoplastic surgery guidelines recommend accurate recording of post-operative complications. We noted that our local practice relied on documenting readmissions and reoperations for clinical governance meetings, which may have under-reported complications managed purely as outpatients. Hence, we introduced a complications' register and audited the outcome.
**Materials and methods:** We introduced a register in the outpatients' clinic in a single breast unit and informed all clinical staff to record postoperative complications. The audit was registered with the audit department of our trust. Data was recorded prospectively from 1st June 2018 to 30th June 2019. The results were compared with the true incidence by retrospective review of clinic letters and theatre records. Compliance to the register was evaluated. Rates of postoperative complications were also noted.

**Results:** We noted 78% compliance with the complications register. Out of 544 breast cancer operations, recorded complications included 99 (18%) seromas requiring aspiration, 48 (8%) superficial infections, 9 (1.6%) deep infections, 19 (3%) hematomas, 4 (0.7%) cording and 1 (0.2%) deep vein thrombosis. Most of the complications (96%) were managed as an outpatient with only 4% requiring surgical or radiological intervention.
**Conclusion:** Accurate recording of the post-operative complications in surgical practice is essential for good clinical practice. This can then be used for reflection, further studies and development of local guidelines to enhance the quality of services. We aim to further improve compliance on the described methodology.

## P057. THE IMPLEMENTATION OF ONCOTYPE DX SCORE ON MDT DECISION MAKING - A SERVICE EVALUATION

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**Introduction:** The Oncotype Dx recurrence score (RS) predicts chemotherapy benefit based on the 21-gene breast cancer assay. We set out to evaluate the implementation of the Oncotype Dx score on MDT decision making and to investigate its' impact on our service.
**Methods:** A service evaluation was performed from electronic patient records between February 2017-September 2020 looking at patient and tumour characteristics for those patients, who have had an Oncotype Dx gene assay.
**Results:** 114 tumours in 98 patients were analysed with 2 patients excluded due to nodal macro-metastases. The mean age was 53 years with average tumour size of 27 mm. 28/96 patients (29%) had a high Oncotype Dx RS (>25) and 68/96 (71%) had a low RS (<25). 19/101 tumours (19%) were invasive lobular carcinomas with 18 out of 19 (95%) having a low RS; compared to 49/76 invasive ductal carcinomas (64%) with a low RS. Out of 96 patients, 35 patients had Grade 2 cancers, 59 were Grade 3 and 2 were mixed. 34/35 Grade 2 tumours (97%) had a low RS, compared to 32/59 (54%) Grade 3 tumours. Nearly all premenopausal patients (88%) with PREDICT score <3% had low RS.
**Conclusions:** Approximately 1 in 3 patients tested locally had a high RS and therefore were likely to receive chemotherapy. Grade 2 and lobular cancers were associated with low RS, possibly eliminating the need for Oncotype DX testing in these patients. A bigger dataset and comparison to other health boards is required in order to draw further conclusions.

## P058. RADIOFREQUENCY IDENTIFICATION (RFID) TAG LOCALISATION OF NON-PALPABLE BREAST LESIONS: EARLY EXPERIENCE IN A LARGE UNIVERSITY HOSPITAL

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**Introduction:** Radiofrequency identification (RFID) tag (Hologic) is a new alternative method of localising non-palpable breast lesions. It is a nonradioactive inducible seed that can be visualised on mammography and ultrasound. The LOCalizer™ device is used for intraoperative localisation of the tag.
**Aim:** to evaluate this new technique introduced recently in our department.
**Methods:** This is a prospective study of all patients who underwent preoperative localisation of the impalpable breast lesions using the RFID tag in our centre between December 2019 and March 2020.
**Results:** 17 cases underwent Hologic localisation for non-palpable breast lesions. Patients' mean age was 62 years with mean BMI of 26.5. Most of these cases 14 (82.4%) had only one seed for localisation while three cases (17.6%) had two seeds (2 for bracketing, and 1 with 2 lesions). Altogether, there were 20 Hologic localisations, out of which 12 were localised via stereotactic guidance while the remaining 8 were localised using ultrasound. Four cases (23.5%) needed re-excision of the margins. The size of the index lesion removed, and the weight of the specimen was 15.1mm and 56.9 gms respectively.
**Conclusion:** We found that this new technique of localising breast lesions is simple and can be utilised easily through small surgical incisions intraoperatively without interference from the other metals in the surgical field. However, there was a higher rate of re-excision of margins, which could be because of lack of sensitivity of the probe for 360º side sensing. Further study is needed with a large number for more evaluation.

## P059. MANAGEMENT OF BREAST CANCER IN OLDER PATIENTS: A COMPARISON WITH THE NATIONAL AUDIT OF BREAST CANCER IN OLDER PATIENTS (NABCOP)

Lauren Sommereux, Jarin Noronha, Ioannis Moutsos, Lee Martin. *Aintree University Hospital, Liverpool, United Kingdom*

**Introduction:** Breast Cancer is the most common cancer in women in England with one third of patients over the age of 70. Surgery has a survival benefit compared to primary endocrine treatment but older patients are not always offered an operation. The aim was to compare a local service against the standard of the National Audit of Breast Cancer in Older Patients (NABCOP).
**Methods:** This retrospective audit was performed at a University Hospital in Liverpool in patients aged >70 years diagnosed with breast cancer during 2018 and 2019. TMN status, histology, surgical management and adjuvant treatment plans were collated.
**Results:** Our cohort consisted of 176 patients with a median age of 80 years (range 70-95). Of these, 10 patients had only DCIS and 166 had invasive breast cancer. 80.7% had early invasive (Stage I - IIIA), 10.9% had advanced disease (Stage IIIB, IIIC) and 8.4% presented with de novo metastases. Of the invasive breast cancers, 86% and 87% were ER+ and HER2-ve, respectively. 79.1% of patients received surgery for early invasive cancer compared to the national outcome of 75% reported by NABCOP. 98.7% of patients received radiotherapy after breast conserving therapy where 89% received this in NABCOP. 100% of patients had a nurse specialist throughout their treatment.
**Conclusion:** The results demonstrate successful outcomes for older patients diagnosed with breast cancer in Liverpool. Further review of functional status patients and service indicators like the number of triple assessments performed the same day is required.

## P060. EXPLORING BEST PERI-OPERATIVE PRACTICE FOR IMPLANT-BASED BREAST RECONSTRUCTION: FURTHER ANALYSIS FROM THE IBRA PROSPECTIVE MULTICENTRE COHORT STUDY

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**Background:** The iBRA study highlighted high rates of infection, readmission and reoperation in women undergoing implant-based breast reconstruction (IBBR). This analysis aimed to explore the impact of modifiable perioperative factors on i) infection and ii) readmission/reoperation to investigate current best practice for IBBR.
**Methods:** The association between variables hypothesised to influence infection and/or readmission/reoperation rates following IBBR and these outcomes in the iBRA cohort were explored using univariable and multivariable regression models. Variables of interest included use of laminar flow (yes/no); antibiotics (single dose/>1 dose); operation duration; skin prep (iodine/chlorhexidine/2% chloroprep/other); implant size (<500cc/>500cc); pocket-washing (yes/no); incision (nipple-sparing/nipple-sacrificing/Wise-pattern) and axillary surgery (sentinel node/axillary clearance/none).

**Results:** Of the 2108 women undergoing IBBR, 522 (25%) experienced infection and 372 (18%) required reoperation/readmission for complications at 3 months. Infection was associated with increasing operation duration (odd ratio (OR) 1.003, 95% confidence interval [CI] 1.001-1.005/minute), implant size>500cc (OR 1.77, 95% CI 1.25-2.5) and Wise-pattern incisions (OR 1.57, 95%CI 1.40-2.50) in the univariable analysis, but no associations were seen when all factors were combined in a multivariable model. Readmission/reoperation was associated with increasing operation duration (OR 1.003,95%CI 1.001-1.005/min) and reduced in nipple-sacrificing (vs nipple-sparing/wise-pattern) procedures (OR 0.75, 95%CI 0.56-0.99). In the multivariable model, however, only extended antibiotic use (>single dose, OR 0.49, 95%CI 0.32-0.75) and operation duration (OR 1.004, 95%CI 1.001-1.007/min) remained associated with readmission/reoperation.
**Conclusions:** Readmission/reoperation rates may be reduced by decreasing operative time and giving extended perioperative antibiotics. This analysis is exploratory and further work is now needed to confirm these findings.

## P061. SAVI SCOUT LOCALIZATION OF BREAST AND AXILLARY LESIONS, OUTCOME OF SINGLE INSTITUTE EXPERIENCE

Raja Eid, Geraldine Mitchell, Ian Whitehead, Matthew Rowland, Julia Henderson. *Royal Liverpool Hospital, Liverpool, United Kingdom*

**Background:** Breast cancer is common. Screening programs aid early detection. Several methods exist to aid surgeons precisely identify impalpable lesions. The aim of this study was to evaluate the feasibility of SAVI SCOUT localization method using RADAR Nitinol reflector for localization of impalpable breast lesions and aid targeted axillary dissection.
**Methods:** Prospective cohort study in a single tertiary teaching hospital. The evaluation focused mainly on seed placement, ability of the surgeon to accurately identify and excise the lesion. Workflow efficiency in terms of timing of reflector placement, operative time, re-operation rates. In addition to patient acceptance.
**Results:** SAVI SCOUT reflectors (n=38) were deployed to localize 33 Occult breast lesions and two axillary lymph nodes in 34 patients. To date 20 Patients had SAVI SCOUT guided excision of breast lesion, one Patient had axillary reflector placement to aid targeted axillary dissection. The majority of reflectors were placed a week before surgery, no localization delay on the morning of surgery was recorded. Recently 4 patients have had the localizer placed at time of breast biopsy. Radiologists did not experience any difficulty with deployment. No migration of the reflector was seen. Surgeons identified the reflector in the excised specimen in all cases. No increase in operative time was noted. Three patients require reoperation for positive DCIS surgical margins (1 involved, 2 < 1mm) Radiologists, surgeons and patients were satisfied with the technique.
**Conclusion:** SAVI SCOUT is an accurate, reliable, acceptable localization technique that improves radiology work flow, potentially reducing hospital visits, promoting theatre efficiency and enhancing outcomes

## P062. THE USE OF RADIOFREQUENCY TAG LOCALIZATION OF IMPALPABLE BREAST CANCERS DURING THE COVID-19 PANDEMIC

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**Background:** Radiofrequency (RF) Tags are new devices used to localize breast lesions for surgery. During the Covid-19 Pandemic these offered the flexibility to be inserted days or weeks before surgery, making the logistics of planning theatres lists much easier especially when most of our breast cancer surgery was moved off site.
**Materials and Methods:** In the 7 weeks following the lockdown in the UK, we reviewed all the planned admissions for breast surgery looking at the types of surgery offered, type of localization used and assessed who wouldn't have had their surgery if RF tags were not available locally.
**Results:** Out of 85 planned admission, 83 had surgery, 11 were for re-excision of margins and 72 for their first breast surgery excision (mastectomy or breast conservation). Out of the 54 that had BCS, 40 needed localization, out of these 27 had RF tags. Looking at theatre order list and the site that surgery was performed, 20 out of the 27, wouldn't have had their surgery if RF tags were not available, that is 50% of patients needing Localization.
**Conclusion:** RF Tags are new devices used for breast lesion localization, like other similar new devices, they offer the flexibility of being inserted days or weeks before surgery making the logistics of theatre planning easier, offering a much-needed flexibility especially during the Covid19 Pandemic. This was approved as an Audit by NHS Grampian Clinical Governance Department

## P063. PREOPERATIVE LOCALISATION TECHNIQUES BEFORE WIDE EXCISION - DOWN TO THE WIRE

Jarin Noronha, Mirza Baig, Lee Martin. *Aintree University Hospital, Liverpool, United Kingdom*

**Introduction:** Excision is performed to remove target tissue adequately, avoid unnecessary tissue resection, and provide good, safe cosmesis. We sought to compare wire localisation (WL) and non-wire localisation (NWL) (Hologic Radio-frequency identification and Saviscout radar-guided) excision procedures employed in premalignant and malignant surgical treatment.
**Methods:** This retrospective audit was performed between January 2019 & November 2020 at a Liverpool University Hospital in excisions for pre-operative histologies of DCIS, LCIS or invasive breast cancer. Histology, cavity shaves performed, and re-excision rates were evaluated.
**Results:** The cohort consisted of 59 patients with a median age of 61 years (range 35-83). Screening detected patients formed half the group (50.8%) & neoadjuvant therapy was administered to 11.8% patients. The median weight of specimen excised was 33g (5.6-167g). 52.5% specimens had invasive carcinoma while 81% showed DCIS/LCIS. 72.8% and 27.1% patients had a WL and NWL excision, respectively. Six WL patients (14%) required an additional wire for accurate localisation. While all WL had to be performed on the same day as wire insertion, NWL insertion had a median 3 day gap with excision. At primary surgery, 55.8% WL patients had a cavity shave performed while 37.5% NWL patients had a cavity shave. 37.2% WL patients had a close/involved margin requiring re-excision while 25% NWL patients had a close/involved margin.
**Conclusion:** NWL devices appear to offer improved surgical precision. Larger studies could confirm this to be a superior localisation method in sinister breast lesions.

## P064. MANAGEMENT OF BREAST CANCER DURING THE COVID PANDEMIC: A REPORT FROM A UNIVERSITY TEACHING HOSPITAL

Arjun Kattakayam, Jarin Noronha, Lee Martin. *Aintree University Hospital, Liverpool, United Kingdom*

**Introduction:** Covid-19 is a global pandemic affecting healthcare delivery with guidelines issued to rationalise safe breast cancer care. The primary aim of this study is to audit the management of newly diagnosed breast cancer during this period.
**Methods:** This retrospective audit was performed at a Liverpool University Hospital in patients treated for non-metastatic breast cancer between 16/3/20 & 8/5/20. TMN status, histology, surgical management and adjuvant treatment plans were collated.
**Results:** Our cohort consisted of 74 patients with a median age of 62 years (range 31-81). No changes in our imaging/diagnostic pathway were noted. While 6.7% of patients had only DCIS, the majority (93.3%) had invasive cancer. The distribution of T1, T2 and T3 disease were 38.5%, 47.1% and 14.2%, respectively. 83.8% were node-negative. 67.6% of patients had an alteration in their treatment plan. Pre-operative, 20 patients received 'bridging' hormone therapy before surgery and three had neoadjuvant therapy omitted. Surgically, 17.5% had a delay in surgery (>31 days following diagnosis), 6.7% were not offered immediate reconstruction following mastectomy, 4% did not receive a re-excision for close margins and 1.3% did not have a completion axillary clearance following sentinel node macro-metastasis. Post-operative, 6.7% of patients deferred

radiotherapy and 32.4% had 'altered' radiotherapy with 5 fractions.
**Conclusion:** Patients treated during this pandemic had changes in their surgical and adjuvant treatment plans. Long Term follow-up will be necessary to assess changes recurrence compared to standard treatments.

## P065. PERIAREOLAR INCISION IN NIPPLE SPARING MASTECTOMY FOLLOWED BY IMMEDIATE IMPLANT BASED RECONSTRUCTION IS ASSOCIATED WITH A HIGHER RISK OF COMPLICATIONS WHEN COMPARED TO INFRAMAMMARY FOLD (IMF) INCISION

Rakhee Chauhan, Georgios Boutsikos, Buket Ertansel, Siya Lodhia, Shobha Rajagopal, Thalia Picton-Scott, John Hirniak, Nadine Betambeau, Dibyesh Banerjee, Anup Sharma, Sarah Tang. *St George's University Hospitals NHS Foundation Trust, London, United Kingdom*

**Introduction:** Extended periareolar or inframammary incisions can both provide good surgical exposure in nipple sparing mastectomy and immediate implant reconstruction. This studies compares the rate of complications between these 2 groups.
**Methods:** All implant based immediate reconstructions performed in a single institution (08/1/2015 and 22/11/2019) were reviewed. Those who underwent nipple sparing mastectomy either through periareolar incisions or inframammary fold incisions were included. The following data was collected: type of incision, mastectomy weight, implant volume, patient age, BMI, position of implant (prepectoral vs subpectoral), neoadjuvant chemotherapy, history of previous radiotherapy, smoking status and post-operative complications within 30 days. Statistical analysis was performed using t-test for continuous and chi-square for categorical variables ($p<0.05$ significant).
**Results:** 118 cases were include (93 cases IMF and 25 periareolar). The complication rate (wound healing, nipple necrosis and implant loss) was significantly higher in the periareolar group ($p=0.0021$). There were no differences in mean age, BMI, smoking status and the proportion who had neoadjuvant chemotherapy. There was no difference in mastectomy weights but the mean implant volume was higher in the periareolar group (421cc versus 351cc, $p=0.0027$). The periareolar group was more likely to have a previous history of chest wall radiotherapy ($p=0.0033$). When all patients with a history of previous radiotherapy were excluded from the analysis, periareolar incision was still associated with a higher risk of complications ($p=0.004$).
**Conclusion:** Periareolar incision is associated with a higher risk of post-operative complications.

## P066. LEEDS TEACHING HOSPITALS TRUST'S EXPERIENCE AS A TERTIARY CENTRE WITH BREAST IMPLANT ASSOCIATED ANAPLASTIC LARGE CELL LYMPHOMA (BIA-ALCL)

Elaine Borg, Philip Turton. *St James University Hospital, Leeds, United Kingdom*

**Introduction:** Increased awareness of BIA-ALCL has led to increased investigation of implant associated breast swelling.
**Method:** All patients diagnosed with BIA-ALCL who were referred to LTHT were included in this service provision assessment.
**Results:** There are 7 cases of BIA-ALCL managed at LTHT. Age range 27-62. 7 had their implant inserted for cosmesis whilst 1 was post-cancer surgery. 5 implants were macrotextured and 2 microtextured. 6 patients (85.7%) presented with breast swelling and 1 (14.2%) presented with a breast mass. 3 had a history of previous aspiration ranging 1-12 months. 1 of these had aspiration done 3 times with negative cytology. Investigations with imaging, cytology, microbiology, HMDS and flow cytometry were done in all cases. All patients were operated (5 bilateral en bloc resection, 1 unilateral en bloc resection and 1 total capsulectomy). 1 patient had immediate implant-based reconstruction. 2 had excision of solitary lymph nodes and 1 had axillary sampling. 5 patients were diagnosed with BIA-ALCL pre-op and 2 patients were diagnosed post-op. 3 were Stage 1A, 2 Stage 1B, 1 Stage IIA and 1 Stage IIB. 2 received systemic therapy and 1 received radiotherapy. 1 developed further complication in form of resistant seroma for which she required 2 further aspirations.
**Conclusion:** Management of BIA-ALCL at LTHT is in accordance with current guidelines. To decrease false-negative diagnosis, the maximum seroma volume attainable (minimum 50cc) should be sent for cytology. The recently published UK guidelines on BIA-ALCL should be followed when managing any patient with a delayed peri-implant seroma.

## P067. IMMEDIATE BREAST RECONSTRUCTION AND COMPLICATION RATES IN OLDER BREAST CANCER PATIENTS UNDERGOING MASTECTOMY IN A SINGLE TERTIARY CENTRE

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**Introduction:** Mastectomy patients should be offered immediate breast reconstruction (IBR) if suitable according to NICE guidance. Despite psychological benefits, IBR adds to surgical complexity and potential complications in older reconstructions patients with additional morbidities. This study aims to determine whether rates of complications amongst older patients (>/=65 years) are acceptable with judicious selection. The iBRA 2 study reported a post-operative complication rate of 36.6%.
**Methods:** A retrospective analysis was performed of consecutive patients undergoing mastectomy +/- IBR between January 2015 and February 2020. Patient details were extracted from an electronic database and anonymized data analysed with PRISM software. Primary outcomes were rates of IBR and complications (irrespective of reconstructive status). Major complications mandated return to theatre or hospital readmission whilst minor complications were defined as amenable to outpatient monitoring (seroma formation and wound infections). Approved audit ID/PRN 2652.
**Results:** A total of 545 mastectomy patients with a median age of 59.3 years (25-94) and average BMI of 27.5 (15.2 - 53.0) were analysed. Almost half (45.5%) underwent IBR amongst whom 55.8% received post-mastectomy radiotherapy and 47% had at least one complication (major or minor). Seroma formation requiring drainage was the most common complication overall (36.5%) See (Table 1).

**Table 1**

| | <65 years | ≥65 years | Total | Statistical analysis (Fishers exact) |
|---|---|---|---|---|
| Reconstruction rate | 231/345 (67%) | 17/200 (8.5%) | 248/545 (45.5%) | P<0.0001 |
| Complication rate (mastectomy only) | 45/114 (39.4%) | 102/183 (55.7%) | 147/297 49.7%) | P 0.0085 NS |
| Complication rate (reconstruction) | 99/231 (42.9%) | 10/17 (58.8%) | 109/248 (43.9%) | P 0.22 NS |

**Conclusion:** The uptake of IBR is significantly lower amongst women aged >/=65 years. Nonetheless, rates of complications are comparable between this selected group of older patients and younger women undergoing IBR.

## P068. SAVI SCOUT® RADAR LOCALISATION OF NON-PALPABLE BREAST LESIONS: SYSTEMATIC REVIEW AND POOLED ANALYSIS OF 842 CASES

Iham Kasem, Kefah Mokbel. *The London Breast Institute, The Princess Grace Hospital, London, United Kingdom*

**Introduction:** With the increase in detection of non-palpable breast lesions through screening, wire-guided localisation (WGL) has long been the favoured method for preoperative localisation, despite several limitations. New methods have been developed, including several non-radioactive, wireless options. We assess the effectiveness of Savi Scout localisation (SSL) through this pooled analysis and systematic review.
**Methods:** A number of databases were searched for retrospective and prospective cohort studies reporting data on localisation and retrieval of SSL reflectors within breast lesions, as well as re-excision rate. We included our own data from 20 patients (22 reflectors) at our institution.
**Results:** A total of 842 reflectors were inserted across eleven publications and our own data. Pooled analysis revealed an overall successful deployment rate of 99.64% and a successful retrieval rate of 99.64% using SSL. A statistically significant difference in re-excision rate was found across four studies comparing SSL and WGL (12.9% and 21.1% respectively, Chi-squared with Yates' correction=7.4639, $p<0.01$).
**Conclusions:** The SSL system is a safe and effective alternative to WGL. Our findings show Savi Scout to be a highly successful localisation technique, which is associated with lower re-excision rates than WGL. This is achieved whilst overcoming many of the recognised limitations of the latter, including minimal device migration and more optimal skin incisions. The reflectors also result in minimal MRI signal void artefacts when compared to other non-radioactive wireless localisation options. SSL facilitates flexible scheduling by decoupling radiology and surgery interventions and may reduce the need for re-excision procedures for positive surgical margins.

## P069. THE ADDED BENEFITS OF RECENT ADVANCES IN BREAST LOCALIZATION TECHNIQUES, OUR EXPERIENCE

Raja Eid, Geraldine Mitchell, Ian Whitehead, Julia Henderson, Matthew Rowland. *Royal Liverpool University Hospital, Liverpool, United Kingdom*

**Background:** Preoperative localization of non-palpable breast lesions using image-guided wire placement and radioguided occult lesion localization (ROLL) has been the most popular localization techniques. Rapid expansion on the number of localization techniques takes place in the recent years, aiming for wire free, radioisotope independent methods that can precisely target the lesion and reduce the reexcision rates. Some of licensed methods includes Magnetic technique using Magseed, Radiofrequency detection using the Localizer (RFID) tag and Infrared detection with Savi Scout.
**Method:** Retrospective, cohort study in tertiary teaching hospital evaluating the new introduction of RFID tag and Savi Scout as an alternative methods. In term of reexcsion rate and avoiding the disadvantages with previous techniques.
**Result:** Total 27 cases were evaluated, 20 cases using Savi Scout, 7 cases of RFID Tag. Only 3 cases required reexcsion of close margins. Reexcision rate 11% (compared to 21% average reexcsion rate on BASO) Surgeon was able to precisely target the lesion, no migration of seed recorded. no significant change in operative time. These technologies help in workflow efficiency as no delay in the morning of surgery, also eliminate bothersome of protruding wires, risk of dislodging. Surgeons, radiologist and patient were satisfied with the technique.
**Conclusion:** The new emerging localization techniques were superior to Wire and ROLL in our institution, not only to avoid disadvantages of traditional methods but also decreasing the reexcsion rate, which lead us to consider adopting these techniques for the future. Business case submitted and accepted by hospital board.

## P070. INFLUENCE OF THE COVID 19 PANDEMIC ON OUR DAY-CASE MASTECTOMY PATHWAY

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National guidance recommends that at least 50% of mastectomies should be performed as day-case procedures. COVID-19 has significantly altered clinical practice, encouraging more day-case operations. The aim of this audit is to evaluate the rate of day-case mastectomies, and the safety of a newly established day-case mastectomy pathway in our centre, a change accelerated by COVID-19. A retrospective audit was completed on all mastectomies carried out at a single centre between January and October 2020. Those with immediate breast reconstructions were excluded. Electronic patient records were reviewed to include patient demographics and follow up data. Basic statistical analysis was performed. Between January and October 2020, 96 patients underwent mastectomy (28 with axillary clearance and 58 with sentinel node biopsy). 56% of procedures were day-case. Between January and March 21.7% were day-case, compared to 67% between March and October, during COVID-19 ($p<0.05$). Wound drain was not inserted in 16 day-case mastectomies. Compared to patients who stayed overnight, patients who underwent day-case mastectomy were on average significantly younger and had significantly lower ASA scores ($p<0.05$). Following discharge, there were 3 out of hours episodes after day-case mastectomy and 10 after inpatient operations. 11 of these were to the surgical ward, all due to issues related to the wound drains. There were no post-operative emergency admissions in either cohort. COVID 19 played a huge role in rapid implementation of day-case mastectomy pathway in our unit. Avoidance of wound drains may avoid out of hours hospital visits and improve patient experience.

## P071. RADIO-FREQUENCY TAG LOCALISATION FOR IMPALPABLE BREAST CANCERS: SINGLE CENTRE EXPERIENCE

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**Aim:** Radiofrequency (RF) tag localisation is a new localisation technique used for impalpable breast lesions. We describe our experience in Aberdeen with the first 65 cases in our unit.
**Materials & Methods:** 65 patients who had RF tags preoperatively inserted between 07.02.2020 - 18.09.2020 were identified. Data on RF tag insertion, failure and re-excision rate were retrospectively collected.
**Results:** 67 tags were inserted in 65 patients. All breast lesions were targeted by only one tag except 2 patients which required 2 RF tags. Tags were inserted ranging from 0-86 days before the surgery (average of 12 days). Tags were inserted under ultrasound guidance (n=63) or stereotacticly (n=4). Only 2 tags were deployed unsatisfactorily with more than 10 mm distance to marker coil requiring subsequent wire localisation. 30 patients (46%) were post neoadjuvant treatment (chemotherapy or endocrine). 21 patients (32%) required further surgeries with 7 undergoing more than one procedure and 8 patients with completion mastectomies. Two RF tags fell out of the breast tissue prematurely due to anterior placement of tag to lesion. However, both of these lesions were fully excised at the first attempt. No surgical complications were recorded in relation to tags.
**Conclusion:** RF tag localisation is a feasible alternative to wire localisation providing flexibility for theatre planning. However, the higher re-excision rate in this cohort is likely to be multifactorial. This might be because of a learning curve, though a high percentage of these patients were on temporising neoadjuvant treatments and were operated on offsite during Covid.

## P072. ULTRASOUND GUIDED INFILTRATION OF DILUTIONAL LOCAL ANAESTHESIA IN BREAST CANCER SURGERY

Ajay Sahu. *Bristol Breast Care Centre, Bristol, United Kingdom*

**Introduction:** Breast Cancer Surgery under local anaesthesia (LA) is limited by the insufficiency of anaesthetic volume and uneven distribution of anaesthetic. A technique is described that obviates the two problems by employing Dilutional Local Anaesthesia (DLA) and the use of ultrasound to ensure even distribution of the anaesthetic.
**Method:** 1% Xylocaine (1% lidocaine with 1:200,000adrenaline was used. 40mls of LA was added to a 500ml bag of normal saline to make up 540ml solution containing 400mg of lidocaine and 200microgram of adrenaline. 1ml of DLA was added to 2ml of blue dye and injected in subareolar space

and massaged for 2 minutes before further infiltration of DLA. The skin over the cancer was infiltrated with DLA and further infiltration done under ultrasound guidance, infiltrating DLA above, around below and beyond the lesion. Infiltration of DLA is done in the axilla, first in the skin, next under ultrasound guidance in sub serratus space and the the pre serratus space. Breast surgery was carried out in the usual way using sharp dissection and bipolar diathermy.
**Results:** A total of 98 patients with breast cancer underwent surgery under the LA between September 2015 and October 2020. 96 patients had '0' pain score and no postoperative analgesia was required in recovery. 2 patients felt pulling sensation in the axilla and required postoperative analgesia. One patient returned to theatre for postoperative wound bleeding.
**Conclusion:** Ultrasound guided infiltration allows accurate placement of large volume of diluted local anaesthetic and facilitates breast cancer surgery.

## P073. EVALUATING THE IMPACT OF A GYNAECOMASTIA ASSESSMENT AND TREATMENT INFOGRAPHIC INTO PRIMARY CARE IN GREATER MANCHESTER

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**Background:** Men with gynaecomastia are routinely referred to breast clinics, yet most do not require breast surgical intervention.
**Aim:** To analyse the impact of a novel gynaecomastia infographic on assessment and treatment practices between primary care and tertiary breast services.
**Design and Setting:** A study of male patient referrals from primary care in Greater Manchester to a tertiary Breast centre between January and March in 2018-2020.
**Method:** Referral patterns were compared before and after the infographic went live in general practices in Greater Manchester in January 2020. Data were collected for gynaecomastia referrals, including aetiology, and were audited against ABS guidelines for the investigation and management of gynaecomastia in primary and secondary care.
**Results:** In total 394 men were referred to a tertiary breast centre from 163 general practices, of which 271 (68.8%) had a diagnosis of gynaecomastia. Use of the infographic by primary healthcare providers was associated with a decrease in male breast referrals with gynaecomastia (79.6% to 62.0%). Fewer patients were referred with benign physiological or drug related gynaecomastia after implementation of the infographic (52.2% versus 41.8%). Only 10 (3.7%) patients with gynaecomastia had breast surgery in the study period.
**Conclusion:** Implementation of a gynaecomastia infographic in primary care in Manchester was associated with a reduction in gynaecomastia referrals to secondary care. We hypothesise that national implementation of the infographic in primary care may potentially translate to hundreds of male patients receiving specialty appropriate referrals, improving overall management of gynaecomastia. Further study is warranted to test this hypothesis.

## P074. PROGNOSTIC SIGNIFICANCE OF TUMOR STROMA RATIO (TSR) IN INVASIVE BREAST CARCINOMA (BC) USING TWO QUANTITATIVE BIOIMAGE-ANALYSIS METHODS

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**Introduction:** Assessment of stroma of solid tumours is pivotal in understanding tumor behaviour & outcome. We aim to evaluate the prognostic significance of TSR in a well-characterized cohort of invasive BC using two validated image-analysis methods.
**Methods:** 107 BC core biopsies stained using multiplex-immunofluorescence, were scanned & wholly analyzed using QuPath software. Total and tumour areas were annotated and measured to calculate TSR. A subset (n=88) was additionally analyzed using InForm-software via pathologist-selected machine learning tissue segmentation. The maximum statistical approach was used to identify the optimal TSR cut-off for the whole group & each molecular subtype.
**Results:** The cohort comprised luminal (38.3%), Her2+ (31.8%) & TNBC (29.9%) and included grade 3 (53.3%) & grade 2 (44.8%) and 36 inflammatory breast cancer (IBC). Median TSR by QuPath was 0.73 & by InForm 0.52. Her2+ cancers had the lowest median TSR, compared with luminal (p.012) & TNBC (p.026). TSR correlated with survival, by QuPath (p.05) & InForm (p.039). Higher TSR was identified in grade 3 tumours than grade 2 tumours (p.002) by QuPath. Lower values were observed among IBC than non-IBC (p.028). TSR (InForm) correlated inversely with number of involved nodes (p.018). The TSR cut-off with lowest p-value was 0.775 (QuPath) & 0.4 (InForm). Survival curves using these cut-offs showed shorter overall survival in low-TSR than in high-TSR tumours, in the Her2+ & TNBC, while the reverse was observed in luminal cancers.
**Conclusions:** We show that whole-slide & selected assessment digital analysis correlated with survival and results were phenotype & method dependent. Standardized digital analysis overseen by pathologists is required to validate results & compare data across cohorts.

## P075. THE IMPACT OF COVID-19 ON SYMPTOMATIC BREAST REFERRALS

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**Introduction:** An important consequence of the COVID-19 pandemic on health services has been a reduction in cancer diagnoses. The number of new patient referrals and symptomatic breast cancer diagnoses substantially decreased in our unit in April 2020 with the start of lockdown. The aim of this study was to establish if and why patients delayed seeking review for their symptoms.
**Methods:** Consecutive new patients attending the symptomatic breast clinic between 29/05/2020 and 10/06/2020 were asked to complete a survey before their appointments.
**Results:** Seventy patients completed the survey. 40.0% had delayed seeking medical advice for their breast symptoms for an average of 55 days (SD = 41.6). The most common reason given for delaying was to 'avoid burdening the NHS' (46.4%). A minority of patients (7.4%) reported problems accessing primary care. 42.6% of patients felt they were not given adequate information about hospital COVID-19 guidelines and procedures.
**Conclusion:** With few patients reporting problems accessing GP services and no change of referral guidance sent to GPs, it appears that the reduction in secondary care referrals was due to patients not presenting to primary care in the first place. In the period immediately after lockdown, 40% of patients attending the breast clinic admitted they had postponed seeking medical advice during the COVID-19 pandemic. Most of these patients did so due to fear of overburdening the NHS rather than of COVID-19 itself. Efforts need to be made to inform patients that it is safe and appropriate to seek advice for breast symptoms.

## P076. THE INDICATION FOR CLINICAL BIOPSIES IN RADIOLOGICALLY NORMAL SYMPTOMATIC BREAST DISEASE

Zoe Chia, Oussama Aloulou, Amit Goyal. *University Hospital of Derby and Burton NHS Trust, Derby, United Kingdom*

**Introduction:** The triple assessment represents the gold standard for breast diagnoses. The Royal College of Radiologists (RCR) state that a free hand core biopsy is indicated where imaging is normal, but clinical assessment is indeterminate (P3 and above). Nonetheless, clinicians are opting for clinical biopsies following normal radiological findings.

Therefore, we aimed to investigate the proportion of patients with symptomatic breast disease that yielded malignant biopsy results following normal imaging; and ascertain whether biopsies are indicated.
**Methods:** A retrospective audit was performed over 6 months by examining patients' clinical records and the CRIS radiology software. Imaging and clinical examination scores were also analysed. Exclusion criteria included non-normal imaging findings and a history of ipsilateral breast malignancy. The audit standard used was the Guidance on Screening and Symptomatic Breast Imaging (4th edition) by the RCR.
**Results:** 43 patients were included, of which only 1 (2.3%) demonstrated malignant biopsy findings following normal radiological imaging. Out of the documented clinical examination scores, 10/38 (26%) had a P3 (uncertain) score, whilst others demonstrated benign P2 scores. No indeterminate or suspicious findings were documented within the initial radiology reports.
**Conclusion:** Over 97% of clinical biopsies performed for radiologically normal breast lesions subsequently prove to be benign, indicating a low test-positivity-rate. Therefore, we propose that clinical biopsies following normal imaging should be reserved for those aged >50. As per RCR guidelines, for women aged <40 with clinically (P3-P5) or radiologically (U3-U5) suspicious findings, both targeted ultrasound & mammogram should be performed, preferably prior to a biopsy.

## P077. BLUE FLAG CLINICS. A WAY TO ACHIEVE A 2 WEEK WAIT SERVICE IN THE AGE OF PLENTIFUL REFERRALS, RADIOLOGICAL PRESSURES AND PENSION THREAT

Blazej Rybinski, Peighton Thomas, Mona Sulieman, Polly King. *Royal Cornwall Hospital, Truro, United Kingdom*

**Introduction:** In early 2019 increased referrals to the Breast 2WW Service, limited radiologist capacity and the pension crisis combined to cause the 2 week wait target to fail. A multidisciplinary solution was sought. Using the Nottingham Breast Institute triage criteria and decoupling clinical and radiological assessments, patients were referred along 2 pathways; red and blue flag.
**Methods:** Patients were clinically assessed by a trained breast surgeon within 2 weeks. Red flag patients underwent standard triple assessment. The aim for blue flag patients was to undergo any necessary imaging within 10 days. In both cohorts selected patients were given a patient satisfaction questionnaire. Data from red flag clinics were obtained from cancer services. Notes were reviewed for blue flag patients
**Results:** Data on 858 blue flag patients seen were analysed.

**Table 1**
Comparison between blue and red flag clinics

| | Blue flag No. (%) | Red flag No. (%) |
|---|---|---|
| **Average age range (years)** | 26-30 | 46-50 |
| **MMG** | 409 (48%) | 73.6% |
| **No imaging** | 133 (16%) | 5% |
| **Core biopsy** | 41 (5%) | 11% |
| **Cancer diagnosis** | 11 (1.3%) | 8.6% |

**Table 2**
Time between appointment and imaging report in blue flag clinic

| | Median days (Range) |
|---|---|
| **Time to MMG report** | 4 (0-37) |
| **Time to Ultrasound** | 9 (0-60) |
| **Number pts waiting > 10 days** | 107 (12.5%) |

There was no difference between satisfaction scores.
**Conclusions:** The 2WW target was regained within a month of implementing change. As long as the standard operating procedure is maintained, the triage criteria adopted were successful and reduced pressure on radiology services. Patient safety and satisfaction were maintained.

## P078. CAN WE SAFELY AND EFFECTIVELY MANAGE ROUTINE BREAST PAIN REFERRALS WITHOUT FACE-TO-FACE CLINIC APPOINTMENTS?

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Breast pain is a common primary-care referral to the breast clinic. Telephone clinics were created to manage such referrals at the start of the COVID-19 pandemic to reduce the number of face-to-face clinic appointments in this group, freeing up slots for urgent referrals. The aim was to assess whether the implementation of virtual breast pain clinics are safe and effective in the management of routine referrals for breast pain. A retrospective audit was carried out assessing patients on virtual breast pain clinics over a three month period. Patients were categorised as either fit for discharge after telephone consultations or appointed to a face-to-face clinic. Patients were sent questionnaires to gauge satisfaction with the process. Of 66 patients, 20 (30%) patients were appointed a face-to-face clinic appointment after telephone follow-up. The remaining 70% have been managed by telephone consultation. 51 (77%) of patients have been reassured and discharged. There was a 50% response in satisfaction survey, of which 100% gave positive feedback. One patient reported a lump at initial telephone call requiring a face-to-face clinic review. This was an incorrect referral and she was diagnosed with breast cancer. No other pathology was identified in patients with face-to-face consultations. Telephone clinics for routine breast pain referrals are safe and effective and reduce the number of patients requiring face-to-face clinics. This increases capacity to see urgent referrals which is important given the increased mismatch between urgent referrals and clinic capacity since the onset of the pandemic. Moreover, patients were satisfied with the process.

## P079. PROSPECTIVE AUDIT OF BREAST CANCER DETECTION RATES FROM 2WW REFERRALS TO A DISTRICT GENERAL HOSPITAL DURING INITIAL COVID-19 LOCKDOWN

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**Introduction:** Initial chaos to breast service provision from Covid-19 pandemic prompted this prospective audit. In our hospital, the first Lockdown period was challenging in terms of assessing patients on the 2WW pathway. Patients detected with cancer requiring surgery as part of their cancer pathway in a timely manner, was also challenging. This prospective audit, highlights our cancer detection rates during Lockdown (March 2020 - May 2020) in comparison to pre-Covid cancer detection rates (Dec-2019 - Feb 2020)
**Aims:**
• To prospectively audit referral rates during Lockdown to our Breast Unit compared with referral rates pre-Lockdown.
• Assess Total cancers detected during Lockdown (1st March '20 -31st May '20) in comparison to cancer detection rates pre Covid-19 Lockdown (1st December '19- 28th February '20)
• To audit re-excision rates after primary cancer surgery.
**Objective:** To audit impact of lockdown on breast cancer detection rates and service delivery
**Methods:**
• Prospective data collection from Somerset records - Total cancers detected from 2ww breast referrals prior to Covid19 (Dec '19-Feb '20) as guideline for workload compared with data collected prospectively during

Lockdown (March'20 to May'20.)
• Prospective GIRFT data for outcomes of surgery to ascertain re-operation rates.
• Trust policy, Regional & ABS guidelines adhered to during pandemic.
**Results:** GP referrals Dec'19 - May'20

| MONTH | TOTAL GP REFERRALS | BENIGN DIAGNOSES | CANCERS DETECTED | CANCER INCIDENCE RATE % |
|---|---|---|---|---|
| DECEMBER | 265 | 14 | 14 | 5.3% |
| JANUARY | 281 | 35 | 14 | 5% |
| FEBRUARY | 261 | 15 | 14 | 5.4% |
| MARCH | 239 | 12 | 12 | 5% |
| APRIL | 89 | 25 | 9 | 10.1% |
| MAY | 145 | 6 | 11 | 7.4% |

RE-OPERATIONS:

| TOTAL PATIENTS | MONTH | MARGINS | SLNB+ | ANC |
|---|---|---|---|---|
| 28 | DECEMBER | 3(10.7%) | 0 | 0 |
| 40 | JANUARY | 2(5%) | 1(2.5%) | 1 |
| 24 | FEBRUARY | 2(5%) | 3(8.3%) | 3 |
| 26 | MARCH | 2(7.6%) | 5(13.8%) | 3 |
| 41 | APRIL | 2(4.8%) | 4(9.7%) | 2 |
| 23 | MAY | 3(13%) | 1(4.3%) | 1 |

**Discussion:** Referrals dropped during lockdown but cancer diagnosis rates almost doubled-? discerning GP referral.
**Conclusion:** Referral quality appears improved - although fewer referrals, cancer detection rate doubled from 5% pre-Covid19 to 7.5-10% during lockdown. Service quality maintained with minimal re-operations within social distancing restrictions.

## P080. TELEPHONE CONSULTATIONS AND THE IMPACT ON THE BREAST SERVICE

Risha Lane, Kim Collingridge, Julie Calcluth, Sue Yates, Alyson Spicer, Ceri Meeks, Sarah Gill, Abdelqader Asha, Galia Jadkarim, E. Mallidis, I. Peerlinck, C. Mortimer, H. Tuffaha. *East Suffolk and North Essex Foundation Trust, Ipswich Hospital, Ipswich, United Kingdom*

**Introduction:** On the 15th March 2020, the ABS provided guidance on how two week wait (2WW) referrals should be managed. In line with the ABS advice, the unit altered its practice; normal clinic visits were halted and triaged by telephone. We aim to outline the clinical impact that a telephone triage service had on our single centre Breast unit.
**Methods:** Retrospective case note review of all referrals to our unit from the 25th March through to 2nd July 2020. A six month follow up note review was performed to determine if further referrals had been made or further investigations were needed for previously referred patients. Data collected focused on the rate of cancers detected, missed cancers during the use of COVID precautions, and re-referrals from the GPs.
**Results:** During the 3 month period, the unit received 646 referrals, broadly split into pain, lumps, nipple or skin changes. 174 (27%) patients were telephone triaged and discharged (TD). 471 (73%) of patients attended for a physical review of which 37 cancers were identified (7.9%). 22/174 (12.6%) from the TD were re-referred within the subsequent 6 months, identifying 1/646 (0.16%) delayed breast cancer diagnosis (due to patient not following advice to re-present after lockdown) and 21 benign.
**Conclusion:** The National pandemic has resulted in adaptations of service and the use of a telephone triage service. We were able to reduce our physical reviews by 25% with subsequent delayed cancer rate of 0.16% at 6 month follow up.

## P081. A BREAST SHIELD CLINIC - PROTECTING THE VULNERABLE FROM COVID 19 AND CANCER

Rachel Foster, Jane Ooi, Anita Hargreaves. *Countess of Chester Hospital, Chester, United Kingdom*

**Introduction:** On the 11th of March 2020 the World Health Organisation (WHO) announced that the COVID-19 outbreak had reached pandemic levels. Over 2 million people in the UK were identified as clinically extremely vulnerable and advised to shield. Breast cancer services had to adapt to balance the risk of delayed breast cancer treatment with the risk of exposure to COVID 19.
**Methods:** The breast unit at The Countess of Chester Hospital introduced a triple assessment clinic exclusively for shielding patients aiming to ensure equitable safe provision for all. Changes involved the use of personal protective equipment, reduced clinic numbers and departmental deep clean prior to each clinic. During a 'shield clinic' there was no additional activity in the department and a one-way patient flow system was implemented.
**Results:** During the shielding period a total of 83 two week wait clinically vulnerable patients were referred. The age range was 35 to 87 years of age. 44.58% had malignant pathology and 55.42% found to have benign pathology or normal breast tissue. 16 patients were given empirical endocrine treatment, 31.25% of these patients later went on to have biopsy proven oestrogen receptor negative cancers.
**Conclusions:** The implementation of a dedicated 'shield clinic' during the COVID pandemic allowed clinically vulnerable patients to access breast cancer services in a reduced risk environment. Initial telephone consultation ensured a face to face appointment was absolutely necessary and reduced contact time in the clinic.

## P082. BREAST CANCER SURGERY AND THE COVID-19 PANDEMIC; THE IMPACT OF PATIENT PATHWAY CHANGES ON OVERALL PERFORMANCE

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**Introduction:** The COVID-19 pandemic has affected breast cancer care, and in March 2020, following ABS guidance, the Bucks Breast Unit reorganised the patient pathways. The aim of the study was to determine the effect on performance.
**Methods:** The breast team was divided into two and alternated clinics and theatre lists with no cross-over. All routine appointments were postponed. The two-week-wait referrals were triaged into a telephone or face-to-face appointment; for the latter, imaging was pre-ordered, and each patient was directed 'straight-to-test' before clinical review. Patients were tracked by the MDT coordinator and discussed at a virtual MDT. For those with a favourable tumour biology, primary endocrine treatment was started. All patients needing surgery were assessed using the waiting-list-risk-measurement-tool, and surgery was performed at a local private institution as part of NHS Resilience collaboration. Data was captured in the Thames Valley Cancer Alliance (TVCA) Dashboard. The Breast Care Specialist Nurses called all patients to provide support and well-being advice. The unit resumed a pre-pandemic service in June 2020.
**Results:** In April 2020, 2WW referrals dropped by 72% (n=92, baseline 327) with an estimated reduction of 705 patients in 6 months. By October 2020, the referral numbers had increased to 140% (n=469, baseline 336). The numbers of cancers diagnosed from April - October 2020 was 205, and 317 in 2019. The BCNs made 319 telephone calls. See Table 1.

**Table 1**

| April 2020 | Performance (%) | Target (%) | Over-target (%) | TVCA overall performance (%) |
|---|---|---|---|---|
| **2WW** | 43.2 | 93 | -49.8 | N/A |
| **28 Day** | 68.8 | 75 | -6.2 | N/A |
| **31 Day** | 100 | 94 | +6 | N/A |
| **62 Day** | 100 | 85 | +15 | N/A |
| Oct 2020 | Performance (%) | Target (%) | Over target (%) | TVCA overall performance (%) |
| **2WW** | 99.3 | 93 | +6.7 | 82.7 |
| **28 Day** | 98.3 | 75 | +23.3 | 97 |
| **31 Day** | 100 | 94 | +6.38 | 98.1 |
| **62 Day** | 90.5 | 85 | +6.44 | 98.5 |

**Conclusion:** The Bucks Breast Unit has successfully maintained performance in the COVID-19 pandemic even with an increase in referrals and new cancer diagnoses.

## P083. A RETROSPECTIVE AUDIT OF THE TRIAGE PROCESS INTRODUCED FOR BREAST REFERRALS RECEIVED DURING THE COVID-19 PANDEMIC

Emma Mackender, Rajiv Dave, Nicola Barnes, James Harvey. *The Nightingale Centre, Manchester University NHS Foundation Trust, Manchester, United Kingdom*

**Introduction:** Due to restrictions on breast clinic appointments during the COVID-19 pandemic, a triage process was introduced for new patient referrals. The robustness of this process was examined by analysing the incidence of cancer diagnosis and wait times to treatment.
**Methods:** Patients were triaged to a two week-wait (2WW) if they had high-risk symptoms e.g., a lump or previous cancer. Those with non-urgent symptoms were seen on a routine basis. A retrospective audit of patients referred between March 23rd and July 20th 2020 was performed, to investigate incidence of cancer, diagnosis, and the wait times to first appointment. We also investigated the effect of GP telephone triage vs face-to-face triage on the referral process.
**Results:** Patients with breast-related symptoms received a face-to-face appointment with a General Practitioner or Nurse Practitioner in 1213/1763 (69%, 260 unknown) circumstances, with 544/1763 (31%) having a telephone GP/NP appointment only. Out of 2023 patients, 1461 were triaged by the receiving breast unit to an urgent 2WW appointment, 461 to a routine appointment and 101 to a breast pain telephone clinic. A diagnosis of breast cancer was made in 111/1461 (7.6%), 5/461 (1.1%) and 0/101 in these groups respectively, and the median wait time to first appointment was 14 days (range 1-94), 32 days (range 6-114) and 21 days (range 10-52) in the three groups respectively ($p<0.001$).
**Conclusions:** The one-stop triage process was robust, with statistically fewer cancer diagnoses in patients allocated a 'routine' appointment, at a rate similar to that seen in a screening population.

## P084. WHERE HAVE ALL THESE PATIENTS COME FROM? A STUDY ASSESSING REFERRAL PATTERN CHANGES IN BREAST FAST TRACK CLINICS

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**Introduction:** During the COVID-19 pandemic, referral practice adaptations were implemented to reduce face-to-face contact at a GP level. Concerns have been raised however, as a local increase in fast track breast referrals was noted. We therefore aimed to identify factors relating to the increased referral demands, to assess whether any management strategies could be implemented.
**Methods:** Questionnaires were given prospectively to new patients referred to a breast clinic for two weeks in October 2020. Retrospective data was also collected regarding referral patterns from the same period, and from an equivalent time frame in October 2019.
**Results:** 366 patients were referred during the study period in 2020, of which 60.6% (n=222) were "two-week wait" (2ww), and 39.4% (n=144) were "symptomatic" non-urgent (still seen within two weeks). This compared to 342 patients seen in 2019, with 78.1% (n=267) 2ww referrals, and 21.9% (n=75) symptomatic referrals. The mean age of patients in 2020 was 47.2 years, and in 2019 was 50.2 years. 157 questionnaires were completed, and of these 12.7% (n=20) patients stated they were not examined prior to referral.
**Conclusion:** Fluctuations in referral patterns are affected by many factors, including the suspension of the screening programme. In our unit however, the almost double increase in "symptomatic"/non-urgent patients seemed to have the greatest impact. This may be a result of patients deferring presentation due to COVID-19. A small percentage were not examined by their primary care clinician. It is important to be able to assess these issues accurately to allow appropriate planning and resource.

## P085. CAN ULTRASOUND BE OMITTED IN THE ASSESSMENT OF PATIENTS PRESENTING WITH SUSPICION OF IMPLANT RUPTURE?

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**Introduction:** More than 50% of implant ruptures are not detected on clinical examination, and evaluation depends upon ultrasound or magnetic resonance imaging (MRI) for confirmation. MRI is considered the gold standard investigation; and is the most reliable imaging tool to detect implant rupture with literature reporting an overall accuracy of 94% in comparison to 72% accuracy for ultrasound.
**Aim:** Patients with suspicion of implant rupture are generally referred to a symptomatic clinic thus taking up precious 2 ww slots. We wanted to assess the role of ultrasound scan for these patients.
**Methods:** Retrospective review of 208 patients who had breast imaging (ultrasound or MRI) for the assessment of implant integrity at University Hospitals of Leicester NHS Trust.
**Results:** 111/208 patients had a breast ultrasound followed by MRI scan. Both modalities confirmed implant rupture in 27 (24%) cases, while 28 (25%) patients had intact implants on both ultrasound and MRI. Ultrasound suggested implant rupture in 6 patients who had intact implants on MRI (5.4%). Similarly, in 5 (4.5%) patients ultrasound showed intact implants but MRI confirmed ruptured implants. Ultrasound was inconclusive in 45 (41%) cases, MRI confirmed rupture in 19, showed intact implants in 22 and remained inconclusive in 4 of these patients.
**Conclusion:** Ultrasound remained inconclusive in 41% cases, necessitating the need for an MRI to confirm the diagnosis. We thus conclude that it would be more cost effective and less time consuming if patients directly have MRI Scan hence omitting the need for a breast ultrasound and visit to the symptomatic clinic.

## P086. NOVEL PULSE BIOPSY PLATFORM INCORPORATING ADAPTIVE OPEN-TIP SAMPLING NEEDLE INCREASES SAMPLING YIELD AND NEEDLE CONTROL

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**Introduction:** Certain lesions are challenging to reach and target, e.g. axillary lymph nodes. A novel biopsy platform, NeoNavia (NeoDynamics, Sweden), incorporates a pneumatic needle insertion mechanism intended to provide better control of needle progression. It offers a 14G automated core needle (CorePulse), 10G vacuum biopsy needle (VacuPulse) and newly developed adaptive 14G open-tip sampling needle (FlexiPulse). Sampling yield of the 14G open-tip needle was benchmarked against a currently used device in a turkey tissue model and needle velocity was measured.
**Methods:** Thirty samples were obtained with the 14G open-tip needle and comparison device 14G Achieve biopsy needle respectively. Student's t-test, significance level of 5% (two-sided test) was used for analysis. Needle velocity was measured using a specially developed test bed.
**Results:** Weight (mean ± SD) of samples was 697.5 ± 74.5 mg for the 14G open-tip needle and 174.6 ± 26.3 for the comparison device. The difference was statistically significant with a mean difference of 522.9 mg ($p < 0.0001$). The biopsy needle reached a maximum velocity of 18 m/s over a stroke length of 2 mm.
**Conclusions:** The evaluated needle significantly outperforms a standard CNB regarding sampling yield. The maximum velocity is higher than for commonly used spring-loaded devices and is reached over a significantly shorter stroke length. The needle advances gradually through tissue with pneumatic pulses enabling optimal needle control. This 14G open-tip sampling needle is currently being evaluated for use in the axilla as part of the PULSE trial (NCT03975855) in Germany and the COMPULSE trial (NCT04500262)

## P087. SURGEONS WHO USE ULTRASOUND AS AN ADJUNCT TO CLINICAL ASSESSMENT REDUCE WORKLOAD OF CORE BIOPSIES FOR RADIOLOGISTS IN A BUSY ONE STOP BREAST CLINICS

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**Introduction:** Ultrasound is increasingly being used by non-radiologists. One Stop Breast Clinics are run by Radiologists in most Units. They perform ultrasound assessment and carry out ultrasound guided biopsies. In units that have surgeons, like ours, who are adept at using ultrasound as an adjunct to clinical assessment are able to perform focused ultrasound and carry out ultrasound core biopsy of the symptomatic index lesion. Additional lesions other than the index are biopsied by the radiologist. Our unit has 8 surgeons (2 of whom are able to perform ultrasound and biopsies), 9 radiologists, 2 clinical assistants and I nurse practitioner. Our Unit has over 800 cancers a year and has a significant One Stop Clinic workload.
**Methods:** We undertook a retrospective review of all patients undergoing ultrasound guided biopsies of breast lesions seen in the One Stop Clinic (OSC) between 01/05/20 - 30/11/20. All patients had assessment as per guidelines. Surgeons who did their own ultrasound guided biopsies, reported and recorded their findings on PACS. All cases were discussed in the multi-disciplinary meeting.
**Results:** A total of 200 biopsies were carried out in the OSC during the period between 01/05/20 – 30/11/20. A total of 39 (19.5%) biopsies were carried out by surgeons
**Conclusions:** Surgeons trained in ultrasound significantly reduced workload for radiologists in a busy OSC. As ultrasound gets wide usage in clinical practice, we argue that ultrasound should be a core part of breast trainees' curriculum.

## P088. PATTERN OF BREAST CANCER PRESENTATION DURING THE COVID-19 PANDEMIC

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**Introduction:** Breast cancer diagnosis and treatment have been affected by the COVID-19 pandemic. The aim of the study was to explore the hypothesis that the stage of presentation at initial diagnosis in 2020 is more advanced compared to 2019.
**Methods:** New breast cancer diagnoses at the Bucks Breast Unit from August-October 2019 and August-October 2020 were reviewed. Electronic records were used to extract the TNM classification and UICC combined stage. Patients with incomplete staging information were excluded. Pathological stage was used if available from primary surgery and clinical stage otherwise. Non-parametric statistical tests were performed and p-values $<0.05$ were considered significant.
**Results:** 250 patients had a new breast cancer diagnosis in August-October 2019 or 2020. 12 patients were excluded due to missing data. 238 were analysed, 136 in 2019 and 102 in 2020. In 2019, 52 (41.9%) were detected through screening and 79 (58.1%) referred for symptoms compared to 15 (14.7%) through screening and 87 (85.3%) symptomatic in 2020. Median UICC stage was 1a in 2019 and 2a in 2020, ($p<0.01$). Median UICC stage when only comparing diagnoses through screening was 1a in 2019 and 2a in 2020 ($p=0.23$) and for symptomatic referrals was 1a in 2019 and 2a in 2020 ($p=0.02$).
**Conclusions:** Overall, patients presented with higher UICC stages on initial diagnosis in 2020 compared to 2019. When only comparing symptomatic patients, they presented with a higher stage in 2020. The number of cases detected via screening was smaller, but no statistically significant difference was found in this subgroup.

## P089. FERTILITY PRESERVATION IN NEWLY DIAGNOSED BREAST CANCER PATIENTS: COMPLIANCE WITH NATIONAL STANDARDS

Emma Ladi [1], Zoe-Athena Papalois [1], Jea-Hong Shin [1], Christopher Roberts [2], Kevin Jones [2]. [1] *King's College London, London, United Kingdom;* [2] *Great Western Hospital NHS Foundation Trust, Swindon, United Kingdom*

**Introduction & Aim:** Breast cancer is one of the most commonly diagnosed malignancy among women of reproductive age. Despite this, survival rates have improved, with 85% of women alive at 5 years. Chemotherapy and other gonadotoxic treatments can have a detrimental effect upon fertility, causing significant distress for patients. Nevertheless, numerous studies have shown fertility preservation referrals and procedure rates are low. This project aimed to clarify documentation of discussions and identify barriers to referral.
**Methods:** Data was collected, from the electronic records, on women newly diagnosed with breast cancer between September 2019 and August 2020 in the Great Western Hospital, Swindon. Women aged 18-40 and undergoing cytotoxic therapy were included. Results were analysed using Microsoft Excel. A survey of relevant clinicians was carried out to identify barriers to referral.
**Results:** Of the 14 women identified, 86% ($n=12$) had no discussion documented about the effects of treatment on fertility and their preservation options. 1 woman without a documented discussion and 2 with a discussion documented were referred to fertility services. Clinicians highlighted a lack of guidance made the referral process unclear.
**Conclusion:** Documentation regarding fertility preservation amongst breast cancer patients remains low, perhaps reflecting wider trends in the literature. Further work, such as the development of referral guidelines, may help improve rates of referral.

## P090. A CASE OF MUCINOUS ADENOCARCINOMA OF THE BREAST IN A YOUNG MALE PATIENT PRESENTING WITH A SUBCUTANEOUS AXILLARY LUMP

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**Introduction:** Mucinous adenocarcinoma of the breast is rarely encountered clinically, making up only 0.01% of Breast cancer (BC) cases. We describe an extremely rare male case of mucinous carcinoma in accessory axillary breast tissue.
**Methods:** Case details were extracted from local multidisciplinary team database. Clinical, radiological and histopathology findings were analysed and presented.
**Results:** A 48-year old male presented with a two-year history of a subcutaneous lump in his left axilla. Ultrasound (left axilla) revealed a nearly isoechoic, solid 30 x 17mm mass lesion with increased vascularity on colour Doppler (U4). Mammogram was unremarkable bilaterally (M1) however, high in the left axilla was a suspicious looking density measuring 33mm (M4). PET scan showed uptake only in the known axillary mass. Core biopsy confirmed mucinous adenocarcinoma, strongly positive for oestrogen and progesterone receptors, HER2 negative.
**Management:** Wide Local Excision and Sentinel Lymph Node Biopsy was completed. Histology showed a 27mm grade 2 mucinous carcinoma and the patient completed adjuvant radiotherapy and was commenced on Tamoxifen.
**Conclusion:** Male breast cancer (MBC) accounts for only 1% of all BC, typically presenting in older men with a retro-/peri-areolar lump. Genetic or hormonal risk factors often co-exist and 95% are invasive ductal carcinoma histologically. In every regard therefore, our case breaks the mould: he was young, with no genetic/family history or gynaecomastia, presenting instead with an axillary lump (only the second case according to literature review). Hitherto we must be increasingly vigilant for MBC in accessory axillary breast tissue as well as more typical presentations.

## P091. USE OF IMAGING IN WOMEN UNDER 40 YEARS ATTENDING A ONE-STOP BREAST CLINIC

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**Background:** Triple assessment is the standard diagnostic pathway in women presenting to One-Stop Breast Clinics. Increasing service demand and pressures to meet the 2-week target requires a critical review of the pathway. The aim of this audit was to explore the symptoms of women aged 25-40 years presenting to clinic and the pattern of imaging use.
**Methods:** Retrospective audit of women 25-40 years who presented to the One-Stop clinic at The Royal Marsden Hospital between July-December 2019. Demographics, clinic examination, ultrasound and biopsy reports were extracted from the electronic patient records.
**Results:** 1009 women (median age: 33, IQR: 26-33 years) attended the One-Stop clinic during the audit period. Presenting symptoms included: breast lump (66.9%), breast pain (26.6%), nipple discharge (5.3%), skin change (2.4%), nipple change (2.1%) and nodularity (0.7%). 54.1% of women presenting with pain underwent ultrasound scan (USS) and none were diagnosed with cancer. 93.1% of women with a breast lump had an USS, of which 14 (2.1%) were diagnosed with cancer. In 6 women, the lump was not identified as suspicious on clinical examination. Overall, 80.8% of women underwent USS, 123 had biopsies and 16 cancers (1.6%) were diagnosed (median age: 35.5, IQR: 29.25-38 years). Clinical examination did not detect anything in addition to USS. No biopsies were performed on incidental findings.
**Conclusion:** These findings suggest that the development of a "straight to imaging" pathway for women 25-40 years with a breast lump or nodularity would be safe and feasible.

## P092. HAS COVID 19 AFFECTED THE NEW REFERRAL RATE TO A LARGE BREAST CANCER TERTIARY REFERRAL CENTRE?

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**Introduction:** COVID 19 has put colossal strain on the health systems. Health services have had to be re-evaluated and some even stopped altogether. Updated guidelines from the Association of Breast Surgery (ABS), regarding triage and care of breast cancer patients, recognised it is still paramount for suspected cancer patients to be seen but cases with a higher index of suspicion must be prioritised. The study aims to determine whether COVID 19 has affected symptomatic presentations at a large breast cancer tertiary referral centre.
**Methods:** We analysed symptomatic presentations referred to the breast service between April and August 2020 and compared this with referrals during the same period in 2019 (audit ref. 16-959C). Information regarding number of presentations, conversion rate, age at presentation, and subsequent tumour characteristics was collected on patients that were operated on within 4-6 weeks after their diagnosis. The data was tabulated and analysed using t-tests in Excel.
**Results:** Overall, there were a third less referrals in 2020 ($p=0.147$) but the conversion rate was significantly higher ($p=0.004$). There was no significant difference in age of presentation, imaging size, whole tumour size, and tumour grade (p-values of 0.482, 0.312, 0.768 and 0.713 respectively).
**Conclusion:** Our data shows that although there were less symptomatic presentations those that were referred were more likely to be cancerous in the 4-month period following the first UK lockdown. Although there was no difference in age and stage for this surgery as first treatment cohort there may well be differences for those undergoing neoadjuvant treatment.

## P093. RAPID IMPLEMENTATION OF TRIAGING SYSTEM FOR ASSESSMENT OF BREAST REFERRALS FROM PRIMARY CARE CENTRES DURING THE COVID-19 PANDEMIC

Geeta Shetty [1], Uttaran Datta [1], Ian Rea [1], Simerjit Rai [1], Mei-Ju Hwang [2], Fiona Hoar [1], Martin Sintler [1], Mehboob Mirza [1], Asma Husain [1], Melissa Tan [1]. [1] *Sandwell and West Birmingham NHS Trust, Birmingham, United Kingdom;* [2] *North West Wales NHS Trust, United Kingdom*

**Background:** COVID-19 was officially declared a pandemic on the 11th March 2020, and with no treatment or vaccine available, preventing spread has been paramount. Previously, all referrals from primary care were seen in rapid access breast clinic (RABC). Clinic appointments exposed patients and healthcare professionals to risk. We aimed to establish a triaging system for assessment of breast referrals from primary care to ensure safe and effective breast services without compromising breast cancer management.
**Method:** Initial triage during lock-down in line with national body guidance rejected low risk patient referrals and streamed remaining patients through a telephone consultation to RABC or discharge. Modified triage system streamed all patients through virtual triage to RABC, telephone clinic or discharge with advice-and-guidance categories. Demographics, reasons for referral and outcome data were collected and presented in median with range and frequency with percentages.
**Results:** Triage during UK lock-down (23rd March-23rd April 2020) found fewer referrals with higher percentage of breast cancer diagnoses. Modified triage (22nd June-17th July 2020) resulted in 35.1% (99/282) reduction in RABC attendance. Overall cancer detection rate remained similar at 4.4% of all referrals pre-COVID (18/429) and 4.3% (12/282) during modified triage. The modified triage system supported primary care for managing the patients and also reduced clinician time per patient saving nearly 6.4 hours over 4 weeks.
**Conclusion:** Modified triage pathway has the potential to greatly improve triage efficiency and prevent unnecessary visits during the COVID 19 pandemic. Further refinement of pathway is feasible in collaboration with primary care.

## P094. BREAST CANCER DIAGNOSIS OVER THE TELEPHONE – THE PATIENT EXPERIENCE

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**Introduction:** The COVID-19 pandemic has redefined how cancer services are being delivered with many changes being made overnight. A diagnosis of cancer is challenging at the best of times and we wanted to find out how a shift to telephone consulting at our institution affected our patients during the pandemic.
**Method:** This cross sectional telephone questionnaire designed by breast care nurses based at a large tertiary referral breast cancer unit (audit ref 20-329C) to explore the impact of telephone consulting through a mixed methods qualitative and quantitative approach. Patients diagnosed between April 2020 and May 2020 were asked to participate. Questions were around patient demographic, timing, environment, emotion and information giving/receiving. The results were tabulated in Excel and analysed.
**Results:** Of the 63 out of 58 (92.1%) patients invited to participate accepted. The mean age was 63 (range 26-67), all female and 93.1% were White with 55.9% receiving their results alone. Despite the majority stating that they felt that they had received enough information (91.5%), felt reassured by their breast care nurse (93%), had adequate time to ask questions (89.1%) as well as feeling their family/friends were involved (64.9%), they ultimately would still prefer a face to face consultation (67.2%).
**Conclusions:** Our telephone survey illustrates that despite patients being adequately educated and reassured at the time of their diagnosis they still preferred a face to face consultation. In order to reconcile the need for new remote ways of working virtual face to face consults may be the compromise.

## P095. IMPROVING ONE STOP BREAST CLINIC SERVICE EFFICIENCY WITH RADIOLOGY-LED DISCHARGE

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**Introduction:** One Stop Breast Clinics (OSBC) may lead to extended waiting periods for patients between examination, radiological assessment and discharge. One solution is the widely used 'imaging-first' approach, which can potentially cause unconscious bias to the assessing clinician. We offer an alternative solution with radiology-led discharge for patients considered low-risk after clinical assessment.
**Methods:** A Rapid Process Improvement Workshop (RPIW) evaluated patient flow in the OSBC and quantified delays. Patients were tracked from checking-in to discharge over a one-week period. The timings were recorded at each stage of the process and areas for improvement were identified. For patients who were recorded as having a low index of clinical suspicion and those with normal or benign imaging, a radiology led discharge protocol was developed.
**Results:** 51% of patients had radiology-led discharge, reducing the average time that those patients spent in the department from 142 minutes to 76 minutes. Clinics have an average of 20 patients in them; therefore this is a saving of 11 patient-hours per clinic. Subsequently, the waiting rooms are less crowded during the clinic and patients report the reduced waiting time for results lowered anxiety levels during the one-stop clinic service.
**Conclusion:** Radiology led discharge offers a significant improvement in patient experience and flow within the clinic and has proved particularly useful during the Covid-19 Pandemic where social distancing has been a key priority for healthcare providers to ensure safety of patients and staff. We recommend this strategy as an easily achievable improvement for OSBC.

## P096. THE CLINICOPATHOLOGICAL FEATURES AND PROGNOSIS OF WOMEN AGED 30 YEARS OR YOUNGER DIAGNOSED WITH INVASIVE BREAST CANCER

Uttaran Datta [1], Ian Rea [1], Simerjit Rai [1], Melissa Tan [1], Geeta Shetty [1], Mehboob Mirza [1], Fiona Hoar [1], Asma Husain [1], Mei-Ju Hwang [2], Martin Sintler [1]. [1] *Sandwell and West Birmingham NHS Trust, Birmingham, United Kingdom;* [2] *North West Wales NHS Trust, United Kingdom*

**Introduction:** Around 55,000 women are diagnosed breast cancer each year in the UK of which 269 of these cases are young women between the age of 15 and 30. Survival rates in younger women are lower as they often present with later stage disease. This study examines the clinicopathological features and prognosis of women aged 30 years or younger diagnosed with invasive breast cancer at a single centre providing breast surgical services.
**Methods:** Retrospective data collection of demographics, clinical and pathological features of breast cancer, treatment and outcomes were recorded for patients aged 30 years or younger diagnosed with invasive breast cancer between March 2005 and March 2020.
**Results:** 10,094 patients aged 30 or younger were seen in breast clinic, 40 breast cancers were diagnosed. Clinical findings showed median examination p value was 2 and median radiological u value was 4. 8/40 (20%) were multifocal lesions. Median size at presentation was 35mm and median grade of cancer 3. 18/40 (45%) lesions were ER positive, 6/40 (15%) PR positive and 8/40 (20%) Her-2 positive. Median NPI was 4.65. Follow up revealed recurrence in 9/40 (22.5%) and 5-year survival rate of 16/27 (59.3%).
**Conclusion:** Breast cancer in younger women often feels benign and may not look typical of breast cancer on ultrasound imaging. It is important to consider a biopsy in these women. The tumours are often larger and hormone receptor negative. 5-year survival rate was 59% suggesting that although rare can have devastating outcomes in younger women.

## P097. IMPACT OF COVID-19 PANDEMIC ON THE 2WW BREAST REFERRALS TO A DISTRICT GENERAL HOSPITAL

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**Introduction:** Recommendations were issued to the hospital Trusts to configure service delivery to balance cancer care with the safety of the patient and the hospital staff during the COVID-19 pandemic. The public felt the service restrictions might lead to delays in diagnosis and treatment of cancer patients. We compared the management of 2ww breast referrals in our centre between May to July 2019 and 2020.
**Method:** We triaged all referrals to face-face consultation or initial telephone consultation during the pandemic. Patients with suspicious symptoms were offered face-face consultation after the telephone triage.
**Result:** Overall, breast patients' referrals fell by 28.3% during the pandemic. 10.2% reduction was noted in May (95% CI 6.73 – 13.59, $p<0.001$) but a non-significant increase was recorded in June and July. Waiting time reduced by 8.43 days (95% CI -8.88 to -7.98, $p< 0.0001$). Breast cancer suspicion increased across all age groups in 2020 (+10.4% to + 16.2%). Breast cancer diagnosis rose by 2.0% in 2020 (95% CI 0.19 - 3.92, $p=0.030$). No cancer was diagnosed among under 29 years. 29.1% of the 522 patients triaged to telephone consultation were discharged, and 70.9% needed face-to-face follow-up. One patient discharged after telephone consultation was later diagnosed with breast cancer.
**Conclusion:** COVID-19 pandemic did not lead to a prolonged waiting time or reduced breast cancer diagnosis, but there was an overall reduction in referrals to our breast service.

## P098. UTILITY OF MAMMOGRAPHY FOR MASTALGIA WITHIN A TWO WEEK REFERRAL PATHWAY: A SYSTEMATIC REVIEW

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**Background:** Breast pain affects up to 70% of women during their lifetime. The aetiology is multifactorial with less than 1% of cases, synchronous with breast malignancy. The Cancer Reform Strategy triggered the two week wait (2- WW) timeline from GP referral, for all symptomatic breast patients. Presently, up to 50%, 2-WW referrals present with breast pain only. We aim to review the current evidence for urgent referrals in a risk normative cohort of mastalgia only patients.
**Methods:** We searched Embase, Medline, Cochrane Review, the Central Registry for Clinical Trials, & Health Technology Assessment studies databases, using the key search terms: Mastalgia, Mastodynia Breast pain and Mammograms. Inclusion criteria were English language reports between January 2010 and December 2020. Primary endpoint(s) following 2-WW mammography were the diagnosis of malignancy and adjunctive diagnostic interventions; Secondary endpoints were triple assessment concordance, quality of life measures & patient satisfaction. Biases include cohort age stratification (over 40 years) & eligibility for mammography.
**Results:** We were unable to identify any evidence (level I- IV) for improved breast cancer outcomes over/ beyond screening cohorts as a result of the 2-WW pathway for mastalgia. There is weak evidence (level V) for improved patient well-being (anxiety reduction, patient support & education), based on unmatched case series & expert opinion. Based on a regional district hospital's (Darent Valley Hospital Breast Unit) pilot observational study, a prospective, matched observational cohort with IRB approval has been registered on ISRCTN.
**Conclusion:** This review demonstrates a lack of evidence for the 2-WW timeline for mastalgia. Anecdotal studies suggest a standard driven clinical pathway misalignment.

## P099. WHERE ANGELS FEAR TO TREAD: DOES SURGICAL MARGIN RE-EXCISION FOLLOWING BREAST CONSERVING SURGERY INCREASE THE RATE OF LOCAL RECURRENCE?

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**Introduction:** Breast-conserving surgery (BCS) is the gold standard surgical treatment for early stage breast cancer. The margin status of the resection is an important prognostic factor for local recurrence after BCS. Surgical re-excision of margins as a second procedure can be an inexact science. The aim of our audit was to compare local recurrence rates following re-excision of margins with local recurrence rates following BCS only.
**Methods:** A retrospective analysis of all patients undergoing BCS and re-excision of margins was performed for a 6 year period from 2010-2015 within one health board in the UK. OPCS codes for wide local excision, completion mastectomy (as a surrogate marker for local recurrence) and re-excision of margins were compared with clinical follow up data to identify relevant patients. Data analysis was performed to assess statistical significance.
**Results:** 650 patients underwent BCS from 2010-2015, with a surgical re-excision rate of 14% (n=94). 19% (n=18) were offered further surgery for involved margins. 2 patients (2.1%) suffered local recurrence within 4 years but were alive at 5 year follow up. Both patients had disease present at margins on re-excision. One underwent mastectomy and chemo-radiotherapy, whilst the other refused further treatment. Our 5-year local recurrence rate following BCS with clear margins was 1.4% (n=9). There was no statistical significance (p=0.577) in local recurrence rates between the two groups.
**Conclusion:** There is no significant difference between recurrence rates in those undergoing re-excision of margins following BCS versus BCS alone. Patients undergoing re-excision of margins are not at increased risk

## P100. HIGH WAVENUMBER RAMAN SPECTROSCOPY TISSUE DIFFERENTIATION FOR INTRAOPERATIVE MARGIN ANALYSIS

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**Introduction:** Re-excision for positive margins occurs in almost 20% of patients undergoing Breast Conserving Surgery (BCS) with high institutional cost and patient psychological burden. High wavenumber Raman Spectroscopy (HWN RS) is a non-destructive vibrational spectroscopy showing promise in breast tissue diagnostic analysis. We determine the diagnostic accuracy of a HWN RS system for future Intraoperative Margin Analysis (IMA).
**Methods:** Thawed fresh frozen human breast specimens were obtained with ethical approval from the NIHR Exeter Clinical Research Facility Tissue Bank (CRF Ref: CRF320). Paired specimens of tumour (including ductal carcinoma in situ) and non-tumour tissue of 96 patients were measured with a handheld probe with a 785 nm laser excitation and InGaAs camera. Spectra were analysed with a Principal Components Analysis (PCA) fed Linear Discriminant Analysis (LDA) model with Leave-One-Out-Cross-Validation (LOOCV) and calculation of the water/total area ratio (W/TAR); a diagnostic threshold was determined by binomial logistic regression with k-folds 5 cross validation.
**Results:** PCA analysis found changes in protein, lipid and water were predominant spectral features accounting for >95% variance; LDA analysis demonstrated 93.2% accuracy (sensitivity- 93.8%; specificity - 92.7%) for tissue differentiation. W/TAR analysis with a diagnostic threshold of 0.66 gave overall accuracy of 92.2% (sensitivity- 94.8%; specificity - 89.6%) for differentiating between tumour and non-tumour tissue. Diagnostic accuracy was similar in all pathological sub-group analyses.
**Conclusion:** We present an emerging technology that can accurately differentiate between tumour and non-tumour tissue with an accuracy of 93.2%. This system has the potential to provide IMA in BCS and reduce re-excision.

## P101. IS NO TUMOUR AT THE INKED MARGIN SUFFICIENT IN PATIENTS UNDERGOING BREAST CONSERVATION SURGERY?

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**Introduction:** There are no large trials with adequate follow-up, investigating the appropriate excision margin, in patients undergoing breast conservation surgery (BCS). Many centres in UK accept no tumour at the inked margin. Aim of our study was to identify the incidence of residual tumour on re-excision specimens in patients with tumour at the inked margin compared to those with no tumour at the inked margin.
**Methods:** Retrospective review of patients undergoing re-excision following BCS between Jan 2012 to Feb 2020. Our hospital policy regarding safe margin is 1mm. The data was collected from the case records, MDT records and pathology records. Analysis was done using chi-squared test and a P value of $< 0.05$ was considered significant.
**Results:** A total of 338 patients had re-excision of margins following BCS (153 screening, 185 symptomatic). Median age was 59 (25-93) years. The pathology included 233 IDC, 29 ILC, 68 DCIS and 8 other cancers. There were 147 patients with tumour at the inked margin and their subsequent re-excision showed further cancer in 65 (44%). In comparison, 199 patients had close margins (0-1mm) out of which 62 (31%) had further cancer on re-excision. This was statistically significant (P= 0.012). There were 8 locoregional recurrences and 18 distant metastases after a median follow-up of 64 (9-106) months.
**Conclusion:** Approximately one third of the patients with no tumour at the inked margin (0-1mm) had further disease on re-excision. Large prospective studies are needed to identify the appropriate resection margin following BCS.

## P102. REPORTING AND MANAGEMENT OF CLOSE/INVOLVED ANTERIOR MARGINS AFTER SKIN/NIPPLE-SPARING MASTECTOMY: MULTI-CENTRE EXPERIENCE OF NATIONAL ONCOPLASTIC FELLOWS IN ENGLAND

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**Introduction:** Skin or nipple-sparing mastectomies (SNSM) with immediate reconstruction are increasingly undertaken for breast cancer. However, there remains a lack of evidence to guide the management of close/involved anterior margins after SNSM. This study aimed to explore national variability in anterior margin reporting, establish the incidence of close/involved anterior margins and identify management differences within high-volume oncoplastic units.
**Methods:** Retrospective multi-centre observational study of patients with primary invasive or in-situ carcinoma undergoing SNSM and immediate reconstruction in 2019. Approximately 50 consecutive patients were included from each of six participating oncoplastic Training Interface Group (TIG) units in England.
**Results:** 300 cancers (43% invasive, 31% non-invasive and 26% mixed) in 299 patients were analysed. Anterior margins were specifically reported in 240/300 (80%) cases (range: 26-100% across units). There was disease (invasive or non-invasive) either involving, or close to (<1mm), the anterior margin in 67/240 (28%) cases (8% involved and 20% close). Multidisciplinary discussion of close/involved anterior margins after SNSM occurred in 99% of these cases (range: 89-100% across units). Management was unaltered for the majority of patients (57/67, 85%). In cases where close/involved anterior margins did alter management (10/67, 15%), five patients had re-operative intervention (disease identified in one), four received radiotherapy (not otherwise indicated) and one was recommended mammographic surveillance of the reconstructed breast.
**Conclusions:** There is considerable national variation in reporting and management of close/involved anterior margins after SNSM. Further work is required to evaluate the potential impact of anterior margin status on local recurrence and the efficacy.

## P103. INTRAOPERATIVE INKING OF BREAST SPECIMENS IMPROVES MARGIN ORIENTATION CONCORDANCE BETWEEN THE OPERATING THEATRE AND THE PATHOLOGY LABORATORY

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**Introduction:** Discordance in specimen orientation identified by surgeon and pathologist is high (>30%) when marking sutures alone are used (P061: Imprecision of sutures for margin orientation following breast-conserving surgery. St John et al. EJSO, 2020, Vol 46, Issue 6, e26-e27). Correct orientation is important as re-excision is recommended for close or positive radial tumour margins. The aim was to introduce intraoperative inking of specimens to evaluate whether this improves margin concordance with the pathology laboratory.
**Methods:** A clinical re-audit (RMH-BR162) was performed August 2020-December 2020. Prospective data was collected from 64 patients in patients undergoing breast-conserving surgery. All specimens were orientated intraoperatively with long lateral/short superior dyed marking stitches and intraoperative ink (anterior - yellow, posterior - black, superior - blue, inferior- green, medial - orange, lateral - red). An additional undyed loop stitch was placed into the specimen. We compared reported location of the additional stitch and specimen measurements and weights between surgeons, and pathologists who were blinded to the intra-operative data.
**Results:** Margin face discordance between surgeons and pathologist was 3% (n=2/64) following intra-operative inking, a significant reduction ($p<0.05$) compared to >30% (n=44/135) in our previous study with marking stitch orientation only. There was no significant difference between specimen measurements (height, length, width, weight) intra-operatively and in the pathology laboratory ($p>0.5$).
**Conclusion:** Preliminary results indicate that intraoperative specimen inking significantly reduces margin disorientation between theatres and the pathology laboratory, hence improving identification of the correct margin. This simple and effective method should be considered for introduction into routine breast surgical practice.

## P104. RISK MANAGEMENT OPTIONS FOR BRCA MUTATION CARRIERS: A DECISION-MAKING NEEDS ASSESSMENT

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Women with a pathogenic mutation in the BRCA1 or BRCA2 genes have an elevated lifetime risk of developing breast and ovarian cancer. To address this risk, women are managed with a combination of surveillance and/or risk-reduction strategies including prophylactic surgery or risk-reducing medication (chemoprevention). Decisions about risk-reducing strategies can be complex, personal and multifactorial. Furthermore, within the clinical environment there may be variations of recommendations provided between clinicians that could potentially leave women uncertain and less able to choose a risk management pathway. The overall aim of this project is the development of a web-based patient decision aid toolkit for BRCA mutation carriers that will improve the decision-making process by providing the user with information about their cancer risk, surgical /medical options for risk management and potential side effects. This will assist women in understanding their risk and empowering them to make informed choices as part of their personal risk management strategy. With appropriate ethical approval, a decision-making needs assessment was conducted to identify the information needs of women with a BRCA mutation who are making decisions between cancer risk reduction strategies and surveillance. Semi-structured interviews were held with cancer unaffected BRCA mutation carriers ($n = 16$) and key stakeholders including healthcare professionals, policy makers and patient group representatives ($n= 10$). Data will be analysed by thematic content analysis. Data analysis is ongoing and will be presented at the conference. Results from this decision-making needs assessment will inform the topics and content for the BRCA+ Risk Reduction Patient decision aid.

## P105. HOW END OF TREATMENT NURSING CONSULTATIONS CONTINUED VIA TELEPHONE DUE TO COVID-19

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**Introduction:** Thirlestaine Breast Centre (TBC) in Gloucestershire diagnoses approximately 700 breast cancers per annum. The Recovery Package is a recognised national programme to assist people living with and beyond a cancer diagnosis, to live well. As nurses, we are directly involved with all four components - Holistic Needs Assessment, Care and Support Planning, Treatment Summary (End of Treatment Consultations) and Health and Wellbeing events. These were face to face appointments until Covid-19 impacted.
**Methods:** TBC commenced treatment summaries in April 2018, alongside a health and wellbeing event. Due to staff redeployment for Covid, few summaries were undertaken early on in the pandemic and a catch up was required. Since May 2020, again due to Covid, these end of treatment consultations have been completed as telephone appointments. Our end of

treatment consultations are recorded on Infoflex and a new template was introduced in October 2020, which provides an opportunity for patient feedback.
**Results:** Since May 2020, 489 telephone end of treatment consultations have taken place and we have received 34 patient feedback forms since October. Feedback is very positive - 'I felt more comfortable to discuss worries as I was at home', 'it didn't feel rushed', staff are 'all very kind and caring'.
**Conclusions:** Our nursing experience of undertaking end of treatment consultations via telephone, has clearly demonstrated that patients have appreciated their consultations taking place, whilst enabling them to stay safe at home. Due to this being positively received, we are now continuing these by phone.

## P106. DEVELOPING A PATIENT GUIDE TO ENCOURAGE QUESTIONS AND SUPPORT DECISION-MAKING AROUND BREAST CANCER TREATMENT FOR OLDER WOMEN - EXPERIENCE OF THE NATIONAL AUDIT OF BREAST CANCER IN OLDER PATIENTS

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**Introduction:** The 2020 Annual Report from the NABCOP recommended NHS organisations ensure patients are engaged in a shared decision-making process, after finding older women are less likely to receive standard treatment for breast cancer (BC) than younger women. To aid this, a guide was developed to facilitate discussions between clinical nurse specialists (CNS) and older women with BC.
**Methods:** The aim was to create an accessible guide, highlighting questions along the patient pathway particularly important for older women. Created by the NABCOP team in collaboration with the NABCOP patient advocates and representatives, the guide describes the various pathways for BC, including initial diagnosis, treatment decisions and follow-up.
**Results:** The guide was designed as a printable 2-sided A4 pamphlet, freely downloadable via www.NABCOP.org.uk/resources. Text on the front explains the purpose of the guide and gives a visual presentation of a typical BC pathway. Space is provided for patients to write thoughts/ questions. On the reverse, the guide has an explanation of the pathway, with paragraphs explaining what a patient might expect at each step, alongside a box of useful questions for patients to consider. The intent is to stimulate conversations around treatment options and informed decision-making, thereby encouraging older patients to actively engage in their BC care.
**Conclusions:** This guide for older women is a simple tool that encourages patients to feel confident in asking questions about their care. It tackles one potential contributor to unwarranted variation in treatment patterns. Further work is planned to assess its uptake and impact.

## P107. CHALLENGES OF MAINTAINING A SPECIALIST BREAST CARE NURSING SERVICE DURING THE SARS-COV-2 PANDEMIC

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The Queen Elizabeth Hospital, Birmingham NHS Trust has a busy diagnostic and treatment service for breast cancer patients, which incorporates the South Birmingham Breast Screening Service. In 2018, the Trust merged with the Heart of England Trust making the overall Trust the largest in England and this amalgamated three Breast Units. In addition the oncology patients from a neighbouring Trust are cared for on the QEHB site. The Trust expected to operate full diagnostic and treatment services including breast reconstruction and oncology services. Clearly the service needed managing differently during the pandemic. All diagnostic services moved to the QEHB site with all staff working seven days a week. The Breast Screening Service was halted other than completing investigations and treatment for those already screened. All clinical work moved to the QEHB site including face to face discussions and nurse led clinics. Surgery was initially postponed whilst a new off site location was identified. The CNS teams played a key role in managing both the pathway and the expectations of patients who were faced with delays or changes to their treatment plans. Telephone clinics were performed by clinicians, ANPs and CNSs on two sites. CNSs have continued to support patients at all stages of disease including use of Holistic Needs Assessment. A CNS led telephone service has continued daily on all three sites and patients undergoing surgery were seen by specialist nurses on all sites. Team working has been key to managing these changes.

## P108. NAVIGATE: BREAST CANCER SUPPORT FOCUSING ON WOMEN WITH YOUNG FAMILIES

Jane Steven, Jenn Darbyshire. *University Hospitals Birmingham, Birmingham, United Kingdom*

Navigate: A new way to enhance communication, emotional well-being and physical understanding of cancer, for patients and their young children during breast cancer treatment. At the Queen Elizabeth Hospital Birmingham, the data collected within the breast unit was compared from Jan - Dec 2019 and Jan - Dec 2020 showed a 7% rise of patients diagnosed with breast cancer under the age of 50 years. We estimate that at least 50% of those patients have one child or more. Guided by holistic needs assessments (HNA) it is helpful for patients and their young families to be bought together with breast clinical nurse specialists (BCNS) whose skills help navigate emotional needs and improve communication and support, from diagnosis through treatment and beyond. This will enable children to ask questions, feel included in the care of the parent and reduce anxieties. Macmillan (2017) states that 'there are many benefits to being open and involving children and teenagers'. We have found that during the SARS-CoV-2 pandemic, it has been more difficult to support patients than usual. To improve supportive measures, we have implemented the opportunity for patients to gain more guidance on how to talk openly about their diagnosis and treatment to their children, attending together within a safe, non-clinical environment.

## P109. BREAST CARE NURSE LED LYMPHOEDEMA ASSESSMENT CLINIC, A NOVEL AND HELPFUL SERVICE - IS THIS THE WAY FORWARD?

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**Introduction:** Lymphoedema following breast surgery can have detrimental impact to a person's physical and psychological wellbeing. Early intervention is crucial. Many specialist lymphoedema services are overstretched. We started a breast care nurse (BCN) led lymphoedema assessment clinic in October 2016. Clinical examination and assessment by Delphin Moisture Meter are performed. Patients are given specific advice on lymphoedema. Those with significant lymphoedema are referred to specialist lymphedema service. We evaluated the impact of this BCN led service on our patients.
**Methods:** Hospital and nursing records for patients attending this service were evaluated from October 2016 to November 2020. A telephone patient satisfaction survey was undertaken.
**Results:** Altogether 131 patients were seen with 232 patient contacts including face to face, telephone and video consultation. The psychological impact of lymphoedema was addressed with further 1:1 sessions offered if required. 14% were discharged with advice while 82% referred to specialist service. 37 consecutive patients were telephoned for satisfaction survey. 62% were seen within 1 week of referral, 30% seen within 1-2 weeks. 100% found the information given very helpful to manage their lymphoedema, 86% found their consultation beneficial for psychological support and 100%

found the overall service very beneficial.
**Conclusion:** A BCN led assessment clinic is extremely beneficial in early identification and intervention in lymphoedema management especially when specialist lymphedema services are reduced. This helps to reduce physical and psychological morbidity. Ability to self-manage and the psychological support given whist waiting for specialist appointments were cited by patients as key elements of the service.

## P110. A NEW NURSE LED SERVICE TO OPTIMISE ENDOCRINE THERAPY FOR PERIMENOPAUSAL BREAST CANCER PATIENTS

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**Introduction:** In current models of self-directed care, endocrine therapy can become suboptimal. In-house audit confirmed inconsistent assessment and management of these patients. To address this, we introduced an Endocrine assessment clinic, tailored to the needs of perimenopausal women to ensure each patient's endocrine pathway was consistent and safe.
**Method:** Strict protocols/proformas were written and ratified by a multidisciplinary group, were age specific for women 40-44y, 45-49y, >50y at time of diagnosis and indicated frequency and interpretation of blood tests. Patients have nurse-led telephone appointments to discuss clinical & menstrual history, blood results and management. Bloods are repeated 3-monthly to confirm status and include LH, FSH and serum oestradiol (plus high-sensitive oestradiol for post-chemotherapy patients). Bloods results plus clinical history determine the decision to switch. Menopausal symptoms are addressed including sexual well-being; verbal and written advice is given. Management information is conveyed to patient's GP in writing. Monthly MDTs are available for difficult decisions.
**Results:** 259 patients have been assessed and approximately 60 (23%) switched medication safely. 3 patients' medication have been switched back, follow-up bloods indicating reversion into a peri-menopausal stage. All patients have undergone DEXA scan on switching including bone health advice. To date, 15 patients have required MDT discussion.
**Conclusion:** Protocols have been ratified throughout Greater Manchester and adopted by Breast units nationally. This new service provides a bespoke service for perimenopausal women diagnosed with breast cancer, allowing individualisation of endocrine treatment and providing the women with an access point to discuss issues related to this phase in their cancer pathway.

## P111. 'ATTEND ANYWHERE': A VIRTUAL SUCCESS? PATIENT FEEDBACK FROM BREAST NURSE SPECIALISTS USING 'ATTEND ANYWHERE' TECHNOLOGY DURING THE COVID-19 PANDEMIC

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Research has shown that remote consultations, conducted in an outpatient setting, are likely to improve clinical outcomes and benefit adults who have difficulty accessing their healthcare setting. The secure video-call system "Attend Anywhere" has proven useful for the breast care nursing team to help facilitate contact and support during the COVID-19 pandemic. Voluntary questionnaires were added to the end of each virtual consultation. Data from the questionnaires (N=40) was collected and divided into four broad categories: 'user-friendliness', 'patient convenience', 'patient satisfaction' and demographic information. This information was used to draw initial conclusions about Attend Anywhere's potential to improve patient care during the pandemic. The results were positive, centring on ease of use and patient satisfaction. A quarter of patients found the video consultation less stressful than a face-to-face session, reporting it as a "better" or "significantly better" experience, and 100% of users felt they were able to communicate everything they wanted to during the call. Staff and patients found the technology easy to use. Results also showed that patients reported feeling comfortable to reveal themselves physically and emotionally in the "safe space" of their own homes. Feedback shows that the platform has proven useful to service users, enabling Breast Care Nurses to provide effective psychological support and virtual physical assessments. Although video calls will not replace physical consultations, they have proven to be a good substitute to face-to-face appointments, adding another string to the BCN's communication bow and offering patients a convenient and flexible alternative to travelling into clinic.

## P112. THE IMPACT OF TRANSITIONING TO DAY CASE MASTECTOMY ON BREAST CARE NURSE WORKLOAD: A SINGLE CENTRE RETROSPECTIVE ANALYSIS

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**Introduction:** Breast care nurses (BCNs) are an integral part of the breast cancer service. Adapting services to provide day case mastectomy (DCM) may affect BCN workload. This retrospective single centre review aims to determine how the transition to DCMs during the coronavirus pandemic impacted upon the volume and type of work of BCNs.
**Methods:** Post-operative documentation by breast care nurses on the established electronic records system was reviewed for all mastectomies performed at our trust between 01/09/2019 and 31/10/2020. Absolute number of contact episodes, as well as type, frequency, and themes of contact were extracted. Data from before and after transition to DCMs were compared.
**Results:** Data from 153 consecutive mastectomies, 57 prior to change to day case procedures, and 96 afterwards were analysed. Median number of post-operative contact episodes with BCNs before and after change to DCMs was 8 (range 2-26) and 7 (range 1-56) respectively. 'Reassurance +-advice' accounted for 35% (170/482) of BCN contact prior to changing to DCMs, and 53% (427/810) after establishment of DCMs. BCN contact pre-DCMs was via telephone in 57% (276/482), 2% (7/482) via video, and 41% (199/482) face to face. BCN contact post-DCMs was via telephone in 71% (576/810), via video in 4% (32/810), and 25% (202/810) face to face.
**Conclusion:** BCNs workload has not been significantly affected by transitioning to DCMs. Service delivery by BCNs appears to be feasible with minimal adaptation, though the coronavirus pandemic may have uniquely altered working patterns over the period evaluated.

## P113. MEETING THE CHALLENGES OF DELIVERING HIGH STANDARD BREAST CARE NURSING SERVICES DURING THE COVID PANDEMIC

Amanda Snippe. *Pennine Acute Hospitals NHS Trust, Bury, United Kingdom*

The Covid pandemic caused major disruptions to the delivery of patient care. Nurses were often redeployed to different areas such as ICU to address staffing shortfalls and cancer services were either limited or stopped. As a result patients often became more anxious, especially if their operations were cancelled at short notice, and often became dependent on the breast Clinical Nurse Specialist team, viewing them as a source of contact and information, as well as a means of communications between the various members of the multidisciplinary team. This led to extra pressure on an already stretched, under-staffed service The breast care nursing team reviewed the ways in which they were working and focused on adapting their practice to ensure that patients' needs were met whilst empowering them with the knowledge and awareness to help them cope with and move forward from their breast cancer diagnosis. The ways that nurse-led clinics were held was changed from mainly being face-to-face, to the majority being held via telephone or video-link. This involved a change in organisation and an increase in the provision of equipment was required to enable home-working. Patients were informed how their appointment would take place and verbal consent obtained. The result of this was that patients still received a high quality service that was adapted to ensure their needs were met and importantly, safety was maintained during the Covid pandemic as direct patient contact was greatly minimised, reducing the need for patients to come to hospital.

## P114. THE CLINICAL IMPACT AND RESOURCE IMPLICATION OF HER-2 TESTING IN BREAST CANCER PATIENTS 80 AND OVER: A MULTI-CENTRE RETROSPECTIVE STUDY

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**Background:** Current guidelines state that all patients diagnosed with invasive breast cancer should have full receptor profile performed to guide optimal management. While it is vital to offer patients personalised treatment, tests should only be performed if they will impact management. Adjuvant systemic therapy and in particular anti-HER-2 therapies such as Trastuzumab, however have significant toxicities and are less likely to be offered in older patients many of whom have other co-morbidities. We aimed to explore the incidence of HER-2 positivity in patients aged 80 and over to determine the proportion of these in whom testing influenced management. The resource implications of HER-2 testing in this group was also assessed.
**Methods:** Data retrospectively collected to include all patients aged 80 or above diagnosed with invasive breast cancer in 3 breast units in South West England and the West Midlands over a 2 year period. Data collected included age at diagnosis, tumour characteristics and treatment given.
**Results:** 451 patients over the age of 80 were diagnosed with invasive breast cancer over the study period. 42 patients (9.3%) were HER-2 positive and 1 (0.2%) received Trastuzumab. Total cost of HER-2 testing in this cohort was £34,447.23.
**Conclusion:** Routine HER-2 testing in patients aged over 80 rarely impacts clinical management and has significant resource implications. We propose that routine testing in this group should be discontinued and replaced with individualised HER-2 testing following discussion in a multidisciplinary team meeting.

## P115. VALIDATION OF ENDOCRINE THERAPY PRESCRIPTIONS WITH PRIMARY CARE PRESCRIPTIONS DATA FOR WOMEN NEWLY-DIAGNOSED WITH INVASIVE BREAST CANCER IN ENGLAND: APPLICATION TO THE NABCOP COHORT

Melissa Gannon [1], Katie Miller [2], Jibby Medina [2], Karen Clements [3], Kieran Horgan [4], David Dodwell [5], David Cromwell [1]. [1] *Clinical Effectiveness Unit, Royal College of Surgeons of England, London, United Kingdom;* [2] *Clinical Effectiveness Unit, Royal College of Surgeons of England, London, United Kingdom;* [3] *Public Health England, London, United Kingdom;* [4] *St James's University Hospital, Leeds, United Kingdom;* [5] *Nuffield Department of Population Health, University of Oxford, Oxford, United Kingdom*

**Introduction:** Endocrine therapy (ET) is a key treatment for estrogen receptor-positive (ER+) invasive breast cancer (IBC), and also used as an alternative to surgery. With ET largely delivered in the community, routine secondary care data incompletely captures prescriptions. Using the Primary Care Prescription Database (PCPD), a recently available data source capturing community pharmacy dispensed prescriptions, we evaluate ET prescribing in England, as part of the National Audit of Breast Cancer in Older Patients.
**Methods:** Women aged 50+ years, diagnosed in England with IBC between Jan-2014 and Dec-2018. Patient-level Cancer Registration records linked to PCPD ET prescriptions dispensed in 2018. Descriptive statistics explored linkage rates and comparison with secondary care records. Regression models investigated factors associated with prescriptions.
**Results:** Among 142,122 women, 66% had an ET prescription in PCPD (76% among ER+). Prescriptions increased with age among women diagnosed in 2018 and women not receiving surgery. Among women diagnosed pre-2018, 78% had ET (90% among ER+) compared with 46% identified from secondary care sources (53% among ER+). Among ER+ IBC diagnosed pre-2018, prescriptions were highest among patients with: early IBC, higher NPI, higher grade, larger tumours, nodal involvement.
**Conclusion:** PCPD data reveal ET prescription patterns for IBC consistent with expected clinical care and provide a more accurate picture of ET use compared to secondary care data. For the first time, we have reliable data on an extremely important component of BC care. NB: results are from the not yet published REF.285 Annual Report so subject to change and not for onward.

## P116. THE IMPACT OF NEOADJUVANT HORMONE MONOTHERAPY IN DEFERRAL OF SURGERY DURING THE SARS-COV-2 PANDEMIC

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**Introduction:** The Cov-Sars-2 pandemic required rapid re-evaluation of breast cancer management, with national recommendation that oestrogen receptor (ER) positive, HER2 negative early-stage patients defer surgery with hormone treatment (HT). We reviewed the impact of this approach for our ER+ patients.
**Methods:** 33 ER positive HER2 negative patients were initiated on HT at diagnosis. Data was collected on age, Allred score, time to surgery from diagnosis, operation undertaken, tumour grade on biopsy and final pathology. Comparison was to 33 patients matched for age, receptor status, surgery, and initial tumour grade.
**Results:** Mean age of both groups was 62.4 years (range 34 to 90). Length of HT ranged from 29 to 204 days (mean of 87). Both groups had mean initial biopsy grade 1.9, and final pathology mean grade 1.8 (median 2). There was no statistically significant change in tumour grade in the HT or control groups (paired t test p=0.06 and 0.5 respectively). In the HT group, 9 of 33 (27%) patients had reduction in tumour grade, compared to 6 (18%) in the control group. 3 (9%) of the HT and 4 (12%) of the control group increased in tumour grade. These differences did not reach statistical significance (p=0.6 fishers exact test).
**Conclusion:** This data demonstrates that delaying surgery and temporising with neoadjuvant hormone treatment did not result in significant detriment to the biology of the disease and shows there was a trend towards reduction in tumour grade, in keeping with recent literature suggesting neoadjuvant hormone monotherapy as a viable low toxicity option in these patients ER+ HER2- early disease patients.

## P117. WHEN DOES PRIMARY ENDOCRINE THERAPY FAIL?

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**Introduction:** Primary endocrine therapy (PET) is usually reserved for women diagnosed with oestrogen receptor positive breast cancer who are unfit for surgery. The aim of this study was to analyse the long-term outcome of such women.
**Methods:** Service evaluation permission was agreed. A retrospective search of a prospectively-maintained database identified women who had invasive breast cancer and were started on PET. We excluded any patient given neoadjuvant endocrine therapy or de novo stage IV disease. Patient demographics and tumour characteristics were analysed as well as their long-term follow-up.
**Results:** Between 1/1/2010-17/3/2015, 95 patients were commenced on PET who met the eligibility criteria. Median age was 84 years (IQR=80-89). Median Charlson co-morbidity score was 7 (IQR=6-7). The most common drug prescribed was letrozole (n=87, 92%). Median follow-up was 724 (IQR=360.5-1233) days. Most tumours were grade 2 (62, 65%). Median size on ultrasound at diagnosis was 25mm (IQR 17-32). Median number of ultrasounds done for surveillance was 6 (IQR3-10), median time between scans 140 days (IQR87-182). Clinical/radiological local progression requiring change of endocrine therapy occurred in 30 (32%) women. Most common second line drugs were Exemestane (15,50%) and Tamoxifen (13,43.3%). Six (6.3%) women had radical radiotherapy to the breast (without surgery). 11 (11.6%) women had surgery, 6 for progression. Median time from diagnosis to progression requiring change in treatment was 645 days (IQR 250-908). Three patients died with known metastatic

disease.
**Conclusion:** For most women started on PET, it facilitates the avoidance of surgery and inhibits development of symptomatic distant metastasis.

## P118. WHAT THE FRAX? A QUALITY IMPROVEMENT PROJECT: OSTEOPOROSIS VIRTUAL CLINIC FOR PATIENTS COMMENCED ON AROMATASE INHIBITORS DURING COVID-19 PANDEMIC

Amber Mary-Ann Moorcroft, Yousuf Sabah, Anna Powell-Chandler, Eleri Davies, Lucy Satherley, Sumit Goyal, Donna Egbeare. *Cardiff and Vale University Health Board, Cardiff, United Kingdom*

**Introduction:** Breast cancer patients commenced on aromatase inhibitors (AIs) are at increased risk of osteoporosis and fragility fractures. The standard of care has been to refer for DEXA scan. Demand for DEXA scans from multiple specialties is increasing; this has been compounded by the COVID-19 pandemic. DEXA scans are now only being performed for high-risk patients; breast cancer patients on AIs are not included. Advice from the bone health team was to use the FRAX tool as an alternative risk assessment.
**Methods:** A quality improvement (QI) framework was used to establish a virtual clinic (VC) for FRAX assessments, set-up and run entirely by trainee doctors. Patients commenced on AIs, not currently under the care of the regional oncology centre, were identified by reviewing MDT outcomes. A proforma and online calculator was used for each patient to establish fracture risk and identify those requiring bone support.
**Results:** 85 patients were assessed in 10 VCs during the QI project. 63 patients required FRAX assessment; 45 required bone support.

| FRAX CATEGORY | N | MEDIAN AGE |
|---|---|---|
| Red - For Treatment | 28 | 84 |
| Amber - For Treatment | 17 | 75 |
| Amber - No Treatment | 16 | 67 |
| Green - No Treatment | 2 | 66 |

**Conclusions:** The majority of patients commenced on AIs require bone support. A trainee-led VC was a feasible alternative assessment of osteoporosis risk in this population. Trainees improved the process with time and suggest a proactive approach in completing FRAX assessment at results clinics where patients are commenced on AIs. A suitable proforma has been designed.

## P119. IS IT SAFE TO GIVE OLDER BREAST CANCER PATIENTS CHEMOTHERAPY?

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**Introduction:** The management of breast cancer in patients aged over 70 varies widely, which likely reflects the lack of quality research in this age group. Rates of chemotherapy in this patient group were recently assessed by the National Audit of Breast Cancer in Older Patients (NABCOP), but there is little information regarding patient characteristics or their experience of chemotherapy. We therefore retrospectively assessed all patients who received chemotherapy over the age of 70.
**Method:** Data was collected on all women aged 70 years and over who received chemotherapy for breast cancer in a single unit between July 2015 and July 2020.
**Results:** 97 patients aged over 70 received chemotherapy during the study period, 16.5% (n=16), were aged over 75. The median age was 72 (range 70-83 years). 37.5% (n=6) of the over 75 group completed the full prescribed course of chemotherapy with no dose reduction, compared to 51.9% (n=42) of the 70-74 group. 18.8% (n=3) of the >75-year-old group, and 16.0% (n=13) of the 70-74-year-old group died during the study follow up. None of these deaths were directly related to chemotherapy.
**Conclusion:** Chemotherapy can be safely tolerated in breast cancer patients aged over 70, and even aged over 75, but further research is required, potentially focussing on adjustments to chemotherapy regimens, to ensure a balance is maintained between survival and quality of life. As life expectancies increase nationally, there will be more older patients requiring chemotherapy, and therefore further evidence to facilitate appropriate chemotherapy discussions in this group is needed.

## P120. COMBINED EXPERIENCE OF UTILITY OF GENOMIC PROFILING IN LYMPH NODE-POSITIVE BREAST CANCER: REDUCED PRESCRIPTION OF CHEMOTHERAPY AND FOLLOW-UP

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**Introduction:** NICE does not currently recommend the use of genomic profiling to determine chemotherapy benefit in node-positive breast cancer. We report the combined experience of 2 teaching-hospital MDTs with over 5 years' experience of use of the Oncotype DX Recurrence Score (RS)® in node-positive patients.
**Methods:** Prospectively collected databases (held in Swansea and Oxford) of women with ER-positive/HER2-negative breast cancer with 1-3 positive lymph nodes (including micro-metastasis) using Oncotype between 1/1/2013 and 31/12/19 were combined and reviewed for; MDT recommendation before and after test, the association of NPI and NHS Predict scores to RS® (using Spearman's correlation test) and recurrences with time.
**Results:** All women (n=173) with node-positive cancer would've been recommended adjuvant chemotherapy. After receipt of the RS®, the MDTs recommended 'hormonal therapy only' for 74.5% (129/173) patients. There was no significant correlation found between Predict (p=0.085)/NPI (p=0.34) and RS®. Of the 160 women with at least 12-months follow-up (median:37-months); 5 women moved out of area so were lost to follow-up, 4 had local recurrences, 3 had distal recurrences (2 of whom died) and 1 had a non-breast cancer-related death.
**Discussion:** A significant reduction in chemotherapy recommendation was observed in node-positive patients in both centres demonstrating the benefit of genomic profiling in this group of women. No negative impact has been observed so far by the omission of chemotherapy. Experience over the last 8 years has resulted in increased confidence in using genomic profiling in selected node-positive cases. Our results are in keeping with the recent findings of the RxPONDER study.

## P121. ONCOTYPE DX USE IN N1 DISEASE: A CONSTRUCTIVE CONSEQUENCE OF COVID-19?

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**Introduction:** The COVID-19 pandemic prompted new ABS guidance regarding the use of genomic profiling in patients with 1-3 positive lymph nodes (N1) to aid prioritisation of limited theatre capacity and minimise patients placed at risk of chemotherapy associated immuno-compromise. NICE have approved Oncotype DX use in lymph node negative (N0) patients only. We assessed our utilisation of Oncotype DX in patients with N1 disease and the impact on their management.
**Methods:** Retrospective case series of consecutive Oncotype DX requests from 1st March – 31st October 2020 in a single NHS Trust.
**Results:** Oncotype DX was ordered for 92 patients with ER positive, HER2 negative cancers, twenty-six (28.3%) were performed on core biopsy. Twenty-nine (31.5%) patients had N1 disease. Cancer and patient characteristics were comparable between N0 and N1 patients.

| | N0 | N1 |
|---|---|---|
| Median Recurrence Score (RS) | 18 (0 - 44) | 16 (1-33) |
| Neoadjuvant chemotherapy | 6 (9.5%) | 0 |
| Adjuvant chemotherapy | 14 (22.2%) | 9 (31.0)% |
| Neoadjuvant endocrine therapy | 9 (14.3%) | 4 (13.8%) |

**Conclusions:** Recent data from the RxPONDER trial demonstrates no benefit in chemotherapy in postmenopausal women with N1 disease with a recurrence score <25. In our N1 cohort 24.1% (7/29) fit these criteria for omission of chemotherapy. Our data suggests a small proportion of patients have a high oncotype DX score and benefit from chemotherapy and the use of genomic profiling alters the management of N1 patients in clinical practice.

## P122. WHICH BREAST IS BEST?

Eleanor Badhams. *Royal Glamorgan Hospital, Llantrisant, United Kingdom*

**Background:** Breast reconstruction presents women with life-changing decisions at a time of immense pressure due to concurrent cancer diagnosis.
**Objectives:** To assess whether patient satisfaction with breast care teams, patient autonomy in pre-operative consultation and information provision at Ysbyty Glan Clwyd (YGC) met the standards published in the National Mastectomy and Breast Reconstruction Audit (NMBRA), 2011. To use data to generate a novel decision-making aid.
**Methodology:** A patient satisfaction questionnaire, 'Betsi-Q', was created and sent to 100 mastectomy patients from YGC. Statistical significance was tested using Chi-squared test, T-test (Yates correction) and Z- score.
**Results:** Completed questionnaires were returned by 44 respondents (44%). Shy of the 90% NMBRA recommendation, patient satisfaction with the team was reported high in 35/41 respondents (85%). The audit identified 36 respondents (86%) felt they made an informed decision regarding breast reconstruction, exceeding the 80% NMBRA recommendation. Information regarding the emotional and sexual benefits of breast reconstruction over mastectomy alone, were discussed with 10 respondents (26%), despite recommendations to discuss with all patients. Exploration of more than one option for breast reconstruction was only reported in 29/42 respondents (70%), below the 90% NMBRA recommendation.
**Conclusion:** Patient satisfaction with the team at YGC is high but efforts to ensure all patients are making an informed decision should be made. Early identification and correction of misinformation, along increasing the variety of resources for patient education will manage expectations and enhance patient experience. The decision-making tool designed alongside this audit aims to address this.

## P123. REDUCED UPTAKE OF BREAST RECONSTRUCTION PERSISTS AMONGST SOUTH ASIAN WOMEN IN A LARGE INNER CITY UK HOSPITAL FOLLOWING REMOVAL OF KNOWN BARRIERS TO TREATMENT

Stephanie Young [1], Elliott Cochrane [1], Andrew Williams [2]. [1] *Leeds Teaching Hospitals, Leeds, United Kingdom;* [2] *Bradford Teaching Hospitals, Bradford, United Kingdom*

Uptake of breast reconstruction following mastectomy for breast cancer in South Asian patients is low worldwide compared to other ethnic groups. Our large inner-city teaching hospital has the largest South Asian population in the UK. We examined breast reconstruction rates in our South Asian patients, free from financial or communication barriers, and identify reasons for any variation.

**Materials and Methods**: This retrospective cohort study was undertaken at the Bradford Royal Infirmary. Patients undergoing mastectomy for breast cancer between 9/11/2010 and 18/4/2016 were eligible for inclusion. Data was extracted from clinic letters and analysed using Stata.
**Results:** During the study period, 405 women were included for analysis. Sixteen percent were from South Asian backgrounds. Only 21% patients from the South Asian group underwent reconstruction compared to 42% from Non-Asian backgrounds (p=0.001). South Asian patients were on average 5.7 years younger (95% CI 1.8-9.6) compared to Non-Asian patients but had higher rates of diabetes mellitus (24% v 6%, p=<0.000). The groups were comparable for hypertension, respiratory disease and cardiac disease. Following multivariable analysis, the adjusted odds ratio for South Asian patients undergoing breast reconstruction following mastectomy was 0.15 (0.07-0.35, p=<0.001).
**Conclusions:** South Asian women are significantly less likely to undergo breast reconstruction in our unit, independent of age, smoking status, diabetes and radiotherapy. This is despite having a dedicated service to support decision making and no financial barriers to access. Further qualitative work examining attitudes towards reconstruction is warranted to support South Asian women undergo treatment for breast cancer.

## P124. SHOULD I USED A DRAIN IN THE DIEP FLAP DONOR SITE? A TRADITIONAL PRACTICE AND OUR SENIOR SURGEON EXPERIENCE WITH DRAIN-FREE DONOR SITE

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**Introduction:** Deep Inferior Epigastric Perforator (DIEP) has increased in popularity and is considered gold standard for breast reconstruction after mastectomy. Traditionally drains are used in the DIEP donor sites. Published studies have looked at drain-free donor site and results were comparable when drains used. However, their surgical technique involved the use of progressive tension sutures or quilting stitches to reduce the dead space. Our senior authors no longer uses drains in the donor or suturing techniques for reduction of dead space. We present the outcome of the patients and compare it with the literature.
**Methods:** A prospective study was undertaken on the DIEP cases performed by the senior author between 2016 and 2020 after approval by the audit department. Data collected included patients' demographics, smoking history, BMI, PMH, and length of hospital stay. We also explored donor site complications specifically looking at donor site complications.
**Results:** 147 patients underwent DIEP reconstruction and 138 case were included. 36 cases were bilateral. Patients were followed up regularly for at least 12 months. The mean age was 50.7 and mean BMI of 29.9. Nine (6.5%) patients developed abdominal wound dehiscence, 1 (0.7%) presented with superficial wound infection and 3 patients (2%) had seroma that required aspiration. Our total complication rate was 10.2%.
**Conclusion:** Our complication rate following drain-free closure of abdominal wounds after DIEP are comparable to the results published in the literature. Our results shows that abdominal wounds can be safely closed without drains or dead space reducing sutures.

## P125. SETTING UP A NEW MICROSURGICAL BREAST SERVICE IN A NON-TERTIARY HOSPITAL. IS IT SAFE, AND DO OUTCOMES COMPARE TO CENTRES OF EXCELLENCE?

John Kiely, Andrew Stirrup, Kirsty Smith, Will Holmes. *Department of Plastic and Reconstructive Surgery, Pinderfields Hospital, Wakefield, United Kingdom*

**Aims:** Access to autologous reconstruction continues to be limited in some areas of the United Kingdom. This is, in part, due to the perceived difficulty

offering this service outside of a large tertiary centre. We present our experience setting up a new microsurgical breast reconstruction service in a district hospital and compare our results to the published outcomes of large volume centres.
**Methods:** Patient data was collected prospectively from the start of the service to date (July 2018- July 2020) with capture of demographics, management and outcomes. The BREAST-Q tool was used pre-operatively and at a minimum of 3 months.
**Results:** The first 40 patients undergoing DIEP reconstruction were included. 70% were immediate, mean age 49 years (27-68), BMI 28.1 kg/m2 (22- 32.5). 50% had one or more co-morbidities other than breast cancer. Median length of stay was 3 days (2-6) with 75% of patients discharged day 2 or 3. 10 patients' stay exceeded 3 days – mostly due to social reasons. Flap loss occurred in 1 patient (2.5%). Twenty-one patients developed complications (52%) within 90 days: Seven Clavien-Dindo Grade I, two Grade II and ten Grade IIIb. Fat necrosis and mastectomy flap necrosis were the most common complications. Surgical intervention was higher in those needing adjuvant therapy. Patient reported outcomes showed post-operative improvement across all domains except abdominal physical well-being at median 11.3 months.
**Conclusions:** We present the shortest published length of stay for unilateral DIEP reconstructions. We are the first paper to publish PROMs following a breast microsurgical.

## P126. IMPLANT-BASED RECONSTRUCTION FOLLOWING MASTECTOMY IN PATIENTS THAT HAVE HAD A PREVIOUS BREAST AUGMENTATION; LESSONS FROM THE NATIONAL MULTICENTRE IBRA STUDY

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**Introduction:** Breast augmentation is the most commonly performed cosmetic procedure, and women in this group increasingly present with breast cancer, or for risk-reducing surgery. Optimal surgical management of these patients is undetermined. We aimed to compare the clinical and patient-reported outcomes (PROs) of these patients undergoing immediate implant-based breast reconstruction (IBBR) with those that had not had previous augmentation in the iBRA study.
**Methods:** Patients undergoing IBBR were prospectively recruited from 81 UK breast and plastic surgery units from February 2014-June 2016. Demographic, operative, oncological data, and complications within 3 post-operative months, were collected. PROs at 18 months were assessed using the BREAST-Q™.
**Results:** 49 of 2108 women in the iBRA study had undergone previous augmentation. They were younger (median 45 years vs 50, p=0.01), had a lower BMI (22.8 kg/m2 vs 24.9, p<0.01), and had smaller tumours (15mm vs 25mm, p=0.01) than patients without previous augmentation. No differences were seen in operative technique. Complications at 3 months were similar in both groups and there were no significant differences in PROs at 18 months.
**Conclusions:** This is the first UK series of this growing cohort. The clinical and PROs of patients undergoing IBBR following previous augmentation are consistent with those observed in the wider iBRA cohort, supporting the safety of this approach, but operative techniques reported in the wider literature remain heterogeneous. Prospective national data sets with PROs are now required to compare the outcomes of breast conserving surgery and mastectomy for this group to determine best practice.

## P127. COMPARISON OF EARLY OUTCOMES OF ONCOPLASTIC BREAST CONSERVATION SURGERY VERSUS MASTECTOMY AND IMMEDIATE IMPLANT RECONSTRUCTION IN MANAGEMENT OF RETROAREOLAR TUMOURS

Samreen Khan, John Mathew. *North West Anglia NHS Foundation Trust, Peterborough, United Kingdom*

**Introduction:** The aim of our study was to compare the early outcomes of oncoplastic breast conservation surgery (OBCS) versus mastectomy and immediate implant-based reconstruction (MIIR) in the treatment of retroareolar breast cancers.
**Methods:** Review of a prospectively collected data by a single surgeon between Sep 2016 and Nov 2020 for tumours involving the nipple or within 2 cm of the nipple. The data collected included presentation (screening or symptomatic), smoking, BMI, bra size, pathology, neo-adjuvant treatment, complications, delay in adjuvant treatment, local recurrence and distant metastasis. A telephone patient satisfaction questionnaire was used for patients who had OBCS with nipple areola complex reconstruction. Data analysed using Chi-squared test and a P value of < 0.05 was considered significant.
**Results:** Eleven patients had OBCS (central excision -3, Wise pattern therapeutic mammoplasty-2, Vertical scar therapeutic mammoplasty with areola reconstruction-1, Vertical scar therapeutic mammoplasty with Nipple areola complex reconstruction- 5). All five patients who had vertical scar therapeutic mammoplasty with nipple areola complex reconstruction responded to the patient satisfaction questionnaire (Excellent-2, Very good-1, Good-1, Average-1, poor-0). There was significant statistical difference between the two groups with regard to complications in favour of OBCS as shown in table 1 (P= 0.010). Three patients in implant reconstruction group developed distant metastasis.

**Table 1**

| | Oncoplastic breast conservation surgery -11 Median FU- 23 M (1-50) | Mastectomy and immediate implant reconstruction- 26 Median FU- 24 M (2-46) |
|---|---|---|
| Complications | 0 | 11 (5 red breast, 3 superficial wound necrosis, 3 delayed cellulitis and implant loss) |
| Delay in adjuvant treatment | 0 | 1 |

**Conclusion:** OBCS is associated with significantly less complications compared to MIIR in treatment of retroareolar tumours. Patient satisfaction survey suggested high satisfaction in most patients undergoing vertical scar therapeutic mammoplasty and nipple areola complex reconstruction.

## P128. OUTCOMES OF DEFINITIVE IMPLANT-BASED RECONSTRUCTION USING A DELAYED-IMMEDIATE APPROACH IN THE CONTEXT OF ANTICIPATED POST-MASTECTOMY RADIOTHERAPY

Giulio Cuffolo[1], Ayushi Pandey[2], Rebecca Windle[3], Nicola Dunne[2], Brendan Smith[2]. [1] *Nottingham Breast Institute, Nottingham, United Kingdom;* [2] *Royal Berkshire Hospital, Reading, United Kingdom;* [3] *Sheffield Teaching Hospitals, Sheffield, United Kingdom*

**Introduction:** Where post-mastectomy radiotherapy is anticipated, our unit has adopted a delayed-immediate approach using a temporary subcutaneous implant. Kronowitz originally described definitive autologous reconstruction, but with advances in implant-based reconstruction, we have offered both where appropriate and report here the outcomes of

definitive implant reconstruction.
**Methods:** A retrospective analysis of clinical records was performed for all patients undergoing delayed-immediate reconstruction with definitive implant-based reconstruction.
**Results**: 28 patients underwent 28 mastectomies (12 nipple sparing and 2 skin reducing) between 2009-2019. Median age was 48, two were smokers and one was diabetic. Median tumour size was 40mm (18-90mm) and 7 patients had multifocal disease. 89.3% were hormone sensitive, 17.8% HER-2 positive and 68% underwent axillary node clearance. Twenty patients underwent chemotherapy and twenty-five (89.3%) underwent adjuvant radiotherapy. The median mastectomy weight was 394g (range 123-809g) with median temporary implant size of 370cc (180-550cc). Two patients lost their temporary implant but continued with implant-based reconstruction. Three patients experienced grade 4 capsular contracture following radiotherapy. The median time to definitive reconstruction was 14 months (5-36). 15 patients had acellular dermal matrix (ADM) assisted prepectoral reconstruction, 10 subpectoral ADM assisted, 2 subpectoral with dermal slings and one subpectoral only. Two definitive implants were lost (7.1%) with one return to theatre for wound debridement. One patient developed grade 3 capsular contracture within the study. A further 8 reconstructive operations on 7 patients included mainly nipple reconstructions and contralateral symmetrisation.
**Conclusions:** Delayed-immediate definitive implant reconstruction is achievable with acceptable complication rates and low rates of revisional surgery.

## P129. DESIGN AND IMPLEMENTATION OF A VIRTUAL POSTGRADUATE GLOBAL OSCE

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**Introduction:** The UEA Masters degree in Oncoplastic Breast Surgery (MS) includes a face-to-face OSCE examination to assess students' practical and clinical competencies at consultant level. The COVID pandemic necessitated the design of an entirely virtual OSCE examination.
**Methods:** The traditional MS OSCE comprised seven summative clinical stations mapped to all key learning outcomes. Each station was 12 minutes duration, marked independently by two experienced examiners. Operative competency was assessed via a formative logbook station. Total assessment time was 108 minutes. The virtual OSCE comprises two separate assessments: a summative clinical OSCE and a formative practical OSCE, with a total assessment time of 105 minutes. The clinical OSCE maps learning objectives to three 20-minute stations, assessed and marked independently by two examiners. The practical station expands the logbook review to include student videos demonstrating marking-up and operative competencies to a panel of examiners.
**Results:** The MS e-learning team ran the online clinical OSCE in September 2020. Zoom was selected as the virtual platform due to superior functionality. Detailed instructions were provided to both the students and examiners prior to the exam. Online marking forms were created, facilitating real-time analysis of results. An independent UEA moderator and external examiner were present to ensure quality control.
**Conclusions:** Despite students located globally, the examination ran smoothly with positive feedback from both examiners and students. Internet connectivity and the need for a separate communication link such as WhatsApp groups were highlighted. Further development of asynchronous practical assessments with 3D technology for OSCEs is underway.

## P130. DELAYED IMMEDIATE IMPLANT BREAST RECONSTRUCTION – HOW TEMPORARY IS TEMPORARY?

Belinda Pearce, Alison Luther, Julia Gibb, Avi Agrawal. *Portsmouth Hospitals University NHS Trust, Portsmouth, United Kingdom*

**Introduction:** Subcutaneously placed breast implants for reconstruction have been associated with unsatisfactory cosmetic outcomes and high implant loss rates. In our unit they are used for skin envelope preservation to allow completion of adjuvant treatments that may negatively affect a definitive reconstruction. We noted that some patients subsequently declined definitive reconstruction. We aimed to quantify this, identify factors contributing to these decisions, and assess rates of implant loss in this group.
**Methods:** A retrospective review was conducted of all patients in our unit who had a delayed immediate implant-based breast reconstruction from 2011-2019.
**Results:** A total of 92 patients underwent delayed-immediate implant reconstruction (average age of 48, range 22-84). Most patients (73%, n=68), were offered this procedure due to predicted requirement of adjuvant treatments. 40% (n=36) patients did not a have definitive reconstruction, and the main reason for this was patient choice (69%, n=25). Of those that opted to remain with their 'temporary' reconstruction, 60% (n=15) had undergone post-mastectomy radiotherapy (PMRT). Overall implant loss rate at 6 months was 9% (n=8) and occurred at an average of 2.25 months post-surgery.
**Conclusion:** Our results suggest that the delayed-immediate approach is safe, with acceptable rates of implant loss in this high-risk group. A significant number of patients, despite having PMRT, decided to not have definitive reconstruction, suggesting that for some patients a subcutaneous breast implant is an acceptable long-term option, and should be offered if appropriate. More research is required regarding patient factors, which affect their reconstruction decision making.

## P131. SURGICAL OUTCOMES FOR PATIENTS UNDERGOING BREAST OPERATIONS DURING COVID

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**Introduction:** Performing breast surgery in COVID-19 times has presented its own challenges, we present our own unit's outcomes of all breast surgical work during since the first COVID-19 lockdown.
**Methods:** Retrospective review of all surgical patients who underwent elective surgery within the breast unit between 1/4/2020 to 30/11/2020. Data was mined for the type of surgery, length of stay, margin rate, mastectomy rate and immediate reconstruction rate and type.
**Results:** 213 operations were performed. 151/213 (70.9%) were primary cancer operations, 126/151 (83.4%) had breast conserving surgery (BCS). 32/126 (25.4%) were level II procedures, 11/32 (34.4%) therapeutic mammoplasties (TMAM) with symmetry, 8/32 (25%) unilateral TMAM, and 13/32 (40.6%) BCS and local perforator flap. Overall re-excision rate was 19/126 (10.3%), WLE 4/49 (8.2%), image guided WLE 6/45 (13.3%), Level II BCS 5/32 (15.6%). 25/151 (16.6%) had a primary mastectomy, 8/25 (32%) had immediate reconstruction, of which 4/8 (50%) were implants, 5 more had completion mastectomies to clear margins making total mastectomy rate 30/151 (19.8%). 161/213 (75.6%) of all operations were day cases, 48/213 (22.5%) were overnight stay and 4/213 (1.9%) (DIEPs) stayed more than 1 day. 10/19 (52.6%) mammoplasties were overnight stay with the remainder being day case, 11/13 (84.6%) of local perforator flaps were day cases. 4/21 (19%) of non-DIEP mastectomies stayed overnight, all immediate implant reconstructions were day cases.
**Conclusion:** During COVID, we were able to maintain a high degree of BCS by employing an increased range of level II procedure in "extreme" cases to avoid a mastectomy, resulting in a low mastectomy rate and a high day case rate, while also maintaining a low margin rate.

## P132. ONCOLOGICAL SAFETY OF EXTREME ONCOPLASTIC BREAST CONSERVATION IN HIGH RISK PATIENTS

Belinda Pearce [1], Roanne Fiddes [2], Nirmala Paramanathan [3], Natalie Chand [3], Siobhan Laws [3], Richard Rainsbury [3]. [1] *Portsmouth Hospitals University NHS Trust, Portsmouth, United Kingdom;* [2] *Salisbury NHS Foundation Trust, Salisbury, United Kingdom;* [3] *Royal Hampshire County Hospital, Winchester, United Kingdom*

**Aims:** The safety of breast conserving surgery (BCS) and radiotherapy compared with mastectomy has been long established but much of the data is based on lower risk tumours. Oncoplastic breast surgery has pushed breast conservation boundaries, enabling larger resections in patients who traditionally would have undergone mastectomy. Long-term follow-up (FU) data for these higher risk groups having BCS are limited. We examined the oncological safety of our patients having extreme oncoplastic BCS (eOPBCS, tumours >50mm) and compared them with patients in 2 major studies (START, EBCTCG).
**Methods:** A prospectively collected database of all eOPBCS procedures (1993-2016) using LD miniflaps (MF) and therapeutic mammoplasties (TM) was interrogated and cross-checked with hospital records to establish demographics, length of FU and local recurrence (LR).
**Results:** (See table 1) Eighty-eight eOPBCS procedures (62 MF, 26 TM) were performed for invasive tumours or DCIS (28% multifocal). Average FU was 80 (10-308) months (>5 years in 59% of patients). Eleven patients required surgery for positive margins. The overall rate of LR (8%) was not increased by multifocality, and the predicted 5-year LR rate was 1.1%.

**Table 1**

| | eOPBCS | START | EBCTCG |
|---|---|---|---|
| Tumour Size | All>50mm, 67 (50-77)mm, 251 (73-975)gm | 21.6%>30mm | 6%>50mm |
| Node positivity | 45% | 29% | 10% |
| Grade 3 | 35% | 28% | 12% |

**Conclusion:** This is the largest study of eOPBCS, with the longest FU reported to date. 5-year LR rates are well below targets in UK and European guidelines. Excellent local control can be achieved with eOPBCS, even when treating patients at a high risk of LR.

## P133. CURRENT PRACTICE AND PROVISION OF ONCOPLASTIC BREAST SURGERY IN THE UK: PRELIMINARY RESULTS OF THE ANTHEM NATIONAL PRACTICE SURVEY

Charlotte Davies[1], Lisa Whisker[2], Joanna Skillman[3], Douglas MacMillan[2], Chris Holcombe[4], Shelley Potter[1]. [1] *Bristol Medical School, Bristol, United Kingdom;* [2] *Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom;* [3] *University Hospitals Coventry and Warwickshire NHS Trust, Coventry, United Kingdom;* [4] *Liverpool University Hospitals NHS Foundation Trust, Liverpool, United Kingdom*

**Introduction:** Oncoplastic breast conserving surgery (OPBCS) has fewer complications than mastectomy +/-immediate breast reconstruction (IBR) and may represent a better option for many women with breast cancer. Studies directly comparing the techniques, however are lacking. The 4-phase ANTHEM study aims to determine the feasibility of undertaking in large-scale comparative study. The first phase of ANTHEM, a national practice survey, aimed to explore the current practice of OPBCS to inform the design of the future study.
**Methods:** An electronic survey was developed by the ANTHEM steering group to explore the current practice of OPBCS. This included the local availability of volume displacement/replacement techniques; numbers of cases performed and local clinical and oncological contraindications to OPBCS.
**Results:** To date, 48 UK centres have completed the survey including 35 (73%) stand-alone breast and 13 (27%) combined breast/plastics units. Over 40% (n=20) treated more than 500 cancers/year. All units offered volume displacement. Over two-thirds (n=33,71%) of units offered local perforator flaps (LPF) with two-thirds (7/11) of the remainder planning to introduce the technique in the next 12-months. There were limited oncological restrictions to OPBCS with no contraindications for large or multifocal cancers in most centres; three-quarters (32/44) offered OPBCS for multicentric disease. Extensive DCIS was a contraindication in less than 20% of centres.
**Conclusions:** Volume displacement and replacement techniques are widely available and may improve outcomes for patients traditionally-offered mastectomy. Phase 2, the ANTHEM cohort study will compare the clinical and patient-reported outcomes of OPBCS and mastectomy+/-IBR to allow this to be explored further.

## P134. CONSENT FOR THERAPEUTIC MAMMOPLASTY - HOW SHOULD WE ADVISE PATIENTS IN LIGHT OF THE RECENT CUMBERLEGE REPORT

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**Background:** With increasing numbers of trained oncoplastic breast surgeons, rates of therapeutic mammoplasty (TM) are increasing. Are patients fully informed about the potential need for further surgery? Can we improve this by better pre-op planning.
**Method:** We reviewed 127 TMs performed by 4 surgeons over 5 years (2014-2019), along with the rates of 2nd surgery and mastectomy for involved margins and whether pre-op MRI was helpful in planning surgery.
**Results:** 98 women with straightforward conventional imaging and clinical/ radiological correlation had TM without MRI. Their rate of 2nd surgery was 12% and ultimate mastectomy rate was 5% (better than national data for standard WLE). 7 women had neoadjuvant chemotherapy with serial MRIs and then TM. None required a 2nd operation. 22 women with extremely dense breasts, initial occult cancer or possible multifocal disease had a pre-operative MRI. In this group 7 (32%) required 2nd surgery and 4 of these (18%) ultimately had a mastectomy. 6 of the 7 requiring further surgery had extensive DCIS or lobular carcinoma.
**Conclusion:** TM is an operation with high patient satisfaction. Women with "simple" conventional breast imaging can be reassured that the likelihood of surgical success is high. However, those with complex imaging requiring pre-operative MRI need to know there is a 30% chance of further surgery, which is often a mastectomy. These are largely women with extensive DCIS or lobular carcinomas, which are difficult to assess even with MRI. This knowledge is critical in pre-op discussions and may well affect "informed" consent.

## P135. INDICATIONS FOR LOCAL PEDICLED-PERFORATOR FLAPS (PPFS). FEASIBILITY, SAFETY AND NOVEL USE DURING THE COVID-19 PANDEMIC AND RECOVERY PHASE

Rachel O'Connell, Lynsey Williams, Nihal Gonen-Yildirim, Edward St John, Katherine Krupa, Jennifer Rusby, Peter Barry. *The Royal Marsden NHS Foundation Trust, London, United Kingdom*

**Introduction:** Local pedicled-perforator flaps (PPFs) can replace resected volume during breast-conserving therapy (BCT). The aim was to evaluate the use of PPFs during the COVID-19 pandemic when the moratorium on reconstruction heightened the role of breast conservation.
**Methods:** A prospective database of all patients who underwent PPFs as part of their surgical treatment between 15/2/20-7/9/20 was analysed. Patient demographics, indication for surgery and complications were analysed.
**Results:** Local audit approval was gained. Twenty-two females underwent single stage PPF. Mean age was 57.6 years (range=37-84), mean BMI was 27.0 kg/m$^2$ (range=17.5-46). Indications for PPF were volume replacement as part of BCT (n=16), mastectomy and resurfacing for locally-advanced breast cancer (n=2) and later, for whole breast autologous reconstruction in women unsuitable for standard options (n=4). Mean breast resection specimen weight was 211g (range=13-1150). Mean tumour extent was

62mm (range=12-175). One patient had unplanned return to surgery for venous infarction of a small area of the distal flap. Other complications were seroma requiring aspiration (n=1) and post-operative pain requiring medication beyond 2 weeks (n=3). There were no flap failures or infections. No patients acquired COVID-19 peri-operatively. Median follow-up was 149 days (minimum 35). All patients commenced planned adjuvant therapy (radiotherapy n=18, chemotherapy n=6) without delays.
**Conclusion:** The use of local flaps for volume replacement during BCT and whole breast reconstruction is a safe approach to avoid simple mastectomy with low re-admission rates. We describe a novel use of PPFs for resurfacing of the chest wall for locally advanced breast cancer.

## P136. OUTCOMES OF IMMEDIATE BREAST-RECONSTRUCTION POST MASTECTOMY IN AN ONCOPLASTIC BREAST UNIT DURING THE COVID-19 PANDEMIC

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**Aim:** The SARS-CoV-2 pandemic had a significant impact on breast-cancer surgery in the UK. Most breast units were advised to stop immediate breast reconstructions for mastectomy patients. Our unit introduced a policy to offer immediate, pre-pectoral implant-based reconstructions for patients using "Covid-negative" private hospital facilities. A protocol was introduced and outcomes audited.
**Method:** A retrospective study was conducted; 22 patients underwent mastectomy and breast reconstruction between 31.03.2020 to 24.11.2020. 4 patients were excluded due to incomplete data sets. Data was collected using patient notes, electronic records and an online survey based on the Breast Q/ BR-45 questionnaires.
**Results:** During this period, 25 operations were undertaken; including 4 revision and 2 symmetrisation procedures. No patients developed COVID-19 during their recovery or follow-up. Patient ASA range was 1-3. 4/18 patients underwent revision surgery for wound refashioning. Risk factors included smoking (2/4), low BMI (1/4) and learning disability (1/4). Average operating time was 124 minutes (including axillary surgery). 10/18 patients had an overnight inpatient stay. 12/18 patients completed the follow-up survey; all patients (12/12) felt safe coming to the breast unit for their treatment, and 10/12 patients stated that a delayed reconstruction would have had a negative psychological impact. 11/12 patients felt they had received sufficient pre-operative information regarding their treatment options and covid risk.
**Conclusion:** The COVID-19 pandemic has delayed breast reconstruction for large numbers of patients nationwide. We have demonstrated that strict preoperative shielding and covid-negative theatres, allowed the safe continuation of implant-based reconstruction, with a positive impact on our patients.

## P137. LONG-TERM BREAST PAIN 24 MONTHS AFTER BREAST CANCER TREATMENT: THE ASSOCIATION WITH PAIN SENSITIVITY AND PAIN CATASTROPHIZING - A PILOT STUDY

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**Background:** Long-term breast-pain after breast cancer treatment affects survivors' QoL. Less is understood on the trajectory of breast pain over time and the association of pain catastrophizing and pain sensitivity. Understanding this may help clinicians address this important issue.
**Methods:** Patients who underwent breast-conserving surgery followed by radiotherapy (+/- adjuvant chemotherapy) enrolled within the REQUITE study (Leicester Cohort) and had completed the EORTC-QLQ-BR23 breast-pain item-20 at 24-month clinical follow-up were included in this study. Patients were contacted at least 36 months after enrolment to complete additional questionnaires on pain sensitivity and pain catastrophizing. Association of patient, treatment, radiation toxicity, psychological and QoL variables with breast pain at 24 months was explored and adjusted for in multivariate and time-trend analysis.
**Results:** Of 229 patients, 106 patients reported any breast-pain (44.8%), 26 patients reported moderate-severe breast-pain (11.4%). Little agreement was shown between patient reported and clinician recorded moderate-severe breast-pain (k=0.197, p=0.014). Reports of any breast-pain reduced over time from post-surgery/pre-radiotherapy to 24-months (OR: 0.66 CI:0.56-0.78; p<0.001), moderate-severe breast pain remained higher than pre-radiotherapy (11.4% vs. 6.4%, p>0.05). Completed data for pain catastrophizing and sensitivity was available for 97 patients, no significant association was found for breast pain at 24 months.
**Conclusion:** Breast-pain after breast cancer treatment remains a significant concern and is potentially underreported to clinicians. While the incidence of breast pain fell over the study period, the proportion of women with moderate-severe breast pain actually increased at 24 months following radiotherapy and surgery. Further work is needed to determine the utility of pain sensitivity tools to identify patients at increased risk of this long-term side effect.

## P138. THE POTENTIAL IMPACT OF CHEST WALL PERFORATOR FLAPS IN AVOIDING MASTECTOMY

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**Introduction:** Partial breast reconstruction using chest wall perforator flaps (CWPF) can potentially reduce the rates of mastectomies, owing to the feasibility of doing large volume replacements. Breast conserving surgery for larger tumour size would leave a defect which may amount to >40-50% of volume loss. A retrospective audit was conducted to assess how many mastectomies were avoided by using CWPF.
**Methods:** An audit of Lateral intercostal artery perforator flap (LICAP) flaps performed at our institution from April 2017 to January 2020 was undertaken and parameters including demographics, pathology, tumour size, oncoplastic MDT outcomes and complications were collected and analysed. Larger tumour size group with a median of >4cm were considered as a cut-off for mastectomy. Approval for the study was obtained from the audit department.
**Results:** LICAP flap was performed in 76 patients. Breast cup sizes in the group ranged from A-C. Twenty one patients had a median tumour size of 40mm (range=30-60) and median weight of 88 gms (range=35-172). Fifteen were symptomatic and 6 were screen detected with a median age of 56 years. Two patients (9.52%) developed hematoma and one patient (4.76%) developed wound dehiscence as early complication. Five patients (23.8%) required re-excision of margins. None of them required completion mastectomy.
**Conclusion:** Our study demonstrates that CWPF can reduce mastectomy rates and improve the rates of breast conservation surgery, which will impact positively on patient experience.

## P139. A NOVEL PURSE-STRING TECHNIQUE FOR CREATING AN ACELLULAR DERMAL MATRIX POCKET FOR IMPLANT-BASED PRE-PECTORAL BREAST RECONSTRUCTION

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**Introduction:** Pre-pectoral implant-based breast reconstruction is increasingly being used for patients requiring mastectomy. We describe a novel technique using a purse-string suture to create a pocket from a fenestrated rectangular sheet of acellular dermal matrix (ADM) mesh around the implant prior to positioning on the chest wall.
**Methods:** All procedures were performed by a single consultant oncoplastic breast surgeon. Patients were included from 19/12/2018 to 10/12/2020. Implants were prepared on a sterile back-table intra-operatively by placing them face down in the centre of a fenestrated rectangular 20x10cm Surgimend ADM mesh. The mesh was then gathered around the implant with a 3(0) PDS purse-string suture to achieve full anterior and partial posterior coverage. This was secured to the pectoralis major fascia in the

desired position with sutures at the 3, 9 and 12 o'clock positions.
**Results:** 15 patients with a total of 24 implants were included in this study. Median age was 51 (range 24-77). Table 1 shows details of the indications for surgery, implant and pocket type, radiotherapy, post-operative complications and patient-reported outcomes. Implant volume up to 550cc was used. Follow-up data at three months was available for 12 patients and showed no implant loss or readmission.

**Table 1**

| | Number of breasts [number (%)] |
|---|---|
| **Indication for surgery** | |
| Malignancy | 16 (66.7%) |
| Risk-reducing mastectomy | 5 (20.8%) |
| Implant revision to pre-pectoral | 3 (12.5%) |
| **Number of stages** | |
| Single-stage fixed implant | 21 (87.5%) |
| Two-stage with temporary expander | 3 (12.5%) |
| **Radiotherapy** | |
| Previous radiotherapy | 2 (8.3%) |
| Radiotherapy between stages | 3 (12.5%) |
| Post-operative radiotherapy of fixed implant | 2 (8.3%) |
| **Implant pocket composition** | |
| ADM alone | 17 (70.8%) |
| ADM with dermal sling | 7 (29.2%) |
| **Complications within 3 months (n=18 implants)** | |
| Seroma requiring up to 2 aspirations | 5 (28%) |
| Wound infection | 1 (6%) |
| Superficial skin infection | 1 (6%) |
| Implant loss | 0 (0%) |
| **Readmission within 3 months (n=12 patients)** | 0 (0%) |
| **Patient-reported outcomes: BREAST-Q (n=12 patients)** | |
| Satisfaction with breasts [mean (SD)] | 74 (14.4) |
| Psychosocial wellbeing [mean (SD)] | 70 (50.2) |

**Conclusions:** The purse-string method of implant control using fenestrated Surgimend ADM is a straightforward, feasible technique for pre-pectoral implant-based breast reconstruction. It provides full anterior coverage and is simple and quick to perform. Our initial experience suggests that complication rates and patient-reported outcomes are comparable to published studies of implant-based breast reconstruction.

## P140. RESTARTING STREAMLINED: ADDRESSING THE CHALLENGES OF THE COVID-19 CRISIS IN BREAST RECONSTRUCTION WITH ENHANCED SELECTION AND ERAS

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**Introduction:** The current COVID-19 pandemic has restricted the capacity of Scotland's hospitals to offer breast reconstruction surgery. The aim of this project was to examine if services could recommence effectively whilst minimising risk to patients from COVID 19 through the introduction of more selective criteria for patient selection (BMI<30, non-smoker, age<60), alongside a new Enhanced Recovery After Surgery (ERAS) pathway.
**Methods:** Data was collected prospectively for patients across 2020 detailing patient demographics and medical risk factors, and outcome metrics, including LOS, post-operative opiate use (normalised to milligrams of oral morphine), costs, and complications (stratified using the Clavien-Dindo classification) to compare outcomes between the pre-COVID patient cohort (n=37) (January 2020-March 2020) and the peri-COVID cohort (n=11) (September 2020-December 2020). Statistical comparison was made using a Student T test for parametric data and Mann-Whitney test for non-parametric data, significance level was set at $p<0.05$.
**Results:** Complications were reduced in the ERAS group (CD score 1 vs. 0, p=0.0187). LOS (4.68 vs. 3.11 days p=0.0421) was significantly reduced for free-flaps (n=9), but not for all reconstructions (4.73 days vs. 2.83 days, p=0.16). Opiate and anti-emetic usage were not significantly different.
**Conclusions:** This data is an early report, and represents a heterogeneous mixture of reconstruction types. However, we have already seen a significant reduction in complications and free-flap LOS with its use and, to date, have found that the combination of narrower patient selection and the introduction of ERAS is a feasible solution to address the risk-minimising requirements of a peri-COVID-19 breast reconstruction service.

## P141. MESH-POCKET SUPPORTED PREPECTORAL IMPLANT-BASED BREAST RECONSTRUCTION: FINAL RESULTS OF A RETROSPECTIVE ANALYSIS

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**Introduction:** Implant based breast reconstruction gained a high and increasing level of importance, currently performed with implant-placement in a pre-pectoral pocket. Although the safety and breast aesthetics of this approach are well recognized prepectoral techniques adds a whole new dimension with the development of the next generation of specific for prepectoral implant placement created titanized implant pockets - especially in patients with smooth implants.
**Material and Method:** A retrospective net-based documentation was done in 135 patients (42 patients with bilateral procedures). Data focused on patient demographics, indication, feasibility and short term cosmetic outcome were analysed.
**Results:** From on 10/2017 until 09/2018 patients were analysed; (age 23-81, mean BMI was 24.7 ± 4.6 kg/m$^2$). Cosmetic outcome, judged by breast surgeons, was rated in 85.9% as very satisfied, in 11.9% as somewhat satisfied and in 0.7% as somewhat dissatisfied (moderate insufficient). Handling and feasibility of this new product and the prepectoral implant position was easy and sufficient in all cases.
**Discussion:** Use of TiLOOP®Bra-Pocket enables a new standard of pre-pectoral reconstructive techniques preserves the natural anatomy, thereby avoiding adverse effects associated with submuscular reconstruction, minimizing postoperative pain, risk of bleeding and hematoma, and the lack of animation deformity like "jumping breast phenomen". Pocket-supported reconstructive techniques become more valuable in times of changing to implants with smooth surface due to the excellent stabilization of implant position. Since 7/2019 a prospective international multicenter trial is ongoing to demonstrate patient reported outcome parameters (PRO TiLOOP®-Pocket-Trial CLINICALTRIALS.GOV NCT03868514 and DRKS00016673).

## P142. THERAPEUTIC MAMMOPLASTY BREAST TRAINING MODEL NEEDS ASSESSMENT

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**Introduction:** Simulation training has been utilised by the Royal College of Surgeons on their many surgical courses and is a recognised training tool by the Intercollegiate Surgical Curriculum Programme. The purpose of this assessment is to identify training needs in breast surgery registrars and assist in their exposure and training in Therapeutic Mammoplasty, with the aid of a training model. This primary outcome is to build confidence and serve as a teaching tool for those who do not work in centres with a

high throughput.
**Methods:** Data was retrieved and analysed by a Qualitrix survey tool, distributed to UK trainees in Breast Surgery. This is a semi structured questionnaire developed with themes relating to the trainee's surgical experience with Therapeutic Mammoplasty.
**Results:** There were 30 responses to the survey to date nationally and 97% (29) were breast trainees between the ages of 30 to 40yrs. 80% (24) of these have held breast training posts for over 1 year. 30% found it difficult to get exposure to this procedure and most, 48.3% (14), were performing less than 10 per year. Trainees believed that training on a model would increase their confidence. When asked, 48% (14) of trainees expressed desire for further training on pedicle choice and 27.6% (8), mark-up. 76.7% (23) expressed willingness to train on a model.
**Conclusion:** From the responses thus far, trainees feel that a simulated training tool would assist in exposure and decision making outside of the theatre setting.

## P143. PATIENT REPORTED OUTCOMES BEFORE AND AFTER BILATERAL THERAPEUTIC MAMMOPLASTY FOR BREAST CANCER: A PROSPECTIVE AUDIT

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**Introduction:** Bilateral therapeutic mammoplasty (BTM) is commonly performed in the UK during treatment for breast cancer, and data available shows oncological safety. This study aims to compare patient-recorded outcome measures (PROMs) before and after surgery.
**Methods:** Between March 2018-2019 patients undergoing BTM for breast cancer completed the validated BREAST-Q© breast reduction modules before and 3 months after surgery, and a radiotherapy domain at 3 months. Scores were correlated with clinical data from a prospectively collected audit database. Caldicott approval was obtained. For all BREAST-Q© scales, a higher score (0-100) means greater satisfaction or better QOL. Wilcoxon signed-ranks test for paired response was performed using vassarstats.net.
**Results:** 28 patients had available data for analysis, of mean age 57.8 years (range 41-76) and mean BMI 31.9 (22-43). Most (61%) underwent Wise pattern incision. 4 (14%) had axillary node clearance; 21(75%) sentinel node biopsy. 26 (93%) patients had invasive disease; 2 (7%) insitu disease. 5 patients required return to theatre: 2 for haematoma, 2 for margin re-excision, 1 for further axillary surgery. At 3 months post-operatively, the following scores were improved: satisfaction with breasts (medians 44 and 84; $p<0.0001$)), psychosocial wellbeing (medians 57.5 and 83; $p<0.0001$), sexual wellbeing (medians 48 and 61; $p=0.043$). Physical wellbeing was unchanged (medians 71 and 72). In all post-operative domains patients reported high levels of satisfaction with outcomes.
**Conclusion:** Patients report better levels of satisfaction with several factors after BTM for breast cancer, as well as high satisfaction in domains only scored post-operatively.

## P144. USE OF A COMPLETE RESORBABLE SYNTHETIC MESH IN PRE-PECTORAL IMPLANT-BASED BREAST RECONSTRUCTION

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**Introduction:** Safety and breast aesthetics of pre-pectoral implant placement are well recognized; the variability of different ADMs or synthetic meshes adds a whole new dimension of clinical research. TIGR®-Matrix is a complete resorbable mesh with anticipated benefits in long-term follow up e.g. capsular contraction.
**Material and Method:** A retrospective clinical-report-based documentation was done. Data focused on patient demographics, indication, feasibility, specific surgical techniques and short term cosmetic outcome were analyzed.
**Results:** 22 TIGR®-Matrix supported breast reconstructions were analyzed. Age of the patients was between 23 and 81 years (mean 46.4). Primary operations as well as after primary systemic therapy with implant or expander independent on BMI or immediate or delayed reconstruction were performed. Shaping TIGR® individually into 4 different sling or pocket forms were established. Cosmetic outcome, judged by breast surgeons, was rated in > 85% as very satisfied (excellent); early tissue integration, small seroma volume as well as days with drains between 2,5 - 4 were reported. Handling and feasibility of TIGR®-Matrix + smooth implants in pre-pectoral implant position was easy and sufficient in all cases. In four cases occur a reconstructive failure because of involved margins (2), wound infection (1) and wound dehiscence (1).
**Discussion:** Use of TIGR®-Matrix enables an additional opportunity for pre-pectoral reconstructive techniques especially in combination with smooth implants; preserving the natural anatomy and lowers the risk of BIA-ALCL. A prospective international multicenter AWOgyn-trial is planned to demonstrate patient reported outcome and safety parameters.

## P145. PATIENT SATISFACTION WITH NURSE-LED END OF TREATMENT TELEPHONE CONSULTATION FOR BREAST CANCER DURING COVID-19 PANDEMIC

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**Introduction:** The COVID-19 pandemic instigated a change in format of follow-up appointments for patients concluding breast cancer treatment from face-to-face to telephone consultations. We evaluated patient satisfaction with the change in format to establish whether telephone consultations could replace face-to-face consultations in the future.
**Methods:** Thirty-one of 62 eligible patients were randomly selected for the study of which 30 gave verbal consent and completed a telephone survey.
**Results:** Patients reported high mean satisfaction rates for the change of consultation format (8.7/10) and the telephone consultation itself (9.5/10). All patients (100%) felt enough time was allocated, were able to speak freely and were able to ask questions. 93% of patients had all their questions and concerns either completely (87%) or mostly (6%) addressed. 17% of patients would have preferred to have spoken to a doctor rather than a nurse, and 23% thought a clinical examination was needed. On direct questioning, 50% of patients would still prefer a face-to-face consultation.
**Conclusion:** This project has determined that patients were very satisfied with their experience of a telephone end of treatment follow-up consultation, and the change in format given COVID-19 was supported. However, half the patients would prefer a face-to-face consultation and a minority would prefer to consult with a doctor. Other factors, such as healthcare professional perspectives, time and cost-effectiveness should be considered when comparing the two consultation formats. Alternative options, such as giving patients the choice of format or offering video consultations could be considered in the future.

## P146. PRIORITISING BREAST CANCER RESEARCH GAPS: THE VIEWS OF PATIENTS, MEMBERS OF THE PUBLIC, RESEARCH SCIENTISTS AND CLINICIANS

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**Introduction:** Having previously conducted a qualitative study to determine breast cancer research gaps identified by the public and patients (4Ps Study), we combined these with gaps identified by scientists and surgeons. We now aim to prioritise these research gaps and determine whether priorities differ between patients, public, scientists and clinicians.
**Methods:** Research gaps identified in three gap analyses (Breast Cancer Campaign, 2012; ABS, Lancet Oncology 2019 and 4Ps, BMJ Open 2020) were combined as 22 research themes. Patients, public, scientists and clinicians ranked the themes from 1 to 22.

**Results:** Of the 484 responses, 411 were female and 73 male, median age 49 (range 18-91) years. 175 breast cancer patients, 155 public, 36 scientists and 118 clinicians responded. Overall the top three themes were prevention, diagnostic blood test and determining risk, bottom three themes were effect on family, device safety and exploiting IT, however priorities differed between the groups (Tables 1 and 2).

**Conclusions:** First-line staging with CT-Thorax-Abdomen-Pelvis adequately predicts bone metastases, limiting bone imaging to selected cases where the distribution of disease is required. Moderate rates of pelvic pathology are identified, but the number of visits and cost of additional pelvic imaging is out weighted by the reduction in bone imaging.

**Table 1**
Top three themes (mean rank)

| | Top | Second | Third |
|---|---|---|---|
| Patients | Diagnostic blood test(6.17) | Prevention(7.06) | How cancer develops(8.63) |
| Public | Prevention(4.78) | Determining risk(6.96) | Diagnostic blood test(7.23) |
| Scientists | Treatment response prediction(6.56) | How cancer develops (6.83) | Minimising side effects(6.89) |
| Clinicians | Prevention(6.91) | Improved surgery(7.38) | Determining risk(7.44) |

**Table 2**
Lowest ranked themes

| | | | Lowest |
|---|---|---|---|
| Patients | Device safety | Effect on family | Exploiting IT |
| Public | Laboratory models | Device safety | Exploiting IT |
| Scientists | Device safety | Decision aids | Patient peer support |
| Clinicians | Device safety | Effect on family | Exploiting IT |

**Conclusions:** The key research priority overall is prevention but there is variation amongst the groups. Understanding and acknowledging the differences across the groups can aid in focusing funding on areas of agreement.

## P147. IMPLICATIONS AND BENEFITS OF CHANGING BREAST CANCER STAGING TO FIRST-LINE CT-THORAX-ABDOMEN-PELVIS ALONE; SINGLE UNIT PROSPECTIVE COHORT

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**Introduction:** Historically the Royal Liverpool Breast unit staged patients with both CT-Thorax-Liver and isotope-bone scanning/PET. Previous audits have shown CT-Thorax/Abdomen/Pelvis(CT-TAP) adequately predicts bone and visceral metastasis in a single investigation, but with increased need for further pelvic imaging. This prospective review shows the benefits to a change to staging CT-TAP and the pelvic implications.
**Methods:** Prospective single unit review of first staging scans, listed on the MDT, between Oct'19-March'20 for new high risk breast cancer, new recurrence or concerning symptoms in with previous breast cancer diagnosis. Patients being monitored with metastatic disease were excluded. Addition Bone and pelvic investigations were reviewed.
**Results:** 108 patients underwent CT-TAP. Twenty-five additional F18-Bone-PET were performed, 14/25 after initial MDT discussion. All patients having bone metastasis on F18-Bone-PET was predicted by first-line CT-TAP staging. Fifty-nine patient had metastatic or indeterminate lesions found. Thirty patients had significant pelvic findings on CT-TAP; 20/30 gynaecological, 3/30 Gastro-Intestinal, 8/30 MSK findings. Of gynaecological findings 12/20 were uterine and 6/20 ovarian, remainder being tubal or cervical. Ten of twenty patients needed no additional imaging, 9/20 TA+/-TV-ultrasound and 1 pelvic-MRI scans were required. Eight Gynaecology out-patient visits and 10 imaging visits and were generated from CT-TAP but reduction of 85 F18-Bone-PET appointments saved.

## P148. VIRTUAL PHONE CALL OR VIDEO CONSULTATIONS: PATIENT AND CLINICIAN PREFERENCE DURING COVID-19

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In response to COVID-19 and social distancing guidelines, healthcare services have evolved. Telehealth has been a part of this change and many services have introduced virtual telephone clinics. The HSE recently approved a video conferencing tool, 'Attend Anywhere', and although available it is not widely used. We have received positive feedback from patients, but only a few studies provide information on patient and clinician satisfaction of virtual consultations. We aim to validate this by assessing preferences towards virtual telephone and video consultations. 50 patients from the breast care clinic were included. Exclusion criteria were any new or symptomatic patients or those with a physical/intellectual incapacity. A questionnaire with Likert scales was used to assess patient and clinician attitude towards 'phone' (PC) or 'video' consultations (VC). The majority of patients (64%) requested a PC rather than a VC (36%). More patients used technology regularly in the VC group (88%) than the PC group (69%), and 94% of VC patients had experience with video calls (47% PC). VC patients felt safe using 'Attend Anywhere' (94%), said it was 'more personal' than a phone call (72%) but preferred face-to-face for future consultations as they 'liked the reassurance of a physical exam' (78% VC; 59% PC). All clinicians felt the lack of examination in virtual clinics impacts the doctor-patient relationship and would prefer face-to-face consultations where possible. Our findings demonstrate positive attitudes towards virtual clinics, however face-to-face appointments are preferred by both groups. We will repeat this survey following COVID-19 restrictions to determine if attitudes change.

## P149. IMPROVEMENT IN SHARED DECISION-MAKING SDM-Q-9 SURVEY SCORES WITH CONCENTRIC DIGITAL CONSENT COMPARED TO PAPER-BASED CONSENT

Edward St John, Ahmed Ezzat, Nicholas Holford, Tony Chen, Holly Lyle, Isobel Hatrick, Angela Fanshawe, Paul Thiruchelvam, Dimitri Hadjiminas, Katy Hogben, Daniel Leff. *Imperial College Healthcare NHS Trust, London, United Kingdom*

**Introduction:** The importance of shared decision making (SDM) and consent has been emphasised in the updated 2020 GMC guidelines. Concentric is a digital consent application developed to enhance the consent process including SDM. The aim was to evaluate levels of patient perception with SDM, comparing paper and Concentric consent for breast

surgery.
**Methods:** A single institution, prospective comparative cohort study (approval number: SPS 009 & SE 472). SDM-Q-9 questionnaire data was prospectively collected and compared from breast surgical patients who underwent paper-based consent (n=126, Dec 2017–Mar 2018) and Concentric digital consent (n=67, April-Dec 2020).
**Results:**

**Table 1**

| SDM Q9 (0-5) - "My doctor..." | Paper, Mean Score | Paper, Disagreement | Concentric, Mean Score | Concentric, Disagreement |
|---|---|---|---|---|
| made it clear that a decision needs to be made | 4.5 | 5 (4%) | 4.7 | 0 (0%) |
| wanted to know exactly how I want to be involved in making the decision | 4.2 | 16 (13%) | 4.4 | 1 (2%) |
| told me that there are different options for treating my medical condition | 4.0 | 24 (19%) | 4.3 | 5 (8%) |
| precisely explained the advantages and disadvantages of the treatment options | 4.3 | 13 (10%) | 4.5 | 1 (2%) |
| helped me understand all the information | 4.5 | 9 (7%) | 4.8 | 1 (2%) |
| asked me which treatment option I prefer | 3.9 | 30 (24%) | 4.2 | 6 (9%) |
| and I thoroughly weighed the different treatment options | 3.8 | 37 (29%) | 4.2 | 6 (9%) |
| and I selected a treatment option together | 3.8 | 31 (25%) | 4.4 | 1 (1.5%) |
| and I reached an agreement on how to proceed | 4.3 | 12 (10%) | 4.7 | 0 (0%) |

**Conclusions:** Mean SDM-Q-9 scores were improved across all questions with the use of Concentric, with less disagreement reported. This study uniquely demonstrates that a digital consent platform may enhance the SDM process of consent for patients undergoing breast surgery.

## P150. DEVELOPMENT OF A SAFE ONE STOP AND SURGICAL PATHWAY DURING THE COVID-19 PANDEMIC FIRST PEAK

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**Introduction:** The aim of this audit was to compare activity at our institution during the first pandemic peak with the same time period in 2019.
**Methods:** We compared breast one-stop clinic and surgical activity from 01/04/2020-01/07/2020 to the 2019 period. A pathway was developed for one-stop clinics whereby patients had a telephone triage to stratify their hospital appointment according to risk. A surgical pathway was developed whereby patients isolated for 14 days before surgery and had a COVID-19 swab three days before surgery.
**Results:** Audit approval was gained. 1027 patients were referred to the one-stop clinic, compared to 1933 the year before (47% reduction). 67 patients were diagnosed with breast cancer, 61 (91%) had no delay in diagnosis, for the 6 that did, the delay was 37.5 days (range=17-44). 333 breast cancer surgery operations were performed, compared to 412 the previous year (19% reduction). In 2020 the unplanned re-admissions were 2 (0.6%) compared to 9 (2.1%) in 2019. Unplanned returns to theatre were 4 (1.2%) and 8 (1.9%) respectively. All surgical patients were contacted 28 days after discharge and no-one was diagnosed with COVID-19. 75 patients had their surgery deferred, all of whom have now had appropriate management instigated.
**Conclusions:** Introduction of these clinic and surgical pathways allowed continuation of services during the pandemic. The pathways were safe, with low surgical re-admission/theatre return rates and no patient developed COVID-19 within 28 days. 91% of patients did not experience a delay in diagnosis. The delays are likely to be non-clinically significant.

## P151. A REVIEW OF AGE STRATIFIED MANAGEMENT OF WOMEN WITH BREAST CANCER IN A NORTHERN IRELAND TRUST COMPARED TO NABCOP

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**Aim:** The national audit of breast cancer in older patients (NABCOP) has found an increase in the peak age of women diagnosed with breast cancer in England and Wales between 2014 and 2018. Our aim is to review the management of breast cancer according to age in a single trust.
**Methods:** All consecutive women aged over 50 and diagnosed with breast cancer between 2016 and 2019 were identified from an institutional database. Women with metastatic disease, concomitant primary cancer or previous history of breast cancer at diagnosis were excluded.
**Results:** Eight-hundred-and-ninety-nine patients were included; 89.7% of 50-69s and 95.3% of over 70s had early invasive breast cancer (EIBC). Remaining patients had DCIS. Diagnosis through screening was found in 61.5% of 50-69s and 15.1% of over 70s. Of those with DCIS, 100% of 50-69s and 87.5% of over 70s had surgery; 66.7% and 22.2% of those having breast conserving surgery also underwent radiotherapy in the respective age groups. Of those with EIBC, 99.8% and 72.5% of 50-69 year olds and over 70s had surgery; 85.4% and 76.3% underwent radiotherapy. One hundred percent of patients received triple diagnostic assessment and were seen by a clinical nurse specialist (CNS).
**Conclusion:** Patients aged 50-69 were more likely to undergo surgery and radiotherapy than those aged over 70. Younger woman are more likely to have breast cancer diagnosed via screening programs. Diagnostic triple assessment and contact with a CNS did not vary between age groups. These findings are comparable or exceed those of NABCOP 2020.

## P152. BREAST CANCER IN YOUNG PATIENTS: OUR 13-YEAR EXPERIENCE

Imazehikhor Daisy Okonofua, Steven Goh. *Peterborough City Hospital, Peterborough, United Kingdom*

**Introduction:** Breast cancer in young women remains relatively uncommon. Young age at diagnosis is associated with more aggressive tumour characteristics, an increased risk of recurrence and an inferior survival rate. We evaluated our practice in this study.
**Methods:** A retrospective review of new breast cancers diagnosed in women under 35 years old between September 2007 and September 2020 was conducted. Case notes, cancer registries and histo-pathological reports were used for data collection.
**Results:** A total of 110 patients were identified. Mean age was 31.2 (21.0-35.0) years. The mean duration of follow-up was 46 (2-168) months. There were 13 pregnancy associated breast cancers. Three patients had simultaneous bilateral cancers. Genetic mutation was found in 21 patients. More than half (52.7%) were grade 3 cancers. There were 25 (22.7%) cases of triple negative disease, and 28 (25.5%) patients were HER2 positive. Fifty-four (49.0%) patients were node positive at presentation. Nearly two-thirds (64.5%) of patients underwent mastectomies, and half of these (50.7%) had bilateral simultaneous mastectomies. Breast reconstructions were performed for 59 patients. Chemotherapy was administered to 87.3% of the patients, and adjuvant radiotherapy was given to 67.3% of the study population. Fifteen patients (13.6%) have succumbed to their disease, and one patient has died from an unrelated medical condition.
**Conclusion:** There was a higher rate of grade 3 disease, genetic mutation and mastectomy in our study population. A longer follow-up, continued

psychological support and counselling, as well as encouragement with endocrine therapy compliance should be offered to these younger patients.

## P153. ROLE OF TOMOSYNTHESIS WITHIN THE ONE-STOP CLINIC

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**Background:** Mammography has reduced sensitivity in women with dense breast and can generate false positive recalls. Digital Breast Tomosynthesis (DBT) is a three-dimensional (3D) imaging method to overcome false positive recalls and benign biopsies. The impact of DBT in screening has been well documented but we wanted to assess the impact within the one-stop clinic. All mammograms are coded as R1 normal, R2 benign, R3 indeterminate, R4 suspicious and R5 malignant.
**Aim:** The aim of this study is to evaluate the role of DBT in the symptomatic setting.
**Methods:** A retrospective analysis performed between 1st October 2019 - 30th September 2020 of all cases scored as R3 - indeterminate - on mammography were identified that had both 2D and 3D mammography.
**Results:** 190 women with 192 R3 lesions were identified. Following DBT of the affected side 169/192 R3 lesions were classified as normal/benign and due to US findings 32 went to have a needle test - 3 cancers diagnosed. 9/192 were upgraded to R4/5 and all 9 cases had an US core biopsy and all were malignant. 14 remained R3 following DBT and all had biopsies of which 5 were cancers.
**Conclusion:** DBT in the symptomatic setting avoided 137 biopsies from taking place due to downgrading of R3 abnormality to R1/2 on 3D DBT. The cases upgrade to R4/5 were all malignant. DBT in the symptomatic setting can reduce the number of false positive cases and reduce the benign biopsy rate.

## P154. OUTCOME ANALYSIS OF NEOADJUVANT CHEMOTHERAPY IN PATIENTS DIAGNOSED WITH TRIPLE NEGATIVE BREAST CANCER IN ROUTINE CLINICAL PRACTICE

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**Introduction:** The response to neoadjuvant chemotherapy (NACT) in patients with triple negative breast cancer (TNBC) has been reported to improve disease free survival (DFS) and overall survival (OS). The aim of this study was to establish what proportion of patients develop a complete pathological response in the breast (pCR) and evaluate the influence on survival in routine clinical practice.
**Methods:** Patients diagnosed with TNBC undergoing NACT between 2012 and 2018 were identified from prospectively maintained NHS Lanarkshire database. Additional data including survival were collected retrospectively using electronic hospital records. Statistical analysis performed using GraphPad Prism 8, Log-rank (Mantel-Cox) test, $p<0.05$ was considered statistically significant.
**Results:** 113 patients were identified. Median age at diagnosis was 51 (42-58) years. Median disease free survival was 30 (18- 50) months. Median overall follow up of 34 (23-52) months. There was a 70.4% overall survival (OS) and 65.5% disease free survival (DFS) at 5 years follow-up. In patients presenting cN0 disease there was a 76.7% DFS at 5 years (n=67) versus a 47.9% DFS for patients presenting with $cN_iÝ1$ (n=46) log rank p =0.0018. A pCR in the breast was achieved in 29 (25.7%) patients. 5yr DFS was 84.9% vs 59.4% in patients who had a pCR of breast versus patients who had residual disease (log rank p=0.0003).
**Conclusions:** Clinical node status at diagnosis remains a significant predictor of outcome in TNBC. There was a significant increased DFS in patients who had pCR of breast compared to those with residual disease.

## P155. THE UTILITY OF ISOTOPE BONE SCANS IN ASYMPTOMATIC PATIENTS WITH ADVANCED BREAST CANCER

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**Aims:** 15-20% of patients with stage T3/4 breast cancer present with metastatic disease. Hence whilst routine staging for early stage breast cancer and asymptomatic patients is not recommended we arrange both staging CT and Isotope bone scan (IBS) in the aforementioned high risk patients based on their tumour findings (T3-T4 cancers, node positive). We assessed whether CT scan alone can provide satisfactory staging data with omission of IBS.
**Methods:** A retrospective search of our departmental Somerset database identified patients who had undergone both staging CT and IBS at initial diagnosis from January 2015 to January 2020 inclusive.
**Results:** 1650 patients were diagnosed with breast cancer during the study period. 74 patients had T3, T4 and/or positive lymph nodes. Of these, 46 patients had staging CT alone and 28 had both CT and IBS. Of the 28 patients undergoing both imaging modalities 21 patients were asymptomatic. 19 patients (90%) had a normal CT and IBS. 1 patient in the asymptomatic group (5%) had bone metastasis on CT confirmed on IBS with a further patient having bone metastasis confirmed solely with IBS. In the symptomatic group 7 patients had bone pain with only 1 patient showing bone metastasis evident on both staging CT and IBS.
**Conclusion:** Our data suggest that the routine use of IBS in asymptomatic patients with advanced breast cancer is not clinically indicated due to the low yield (<4%) of positive results.

## P156. ROLE OF MRI IN NEWLY DIAGNOSED BREAST CANCER PATIENTS UNDERGOING NEO-ADJUVANT SYSTEMIC THERAPY

Manoj Gowda S, Kirti Kabeer, James Collis, Shiva Pratap, Sadaf Jafferbhoy, Sekhar Marla, Sankaran Narayanan, Soni Soumian. *University Hospitals of North Midlands, Stoke-on-Trent, United Kingdom*

**Introduction:** MRI is routinely performed to assess response to Neoadjuvant systemic therapy (NAST) in breast cancer; however, its impact on management is not clear. The objective of our study was to evaluate the role of MRI in identifying new lesions leading to extra investigations and additional cancer diagnosis.
**Methods:** This is a retrospective study, which included all patients who had pre-NAST MRI between June 2014 and December 2019. Data regarding the tumour characteristics on various imaging modalities, further investigations following MRI and identification of additional cancers picked up was collected from the hospital database and analysed. The study was approved by the audit department.
**Results:** The study included 266 patients. Median age was 54 years (range:20-77). Invasive ductal carcinoma (86.34%) was the commonest type. The mean tumour size on MRI was 38mm and this was significantly higher compared to the mammography and ultrasound (27 and 26mm respectively) (p value<0.05). Overall MRI identified new lesions leading to second look ultrasound in 81 patients (33.17%) on the ipsilateral side and in 33 patients (11.70%) on the contralateral side. In total, ipsilateral biopsies were performed in 51 patients (22.4%) and 17 had contralateral biopsies after a second look ultrasound. Additional malignancies were confirmed in 18 patients (6.76%) on the ipsilateral side and in one patient (0.37%) on the contralateral side.
**Conclusion:** MRI is a useful investigation in preoperative setting and can potentially impact the treatment decisions by identification of synchronous cancers.

## P157. INTRODUCTION AND EVALUATION OF CONCENTRIC DIGITAL CONSENT APPLICATION TO A BREAST SURGICAL UNIT

Edward St John, Ahmed Ezzat, Nicholas Holford, Georgios Exarchos, Ieuan Reece, Gemma Scrimgeor, Rebecca Lewis, Natalie Johnson, Angela Fanshawe, Dimitri Hadjiminas, Paul Thiruchelvam, Katy Hogben, Daniel Leff. *Imperial College Healthcare NHS Trust, London, United Kingdom*

**Introduction:** Consent for treatment is a key element of care. Paper consent processes have been associated with significant errors and variation in practice. The aim was to evaluate Concentric, a digital consent application, within the breast unit.
**Method:** Between April-December 2020, Concentric was used optionally for consent for breast surgical procedures as a registered service evaluation (SE472). Data was obtained from Concentric analytics. User and patient feedback was obtained via optional satisfaction surveys. Scores 1-5 (1=awful, 2=bad, 3=ok, 4=good, 5=amazing). A time trial was performed with a standardised patient scenario.
**Results:** 11 clinicians completed 150 Concentric consent episodes for 51 unique procedures. Patients were aged 19 - 88years. 30 (20%) were consented remotely, 69 (46%) consented on day of surgery. 141 (94%) shared consent form information with patients via email. 72/74 (97%) patients agreed that Concentric provided all the information they needed to know. Average overall patient user experience was 4.5 out of 5 (n=76). 100% (10/10, 1 non-responder) of clinicians thought Concentric was intuitive to use and gave a 4.6/5 average overall rating. 8/10 clinicians thought it helped to support patients through the consent process "much more". For new users, average Concentric form completion was twice as fast as completing a paper consent form (80 seconds vs 151 seconds). All clinician users supported the use of Concentric across the Trust.
**Conclusion:** Concentric has been successfully introduced into a busy breast unit. Patients and clinicians report high satisfaction scores. The introduction of digital consent solutions may be considered for all breast units

## P158. OUTCOMES OF TRIPLE-NEGATIVE BREAST CANCER IN OLDER VERSUS YOUNGER WOMEN

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**Background:** Triple-negative breast cancer (TNBC) is an aggressive disease characterized by lack of targeted therapy; main-stay of treatment being limited to surgery and chemotherapy. Older patients with TNBC are often underrepresented in the clinical trials, due to competing mortality risks. This study aims to assess the treatment and outcomes of triple-negative breast cancer (TNBC) in older women relative to younger women.
**Methods:** This was a retrospective cohort study of patients who presented with primary TNBC, age 34-94 years; stage I-III from Jan 1, 2013 to Dec 31, 2015. Patients' demographics, clinical characteristics, treatment and outcomes were retrieved from the CANISC Register and individual patient (N=88). Breast cancer-specific survival (BCSS) was estimated by using Kaplan–Meier method, and adjusted for age, tumor size, tumor grade, nodal status and chemotherapy, using SPSS-19.
**Results:** Fifty-one patients were less than 70 years old (57.9%) and 37 were 70 years and older (42.1%). There was no difference in the stage at presentation (stage I: 43% vs. 35%; stage 2: 49% vs. 49%; stage 3: 8% vs. 11%; P=.061). Older patients were less often treated with adjuvant chemotherapy (75% vs. 24%; P<.001). Mean follow-up was 48 months. Five-year BCSS was significantly poorer for older patients (54% vs. 75%, P=.032). 5-year overall survival was also significantly worse for patients who did not receive adjuvant chemotherapy (50% vs. 88% P =0*021).
**Conclusions:** Overall survival in triple negative breast cancer is much worse in older women as compared to younger women and there is a significant benefit with adjuvant chemotherapy.

## P159. SNAPSHOT OF RANDOMISED CONTROLLED TRIALS IN BREAST SURGERY

Akriti Nanda, P.G. Roy, Michael Douek. *Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom*

**Introduction:** High-quality randomised controlled trials (RCTs) are lacking in surgery compared to medicine due to perceived difficulties. This study assesses the state of play of RCTs in Breast Surgery by assessing all registered breast RCTs and published RCTs.
**Methods:** To assess registered RCTs we searched clinical.gov for randomised interventional trials in the last 5 years (01/12/19-20) under Breast Cancer, then manually categorised into subgroups. To investigate influential RCTs over 5 years we searched PubMed, filtering for journals by impact factor (IF) >29 then categorising into subgroups.
**Results:** 4.9% (60/1208) of breast-trials on clinicaltrials.gov. are in surgery. In the UK, 20.6% (6/29) (Table1, breakdown in Table2). Prior to presentation further in-depth review of all registered and published RCTs will be conducted to elicit funding and additional details.

**Table 1**

| Category | Global | UK |
|---|---|---|
| Anaesthetic | 65 | 1 |
| Behavioural | 95 | 2 |
| Diagnostic | 28 | 3 |
| Genetic | 5 | - |
| Nutritional | 26 | 1 |
| Oncology | 488 | 10 |
| Other | 6 | - |
| Other Treatment | 155 | - |
| Radiology | 55 | 2 |
| Supportive (Physical/Psychological) | 219 | 4 |
| Surgical | 60 | 6 |
| *Total* | *1202* | *29* |

**Table 2**

| | Global | UK |
|---|---|---|
| Combination Treatment | 1 | - |
| Dietary Supplement - Peri-operative | 2 | - |
| Radiation - Surgical | 2 | - |
| Surgical - Oncology | 21 | 2 |
| Surgical - Other | 14 | - |
| Surgical - Reconstruction | 20 | 4 |
| *TOTAL* | *60* | *6* |

In the last 5 years in journals with IF >29,5.4% (10/184) of published RCTs were surgical research - ranging across operative techniques, decisions, localisation and reconstruction.
**Discussion:** The potential impact and breadth of breast-surgical research is large, and it is important to continue and increase RCT funding in breast surgery.

## P160. COVID-19: MORAL DISTRESS IN HEALTHCARE PROFESSIONALS - A QUALITATIVE AND QUANTITATIVE SURVEY

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**Introduction:** COVID-19 has placed undue pressure on health services affecting not only patients but also healthcare workers. The aim of this study was to evaluate the impact of COVID-19 on the psychological well-being of healthcare professionals.
**Methods:** Between 1-28 August 2020 healthcare professionals were asked to complete an online survey, of 24 binary, multiple choice and Likert-scale questions. The data was anonymised. Simple descriptive statistics were used.
**Results:** Fifty responses were analysed. The modal age was 26 - 30 years old (range 18-25) with 24 (48%) males and 26 (52%) females, 12 (24%) consultants, 16 (32% registrars), 5 (10%) core trainees, 12 (24%) foundation trainees, 5 (10%) others. 17 (34%) felt there was sufficient PPE, 14 (28%) felt inadequately trained in its' use and 20 (40%) felt that employers did not ensure their safety. 33 (66%) reported challenging moral decisions, 27 (54%) had rationed care, and 24 (88%) found this difficult. 34 (68%) expressed concerns for their safety, with 14 (28%) considering leaving their job. There was a median of 6 (0-14) symptoms of moral distress experienced; only 3 (6%) reached out for professional support.

| Symptoms of moral distress experienced | Responses |
|---|---|
| Avoidance of family | 25 (50%) |
| Avoidance of friends | 32 (64%) |
| Inability or hesitancy to make decisions | 11 (22%) |
| Sleeplessness / altered sleep patterns | 32 (64%) |
| Anxiety | 33 (66%) |
| Tearfulness | 13 (26%) |
| Anger | 16 (32%) |
| Frustration | 34 (68%) |
| Lack of appetite | 8 (16%) |
| Overeating | 22 (44%) |
| Feelings of lack of self-worth | 8 (16%) |
| Feelings of guilt | 7 (14%) |
| Feelings of shame | 5 (10%) |
| Low mood / negative affect | 32 (64%) |
| None of the above | 2 (4%) |

**Conclusion:** This study demonstrates that 48 (96%) participants experienced symptoms of moral distress, which can result in moral injury, however few sought support. Acknowledgement and implementation of preventative measures could negate future impact on attrition and enhance psychological well-being.

## P161. FERTILITY COUNSELLING AFTER BREAST CANCER DIAGNOSIS AND TREATMENT IN PATIENTS UNDER THE AGE OF 35. A TEN YEAR AUDIT IN A REGIONAL UNIT

Cristina Croitoru, Gareth Irwin, Cathy McDaid. *Belfast Health and Social Care Trust, Belfast, United Kingdom*

**Introduction:** 1,443 Northern Ireland women receive a breast cancer diagnosis annually. 26 are younger than 35, a 13% increase in 5 years. The average age of first time mothers has been increasing from 24 to 28.8 over twenty years. According to the European Society of Medical Oncology, young patients should be counselled on available fertility preserving options before starting anti-cancer treatment.
**Method:** We retrospectively conducted audit covering ten years until July 2020 for patients under 35 attending the regional service. We looked at availability of fertility counselling and other options. Data was obtained from Cancer Patient Pathway System and medical records. (Audit ref:6267)
**Results:** 92 qualifying patients were identified. All were female, the youngest being 24 years old. 34 patients were initially designated "Red Flag", 22 had been reprioritized, rest seen as Urgent or Routine. 23 received neo-adjuvant chemotherapy as first line treatment, 68 underwent surgery, one patient opted for other treatment. Over 50% of patients had at least one child at referral. Conception options were discussed after diagnosis, especially in later cases. Less than 5% had considered pregnancy during or after treatment.
**Conclusion:** There are no guidelines regarding the timing of conception on the breast cancer journey. This is an increasing priority for patients concerned about an impact on fertility from cancer and treatment. There may be an increasing role for education and referral to fertility services for this emerging demographic.

## P162. ASSESSMENT OF PATHOLOGICALLY ADJUSTED MANCHESTER SCORE IN BRCA 1/2 WOMEN WITH BREAST CANCER

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**Introduction:** The new pathologically adjusted Manchester score (PAM) adjusts for tumour characteristics in breast cancer patients with family history. We looked at the known BRCA1/2 cancer patients in our specialist carrier service to see if this risked underscoring patients who do not have triple negative disease.
**Methods:** From 247 women on our prospective database 58 were diagnosed with breast cancer before being diagnosed with BRCA1/2 mutation. Full information about the referral to genetics was available for 48. Referrals were made according to ICR protocol - specific criteria, Manchester Scoring System (MSS) or predictive if there is a gene mutation in the family.
**Results:** 29 had BRCA2 and 19 had BRCA1. Of the 19 BRCA1 mutation carriers, 16 were referred based on ICR criteria and 3 were referred based on predictive criteria. None were referred based on MSS. Of the 29 BRCA 2 carriers, 20 were referred based on ICR criteria, 6 based on predictive criteria and 3 based on MSS. When we retrospectively applied the PAM score instead of the MSS score, there was slight difference in the score for 3 patients but none of them would have missed getting tested.
**Conclusion:** Application of the PAM score did not affect referral for genetic testing in our cohort of breast cancer patients diagnosed with BRCA mutations. It should also be applied to those who were referred based on MSS but were not found to harbour any mutations in order to assess its sensitivity and specificity further.

## P163. ASSESSMENT OF SERVICE PROVISION IN PATIENTS INVESTIGATED FOR BREAST-IMPLANT ASSOCIATED SEROMAS AT LEEDS TEACHING HOSPITALS - SHOULD MORE BE DONE FOR SEROMAS WHICH ARE NOT SUSPICIOUS FOR BIA-ALCL?

Elaine Borg, Philip Turton, Brian Hogan. *St James University Hospital, Leeds, United Kingdom*

**Introduction:** Increased awareness of BIA-ALCL led to a rise in investigation of implant-associated breast swelling. The recently published UK guidelines on BIA-ALCL is the standard against which this study is compared.
**Method:** The electronic patient records were interrogated for all patients who had fluid drained from around their implant under radiological guidance or at surgery between January 2016 to September 2020.
**Results:** 27 cases were identified. Median age was 48 (range 26-68). 22 had cosmetic implants and 5 were post-cancer surgery. 24 (80%) patients presented with breast swelling. Seven had a history of at least one seroma aspiration within the previous 12 months. Investigation with imaging and cytology was conducted in all cases. Four had atypical cytology and 3 (11.1%) were confirmed as BIA-ALCL by HMDS (CD30+ve/ALK-ve). In 23 patients with normal cytology, 21 were CD30 negative and 2 were not tested. All BIA-ALCL cases had total en-bloc capsulectomy and remain disease free. 18 patients with benign seromas had explantation capsulectomy with benign histology. From this operated group, 5 patients had recurrent seromas: 4 required further aspirations and 1 managed conservatively. Only 1 patient from the non-operated group, who refused en-bloc capsulectomy, required 2 further aspirations and triamcinolone injection for resolution of symptoms.
**Conclusion:** Management of delayed peri-implant seromas must follow the UK BIA-ALCL diagnostic and treatment guidelines. Benign seromas often require capsulectomy for definitive treatment. In the absence of

suspicion of BIA-ALCL a period of follow-up and instruction to return to the breast clinic if symptomatic remains an important

## P164. A QUALITATIVE STUDY TO EVALUATE THE UTILITY OF BREAST CANCER FOLLOW UP CLINIC

Raouef Ahmed Bichoo, Mohammed Bilal Elahi, Naila Bint Elahi, Eiman Khalifa, Masuma Sarker, Dorin Dumitru, Brendan Wooler, Peter Kneeshaw, Kartikae Grover. *Hull University Teaching Hospital NHS Trust, Hull, United Kingdom*

**Introduction:** Breast cancer follow up aims to detect any recurrence but also to steer the patient back to their normal life. We aimed at looking at the utility of the follow up clinic (FUC) in breast cancer care.
**Methods:** This qualitative study looked at the first follow up visit at one year following the diagnosis of breast cancer who attended the FUC from 1st March till 30th April 2020. At the end of consultation, both the clinician as well as the patient was asked to fill the questionnaire.
**Results:** 76 surgeons filled and 64 patient filled questionnaire were available. One-fourth of patients had breast related complaints (breast lump - 30%, breast pain - 50%). One-third of all patients on endocrine therapy had concerns (significant side effects - 21%, change of medication 6%). Eight percent has concerns regarding metastatic disease and half of them required staging investigation. Cosmetic concerns were reported by 16% and anxiety by 10% patients. Surgeons felt that 40% of the consultations were useful but reported that 2/3rd could have been managed by an education session. A mammogram was considered more important as well as more reassuring by 64% of respondents. A mammogram and no face to face appointment was acceptable to 45% women. About 98% women were equally happy to discuss their concerns with BCN or doctor. But 66% were not happy to discuss symptoms/concerns in a group session.
**Conclusions:** One-third of patients have concerns after breast cancer treatment and incorporating them into educational program will empower them to self-manage more efficiently.

## P165. ADJUVANT STAGING CT SCAN IN BREAST CANCER PATIENTS WITH < 4 NODES IN THE AXILLA

Manoj Gowda S, Kirti Kabeer, Sadaf Jafferbhoy, Sekhar Marla, Sankaran Narayanan, Soni Soumian. *University Hospitals of North Midlands, Stoke-on-Trent, United Kingdom*

**Introduction:** Decisions regarding adjuvant staging are primarily done at MDT and multiple factors are taken into consideration in this process. Association of Breast Surgery guidelines states staging CT scan is indicated when there are $\geq$ 4 metastatic nodes are in the axillary clearance. We wanted to assess the applicability of this recommendation and pick up rates of metastases in patients with <4 metastatic nodes.
**Methodology:** A retrospective audit of all patients who underwent post-operative CT staging for breast cancer from May 2014 to November 2019. The data on indications, radiology findings, stage of cancer, surgery performed, pathology and molecular profile was collected and analysed.
**Results:** A total of 140 patients had post-operative CT staging. The median age (Range). 16.4% of cancers were screen detected and 83.6% were symptomatic. Ninety one patients (65%) had mastectomy and 49 (35%) had wide local excision. Twenty-seven (19.3%) patients who had < 4 nodes underwent staging based on tumour biology and symptomatology. In the whole cohort distant metastases were identified in 20 patients (14.3%). The highest rate of metastases were seen in triple negative and ER-HER2+ subgroups (TNBC=36.4%, ER-HER2+=16.7%). 11% of patients in the group with < 4 nodes were found to have metastases. Only bone metastases were seen in 35%, rest were visceral with or without bone metastasis.
**Conclusion:** There is a significant pick of distant metastases in patients with < 4 metastatic nodes in the axilla. MDT discussion is paramount for guiding decisions regarding CT staging for node positive disease.

## P166. THE DIAGNOSTIC ACCURACY OF NIPPLE DISCHARGE CYTOLOGY: A META-ANALYSIS, RELATIVE AND ABSOLUTE SENSITIVITIES AND REVIEW OF THE LITERATURE

Natasha Jiwa, Martha Kedrzycki, Swathica Kumar, Rishikesh Gandhewar, Hemali Chauhan, Corrina Wright, Dimitri Hadjiminas, Zoltan Takats, Hutan Ashrafian, Daniel Richard Leff. *Imperial College London, London, United Kingdom*

**Introduction:** Nipple discharge accounts for 15-45,000 presentations to the Breast Clinic in the UK and is the third most common presentation after mastalgia and mass. Cytological analysis has been performed on nipple smears for several decades but is thought to be limited by low sensitivity and negative predictive value. This systematic review and meta-analysis determined the diagnostic potential of nipple cytology.
**Methods:** Studies were identified by performing electronic searches up to April 2020. Only clinical studies with primary data on the diagnostic accuracy of nipple discharge fluid as compared with biopsy or surgical histology were included to determine overall pooled sensitivity and specificity.
**Results:** Of 837 studies retrieved, forty-five studies fulfilled the criteria. Pooled sensitivity and specificity values were calculated for benign and malignant diagnoses. Results from a total of 59,991 patients were examined, with cytology samples included from 8,648 breasts (mean age 48.7±4.66 years). The diagnostic accuracy meta-analysis of nipple aspirate fluid revealed a sensitivity of 0.78 [0.64-0.93] and specificity of 0.43 [0.25-0.61] for a benign diagnosis. Relative malignant sensitivity and specificity (C3-5) was 0.87 [0.86-0.88] and 0.76 [0.74-0.77] whilst the absolute malignant sensitivity and specificity (C5 only) was 0.35 [0.26-0.44)] and 1.00 [1.00-1.00]. Furthermore, patients presenting with blood-stained discharge yielded an overall malignancy rate of 0.58 [0.54-0.60]
**Conclusions:** Nipple discharge fluid cytological assessment is limited. In the conquest to discover superior diagnostic techniques, emerging technologies must have a diagnostic accuracy, which is greater than cytology, and offer advantages in terms of cost, reproducibility, user dependency and turn-around time.

## P167. THE PROGNOSTIC ROLE OF PREOPERATIVE CIRCULATING MARKERS OF THE SYSTEMIC INFLAMMATORY RESPONSE IN PRIMARY OPERABLE BREAST CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Purpose:** This systematic review and meta-analysis evaluated the prognostic role of preoperative serum markers of the systemic inflammatory response in primary operable breast cancer.
**Methods:** A systematic review of electronic databases was performed up to August 2020. A meta-analysis was carried out for each marker with at least three eligible studies for disease-free survival (DFS), cancer specific survival (CSS) or overall survival (OS).
**Results:** 57 papers were included in the systematic review. 42 papers were suitable for meta-analysis. Most reports were of retrospective mixed cohorts, dominated by ER positive disease. Neutrophil-lymphocyte ratio (NLR) showed significant association with OS (95% CI 1.52-2.00, p<0.001), DFS (pooled HR 1.67 (1.50-1.87, p<0.001) and CSS (pooled HR 1.89 (1.35-2.63, p<0.01). This effect was also seen with derived-NLR. Platelet-Lymphocyte ratio (PLR) was associated with OS (pooled HR 1.29 (1.10-1.50) p=0.001) and DFS (pooled HR 1.58 (1.33-1.88), p<0.001). LMR was associated with DFS (pooled HR 0.65 (0.51-0.82) p=0.0003), and CRP was

associated with reduced CSS (HR 1.22, 95% CI 1.07-1.39, p=0.002) and OS (HR 1.24, 95% CI 1.14-1.35, p=0.002).
**Conclusion:** Current evidence suggests a role for preoperative NLR, dNLR, LMR, PLR and CRP as prognostic markers in primary operable breast cancer, particularly ER positive disease. Further work is warranted to define their precise role in clinical practice, particularly reproducible thresholds and the molecular subtypes in which they may be of most value.

## P168. 1DIAGNOSING BONE METASTASES IN BREAST CANCER - CT VS NUCLEAR MEDICINE BONE SCAN

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**Introduction:** Guidelines advise use of CT or MRI to detect bone metastasis in breast cancer. Bone-scintigraphy (BS) is not routinely indicated. However, our patients with new node positive breast cancer, or symptoms suggestive of bone metastases, undergo both CT and BS. We aimed to evaluate discrepancies between CT and BS results, and assess whether CT is more accurate in diagnosing bone metastases in breast cancer patients.
**Methods:** Over a 2 year period, breast cancer patients who underwent CT and BS within 28 days of each other, were included. Scan reports were reviewed, and where unclear, MDT outcome was consulted.
**Results:** Of 149 patients, 15 (10.1%) had discordant scan results. Where CT was negative, and BS suspicious (n=6) or positive (n=3), patients were either found to have visceral metastases on CT, BS was found to be a false positive, or MDT concluded there were no bone metastases. Where CT was positive and BS negative (n=4), MDT confirmed metastases.
**Conclusion:** CT is as good as BS in demonstrating bone metastases, and also detects visceral metastases. Using CT only would reduce radiation exposure, costs and burden on service provision. We advised a change in local policy, with CT scan as the primary investigation for breast cancer staging.

## P169. IS IT TIME TO BROADEN THE INDICATION FOR STAGING-CT SCAN IN BREAST CANCER PATIENTS? A PROSPECTIVE SINGLE CENTRE COHORT REVIEW

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**Introduction:** Staging-CT-thorax-abdomen-pelvis (sCT) for patients with breast cancer has historically been limited to those with N2/3-nodal stage or symptoms suggestive of metastatic disease. Within our unit debate continues on appropriateness of sCT for patients with previous invasive malignancy, N1-nodal-stage and High-risk disease such as T3/4 breast primary. This prospective cohort review will show metastatic identification rates and implication for patient management in these groups.
**Methods:** Prospective review of sCT scans performed in patients with new diagnosis of breast cancer, being discussed at MDT between Feb'2020-Oct'2020. Scan reports, MDT outcomes were reviewed for all patients and post-operative nodal histology where available.
**Results:** Fifty seven sCT were performed for patients aged between 25-90 years old. Most common phenotype was ER+/HER2-(n=40) with 11 ER- or Triple-negative cases, 6 HER2-over expressing cases. Nine patients had 2 indications for sCT with 48/57 having a single major indication; 13/57 staged due to previous invasive malignancy, 23/57 nodal stage=N1-3, 2/57 for T4 disease and 10/57 for general concern. Eight (14%) sCTs showed definite metastases; identification rate in those with previously malignancy was 20% (3/15), 23% (3/13) for N1-stage patients and 19% (3/16) for N2-stage patients. Twenty-Five (43%) of scan had indeterminate finding such as lung nodules. One new abdominal malignancy was found. Four (50%) of those with metastases had a change to the surgical plan, the remaining 4/8 had change to the adjuvant therapy planning.
**Conclusion:** Broader criteria should be adopted when staging breast cancer patients, in particular N1-stage disease predicts the likelihood of distant metastatic disease as often as N2-stage disease

## P170. DO ALL SMALL HER2 POSITIVE BREAST CANCERS HAVE THE SAME CLINICAL OUTCOME IN THE NORTH OF SCOTLAND?

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**Background:** HER2-positive breast cancers, representing up to 20% of all breast cancers, are more aggressive and have poorer outcomes. Systemic therapy has been proven to prevent disease recurrence and improve survival. Existing literature provides only limited evidence to support this in smaller HER2-positive tumours. The study aimed to evaluate HER-2 positive breast cancer treatment of small tumours in the North of Scotland.
**Methods and Materials:** Healthcare data for HER-2 positive breast cancer patients, diagnosed 2012-2019, with tumour size <30mm were collected from the Scottish North Cancer Alliance audit database with Caldicott approval. Clinical-pathological details, comorbidities, treatments and clinical events were recorded and analysed using univariate and multivariate analysis including cox-regression and log-rank testing (SPSSv23).
**Results:** Overall, 471 patients (41% screen detected/ 56.9% symptomatic /2.1% other), median age 62 years and median tumour size 15.5mm, were included. Most cancers were grade 2/3 (31.7%/ 47.7%) with 10.6% with nodal involvement (N1m included). Most patients (65.8%) received treatment with trastuzumab (Tt); 43.7% concurrent with chemotherapy and endocrine therapy. A fifth (20.6%) of patients received neo-adjuvant chemotherapy. Mean follow-up time was 3.1 years, with recurrence on average occurring 3.0 years after diagnosis. Patients receiving trastuzumab were younger, had a higher grade and larger size tumour and nodal involvement (all p<0.001). The adjusted Cox proportional hazards model showed that trastuzumab significantly lowered breast cancer recurrence (Tt=7.1% versus non-Tt=9.9%, HR=0.314, p=0.003).
**Conclusions:** Treatment significantly improves outcomes. Consideration should be taken to amend current regional guidelines to treat small HER2-positive breast cancers to reduce recurrence rates.

## P171. ER NEGATIVE BREAST CANCER IN THE ELDERLY

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**Introduction:** Management of hormone receptor-insensitive breast cancer in elderly patients is challenging. NABCOP noticed late diagnosis/undertreatment as the main reasons for poor outcome. The 2020 NABCOP report shows 95% and 83% respectively of ER-negative patients between 70-79 and 80+ years underwent surgery, whereas only 30% received adjuvant chemotherapy. The report also shows better 12-month survival in ER-negative patients receiving chemotherapy. In this study, we evaluate the management and outcome of ER-negative cancers in the NABCOP age group.
**Methods:** 14 patients with ER-negative breast cancer aged 70+ were treated between 2017-18. ER/ PR, HER-2 status, Grade, Co-morbidities, Performance Status, treatment and follow-up were recorded. The primary outcomes were locoregional recurrence or distant metastases, and secondary outcome breast cancer-related mortality, at 2 years.
**Results:** Of the 14 patients, 7 were aged 80+ and 2 had WHO Performance status of 3+. 8/14 (57%) were Grade 3, 4/14 (28%) HER-2 positive and 10/14 (71%) LN positive. All underwent surgery, 5/14 (36%) adjuvant chemotherapy, 9/14 (64%) radiotherapy. Within 2 years, 3/14 (21%) presented with locoregional recurrence, and 2/14 (14%) with distant metastases, 4/5 of these had received adjuvant chemotherapy, 5/5 had been LN positive. There were 2 breast cancer-related deaths, both due to distant metastases,

and no other-cause mortality.
**Conclusion:** Elderly ER-negative patients with LN positive disease are more likely to relapse early regardless of adjuvant chemotherapy. Neo-adjuvant chemotherapy should be considered in this group if positive axillary disease is identified pre-operatively.

## P172. WORKING WITH SERVICE USER REPRESENTATIVES TO PROVIDE ACCESSIBLE INFORMATION ABOUT SECONDARY BREAST CANCER TO PATIENTS AND GENERAL PRACTITIONERS WITHIN A PERSONALISED STRATIFIED FOLLOW-UP PATHWAY

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**Introduction:** NHS England recommends the use of 'Personalised Stratified Follow Up' (PSFU) for cancer patients. This patient-led aftercare pathway requires patients and GPs to be able to identify symptoms and signs of local and distant recurrence. In a 2019 Breast Cancer Now survey, only 13% of people with secondary breast cancer (SBC) felt they were given enough information about SBC signs and symptoms. Studies show that patient recall of verbal medical information is significantly improved with the addition of visual cues, such as infographics.
**Method:** The regional cancer alliance worked with service user representatives, and a breast cancer charity to develop a document that would ensure all people diagnosed with primary breast cancer have access to SBC information, in an accessible format, and provided at the right time in their pathway.
**Results:** An infographic developed by a service user representative, that provides clear, concise, accessible information about SBC signs and symptoms, was embedded within a standardised treatment summary. As per PSFU, the treatment summary is provided to all patients at their 'End-of-Treatment' appointment and copied to the GP. Seven breast services, supporting approximately 3000 new diagnoses of breast cancer per year, agreed to use the standardised treatment summary.
**Conclusion:** An infographic, embedded within a standardised treatment summary, has ensured accessible information about SBC is delivered to all breast cancer patients in Greater Manchester. The infographic is available on the NHS England PSFU webpage. Other cancer alliances may wish to consider using the infographic within their own PSFU patient information resources.

## P173. THE CLINICAL TREATMENT SCORE POST 5 YEARS (CTS5) AS A PREDICTOR OF THE ONCOTYPE DX-21 RECURRENCE SCORE (ODX); A RETROSPECTIVE REVIEW OF A PROSPECTIVELY MAINTAINED DATABASE

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**Introduction:** The practice of estimating breast cancer recurrence risk has moved away from traditional clinicopathologic markers such as those underpinning the Clinical Treatment Score Post 5 years (CTS5), towards multigene molecular signatures such as the Oncotype DX-21 recurrence score (ODX). This purpose of the current study was to examine the relationship between the novel CTS5 and the ODX to investigate whether the CTS5 score could be used as a surrogate index for the ODX.
**Methods:** The CTS5 and ODX scores were calculated for 285 pre-menopausal and 1073 post-menopausal (n=1,358) patients who were diagnosed with Hormone receptor-positive, HER2neu-negative, node-negative, invasive breast cancer between the years 2011 and 2016 from a prospectively maintained database. The cohort was split according to menopausal status as defined by age (<50 years Pre-menopausal; >=50 years Post-menopausal).
**Results:** Considering the CTS5 scores and ODX as categorical and continuous variables respectively; there was a significant relationship between the CST5 score and the ODX (Pearson's chi-squared (x2) $p < 0.001$), a high ODX score was weakly associated with a high CTS5 score (Pearson product moment correlation pre-menopausal $r=0.274$, $p<0.05$; post-menopausal $r=0.222$, $p<0.05$). Multiple regression analysis revealed that grade was the only CTS5 variable that made a statistically significant contribution to the variance observed in the ODX (Standardised coefficient Beta pre-menopausal = 0.449, $p < 0.050$; post-menopausal = 0.187, $p < 0.001$).
**Conclusions:** The ODX and CTS5 score provide valuable prognostic information independent of each other and the prognostic accuracy of both can be improved by using both tests in conjunction.

## P174. SYSTEMATIC REVIEW ON NIGHT SHIFT WORK AND BREAST CANCER RISK

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The International Agency for Research on Cancer has performed a re-evaluation of night shift work on breast cancer in 2019, following the first evaluation performed in 2007 and classed night shift work as probably carcinogenic. Breast cancer is the commonest cancer in the UK and since industrialisation has increased, and thus the hypothesis of exposure to light at night increases the risk of breast cancer. There are many studies investigating the different mechanisms in which the risk of breast cancer would increase with night shift work, namely disrupted circadian rhythm, cortisol levels, melatonin levels and DNA disruption. This systematic review looks at cohort studies, case controlled studies and meta-analyses, which investigates the effects of night shift work and radio-frequency exposure with regards to breast cancer. Majority of the studies look at the exposure of light at night and there is a particular study, which looks at the DNA disruption caused by shift work. This systematic review shows that there is no statistically significant correlation between night shift work and breast cancer, however there is a positive correlation. The specific relationship between night shift work and breast cancer needs to be further looked into by performing more in depth studies.

## P175. ARE THE MRI FEATURES OF BREAST CANCER ASSOCIATED WITH METASTASIS-FREE SURVIVAL?

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**Introduction:** In an era of de-escalation and personalisation of chemotherapy treatment, pre-operative predictors of survival become even more relevant. The aim of this project was to identify associations between the MRI features of invasive breast cancer and metastasis-free survival (MFS). As such, these associations have not previously been investigated.
**Method:** Pre-treatment MRIs were available for analysis from 168 patients with ultrasound visible breast lesions. Retrospective review was performed blinded to outcome. Factors recorded were skin thickening and enhancement, mass characteristics (focality, size, shape, margin, enhancement curve type and pattern), non-mass enhancement (NME), perilesional oedema, background parenchymal enhancement and abnormal nodes. Statistical analysis used Chi-squared test, Kaplan-Meier survival curves, Receiver-Operator Characteristic (ROC) curves and Cox-proportional hazards regression.
**Results:** During a mean follow-up period of 5.9 years, 15 patients developed metastases. The following features were associated with poorer MFS - large index lesion size [$p < 0.001$, AUC 0.859], large sum of all masses [$p < 0.001$, AUC 0.834], increasing total lesion extent including NME [$p < 0.001$, AUC 0.763], abnormal axillary nodes [7 of 15 (47%) vs 111 of 153 (73%), $p=0.0210$], skin thickening [10 of 15 (67%) vs 135 of 153 (88%), $p= 0.024$] and skin enhancement [11 of 15 (73%) vs 140 of 153 (92%), $p=0.0358$]. Multivariate analysis was attempted but was unsuccessful due to the small number of events.
**Conclusion:** We have found multiple MRI features of breast cancer to be associated with MFS. This may be relevant for risk stratifications for chemotherapy.

## P176. PRESENTATION OF A REFERRAL TOOL AND PATIENT INFORMATION TO SUPPORT THE IMPLEMENTATION OF THE 2021 NHS ENGLAND NATIONAL GENOMIC TESTING CRITERIA FOR BREAST CANCER PATIENTS

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**Introduction:** From April 2021, NHS genomic testing in England will be delivered through seven regional Genomic Laboratory Hubs (GLH) according to mandated eligibility criteria in the national genomics test directory. Breast multidisciplinary teams (MDT) will be able to request BRCA1/2 and PALB2 germline mutation testing for eligible patients diagnosed with breast cancer, without referral to their regional genomics service. This will enable more timely diagnosis and treatment planning, whilst protecting the regional genetics service from the increased demand of the broadened eligibility criteria.
**Method:** A multidisciplinary group, coordinated by the Greater Manchester (GM) Cancer Alliance, identified potential barriers to implementation and understanding of the new guidance, which informed a 'Genomics Referral Guide' for Breast MDTs.
**Results:** The referral guide presents the eligibility criteria in an accessible format for non-genetics specialists, with prompts to prevent exclusion of patients with rarer genetic causes of breast cancer (e.g. CDH1 mutation, Lynch Syndrome). The guide also provides patient information and a consent form, developed by service user representatives and a genetics counsellor, for use outside specialist genetics clinics. The Genomic Referral Guide has been approved by all seven breast services within GM, resulting in agreement to mainstream referral from April 2021.
**Conclusion:** We have developed a guidance tool that will enable rapid upskilling of local MDTs to successfully implement the national eligibility criteria for germline mutation testing in patients with breast cancer. This will facilitate equity of access to genomic testing across GM. Other cancer alliances may wish to adopt a similar approach.

## P177. LONG TERM FOLLOW UP AFTER IMPLANT-BASED, SLING-ASSISTED BREAST RECONSTRUCTION

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**Introduction:** Implant-based, sling assisted breast reconstruction has been increasingly used due to relative ease and access to the technique. Concerns have been raised about failure rates and compromised cosmetic outcome but data on long term outcome is lacking.
**Methods:** We have reviewed the outcome of implant-based, sling assisted reconstructions performed in this centre with at least 5 years follow up performed between 7/7/2008 - 31/10/2015 (median 2372 days follow up). All were subpectoral, mostly using Strattice, Veritas, Permacol and TiLoop slings.
**Results:** 354 patients have undergone 558 sling procedures in 544 breasts. 31 patients have died, 25 of breast cancer. 128 reconstructions (22.9%) have been lost or had immediate revision to an alternative (15 cases) due to unsatisfactory cosmesis. 503 breasts (92.5%) have a current breast reconstruction. 74.8% of reconstructions have undergone further surgery totalling 1303 procedures (range 0-13). In addition, 93 of 200 unilateral cases have undergone contralateral surgery. 19 of 22 cases of local and/or axillary further cancer/DCIS have been surgically treated and remain disease free. 2 of 232 reconstructions for risk reduction have had subsequent invasive breast cancer. 3 patients have had anaplastic large cell lymphoma at 6,7 and 9 years, 2 with Allergan and 1 with Becker implants.
**Conclusions:** While the majority of patients maintain a breast reconstruction following implant-based, sling assisted breast reconstruction, there is a significant risk of reconstructive failure and a huge and ongoing demand for revisional surgery. This must be considered when considering reconstructive options and discussing them with patients.

## P178. EARLY RESULTS OF DIRECT TO IMPLANT RECONSTRUCTION WITH ADJUSTABLE BECKER IMPLANT EXPANDERS WITH ADM FOLLOWING SKIN REDUCING MASTECTOMY IN HIGH RISK OVERWEIGHT AND OBESE PATIENTS WITH SEVERE PTOSIS

Daisy Okonofua, John Mathew. *North West Anglia NHS Foundation Trust, Peterborough, United Kingdom*

**Introduction:** Aim of our study was to assess the early outcome of high-risk overweight and obese women with severe ptosis undergoing direct to implant reconstruction.
**Methods:** Review of a prospectively collected data between Nov 2016 and Nov 2020 by a single surgeon. Wise pattern incision was used for skin reducing mastectomy (SRM), and mastectomy performed through the triangular incision surrounding nipple areola complex. The de-epithelised excess skin and underlying subcutaneous tissue goes into the mastectomy defect forming a fold and thus providing double layer of additional padding in front of the implant above the inframammary fold. It was the intention from the onset to insert Adjustable Permanent Becker Implant expanders (APBI), and only selected few had fixed volume implants. Patients with APBI were categorised into 4 groups based on BMI as shown in table 1. Data collected included presentation, smoking, BMI, Bra size, neoadjuvant treatment, pathology, complications, any delay in adjuvant treatment, local recurrence and distant metastasis. Data analysed using Chi-squared test and a P value of $< 0.05$ was considered significant.
**Results:** Fifteen patients underwent 20 SRM and implant reconstructions. Fixed volume implants were used in 2 and 18 had APBI. Median FU was 16 months (2-46). There was one implant loss. There was no significant difference between BMI groups with regard to complications ($P > 0.05$). There was no locoregional recurrence or distant metastasis.

**Table 1**

| APBI patients | BMI 25-29.9 (3 reconstructions) | BMI 30-34.9 (5 reconstructions) | BMI 35-39.9 (3 reconstructions) | BMI ≥40 (7 reconstructions) |
|---|---|---|---|---|
| Smoker | 0 | 0 | 2 | 6 |
| Radiotherapy | 2 | 3 | 1 | 1 |
| Complications | | | | |
| Infection | 1 | 0 | 0 | 0 |
| Threatened wound and revision surgery | 1 | 1 | 0 | 2 |
| Implant loss | 0 | 1 | 0 | 0 |
| Delay in adjuvant treatment | 0 | 0 | 0 | 1 |

**Conclusion:** Use of APBI in this high-risk group is a viable option with acceptable early outcome.

## P179. COMPARING ROLL AND MAGSEED IN MANAGEMENT OF IMPALPABLE BREAST LESIONS A SINGLE UNIT EXPERIENCE

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**Background:** Screening and the use of Neoadjuvant therapy has increased the number of breast lesions requiring localisation. The search for the ideal technique is still on. ROLL (Radioisotope guided Occult Lesion Localisation) is a reliable technique though not widely available, Magnetic Seed, is a new alternative. These two techniques have never been compared.
**Aim:** Compare the outcomes of ROLL and MAGSEED in managing occult breast lesion.
**Materials & Methods:** Prospectively data collected for both techniques, for patients undergoing localisation during Dec 2018 - Oct 2019. Data analysis was carried out with SPSS 22 software for the parameters described below.
**Results**:
- Total patients 101.
- Roll 50 pts, Magseed 50 pts, (one was excluded as she had both)
- Median age; 62 (34-83 years).
- Median BMI 28.1 (18-52).
- Ultrasound localisation 73 (73%).
- Invasive ductal cancer 80 (80%).
- Re-excision rate 9 (9%).

No statistically significant difference was observed between the two groups for - BMI, age, type of surgery, operative time, margin status, re-excision rates, specimen volume, specimen weight, tumor size or hospital stay. However, significant difference ($p<0.001$) observed for time to surgery from localisation and cost per procedure.
**Conclusions:** Surgical outcomes for two techniques are similar. ROLL surgery must be performed within 24 hours of localisation. Magseed offers the benefit of planning localisation in advance, hence, theatre scheduling and ability to visualise the seed radiologically has made this technique popular. The cost per Magseed is much expensive in comparison to isotope in ROLL.

## P180. MAMMOGRAPHIC VOLUME CAN BE USED TO ESTIMATE MASTECTOMY WEIGHT

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**Introduction:** Implant-based breast reconstruction is a recognised treatment for breast cancer and high-risk patients. Implant ordering is undertaken pre-operatively using a combination of breast measurements and clinically estimated breast volume. There is variation of implant choice between clinicians. Mammograms record an estimated breast volume. This poses the question whether mammograms can be used to guide implant choice.
**Methods:** We retrospectively investigated the correlation between estimates of CC and MLO volumes and final mastectomy weight, overall and split by type of surgery (Simple vs. Skin sparing mastectomy (SSM)). Since weight equals volume multiplied by density, the slope of the line of best fit is an estimate of the density, which we report with confidence intervals. Finally, we use a linear model to estimate the density for individuals based on BMI, age and surgery type.
**Results:** Data collated on 116 mastectomies showed a strong correlation between volume measurement and mastectomy weight using the MLO volume estimate (Simple=0.94; SSM=0.86; Overall=0.83). Overall average breast density was 0.64g/cm$^2$ (95%CI=[0.60-0.67]) with an average breast density in simple mastectomy of 0.82g/cm$^2$(95%CI=[0.78-0.87]) and 0.53g/cm$^2$(95%CI=[0.50-0.56]) for SSM. The linear model showed that breast density reduces with advancing age(-0.005g/cm2 per year, 95%CI=[-0.01-0.00]) and increased BMI(-0.01g/cm2 per point,95%CI=[-0.02, 0.0]) whilst simple surgery(0.19g/cm2,95%CI=[-0.3-0.7]) and SSM(-0.06g/cm$^2$,95%CI=[-0.5-0.4]) had a weak effect on density.
**Conclusion:** Estimating a mastectomy weight is possible using the mammographic volume, factoring in patient age and obesity. Further prospective research will identify whether this can be used to help predict implant choice in patients undergoing immediate breast reconstruction.

## P181. A COMPARATIVE STUDY OF SECONDARY PROCEDURES AFTER SUB-PECTORAL AND PRE-PECTORAL IMPLANT-BASED BREAST RECONSTRUCTION

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**Introduction:** Implant-based breast reconstruction (IBR) is the most common procedure to reconstruct the breast after mastectomy. The advantages and disadvantages of sub-pectoral versus pre-pectoral implant placement remain a matter of debate. This study compares the need for secondary aesthetic procedures between pre-pectoral and sub-pectoral techniques after a successful IBR.
**Methods:** Retrospective cohort study of IBRs performed by a single surgeon at a tertiary breast unit. Consecutive patients who either had a sub-pectoral or pre-pectoral IBR between 2015 and 2018 were included. A secondary procedure was defined as any procedure performed to improve breast form or symmetry. The primary end-point was the number of secondary procedures performed. Secondary endpoints included the number of secondary procedures during the first year.
**Results:** A total of 271 single-stage IBR were performed (sub-pectoral n=128 reconstructions in 74 patients, pre-pectoral n=143 reconstructions in 84 patients). Overall, more patients required secondary procedures in the sub-pectoral group (36.5% vs 19%; P=0.014), the significant being pocket revision and implant exchange (11.7% v 3.5%, P=0.010) while fat grafting was similar between the two groups (46%, 40.5%, P=0.777). When adjusting for follow-up time, there was no significant difference in the number of secondary procedures undertaken in the sub-pectoral and pre-pectoral groups, (21% vs 16% respectively, P=0.288) at 1 year.
**Conclusion:** The requirement for secondary procedures at one year was not different between groups. The need for fat grafting is not increased following pre-pectoral IBR. The pocket revision and implant exchange rates were higher in the sub-pectoral group through longer follow-up.

## P182. A SINGLE SURGEON EIGHT YEAR EXPERIENCE USING A LIPOSUCTION CANNULA AND PAEDIATRIC CHEST DRAIN BOTTLE FOR FAT HARVESTING IN AUTOLOGOUS FAT GRAFTING - A SAFE AND EFFICIENT OPEN TECHNIQUE

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**Introduction:** Autologous fat grafting has been used for over a century. The commonly used technique for fat harvesting is based on the Coleman technique using a syringe and small-caliber cannula which can be laborious and takes longer to harvest larger volumes. Many companies have developed specific equipment for this purpose, however these are often expensive. We present 8 year clinical results using a simple, efficient and cost-effective technique in fat harvesting using a liposuction cannula and collecting harvested fat into the paediatric chest drain bottle.
**Method:** Retrospective review of patients undergoing autologous fat grafting from December 2011 - August 2019. Case notes were assessed for indication, site, amount of fat injected, complications and the number of episodes of fat grafting required for a cosmetically acceptable result.
**Results:** 132 episodes of fat grafting were undertaken for 76 patients. The mean and median volume of fat injected was 66.6ml and 61.5ml respectively. Fifty five percent of patients required a single episode of fat grafting

to achieve a cosmetically satisfactory results, 25% had 2 episodes, 13% had 3 episodes and 7% had 4 episodes. Over the 8 year period, 2 patients (1.5%) developed an infection post-procedure, both were complex cases. One case was referred for attempted salvage of an impending implant extrusion and the other had multiple previous Bio-alcamid injections for Poland's syndrome.
**Conclusion:** Our 8 year clinical results suggest that this cost-effective method of using a liposuction cannula and paediatric chest drain bottle for fat harvesting, is safe and efficient with low complication rate.

## P183. AXILLARY REVERSE MAPPING AND ARM LYMPHATIC PRESERVING AXILLARY LYMPH NODE DISSECTION USING ICG GUIDED REAL TIME IMAGING IN PATIENTS WITH HIGH BURDEN AXILLARY DISEASE: A NOVEL TECHNIQUE

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**Introduction:** LABC comprises 35-50% of cancers in developing countries. Even after NST, the disease burden remains high. ALND with or without RT remains the standard of care. The incidence of lymphedema is close to 50% in this subset.
**Aims:** ICG guided preservation of arm lymphatics can prevent lymphedema.
**Methodology:** A validation study was conducted. Intervention arm included patients (n=20) of LABC with persistent macroscopic axillary disease after NST. All patients were injected with ICG (0.5 ml intradermal and 0.5 ml subdermal at 4cm below axillary crease) at the onset of surgery. The lymphatics of the arm were traced under real time imaging from the site of injection to the axillary apex using spy mode. Arm lymphatic preserving ALND was done. The comparator arm (age, BMI matched) underwent standard ALND. The limb was measured at fixed points in arm, forearm and hand up to 6 months.
**Result:** The arm lymphatic visualization is excellent (IR 100%, FNR 0%) with preservation in all 20 cases (post ALND IR 100%). The mean lymph node yield and metastasis respectively was 15.3 (comparator 15.8) and 10.1 (comparator 9.8). The short term incidence of lymphedema was less in the intervention arm compared to control arm (5% versus 20%). The reduction was statistically significant ($p<0.001$).
**Discussion:** ICG guided lymphatic preserving ALND is a valid lymphoedema reducing procedure. The real time visualization of lymphatics is responsible for high IR and no FNR.
**Conclusion:** The procedure is highly effective in high volume axillary disease.

## P184. MAGSEED GUIDED EXCISION IS SAFE AND EFFECTIVE IN THE LOCALISATION OF IMPALPABLE BREAST TUMOURS: A SINGLE SYMPTOMATIC CENTRE EXPERIENCE

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**Introduction:** Wire localisation has been the gold standard for perioperative localisation of impalpable breast cancers in the UK. In our symptomatic centre, after a trial period where all clinicians familiarised themselves with the technique, there was a short transition to the sole use of Magseed. We present our initial experience with 100 Magseed localised excisions for malignant lesions and compare these results to the preceding 100 wire-localised procedures.
**Methods:** 100 sequential Magseed guided excisions were identified; excisions for diagnostic biopsy were excluded. The preceding 100 wire guided excisions for cancer were also identified and analysed for comparison within the unit. The electronic patient record and results system were utilised to identify the cases, which required re-excision for close or involved resection margins. Re-excision rates were compared as the primary outcome of the study.
**Results:** Patient and tumour demographics were similar in each group including size of lesion. Of the 100 Magseed guided excisions, 11 required re-excision (11%). Of the 100 wire guided excisions, 9 required re-excision (9%). Chi squared test with Yates' correction derived a P value of 0.8137, indicating no significant difference between the two.
**Conclusions:** We have not shown a significant difference in the re-excision rates using Magseed versus using wires, with rates for both groups below the nationally accepted rate. We did identify an apparent learning curve with the use of Magseed; 9 of the 11 re-excisions took place in the first 50 magseed excisions. With more use and familiarity, the re-excision rate is seen to reduce.

## P185. USE OF ULTRASOUND BY BREAST SURGEONS REDUCES THE NEED FOR WIRE-GUIDED LOCALISATION OF IMPALPABLE BREAST TUMOURS BY RADIOLOGISTS

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**Introduction:** Ultrasound is increasingly being used by non-radiologists in clinical practice. Currently wire-guided localisation (WGL) of impalpable breast tumours requires the expertise of radiologists, but can be uncomfortable and demands significant radiology resource. Furthermore, for logistical reasons at our institution during the COVID pandemic, wires were inserted the day before surgery, resulting in disruption to patients. At our institution, two of eight breast surgeons use ultrasound intra-operatively for localisation of breast lesions, thus obviating the need for a radiologist to localise the lesion for the surgeon. We hypothesise that ultrasound-localisation by surgeons is an effective way to improve patient experience.
**Methods:** We undertook a retrospective review of all patients undergoing wire-guided localisation of impalpable breast tumours between 01/05/20-01/08/20. We retrospectively collected the following data: modality of image-guided insertion (ultrasound versus x-ray), operating surgeon and size of tumour.
**Results:** 48 tumours were excised using WGL. 45 of these relied on ultrasound guidance for insertion. The median lesion size was 17mm, with 30 (62.5%) of lumps being $\geq$10mm in size.
**Conclusions:** Most impalpable lumps were visualised using ultrasound. The majority of these lumps were >10mm. Surgeons trained in ultrasound did not need localisation by radiologists. If breast surgeons were unanimously trained to use ultrasound for intra-operative localisation, a significant proportion of wires could be avoided, saving cost, radiology time, patient time and improving the patient experience. We argue that ultrasound should be a core part of breast trainees' curriculum.

## P186. ULTRASONIC VERSUS ELECTROCAUTERY DISSECTION IN MODIFIED RADICAL MASTECTOMY FOR BREAST CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Introduction:** Electrocautery (EC) remains the dominant dissection tool in modified radical mastectomy (MRM) for breast cancer. However, ultrasonic dissection devices (UDD) have emerged as popular alternatives on the basis that their mechanism of action limits tissue/lymphatic damage comparatively, resulting in decreased blood loss, seroma, and post-operative drainage. A systematic review and meta-analysis was performed to compare surgical outcomes for EC versus UDD in MRM surgery.
**Methods:** MEDLINE, EMBASE, PubMed and the Cochrane Database were searched and a comprehensive systematic review and meta-analysis performed according to PRISMA guidelines, comparing EC versus UDD in MRM for breast cancer. Outcomes of interest were post-operative drainage, incidence of seroma, intra-operative blood loss and operative time. Meta-analysis was performed using a random effects model to aggregate the data. Odds ratios (OR) were used as the summary statistic for dichotomous data and mean difference (MD) for continuous data. Data heterogeneity was assessed using the I2 statistic.

**Results:** Nineteen eligible peer-reviewed studies were analysed involving 1501 patients, UDD:744 EC:757. We demonstrated that in MRM, UDD significantly reduced post-operative drainage (MD=312.26, 95% confidence interval (CI): 102.59-521.93, p =0.004); seroma (OR=0.51, 95% CI: 0.39-0.68, p<0.00001) and intra-operative blood loss (MD=111.68, 95% CI: 84.56-138.8, p<0.00001) with no significant difference in operative time between the two techniques (MD=0.32 (11.3-11.94), p=0.96.
**Conclusion:** Using UDD in MRM for breast cancer presents significant advantages in decreasing post-operative drainage, seroma and intra-operative blood loss, without lengthening operating time compared to EC. It therefore appears favourable, however further cost-effectiveness analysis would be beneficial to guide selection.

## P187. EVALUATION OF AN END OF TREATMENT SUMMARY IN PATIENTS WITH EARLY BREAST CANCER: QUALITY IMPROVEMENT PROJECT

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**Introduction:** The National Cancer Survivorship Initiative (NCSI) was launched in collaboration with NHS England and Macmillan Cancer Support to improve cancer services. Patients that are aware of their own cancer history in terms of diagnosis and treatment may benefit from greater satisfaction and empowerment, effective use of information resources and appropriate medical care if needed.
**Method:** Data was collected retrospectively on 128 patients who underwent surgery for early breast cancer from 1 January to 31 December 2019. An end of treatment summary and survey questionnaire was sent to each patient. Quantitative data was collected using a 5-point Likert scale and qualitative data obtained using free text questions.
**Results:** The survey was completed by 106 patients (83% response rate). The majority of respondents (75%) agreed that the end of treatment summary aided their understanding of their diagnosis and was useful (90%). Most felt confident dealing with follow-up care (89%), understanding the side effects of treatment (88%), good knowledge of available support (91%) and accessing breast services if needed (95%). In the free-text section of the survey, several patients commented on the usefulness of the summary as a concise and informative reference tool. Suggestions for improvement of the summary included greater personalisation, changes to the layout and receiving the summaries sooner.
**Conclusion:** End of treatment summaries can be of benefit in improving patient knowledge and understanding of diagnosis and treatment. Further work should be done to develop a method of personalisation of the summaries particularly in patients with more complex treatment.

## P188. ULTRASOUND BY SURGEONS IS A USEFUL ADJUNCT TO THEIR DIAGNOSTIC AND THERAPEUTIC SURGICAL PRACTICE AND IMPROVES PATIENT CARE

Sasirekha Govindarajulu, Ajay Sahu. *Bristol Breast Care Centre, Bristol, United Kingdom*

**Introduction:** Ultrasound has been used by surgeons as an adjunct to clinical assessment in one Stop and follow up clinics and intra operatively during surgery for breast cancer. Ultrasound performed by breast surgeons provide a seamless care of breast patients. Despite ultrasound being increasingly and widely used in different clinical practices, uptake of ultrasound by breast surgeons remains low. We assess the ways surgeons who perform ultrasound can make a difference to the care of patients in the breast units.
**Method:** We looked at the procedures carried out by breast surgeons in the outpatients and in theatre. We also looked at papers published and clinical trials possible by surgeons performing ultrasound.
**Results:** Procedures recorded in the outpatient scenario were Ultrasound guided core biopsies, placement of marker clips in neoadjuvant chemotherapy, aspiration of cysts, seroma and abscess (identified particularly as good practice by GIRFT). Assessment of implant, and BIA-ALCL. Subareolar mammotome biopsy to assess nipple preservation in skin sparing mastectomy. Therapeutic procedures included localisation of Impalpable and US visible lesions, specimen ultrasound to assess appropriate excision, mammotome excision of ducts in nipple discharge and 'INTACT extraction' of small breast cancer and benign lesions. Trials participated in LASER for cancer, Radiofrequency ablation, cryotherapy for fibroadenomas. We ran a course teaching Ultrasound to breast surgeons and have published papers (12) in peer reviewed journals.
**Conclusion:** Surgeons who perform ultrasound make a significant impact on patient care. We suggest it is time to consider including Ultrasound in the curriculum for breast trainees

## P189. MAGSEED VERSUS WIRE-LOCALISATION: WHICH IS BEST FOR PATIENTS?

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**Introduction:** Localisation of impalpable breast lesions with Magseed has become standard practice and replaced wire localisation in a significant proportion of patients. We compared outcomes of Magseed localised excision of pre- and invasive cancers with a cohort of wire localisations. Re-excision rates, seed and wire migration and patient reported outcome measures (PROMS) were evaluated.
**Methods:** This was a prospective single centre cohort study in Glasgow. Data were collected from consecutive Magseed and wire localisations from August 2018 to June 2020. PROMS was evaluated using a patient anxiety self-evaluation test.
**Results:** Wire-localised excision was used more frequently than the Magseed technique (n=148 vs n=104). Mean age (60 vs 57yrs) and BMI (28 vs 29.5kg/m2) were comparable for both techniques respectively. Re-excision of margins was required in 15 (14.8%) of Magseed localisations vs 23 (16.2%) of wire localisations (p=0.88). Wire migration occurred in 12 cases and in one case led to failed excision of the specimen. No migration of Magseed was detected. Lower anxiety levels were reported by patients after Magseed localisation compared to wire-localisation.
**Conclusion:** Migration of Magseed was not observed in this study. In the context of comparable re-excision rates and improved PROMs this makes Magseed-localisation a valuable technique.

## P190. IS IT SAFE TO AVOID AXILLARY SURGERY IN SMALL GRADE 1 CN0 BREAST CANCERS?

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Dual localisation axillary sentinel node biopsy is the standard of care in staging early breast cancer (cN0). It has a low false negative rate but is still associated with morbidity including wound infection, seroma, blue dye reactions and occasionally lymphoedema. In addition, it involves a cost for the radioisotope administration and surgery. The SMALL trial is a prospective, multicentre, randomised (2:1) phase III trial of minimally invasive vacuum assisted excision (VAE) versus standard surgery in patients with small <15mm biologically favourable screen-detected breast cancer. In the VAE arm, no sentinel node biopsy is performed. In view of this we performed a review of our grade one breast cancers to determine the sentinel lymph node involvement.
**Method:** A 5-years retrospective review of a prospectively maintained breast cancer database was performed of all grade one breast cancers treated in our unit from 2015 to 2019 inclusive and macro-metastatic (>2mm) sentinel lymph node involvement determined.
**Results:** During the 5-years period a total of 200 grade one cancers on final pathology were treated in our unit. Of these 25 (12.5%) were found to have at least one macrometastasis. The mean tumour size with a macrometastasis was 20mm (range 10-43mm).
**Conclusion:** This simple retrospective review would suggest that it is safe to avoid any axillary surgery for grade 1 cancers less than 10mm which would have both patient benefits and cost savings. Closer follow up may be required in the SMALL trial for cancers between 10 and 15mm where nodal involvement is possible.

## P191. INCIDENTAL FINDINGS IN 1000 CONSECUTIVE CT ANGIOGRAMS FOR DIEP FLAP BREAST RECONSTRUCTION

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**Introduction:** CT angiography is the core of pre-operative assessment for patients undergoing free Deep Inferior Epigastric Perforator (DIEP) flap breast reconstruction. Knowing the vascular anatomy of the flap has been proven to help preoperative decision making and reduce operating time. Incidental findings are not uncommon with literature quoting frequencies between 13% and 64%. As these findings can require further investigations and potentially delay surgery, the purpose of this study was to clarify the rate, nature of these findings and how this should be communicated to the patients.
**Methods:** A retrospective review was performed, looking at pre-operative scan reports of 1000 consecutive patients undergoing free DIEP flap breast reconstruction at The Royal Marsden Hospital between 2013 and 2019.
**Results:** 1000 CTA reports were reviewed, 233 (23.3%) demonstrated incidental findings. All findings were benign and there was no delay in reconstructive surgery. Further imaging such as U/S or MRI was required in 85% of liver abnormalities and 91% of suspicious changes in the ovaries. The most common reported findings were liver cysts (36), sclerotic bone lesions (33), uterine fibroids (30), spinal degenerative changes (26) and ovarian cysts (25). In all the cases, MDT acknowledged the finding and reconstruction proceeded as planned.
**Conclusion:** CT incidental findings (incidentalomas) remain common, but rarely complicate the patient journey even if further investigations are needed. Informing patients of the high chance of an abnormal finding on their CTA, should be a part of the consultation, understanding that that the vast majority of incidentalomas are benign.

## P192. DOES MASTECTOMY REDUCE OVERALL SURVIVAL IN EARLY STAGE BREAST CANCER?

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Over the last two decades, several high-quality studies have revolutionised breast cancer treatment, contributing to improvements in breast cancer specific (BCSS) and overall survival (OS). Advances in treatments modalities include hormone manipulation, human epidermal growth factor 2 (HER2) receptor blockade, taxane based chemotherapy and bisphosphonate use. Recently there is a surge in neoadjuvant therapy use, although questions remain as to any benefit with OS. It is interesting to note that in the majority of the adjuvant therapy studies, the type of surgical resection is overlooked. Early stage breast cancer is, however, a predominantly surgical disease. The dominant contributor to a patient's treatment being curative surgical resection. The main forms of resection are mastectomy or breast conserving surgery (BCS). Seminal papers from 1970s and 1980s compared mastectomy with BCS, demonstrating BCS to have a non-inferior long-term OS. Now, BCS is well established with improved long-term aesthetic results and quality of life, when compared to mastectomy with or without reconstruction. Over the last decade, large datasets (totalling over one million patients) from cancer registries around the world are at odds with the original studies suggesting equivalence with BCSS and OS. Indeed, BCS is significantly associated with improved BCSS and OS, with data matched predominantly for patient age, tumour grade, stage, nodal and receptor status with long-term follow up. This evidence has major implications for surgical decision making in early stage breast cancer so that further improvements in BCSS and OS can be achieved in conjunction with the advances in (Neo)adjuvant therapy use.