British Society of Breast Radiology

Annual Scientific Meeting

DoubleTree by Hilton Brighton Metropole

Sunday 9 - Tuesday 11 October 2025

Abstract Book

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Last updated: 07/10/2025

Proffered Papers

Learning Curve of Digital Breast Tomosynthesis (DBT) Reading Time: Evidence from the UK National PROSPECTS DBT Screening Trial

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Purpose: A barrier to the uptake of Digital Breast Tomosynthesis (DBT) in screening is its prolonged reading time compared to 2D digital mammography (2DDM). We investigate how DBT reading times speed up after an extended period of implementation in routine breast screening and identify a possible learning curve.

Methods: The PROSPECTS Trial is comparing DBT to 2DDM in the NHS Breast Screening Programme (NHSBSP), with recruitment taking place between 2019-2025. All trial screening cases were double-read, and readers recorded their reading times. For the present analysis, reading time data from one trial site, with readers reading a total of 726 screening batches, equating to 6873 2DDM and 8535 DBT exams over a four-year period were included. Reading times were grouped into 6-month intervals and trends were analysed using Kruskal-Wallis tests with post-hoc Dunn's tests to identify significant changes over time.

Results: Significant reductions in reading times were observed for both DBT and 2DDM over the four-year period (ps<.001). Post-hoc analyses revealed substantial reductions in reading time after two years of reading for both modalities (ps<.001). The median DBT reading time per case decreased from 2.14 minutes (IQR: 1.75-2.47) in the first two years to 1.17 minutes (IQR: 0.96-1.51) in years 3-4 (p<.001). Similarly, 2DDM reading times declined from a median of 0.98 minutes (IQR: 0.80-1.21) in years 1-2 to 0.68 minutes (IQR: 0.50-0.84) in years 3-4 (p<.001).

Conclusion: A learning curve effect was observed, with significant reductions in DBT reading times over a four-year period.

When MRI Adds Noise, Not Insight: An 18-year, Two-Centre Audit of MRI Surveillance for Mammographically Occult Breast Cancer

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Introduction: Before NICE guideline NG101 was updated in 2023, mammographically occult breast cancer posed a post-treatment surveillance challenge, as mammography alone was often deemed insufficient and national guidance was unclear. Consequently, two breast centres, at The Princess Alexandra Hospital NHS Trust (PAH) and East & North Hertfordshire Teaching NHS Trust (ENHT), implemented annual MRI surveillance. To assess alignment with NG101, which now advises against routine MRI in these patients, we evaluated 18 years of surveillance data for diagnostic value.

Methods: We retrospectively reviewed post-treatment MRI and digital mammography surveillance scans at PAH (2006–2024) and ENHT (2010–2023). Only routine surveillance scans were included; neoadjuvant cases, high-risk family histories, and short-term follow-ups were excluded. Outcomes included recall rates, biopsy results, and cancer detection.

Results: Across both centres, 739 MRI scans in 169 women generated 31 recalls (4.2%), of which 22 were benign and 9 malignant (1.2%). Only 3 cancers (0.4%) were visible on MRI alone, equating to 1 additional cancer for approximately every 246 scans performed.
At PAH (225 scans, 69 women), 7 recalls produced 4 benign and 3 malignant biopsies; just 1 cancer (0.4%) was MRI-only (N.B. this pre-dated digital mammography).
At ENHT (514 scans, 100 women), 24 recalls yielded 18 benign and 6 malignant biopsies; only 2 cancers (0.4%) were MRI-only.

Conclusions: Real-world evidence supports national guidance: routine MRI surveillance after treatment for mammographically occult breast cancer incurs substantial resource use and patient anxiety for minimal diagnostic benefit. MRI should therefore be reserved for defined high-risk subgroups following multidisciplinary discussion.

Evaluation of a Digital Breast Tomosynthesis Cancer Detection AI Algorithm Using the Personal Performance in Mammographic Screening Scheme (PERFORMS)

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Purpose: With the growing uptake of Digital Breast Tomosynthesis (DBT) for screening and the development of DBT Artificial Intelligence (AI), we aim to compare the performance of a DBT AI model as a standalone reader to that of a large cohort of breast screening readers from the PROSPECTS Trial, using the PERFORMS external quality assurance (EQA) scheme.

Materials and Methods: 75 combined DBT and Synthetic 2D mammography (S2D) screening cases were collated into a PERFORMS test-set. The test-set was completed by 88 breast screening readers from 7 NHS hospitals participating in the PROSPECTS trial. The same set was analysed by Hologic Genius AI® Detection 2.0 software. Standalone AI performance was benchmarked against the performance of the reader cohort, and differences between AI and human scores were assessed using the Wilcoxon signed rank test (α=.05).

Results: The reader cohort had a median of 12 years (IQR: 4-17) experience in breast screening and 5 years (IQR: 2-7) experience using DBT in screening. Human readers achieved a median Area Under the Receiver Operating Characteristic Curve (AUC) of 0.934, median sensitivity of 92.1% and specificity of 88.4%. In comparison, the AI model achieved an AUC of 0.935 (P=.13), and a sensitivity of 97.4% (P<.001) and specificity of 71.4% (P<.001) at the preset manufacturer threshold.

Conclusion: The study showed that the overall standalone performance of the DBT AI model in terms of AUC was not significantly different than that of a large cohort of specialist breast screening readers in the UK.

Five-Year Multicentre Evaluation of a Non-Biopsy Protocol for Sonographically Typical Fibroadenomas in Females Under 30

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Purpose: Fibroadenomas (FA) are the commonest solid breast lesions in young females. Royal College of Radiologists' guidance recommends core needle biopsy (CNB) can be safely avoided in women <25 years provided strict imaging criteria are met on ultrasound (US), but may be increased to <30 years with robust audit. Both study sites adopted the higher age threshold of <30 from 2019. The aim of this 5-year evaluation following increase in age threshold is to review patient outcomes and determine number of cancers missed through non-biopsy.

Methods: Following audit approval, retrospective analysis of females presenting to symptomatic breast clinics in Gateshead, UK and Beaumont, Ireland between 1/1/2019 and 31/12/2023 was performed. US reports were accessed for imaging diagnosis, and correlation was made with histology. PACS was reviewed for re-presentations, with at least 6 months (range 6-66 months) follow-up. Anonymised data were collected in Microsoft Excel and descriptive statistics performed.

Results: Of 63,554 patients across 2019-2023, 6,240 females <30 had breast US, with 1,151 (18.4%) having presumed FA on US.
430/1,151 (37.3%) underwent CNB due to atypical sonographic features (size >30mm or morphology).
395/430 (91.8%) undergoing CNB had confirmed FA, 31 (7.2%) alternative benign diagnosis, 2 (0.4%) B3 lesions, and 3 (0.7%) had malignancy.

Of the 721 not having CNB after US diagnosis of typical FA, none re-presented with malignancy.

Conclusion: Findings offer reassurance that extending the age threshold to over 30 years for avoiding CNB of typical FAs is safe and misses no cancers provided strict imaging criteria are followed.

Automation bias in action: How AI influences human decision making and reading behaviour during mammography interpretation.

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Background: To assess how incorrect AI suggestions influence the diagnostic performance and visual search behaviour of breast cancer screening readers.

Materials and methods: In this retrospective paired reader study, 10 NHS Breast Screening Programme readers (median experience: 14 years, IQR 7–25) evaluated mammograms between 2024 –2025 while being eye-tracked. In round 1 (R1), readers interpreted cases without AI. After six weeks, the readers reinterpreted the same 60 cases with AI support (Lunit) in round 2 (R2). The AI displayed prompts with a region suspicion score ≥10 (range 0 low –100 high). The test set was purposefully enriched with 14 (23%) FNs and 14 (23%) FPs, as well as 6 (10%) TNs and 26 (43%) AI TPs, according to pathology or 3-year follow-up. Paired comparisons between rounds used Wilcoxon signed-rank tests; Kruskal-Wallis tests were used for between-group comparisons.

Results: For AI FN cases, median human sensitivity decreased from 71% in R1 to 39% in R2 ($p < .01$). For AI FPs, specificity increased from R1 (21%) to R2 (39%, $p < .01$). Readers fixated less frequently when reading cancer cases that the AI failed to detect (FNs) compared to when AI was not used (R2 0.44 vs R1: 0.47

fixations/s, p =.03). Shorter fixations were observed when readers interpreted AI FP cases, compared to when AI was not used (R2 0.54s vs R1 0.56s, p<.01).

Conclusion: Incorrect AI prompts influence reader performance and search behaviours. FNs were associated with a decrease in performance; therefore, thresholds should be calibrated accordingly for AI-assisted reading.

Poster Presentations

Evaluation of Use and Outcomes of Problem-Solving Breast MRIs at Cambridge Breast Unit, Addenbrooke's: Key Insights from 2024

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Background: Breast MRI is a highly sensitive imaging modality, used to solve clinical queries and guide management. Problem-solving MRI refers to MRI performed for specific problems, like resolving discrepancies between different imaging modalities, guiding biopsies, assessing suspicious areas identified by previous scans etc.

Aim: This audit evaluates use of problem-solving breast MRIs at Addenbrooke's Hospital over the year 2024, focusing on resolution of the clinical question, requirement for second-look imaging or biopsies and follow-up MRIs.

Methods: Data was collected retrospectively, through trust electronic log(EPIC) from January- December 2024.

Results: Total 150 PS-MRIs were performed. Of these, 50 (33.33%) were done for imaging discrepancies or when biopsy results were discordant, 47 (31.33%) for biopsy guidance, 6 (4%) for nipple discharge, 17 (11.33%) for E3 clinical assessments with incongruent imaging, 11 (7.33%) for clip localisation, 13 (8.67%) trial recalls, and 6 (4%) for other reasons like unexplained persistent pain or skin changes.

61.33% (n=92) resolved the clinical question leading to discharge, diagnosis or referral back to screening including 18.47% (n=17) requiring second-look imaging or biopsies. However, 38.66% (n=58) did not resolve the clinical issue with 37.93% or 22 cases of these needing second-look imaging or biopsies and 62.0% (n=36) requiring subsequent MRIs.

Conclusion: While most MRIs provided diagnostic insight, a significant proportion required subsequent imaging, biopsies, or repeat MRIs suggesting potential overuse. These findings highlight the need for refining MRI referral pathways, rigorous triaging and MDT reviews to minimize unrequired imaging. Further steps include a re-audit after team awareness and above changes.

Radiological and surgical accuracy of MagSeed localisation in breast conserving surgery; a retrospective audit

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Aims: A retrospective audit was carried out to assess the usability and accuracy of MagSeed for lesion localisation prior to breast conserving surgery.

Methods: We analysed a sample of 100 patients over a six-month period who had undergone MagSeed guided wide local excision at our tertiary multidisciplinary centre. The accuracy on post-localisation and intra-operative imaging, safety and surgical outcomes (rate of positive margins and re-excision) were evaluated.

Results: The MagSeeds were inserted on average 10 days prior to surgery. The targets for the MagSeeds were: soft tissue lesions (73/100), calcification (4/100) and tissue marker/coil (23/100). Radiologically, 88 MagSeeds were positioned within the lesion (<1mm) on mammogram, 9 were adequately positioned (<10mm from the target) on mammogram and 3 were adequately positioned on ultrasound. All of the MagSeeds were retrieved during the surgery. The positioning of the MagSeed at the time of surgery was not specified in 23 cases. 19/77 MagSeeds were located close to the specimen margin and resulted in further surgical shaves being taken. 58/77 were located in the centre of the specimen. No delayed MagSeed migration was observed. 35/100 of

the specimens had positive margins and 18 underwent re-excision. The remaining 17 cases did not have sufficient tissue for re-excision; 15 of these had non-radial margin involvement with 2 having radial margin involvement.

Conclusion: MagSeed localisation contributes to good surgical outcomes. Re-excision rates at our centre were comparable to the reported literature (1).

1. Constantinidis, F.etal.(2022) 'Wireless localisation of breast lesions with MagSeed. A radiological perspective of300cases', TheBritishJournalofRadiology,95(1133).doi:10.1259/bjr.20211241.

In Breast Cancer Patients with a Normal Pre-operative Axillary Ultrasound Should we Omit Sentinel Lymph Node Biopsy?

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Background: Recent data from the SOUND and INSEMA trials suggest that sentinel lymph node biopsy (SLNB) could be omitted in select breast cancer (BC) patients with a negative axillary ultrasound (US). The aim of this study was to determine the utility of SLNB following a normal axillary US in early BC patients.

Methods: Audit approval was obtained (CA2024-101). A retrospective analysis from December 2013 - March 2024 was conducted. Inclusion criteria included: females ≥ 18years, cT1 disease, negative US axilla, who underwent breast conserving surgery and SLNB. Axillary US was performed by consultant breast radiologists and deemed normal if lymph nodes maintained ovoid shape, demonstrated cortical thickness ≤3mm without cortical bulging or hilar effacement. Statistical analysis was performed using v2.6 of Jamovi.

Results: Of 1,297 patients diagnosed with BC during the time period, 334 met the inclusion criteria. In total, 290 patients (87%) had a normal axillary US and 44 (13%) patients had a benign biopsy of an abnormal node seen on axillary US and were included. Median age was 59years (26 – 91). Most patients (261, 78%) had invasive ductal carcinoma, which were hormone-receptor positive and human-epidermal-receptor-2 negative (274, 82%). Fifty-two patients (16%) had a positive-SLNB, the majority of patients (282, 84%) had a final N stage of N0. Adjuvant therapy was altered, due to SLNB positivity in 33 (9.9%) of patients.

Conclusion: Axillary US does not establish nodal status as reliably as SLNB and SLNB continues to guide adjuvant therapy for BC patients with normal axillary US.

Audit on the outcome of Ultrasound guided vacuum assisted excision of B3 breast lesions

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Background: Breast lesions of uncertain malignant potential (B3) on core biopsy may harbour atypia or malignancy. These include flat epithelial atypia (FEA), atypical intraductal epithelial proliferation (AIDEP), lobular neoplasia, papillomas, radial scars, and others. UK guidelines recommend vacuum-assisted excision

(VAE) for most B3 lesions, with surgical excision reserved for papilloma with atypia and certain fibroepithelial lesions. This audit evaluated outcomes of ultrasound-guided VAE in B3 lesions.

Methodology: Data from January 2023 to December 2024 was analysed. All patients undergoing second-line ultrasound-guided VAB/VAE were included. Outcome measures were: upgrade rates on VAE, presence of prior biopsy reaction in histology, final histopathology if surgery followed, and VAE technical standards.

Results: 112 patients were included (80% symptomatic, 20% screening recalls). The overall malignancy upgrade rate on VAE was 11.6% (13/112). Highest upgrades occurred in AIDEP (66%), lobular neoplasia (33%), and radial scars (27%). No upgrades were seen in FEA or papillomas. Lesions with atypia had a 46% upgrade rate versus 1% without. Previous biopsy reaction was not seen in 16% on histopathology, leading to follow-up imaging. Seventeen patients underwent surgery post-VAE, with a 6% further upgrade to DCIS. Complete excision was achieved in 95%; 45% lacked specimen radiographs, and 8.5% had no post-VAE mammogram.

Conclusion: B3 lesion upgrade rates were 1–45%, depending on atypia. AIDEP showed the highest upgrade rate in this audit, compared to papilloma with atypia in others, which is attributable to smaller sample size in our case. Consistent documentation and imaging practices are recommended to improve post-biopsy management.

A six-year review investigating breast cancer incidence in individuals diagnosed with a higher risk B3 lesion and screened two-yearly under the Breast Test Wales (BTW) B3 Pathway

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Background: B3 lesions are a heterogenous group of pathologies of uncertain malignant potential and risk1,2,3. NHSBSP working group (2018)2 suggest annual mammographic surveillance, whilst acknowledging lack of clarity on optimal interval and length of surveillance.
The BTW B3 Pathway (B3P), introduced in 2018, offers two-yearly screening until 70 years, based upon the moderate lifetime risk of developing breast cancer. This review investigates B3P breast cancer detection to assess its efficacy.

Methods: Retrospective review of B3P from December 2018 to August 2024. Inclusion and exclusion criteria established. NBSS interrogated for relevant data; laterality, radiological lesion, B3 pathology, subsequent cancer diagnoses, time interval since B3P entry. Data analysed using Excel. Pertinent information obtained from clinical notes and PACS. Descriptive statistics used to report results.

Results: 492 B3P screens undertaken during review period. 329 individuals on B3P as of August 2024. 23 individuals recalled for assessment, yielding a 4.7% recall rate. B3P diagnosed breast cancer in three individuals, in the same quadrant as the B3 lesion, two at 48 months, one at 71 months. B3P cancer detection rate is comparable to BTW population screening at 9.1 versus 9.67 per 1000. Additionally, three individuals were diagnosed symptomatically with breast cancer, at 18, 24 and 47 months. Two occurred in the same quadrant as the B3 lesion, one occurred in the contralateral breast.

Conclusion: BTW B3P has not greatly increased screening or assessment workloads. However, cancer detection rates are comparable with general screening population questioning its efficacy.

1. G150-Non-op-reporting-breast-cancer-screening.pdf
2. https://doi.org/10.1016/j.crad.2018.04.004
3. https://doi.org/10.1016/j.ejso.2023.107292

Retrospective review of the utility of breast MRI in breast cancer: how frequently is the surgical plan altered?

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Introduction: Breast magnetic resonance imaging (MRI) is increasingly used as an adjunct to conventional imaging in the pre-operative assessment of breast cancer. MRI can provide more precise tumour delineation and identify tumours in the ipsilateral or contralateral breast that are occult on mammography and ultrasound, thus influencing the surgical plan. Given that MRI is a limited resource, assessing its measurable impact on surgical decision making in breast cancer is imperative.

Methods: A retrospective review of all patients diagnosed with breast cancer in St James's Hospital in 2023 (01/01/2023-31/12/2023) was performed. Patient demographics, imaging and histopathology results, multidisciplinary team meeting records and surgical procedures were extracted from the electronic patient record. Alteration in surgical plan was defined as a change in the extent of resection, conversion from breast-conserving surgery to mastectomy or a change in the surgical approach to the axilla.

Results: 393 patients were diagnosed with breast cancer in St. James's in 2023. 2 cases were detected through MRI screening and excluded from further analysis. 391 patients with an average age of 60.4 years (24-96 years) underwent standard work-up with initial mammographic and ultrasound assessment. Of these 391 patients, 154 (39.3%) underwent subsequent MRI. Of those who underwent MRI, the surgical plan was altered in 24.0% (n = 37) of patients.

Conclusion: Surgical resection for breast cancer was influenced by MRI in almost one quarter of patients. Further study is needed to evaluate the impact of MRI on surgical outcomes, rates of local recurrence and survival.

Local Audit for Standardizing Diagnostic Approaches for Patients Aged 25-29 with Benign Breast Lesions

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Objective: The aim of the audit is to reduce unnecessary biopsy in women under 30 by implementing a non-biopsy protocol for fibroadenomas with typical clinical and sonographic features. The audit also assessed whether any cancers would have been missed without biopsy in this age group.

Background: Fibroadenomas are the most common benign breast lesions in young women, typically diagnosed by ultrasound. Current RCR guidelines recommend no biopsy under age 25 for sonographically typical fibroadenomas and biopsy for those over the age of 30. However, a gap exists for patients aged 25–29, prompting the need for local audit to establish cut off biopsy age.

Methods: A retrospective review was conducted of all women aged 25–29 who underwent core biopsies for U2-coded lesions at Guy's and St Thomas' over the past two years. Pathology results were reviewed. Additionally, all breast cancers diagnosed in women under 30 over the last five years were assessed.

Results: 167 women aged 25–29 had core biopsies. Of these, 123 (78%) were fibroadenomas and 44 (22%) were other benign lesions. No cancers were found. All 30 breast cancer cases in women under 30 had suspicious clinical or imaging features and none met criteria for typical fibroadenoma. This could save the cost of £512 per biopsy if avoided.

Conclusion: No malignancies were missed in U2 lesions. A non-biopsy protocol is safe for women aged 25–29 when strict criteria are applied. Local guidelines should be updated accordingly, with monthly reviews of these cases by two radiologist for quality assurance

Upgrade of non-invasive (B5a) biopsy results to invasive disease (B5b) at surgical pathology within the Welsh Breast screening programme

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Aims: To determine the upgrade rate of preoperative B5a biopsy results to invasive disease (B5b) at surgery, and to identify factors influencing upgrade with the aim of improving preoperative diagnosis of invasive cancer.

Methods: A retrospective analysis of 2,423 B5a biopsy results from 2014–2023 across all three sites within Breast Test Wales was undertaken using data gathered from NBSS. Each B5a biopsy result was correlated with final surgical histopathology, while patient demographics, screening/assessment features, and biopsy methods were collected and analysed. The chi-squared test was used to assess statistical significance between groups.

Results: The B5a upgrade rate across centres ranged from 16.0% to 22.7%, with an average of 20.3%. Our results demonstrate that lesion size, mammographic features, sonographic visibility, biopsy technique, biopsy guidance, palpability, and DCIS grade at biopsy were all significant factors affecting B5a upgrade rate.

Conclusion: The B5a upgrade rate across Wales and within individual units is consistent with data reported elsewhere. Awareness of high-risk features enables more informed management regarding sampling technique, potential further imaging, and axillary management.

Review of B3 Lesions in females aged 25-30 in NHSGGC

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Introduction: B3 lesions are breast lesions of uncertain malignant potential. They encompass a heterogeneous group of pathologies with varying risks of malignancy.

Its diagnosis and management remain complex due to histological variability and evolving classification. Current guidelines are largely based on older populations, with limited data specific to younger women. Our review analyses B3 outcomes, imaging features and their subsequent management.

Method: A retrospective review across NHS Greater Glasgow and Clyde, which serves a population of approximately 1.2 million. All female patients aged 25–30 who presented to symptomatic breast clinics over the last three years with a breast lump and proceeded to biopsy were reviewed.

A total of 512 biopsied cases were reviewed; 24 (4.6%) were diagnosed as B3 lesions.

Results: The B3 lesions identified included fibroepithelial lesion (n=9), papillary lesion (n=5), phyllodes tumour (n=2), nipple adenoma (n=2), LCIS (n=1), fibromatosis (n=1), spindle cell lesion (n=1), nodular fasciitis (n=1), and complex sclerosing lesion (n=1). There were a range of imaging features associated with these lesions and all had subsequent LVES or surgical excision.

Discussion: This review explores the radiological features, biopsy findings, surgical outcomes, and follow-up strategies for B3 lesions in this young cohort. Due to the limited evidence in this age group, the multidisciplinary team faces challenges in tailoring management plans, particularly in balancing adequate surveillance with avoidance of overtreatment. These findings highlight the need for age-specific guidelines to support clinical decision-making in younger patients diagnosed with B3 lesions and to improve long-term outcomes through more personalised care.

Is breast Imaging in male patients with gynaecomastia necessary? A retrospective Audit to assess concordance between clinical examination and imaging findings

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Background: Gynaecomastia, a benign condition in men, is diagnosed clinically. RCR guidance advises that imaging is not necessary in clinically benign cases (P1/P2) unless there is uncertainty or suspicion of malignancy. The ABS guidance also recommends no imaging for clinically benign cases, except in over-25s with unilateral P3 lumps where imaging may be indicated.

Aim: To assess the concordance between clinical examination and imaging findings in male patients presenting with breast lumps, to determine the necessity of imaging.

Methods: A retrospective audit was performed in two cycles. Clinical grades, radiological grades and biopsy results were recorded. Concordance between clinical examination and imaging was evaluated and compared in both cycles after implementation of a Male breast Imaging Pathway.

Results: In the second cycle, 128 patients met the inclusion criteria. Eighty-five patients (68%) had final diagnoses of gynaecomastia; no cancers were detected. In the P1/2 group (n=116), 90 (78%) had no imaging; 26 (22%) underwent imaging, with 92% (24/26) clinical–radiological concordance, increasing to 100% (26/26) with histology. All P3 cases (n=7) had imaging, with benign outcomes (gynaecomastia, lipoma). Imaging for clinically P2 lumps dropped from 72% (95/132) in the first cycle to 22% (26/118) in the second cycle, showing increased confidence amongst clinicians.

Conclusion: Clinical examination for benign male breast disease demonstrated high clinical diagnostic accuracy, with 100% concordance following histology. Routine imaging for clinically benign gynaecomastia is unnecessary, in agreement with both RCR and ABS guidelines.

Implementing a structured male breast imaging pathway reduces unnecessary imaging and improves resource use.

Accuracy of Pre-operative Axillary Ultrasound in Predicting Axillary Nodal Disease in Patients with Breast Cancer

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Introduction: Axillary nodal status is an important prognosticator in patients with breast cancer.

Patients with a radiologically negative axilla undergo sentinel lymph node biopsy (SLNB) at the time of their initial surgery. The undertaking of a SLNB is not without cost however; with increased theatre resources as well as pathological specimens to interpret and an additional surgical procedure for the patients.

The study aim is to determine the accuracy with which axillary ultrasound predicts the presence of nodal disease in patients with operative breast cancer at our institution.

Methods: This is a retrospective observational audit. Local MDM lists for the period of June 2023 to June 2024 were reviewed for cases of invasive breast cancer and DCIS. Patients were eligible if they had a pre-operative axillary ultrasound and SLNB or axillary dissection.

Results: 276 patients were included, with 25% having a positive axillary ultrasound. Of these; the true positive rate was 66.7%.

Of the patients with a negative ultrasound; 76.4% had a true negative result. The resultant specificity and sensitivity for axillary ultrasound at our institution was 48.4% and 87.3% respectively. Of the patients with false negative results, 51% had micrometastatic disease and 49% had macrometastatic disease.

Conclusion: A significant number of patients had axillary metastatic disease that was not diagnosed on axillary ultrasound. Therefore, axillary ultrasound alone is not sufficient to accurate confirm or negate axillary metastatic disease in patients with breast cancer or DCIS at our institution.

Improving One Stop Clinic Capacity by Avoidance of Biopsy of Typical Fibroadenomas in 25-29 year olds

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Aim: Current UK guidance is biopsy can be avoided in typical fibroadenomas in women <25 years. The aim of this study was to establish if any malignancies would be missed if biopsy was avoided in 25-29yo and determine the number of biopsies avoided in women aged 25-29 reducing costs in time and money to the One Stop Breast Clinic.

Methods: Ultrasound & histopathology results from women aged between 25-29 over a 12-month period. Ultrasound was classified as meeting/not meeting Stavros criteria.

Results: There were 169 cases of which 112 were sonographically typical fibroadenomas and met Stavros criteria. 111 biopsies were benign. There was one case of malignancy, and this lesion would have undergone biopsy due to a previous cancer history and the US appearances. Therefore, crucially no malignancies would be missed by applying the Stavros criteria to the new age range.

Conclusion: This study offers evidence for avoidance of biopsies in 25-29 year-olds if appearance on ultrasound meets Stavros criteria. This provides reassurance that if current UK guidance changes to avoidance of biopsy of typical fibroadenomas in women aged 25-29 no cancers would have been missed.

Reducing unnecessary biopsies has significant cost and time savings including the expense of histological analysis estimated at £80.60 per patient (in this study we would save over £9K in pathology time alone) and time spent discussing benign cases in the MDM. Furthermore, this new guidance lessens the number of women undergoing unnecessary invasive biopsies and the inevitable anxiety and discomfort of this process.

FDG PET-CT in breast cancer patients: Utility over routine CT staging

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Background: There has been an evolving role of FDG PET for breast cancer staging, with potential advantages over conventional CT.

Objective: This study aimed to evaluate the utility of FDG PET-CT compared to routine CT for staging breast cancer patients and to identify factors that predict better patient selection for either investigation.

Methods: Between 2018 and 2025, 65 breast cancer patients had both CT and PET CT as part of their staging workup. All CT and PET CT results were tabulated as normal, equivocal, or metastatic. Additional findings detected on PET-CT were recorded.

Results: The stage distribution of this cohort suggested a selective high-risk group. Metastases on PET were positively correlated with higher N stage and triple-negative status. PET changed management in 43 out of 65 (66.15%) patients. Thirty-nine out of 65 patients were equivocal on routine staging, of which 17 were found to be normal, 15 were metastatic on PET-CT, and seven remained equivocal. The most common

equivocal finding on PET CT (13/65) was indeterminate lung nodules. The most significant additional finding on PET CT was bony metastasis in 9 patients. Out of 6 CTs with equivocal IM nodes, four were normal on PET, and two remained equivocal.

Conclusion: In this selected group of high-risk breast cancer patients, PET CT changed management in 66.15% of patients. The most significant additional finding was the presence of bony metastases on PET. The authors recommend FDG PET as the first-line staging study for N3 stage, inflammatory and triple-negative breast cancer.

Can AI Replace Biopsy for Diagnosing Benign Breast Lesions? An Early Evaluation of Breast Ultrasound AI

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Purpose: Benign breast lesions, such as fibroadenomas, are common findings in breast clinics and often necessitate biopsy to confirm diagnosis. Advancement in artificial intelligence (AI) allows potential non-invasive assessment of these lesions, reducing unnecessary biopsies. This study evaluates the diagnostic performance of an ultrasound AI tool in identifying benign breast lesions.

Methods: Breast lesions that underwent ultrasound-guided biopsy between March 2023 and December 2024 were retrospectively analysed. Orthogonal static ultrasound images of these lesions were assessed using an AI tool developed by KOIOS Medical. Patient age, KOIOS BIRADS scores, radiologist-assigned BIRADS scores, and biopsy results were analysed.

Results: A total of 226 biopsied lesions were included: 95 benign, 3 equivocal, and 127 malignant.
Receiver Operating Characteristic (ROC) analysis revealed that human interpretation demonstrated higher sensitivity for detecting benign lesions (AUC = 0.937), while the AI tool showed greater specificity (AUC = 0.925). The combined interpretation of human and AI results achieved superior diagnostic performance (AUC = 0.971). Only 3 out of 127 malignant lesions (2.3%) were misclassified as benign by the AI. These cases were flagged by radiologists as highly suspicious based on clinical and imaging findings, mitigating the risk of misdiagnosis.

Conclusion: AI demonstrates high specificity and strong overall diagnostic performance in evaluating benign breast lesions. With expert radiologist interpretation, its accuracy improves further. While not yet a standalone diagnostic tool, AI has the potential to reduce the number of unnecessary biopsies and decrease the workload of radiologists and pathologists, provided it is applied with appropriate clinical oversight.

Breast Pain as a Sole Symptom: Implications of Updated Imaging Guidelines in Patients Aged 40 and Over

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Background: Breast pain (mastalgia) constitutes up to 40% of referrals to breast clinics (1), but when occurring in isolation, it is rarely associated with malignancy. Updated national guidance (RCR, 4th and draft 5th editions) advises against routine imaging in patients aged ≥40 with breast pain alone, unless other symptoms or clinical concerns are present. This retrospective observational study evaluated mammographic outcomes in such patients.

Methods: A 12-month retrospective review (January–December 2023) was conducted across two large NHS trusts. Patients aged ≥40 who underwent mammography with “pain” cited in the clinical details were identified using PACS.

Results: In Newcastle upon Tyne, 1,110 patients were reviewed; 762 had breast pain only. Four cancers (0.5%) were detected, three in the asymptomatic breast. All were in individuals above the screening age cut-off or who had not attended screening invitation. In York and Scarborough, 742 patients were reviewed; 492 had breast pain only, with no cancers identified. Cancer detection in patients with breast pain alone was very low. Detected malignancies were incidental and occurred in unscreened individuals in this study.

Conclusion: Our findings support national guidance that routine mammography is not required in patients presenting with breast pain alone. Our results are in line with other large studies (2,3) and contrasts with a London-based study (presented at BSBR ASM 2024) reporting a higher detection rate (9.3/1,000). This difference could be related to the variation in regional breast screening uptake, amongst other things such as familial risk, and could be considered whilst designing local pain pathways.

Differentiation of Breast Cancer Subtypes and Grades Using PEM Metrics: A Retrospective Analysis of 416 Cases

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Background: Accurate differentiation of breast cancer subtypes and grades is crucial for optimizing management strategies. While histopathology remains the gold standard, imaging biomarkers such as pem uptake values (PUV) from PEM offer potential non-invasive diagnostic value. This study explores the role of PUV metrics in distinguishing between common breast cancer subtypes and tumor grades.

Objectives:

- To assess PUV differences across histopathological subtypes of breast cancer.
- To determine whether PUV metrics correlate with tumor grade.
- To evaluate the diagnostic performance of PUV thresholds in differentiating specific subtypes and grades.

Methods
A total of 416 patients diagnosed with breast cancer were retrospectively analyzed. Each case was classified by subtype and tumor grade. PUV (pem uptake value) from 18F-FDG PET/CT served as the primary metabolic marker. Statistical analyses included Kruskal-Wallis and Mann-Whitney U tests for group comparisons, and ROC curve analysis to identify optimal PUV cut-offs for diagnostic separation.

Results

Subtypes: IDC showed the highest median PUV (4.47), significantly exceeding DCIS (1.6) and ILC (2.0) ($p < 0.0001$).
Grades: Median PUVs increased with grade (Grade 1: 1.88; Grade 2: 3.0; Grade 3: 5.85; $p < 0.000001$).

ROC Analysis:
DCIS vs. IDC: AUC 0.858 (cut-off >2.9; sensitivity 71.9%, specificity 88.2%).
ILC vs. IDC: AUC 0.945 (cut-off >3.4; sensitivity 94.1%, specificity 93.4%).
Grade 2 vs. 3: AUC 0.799 (cut-off >4.52; sensitivity 73.4%, specificity 82.6%).

Conclusion: PEM metrics, especially PUV, can serve as reliable non-invasive markers to differentiate between breast cancer subtypes and grades. Their integration into imaging workflows may enhance diagnostic precision and treatment planning.

The UK Very High-Risk (VHR) National Breast Screening Programme (NHSBSP): Screen detected cancers from a 3-Year Screening Round (2021–2024) : A multi-institutional review

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The VHR NHSBSP screens women with VHR genes and supradiaphragmatic radiotherapy aged 10-35 (XRTC). The VHR programme aims to optimise screening modalities to detect malignancy at the earliest possible stage in these populations to improve outcomes. This multi-institutional study reviews screening modality, mode of detection, demographics and characteristics of VHR screen detected cancers.

Screening and clinical data for all VHR screen detected cancers from 5 screening services from 2021-2024 were reviewed. There were 87 VHR cancers. The age range at acceptance was 29-77 years and the age range at diagnosis was 29-79. 21.8% had mammograms, 29.9% had MRI alone and 48.3% combined. BRCA1/2 carriers were the majority of the cancers (77.0%), 5.7% had other variants and 17.2% had XRTC. 58.6% of cancers were diagnosed on MRI alone with 16.1% diagnosed on both MRI and mammography but only 25.2% diagnosed on mammography alone.

The mammographic density were dense (c and d 52/76 = 88.4%) with only 5.3% (4/76) completely adipose. There were 21 DCIS - all were high (HG) (66.7%) or intermediate grade (IG). Of the 87 cancers, 49 underwent bilateral mastectomies. There were 3 upgrades on imaging size, and 3 pathological upgrades (2 were upgraded from grade 2 to 3 and 1 from IG to HG DCIS). There were 4 unsuspected contralateral malignancies (4 DCIS and a 2.2 mm IDC and DCIS).

The findings show effectiveness of mammography and MRI with the majority of cancers in dense breasts. Mastectomy data shows no significant undiagnosed disease in the contralateral breast.

PEM as a Diagnostic Tie-Breaker: Resolving Discordant CEM and MRI in Non-Mass Enhancement

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Summary: PEM demonstrated superior specificity and agreement with histopathology over MRI and CEM in non-mass enhancement, reducing false positives and supporting more accurate surgical planning.

Purpose: To compare the diagnostic performance of Positron Emission Mammography (PEM) with Magnetic Resonance Imaging (MRI) and Contrast-Enhanced Mammography (CEM) in detecting and characterizing non-mass enhancing (NME) breast lesions, using histopathology as the reference standard.

Methods: This prospective single-centre study included 54 women (31–65 years) recruited between March 2024 and March 2025. Group 1 (n=27) underwent MRI and PEM; Group 2 (n=27) underwent CEM and PEM. Allocation was based on contrast tolerance and availability. Histopathology was obtained via core biopsy or surgical excision. Two breast radiologists, blinded to pathology, independently assessed each modality. Sensitivity, specificity, accuracy, predictive values, and agreement with histopathology (kappa statistic) were calculated.

Results: MRI detected malignancy in 88.9% of Group 1 lesions (100% sensitivity, 30% specificity, 74.1% accuracy; k=0.351, P=0.001). CEM showed 100% sensitivity, 10% specificity, and 60% accuracy (k=0.112, P=0.244). Low CEM specificity reflected difficulty distinguishing benign from malignant NME, particularly with diffuse/regional enhancement and high background uptake. PEM detected malignancy in 70.4% overall (100%

sensitivity, 69.6% specificity, 87% accuracy; k=0.724, P<0.001), providing higher agreement with histopathology and improved lesion characterization through metabolic imaging.

Conclusion: PEM outperformed MRI and CEM in specificity and concordance with histopathology while maintaining high sensitivity. Its ability to reduce false positives supports its complementary role in NME evaluation and surgical planning.

Evaluation of recall rates in the Irish National Breast Screening Programme: Insights from two million screening mammograms

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Breast cancer screening aims to reduce breast cancer mortality and morbidity through early detection and treatment. Recall rate is a key performance indicator of population-based breast screening, representing the proportion of women recalled for further evaluation. Guidance on recall rates vary internationally.

We examined recall patterns and characteristics within the population-based breast screening programme in Ireland.

An anonymous aggregate retrospective study of 2,031,995 mammography screening examinations, was conducted between 2000-2019. Descriptive patterns of recall rates and characteristics were examined and stratified by prevalent and incident examinations. Differences across the time-periods(2000-2008, 2009-2017 and 2018-2019) were assessed using Chi-square tests.

Recall rate for screening examinations conducted during the full study period was 4.05(n=82,338/2,031,995). Across three time-periods examined, recall rates among the prevalent screening examination group, increased, from 5.5%->8.0%->10.0% and within the incident group from 2.3%->2.8%->3.0%. Recalls due to calcifications and asymmetry increased over the time periods, most notably within the prevalent examinations where recalls due to calcification increased from 6.0/1,000 to 9.0/1,000 to 13.4/1,000(p<0.001), whilst recalls due to asymmetry increased from 17.1/1,000 to 31.3/1,000 to 41.0/1,000(p<0.001). Overall, among both prevalent and incident screening examinations, an increase in the cancer detection rate(CDR) was observed(p=0.005 and p<0.001 respectively). However, the overall positive predictive value(PPV) remained relatively stable.

This study highlights the upward trajectory of recall within Ireland's national breast screening service. Findings highlight the need for discussions among a diverse range of stakeholders to determine the optimal recall rate to ensure the benefits of screening are maximised and potential harms are minimised.

11-year Retrospective Audit of the Very High Risk (VHR) Breast Screening Programme in Northern Ireland (NI)

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Introduction: The VHR Breast Screening Programme was introduced to NI in April 2013. Screening is offered annually to patients aged 25-71 years with a greater than 40% risk of developing breast cancer due to specific genetic abnormalities or history of radiotherapy to breast tissue. Imaging protocols involve MRI, mammography or both modalities, depending on patient age and breast density.

Aim: Retrospectively audit the outcomes of the VHR Breast Screening Programme in NI.

Method: Data from the VHR screening database was retrospectively audited from 2013-2024. This included attendance rates, recall rates, cancer detection rates and risk category breakdown of patients with screen-detected cancers.

Results: Attendance rates ranged from 62.5-93.4% and recall rates ranged from 4.5-14.2%. 83 cancers were detected from 4,266 screening episodes, an average cancer detection rate of 19.5 per 1000 women. Risk category breakdown of cancers were as follows: 36.1% BRCA 1, 44.6% BRCA 2, 14.5% history of radiotherapy to breast tissue and 4.8% other genetic mutations.

Conclusion: The VHR Breast Screening Programme has been successfully implemented in NI, with an average cancer detection rate of 19.5 per 1000 women over the past 11 years. Risk category breakdown of cancers demonstrates a higher yield in the BRCA group (81%). Comparison with national data may be of interest.

Size Matters: A Comparison of Breast Cancer Tumour Sizing Using Contrast-Enhanced Mammography Versus MRI and Pathological Measurements

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Background: Accurate preoperative sizing of breast tumours is essential for surgical planning and treatment decision-making. Contrast-Enhanced Mammography (CEM) has shown promise in lesion detection, however its performance in estimating tumour size compared with established techniques such as MRI remains unclear.

Objective: To evaluate the accuracy of tumour size assessment using CEM in comparison with MRI and final histopathology.

Methods: A retrospective analysis was conducted on patients with biopsy-proven breast cancer who underwent both CEM and MRI prior to surgical resection. Tumour sizes measured on CEM and MRI were compared to pathological tumour size. Bland-Altman plots, Pearson correlation coefficients, and mean absolute differences were used to assess agreement and accuracy.

Results: A total of 19 patients were included. CEM demonstrated a strong correlation with pathology (r = 0.90), comparable with MRI (r = 0.86). The mean absolute difference in size between CEM and pathology was 5.4 mm versus 5.1 mm for MRI. CEM was the least biased, while MRI tended to underestimate size. Tomosynthesis and ultrasound demonstrated strong correlations with histopathology (r = 0.93 respectively) but underestimated size systematically.

Conclusion: CEM provides tumour size estimates comparable to MRI and demonstrates strong agreement with pathological measurements. Given its wider availability, lower cost, and shorter acquisition time, CEM may serve as a reliable alternative to MRI in preoperative assessment of tumour size in selected patients.

Beyond the First Look: Can Using Contrast-Enhanced Mammography instead of MRI Reduce Unnecessary Further Tests in Local Staging of Breast Cancer

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Background: Breast MRI is highly sensitive in detecting additional disease in newly diagnosed breast cancer. However, our local experience has suggested that a lack of specificity leads to unnecessary further tests including second-look ultrasounds and further biopsies. This study compares the performance of Contrast-Enhanced Mammography (CEM) and MRI in identifying additional malignant lesions during initial breast cancer staging and whether CEM can reduce the burden of unnecessary further tests.

Methods: We retrospectively reviewed 21 patients with biopsy-proven breast cancer who underwent both CEM and MRI as part of preoperative staging from 2023-24. The presence of additional lesions was recorded along with their positions and correlated with further imaging and/or histopathology.

Results: MRI identified additional lesions (MRI ≥ 3) in 21/21 patients, whilst CEM detected additional lesions (CEM ≥ 3) in 18/21 patients. In 12/21 patients, MRI reported additional lesions in the contralateral breast and/or axilla, whilst CEM did so for 5/21 patients. Lesions seen on MRI but not CEM resulted in 11 additional second-look ultrasound studies and 11 additional biopsies (seven ultrasound-guided and four MRI-guided). 3/11 biopsies were positive for further disease, none of which occurring in the contralateral breast or axilla.

Conclusion: CEM shows comparable accuracy to MRI in detecting additional disease in newly diagnosed breast cancer, with fewer false positives and greater accessibility. False negatives were limited to the ipsilateral breast, suggesting that CEM could be useful in ruling out disease in the contralateral breast.

Less is more: The Role of Preoperative Ultrasound in Facilitating Targeted Axillary Dissection in breast cancer patients with low volume axillary disease

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Background: Axillary lymph node dissection (ALND) in early breast cancer leads to 1 in 5 women suffering lymphoedema and may be unnecessary in patients with low axillary disease burden. This study evaluates whether preoperative axillary ultrasound (AUS) can stratify nodal burden and support targeted axillary dissection (TAD) instead.

Methods: Retrospective observational study. Electronic patient records from January 2023 to December 2024 were reviewed for 193 breast cancer patients with abnormal AUS at diagnosis. Those with negative axillary biopsy, received neoadjuvant therapy (NAT), did not have surgery, had distant metastatic disease at presentation were excluded. Number of abnormal nodes on AUS, primary tumour characteristics, and postoperative nodal histology data collected. Differences between PN1(<4 nodes at ALND) /PN2–3 disease assessed using non-parametric and categorical tests.

Results: 142/193 (73.58%) had positive axillary biopsies. 76/134 (56.72%) had 1 to 2 abnormal nodes on AUS. Number of nodes not mentioned in 8. Of 77/142 included, 33 (42.86%) had PN1, and 44 (57.14%) had PN2–3 disease. The number of AUS-detected abnormal nodes was significantly higher in PN2–3 (3.05 ± 1.85) vs PN1 (1.52 ± 0.89) ($z = -3.909$, $p = 0.0001$). Tumour size was significantly greater in the PN2–3 group (57.93 ± 33.74 mm) than the PN1 group (36.51 ± 24.32 mm; $p = 0.0012$). Diagnostic performance of imaging in distinguishing PN1 from PN2/3 groups: Sensitivity=87.1%, Specificity= 55%, PPV= 60%, NPV= 84.6%, Accuracy= 69%.

Conclusion: Our study, like others, confirms that axillary ultrasound is a useful tool to identify low-volume disease preoperatively and facilitate TAD (1-5).

Accuracy of abMRI for predicting response to NACT: retrospective image analysis study

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Purpose: Imaging response assessment is essential for surgical decision-making following neoadjuvant chemotherapy (NACT). Full protocol MRI (fpMRI) is considered gold-standard but is limited in availability and patient tolerability. Abbreviated MRI (abMRI) utilises fewer MRI sequences and is quicker to perform and report. We investigate whether abMRI could offer an alternative for NACT response assessment.

Methods: This is a retrospective image-analysis study of 60 NACT patients. End-of-treatment abMRIs were synthesised from existing fpMRIs. Residual tumour size was recorded for abMRI by a radiologist blinded to surgical pathology and end-of-treatment fpMRI. FpMRI tumour size was extracted from reports. Accuracy of FpMRI and abMRI for predicting pathological whole tumour size (WTS) and invasive tumour size (ITS) was assessed using Lin's Concordance Coefficient, Pearson Correlation Coefficient and Bland-Altman Analyses. Accuracy of predicting pathological complete response (pCR) was also calculated.

Results: 60 patients, 4 with bilateral disease were included. For WTS, correlation and concordance were strong for abMRI (0.83, 0.77) and moderate for fpMRI (0.67, 0.61). For ITS, correlation and concordance were moderate for abMRI (0.65, 0.65) and fair for fpMRI (0.39, 0.38). Regarding accuracy of pCR prediction, abMRI had greater sensitivity but lower specificity compared to fpMRI for ypT0 (sens:0.94vs0.74, spec:0.90vs1.00) and ypTis (sens:0.96vs0.79, spec:0.59vs0.82). Differences were statistically significant for both ypTis and ypT0, $p<0.001$.

Conclusion: abMRI had greater concordance with residual pathological tumour size and a greater sensitivity for pCR than fpMRI. However, abMRI has a significantly lower specificity and could not be used to accurately predict absence of residual disease.

Staging of Breast Cancer patients prior to Chemotherapy

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Introduction: All patients with breast cancer undergoing neoadjuvant/adjuvant chemotherapy at our institution undergo full staging - until recently, this consisted of CT Chest/abdomen with bone scan. In 2024, this was changed to CT chest/abdomen/pelvis from SCF to femora with elimination of bone scan. The role of bone scan in staging was unclear.

Methods: Retrospective audit of 269 patients undergoing NACT or adjuvant chemotherapy from 2021 - 2023 identified from oncology database was performed ; CT findings vs bone scan findings were evaluated.

Results: Of the 269 patients, 77 patients were eliminated due to lack of data on radiology system. Of 192 patients, 117 had NACT;75 had adjuvant chemotherapy. 12 patients (6%) had metastatic disease. 4 patients (2%) had bone metastases visible on bone scan and not evident on CT; 2 of these were pelvic metastases not covered on CT Chest/abdomen. All cases with bone metastases had nodal disease (100% of bone metastases)

Conclusions: 1. Sensitivity of CT wrt bone scan as gold standard is 60%;specificity is 100%; PPV is 100%, NPV is 97.9%. Full coverage of the pelvis increases sensitivity.

2.The RCR guidelines suggest there is no evidence base for carrying out staging in ≤ T2 tumours with ≤N1 disease undergoing NACT. This audit has shown 0 mets in 45 patients with T2 N0 disease; and 2 cases with metastases in 51 patients with T2 N1 disease (3.9%)- within quoted FNR of 2-4%.

Increasing T stage has a p value of ≤ 0.05 for presence of metastases.

Optimizing mammography quality audits with an AI-powered platform: A quality improvement study

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Purpose: High-quality mammography is fundamental to effective breast screening. However, conventional quality assurance (QA) methodologies are subjective, labour-intensive, and challenging to standardize. The decentralized mandated monthly manual self-audits lacks oversight, consistent review practices, reliable data, and capacity to monitor trends. This study aims to examine the impact of adopting an AI software in the breast screening self-audit process.

Methods and Materials: This pre-post study assessed the impact of an AI-powered QA platform. The pre-adoption phase included a current state analysis, such as floor walks, process mappings, and time-motion analyses. The adoption phase consisted of Radiographer onboarding. The post-adoption phase evaluated workflow modifications, user experience, and positioning assessment concordance.

Results: The pre-adoption process was found to have review times averaging 1.13 mins per study. 3 monthly audits for 12 Radiographers ranging in 3 to 30 years of experience were monitored, including 1194 exams rated as Good (74%), Diagnostic (26%), and Inadequate (0.25%) cases by visual image quality scores. While the AI demonstrated strong agreement with expert consensus (Kappa: 0.7-0.95), agreement with the broader radiographer pre-adoption self-audit assessments was poor (Kappa: 0.0-0.37), exposing the subjectivity of the traditional audit process. Post-adoption, a structured workflow was implemented wherein a team lead assigns and reviews monthly audit results via the platform, enabling centralized monitoring and feedback mechanisms. User feedback has been positive.

Conclusions: Implementing an AI software for mammography QA represents a feasible strategy for surmounting the limitations associated with manual audits. Future work, as guided by Plan-Do-Study-Act cycles, will support process optimization.

Performance evaluation of mammography ai detection software on a symptomatic cohort

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Purpose: The purpose of this study is to assess the performance of commercially available AI software in symptomatic population.

Methods and Materials: This prospective study included a total of 308 subjects imaged at a diagnostic clinic from August 2024 to March 2025. All women with clinically suspected cancer had bilateral DBT and those recalled for a mammographic abnormality on 2D mammogram had synthetic 2D and 3D imaging of the affected breast only. The cohort contained 87 malignant cases confirmed by biopsy, 46 benign cases confirmed by biopsy and 175 cases deemed benign after follow-up imaging. Results of Genius AI® Detection 2.0 were available for each subject and were reviewed by a breast imaging expert to determine TP, TN, FP and FN by AI for each patient based on location of AI marks and the pathological outcome of the subject. Sensitivity, specificity, PPV and NPV for AI were calculated as well as ROC analysis was performed.

Results: Sensitivity of AI software to detect cancers was 93.1% (81/87) with a 95% CI of 85.0~97.2%. Specificity of AI software to correctly identify benign cases was 52.94% (117/221) with a 95% CI of 46.2~59.7%. PPV of AI for this cohort was 43.8% (81/185) with a 95% CI of 36.6%~51.3%. NPV was 95.1%

(117/123) with a 95% CI of 89.2%~98.0%. AI software model achieved an area under ROC curve (AUC) of 0.89 with a 95% CI of 0.85 to 0.93.

Conclusions: The AI detection software demonstrated high sensitivity and high specificity in symptomatic population.

Patient-level breast density characterization in the Leeds Mi~Scan® Trial via a novel microwave-based device

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In a recently concluded trial, per-breast density assessment via Mi~Scan®, a novel microwave-based device, was compared to radiologist consensus from mammography. Breast density is important for integration of some breast cancer risk models and it is recognised women with dense breasts may benefit with supplemental imaging. In this work the optimal method for deriving a patient-level Mi~Scan® density was determined and compared to radiologist-consensus patient-level densities.

Binary fatty/dense classification, 4-class BI-RADS density (4th edition), and continuous density percentage outputs were considered. In all cases the optimal procedure was to calculate an average Mi~Scan® density percentage between breasts and then threshold the percentage to obtain BI-RADS or binary classifications. The geometric mean resulted in slightly higher agreement between Mi~Scan® and mammography than arithmetic mean, though the difference was not significant.

In the study validation patients with bi-lateral breast scans (N = 717) the area under the ROC curve for patient-level binary fatty/dense classification was 0.96 [0.94 – 0.97], the BI-RADS density classification linearly-weighted Cohen's kappa agreement was 0.67 [0.63 – 0.71] with 74% of the patients receiving the same BI-RADS score in both mammography and Mi~Scan®, and >99% differing by at most one category. The Pearson correlation coefficient for Mi~Scan® and mammography density percentage was 0.89 with a mean-squared difference of 8.4 percentage points.
In summary, patient-level Mi~Scan® density estimates agree well with mammographic density estimates, supporting use of Mi~Scan® in applications where patient-level breast density is required, and mammographic density is unavailable.

MRI Guided Breast Biopsy - A Tertiary Centre Experience of Clinical Outcomes

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Introduction: Breast MRI is an established imaging modality in diagnosing mammographically occult breast malignancy, delineating disease and guiding patient management. MRI-guided biopsy (Bx) is essential for histopathological confirmation of abnormalities visualised only on MRI scans. This audit evaluates the MRI-guided breast biopsy service at the Nightingale Centre at Manchester University NHS Foundation Trust Hospital, UK.

Methods: A retrospective analysis of MRI Bx was performed between August 2022 and January 2025. A benchmark of 20% to 50% cancer detection rate was used as per the American College of Radiology (ACR) BI-RADS biopsy yield of malignancy.

Results: 101 MRI Bx were performed on 95 patients between August 2022 and January 2025.

29(28%) biopsies performed yielded a malignant result (B5a/B5b). 72(71%) of the biopsies yielded a non-malignant result (B1/2/3/4). The biopsy yield of malignancy proportionally increased with the radiological score. 53% of MRI 5 lesions yielded a malignant result (B5a/B5b).

22% MRI Bxs yielded a B3 (18%) or B4 (4%) result. 18/22 (81%) of B3/B4 results were in patients with a concurrent diagnosis of breast malignancy which may assist surgical planning.

Complications were low with haematomas recorded in 7(7%) cases.

Conclusion: MRI guided biopsy demonstrated 31% malignancy (PPV) and is a safe diagnostic technique with few reported complications.

SCAN-IT: Study of CT Angiography and Notable Incidentalomas in Imaging for Breast Reconstruction and Treatment Planning

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Computed tomography angiography(CTA) is the gold standard for mapping perforator anatomy in autologous breast reconstruction, particularly deep inferior epigastric artery perforator(DIEP) flaps. However, its extended field includes thorax, abdomen, and pelvis, often revealing incidental findings. These may prompt additional imaging, cause anxiety, and complicate planning—yet their burden in this cohort is poorly defined. While incidentalomas are well-documented in staging, their relevance in reconstructive planning remains under-explored. This study aimed to 23tandardized the frequency and consequences of incidental findings in autologous reconstruction, focusing on downstream investigations, surgical timelines, and patient-reported experience.

Methods: This single-centre audit combined a retrospective cohort review with prospective patient questionnaire. All patients undergoing autologous breast reconstruction between J2019 and 2024 were included, with pre-operative CTA and local follow-up. Radiology reports were reviewed to classify incidental findings by system and clinical relevance. Records were assessed for subsequent investigations, referrals, interventions. A questionnaire was distributed to patients with incidental findings, assessing psychological impact, understanding, and satisfaction. Data was analysed descriptively.

Results: All patients (n=110) underwent immediate DIEP flap reconstruction post-mastectomy. Incidental findings were identified in 47.3% (n=52), most commonly gastrointestinal (n=18). Of these, 60% (n=31) required further imaging. No surgeries were delayed. None recalled receiving pre-imaging counselling. Anxiety was evident on a modified Brief Illness Perception Questionnaire. Despite this, 92% (n=28) reported satisfaction with incidental finding management.

Conclusion: Incidental findings were common and frequently led to additional investigations. The introduction of structured pre-imaging counselling and 23tandardized follow-up protocols may support informed decision-making, reduce psychological distress, and streamline clinical pathways.

Integrating AI into Double Reading: Insights from 1,254 Readers in a National Quality Assurance Scheme

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Introduction: Studies which simulate human-AI mammography double reading (DR) rely on a limited sample of human readers. Therefore, they may not reflect the inter-reader variability observed amongst humans.

We simulated 2 reading strategies to evaluate recall rates across human-AI workflows using the largest sample of specialised human readers from the PERFORMS scheme.

Methods: 1,254 human readers each evaluated a subset of 600 mammography cases, assigning an RCR score (1–5). Scores ≥3 indicated recall. All cases were independently analysed by an AI system (Lunit), producing a cancer suspicion score between 0–100. Scores ≥10 indicated recall.

Each human reader was paired with AI for all shared cases (1,254 human-AI pairings) and with every other human for shared cases (648,792 human-human pairings). Two simulated DR strategies were compared: (1) human-human (2) human-AI. Outcomes included recall rate, arbitration rate, PPV and NPV based on pathological ground truth. Comparisons used the Wilcoxon Signed Rank test.

Results: This study included 690 consultant radiologists (55%) and 564 non-radiologists (45%) trained to read mammograms. Median number of cases interpreted per human-AI pairing, and human-human pairing were 300 (IQR 360) and 180 (IQR 180) respectively. Human–AI DR was the optimal reading strategy, reducing the median recall (51.7% vs 54.7%) and arbitration rates (25.3% vs 26.7%), while improving PPV (78.2% vs 71.4%) and NPV (93.7% vs 91.3%) (ps<.01) compared to human–human DR respectively.

Conclusion: Our findings suggest incorporating AI in a DR workflow could significantly decrease the recall rate and arbitration compared to conventional human reading.

Is It Time to Use an Evidence Base to Rationalise Male Breast Imaging? A Three-Year Review

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Background: Unnecessary imaging contributes to overburdening of clinical breast services. In males, the vast majority of imaging findings are benign. Current RCR guidance recommends selective imaging in men, including those with unexplained or suspicious unilateral breast enlargement and clinical uncertainty between true and pseudo-gynaecomastia. Ultrasound is recommended for men under 50, otherwise either ultrasound or mammography. Despite this, concerns persist regarding overuse of imaging in this cohort, particularly when clinical findings alone are diagnostic.

Aim: To review imaging in males attending our symptomatic one-stop breast clinic across three years, assessing alignment with clinical examination findings and national guidance.

Methods: Retrospective review of all males referred between Jan 2020-Dec 2022, include age, presenting symptoms, imaging requests, and final diagnosis.

Results: Of 1177 patients attending clinic with breast symptoms, 1026 (87%) had imaging. Age range 15–95 years (mean 51.5, mode 35). Of those 50 and over who had imaging (n=568), 23% had ultrasound alone, 5% had mammography alone, and 72% had both. Of those under 50 who were imaged (n=459), 75% had ultrasound alone, 1% mammography alone, and 23% had both. 590/1026 specifically queried gynaecomastia in the imaging request, 138 others described either subareolar lump or swelling with P1/2 score; of these 658 had confirmed gynaecomastia. 14 patients had breast cancer (aged 59-94); all but one had clinical suspicion of malignancy before imaging.

Conclusion: Clinical examination has a high pre-test probability of confirming gynaecomastia, especially in younger patients. Further 24ationalization is needed as to whether imaging is really necessary in these cases.

Prospective blinded Contrast-enhanced mammography comparative study with breast MRI for preoperative breast cancer staging

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Introduction: Contrast-enhanced mammography (CEM) is an emerging modality potentially reducing the waiting-time and number of preoperative breast cancer staging MRI. CEMs in this prospective-double-blinded study were independently reported; inter-reader variability was analysed. CEM results were also compared with MRI- gold-standard for staging breast cancer.

Methods: From July 2023 to Nov 2024,102 patients requiring MRI staging were recruited for CEM.
2 readers(2 consultant radiologists and radiographer) read each CEM independently, blinded to MRI findings. CEM results were compared to MRI-findings and to results of 2nd-look-ultrasound+/-biopsies and histopathology.

Results: 99 patients had CEM, 3 patients excluded due to contrast-extravasation. Indications for MRI were: 45-dense breast,13-lobular cancer, 9-occult on mammography, 20-with multifocal disease and 4-Neoadjuvant chemotherapies (NAC). 8-patients were unable to tolerate MRI (pacemaker/claustrophobic) and only underwent CEM.
Readers agreed in 81/99 CEMs(81.8%). Disagreement was on number of lesions(n=9), size of disease(n=3) and NME(n=6). 91 CEM were compared with recent MRI-studies and found to concur in 67/91 cases (73.6%). Discordance between CEM and MRI in 24/91(26.3%)was due to; overcall from MRI, 3cases false +ve on US/Biopsy (U2/B1 results) and 4 B3 lesions. 5 CEM overcalls; 2 had disease close to chest wall, 2 had benign lesions and 1proven satellite cancer.
70.5% (55/78) of MRI and CEM studies concur with the final size of cancer surgical/pathology sample.

Conclusions: CEM shows higher specificity by reducing false-positive rates from MRI but limited to disease close to chest wall. There remains to be a learning-curve. CEM can potentially replace MRI in staging cancers in a dense-breast.

Audit of Bilateral Mastectomy (BMS) in the Very High Risk (VHR) National Breast Screening Programme (NHSBSP) - Inequality of access to bilateral Risk Reducing Mastectomy (RRM)?

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The VHR NHSBSP screens women with VHR genes and supradiaphragmatic radiotherapy aged 10-35 (XRTC). Women undergoing bilateral mastectomies (BMS) are ceased from screening. This is the first known audit of women ceasing VHR screening to characterise demographics and outcomes.

Screening & ceasing data for VHR women from 2 screening services from 2021-2024 were reviewed for risk category, ceasing age, whether there was a therapeutic (TM) or RRM. The pathology of BMS were reviewed for any undiagnosed cancers.

2564 were invited and 1963 VHR women screened. 97 women were ceased. 57/97 (58.8%) underwent bilateral RRM and 4 underwent single RRM (previous contralateral mastectomy for breast cancer). 35/97 (36.1%) had TM & contralateral RRM and 1 had bilateral TM. The median age for bilateral RRM is 42 (range 25-67) and for RRM with TM is 42 (range 30-69). All women undergoing bilateral RRM or unilateral RRM (with previous contralateral TM) were gene carriers; 59/61 were BRCA carriers. All 5 XRTC women who had RRM also had TM for breast cancer. Unsuspected DCIS were found in 3 women.

Our audit shows that RRM women were all gene carriers. No XRTC women underwent bilateral RRM even though 17% VHR screening women had XRTC (with similar cancer detection rate to BRCA carriers; 19.9 vs 21.5/1000 screened). This suggests potential inequality of counselling and access to RRM for XRTC women

compared to VHR gene carriers. We recommend that the audit is extended nationally to assess and to evaluate current practice on risk counselling for XRTC women.

Clinical and imaging patterns in biopsied cases of presumed fat necrosis. Can we avoid unnecessary biopsies?

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Aims: To investigate whether a biopsy is unnecessary in fat necrosis diagnosis regardless of trauma history when imaging is typical, despite current RCR guidelines requiring a clear history of trauma, as patients may not recall such a history.

Methods: 1084 imaging reports concluding fat necrosis as a presumed diagnosis from June 2014 to June 2024 were reviewed. 159 patients had a biopsy. Imaging was reviewed. Data on trauma, surgery, radiotherapy, clinical P grade and histology were collected. Future visits for the same presentation were followed up to Nov 2024. Future cancer diagnosis was investigated in patients who did not require a biopsy up to March 2025.

Results and Conclusion:
A biopsy was required in 159/1084 patients to exclude cancer. 12% had cancer; none of those had typical fat necrosis imaging.

There was no statistically significant difference in older age, presence of lump, history of trauma, or radiotherapy and the presence of cancer, while a prior history of surgery was associated with more cancers. Cancer diagnosis was more common in patients with higher clinical, U and M grades.

Typical fat necrosis on ultrasound was associated with benign histology. Whether or not a patient recalls trauma, this supports that an unnecessary biopsy can be avoided regardless of trauma history. In non-biopsied patients who developed future cancers (6/1084), none has shown typical imaging features of fat necrosis.

Implementing this could reduce biopsies by about 25% when fat necrosis is a concern, preventing overrun one-stop clinics, and reducing pressure on histopathology and radiology resources.

Incidental breast lesion findings on CT: A retrospective review

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Introduction: The increased use of cross-sectional imaging has led to more incidental breast lesion detections on CT scans performed for non–breast-related indications. While CT is not intended for breast evaluation, such findings may represent early-stage malignancies. Up to 17–50% are ultimately unsuspected cancers, underscoring the need for timely recognition and follow-up. This audit assessed the incidence, reporting practices, and outcomes of incidental breast lesions detected on CT.

Methods: A retrospective review was conducted for January 2019–January 2024. Using keywords ("breast," "nodule," "lesion"), 2,400 CT reports were screened, excluding patients with known breast cancer. Cases were reviewed for subsequent breast-specific imaging and final diagnoses.

Results: Incidental breast lesions were found in 221/2,400 patients (9.2%), mean age 66 years. In 163 cases (73.8%), the initial CT report contained no alert, revealing a significant reporting gap. Thirty-two patients (14.5%) received no further breast imaging. Of those followed up, 29 were biopsy-proven malignancies, most commonly invasive ductal carcinoma.

Conclusion: A notable proportion of incidental breast lesions on CT represent malignancy, yet reporting and follow-up are inconsistent. Improved detection, communication, and referral protocols are essential to support earlier diagnosis and optimal breast cancer management.

References: (1) Moyle P, Sonoda L, Britton P. Incidental breast lesions detected on CT: what is their significance? Clin Imaging. 2019 Jan;53:134–8. doi:10.1016/j.clinimag.2018.07.009.

Additional axillary findings on contrast enhanced breast MRI and contrast enhanced mammography (CEM) in breast cancer patients whose treatment plan includes neoadjuvant chemotherapy (NAC).

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Background and Aim: Our unit routinely recommends MRI and CEM for assessment of response to NAC. CEM is a possible alternative to MRI but does not allow full field axillary assessment. We assessed whether MRI adds to the axillary management of these patients following their initial axillary ultrasound staging.

Methods: Hospital electronic records were used to retrospectively identify and review patients with primary breast cancer who underwent ultrasound, MRI, CEM, NAC, and axillary surgery between October 2021-October 2024.

Descriptive statistics were performed.

Results: Of 137 female patients identified, 59 (43%) underwent axillary node core biopsy at initial ultrasound. In 9 of these (9/59: 15%), MRI revealed further axillary/nodal findings, altering patient management in 2/59 (3%): one patient with internal mammary lymphadenopathy did not undergo CT so the opportunity to discuss additional targeted radiotherapy would have been missed without MRI; another patient had contralateral breast cancer and axillary lymphadenopathy detected on MRI and CEM.

Among the 78 patients with normal nodes on initial axillary ultrasound, MRI prompted second-look axillary ultrasound and core biopsy in 5/78 (6%) patients but only changed surgical management in 1/78 (1%); surgical pathology showed evidence of treatment response in a single node.

Conclusion: Of 137 MRIs performed, one patient with internal mammary lymphadenopathy was the only significant abnormality not seen on other modalities. MRI did, however, arguably result in unnecessary further investigations and a targeted axillary dissection. This preliminary dataset suggests if CEM were used instead of MRI, clinically significant additional axillary/nodal disease would not be missed.

Assessment of post-neoadjuvant chemotherapy axillary disease response using contrast enhanced breast MRI in a UK breast unit

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Introduction: Axillary surgery and radiotherapy both have associated patient morbidity so safe de-escalation is necessary to optimise clinical outcomes. Imaging interpretation of axillary disease response forms part of our post-neoadjuvant chemotherapy (NAC) MRI report, influencing patient management.

We aimed to re-assess the value MRI of in evaluating post-NAC treatment response in the axilla.

Method: Patients with biopsy-proven axillary node metastases who underwent pre- and post-NAC MRI and axillary surgery for primary breast cancer between October 2021-October 2024 were identified retrospectively and reviewed using hospital electronic records.

Diagnostic accuracy, PPV and NPV were calculated using surgical histopathology as the gold standard.

Results: 38 female patients were identified. Overall accuracy of MRI in predicting residual axillary disease was 68% (26/38). PPV was 88% (7/8) suggesting that MRI-reported residual disease was likely to represent true residual disease, but our NPV was 63% (19/30), representing a substantial false negative rate. This is comparable to published scientific literature.

Conclusion: MRI is recognised as less sensitive than ultrasound for assessing subtle abnormal nodal morphology. Assessing axillary disease response on MRI therefore depends upon initial disease bulk and extent. The limited NPV shown here can be mitigated by considering initial nodal burden and planned surgical management when reporting post-NAC MRI to help ensure patients have the right axillary intervention first time. The limited value of MRI in the post-NAC axilla may be a consideration should CEM be adopted as an alternative to MRI to assess response to NAC, since CEM does not permit full-field axillary assessment.

To Calcify or Clarify: Outcomes of Indeterminate Screening Recalls

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Purpose: Indeterminate calcifications are a frequent cause of recall in the NHS Breast Screening Programme, yet their management is challenging. We evaluated outcomes of indeterminate calcification recalls in a South London screening centre, focusing on benign and malignant yield, repeat procedures, and upgrade or downgrade rates.

Methods: All women recalled for calcification-only findings between December 2023 and December 2024 were retrospectively reviewed. Data were extracted from the NBSS database. Initial biopsy results were categorised as benign (B1–B2), indeterminate (B3), malignant (B5a/B5b), or suspicious (B4). Subsequent biopsies were assessed for upgrade or downgrade. Outcomes resolved without biopsy were also recorded.

Results: A total of 339 women (378 indeterminate calcifications) were included. Initial outcomes were 41% benign on biopsy, 17% discharged without biopsy, 18% B3, and 25% malignant. Of the B3 cases with a subsequent biopsy (n=51), 80% were downgraded and 20% upgraded. Across all cases with repeat biopsy (n=90), 20% were upgraded (10 from B3, 8 from initially benign), while 46% were downgraded (all from B3). The overall malignancy rate was 27%, comprising 83% DCIS (B5a) and 17% invasive cancers (B5b).

Conclusion: In this one-year audit of indeterminate calcification recalls, most calcifications were benign without biopsy or following benign biopsy results. Malignancy was identified in 27%, most of which were DCIS. Among B3 calcifications, most were downgraded, while one in five were upgraded to malignancy. These findings underline the burden of indeterminate calcifications and the importance of optimising diagnostic pathways to reduce unnecessary interventions while maintaining effective cancer detection.

Breast cancer in the young and very young. A pictorial review of histological subtype of local breast cancer diagnoses in those aged below 40 in a single center

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Introduction: Breast cancer remains the most common malignancy in women in the UK with 4.2% of diagnoses of invasive or in-situ malignancy aged below 40(1). Within all breast cancer diagnoses, 70-80% are invasive

ductal carcinoma, and 10-15% are invasive lobular carcinoma, although this is thought to be lower in the younger population(1,2).

Method: All patients with breast cancer seen within the trust between 2018 and 2024 were identified. Those diagnosed at 31-40 (young) or 18-30 (very young) were selected and grouped, with histological diagnosis collected for those diagnosed locally, along with genetic testing results.

Results: Of 5184 cases seen, 4.1% were aged 31-40, with 0.6% aged 30 or below. In both groups the most common subtype was invasive ductal, 123/163 (75%) and 19/24 (79%) respectively. Invasive lobular accounted for 6% of cases in the young group with no cases in the very young, significantly lower than the all-age reported rate ($p<0.05$). DCIS accounted for 7% in the young and 4% in the very young. 2/18 screened very young patients carried BRCA2 mutations, the same as rate in the literature(3). Among invasive cancers, 5/19 very young patients had triple negative breast cancer.

Conclusion: Our data shows local rates of young and very young patients among breast cancer diagnoses was similar to national rates. Invasive ductal carcinoma was the most common subtype in both groups, at similar rates to published data for all ages. Younger patients had a significantly lower rate of invasive lobular carcinoma than has been published for all ages.

Evaluating the Quality of Breast Imaging Referrals for Long-Term Cancer Follow-Up and New Patient Clinics: A Retrospective Audit

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Background: Radiology referrals are critical for accurate diagnosis and treatment planning. Inadequate referrals can lead to delays in imaging, misinterpretation of clinical context, and suboptimal patient outcomes. Clear documentation of lesion characteristics, surgical history, and treatment status ensures radiologists have the necessary information to provide accurate reports and appropriate recommendations.

This audit aimed to evaluate the quality and completeness of imaging referrals at Borders General Hospital, assessing compliance with IR(ME)R 2000 and RCR iRefer standards.

Methods: A retrospective review of 236 imaging referrals was conducted between 15 April and 23 July 2025. Data from new and follow-up patients were analysed, focusing on demographics, clinical justification, lesion details, surgical history, treatment status, and referrer type. Target: 100% completion.

Results: New patients comprised 45% of referrals, with lesion site and size documented in only 41.5% and 39.6% of cases, respectively. Among follow-up patients (55%), surgical year, type, and treatment completion were well recorded (83–91%), while histopathology (57.6%) and contralateral surgery (16%) were less consistently noted. Pathology was included in 76.1% of referrals. Consultant-initiated referrals demonstrated higher completeness than those from non-consultants.

Conclusion: Accurate and comprehensive breast imaging referrals are essential for effective diagnosis, treatment planning, and follow-up in breast cancer care. In our audit, whilst demographic and treatment data were generally documented, key clinical details were often omitted, impacting diagnostic accuracy and compliance with national standards. Implementation of a structured referral template and guidance is recommended. A re-audit in 6–12 months is advised to assess the impact of these interventions.

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