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Abstract Book

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Proffered Papers

Listed in presentation order

Evaluating Performance Differences Between Experienced and New Participants in the PERFORMS Quality Assurance Test for Breast Screening

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In the UK, all breast screening readers in the NHS Breast Screening Programme (BSP) participate annually in the PERFORMS (Personal Performance in Mammographic Screening) external quality assurance (EQA) scheme, which assesses individual performance. This study aimed to compare the performance of participants with previous PERFORMS experience to those without.

A total of 710 readers evaluated the same challenging breast screening cases; 669 had prior experience with PERFORMS, while 41 were new to the scheme. Participants with prior EQA testing experience had a mean cancer detection rate of 86.2% and a mean correct recall rate of 86.2%. In contrast, new participants had a mean cancer detection rate of 77% and a mean correct recall rate of 77%. The experienced group demonstrated significantly better performance in both cancer detection ($p = 0.0000$) and correct recall rate ($p = 0.0000$). The Area Under the Curve (AUC), which evaluates both sensitivity and specificity, further showed superior accuracy for experienced participants ($p = 0.0021$).

These results underscore that regular participation in PERFORMS, which offers exposure to a high volume of challenging cancer cases, increases readers performance in cancer detection and recall rate, thereby improving overall diagnostic accuracy. The UK BSP requires each reader to report 5,000 cases per year, but they typically encounter only about 35 cancer cases annually. PERFORMS participation allows readers to review an additional 80–90 challenging cases per year, enhancing their diagnostic skills and quickly identifying suboptimal reading decisions. Further analysis will explore performance differences by job types (radiologists and radiographers).

To Biopsy or Not to Biopsy: Avoiding needles below 30

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The majority of women under 30 years attending two-week-wait (2WW) clinics will be diagnosed with benign disease. The current guidelines recommend symptomatic lesions in patients aged 25 and below do not require sampling if the lesion has typical benign appearances. A multicentre study by Lowes et al, 2019 assessed the potential to increase the lower limit to 30 years. However, several years on, few studies have been published to endorse this strategy.

The large multicentre retrospective study was performed with the specific aims of identifying whether adopting the raised threshold of 30 years as the upper limit for not performing biopsies on U2 lesions would be a safe policy. The population included in this study from central and east London is an ethnically diverse community with large numbers of patients under 30 diagnosed with breast cancer, and the 2WW patients demonstrating a younger population than seen in many more rural areas.

All patients under 30 years who underwent core needle biopsies between April 2020 – June 2024 over 3 hospital sites in the same NHS trust were identified. Imaging and surgical histopathology results attained from local PACS and ESR systems. A total of 1053 core needle biopsies performed on U2 and U3 lesions with 100% U2 lesions and 98% U3 lesions returning a benign histology. Findings support increasing needle core biopsy age of U2 lesions to 31 years and above compared to the current under 25 years.

Interim Analysis of MEDICI: Mammographic Predictors of Cancer Recurrence after Breast Conservation and Adjuvant Endocrine Therapy

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Background: Mammographic density (MD) is a well-established breast cancer risk factor. Decreasing MD has been demonstrated to be a risk-reduction biomarker in a landmark chemoprevention study in high-risk women. A few small studies suggest that a decreasing MD in women taking adjuvant endocrine therapy (AET) may be associated with a lower risk of recurrence and breast cancer specific death.

Aim: This interim analysis aims to measure inter and intra-reader variability of MD classification within a current study (MEDICI) investigating whether a reduction in MD after one and/or three years in women taking AET is associated with a lower risk of breast cancer recurrence and death compared to no reduction.

Methods: Retrospective cohort study, generated from a subset of participants from the Mammo-50 trial. Eleven readers assessed MD using a 0 to 100% visual analogue scale (VAS), scoring mammograms from time of diagnosis and at one and three years after diagnosis. A subset of four readers re-analysed the mammograms. Inter and intra- reader agreement were estimated using intra-class correlation coefficients (ICC).

Results: Eleven readers classified MD in 50 patients at three timepoints (150 mammograms), using the VAS. Four readers re-interpreted all 150 mammograms. The ICC between all 11 readers (inter-reader agreement) was 0.80 (95% confidence interval (CI): 0.77-0.84). The ICC within readers (intra-reader agreement) was 0.86 (95% CI 0.77-0.91).

Conclusion: Interim analysis demonstrates good inter- and intra-reader agreement for assessment of MD on VAS, suggesting validity of the human MD assessment to be performed within the MEDICI study.

Contrast-enhanced mammography versus breast MRI in the assessment of multifocal and multicentric breast cancer: a retrospective study

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Background: Breast cancer multifocality and multicentricity diagnosis influences the surgeon's choice between applying breast conservative therapy or performing mastectomy.

Purpose: To assess the role of contrast enhanced mammography (CEM) and breast magnetic resonance imaging (MRI) in the assessment of preoperative breast cancer multifocality and multicentricity and to assess their accuracy, agreement and impact on the surgical management.

Material and Methods: The study retrospectively included cases over a 5-year period. After analysis and interpretation of suspicious breast lesions, a comparative evaluation of CEM and MRI was conducted with the assessment of diagnostic indices, including sensitivity, specificity and diagnostic accuracy. The kappa (κ)measure of agreement between both modalities was measured. The postoperative specimen pathology was the reference standard.

Results: One hundred and twenty-two female cases with 126 breast lesions were evaluated. Specimen pathology, MRI and CEM showed a single neoplastic lesion in 67.5%, 35% and 48.5% of cases, respectively,

and multiple neoplastic lesions in 32.5%, 65% and 51.6% of cases, respectively. The sensitivity, specificity and accuracy of MRI were 95.12%, 49.41%,and 64.29%, and the CEM values were 85.37%, 64.71% and 71.43%, respectively. The κ value was 0.592 with an intermediate agreement between both modalities. When comparing between both modalities, enhancing foci showed a statistically significant difference, although there were no statistically significant difference in terms of high breast density or molecular subtype.

Conclusion: In terms of breast cancer multifocality and multicentricity evaluation, MRI showed a higher sensitivity, while CEM showed a higher specificity, and there was moderate agreement between the two modalities.

Choosing an operating point: Using PERFORMS to help decide the right artificial intelligence (AI) recall threshold

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Recall and assessment rate varies across screening centres (or units) in the NHS breast screening programme (NHSBSP). For artificial intelligence (AI) to be implemented effectively at each unit, the AI's operating point, and its anticipated recall behaviour, needs to be considered. Here we explore the possibility of recommending AI operating points for units based on reader performance in PERFORMS test-sets.

Breast screening readers in England completed a PERFORMS test-set containing 60 2D digital mammography cases between April 2022-November 2022. In July 2023, the same test-set was evaluated by an AI algorithm (Lunit INSIGHT MMG v1.1.8.0). Readers scored cases from 1-5 (Royal College of Radiologists 5-point scoring), and AI scored between 0-100 (probability of malignancy scale). Readers were split by unit to investigate how reader performance varied between units in PERFORMS. The optimal AI operating points were calculated for each unit by matching to the mean unit sensitivity and specificity.

597 NHSBSP readers, from 65 units completed the PERFORMS test-set and were included. There was variation in performance metrics when comparing mean unit performance. Mean sensitivity and specificity across the units was 85.4% (range: 73.3-94.8%) and 82.3% (range: 71.1-89.9%), respectively. To match these scores based on sensitivity, the AI operating point varied, with a mean recall threshold of 20 (range: 12-33). We noted variation in reader performance in PERFORMS across units and showed that the AI operating point varied considerably when matching to the average sensitivity for each unit, demonstrating the importance of choosing a suitable recall threshold in practice.

Should women with only mastalgia as the presenting symptom be offered a routine mammogram? Outcomes of retrospective review on 3,449 women

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Purpose: Until recently, patients ≥40 in UK presenting with only mastalgia have had routine mammograms even though it is recognised that mastalgia alone is not associated with breast cancer. Due to pressures on services, the guidance is to not offer imaging in these women (1). We examine the implications of the new guidance.

Methods: Single institution retrospective study on patients presenting with only mastalgia and normal clinical examination during a 60 month period. Patients with incidental findings warranting biopsies identified. All outcomes were benchmarked against NHSBSP CDR (cancer detection rate) and needle biopsy rates.

Results: 114 patients had 148 biopsies (33/1,000). Results were benign in 64 patients; high risk (B3) in 18; 41 cancers in 32 women (age range 42-87, median 61.2), with a CDR of 9.3/1,000 (NHSBSP 2023: 8.7/1,000).

There were 10 below screening age, 13 of screening invitation age and 9 above invited age. There were 15 DCIS and 17 invasive cancers. The benign needle biopsy rate was 18.5/1,000 (NHSBSP 8.6/1,000).

Conclusion: To our knowledge, this is the largest study assessing outcomes of mammography in women with mastalgia only. CDR is slightly higher than screening, although benign biopsy rate was also higher. 59.4% of detected cancers were outside UK screening age group. With screening uptake of 65% (NHSBSP 2023) the change in guidance to stop performing mammograms in women ≥40 presenting with mastalgia, will result in missed opportunities to detect breast cancers and should be re-considered.

(1) https://breastradiology.org/media/1294/bsbr-update-on-breast-pain-feb-23.pdf

Poster Presentations

Listed alphabetically by first presenting author surname

Reproducibility and diagnostic performance of Superb Microvascular Imaging's Vascular Index in solid breast lesions.

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Objectives: Superb Microvascular Imaging (SMI) is an ultrasound tool that depicts small vessels while cancelling artefacts. This study aimed to evaluate the reproducibility and diagnostic performance of SMI's quantitative parameter, the Vascular Index (VI) in differentiating benign from malignant solid breast lesions.

Methods: Solid breast lesions planned for core biopsy were prospectively assessed using B-mode ultrasound and SMI VI by two observers. Each lesion was given a BIRADS score and SMI VI was measured. The reproducibility of SMI VI was assessed by the intraclass correlation coefficient (ICC). The diagnostic performance of the SMI VI and BIRADS score were examined by calculating area under the receiver operator characteristics curve (AUROC), sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV).

Results: 113 lesions in 107 patients were assessed (50 malignant and 63 benign). The ICC for SMI VI was 0.7223 (95%CI: 0.5587 to 0.8320). The SMI VI AUROC was 0.6 (95%CI: 0.504 to 0.691, P=0.063), the sensitivity was 90%, specificity was 31.75%, PPV was 51.1% and NPV was 80%. The BIRADS scores AUROC was 0.77, sensitivity of 100% and specificity of 53.9%, PPV was 63.3% and NPV was 100%.

Conclusion: This is the first study to assess the reproducibility and diagnostic performance of SMI VI in differentiating benign from malignant breast lesions in a European population. We have shown that SMI VI is reproducible but poor at differentiating benign from malignant breast lesions. It's hoped that future studies will find venues to utilize SMI VI's excellent depiction of lesion vascularity.

Impact of Breast MRI on surgical outcomes in Paget's disease of the breast

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Paget's disease of the breast is a rare cutaneous malignancy with an additional underlying malignancy in >80% of cases. Breast-conserving surgery can be offered to a selected cohort of patients.

This a retrospective study assessing the impact of MRI on surgical outcomes in cases of Paget's disease in our breast unit over an 11-year period.

Punch biopsy identified 18 cases of Paget's breast disease, with additional DCIS in 2 cases.

Mammography and ultrasound demonstrated abnormalities including masses and microcalcifications in 5 cases. MRI was performed in 4 of these cases, to determine disease extent in 1 case, and as a baseline scan prior to commencing chemotherapy in 3 cases.

12 breast MRI studies were performed in total. The remaining 8 were performed for cases with normal conventional imaging. MRI identified lesions in 5 cases, with 4 confirmed DCIS on subsequent biopsies. 3 MRI studies were normal, 2 of which achieved a wide local excision (WLE), and 1 mastectomy due to positive margins.

MRI was not performed in 6 cases. Conventional imaging was normal in 3 cases, 2 achieving a WLE and 1 mastectomy following surgical assessment. 3 remaining cases had mastectomies due to previous cancer and disease extent.

In summary, MRI identified 4 cases of DCIS that were occult on conventional imaging. There were 10 mastectomies, and 8 WLEs.

Diagnostic work-up with imaging in Paget's disease is essential to determine the most suitable management plan. MRI is particularly helpful in cases of normal conventional imaging, and to determine disease extent.

Lobular carcinoma: Sensitivity and accuracy in sizing of tumour across different breast densities.

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Background: The study aims to evaluate the overall sensitivity and accuracy of different modalities (MRI, ultrasound (US) and mammography (MMG)) in detecting invasive lobular carcinoma (ILC) and its impact on surgical management, with a focus on the influence of breast density on these parameters.

Methods: This retrospective study included 97 patients with confirmed ILC who underwent MRI between January 2017 and January 2022. Tumour size measurements from MRI and US were compared with pathological specimens using Pearson's correlation coefficient. If a tumour was not detected, a size of "0" was recorded.

Results: Imaging techniques were more accurate and reliable in lower-density breasts, although performance was poorer for larger lesions more common in denser breasts. In 19 patients (20%), MRI correctly changed surgical management by increasing the tumour size, predominantly in higher-density breasts (63%). However, in 9 cases (9%) MRI incorrectly altered surgical management by changing tumour size, with an equal distribution across BIRADS 2, 3, and 4. MRI exhibited the highest sensitivity (91%) and accuracy (Pearson's coefficient 0.7) compared to MMG (85%, 0.35) and US (85%, 0.42).

Conclusion: MRI demonstrated superior sensitivity and accuracy in tumour detection and size prediction, particularly in less dense breasts. While MRI can correctly influence surgical management, it also carries a risk of false positives, particularly in denser breasts. Further research is needed to refine criteria for pre-operative MRI use based on breast density to optimize clinical outcomes. Current findings support the use of pre-operative MRI in patients with ILC regardless of breast density.

Male breast imaging: Is single-view mammography sufficient?

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Background: Mammography is increasing used for male patients presenting with a 'breast lump'. Currently two-view mammograms are performed. We evaluate the accuracy of single-view (MLO) mammography as this would improve patient experience, reduce radiation dose and imaging time.

Methods: Male mammograms were identified between 01/01/14-31/12/23. Those performed for lump or gynaecomastia were included. Pseudonymised single-view mammograms were synthesised and reviewed by a radiologist blinded to the CC-views, imaging reports and pathology. Pathology was extracted by a second radiologist. RCR mammogram grading was used: M1-2 was considered a negative, M3-5 considered positive. Pathology was considered ground truth with B1-2 and/or no cancer detected in follow-up period was considered negative and B5-5 considered positive. Accuracy was assessed at breast level.

Results: 270 mammograms were identified, 61 were excluded. 198 bilateral and 11 unilateral mammograms were included, a total of 407 images were assessed. 19/23 cancers were detected on the single-view mammograms, with one false-positive. Diagnostic accuracy was 98.8%, sensitivity:82.6% and specificity:99.7%. Of the four cancers that were missed three had suspicious clinical findings and one had a

prior ultrasound (unavailable to blinded reader). Comparative accuracy of two-view mammography could not be reliably calculated due to prior ultrasound and/or tissue diagnosis.

Conclusion: Specificity of single-view mammography was higher than figures in the published literature for two-view male mammography (99% vs 90-96%). Sensitivity was lower (83% vs 92-100%) - this may be related to the lack of clinical history. Single-view mammography could be considered when there is a low index of clinical suspicion.

Local breast cancer recurrence following a diagnosis of breast cancer: Timing, presentation and clinicopathological variables

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Introduction: Early detection of local breast cancer recurrence (BCR) improves patient survival. The approach to surveillance imaging following breast cancer varies considerably internationally. Many institutions, including our own, perform prolonged annual mammography. The publication of Mammo-50 trial is awaited with interest. This study aims to review cases of local BCR to determine time to recurrence, location, presentation and histology.

Method: All cases of local BCR in a single centre over an eleven-year period (2009-2020) were obtained from a prospectively maintained database. Medical records and PACS images were reviewed to determine timing, presentation, location, imaging features and clinicopathological variables. Data was collated in a prospectively maintained password-protected database.

Results: 212 cases of BCR were identified. 44 patients with distant metastasis or incomplete data were excluded. Mean time to recurrence was 77.9 months (Range 1-348 months). Of the recurrences, 92 (54.8%) cases of recurrence occurred < 5 years after diagnosis. Of these 22 (23.9%) were detected mammographically. 77 (45.8%) recurrences occurred > 5 years after diagnosis and 27 (35.1%) were detected mammographically. 23 (25%) recurrences < 5 years were triple negative (TN) compared with 2 (2.6%) recurrences >5 years. 132 (73.7%) recurrences were ipsilateral breast, axilla or chest wall recurrences and 36 (20.1%) were contralateral breast and/or axilla. Imaging examples are included to illustrate the patterns of recurrence described.

Discussion: The majority of cases of local BCR occur < 5 years after diagnosis and are TN. Interestingly, only approximately one-third of BCR were detected on mammographic surveillance irrespective of timing of recurrence.

The significance of breast lesions identified incidentally on Lung Health Check CT

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Background: The Targeted Lung Health Check Programme offers low-dose CT scans to populations at higher risk of lung cancer. Like other forms of cross-sectional imaging, this can produce incidental findings, resulting in onward referral to specialist services and increased patient anxiety which may be unnecessary. We investigated the frequency of incidental breast lesions found through this programme.

Method: A retrospective review of all patients with breast findings detected by LDCT from November 2019 and July 2024. Their referral method for breast assessment, findings on breast imaging, and biopsy results were recorded.

Results: 52 patients (64.19 ± 5.84 years) had breast lesions reported. Of these, 50 (96%) were female. 39 cases were first discussed with a breast radiologist, 26 (66%) of which were referred for triple assessment. 13 cases did not have initial input from a breast specialist, 10 (77%) of which were referred for assessment. The average number of days between LDCT and breast assessment was 35.89 ± 19.64 days, and the highest score on imaging was 2.79 ± 1.40. 8 patients were biopsied, with 5 having malignant findings. All 5 malignant cases had been discussed with a breast radiologist prior to breast clinic referral.

Discussion: Lower referral rates were seen when a breast specialist opinion was requested prior to referral. This allowed savings in clinic capacity and reduction in patient anxiety caused by unnecessary referral.

How accurate is axillary ultrasound? Comparing pre-operative ultrasound assessments to post-operative axillary node status in breast cancer positive patients.

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Background: The cortical thickness of axillary lymph nodes has been linked to nodal metastasis, with smaller measurements associated with lower rates of metastasis. There is currently no international standard used to define a safe threshold for cortical thickness. In this analysis, we compare three proposed safe thresholds of 2.30mm, 2.50mm, and 3.00mm, and observe how axillary node involvement changes between each group.

Methods: Retrospective review of all known breast cancer patients who underwent node surgery in October 2023 at our center. Cortical thickness and final nodal status were collected. 91 Patients were divided into 4 groups from their cortical thickness measurements. These groups were <2.30mm (n=65), 2.30-2.49mm (n=5), 2.50-3.00 (n=4), and ≥3.00mm (n=17).

Results: 91 patients (57.82 ± 11.13 years) underwent WLE or ANC. 26 (28.57%) patients were node positive at surgery. When split into their groups,12 (18.46%) patients in the <2.30mm group were node positive, 1 (20%) in the 2.30-2.49mm group, 2 (50%) in the 2.50-3.00 group, and 11 (64.71%) in the ≥3.00mm group. OR=1.97 (95%CI, 1.21-3.20) was found when using 2.30mm as the safe threshold, OR=2.01 (95%CI, 1.16-3.48) at 2.50mm, and OR=2.26 (95%CI, 1.18-4.34) at 3.00mm. Preliminary multiple regressions were run, with thickness as both a continuous and categorical variable. As a continuous variable, cortical thickness produced OR=2.67 (95%CI, 1.60-4.46) (p=<0.01). The categorical model further concluded that OR=10.05 (95%CI, 2.78-36.31) (p=<0.01) when cortical thickness is ≥3.00mm.

Discussion: Further research with more robust regressions and sample size is warranted to continue investigating the value of cortical thickness.

Breast conserving surgical plan based on conventional imaging is not significantly altered by pre-operative DCE-MRI of breasts in pure high-grade and mixed intermediate and high-grade DCIS.

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Evidence exists that high grade DCIS is better visualised than low grade DCIS, and therefore might be better staged with DCE-MRI of breasts.

In this retrospective study, we aimed to assess the impact of DCE-MRI on surgical planning performed pre-operatively on all DCIS cases diagnosed as high (28) and mixed intermediate/high (10) on core biopsy, scheduled for breast conserving surgery.

38 female patients (age range 43 to 83 years) were diagnosed between February 2021 and May 2024. Average risk screening clients were 23 and 15 symptomatic. Common mammographic feature was

microcalcification (36), with two being mammographically occult. Mammographic sizes ranged from 4 mm to 116 mm. 27 had single site cores, 10 had two site cores, and 1 was clinically cored. Majority had small bore cores, and vacuum cores in 1. 10 (26%) were MRI occult. Common MRI features were clumped linear and clumped segmental (10 cases each). Change to originally planned breast only surgery due to MRI, occurred in 10.5 % (4 of 38) cases, were as follows: 2 patients had extended wide local excision, with MRI size closely matching pathology size, 1 patient with extensive contralateral non calcified incidental DCIS, had bilateral mastectomies. 1 patient with bloody nipple discharge, was mammogram occult, but showed extensive DCIS on MRI, and went on to have mastectomy.

In our experience, in vast majority of patients (89.5%) pre-operative MRI did not significantly alter the planned BCS based on conventional imaging, and not all high and mixed intermediate/high grade DCIS is MRI visible.

B3 Lesions – 5 years audit – our upgrades and adherence to guidelines

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Aims:

- Evaluate upgrade rates of B3 lesions.
- Determine adherence to guidelines for management of B3 lesions.

Background: The incidence of B3 lesions is approximately 7% in UK screening population. Further excision after B3 diagnosis is important to exclude co-existing cancer. Upgrade varies between 2-40% depending on sub-type of B3 lesion. The NHSBSP guidelines recommends VAE in almost all cases.

Method: In the six year period 2018-2023, 246 B3 lesions were diagnosed in the symptomatic breast unit. Data was extracted from the RIS and POWERCHART systems to assess the histology and pathways for these patients.

Results: 246 B3 lesions were identified with initial diagnoses of intraductal papilloma (n=128), lobular neoplasia (n=15), ADH (n=28), radial scar (n=20), FEA (n=11) and fibroepithelial lesions (n=37)

30/246 (12%) of B3 lesions were upgraded. The commonest upgraded pathology was DCIS (n=21), the others were invasive cancer (4), phylloides (3) and pleomorphic LCIS (2). The strongest radiological indication for upgrade was microcalcifications.

Surgery was performed in 48% (n=118), VAE in 40% (n=98) and no intervention in 12% (n=30).
Non-compliance with guidelines in terms of surgery being done instead of VAE was 31% (n=71). All of these had a documented reason in MDT, the commonest being proximity to skin, or nipple discharge in the case of intra-ductal papilloma (n=36).

Conclusion: Our upgrade rates were comparable to NHS guidelines and our neighbouring NHS screening units. Overall we had good adherence to national guidelines, with reasons for deviations well documented in the MDT in all such cases.

An Audit of the Use of Breast MRI in Follow-up of Patients with Initially Mammographically Occult Breast Cancer

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Aim: We describe the outcomes of breast MRI surveillance in patients who have had a diagnosis of breast cancer that was initially mammographically occult.

Background: The use of surveillance MRI in detection of new or recurrent disease in patients who have had previously mammographically occult breast cancer is variable, with little evidence and no established protocols in place.

Methods:

1. Retrospective analysis of all Breast MRI, approximately 5000 studies, performed in Northern Ireland NHS between January 2010 and December 2023 . Reports were obtained from Northern Ireland Picture Archiving and Communication System(NIPACS).
2. Indication for each breast MRI was reviewed. Patients with initially mammographically occult disease were identified and included in the study.
3. Dates of cancer diagnosis and follow-up MRI studies were recorded, along with the result of the MRI.

Preliminary results:

- Over a 14 year period, approximately 100 patients diagnosed with mammographically occult breast cancer were followed up with at least one breast MRI.
- Each patient had approximately 3 follow-up breast MRI studies.
- The average time between initial diagnosis and first follow up was 18months.
- Disease recurrence was detected by MRI alone in one patient after their first follow-up.
- Metastatic skeletal disease was detected in one patient on the MRI study.
- Remainder of patients had negative MRI results.

Conclusion: Use of MRI for follow-up of these patients is sporadic and in the vast majority of cases does not demonstrate new or recurrent disease. This brings into question the role of MRI in follow-up of mammographically occult breast cancer.

Outcomes and Biological Significance of Breast Cancer found in Women over 70.

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Introduction: This service evaluation investigates the effectiveness of the Breast Test Wales (BTW) 'self-referral' policy which welcomes clients over 70 years to request breast screening every three years.

Methodology: A retrospective analysis of data from the West Wales Screening Division was conducted on women >70 screened between January 2020 and December 2023. NBSS was interrogated for the following data parameters: recalled abnormalities, clinical symptoms, biopsy outcomes, and tumour characteristics.

Findings: 6,398 women self-referred for screening, age rage 71- 87years. 371 (6%) were recalled for assessment. The Cancer Detection Rate (CDR) is significantly higher in women over 70 compared to the general screening population (18 versus 9 per 1000 screened). Of those >70 whom were recalled, 191 (51%) underwent a Core Needle Biopsy (CNB), 116 (61%) had a malignant diagnosis. Of these, 94 (81%) were histologically invasive, with 65 (61%) predicted Grade 2, 76 (81%) classified as Ductal Carcinomas and 18 (19%) as Lobular Carcinomas. Small invasive cancers (<15mm) comprised 43% (n=46) of malignancies, with 33% sized between 5-10mm. 4% (n=5) of malignancies presented symptomatically, with another 4% (n=5) recorded as a clinical concern by the mammographer only. At assessment, 25% (n=29) were clinically palpable malignancies graded as suspicious. 94% (n=109) of clients were suitable for optimum treatment which was breast surgery. Additionally, 94% (n=88) were recorded as Hormone Receptor-Positive, indicating potential responsiveness to hormone therapy.

Conclusion: Results indicate the BTW 'self-referral' policy is effective in diagnosing biologically significant cancers in asymptomatic women whom have no contra-indications to surgical treatment.

MRI assessment of residual tumoral and nodal disease in breast cancer cases postneoadjuvant chemotherapy

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Background: Neoadjuvant chemotherapy (NAC) is used to downstage breast cancer and axilla and to test the response to NAC in vivo in Her2-positive and triple-negative subtypes. For patients treated with NAC, it is standard of care to perform pre-and post-NAC imaging to evaluate response to treatment, typically with contrast-enhanced breast magnetic resonance imaging (MRI).In this study, we aimed to investigate the sensitivity and specificity of MRI in detecting residual disease post-NAC.

Material and Methods: Retrospective analysis of MRI examinations done for breast cancer patients receiving NAC from 2020-2022. We correlated our MRI reports with the final postoperative pathological results for residual disease in the breast and axilla.

Results: 131 cases were included out of them 75 cases were node positive.66.9% cases had residual tumoral disease while 54.7% had residual axillary disease. The following were our results for detecting residual tumoral breast disease(invasive or in situ) at the post-treatment MRI: sensitivity was 84%, specificity was 66.6%, positive predictive value(PPV) was 82.3%, negative predictive value(NPV) was 69.2%, and accuracy was 77.9%. The sensitivity and accuracy reached 93% and 85% in triple-negative subtype, respectively. Regarding the residual axillary disease the post-treatment MRI sensitivity was 41.6%, specificity was 95%, PPV was 90.9%, NPV was 58.8% and accuracy was 66.6%.

Conclusion: The results were consistent with the published literature. The sensitivity for detecting residual disease in the breast was high while the specificity was low. The sensitivity for detecting residual nodal disease was low while the specificity was high.

Pintuition- New Magnetic Breast Cancer Localiser on the Block-- Making the shift.

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Purpose: Most breast cancers are small and can be treated using breast-conserving surgery. Since these tumours are non-palpable, they require a localisation step that helps the surgeon to decide which tissue needs to be removed.

Oldest localisation is guidewire placed into the tumour before surgery caused patient discomfort, requires a radiologist shortly before surgery, and 15–20%of patients need a second surgery to completely remove the tumour.

Radioactive seed localization was used in Newcastle for the last 10 years. Recently Newcastle hospital has decided to move from radioactive I-seed to magnetic Pintuition (Pin)seeds after a 3months period of trialling.

Methods: Audit of 133 Pins inserted between May 2023 and May 2024 in the Radiology Department.

Results: We have performed a total of133 Pin localisations; 98 under ultrasound-guidance of these we also localised axillary lymph nodes - targeted axillary dissections in 8 cases.
27 under X-ray guidance for localisation of calcifications. We have found that the cut off point for insetting two Pins in bracketing lesions/calcs is a minimum of 25mm.

Conclusion & Summary statement: Pintuition is an easy to use localiser under US or mammographic guidance, comfortable and convenient for the patient can be placed up to 6 months before surgery- no decrease of signal over time.
Safe with no required complex radiation safety procedures.

Had its precautions and limitations as discussed: Patients with a Pacemaker and preNAC patients. Contrast mammography could be used in pre and post-NAC patients as an alternative to MRI, to avoid limitation created by Pin seed artefact.

Enhancing Accuracy in Breast Density Assessment Using Deep Learning: A Multicentric, Multi-Reader Study

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The evaluation of mammographic breast density, a critical indicator of breast cancer risk, is traditionally performed by radiologists via visual inspection of mammography images, utilizing the Breast Imaging-Reporting and Data System (BI-RADS) density categories. However, this method is subject to substantial interobserver variability, leading to inconsistencies and potential inaccuracies in density assessment and subsequent risk estimations. To address this, we present a deep learning-based automatic detection algorithm (DLAD) designed for the automated evaluation of breast density. Our multicentric, multi-reader study leverages a diverse dataset of 122 full-field digital mammography studies (488 images in CC and MLO projections) sourced from three institutions. We invited two experienced radiologists to conduct a retrospective analysis, establishing a ground truth for 72 mammography studies (BI-RADS class A: 18, BI-RADS class B: 43, BI-RADS class C: 7, BI-RADS class D: 4). The efficacy of the DLAD was then compared to the performance of five independent radiologists with varying levels of experience. The DLAD showed robust performance, achieving an accuracy of 0.819, an F1 score of 0.798, precision of 0.806, recall of 0.830, and a Cohen's Kappa (κ) of 0.708. DLAD achieved robust performance that matches and in four cases exceeds that of individual radiologists. The statistical analysis did not reveal a significant difference in accuracy between DLAD and the radiologists, underscoring the model's competitive diagnostic alignment with radiologist assessments. These results demonstrate that the DLAD algorithm can enhance the accuracy and consistency of breast density assessments, offering a reliable tool for improving breast cancer screening outcomes.

Evaluating the Impact of a Modified Triple Assessment Pathway on Referral Management and Diagnosis in Symptomatic Breast Services Under the 28-Day Faster Diagnostic Framework.

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Introduction: Urgent suspected cancer (USC) referrals more than doubled from 2010 to 2020, generating a significant backlog, even prior to the COVID-19 pandemic(1).

In response, the NHS introduced the 28-day Faster Diagnostic Framework. Replacing the previous 14-day referral system and urging local cancer services to implement strategies to improve productivity(2).

To manage increased volume, symptomatic breast services at a Welsh Health-board adopted a modified triple assessment pathway. This involved inviting eligible patients for mammograms (the initial component of the assessment) on a separate visit before clinical examination and intervention.

Patients were categorized based on mammogram results into three groups: 'green' (low likelihood of cancer), 'amber' (indeterminate), and 'red' (high likelihood of cancer), according to the UK Royal College of Radiology's 5-point breast imaging system. (RCR UK-5S)(3).

Clinics prioritized appointments for 'amber' and 'red' patients.
Aiming to address high-suspicion cases promptly whilst still adhering to the 28-day referral guideline.

Objective: We reviewed ‘green’ patients; to determine the number requiring further investigation and the proportion who received a cancer diagnosis.

Methods: Undertook a retrospective analysis of data covering January to May 2023.
Patient breast density was assessed using LIBRA software based on the BI-RADS scoring system.
RCR UK-5S classifications were used for clinical examinations, ultrasounds, and biopsies.

Results: 394 'green' mammograms were completed over the given period. A total of 13 patients underwent biopsy. 2 cancers were diagnosed. 99.5% of 'green' mammograms were benign.

Conclusion: The adapted triple assessment approach, effectively prioritizes high-risk cases without significantly affecting waiting times for lower-risk patients.

Accuracy of abbreviated MRI (abMRI) for predicting pathological complete response (pCR) following neoadjuvant chemotherapy (NACT): a retrospective image analysis study

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Background: With developments in oncological treatment, more women are receiving NACT. Imaging response assessment is essential for surgical decision-making. Full protocol MRI (fpMRI) is considered gold-standard for predicting pCR, but is time-consuming limiting its availability and patient tolerability. AbMRI utilises fewer MRI sequences and is quicker to perform and report. Emerging evidence shows abMRI has similar accuracy to fpMRI for screening. This pilot study investigates whether abMRI could offer an alternative for NACT response assessment.

Methods: Following ethical approval, MRIs from sixty consecutive NACT patients from 01/01/2017 were identified. Pseudonymised end-of-treatment abMRIs were synthesised and interpreted by a radiologist blinded to surgical pathology. Only pseudonymised pre-treatment fpMRI were available for comparison. A researcher extracted pathology and fpMRI report data. FpMRI and abMRI findings were compared with surgical pathology (at breast level). Accuracy of predicting pCR: ypT0 (no residual disease) and ypTis (residual in situ disease) was calculated.

Results: 59 patients with 63 cancers (four bilateral) were included. pCR occurred in 9(ypT0) and 16(ypTis), breasts. For ypT0: Sensitivity:88.9% vs 100%, specificity:96.3% vs 77.8%, and accuracy:95.2% vs 81.0%, for fpMRI vs abMRI. For ypTis: sensitivity:60.0% vs 81.3%, specificity:97.9% vs 83.0%, and accuracy:88.9% vs 82.54%, for fpMRI vs abMRI.

Summary: AbMRI has lower accuracy for pCR than fpMRI. FpMRI tended to over-estimate residual disease. AbMRI tended to under-estimate residual disease, possibly due to absence of later sequences to capture subtle type 1 enhancement. Furthermore, unlike in a clinical setting, the blinded reader did not have access to conventional imaging which may influence reporting.

Preliminary assessment of resource use in women recalled to assessment in the PROSPECTS (Prospective Randomised Trial of Digital Breast Tomosynthesis) Trial

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Background: Digital breast tomosynthesis (DBT) combined with either 2D digital mammography (2DDM) or synthetic 2D mammography (S2D) in breast cancer screening has shown improved accuracy in small cancer detection compared to 2DDM, albeit potentially at higher costs. This preliminary assessment of the resource use and associated costs in diagnostic assessment of recalled women screened with DBT + 2DDM/S2D, or screened with 2DDM in England aims to explore the accuracy of data collection and availability.

Methods: Women aged 49 to 71 attending routine mammography screening were randomised to the 2DDM arm or DBT + 2DDM/S2D arm. Resource use among a sample of recalled women was analysed using routinely collected NBSS data.

Results: Of 1,001 women recalled for assessment from July 2018 to March 2023, there was difficulty in obtaining accurate detailed information from NBSS. Preliminary results showed DBT + 2D arm had fewer mammography further views (17.39% vs 89.09%), incurred more wide-bore needle (WBN) biopsy (55.53% vs 44.24%), fine needle aspiration (FNA) (4.55% vs 3.43%) and multidisciplinary team meeting (MDM) (59.68% vs 49.09%), leading to a higher per-person cost of £506.62 compared to £499.09 in the 2DDM arm. Significant statistical differences between the arms were observed in additional mammography, WBN biopsy and MDM.

Conclusion: Incorporating DBT into routine breast cancer screening led to a slight increase in the costs of recalled assessments. The accuracy of the interventions will be further evaluated when the PROSPECTS trial ends.

Keywords: Breast cancer; Digital breast tomosynthesis (DBT); Digital mammography; Screening; Resource use; Cost

A Pictorial Review of the use of Contrast Enhanced Mammography (CEM) to Monitor Response to Neoadjuvant Chemotherapy (NAC) in Locally Advanced Breast Cancer: Our Experience at the Nottingham Breast Institute (NBI).

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Background: Neoadjuvant chemotherapy (NAC) is the standard of care for treatment of locally advanced breast cancer1. Breast MRI is the primary imaging modality used to monitor radiological response to treatment post NAC. Studies have shown contrast enhanced mammography (CEM) to be a comparable imaging alternative 2,3.

Furthermore, there is higher patient preference towards CEM due to better comfort, shorter procedure time and lower anxiety rates4.

Patients presenting to the Nottingham Breast Institute (NBI), with clinically malignant masses in the symptomatic setting, have been preselected to have CEM instead of standard mammography since November 20135. This baseline CEM study is often available for patients who are offered NAC, presenting an opportunity to improve our service by offering CEM to monitor treatment response.

Methods: Patients undergoing CEM to assess response to NAC were selected based on presence of imaging, pathological or clinical findings of educational value. Anonymised images were exported, alongside histology reports and clinical examination findings, where relevant.

Conclusions: Introduction of the use of CEM to monitor response to treatment post NAC at NBI could be used as a template for implementation of a similar service at other units. Our hope is that this will lead to fewer delays in treatment initiation and greater patient satisfaction, without compromising diagnostic accuracy.
Re-staging of the axilla is performed with ultrasound during the post-treatment CEM appointment. There is also an opportunity to place MAGSEEDS at initial biopsy to negate the need for tomosynthesis guided localisation following complete response to treatment.

The role of mid and post-treatment MRI in patients undergoing neoadjuvant chemotherapy for breast carcinoma

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Background: In breast cancer patients undergoing neoadjuvant chemotherapy (NACT), breast MRI is used before, during and after treatment to monitor imaging response and guide surgery. In patients with complete radiologic response (rCR) at mid-NACT MRI, we question the need for end-NACT MRI. Given the role of imaging in surgical planning, we also assess how rCR correlates to pathological complete response(pCR).

Objectives:
1. Determine if patients with rCR on mid-NACT MRI maintain this response on post-NACT MRI
2. Assess the association between rCR (mid- and post-NACT) and pCR.

Results: We conducted a single-site retrospective review of breast cancer patients who received NACT between 2016 and 2022. Among 223 patients with both pre- and mid-NACT MRI, 49 achieved rCR on mid-NACT MRI. Of these, 61% (n=30, Group A) had post-NACT MRI, while 39% (n=19, Group B) did not. All patients in Group A maintained rCR on post-NACT MRI. rCR on both mid-NACT and post-NACT MRI were significantly associated with pCR ($p<0.001$), with no significant difference in PPV or NPV. Residual disease was present on surgical pathology in 22.4% (11/49) patients with rCR on mid-NACT MRI and 30.4% % (24/79) patients with rCR on post-NACT MRI.

Conclusion: All patients with rCR on mid-NACT MRI who proceeded to have post-NACT MRI maintained this response. When rCR is evident on mid-NACT MRI, post NACT MRI may not be required. Although rCR is associated with pCR, residual disease may still be present. Rates of residual disease are lower when rCR is evident on mid-NACT MRI.

Features and characteristics of interval cancers in the NHS Breast Screening Programme - what can we learn?

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Background: A breast interval cancer is diagnosed between a normal mammogram result and the next appointment for breast screening (within 40 months). In England, approx 6000 women develop interval cancers (IC) each year. There are 3 classifications of IC - 'Satisfactory'', 'Satisfactory: with learning points

(SWL)' and 'Unsatisfactory', (NHS England BSP-S18. May 2023). Research in the past has been varied focusing on one or two features. This study looks at multiple features of interval cancers.

Method: The data was collected retrospectively over a 6-year period and 251 interval cancers were analysed to establish if there were any mammographic features or common characteristics of interval cancers.

Results: 80% of interval cancers were classed as 'Satisfactory'. The average, age IC diagnosed was 60 years, size at diagnosis was 24mm - 'Satisfactory', 25mm - 'Satisfactory WLP', 40mm - 'Unsatisfactory'.
Mainly, 'Satisfactory' IC were diagnosed at 25-26 months, 'Satisfactory WLP' 13-24 months and 'Unsatisfactory' 0-12 months. 85% of IC were from the incident round. More interval cancers were found in BI-RADS B mammograms. Invasive ductal carcinoma was the most common, and 86% 'Satisfactory' IC were triple negative. The most frequent imaging abnormalities were asymmetries and masses. Images are presented.

Conclusion: Dissemination of these outcomes to readers can enhance film reading. Minor changes in asymmetries and masses in the older population should be given more consideration.

References: NHS England BSP-S18. May 2023. NHS Breast screening programme screening standards valid for data collected from 1 April 2017. BSP-S18: outcome: rates of interval cancers. https://www.gov.uk/government/publications/breast-screening-consolidated-programme-standards/nhs-breast-screening-programme-screening-standards-valid-for-data-collected-from-1-april-2017

Locoregional staging of Invasive Lobular Cancer using MRI: Impact of Breast Density on accuracy of detecting multifocal or multicentric disease

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Introduction: MRI is routinely used for locoregional staging of invasive lobular carcinoma (ILC) due to its high sensitivity, and the propensity of ILC for multifocal/multicentric disease. However, MRI has a relatively low specificity and in a resource-stretched NHS, it may not be appropriate to offer MRI to women with ILC where breast conserving surgery is planned. This service evaluation considers accuracy of MRI for detecting significant additional disease according to breast density.

Methods: Patients who underwent MRI locoregional staging for ILC between 01/07/18 and 31/06/23 were identified. Breast density categorised according to the BIRADS lexicon (A-D) on contemporaneous mammograms. MRI identified possible additional multifocality/centricity not seen on conventional imaging were noted. MRI findings were correlated with pathology.

Results: 210 MRIs were included: BIRADS breast density was A:53, B:69, C:61, D:27. Additional malignant foci were detected in 6 (11%), 24 (35%), 17 (28%) and 13 (48%) in BIRADS A, B, C and D density breasts. Additional benign foci warranting further investigation were identified in 3 (6%), 3 (4%), 6 (13%), and 6 (22%) respectively.

Conclusion: MRI detects additional multifocal disease in ILCs across all density categories. However, additional disease approximately three-times as likely to be detected in BIRADS B&C and over four-times times as likely in BIRADS D, as compared to BIRADS A breasts. Additional benign foci are also more common in denser breasts.

Is Clinical Breast Examination necessary to identify additional disease in the screening assessment clinic?

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Background: Clinical breast exam (CBE) is known to have a low sensitivity and anecdotally even lower in the screening assessment clinic. Variation in practice regarding this exists across the county. We sought to determine whether CBE identifies any additional disease in the screening assessment setting.

Methods: Patients who attended assessment clinics between 01/04/2022 and 31/03/2023 were identified using BOXI (Scottish Breast Screening Programme statistics software). CBE and imaging findings were retrieved and correlated with pathology data.

Results: Of 808 patients assessed, 232 had a biopsy-proven malignancy or B3 lesion following assessment. In 95 (40.95%) patients with a screen-detected malignancy, CBE was able to identify a corresponding palpable abnormality. In 137 (59.05%) cases CBE determined benign or normal findings where imaging had identified a malignancy.
CBE identified additional abnormalities graded E3-5 in two patients, both proved to be benign on final work-up. In three cases, multifocality was identified on imaging which identified on CBE. No imaging occult additional disease was identified by CBE.

Conclusion: In a year of assessment clinic, CBE did not identify any imaging occult disease. Additional, ultimately benign, findings were identified. This is likely a result of small lesion size in screen-detected malignancy. CBE can safely be omitted from the screening assessment clinic without concern regarding missing further disease or extent. This could allow for redistribution of clinician time to a clinic where CBE adds more clinical value.

Patient attitudes towards the use of Artificial Intelligence (AI) in the symptomatic breast unit

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Introduction: AI in breast screening is a topic of growing interest and has already been applied in a real-world setting 1,2. The role of AI in symptomatic breast imaging is less well established. While there are limited studies looking at patient attitudes to AI in breast screening3, 4, none to-date discuss patient perceptions of AI in the symptomatic setting. The aim of this study was to evaluate patient attitudes towards use of AI in a symptomatic breast unit.

Method: Voluntary, anonymous, paper-based questionnaires using a Likert scoring system were distributed to patients attending a symptomatic breast unit from July 1st-August 9th 2024, including questions regarding reason for attendance, interest in AI, family and personal history of breast cancer.

Results: Over a 1-month period, 600 responses were received. 52%(309/600) of respondents were aged <50 years. 61%(368/600) of respondents expressed an interest in AI. 59%(353/600) were agreeable for both an AI tool and a radiologist to read their mammogram while only 12% (69/600) agreed with standalone AI reading their mammogram. 77% and 68% of respondents preferred a radiologist to read their mammogram over AI even if AI is shown to be more efficient(460/600) and more accurate(405/600). 27%(159/600) of respondents believe that breast radiologists will be replaced by AI in the future. We will continue to accrue responses over the coming 3 months.

Discussion: Patients welcome the use of AI as an adjunct for radiologists, disagree with AI being the sole reader of their mammogram and do not envisage AI replacing radiologists.

Review of breast lesions incidentally detected on other imaging modalities.

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Aim: To evaluate the management and outcomes of incidentally detected breast lesions on other imaging modalities outside the screening program.

Method: Data was collected from April 2022 to October 2023, including all patients referred to the breast unit from other departments following incidental detection of any breast abnormality on different imaging modalities. Each case was reviewed in a multidisciplinary meeting to determine the need for a triple assessment. Comparisons were made with previous mammograms, and stable or previously assessed benign lesions were reassured and discharged. New or suspicious lesions were recalled for triple assessment.

Results: The study included 165 patients (161 females, 4 males) with a mean age of 73. The primary detection method was CT scan (153 cases), and the rest were PET scans (11) and cardiac MRI (1). Most referrals originated from Respiratory (62%), followed by upper (26%) and lower GI (21%) units. Following review, 83 patients (50.3%) were recalled for triple assessment. Biopsies revealed malignancy in 27 patients and benign results in 9. 5 patients had indeterminate (B3) lesions which were managed by vacuum-assisted excision. Surgery was performed in 24 patients and 9 received hormonal manipulation. Overall, 66% were reassured and discharged, and 14.5% had incidental cancer detection.

Conclusion: This review highlights the need for a structured approach for managing incidentally detected breast lesions. It emphasizes the importance of multidisciplinary assessment and tailored management to improve patient outcomes. Our findings support the implementation of streamlined protocols and resource allocation to improve patient care in similar clinical settings.

Staging CT: When incidentalomas outweigh metastases - time to review the guidelines?

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Background: Breast cancer is the most common female cancer in the UK. Metastatic disease at presentation is rare. National guidelines indicate when staging CT is required. This audit considers compliance with, and appropriateness of, current guidelines.

Methods: Patients diagnosed with primary breast cancer between 01/01/23-31/12/24 were identified. Patients with a personal history of breast cancer, synchronous primary cancer or CT performed for other reasons were excluded. Diagnostic imaging, core and surgical pathology were reviewed to identify patients requiring staging. Staging CTs performed from diagnosis to six weeks post-surgery were included.

Results: Of the 360 patients identified, 90 were excluded. Of the 270 patients included, 96 met CT staging criteria. Of these, 89 (92%) had a staging CT scan. Seven patients who did not meet criteria also had CT staging. Only 16 patients had metastases identified on CT (6% of patients, 17% of those scanned). 33 (34% of those scanned) had incidental findings resulting in 51 additional imaging tests. Seven patients met criteria but did not have a CT scan, 5 were on primary letrozole and 2 had 50mm of non-mass enhancement or micro-calcification but smaller masses, no lymphadenopathy. None developed metastases in the follow-up period.

Conclusion: Compliance with guidelines is high. Rate of metastases is low. Rate of incidental findings is double that of metastases and generates considerable additional workload, potentially delaying definitive treatment. Further research is required with a view to modifying existing guidelines.

Effect of a Hybrid Invitation Type on Breast Screening Uptake

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Effect of a Hybrid Invitation Type on Breast Screening Uptake

Background: Uptake in breast screening has been slowly declining over recent years, and more so since the introduction of open invitations (OIs) during the Covid-19 pandemic. Interventions to increase uptake have been investigated. Those relating to appointment types, reminders and second timed appointments (2TAs) have shown moderate increases in uptake and are more successful than interventions providing enhanced information.

Methods: A quantitative evaluation of a three-stage invitation method was carried out.
Stage 1: OI
Stage 2: Text reminder
Stage 3: 2TA.
Uptake was calculated at each stage of the process by screening status and compared to results from the two preceding screening rounds, which used OIs and TAs. An analysis of response times to the OIs was conducted.

Results: Overall uptake percentage after each stage was 49.3, 65.7 and 75.8 respectively. Overall percentage uptake in the timed, open and hybrid rounds was 78.6, 72.1 and 75.8 respectively. The difference in overall uptake between the timed round and hybrid rounds was statistically significant, but the difference in incident uptake was not significant.
2TAs were more effective when targeted at previous attenders.
Most participants who responded to the OI did so within three weeks of the appointment letter. This information is useful when considering when to schedule reminders and 2TAs.

Conclusion: Timed appointments result in better uptake rates compared to OIs but a combination is nearly as effective and provides benefits by minimising wastage. TAs may be necessary to improve prevalent uptake.

The Use of Assessment Paddle Views for Soft Tissue Lesions after Digital Breast Tomosynthesis (DBT)Screening in the PROSPECTS trial.

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Background: This preliminary study aims to evaluate the impact of DBT screening on assessment practice as part of the cost implications of the PROSPECTS trial.

Introduction: Following a baseline 2DDM screen, it is standard practice for clients recalled for soft tissue lesions to have additional assessment views with DBT (if available). In addition, paddle views may also be done if required. If the client has a baseline DBT screen additional views at assessment may not be needed. This potentially reduces cost. This study evaluates the use of additional paddle views following a DBT screen compared to additional paddle views following a 2DDM screen and DBT assessment views.

Method: Total clients consented between 25.1.2019 to 8.2.2024 were identified from the trial enrollment tracker. Clients recalled for assessment following a DBT screen and a PROSPECTS 2D screen were identified from NBSS. The assessment views were reviewed and those that had additional paddle views for soft tissue lesions (excluding microcalcification) were identified.

Results: After a DBT screen 15/65 (23 %) had paddles for soft tissue lesions.
After a 2DDM screen + assessment DBT 7/76 (9%) had additional paddles for soft tissue lesions.

Conclusion: More paddles were done at assessment following a DBT screen than after a standard 2DDM screen and assessment DBT. Possible reasons for this and learning points will be discussed with example cases.

Further evaluation at different PROSPECTS sites will be carried out to understand the wider impact of DBT screening on assessment practice.

Patient Preferences for Sustainable Information Delivery in Breast Clinic

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Background: Transition towards sustainable healthcare practices is essential to reduce environmental impact. Printed information contributes significantly to paper waste and pollution.
This survey aims to understand patient preferences for receiving information.

Methods: Consecutive new patients from 23/07/24 to 31/07/24, receiving printed leaflets during their radiology visit were asked to indicate preference for

- paper leaflets.
- QR code for the specific leaflet
- QR code directing to web pages, with list of leaflets
- hyperlinks included within the clinic letter

Their current use of the electronic patient portal ('MyChart') was also queried and whether the use of hyperlinks would increase usage. Number of leaflets distributed was also collected.

Results: 226 booked appointments. 51 patients (22.6%) received paper-based information and a questionnaire.

A total of 55 leaflets were handed out 29(53%) from Breast Care Now and 26(47%) bespoke trust leaflets

30 (60.8%) questionnaires were returned. 12 women preferred paper as their single option, interestingly 7 of these not currently using 'MyChart' would consider doing so if links were included in clinic letters.
18 women would prefer paper free communication (several multiple options). The most popular option (11) was for a hyperlink in the clinic letter, followed by QR code to the specific leaflet (8) and lastly QR code to trust website (5).
Simplistic calculation suggests a bare minimum saving of 55kg of CO2 pa in Cambridge alone.

Conclusion: Offering information digitally could effectively reduce paper, enhance sustainability while improving patient experience.

The poster will also discuss our journey to implementation.

Do all young women aged under 40 years with breast cancer need breast MRI?

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Background: Breast cancer is the most common cancer in females in the UK, accounting for around 15% of all cases. Breast MRI in the UK is currently only used in specific scenarios in the symptomatic setting, such as lobular malignancy, in the neoadjuvant setting, and to determine extent.

Objectives: This audit aimed to assess the impact of breast MRI on final patient management in biopsy-proven breast cancer in young patients aged below 40 years.

Method: A retrospective analysis of radiology and histopathology reports, along with clinical and multidisciplinary team (MDT) meeting notes, was conducted in a subset of patients who were diagnosed with breast cancer aged younger than 40 years in Pinderfields General Hospital, Wakefield since 1/1/2017. Further

data was gathered pertaining to lesion size on multiple modalities, hormone receptor (ER/PR) & HER2 status, along with known genetic mutations.

Results: 186 patients aged below 40 years were diagnosed with biopsy-proven breast cancer since 1/1/2017, with a total valid sample size of 94 after exclusion criteria was applied. MRI did not influence final management in 73/94 (77.7%) of patients, and only influenced management plans in 7/41 (17.1%) patients with triple-negative breast cancer, with similar results (6/21; 28.6%) amongst Luminal A breast cancer patients.

Conclusion: In our audit, MRI did not impact the final management plan in the majority of patients diagnosed with breast cancer under age 40.

Retrospective case series of breast cancer incidence in patients under 40 years old in 2018-2019 and 2023-2024

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Aim: To assess the changing incidence of breast cancer in young patients (40 and under) at Surrey and Sussex Healthcare trust, which serve a population of approximately 600,000 patients.

Methods: Retrospective case series of all patients 40 and under diagnosed with breast cancer in 1 year between 01/07/2018-30/06/2019 and 01/07/2023-30/06/2024, using PACS search system. The incidence, demographics, BRCA status, cancer subtype and disease multifocality were analysed for associations by reviewing pre- and post-operative clinical documentation.

Results: In 2018-2019 eight patients between 27-39 years old presented to our symptomatic service with breast cancer. Two patients tested positive for BRCA 1 and one patient tested positive for BRCA 2. Tumour subtype included luminal subtypes and triple negative. The tumour grade ranged between G1-3. In 2023-2024, the incidence increased to nineteen patients, ranging between 30-40 years old. Two patients tested positive for BRCA 1, one patient for BRCA 2, and one for CHEK2 mutation. Tumour subtypes included luminal subtypes, HER 2 enriched and triple negative subtypes. The grade ranged from G2-G3.

Discussion: Our study showed a 2.375 fold increase in breast cancer incidence in young patients in 2023-2024 compared to 2018-2019. The underlying cause is likely multifactorial and includes increased breast cancer awareness, improved diagnosis, some COVID delay in presentation, and a true increase in incidence. Whilst some researchers have suggested that there is an increase in ER+ breast cancers amongst young women (<50), the majority of our young patients were ER0.

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