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SHORT PAPER PRESENTATIONS

AWARDED WINNER OF BEST SHORT PAPER PRESENTATION

3B.1 The effect of different combinations of open invitations and timed appointments on breast screening attendance: service evaluation of invitation strategies in the NHS breast screening programme

Judith Offman[1], Shuping J Li[1], Adam R Brentnall[1], Gemma Hutton[1], Samantha L Quaife[1], Jacqui Cookson[2], Sue Hudson[3], Sharon Webb[2], Emma O'Sullivan[2], Jacqui Jenkins[2], Jo Waller[1], Stephen W Duffy[1]

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Background: NHS Breast Screening Programme (BSP) invites women to breast screening via letters. Depending on the service, the initial invitation contains a timed appointment (with the option to change), or an open invitation to make an appointment. Non-attenders receive a reminder that can be 'Timed' or 'Open'. NHS England commissioned a service evaluation to help updating national guidelines by understanding the effect on screening attendance using different combinations of Open/Timed invitations and reminders.
Methods: Seven services invited eligible women using one of four combinations of open/timed invitations and reminders. The primary outcome was attendance within 90-days of first invitation. Subgroups analysis by index of multiple deprivation were carried out.
Findings: 17,965 women (mean age 58 years, IQR: 47-69 years) invited during April-October 2023 were included and followed until the 19th April 2024. Significant differences in attendance were observed between all strategies. Attendance overall increased from 49.1% using Open/Open, to 67.9% using Timed/Timed (Table 1). Attendance following Open/Timed or Timed/Open invitations fell in between these. The same pattern was observed by invitation strategy across all deprivation quintiles. Attendance amongst the most deprived increased by >20% from 41.1% (95%CI 38.2%-44.1%; open/open) to 63.3% (60.6%-66.2%; timed/timed), compared to a 15% increase from 61.4% (57.6%-65.2%) to 78.0% (74.5%-81.4%) for the least deprived.
Conclusion: Sending more timed appointment invitation letters increases attendance at breast screening. This has a larger impact on absolute attendance rates for those living in the most deprived areas, suggesting that it may also help improve health equity.

3B.2 AI tools to estimate volumetric breast density from processed 2D mammograms

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Background: Continuous measures of volumetric breast density (VBD) are of interest in breast cancer epidemiology and risk prediction since they provide quantifiable and physically relevant information. However, estimation of VBD traditionally requires unprocessed mammograms which are not widely available. In this work we train AI models to predict VBD from processed mammograms using data from the OMI-DB mammography database(1). Building on previous studies(2), a novel aspect of this work is that the models are trained on images from each of the three main manufacturers of mammography equipment in the UK, using the most up-to-date data from OMI-DB to achieve superior performance.
Methods: From OMI-DB, paired processed/unprocessed images were obtained. For each manufacturer, four AI models were trained - one for each combination of view (CC or MLO) and density measure (breast volume [BV] or fibroglandular volume [FGV]), such that VBD=FGV/BV. Ground-truth image-level BV and FGV values were obtained using Volpara (Volpara, NZ). Patient-level FGV and VBD were calculated by averaging over all available views. Model performance was evaluated on hold-out test sets via the correlation coefficient.
Results: Patient-level AI output demonstrated good agreement with ground truth values, with correlations>=0.95. AI models tended to underestimate density at high ground-truth values, possibly due to strong image processing.
Conclusions: The developed AI tools show a good agreement with ground-truth volumetric density measures, but importantly do not require access to unprocessed mammograms. These tools may be useful in future studies on breast density where unprocessed images are not available.

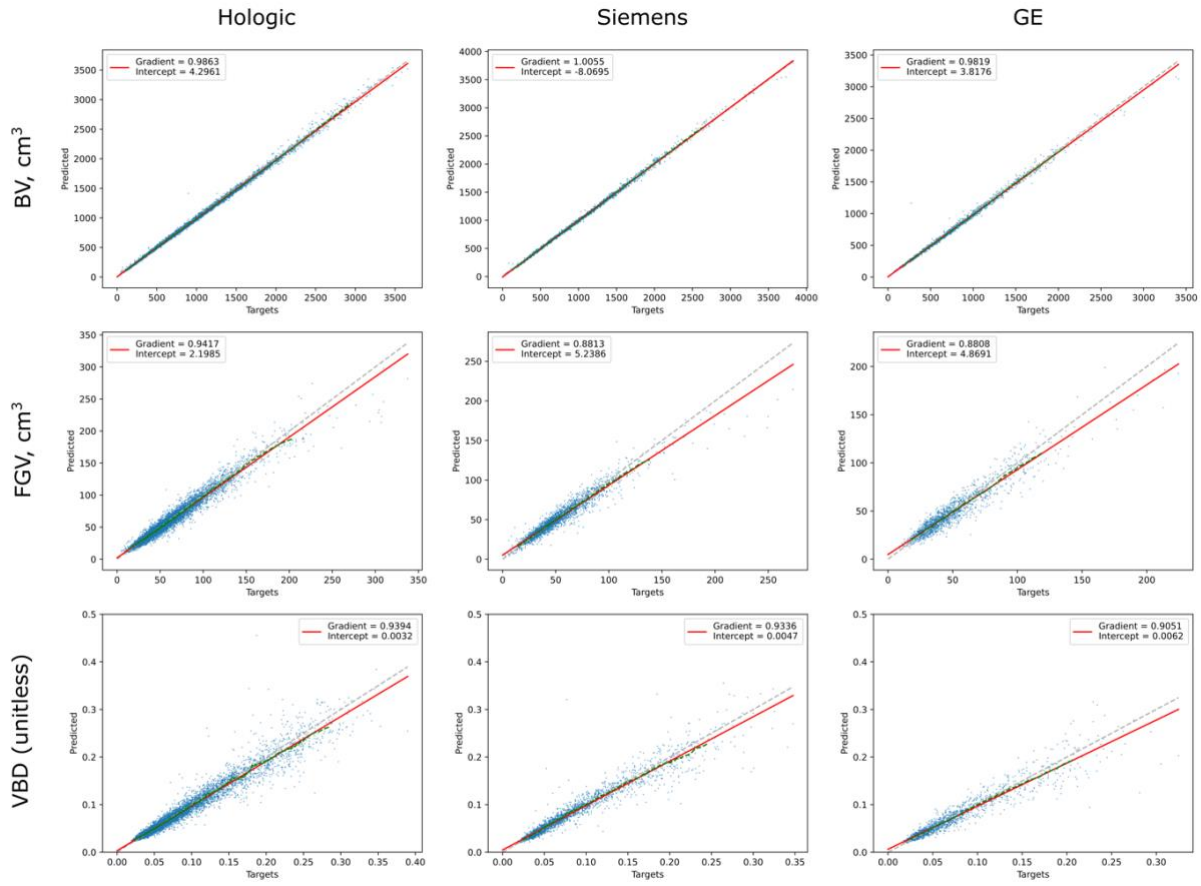

Figure 1: Patient-level AI performance for each of the volumetric measures of interest. BV = breast volume, FGV = fibroglandular volume, VBD = volumetric breast density, defined as the ratio of FGV / BV. Lines-of-best-fit are plotted in red, along with the identity line (dashed grey). Correlation coefficients, as well as fitted parameters for lines-of-best-fit are provided.

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3B.3 Supplementary breast cancer screening in women with dense breasts: Insights from European radiographers and radiologists

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Purpose: This study examines the perspectives of European clinical radiographers and radiologists on the challenges and needs associated with implementing supplementary breast cancer screening for women with dense breasts.
Method: 14 semi-structured online interviews were conducted with European breast screening specialists; 5 radiologists and 9 radiographers—from 8 countries, including the UK, Malta, Italy, the Netherlands, Greece, Finland, Denmark, and Switzerland. The interviews explored participants' professional backgrounds, demographics, and addressed 13 core questions grouped into 5 categories: Supplementary Imaging; Training; Resources and Guidelines; Implementation Challenges; and Women's Perspectives. Data was analysed using the 6 stages of reflexive thematic analysis.
Results: 6 primary themes emerged from the online interviews: (1)experiences with supplementary imaging for dense breasts, (2)training needs for radiographers and radiologists, (3)awareness of imaging guidelines for dense breasts, (4)barriers to implementing supplementary screening, (5)factors influencing successful implementation, and (6)perceptions of women regarding supplementary screening.
Conclusion: Insights from radiographers and radiologists highlighted specific challenges and potential solutions for

effective implementation of supplementary screening. Key challenges include patient-related factors and workforce limitations. Proposed solutions, such as integrating Artificial Intelligence, investing in specialised training, and enhancing resources, could help overcome these barriers. Future research and international collaboration are considered essential to optimise and implement these strategies across different healthcare settings effectively.

3B.4 Impact of mammography image quality on AI-based breast cancer risk prediction

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Introduction: Retrospective studies have suggested better discrimination by AI-driven image-based breast cancer risk models than traditional methods.[1] However, published findings indicate image-based risk scores can vary between screenings, even among disease-free patients.[2] This study aims to test the sensitivity of an existing image-based risk model to clinical image quality as a potential source of variation.
Methods: Breast cancer risk was retrospectively predicted using 4-view screening mammograms from the OPTIMAM database[3] for clients aged 47-73 using the Mirai model.[4] Only cases with repeated imaging due to breast positioning (RP) deficiencies or image blur (RB) were included. Mammogram characteristics, including breast density, compression pressure, and positioning quality, were assessed using Volpara Imaging Software (v3.4). Risk scores were compared between studies with the original 4-views and the same exams, with poor quality views replaced by repeats.
Results: The study included 1617 RP cases and 656 RB cases, with most (94%) having just 1 or 2 repeated views. The RP group's mean change in risk was not significant, but 343 cases (22.5%) showed a >10% change in 5-year risk when repeat views were used. For RB, a small mean increase in 5-year risk (0.18, $p<0.05$) was observed. Using a 1.67% 5-year risk threshold, 130 RP cases (8.5%) changed risk categorization. In the RB group, 70 cases (10.8%) changed risk category.
Conclusion: Image quality can significantly impact image-based risk scores. Guidelines and models may be best developed considering multiple studies over time to differentiate changes in scores tracking early onset disease versus image quality variations.

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3. Halling-Brown, M.D., et al. Radiol Artif Intell. 2020 Nov 25;3(1):e200103. doi: 10.1148/ryai.2020200103.
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3B.5 Energy consumption assessment of mammography machines: Advancing green radiology

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Background: Green radiology promotes sustainable practices to mitigate environmental impact. However, there is a lack of operational energy data for mammography machines. Understanding the carbon footprint of mammographic imaging is crucial for optimizing its use and advancing healthcare sustainability.
M&M: This study prospectively collected energy data from 169 mammogram examinations conducted with two different machines: Machine 2 (Senographe Pristina, GE Healthcare) and Machine 3 (Selenia Dimension, Hologic) over 5 days from 4th to 8th/11-2024. Wireless current transformers were connected to each machine's power supply to measure energy consumption at one-minute intervals. A comparative analysis was performed to evaluate energy efficiency between the two machines.
Results: The average daily energy consumption was 9.1 kWh for Mammo 2 and 7.6 kWh for Mammo 3. The average net energy per scan was 41 Wh for Mammo 2 and 90 Wh for Mammo 3, while the average gross energy per scan was 500 Wh for Mammo 2 and 406 Wh for Mammo 3. The average gross energy cost per scan was 14.8 pence for Mammo 2 and 10.3 pence for Mammo 3. Although Mammo 2 uses less energy per scan, its idle time consumption results in a higher overall average energy usage.
Conclusion: This study highlights significant energy consumption differences between the two mammography machines. It emphasizes the need to switch off machines during idle periods and be mindful of out of hours energy use, as mammogram machine may still consume power. Collaborating with manufacturers can optimize energy use and reduce the carbon footprint.

SHORT PAPER PRESENTATIONS

6B.1 CONTrast Enhanced breaSt Tomosynthesis (CONTEST) in patients suspected of having breast cancer: a prospective comparison with digital mammography and breast MRI

Sarah Savaridas[1,2], Kulsam Ali[1], Sarah Vinnicombe[3], Petra Rauchhaus[1], Andrew Evans[7], Nisha Sharma[4], Sally Bolt[5], Patsy Whelehan[6]

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Background and aim: Digital breast tomosynthesis (DBT) improves visibility of malignant structural features compared to digital mammography (DM). In the screening setting, the increase in cancer detection rates is 20-30% and recall rates are reduced. 1 Contrast-enhanced mammography (CEM) yields functional information on breast lesion vascularity. CEM has greater diagnostic accuracy than DM, comparable to MRI, with sensitivities over 90%2-4. This study seeks to identify any improvement in diagnostic performance of CEM combined with DBT (CE-DBT) compared to DM and MRI.
Methods: In this multi-centre, paired-comparison imaging study, female patients aged 18-70 years with clinical suspicion of breast cancer had CE-DBT and breast MRI in addition to standard care ultrasound and biopsy. Radiological findings were compared to the gold standard of histopathology.
Results: 87 participants were recruited; 80 completed the study, of whom 69 had cancer. DBT and CEM had greater sensitivity than DM when separately compared. CEM alone showed better specificity than DM, but specificity was worse for DBT. When DBT was added to CEM (=CE-DBT), specificity fell with no change in sensitivity. CEM and CE-DBT each showed higher accuracy rates than DM (table 1). MRI showed higher sensitivity than DM or DBT, but lower than CEM or CE-DBT. MRI specificity was lower than CE-DBT, both separately and in combination (table 2). Differences in accuracy were not statistically significant.
Conclusions: Consistent with published data CEM showed comparable accuracy to MRI. Adding DBT to CEM did not improve accuracy.

	Sens. (%)	Spec. (%)	PPV (%)	NPV (%)	Accuracy (%)	ANOVA
DM	88.4	81.8	96.8	52.9	87.5	
DBT	94.2	63.6	94.2	46.7	85.7	p=0.62
CEM	100.0	72.7	95.8	100.0	96.3	p=0.06
CE-DBT	100.0	63.6	94.5	100.0	95.0	p=0.11

Table 1: Diagnostic accuracy of digital mammography vs CE-DBT

	Sens. (%)	Spec. (%)	PPV (%)	NPV (%)	Accuracy (%)	ANOVA
MRI	98.5	54.6	93.1	85.7	92.4	-
DBT	94.2	63.6	94.2	46.7	85.7	p=1.00
CEM	100.0	72.7	95.8	100.0	96.3	p=0.14
CE-DBT	100.0	63.6	94.5	100.0	95.0	p=0.24

Table 2: Diagnostic accuracy of breast MRI vs CE-DBT

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SHORT PAPER PRESENTATIONS

6B.2 Breast mainstream genomics clinic and the impact on patient's surgical management - Teaching Hospital experience

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Background: Mainstreaming genomics integrates genomic testing into cancer care, allowing teams to directly order tests per the National Genomic Test Directory. The Breast Mainstream Genomics Clinic was piloted at Leeds Teaching Hospitals Trust (LTHT) in 2020 and this evaluation aims to assess the impact of genomic testing on the surgical management of breast cancer patients and unit workload.
Methods: Retrospective analysis of patients seen in the Breast Mainstream Genomics Clinic at LTHT from November 2020 to October 2023. Patient medical records were reviewed for cancer diagnosis, family history, genetic test results, treatment plans, and follow-up data.
Results: Between November'20 and October'23, 278 breast cancer patients were tested according to R208: Inherited Breast Cancer and Ovarian Cancer directive. Of these, 41 patients (18 BRCA1, 13 BRCA2, 4 PALB2, 2 ATM, 3 CHEK2, 1 RAD51D) tested positive. During this period, the testing criteria expanded to include patients diagnosed with breast cancer at age <40, increasing the number of eligible patients while maintaining a stable mutation detection rate of 15-20%. For high-risk genes (BRCA1, BRCA2, PALB2), between Nov'20–Oct'21: 100% underwent breast risk-reducing surgery (BRRS), 50% opted for bilateral salpingo-oophorectomy (BSO); Nov'21–Oct'22: 90% opted for BRRS, 40% BSO, and Nov'22–Oct'23: 39% underwent BRRS, 17% opted for BSO (some patients remain pending genetic testing/treatment).
Conclusion: Genetic testing significantly impacts surgical decisions in breast cancer care, enabling personalized treatment plans and improved patient outcomes. However, it also increases the unit's workload, creating higher demands for workforce, theatre capacity, and reconstructive options to meet the increasing demand.

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6B.3 Radiofrequency identification (RFID) tag localisation of non-palpable breast lesions: A systematic review and meta-analysis

Mohammad Alabdulrahman[1], Gordon R Daly[1,2], Gavin P Dowling[1,2], Cian Hehir[1,2], Hayley Briody[3,4], Sami Almasri[1], Nuala A Healy[3,4], Arnold DK Hill[1,2]
[1]Department of Surgery, Royal College of Surgeons in Ireland, Dublin, Ireland, [2]Department of Surgery, Beaumont Hospital, Dublin, Ireland, [3]Department of Radiology, Royal College of Surgeons in Ireland, Dublin, Ireland, [4]Department of Radiology, Beaumont Hospital, Dublin, Ireland

Introduction: Breast cancer screening has increased the detection of non-palpable breast lesions in recent years. Pre-operative localisation of these lesions has traditionally been performed by wire-guided localisation (WGL). Radiofrequency Identification (RFID) tag localisation provides a less-invasive alternative. We aim to assess the clinical utility, efficacy, and safety of RFID tag localisation compared to wire-localisation of non-palpable breast lesions.
Methods: A systematic review and meta-analysis was performed in accordance with PRISMA guidelines. Studies reporting on outcomes post-RFID tag localisation, and comparing outcomes post-RFID tag localisation and WGL were included. Positive margins and re-excision rates post-RFID tag localisation was estimated using meta-analyses of proportions. Further meta-analyses compared margin positivity and re-excision rates between RFID tag localisation and WGL. Random effects models were used for all analyses, with a P-value of <0.05 considered significant.
Results: 19 studies with 3,324 patients were qualitatively assessed. In patients who underwent RFID tag localisation, the pooled rate of positive margins was 12% (95% CI, 10-15%, P = 0.0074), and pooled re-excision rate was 13% (95% CI, 10-16), P = 0.0043), in 14 and 16 studies respectively. RFID localisation was associated with a significantly lower rate of positive margins than WGL, (OR 0.71, 95%CI, 0.54-0.95, P = 0.02). However, no difference was observed in re-excision rate, (OR 1.13, 95%CI, 0.88, 1.45, P = 0.35).
Conclusion: RFID tag localisation provides an effective alternative to WGL and may be of benefit in select patients. Randomised trials are required to better elucidate its potential benefit over WGL and other less-invasive techniques.

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SHORT PAPER PRESENTATIONS

6B.4 Mammographic predictors of cancer recurrence after breast conservation and adjuvant endocrine therapy: Initial results of the MEDICI study

Sarah Savaridas[1,12], Kulsam Ali[1], Sue Astley[3], Andrew Evans[7], Mark Halling-Brown[4], Andrea Marshall[2], Dr Sarah Vinnicombe[5], Patsy Whelehan[6], Sonya Drummond[12], Raja Ebsim[3], Nuala Healy[8], Andrew Joiner[4], Elizabeth Muscat[11], Jonathon Nash[13], Adam Perrett[3], Ashwini Sharma[9], Marianna Telesca[10], Violet Warwick[14], Janet Dunn[2]

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Background: Adjuvant endocrine therapy (AET) resistance affects many ER+ve patients1,2. Emerging evidence suggests mammographic density (MD) may represent an imaging biomarker whereby decreasing MD is associated with lower risk of recurrence and breast cancer specific death3-7. We investigate whether reduction in MD after 1 and/or 3yrs is associated with breast cancer specific survival (BCSS) or metastasis free survival (MFS).

Methods: A retrospective cohort study was generated from a Mammo-50 trial [ISRCTN48534559] subset. Participants taking AET (cases) and controls were included. MD was assessed using a 0-100% visual analogue scale (VAS), readers scoring contralateral mammograms at diagnosis, 1yr and 3yrs post-surgery. Decrease in MD was defined as a change ≥10% from baseline.

Results: VAS data from 1364 cases and 367 controls were included. Median MD was approximately 30% for cases and controls at all time-points; 20% showed decreased MD at 1yr and 21% at 3yr, with no difference between groups (table 1). Of the AET group, 23 died from breast cancer and 33 developed metastases during follow-up (median 8.7yrs post-surgery). The 5-year breast cancer specific survival (BCSS) rate was 99.6%(95%CI:97.4-99.9) vs 98.3%(95%CI:97.2-98.9) for those with vs without a ≥10% reduction in MD at 1yr, p=0.35. On 3yr MD assessment, BCSS was 99.3%(95%CI:97.2-99.8) vs 98.4%(95%CI:97.4-99.0), p=0.35.

The 5-year metastasis free survival (MFS) rate for those with a ≥10% reduction in MD at 1 yr was 94.2%(90.7-96.4) vs 93.6%(92.0-95.0) and 3yr MD assessment 92.6%(88.8-95.1) vs 94.1%(92.5-95.4); p=0.47 (1yr), p=0.13 (3yrs).

Conclusion: Reduction in MD had no significant effect on BCSS or MFS.

Table 1:

Mammographic density (MD) VAS	Hormone therapy	Control	p
Baseline			
Median (IQR)	27 (13-47)	29 (12-47)	p=0.98
≤10	267 (20%)	82 (22%)	
>10 ≤ 25	377 (28%)	83 (23%)	
>25 ≤ 50	435 (32%)	125 (34%)	
>50 ≤ 75	223 (16%)	57 (16%)	
>75	62 (4%)	20 (5%)	
Year 1			
Median (IQR)	29 (14-50)	30 (14-49)	p=0.83
≤10	250 (18%)	69 (19%)	
>10 ≤ 25	356 (26%)	82 (22%)	
>25 ≤ 50	552 (41%)	163 (45%)	
>50 ≤ 75	155 (11%)	38 (10%)	
>75	50 (4%)	15 (4%)	
Missing	1	0	
Year 3			
Median (IQR)	27 (13-48)	29 (13-46)	p=0.88
≤10	259 (19%)	75 (20%)	

>10 ≤ 25	373 (28%)	89 (24%)	
>25 ≤ 50	437 (32%)	132 (36%)	
>50 ≤ 75	235 (17%)	53 (15%)	
>75	55 (4%)	18 (5%)	
Missing	5	0	
Reduction in MD ≥ 10% at 1 year	277 (20%)	75 (20%)	p=0.46
Reduction in MD ≥ 10% at 3 years	288 (21%)	77 (21%)	p=0.73

Table 2: Breast Cancer Specific Survival

	n	No. events	% event free	% (95% CI) breast cancer specific survival at 2 years	5 years
Reduction In MD at 1 year	HR=0.56 (95% CI 0.17-1.88), p=0.35				
10% or more reduction	277	3	98.9	100 (100-100)	99.6 (97.4 -99.9)
Less than 10% reduction	1086	20	98.2	99.4 (98.8-99.8)	98.3 (97.2-98.9)
Reduction In MD at year 3	HR=0.54 (95% CI 0.16-1.83), p=0.32				
10% or more reduction	288	3	99.0	100 (100-100)	99.3 (97.2 -99.8)
Less than 10% reduction	1071	19	98.2	99.5 (98.9-99.8)	98.4 (97.4-99.0)

Table 3: Metastasis free survival

	n	No. events	% event free	% (95% CI) metastasis free specific survival at 2 years	5 years
Reduction In MD at 1 year	HR=1.19 (95% CI 0.74-1.90), p=0.47				
10% or more reduction	277	23	91.7	97.8 (95.2-99.0)	94.2 (90.7 -96.4)
Less than 10% reduction	1086	75	93.1	98.5 (97.6-99.1)	93.6 (92.0-95.0)
Reduction In MD at year 3	HR=1.41 (95% CI 0.91-2.21), p=0.13				
10% or more reduction	288	27	90.6	97.9 (95.4-99.1)	92.6 (88.8 -95.1)
Less than 10% reduction	1071	70	93.5	98.6 (97.7-99.2)	94.1 (92.5-95.4)

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RAPID FIRE POSTER PRESENTATIONS

RFP.01 Imaging characteristics of breast lymphoma: a retrospective study

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Background: Breast lymphoma is a rare malignancy. Understanding the imaging characteristics and correlating them with clinical findings can help in diagnosis.
Method: A retrospective review of 18 breast lymphoma cases from 2010 to 2023 was conducted using MDT, PACS, and electronic records. Imaging studies, including mammography, ultrasound (US), CT, and PET-CT, were reviewed by two breast radiologists.
Results: All patients presented with a breast lump, aged between 27 to 93 years. 17 cases (94.4%) were Non-Hodgkin Lymphoma (NHL), and one was Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL).

- Ultrasound Findings: All NHL cases presented as masses with lobulated or indistinct margins, mixed echogenicity (53%), wider than tall (82.4%), and increased vascularity (in 7/10 cases where it was recorded). Diagnosis was confirmed with an US guided biopsy.
- Mammography Findings: 15 cases had a mammogram. 73.3% presented as a mass with indistinct margins, 13.3% an asymmetric density, and 13.3% were occult.
- CT and PET-CT Findings: 11 patients had a CT which showed a non-specific breast density. 7 patients had a PET-CT which revealed increased uptake in all but one case, aiding in systemic disease evaluation.
- MRI Findings: One BIA-ALCL case showed an intracapsular fluid collection without enhancement.

Conclusion: Breast lymphoma typically presents as an indistinct, mixed echogenicity mass on ultrasound and an irregular mass on mammography. PET-CT helps in assessing systemic involvement. Peri-implant fluid collections in longstanding implants should raise suspicion for BIA-ALCL.

RFP.02 Review of local clinical practice following introduction of a new protocol increasing the non-biopsy age threshold of patients with ultrasound confirmed fibroadenoma

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Introduction: Following updated guidance from the Royal College of Radiology in 2019 the Breast Care Centre at North Bristol NHS Trust introduced a new local protocol for women with U2 fibroadenoma on ultrasound aged 25-29. This increased the non-biopsy age threshold from 25 to 29 years old for women with breast lumps which fulfil strict criteria indicating a radiological fibroadenoma. We aimed to audit adherence to this updated protocol and review if unnecessary biopsies were being undertaken.
Methods: Data was gathered regarding number of ultrasounds performed, number of core biopsies performed, and number of biopsy undertaken in U2 graded ultrasound scans for women under the age of 30 between January – December 2023. This data collection window was following the introduction of the new protocol at the end of 2022.
Results: A total of 1576 women under the age of 30 underwent a breast USS in 2023. 52 core biopsies were taken in women aged 25-29 with 22 confirmed fibroadenomas. When reviewing the initial ultrasound reports, 8 of these patients fulfilled the non-biopsy criteria yet went onto have a biopsy. This cost the Trust approximately £1500 in pathology processing/reporting.
Conclusions: Despite updated guidance, biopsies are still undertaken unnecessarily in this cohort of patients. The implications of over biopsying are numerous including cost, pathology & radiology time, MDM timings and increased patient anxiety. Following this audit, we plan to present locally and provide a refresher on the updated guidance.

RFP.03 Get it Right First Time (GIRFT) - Upfront Large volume extensive sampling for Complex Sclerosing Lesions.

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Purpose: Parenchymal distortion (PD) diagnosed on tomosynthesis (DBT), with no correlating ultrasound finding is a subgroup with low malignancy outcome and likely due to Complex Sclerosing Lesion (CSL). At our unit, we extended the use of Large Volume Extensive Sampling (LVES) as a first-line biopsy technique in this subgroup, with the aim to reduce the need for additional biopsy.
Methods: A retrospective observational study.
Obtained Caldicott Approval.
Time-frame: January 2020 - December 23 (4 years).
Multidisciplinary team (MDT) outcomes, Scottish Breast Screening system (SBSS) and Clinical Portal were used to audit LVES cases.

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Results:
51 first-line LVES were identified.
3/51 cases excluded as second-site biopsy for micro-calcifications (B3 biopsy for M3 calcs elsewhere in the breast).
48/51(94.1%) were identified as PD for first-line LVES:
•PD cases where another biopsy was obviated 35(73%).
29/48(60.4%) of PD cases had pathology confirming CSL:
•4/29(14%) were B3 with atypia.
•3/29(10%) were B4. 2/3 were upgraded to malignant.
•PD cases with B5 malignant outcome - 13/48(28%). 3/13 were graded as suspicious (M5,U5) and should have had first-line conventional biopsy. The remaining 10/13 presented as PD and standard 14G biopsy or 10g large volume biopsy could have been diagnostic. Reported complications impacting surgical management - 3/13(23.1%) had haematomas delaying surgery.
•3/48(6.3%) were graded B2.
Conclusion: LVES can be safely utilised as a first-line diagnostic sampling technique when the working diagnosis is CSL, reducing the need for two procedures. To optimise patient management and minimise surgical delay, first-line LVES should not be offered for malignant cases (M5U5).

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RFP.04 A retrospective audit of breast biopsy marker migration following 12, 10 and 7 gauge stereotactic guided biopsy

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Objective: Accurately placed markers are essential for subsequent imaging and surgical planning. Marker migration should be minimal according to Royal College Radiologists guidelines [1]. By local agreement 10mm or less is considered acceptable and relevant literature reports variable rates of migrated markers from 10-35.6% [2, 3, 4, 5]. The objective of this audit was to evaluate the rate of marker migration in screening and symptomatic patients, compare this to published data and identify contributing factors.
Methods: Consecutive patients from January 2023 to December 2023 were audited retrospectively. Post and pre-biopsy mammograms were compared with migration distances categorised into groups: 0-10mm, 11-20mm, 21-30mm and >30mm. Potential factors contributing to migration were evaluated: needle gauge, number of samples, biopsy approach, site of abnormality, breast thickness, breast density, marker shape and biopsy complications.
Results: Of 168 markers placed 64.9% were accurate and migration rates totalled 35.1% (17.8% at 11-20mm, 9% at 21-30mm, and 8.3% beyond 30mm). 10G needle was the most accurate (66.07%) compared to 12G (64%) and 7G (61%). Two factors related to accurate placement were no complications and increased breast density (P<0.05). Lateral patient positioning, padlock marker shape and 0-6 samples were factors which showed a minimal increase in accuracy. Among migrated cases 17/59 had B3, B4 or B5 results. Three cases experienced significant management impacts, including one unsuccessful image-guided localisation resulting in missed cancer at surgery.
Conclusions: Primary risk factors for migration were reduced breast density and procedural complications. Understanding these factors can help biopsy teams implement mitigation strategies.

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RAPID FIRE POSTER PRESENTATIONS

RFP.05 5-year follow-up of patients with B3 breast lesions following Vacuum Assisted Excision (VAE)

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Objectives: Current UK breast screening guidelines recommend VAE for managing B3 lesions and 5-year mammography follow-up for those lesions with atypia. Our aim was to retrospectively review 5-year outcomes of patients with B3 lesions who underwent VAE with a benign histology.
Methods: Patients with benign final histology after VAE of B3 lesions performed in two centres between 01/2017 and 12/2019 were included. Data was collected on initial biopsy, final histology, any follow-up imaging.
Results: 92 patients met the inclusion criteria, 40 had no atypia, and 52 had atypia in either the initial biopsy or final histology qualifying for 5-year mammographic follow-up. Of the 52 with atypia 41 completed the follow-up, with non-completion reasons including death (3), no documented reason (2), patient choice (1), and awaiting final mammogram (5). 6.5% (6/92) of patients developed malignancy within 5 years. 9.6% (5/52) of patients from the atypia group developed malignancy at follow-up: two at the VAE site (invasive), 2 in the same breast but away from VAE site, and 1 in the contralateral breast.
In the no atypia group one malignancy was diagnosed symptomatically in the contralateral breast and one benign lesion (multiple papillomata) diagnosed at the VAE site.
Conclusions: This study shows that VAE is effective for management of B3 lesions. A small number develop malignancy within 5 years; however, malignancy at the VAE site is rare. Ongoing surveillance is essential for these patients, and further research is needed to optimize follow-up strategies.

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RFP.06 Structured report in breast MRI: Introduction of free text template to improve report accuracy

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Background: There are advantages and challenges of utilising standardised template reporting.[1] Templates can improve the quality of service provided to patients and physicians.[2]
Aims/Objectives: This audit aims to evaluate local breast MRI reports against standards set by the American College of Radiology (ACR), before and after implementing the standardised free text reporting template.
Methods: 50 consecutive breast MRI reports were retrospectively analysed from 02/2022 (before template implementation), 50 from 02/2024 (after implementation), and 50 reports from 09/2024 after review and template development.
Every report was checked against ACR criteria[3], to see if it contained:
- Indication
- MRI technique
- Breast composition
- Clear findings description
- Comparison to previous examination(s)
- Assessment
- Management

Results: With the introduction of the first standard template, we noted a reduction of report accuracy with reporting of the MRI indications falling from 100% to 72% and comparison to prior imaging also falling from 82 to 78%. MRI technique did not improve; remained at 0%. (Table 1, Fig 2)
The template was revised and updated accordingly to include all ACR standards (Fig 3). Re-audit in 09/2024; demonstrated 100% compliance with all standards.
Template reporting did ensure that assessment and management was clearly documented in the MRI report rather than elsewhere in the patient's notes.
Conclusions: Reporting templates are useful tools, but it is important to ensure that they are complete and accurate as they can potentially reduce report accuracy. Auditing after reporting template introduction is recommended to ensure standards are being met and maintained.

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Table 1.

Criteria	Feb-22 (% compliance)	Feb-24 (% compliance)	Sep-24 (% compliance)
Indication for examination	100	72	100
MRI Technique	0	0	100
Succinct description of overall breast composition	100	100	100
Clear description of any important findings	100	100	100
Comparison to previous examination(s)	82	78	100
Assessment	62	100	100
Management	44	100	100
BPE	88		100
Nodes	94		100
Series/image for 2nd look US	0		100

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RFP.07 Maximising early breast cancer detection: the importance of mammographers' proficiency in performing the eklund technique

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Introduction: The Eklund technique is critical for visualising breast tissue in clients with implants, offering additional projections to enhance breast image interpretation. The success of this technique relies heavily on the skills and expertise of the performing mammographer [(1)].
Current training methods for Eklund projections often vary between departments, potentially impacting mammographer performance and therefore image quality.
This study aims to assess mammographers' perspectives on current training methods and identify areas for development in executing the Eklund technique.
Methods: A quantitative study consisting of a structured survey with 9 close ended questions was distributed electronically to breast units and breast imaging training centres, to assess mammographers' perspectives on current training methods, training satisfaction levels and areas for development.
Results: 41 mammographers participated in the study.
Findings revealed that 82% felt inadequately prepared for clinical practice, with 75% reporting challenges in applying the Eklund technique.
93% of participants emphasised the need for increased hands-on practice and expressed interest in simulation-based training tools to enhance their skills.
Conclusion: This research highlights that training to undertake Eklund projections needs to be further developed. Simulation techniques and innovative devices could support this training. It is through the implementation of such training that would allow mammographers to optimise their performance and facilitate the early detection of breast cancer.
The findings of this research emphasise the limitations of current training methods for mammographers, highlighting the need for more comprehensive and up-to-date training programs and innovative training tools to strengthen breast cancer screening initiatives.

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RFP.08 From shadow to spotlight: raising the profile of Advanced Clinical Practitioner's in breast imaging.

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Background: The Advanced Clinical Practitioner (ACP) role in breast imaging enhances patient outcomes, service efficiency, and multidisciplinary collaboration. However, integrating ACPs into breast imaging teams remains challenging, particularly in gaining acceptance from radiologists and managers. This case study explores the journey of an experienced enhanced practitioner into the ACP role and their integration into the team.
The ACP Role: The role encompasses a wide range of advanced clinical responsibilities, including ultrasound and image guided intervention, interpreting mammograms, and contributing to clinical decisions in cancer care. The role bridges the gap between traditional radiographer and radiologist duties, addressing increasing patient demands and optimising workflow efficiency.
Challenges Faced: Despite the clear benefits of the ACP role, several challenges were encountered during the transition between one breast unit and another: • Resistance to change: Concerns about role overlap with radiologists.
• Shifting perceptions: Limited understanding of ACP competencies and value.
• Role definition: Establishing clear responsibilities within the team.
Strategies for Integration: • Service Needs: Identified skill gaps across NHS trusts supported the ACP business case and the recognition of the role.
• Targeted Advocacy: Workshops to highlight ACP expertise, qualifications and impact.
• Building Relationships: Open communication with radiologists and managers to define the role and support integration.
• Professional Development: HEE e-Portfolio validation for experiential learning and competency progression.
Conclusion: This experience highlights the integration challenges of the ACP role in breast imaging. However, these challenges are widespread and must be addressed to ensure the future sustainability of breast services.

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RFP.09 Prospective open label study of the Magseed Pro® marker and Sentimag Gen3® system to localise breast cancer and axillary lymph nodes: initial results - a radiological perspective

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Purpose: Para-magnetic markers are an established alternative to wire localisation to facilitate breast cancer and axillary node excisions. We report the radiological experience of insertion of the new Magseed Pro® markers from a single centre.
Methodology: A prospective clinical investigation testing the safety and efficacy of Magseed Pro® markers are reported with eligibility included impalpable breast cancer foci, and/or involved axillary nodes. The primary endpoint was retrieval rate of the Magseed Pro® within the target lesion. Secondary endpoints include rates of failure of deployment and marker non-migration, and maintenance of position at surgery. The safety endpoint was the rate of device-related adverse events.
Results: Data for Magseed Pro® markers inserted March 2023 - November 2024 in 74 patients (84 seeds) was complete. Sixty-one seeds (73%) were inserted into breast lesions, and 23 (27%) into lymph nodes. Markers were placed utilising sonographic (n=68) or mammographic guidance (n=16). Magseed Pro® insertion was recorded as 'very easy' or 'fairly easy' in 74 cases (88%), and 'fairly difficult' in 10 cases (12%) with no cases being reported as 'very difficult' or 'unable to localise'. Magseed Pro® were deployed within the target lesion in 76 (90%) procedures and outside the lesion in 8 (10%) procedures. Rate of Magseed Pro® retrieved with the target lesion was 100%. No instances of marker migration or device-related adverse events reported.
Conclusions: Magseed Pro® is an improved para-magnetic wireless marker with initial results suggesting that the utilisation of Magseed Pro® and Sentimag GEN3® system offers effective and safe wire-free localisation.

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RAPID FIRE POSTER PRESENTATIONS

RFP.10 Establishing a dedicated granulomatous mastitis service

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Purpose: Granulomatous mastitis (GM) is a rare, chronic inflammatory condition of the breast often misdiagnosed and mistreated with repeated courses of antibiotics (1). Effective management requires accurate diagnosis, identification of underlying causes and multidisciplinary care. Recognising the unmet need for a dedicated service, we established a granulomatous mastitis pathway at King's College Hospital, a large teaching hospital with a busy breast unit. Our objective was to streamline diagnosis, optimise treatment, and improve outcomes for patients with GM.
Methods: A dedicated GM service was developed with input from key specialties, including breast surgery, radiology, pathology, microbiology, infectious diseases, and rheumatology. Patients are referred to the service through the symptomatic breast clinic. All patients undergo thorough clinical evaluation, imaging and biopsy, followed by case discussion at a monthly multidisciplinary team (MDT) meeting. If an infectious or other identifiable cause is not identified, specialist rheumatology input is sought. A standardised diagnostic and treatment pathway was implemented to ensure consistent care.
Results: Since the service's inception, we have managed 24 patients. Imaging and biopsy have been critical for differentiating idiopathic GM from other aetiologies. Collaborative MDT discussions have led to individualised treatment plans, ranging from antimicrobial to immunosuppressive therapy. Early outcomes have shown significant symptom resolution in a small number of patients and increased patient satisfaction.
Conclusion: A multidisciplinary, structured approach is essential for managing granulomatous mastitis. Our dedicated service demonstrates how integration across specialties can improve diagnostic accuracy and patient outcomes. Future efforts will focus on expanding patient follow-up and auditing long-term results.

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P11 Measuring AI readiness in mammography: Statistical insights from a nationwide survey

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Introduction: Artificial Intelligence (AI) is increasingly integrated into breast imaging, enhancing image processing, quality control, and decision-making. While clinical evaluations demonstrate AI's potential to improve efficiency, concerns persist regarding ethics, role changes, and responsibilities. Limited studies examine the perspectives of mammographers, assistant practitioners, and mammography apprentices, who are key to AI adoption. This study explores their knowledge, awareness, and attitudes toward AI in breast imaging.
Aim: To explore the mammography workforce's knowledge, awareness, and attitudes toward AI in breast imaging.
Methods: A cross-sectional quantitative study was conducted in England via an online survey (January–December 2023). The survey collected data on demographics, AI knowledge, perceptions, attitudes, education, involvement, and support needs, analysed using descriptive and inferential statistics.
Results: Among 119 valid responses, 91.5% were aware of AI in breast imaging, primarily through academic journals (59%) and personal research (50%). 61.8% were positive about AI, but uncertainty remained regarding job role impact (37.1%) and performance enhancement (50%). AI preparedness was low (11%), with moderate ethical concerns (34.8%). Significant relationships were found between AI knowledge and preparedness ($p < 0.001$) and AI research involvement and perceived ease of use of AI ($p < 0.001$).
Conclusion: Despite high AI awareness, confidence and preparedness levels remain low, suggesting a need for targeted training programs and structured AI education. Addressing concerns regarding ethics and job roles is crucial for successful AI integration. These findings provide valuable insights into AI adoption challenges in mammography, emphasizing the need for ongoing education, policy development, and workforce engagement.

P12 Radio Frequency Identification (RFID) tag audit

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The introduction of Radio Frequency Identification (RFID) tags in breast surgery represents a significant advancement in the localisation of non-palpable malignant lesions, thereby enhancing the surgical approach to breast-conserving procedures.
Aim: This study aimed to evaluate the value added to our department through the implementation of RFID tags, as well as to assess the successful deployment and retrieval of these tags in clinical practice.
Methods: A prospective cohort study was conducted involving the first 100 RFID tags inserted in eligible patients, focusing on several key parameters including deployment success, migration rates, ease of identification, and surgical margin involvement.
Advantages and disadvantages: Despite the higher cost associated with RFID tags, the numerous advantages; including reduced patient anxiety, improved scheduling flexibility, and enhanced operational efficiency, significantly outweigh the disadvantages.
Results: A total of 99 out of 100 tags were successfully deployed, with only one instance of migration observed. The surgical team reported effective identification and retrieval of the tags, allowing for optimised surgical planning and resulting in smaller excision sites. The observed re-excision rate for surgical margins was 9%, lower than conventional wire-guided localisation, indicating that the outcomes associated with RFID tags are not comparable to those of conventional wire localisation.
Conclusion: Overall, the implementation of RFID tags has proven to be a time-efficient and effective practice, facilitating improved patient care and streamlined surgical processes within our department. This study highlights the potential for RFID technology to transform breast surgery localisation techniques, providing a promising alternative to conventional methods in clinical settings.

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P13 Outcomes and biological significance of breast cancers found in women over 70

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Introduction: This audit 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.

P14 A multi-centre audit on CT staging of breast cancer

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Background: Preoperative staging of breast cancer is essential for treatment planning. The Royal College of Radiologists (RCR) provide guidelines recommending staging for patients with T3/T4 primary cancers, more than four abnormal axillary nodes on ultrasound, and symptomatic concerns of metastasis. An audit was conducted to assess adherence to these guidelines at our institution, focusing on identifying patients meeting the criteria and evaluating imaging compliance.
Methods: Data was collected from the Somerset database for all patients diagnosed with "malignant neoplasm of the breast" across our institution between January 2023 and July 2023. Patients with external imaging were excluded.
Results: A total of 220 patients diagnosed with breast cancer were analysed. Of these, 173 (79%) had T1/T2 disease and 47 (21%) had T3/T4 disease at presentation. CT staging was performed in 103 patients. According to RCR guidelines, 46 of these CT scans were indicated, while 57 were not. Among the 57 patients who underwent CT without meeting the criteria, 51 also had bone scintigraphy and 2 underwent PET scans. No metastatic disease was identified in this group.
Conclusion: A substantial number of patients underwent staging CT despite not meeting RCR criteria, with no metastatic disease identified in this group. This suggests unnecessary imaging was performed, with no missed metastases in non-compliant cases. These findings support the reliability of current guidelines and reinforce the need to improve adherence to optimise resource use and reduce unnecessary imaging.

P15 To look or not to look? Is less actually more in axillary imaging?

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Background: To reduce morbidity, axillary surgery is becoming conservative1. From the Z011 trial showing non -inferiority of SLNB to ANC in T1-2 breast cancer2, to the SOUND trial showing safety of omitting axillary surgery in ≤T1 with negative axillary U/S3, the way forward is surgical de-escalation.
On this basis, we wondered if "less is more" in imaging the axilla.
Method: Utilising a mammographic threshold of <15mm (similar to the SMALL trial studying the efficacy of VAE vs surgical excision4), we conducted a retrospective audit of screen-detected cancers over 2-years. Exclusion criteria were multifocal disease, microcalcification beyond the mass, and ipsilateral breast cancer/ DCIS.
Results: 129 unifocal cancers<15mm were detected
104 had a normal axillary ultrasound of which:
98 had negative SLNB
2 had positive SLNB with subsequent ANC. Both cases had only 1 positive LN (out of 9 and 11 LNs removed respectively). Both cases involved 10mm tumours, a Gd1 and a Gd2 IDC, ER/PR +, HER-2 -

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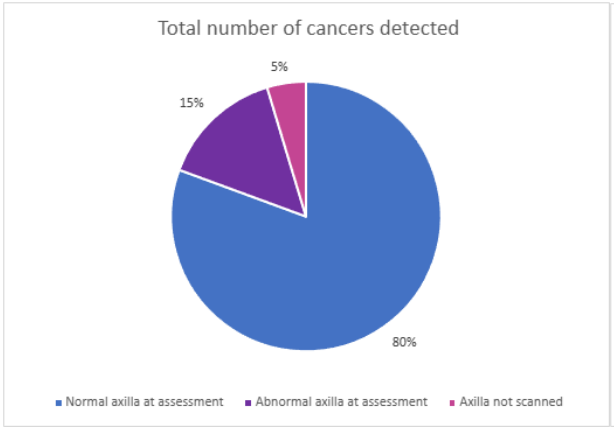
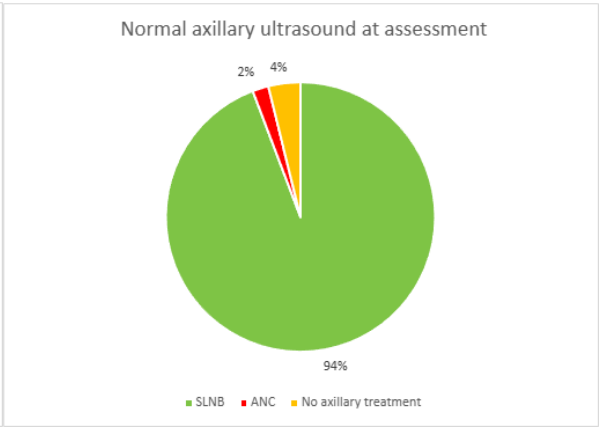
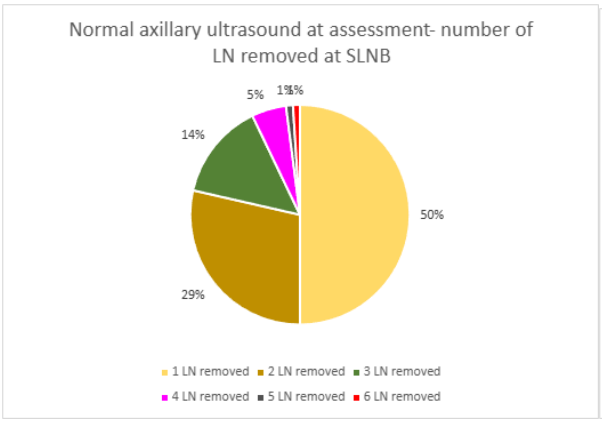
19 had abnormal axillary ultrasound and negative SLNBs

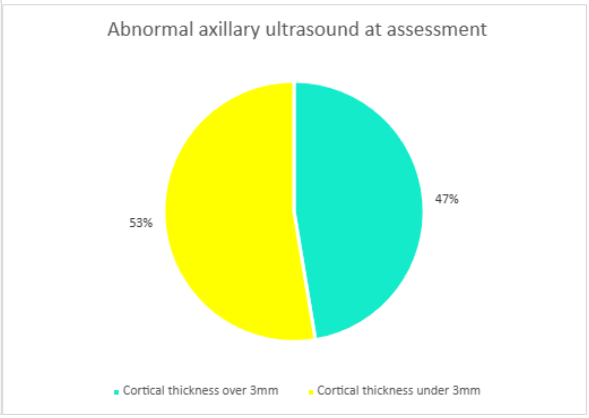
Conclusion: The percentage of positive SLNB in our small screen detected cancers was extremely low. Both our ANC cases had only 1 positive LN and based on current data for ER/PR +, HER-2 -, did not need this radical treatment.

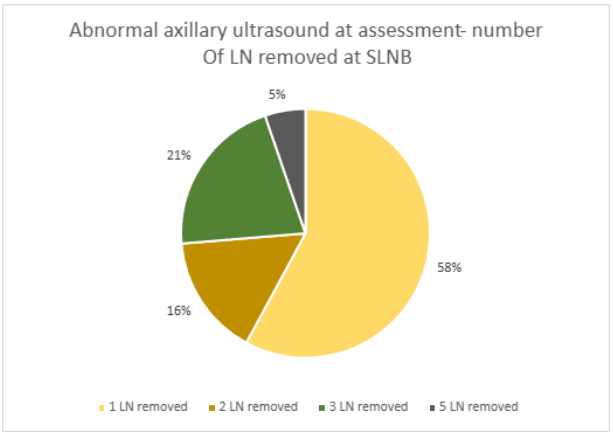
Axillary imaging cannot identify the patients with >2 positive sentinel nodes, requiring ANC (as per the Z0011 trial)5. It has the potential to over treat the axilla and increase surgical morbidity6.











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POSTER PRESENTATIONS

P16 Cancer detection rates from additional annual mammography in women aged 30–39 undergoing breast MRI for very high risk of breast cancer

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Objective: To investigate the utility of annual mammograms with yearly breast magnetic resonance imaging (MRI) in women aged 30–39 undergoing screening for very high risk of breast cancer.
Method: A retrospective review of records between January 2007 and December 2023 was performed to identify women aged 30–39 years who were assessed to have a very high risk of breast cancer at our family history service and had both mammograms and breast MRI. Recall rates, biopsy rates, and cancer detection rates were calculated for both imaging. A review of cancers detected by mammogram and MRI was performed.
Results: 311 women aged 30–39 years with very high risk of breast cancer had both mammograms and MRI. These included high-risk gene carriers, untested first-degree relatives of high-risk gene carriers, and women with lifetime breast cancer risk >40%. 1052 mammograms and 849 MRIs were performed. Recall was triggered by 6% (n=60) of the mammograms and 12% (n=101) of the MRIs. 25% (n=15) of mammographic recalls and 45% (n=46) of MRI recalls resulted in a biopsy. 16 breast cancers were identified, 4 were detected following a mammographic recall and 12 following an MRI recall. There were no interval cancers. Among the 4 cancers detected following mammographic recall, 3 were invasive carcinomas and 1 was DCIS.
Conclusion: Details of cancers detected following mammographic recall and interpretation will be presented. Findings suggest that annual mammograms may provide limited additional benefit for this high-risk cohort having annual MRI.

P17 Comparison of Contrast Enhanced Mammography (CEM) with breast MRI in local staging of breast cancer: a non-inferiority study

Charlotte Longman, Harita Sivashankar, Bhavna Batohi, Adam Brown, Joshua Eves, Jessica Lubel, Michael Michell, Nikhil Patel, Clare Peacock, Rumana Rahim, Keshthra Satchithananda, Rema Wasan, Juliet Morel

King's College Hospital NHS Foundation Trust, London, United Kingdom

Contrast enhanced mammography (CEM), like breast MRI utilises intravenous contrast to identify tumour neo-angiogenesis and may be an alternative method to MRI for local staging of breast cancer. Following implementation of a CEM service within our unit, this study compares the accuracy of CEM with breast MRI.
Methods: 70 patients underwent CEM (Hologic) between April- December 2024. 60/70 underwent concurrent MRI (Siemens Solas/ Aera, both 1.5T).
MRI not possible in 10 cases.
CEM and MRI findings recorded including type of enhancement, size, and focality. Imaging findings correlated with final histopathology, when available.
Results: 57/60 had malignant disease, 3/60 benign cases.
23/60 cases had unifocal disease on CEM and MRI (mean size 34.5mm CEM, 35.1mm MRI). In unifocal cases where pathology available, CEM was closer than MRI to pathological size.
26/60 cases had multifocal disease (mean total extent CEM 57.9mm, MRI 55.2mm).
There were no size discrepancies in uni or multifocal disease that would alter clinical management.
2/60 cases had unifocal enhancement MRI, negative CEM and subsequent benign pathology. 6/60 cases had unifocal enhancement CEM, multifocal MRI (all additional foci were classified MRI 3 lesions and subsequently proven benign).
Conclusions: In our experience, CEM is non inferior to MRI at detecting and sizing breast disease. No malignancies were missed on CEM that were visible on MRI. 6 false positive MRI 3 lesions were negative on CEM and 2nd look US +/- biopsy could have been avoided. CEM may be considered as an alternative to limited capacity breast MRI in clinical practice.

P18 A comparison of the radiological response of breast cancer using Contrast Enhanced Digital Mammography (CEDM) versus histological findings in patients on neoadjuvant chemotherapy, a 4 year audit from January 2020 to January 2024

Olubunmi Badmus

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Clinical problem: Breast cancer is the number one cancer in women in the UK and the second most common cause of cancer death in UK(1). Early detection saves lives through screening(2).

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Background: CEDM is a relatively new modality and a new service in the hospital. It exploits the preferential enhancement of tumours post contrast. (3,4,5,6)
Histology gives the final disease status.
Audit was performed to evaluate the efficacy of the service and accuracy of CEDM prediction of disease status in correlation to histology status post-surgery.
Method: A 4 year retrospective study of symptomatic patients. Those on Neoadjuvant chemotherapy were extracted audit. CEDM reports were correlated with the post- surgical histology results.
The results were compared with available literature.
Results: A total of 262 CEDM studies.
91 were for 54 patients receiving neoadjuvant chemotherapy.
44 had CEDM both pre and post neoadjuvant therapy.
43 had histology available.
One had no surgery due to metastases.
There was 86% accuracy for 37 cases.
Discrepancy was 18.6% for 8 cases.
Due to overcalls or undercalls.
Overcalls- reported disease but no residual disease on histology.
Undercalls - reported as excellent response but residual disease seen on histology. Observed in cases of small volume of residual disease.
Conclusion: Target met in this study compared to literature.
CEDM sensitivity is near accurate in predicting response when compared to histology results.
Faster and cheaper option to breast MRI with benefit of better patient experience.
Recommendations: Obtain pre and post neoadjuvant CEDM per patient where possible.
Keep monitoring performance.

Data

	CASES 2020-2024
Total CEDM studies done	262
Total CEDM for Neoadjuvant	91
Cases for Neoadjuvant	54
1st CEDM	47
2ND CEDM	44

Table of Results

TARGET		**CEDM Complete** **CEDM vs HX**	**84%** **81%**		
NUMBER of cases with 2nd CEDM		**HISTOLOGY**	**AGREED**	**DISCREPANCY**	**REMARKS** Over or under call
44		43	37 (**86.0%**)	8 (18.6%)	2 over calls 6 under calls
1	No surgery	-			

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5. Lotti V, Ravaioli S, Vacondio R, et al. Contrast-enhanced spectral mammography in neoadjuvant chemotherapy monitoring: a comparison with breast magnetic resonance imaging. Breast Can-cer Res 2 017; 19:106.
6. Lewin J. Comparison of contrast-enhanced mammography and contrast-enhanced breast MR im-aging. Magn Reson Imaging Clin N Am 2018; 26:259–263.

P19 Film reader discrepancies: an audit to review single film reader missed breast cancers in a screening mammography unit

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Background: Double reading of screening mammograms is standard practice the Breast Screening Programme to ensure high cancer detection rates and improve outcomes from early diagnosis(1). However, discrepancies between film reader opinions can occur. This audit investigated cases whereby a discrepancy between the first and second film reader resulted in a biopsy proven breast cancer being missed by one reader and identified by the other. The aim was to categorise the radiological appearance of the suspicious area missed on the initial mammogram, to highlight trends both individually and departmentally to facilitate learning.
Methods: Data was extracted from 52,000 screening mammograms taken between April 2022-2023, resulting in 49 cases of single film reader missed breast cancers. Radiological appearance, first and second film reader opinion and the cancer diagnosis were recorded. Film readers retrospectively reviewed individual missed breast cancers to enable reflection and identify learning needs. To provide departmental learning opportunities, a pictorial review was produced demonstrating the most frequently missed radiological appearances to promote discussion and reflection.
Results: 45% of single film reader missed breast cancers appeared as microcalcification on the mammogram, and 31% appeared as masses. In 86% of cases the breast cancer was missed by the first reader and 14% were missed by the second reader.
Conclusion: Recommendations were made to consider double blind reading to reduce bias when working as a second film reader, which can also improve individual cancer detection rates(2). Reauditing annually to enable continued reflection can further improve sensitivity to ensure a robust programme is maintained.

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P21 Prevalent round screening recall rate

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[1]Torbay and South Devon NHS Foundation Trust, Torbay, United Kingdom, [2]South West Imaging Training Academy, Plymouth, United Kingdom

Background: The prevalent screen is the first screen, and should take place in patients between 50 and 53 years old. Performance thresholds have certain percentage levels of recalls that are achievable or acceptable. 1
Descriptor: 1. Compare our recall rate against the standard
2. Assess patterns of recall by perceived abnormality with pathological correlation
3. Assess whether certain abnormalities have higher predictability for malignancy
Standard: Acceptable level: <10%; Achievable level: <7%
Method: - Retrospective audit of 12 months of prevalent round recalls from April ‘22 to March ’23
- Abnormalities were categorised into: well-defined mass (WDM); distortion; ill-defined mass (IDM); asymmetric density (AD); calcification outside of a mass; clinical abnormality; axillary abnormality
Results: - No. of prevalent patients screened: 517
- No. of prevalent patients recalled: 52 (10.06%)
- No. of proven malignancies: 3 out of 52 (5.77%) (2 x calcifications, and 1 x IDM)
- Calcifications had a high positive predictive value (2 out of 7), as did IDM (1 out of 1)
- AD (18), WDM (17), clinical recall (4), axillary abnormality (0), and distortion (5) yielded no positive malignancy outcomes
Conclusion: - Prevalent recall rate was high (10.06%) which is unfortunately just over the acceptable level
- IDM and calcifications had a high positive predictive value, whereas WDM and AD yielded very low results, and these two especially should be considered carefully before recalling
- Re-audit in one year’s time to assess for changes in recall rates, taking into account the findings of this audit

1. (Breast screening programme (gov.uk);
2 The dilemma of recalling well defined masses TD Geertse et al https://www.ncbi.nlm.nih.gov/pmc/articles;

3 Architectural distortion of the breast S Gaur et al https://www.ajronline.org/doi/full/10.2214/AJR.12.10153;
4. The abnormal mammogram Lawrence W Bassett et al https://www.ncbi.nlm.nih.gov/books/NBK12642

P22 Breast pain pathway re-audit

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North Bristol NHS Trust, Bristol, United Kingdom

Introduction: Nationally the number of referrals to Breast One Stop Clinics (OSC) has increased by almost 100% in the last decade while the number of breast cancer diagnoses has only increased by 14%. The incidence of breast cancer in patients with breast pain only is 0.4%. Our local breast pain pathway was introduced to reduce the pressure on OSC and allows GPs to refer women over 40 with breast pain only straight for a mammogram. The department audit standards state that the mammogram should be booked within 2 weeks of referral and reported within 7 days.
Method: Retrospective audit of all patients who underwent a mammogram on the breast pain pathway from 1/1/2023 to 20/10/2023. These results were compared to the initial audit from 2022.
Results: 262 patients had a mammogram on the pathway compared to 161 patients for the same time period in 2022. 69% patients were offered a mammogram within 14 days and 83% mammograms were reported within 7 days. 30 patients were recalled following their mammogram (11%) and 1 cancer was diagnosed (0.4%). Nine patients attended OSC despite a normal mammogram.
Discussion: The breast pain pathway saved 18 half day OSCs over a 10 month period. The number of mammograms performed on the breast pain pathway increased by 63% compared to 2022. One incidental non palpable cancer was diagnosed in the symptomatic breast. This audit confirms that this pathway is a safe alternative to the OSC for patients with breast pain only.

P23 Breaking barriers: Identifying and addressing the key barriers to routine breast screening in order to develop strategies for improved participation and increased early detection

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Purpose: Understand the barriers clients face to attending breast screening, and to implement relevant improvements/adjustments.
Background: Our breast screening service has around 90,000 eligible clients and diagnoses over 180 cancers per year. The uptake rates dropped following COVID-19 [(1)] and now sit about 72% locally. Optimising uptake rates is important, as breast screening prevents up to 1700 deaths per year [(2)].
Methods: There were 2 phases of data collection from phone calls with individual clients. In Phase 1, administration staff phoned clients using a guided conversation flowchart, asked why they hadn't attended and offered to rebook appointments. During Phase 2 clinical staff phoned clients and had a more detailed discussion. In addition, data was collected about how many clients that rebooked actually attended their new appointments.
Results: Over the period (19/04/2024 - 26/11/2024), 2693 clients failed to attend their appointment. We spoke to 784 clients, and 255 were subsequently screened.
Clients not reading their invite letters accounted for 30% of missed appointments. Forgetfulness accounted for 14%. This is supported by the introduction of text message reminders appearing to have improved attendance. Another common reason was weekday commitments, however non-attendance rates for Saturdays during this period were almost double weekdays which is contradictory.
Conclusion: This work has enabled us to encourage more clients to attend screening. Out of those who rebooked, 5 clients were called back to assessment and 3 were diagnosed with cancer.
With the development of a health promotion team, we hope to develop this process further.

1. NHS Digital. Breast Screening Programme, England, 2022-23. [online] 2024 [cited 28 Jan 2025]. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/breast-screening-programme/england---2022-23
2. Duffy SW, Hudson S, Vulkan D, Duffy TE, Binysh K. Recovery of the breast screening programme following pandemic-related delays: Should we focus on round length or uptake? Journal of Medical Screening. 2022; 29(2): 99–103.

P24 The added value of lateral projections to standard 2 views, in women with breast augmentation in a screening population

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Pennine Breast Screening Unit, Bradford, United Kingdom

Background: Women with implants presenting for screening within the National Health Breast Screening Programme (NHSBSP) are offered the Eklund view, in addition to the standard 2 view mammography. National guidance suggests a lateral view may be helpful where an Eklund view is not possible [(1)].

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Our departmental protocol followed this guidance. However, we wanted to review if performing Eklund views had any added value.
Method: We identified all women with breast implants who attended for breast screening to a single unit between 2019 and 2023. All cases where a lateral view was performed as a replacement for the Eklund view were collated and reviewed by 7 film readers independently. Each film reader had >5 years of screen film reading experience.
Results: 2492 women with breast augmentation attended for breast screening and of these 45 (1.8%) had standard 2 view mammography plus lateral views instead of the Eklund view.
The film readers independently reviewed and reported that the lateral views did not add further information or changed patient management in any of the cases reviewed.
Conclusions: Performing the lateral view, when an Eklund view is not possible, was found to add no significant radiographic value. In these cases, standard 2 view mammography was adequate for decision making.
Results enabled a local change in practice to not undertake the lateral view in cases where the Eklund view was not possible.

1. (NHS Breast Screening Programme: Screening Women with Implants Public health England, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/624796/Screening_women_with_breast_implants_guidance.pdf Accessed 13 June 2024.)

P25 Audit of radiological and histological characteristics of breast interval cancers diagnosed during 2015-2020

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Introduction: Some interval breast cancers are not detected at screening due to masking [1,2]. We aimed to quantify this using an audit of interval cancers April/2015-April/2020 at Luton & Dunstable Breast Screening Unit, England.
Methods: Histological information (grade, tumour size, node positivity) was extracted on 540 of 982 women with interval cancer (12 with bilateral cancer) from the National Breast Screening System database (extract December/2022). Selection was at random, stratified by diagnosis by year since screening (n=180/year). Three radiological features were visually assessed by NZ: BI-RADS breast density (screening mammogram), new obvious radiological features on the diagnostic vs screening mammogram, and likely masking of the lesion at screening.
Results: Analysis included n=532 women (8/540 excluded due to insufficient imaging data). Most invasive cancers 343/508 were ductal (year-1 69%, year-2 67%, year-3 67%). Percent grade 3 was similar by year (year-1 35%, year-2 45%, year-3 38%), as was tumour size (median year-1 21.8mm, year-2 and y3 23mm). Results presented in Table 1. Breast density was similar by year (BI-RADS C/D respectively 31%%, 30%, 34%). Masking was approximately twice as common during the 1st year (118/176, 67%) compared with the 2nd or 3rd years (respectively 61/177, 34.5%; 51/179, 28.5%) (Figure 1). New radiological features increased through time (year-1 69/176, 39%; year-2 123/177, 69.5%; year-3 145/179, 81% (Figure 2).
Conclusion: There was a pronounced masking effect in the first year following screening, but this was not well characterised by BI-RADS density. Alternative methods to quantify potential masking effects might be useful.

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Parameter	Year 1 Abs number (%)	Year 2 Abs number (%)	Year 3 Abs number (%)	Research data Meshkat et al (3) Blanks et al (4)
Invasive				
IDC	**120 (69)**	**108 (66.7)**	**115 (66.5)**	**71.8%**
ILC	30 (17)	25 (15.4)	28 (16)	21.1%
Mixed	3 (2)	7 (4.3)	2 (1.2)	-
Other	6 (3.5)	8 (5)	8 (4.6)	4.2%
Not specified	10 (6)	1 (0.6)	5 (3)	-
Non (in situ only)	4 (2.3)	13 (8)	15 (8.7)	2.8%
No report	*12*	*15*	*18*	
Grade				
1	16 (10)	14 (10)	14 (9.5)	7%
2	**88 (55)**	**61 (45)**	**78 (52.5)**	**50.7%**
3	55 (35)	**61 (45)**	57 (38)	38%
No report +NS	*25*	*26*	*28*	
Total size				
< or = 20 mm	**77 (47)**	73 (43)	69 (39)	25%
>20 mm and <50 mm	72 (44)	**83 (49)**	**87 (49)**	**45%**
>50 mm	15 (9)	15 (8)	22 (12)	30%
Total size, mm	**Year 1** Median (mean)	**Year 2** Median (mean)	**Year 3** Median (mean)	
	22 (27.3)	23 (27.4)	23 (29.5)	27.7 (mean)

Figure 1

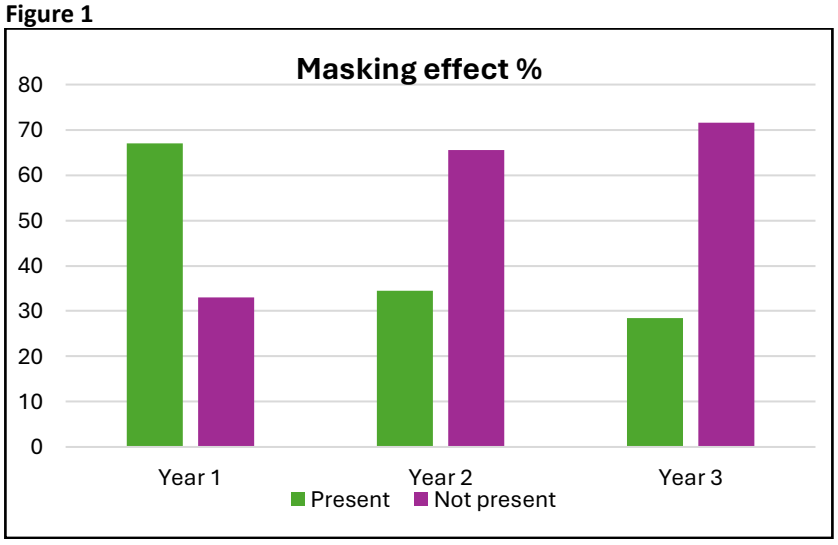

Figure 2

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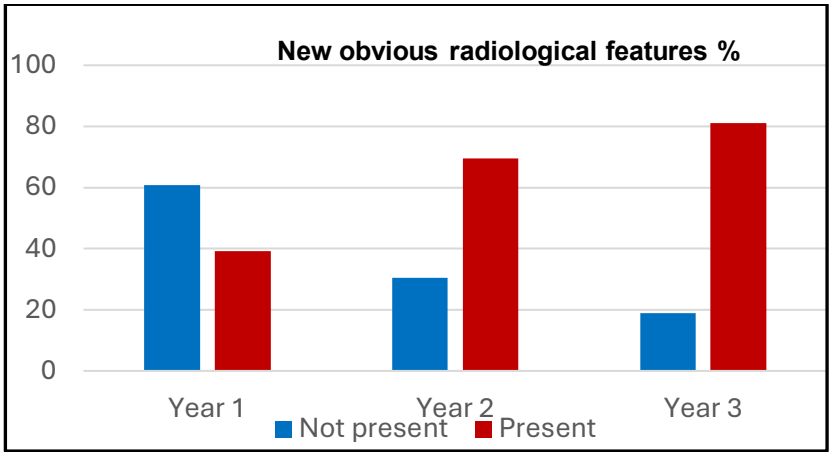

(1) Lowery, J.T., Byers, T., Hokanson, J.E. et al. Complementary approaches to assessing risk factors for interval breast cancer. Cancer Causes Control 2011; 22, 23–31
(2) Wanders, J.O.P., Holland, K., Karssemeijer, N. et al. The effect of volumetric breast density on the risk of screen-detected and interval breast cancers: a cohort study. Breast Cancer Res 2017; 19, 67
(3) Meshkat B, Prichard RS, Al-Hilli Z, Bass GA, Quinn C, O'Doherty A, Rothwell J, Geraghty J, Evoy D, McDermott EW. A comparison of clinical-pathological characteristics between symptomatic and interval breast cancer. Breast. 2015;3:278-82.
(4) Blanks RG, Wallis MG, Alison RJ, Given-Wilson RM. An analysis of screen-detected invasive cancers by grade in the English breast cancer screening programme: are we failing to detect sufficient small grade 3 cancers? Eur Radiol. 2021; 4:2548-2558.

P26 Accuracy of image guided needle localisations of breast lesions

Anna Griffiths, Hadir Fahmi
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There is an increasing trend towards breast conservation in the treatment of breast cancer. It is essential that impalpable lesions detected either on mammography or by ultrasound are accurately localised pre-operatively to enable successful surgical excision at the first operation. This audit assesses the accuracy of this procedure and reflects the repatriation of localisation marker insertions from a screening service to local health board.
Sample size was generated through Radis code associated with insertion of localisation markers between October 2023-March 2024 and data collated included: method and type of localisation, distance from the seed/wire or radiofrequency identification tag (RFID), nature of the lesion, if it was excised successfully and the operator performing the procedure. Data collected was entered onto excel.
99.3% localisation insertions were placed within 10mm of the abnormality. 92% were within 5mm of the abnormality. 60% of RFID's inserted were placed at the edge of the abnormality with one localisation recorded as outside the target of 10mm. All specimen radiograph were taken to ensure lesion was within the excised specimen.
The audit demonstrated the method of localisation influenced how accurate the localisation marker was placed and showed RFID localisations were not central to the lesion with most recorded at the edge/outside of the lesion for surgical excision.
As a result of the audit there has been a change to practice with regards to method of localisation and RFID’s will no longer be used for localisations of impalpable breast lesions within our health board preferring alternative magnetic seed localisation.
Figure 1. Shows the Pintuition localisation marker in a satisfactory position on the post procedure check mammogram

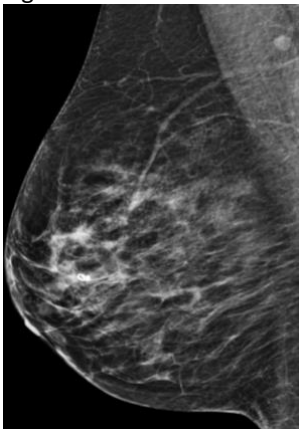

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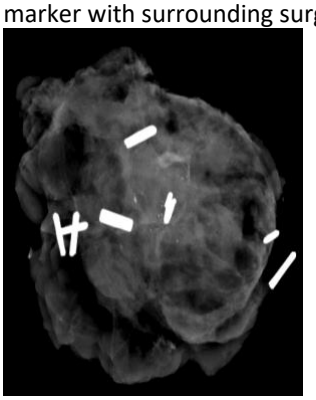
Figure 2. Shows the specimen image with the Pintuition localisation marker centrally next to the previously inserted twirl marker with surrounding surgical clips



Methodology

Inclusion Criteria	Exclusion criteria
Distance of wire/seed from lesion	Bracketing localisation
Type of localisation marker used	Multiple lesions within the breast
Method of localisation	
Nature of lesion (Mass, Microcalcifications, asymmetric density, architectural distortion)	
Operator (allows individual data for purposes of revalidation and highlights areas of training)	
Review specimen radiograph to ensure lesion within excised specimen	

Results

Method of localisation	YGC	YM	YG
Ultrasound	54	54	34
Stereotactic	11	6	5
Total	65	60	39

Type of localisation	Hospital 1	Hospital 2	Hospital 3
Pintuition	39	-	
Magseed	26	59	
Radiofrequency identification tag (RFID)	-	-	
Wire	-	1	
Total	65	60	

1. RCR. 2019. Guidance on screening and symptomatic breast imaging
2. ABS. 2023. Neoadjuvant chemotherapy: Multidisciplinary Guidance

P27 Evaluating radiological management of acute breast abscesses at a South West London NHS tertiary centre

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St George's University Hospitals NHS Foundation Trust, London, United Kingdom

Aim: To evaluate abscess management and patient outcomes following a breast abscess pathway introduced to direct casualty referrals to our breast radiology unit.
Introduction: Modern management of breast abscesses, a common presentation, increasingly employs a combination of antibiotic prescribing and ultrasound guided needle aspiration as opposed to surgical incision and drainage.
Method: We retrospectively reviewed all referrals from September 2019 – September 2022, examining clinical records, surgical correspondence, and radiology reports. Antibiotic prescribing, imaging procedures, surgical outcomes, follow-up frequencies, and time from ED presentation to radiology were documented. Dataset excluded cases of inflammatory breast cancers and paediatric patients.
Results: 79 women (mean age 36) with breast abscesses were identified, 22 (28%) of which were documented lactational

abscesses. Antibiotic was prescribed in 76 (96%) cases. An average of 3 ultrasounds and 2 aspirations were performed during each acute episode. Average amount aspirated on first visit was 12.8ml. Mean abscess size was 4.3cm where drainage catheter was used and 3.4cm where aspiration was used. 39/62 (63%) initial aspirations had a residual collection. 55/62 (89%) aspirated samples were sent for microbiology. Only 4 breast abscesses (mean size 4.7cm) underwent surgical intervention for incision and drainage. Average number of surgical follow ups was 3 and time from ED presentation to breast unit was 1 day.
Discussion: Radiological intervention is an effective first-line treatment for breast abscesses, although serial aspirations remain common. The study demonstrates successful treatment outcomes for majority of patients irrespective of abscess size, with only a limited number necessitating surgical intervention.

P28 Evaluation of clinical, radiological, and pathological concordance - auditing local practice

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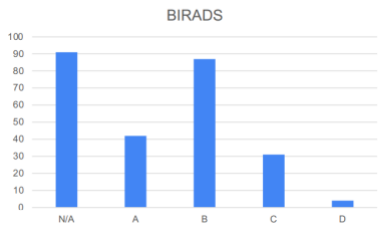
Purpose: On average in 2017-2019 UK there were 56,822 breast cancer cases[1]. The symptomatic triple assessment clinic takes referrals according to NICE guidelines[2] for the following: patients age >30 yrs with unexplained breast/axillary lump with/without pain.
The components of the triple assessment are clinical (P), imaging (M, U, UA) and if required a biopsy/FNA (B) for histological assessment.
Distinguishing between benign and malignant breast lesions solely by clinical/physical examination is clinician dependent and carries a risk of uncertainty and error. Core biopsy is considered to be a reliable test[3] used in the detection of breast cancer but is an invasive procedure requiring time and expertise. Our audit assesses the concordance of the different arms of the triple assessment clinic and aims to identify areas for improvement.
Methods: The P, M/U/UA, and B scores recorded in our symptomatic breast clinics over a 6 week period (July-August 2023) were retrospectively reviewed, identifying 255 patients. The standard was minimal to no discordance between clinical review, imaging and biopsy results.
Results: From the 255 patients concordance/discordance between each domain was assessed separately; there were 229/255 (90%) concordant clinical/radiological assessments, and of those patients with tissue sampling 42/42 (100%) had concordant radiology/histological assessments.
Conclusion and summary: These results demonstrate the importance of correlation of clinical assessment with radiological and histological assessment. Radiological evaluation provided excellent correlation with histological assessment. Clinical and radiological evaluation identified discordant results but overall 90% of assessments were concordant.

Results - Patient demographics

- Age range 16 - 91
- Average age 49
- Majority BIRADS B

Age min	16
Age Max	91
Age Average	49



Results - Clinical Assessment (P) & to Radiological assessment (M/U/UA)

Number of concordant assessments - 229

Number of discordant assessments – 26

Percentage discordant – 10%

Discordance C/R Y	229
Discordance C/R N	26

POSTER PRESENTATIONS

Results - Radiological assessment (M/U/UA) & Histology (B)

Number of concordant assessments - 42

Number of discordant assessments - 0

Assessments where not applicable - 213

Discordance R/B Y	0
Discordance R/B N	42
Discordance R/B N/A	213

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P29 Virtual family history teaching: Enhancing education and collaboration for breast clinician learners

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Background: Breast Clinicians (BC) are specialty and specialist (SAS) doctors providing vital support in breast radiology, surgical clinics, and family history (FH) services. In 2019, a nationally standardised training pathway called the Credential in Breast Disease Management was collaboratively developed by the Association of Breast Clinicians (ABC), the Royal College of Radiologists (RCR), the National Breast Imaging Academy (NBIA) and NHS England (NHSE). FH services across the UK exhibit significant heterogeneity, resulting in inequities in exposure to training and access to expertise.
Methods: Supported by NBIA, virtual FH teaching was organised for BC learners within the credential. Sessions featured presentations by FH consultants, BCs, geneticists, genetic counsellors, as well as BC learners. Topics included breast cancer genetics, gene testing, counselling, chemoprevention, FH-related projects, interesting FH cases etc. Sessions were structured to enable case discussions, workplace-based assessments, and interactive learning. Post-session feedback was collected to assess effectiveness.
Results: Four virtual FH teaching sessions have been successfully conducted since September 2023, with positive feedback highlighting their efficacy in providing FH training. Participants valued the opportunity to engage in interactive discussions, peer teaching and support, and skill-building activities.
Conclusion: Virtual FH teaching sessions have proven to be a valuable intervention for BC learners. This initiative demonstrates the potential for virtual FH education to overcome geographical barriers and support equitable FH training and services across the UK. These implications could extend beyond the immediate training period, suggesting a scalable model for fostering national professional networking and skill development in FH services.

P31 Rare benign breast lesions in male patients: A pictorial case review

Laila Alhassan, Mutsa Kangoni, Amina Tighilt, Emmanuel Sobamowo, Dimitrios Kitsos, Thamara Uyangoda, Colin Vos, Abdul Kasem, Ilaria Giono, Anna Metafa
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Aims and Objectives: To evaluate and describe the imaging characteristics of rare benign breast lesions in male patients over a 10-year period.
Method: A retrospective review was conducted on male patients diagnosed with rare benign breast lesions from 2014 to 2024. All patients underwent ultrasound breast examinations, followed by histological confirmation via core biopsy.
Results: The study identified a spectrum of benign breast lesions in male patients with varied imaging characteristics:

- Granulomatous mastitis
- Angiomyolipoma and angiolipoma
- Myofibroblastoma
- PASH and fibroadenoma
- Abscess and ruptured epidermal cysts
- Fat necrosis
- Bilateral gynecomastia presented as diffuse glandular proliferation with nipple enlargement and associated crusting.

Conclusion: Recognition of the ultrasound features of rare benign male breast lesions, combined with histological correlation, is essential for accurate diagnosis and appropriate management. Increased awareness of these lesions can prevent unnecessary interventions and ensure optimal patient care.

POSTER PRESENTATIONS

P32 Suspicious history protocol: A case study

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Purpose/Background/Objectives:
Mammographers are trained to recognise suspicious history signs within the screening appointment. Following NHSBSP guidelines these should be flagged but the decision to recall rests with the mammography image interpreters.[1]
ILC remains challenging to detect using solely two-dimensional mammography (FFDM).[2]
Case presentation: 64-year-old attending her fifth routine breast screening appointment. When answering routine screening questions the client disclosed bloody nipple discharge and recent nipple retraction on her left breast. Following the suspicious history reporting protocol, the mammographer flagged this for the image interpreter's attention.
Management: The screening images were reported as normal M1. However, due to the suspicious history flag, the client was recalled for assessment.
Physical assessment: P3
DBT: M5
US: U5
Biopsies performed.
Outcome: Invasive Lobular Carcinoma in two locations.
Treatment plan is neoadjuvant chemotherapy with breast conservation surgery to follow.
Discussion: FFDM/US is normally a reliable assessment tool for acute nipple inversion with a high sensitivity and NPV for excluding malignancy. However, clients reporting a lump or skin/nipple change at screening appointment are more likely to result in a screen-detected cancer than asymptomatic clients.[3]
ILC is often associated with a higher false negative detection rate for FFDM compared to other invasive cancers.[2]
Learning points: This case highlights the importance of mammographers checking and recording current symptoms/concerns. This cancer was non-palpable and occult on routine two-dimensional mammography.

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3. Hatcher KM, Leon A, Cornell LF, Jakub JW, McLaughlin SA, Maimone S. Evaluating acute nipple inversion, imaging findings and outcomes. Journal Clinical Imaging 2024. Available from: Evaluating acute nipple inversion, imaging findings and outcomes – PubMed

P33 A rare case of granular cell tumour - the breast cancer mimic

Amina Tighilt, Harita Sivashankar, Michael Michell, Bhavna Batohi, Juliet Morel, Clare Peacock, Rumana Rahim, Rema Wasan, Adam Brown, Charlotte Longman, Nikhil Patel, Keshthra Satchithananda
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Background/Purpose: Granular cell tumours (GCT) are rare accounting for 0.5% of soft tissue tumours, originating from the nervous system [(1)]. Even rarer in the breast, they account for 5-15% of all GCT's, occurring along the cutaneous branches of the supraclavicular nerve. They are mostly benign lesions with 1-2% showing malignancy. They usually present as a solitary, painless nodule, but may be multifocal, and are commonly found in the upper inner breast [(2)]. Their radiological findings mimic that of breast cancer.
Methods: We present a case of a 53 year-old female attending her first screening under the National Breast Screening Service. This highlighted an asymmetric density within the medial right breast in the "forbidden zone" of the retroglandular clear space, classified as M4. The patient was recalled for assessment. Ultrasound demonstrated a 15mm echogenic, elliptical, U4 lesion within the upper inner quadrant, with posterior acoustic shadowing.
Results: Histopathology results demonstrated focal areas of infiltration by cells containing abundant amounts of pale eosinophilic granular cytoplasm and small round nuclei. Immunohistochemical stains show that the infiltrating cells are positive for CD68 and S100, features in keeping with a granular cell tumour (B3). Surgical excision was recommended.
Conclusion: GCT's are rare in the breast but may mimic breast cancer. Although commonly benign, these lesions require follow up and surgical excision due to the uncertain risk of malignant potential.

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2. Rexeena BV, Augustine P, Ranjan Acharya Nitish, Cherian K, Anila RK. Granular Cell Tumor of Breast: a Case Report and Review of Literature. Indian Journal of Surgical Oncology [Internet]. 2015 Sep 2;6(4):446–8. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4809856/

POSTER PRESENTATIONS

P34 The diverse array of breast augmentation features - a pictorial review of interesting cases at a local NHS Trust

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Background: Breast imaging practitioners in our symptomatic breast departments encounter patients who present with a variety of breast implants. Breast augmentation is performed for both cosmetic reasons as well as in reconstruction cases after mastectomy. Breast augmentation materials used included silicone, fat transfers and filler injections.
Aim: To review the imaging features of both normal and abnormal findings in breast augmentation to raise awareness of the different presentations hence improve patient outcomes.
Imaging modalities: Optimal imaging techniques for breast implants are desirable for diagnosis of breast diseases which include mammography, ultrasound, and Magnetic resonance imaging.
Methods: Patients were selected from cases encountered from one stop clinics, MDT and surveillance / follow up mammograms database who had a history of breast augmentation. The patients in this review had their breast surgical augmentations performed either in the United Kingdom or in other countries thus presenting with a range of imaging features.
Results: Different imaging presentations will be presented as pictorial images with brief learning points.
Conclusions: Knowledge of both standard and unusual imaging features in breast augmentation is paramount in accurate diagnosis of breast disease as well as to increase patient safety.

P35 Patient experience and preference of Contrast Enhanced Tomosynthesis vs MRI: Findings of the CONTEST study

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Objectives: Contrast Enhanced Digital Breast Tomosynthesis (CE-DBT) is an advanced mammographic technique, acquiring Contrast Enhanced Mammography (CEM) and tomosynthesis images within the same breast compression. Emerging evidence suggests patient preference for CEM over MRI in breast cancer local staging, high-risk screening, and supplementary screening settings1-3, and for CE-DBT over MRI in the neoadjuvant setting.[3] Here we compare patient experiences in the diagnostic setting.
Methods: In our multi-centre, paired-comparison imaging study, symptomatic female patients had diagnostic CE-DBT and breast MRI. Questionnaires captured specific aspects of patient experience and overall preferences between the two procedures. Data was analysed using Wilcoxon signed rank test.
Results: 87 participants were recruited, 46 completed questionnaires for both CE-DBT and MRI. The majority, 74% of participants, reported a preference for CE-DBT. Concerns expressed about the MRI were mostly around feeling confined/enclosed, noise, and long duration in an uncomfortable position. Half of participants reported an excellent overall experience of CE-DBT, compared to 43% for MRI, $p = 0.001$. 59% reported non-breast pain during MRI vs 33% for CE-DBT, $p = 0.01$. However, breast pain was worse for CE-DBT, with 33% reporting moderate to severe pain vs 4% for MRI, $p < 0.001$. Half the participants found the CEM contrast unpleasant vs 24% for MRI contrast, $p = 0.022$. No differences were reported for level of anxiety during the test or discomfort during cannulation, $p > 0.05$.
Conclusions: Consistent with existing evidence, most participants preferred CE-DBT to MRI, despite breast compression duration being longer than CEM alone.

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3. Berg WA, Bandos AI, Sava MG. Analytic Hierarchy Process Analysis of Patient Preferences for Contrast-Enhanced Mammography Versus MRI as Supplemental Screening Options for Breast Cancer. J Am Coll Radiol. 2023 Aug;20(8):758-768. doi: 10.1016/j.jacr.2023.05.014. Epub 2023 Jun 30. PMID: 37394083.
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POSTER PRESENTATIONS

P36 Contrast enhanced mammography: Correlation and concordance of displayed glandular dose with mean glandular dose

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Background and aims: Contrast enhanced mammography (CEM) is a dual-energy mammographic technique that produces recombined images from acquired low energy (LE) and high energy (HE) images, highlighting areas of contrast uptake. Diagnostic accuracy is comparable with MRI.[1,2] Despite substantial evidence supporting clinical applications, evidence concerning patient dose is lacking. NHSBSP guidance recommends agreement of within 30% for displayed and calculated mammographic dose using phantoms[3]. We explore the relationship between displayed and calculated mean glandular dose (MGD) in CEM.

Methods: This is a retrospective data analysis study of CEM images. Parameters required to calculate MGD were extracted from DICOM tags, as well as displayed dose. MGD was calculated using the Dance model4 for each low energy (LE) and high energy (HE) image in addition to the combined dose. Correlation and concordance between displayed dose and MGD were calculated.

Results: 117 CEM studies from 87 patients were included, with a total of 1000 images: 203 CC views and 297 MLO views. Displayed and MGD for all parameters are shown in table 1. The mean combined LE+HE displayed dose and MGD agree to within 1%. The HE displayed doses are consistently higher than the calculated dose (mean difference: 9.0%, range: 4.9-13.2%) whilst the LE doses show both a positive and negative difference (mean difference: -2.2%, range: -10.9-8.9%). Correlation was near perfect for all parameters (0.993-1.000), concordance was slightly lower but remained excellent (0.987-0.995).

Conclusions: All displayed dose and MGD agreed to within 30%, with excellent correlation and concordance for all CEM dose parameters.

View	LE or HE	Displayed dose, mean (variance)	MGD, mean (variance)	Correlation coefficient (95% CI)	Concordance coefficient (95% CI)
CC & MLO n=500	HE+LE	3.22 (2.27)	3.20 (2.09)	0.996 (0.996-0.997)	0.995 (0.994-0.996)
	HE	0.88 (0.26)	0.80 (0.23)	1.000 (0.999-1.000)	0.987 (0.985-0.989)
	LE	2.35 (1.17)	2.40 (1.16)	0.993 (0.991-0.994)	0.991 (0.990-0.993)
CC only n=203	HE+LE	3.27 (2.32)	3.25 (2.14)	0.996 (0.995-0.997)	0.995 (0.994-0.996)
	HE	0.88 (0.26)	0.81 (0.23)	0.999 (0.999-1.000)	0.987 (0.984-0.989)
	LE	2.38 (1.21)	2.44 (1.20)	0.993 (0.990-0.994)	0.991 (0.989-0.993)
MLO only n=297	HE+LE	3.20 (2.25)	3.17 (2.06)	0.996 (0.995-0.997)	0.995 (0.994-0.996)
	HE	0.87 (0.27)	0.80 (0.24)	0.999 (0.999-1.000)	0.987 (0.985-0.989)
	LE	2.32 (1.14)	2.37 (1.13)	0.993 (0.991-0.994)	0.992 (0.989-0.993)

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2. Xiang W, Rao H, Zhou L. A meta-analysis of contrast-enhanced spectral mammography versus MRI in the diagnosis of breast cancer. Thoracic Cancer. 2020;11(6):1423-32.
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POSTER PRESENTATIONS

P37 Does the weight of initial VAB sample predicts malignancy and atypia upgrade risk in B3 lesions on subsequent VAE?

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Background: B3 breast lesions are predominately benign lesions with various malignancy risk (2-40%) [1]. Upgrade to malignancy on excision biopsy can be due to errors from small sampling size. Preliminary studies in our unit found that the majority of upgrades to malignancy occurred when initial biopsy sample weighed <3g. This study investigates whether the weight of stereotactic VAB samples can predict the upgrade risk of malignancy or atypia following VAE.
Methods: Single centre, retrospective analysis of all B3 breast lesions diagnosed by 10G stereotactic VAB from 1/1/2017 to 31/12/2019. These B3 lesions will then undergo 7G VAE. Weights of biopsy samples obtained by 10G VAB and 7G VAE were recorded. Upgrade of B3 lesions to malignancy or atypia was obtained from pathology records.
Results: 130 B3 lesions (Fig 1) were diagnosed on 10G stereotactic VAB (Atypia: 96, No atypia: 34).
9% (12/130) B3 lesions were upgraded to malignancy at 7G VAE. 83.3% (10/12) upgrades to malignancy occurred when the initial B3 lesion has associated atypia. 17.6% (6/34) upgraded to atypia at VAE.
No significant different in initial VAB weights between B3 lesions with no upgrade, upgrade to atypia or upgrade to cancer was found (Fig 4).
Conclusion: B3 lesions malignancy upgrade rate is 9% which remained stable since VAE management was introduced locally in 2012.
No correlation between initial weight and upgrade risk to atypia or malignancy could be identified, however, this may reflect small numbers and further work to expand this study may be beneficial.

Mammographic features	Stereo-guided biopsy (n=130)
Microcalcifications	97
Distortion	19
Mass	14

Figure 1: Mammographic features of B3 lesions that were sampled by stereo-guided biopsy.

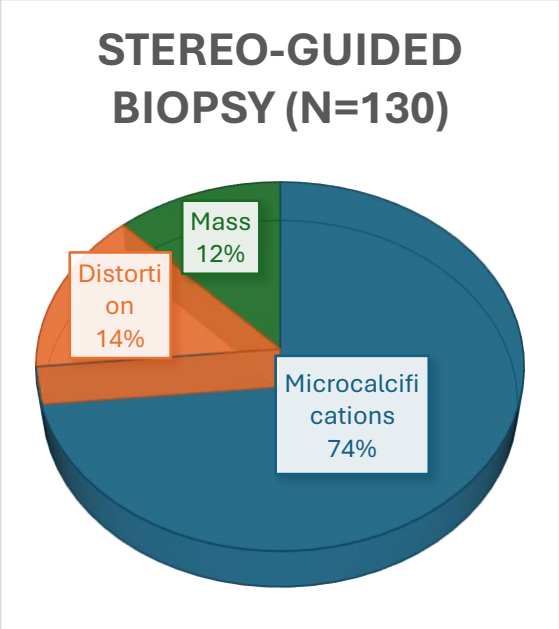

Figure 2: Pie chart showing mammographic features of B3 lesions that were sampled by stereo-guided biopsy.

	Total number	Min weight (g)	Max weight (g)	Average weight (g)
B3 lesions with no upgrade	112	0.6	11.6	2.93

B3 lesions upgraded to atypia	**6**	**1.1**	**5.7**	**2.86**
B3 lesions upgraded to cancer	**12**	**1**	**6**	**2.93**

Figure 3: Chart showing the minimum, maximum and average weights of the initial biopsied B3 lesions grouped according to subsequent VAE outcome.

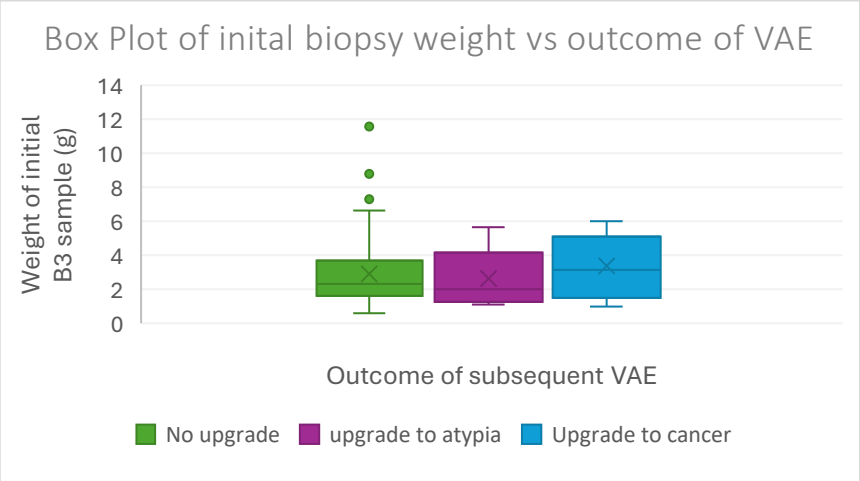

Figure 4: Box and whisker plot showing no significant different in the weight of initial B3 biopsy samples between the three different outcomes (B3 lesions with no upgrade, B3 lesions with upgrade to atypia and B3 lesions with upgrade to cancer).

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P38 **AI and radiologists' performance in detecting and determining calcifications for recall using dedicated test set**

Sarah Lewis[1], Phuong Dung Yun Trieu[2], Jayden Wells[2], Zhengqiang Jiang[2], Melissa Barron[2], Dania Abu Awwad[2], Tess Reynolds[2]

[1]Western Sydney University, Sydney, Australia, [2]The University of Sydney, Sydney, Australia

Background: Early breast cancer detection through periodic mammographic screening is crucial for reducing mortality and maximizing treatment options. Microcalcifications are common mammographic findings, present in malignant, benign and normal tissues. This study assessed radiologists' observer performance in determining suspicions calcifications requiring recall and was compared to an in-house AI model (Sydney-GMIC), trained and tested on Australian screening mammograms.

Methods: Radiologists (n=27), breast physicians (n=2) and final year radiology trainees (n=6), completed the same mammographic test set consisting of 30 mammographic cases displaying different types of calcifications (10 cancer, 20 normal/benign). Our Sydney-GMIC AI model was also applied to the same test set. The impact of reader experience and caseload on reader performance was interrogated, using independent-T and Mann-Whitney-U statistical tests. Reader performance was compared to the AI using a Spearman Rank-Order Correlation test.

Results: Sensitivity was significantly higher in radiologists with ≤ 10 years of experience, compared to radiology trainees (72.2% vs 53.3%, p=0.042). Readers with higher cases read per week (CPW) (i.e. 101-200 CPW compared to 0-20 CPW) has a decreased specificity (58.8% vs 74.6%, p=0.041) and a non-significant increase in sensitivity. The Sydney-GMIC AI model outperformed radiologists' averages in both sensitivity and specificity. Case difficulty was considerably different from AI to human readers.

Conclusion: Calcification recall remains challenging for readers, and further education is required to help meet recall thresholds and improve confidence. The performance of the AI highlights the potential utility of computer models in mammographic analysis of screening cases to progress to recall.

POSTER PRESENTATIONS

P39 **Does the availability of prior mammograms impact upon radiologists' performance in mammography interpretation?**

Judith Akwo[2], Phuong Dung Yun Trieu[2], Tess Reynolds[2], Melissa Barron[2], Sarah Lewis[1]
[1]Western Sydney University, Sydney, Australia, [2]The University of Sydney, Sydney, Australia

Background: The medical imaging diagnosis of breast cancer relies on the identification of malignancy changes in mammograms and other modalities. Comparing mammograms from two or more screening rounds may allow these suspicious changes to be detected. This study assesses the influence that the availability to prior mammograms has on radiologists' performance.
Methods: Eight participants interpreted 72 screening mammograms in two reading sessions. The first reading session included the previous screening mammograms, while the second round conducted at least 2 months after, did not. Standard observer performance measures for the two reading sessions were calculated and compared.
Results: The availability of prior mammograms improved radiologists' specificity (p=0.009) for both dense and non-dense cases (p≤0.01). Prior mammograms reduced false positives (p=0.01) and the risk of false positive recall (0.38; 95%CI:0.26–0.57, p<0.0001) but had no effect on sensitivity (p = 0.37), lesion sensitivity (p = 0.67), ROC (p = 0.16), and JAFROC (p = 0.24). An analysis of lesion types demonstrated the availability of prior mammograms improved the detection of spiculated/stellate lesions (p=0.05), but did not change radiologists' performance in detecting and classifying architectural distortions (p=0.48), calcifications (p=0.85), discrete masses (p=0.45), and non-specific density (p=0.22). The impact of prior mammograms on performance was not influenced by breast density or radiologists' characteristics.
Conclusions: Reference to prior mammograms improves specificity and reduces the false positive rate without affecting sensitivity and lesion sensitivity. Prior mammogram availability can improve the detection of spiculated/stellate lesions. The importance of a national database for prior screening rounds is emphasized.

P40 **Pitfalls and challenges of running a system for collecting images and data for validation of artificial intelligence**

Alistair Mackenzie[1], Ruben van Engen[2], Mark D Halling-Brown[1], Carlijn Roozemond[2], Lucy M Warren[1], Emma Lewis[1], Zahida Zahoor[1], Dominic Ward[1], Nadia Smith[3,1]
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Purpose: The MAIBAI project has been examining the challenges in collecting mammographic images for training or evaluating AI software. We aimed to incorporate the solutions to challenges into an image collection protocol.
Methods: We contacted OPTIMAM and Dutch PRISMA study consortium and collated their experiences on image collection. We have described some example challenges here.
Results: To acquire sufficient images to an adequately representative database of a screening population including all sub-groups, there may be a need to collect from multiple sites, including other organisations. Communication with the stakeholders is vital, to adapt to differences in organisations and ensure sufficient resources are available. It is mandatory to anonymise the data, but useful data can be removed or miss burnt in annotation. Hardware, software and network failures occur, and unless monitored, can cause a substantial pause in the collection and loss of data. There are practicalities in associating the images with the clinical data on radiology systems, which are more difficult due to variability in terminology. The ground truth of images may become inaccurate if data is not updated. Automated processes with a server are required as using hard drives is too time consuming.
Conclusions: Careful validation of an automated collection process can reduce the problems encountered. Full documentation is important to ensure the system is robust. The process needs to be tracked to spot errors early. The solutions have been incorporated into a protocol produced by the MAIBAI consortium to help anyone starting a collection process.

AWARDED WINNER OF BEST POSTER PRESENTATION

P41 **Evaluation of a digital breast tomosynthesis cancer detection ai algorithm using the Personal Performance in Mammographic Screening Scheme (PERFORMS)**

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Purpose: To compare the performance of a Digital Breast Tomosynthesis (DBT) Artificial Intelligence (AI) model as a standalone reader to that of a large cohort of breast imaging readers, using the Personal Performance in Mammographic Screening (PERFORMS) scheme.
Methods: 75 challenging combined DBT and Synthetic 2D mammography (S2D) screening cases were collated into a PERFORMS test-set. Test-set images were analysed by a prototype server allowing batch-processing of a commercial AI model (Hologic Genius AI® Detection v2.0). The set was also distributed to 96 readers from 7 UK National Health Service (NHS) hospitals that use DBT in screening as part of the PROSPECTS trial, and to 6 readers from 1 US institution that employs DBT in routine screening. The AI performance will be benchmarked against the performance of this reader cohort.
Results: The AI model achieved an Area Under the Receiver Operating Characteristic Curve (AUC) of 0.935, and a sensitivity of 89.5% and specificity of 85.7% at the optimal threshold (=33). At the time of submission, 35 human readers from the cohort have completed the test-set, with a mean human sensitivity of 90.8% (SD: 8.8%) and specificity of 85.2% (SD: 16.1%). Currently, there are another 42 readers completing the test-set; their data will be collated with the current cohort and the complete cohort will be reported at the conference.
Conclusion: This international, Multiple Reader Multiple Case (MRMC) study enables the comparison of a very large cohort of breast imaging readers to a DBT AI model.

P42 Requirements and barriers to implementing supplementary breast cancer screening in women with dense breasts across Europe: A cross-sectional survey

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Purpose: This study examines the requirements for implementing supplementary breast cancer screening across Europe, exploring current practices and guidelines, exploring staff awareness of protocols, identifying obstacles to practice change, and evaluating staff readiness to adopt supplementary screenings.
Method: A descriptive, cross-sectional online survey targeted radiographers and radiologists working in European breast cancer screening units. A total of 83 participants from various countries including Austria, Belgium, Ireland, Latvia, Malta, Norway, Portugal, Spain, and the United Kingdom completed the survey over 6 months. Descriptive and inferential statistics, including the Friedman test, were used to analyse differences in awareness, barriers, and readiness to implement supplementary screening across groups.
Results: Among the 83 respondents, 95.2% (79/83) were actively involved in breast cancer screening programs, with the remainder not directly engaged. Frequently used supplementary methods included hand-held ultrasound (45.8%, 38/83), MRI (22.9%, 19/83), and Digital Breast Tomosynthesis (32.5%, 27/83). Key barriers included extended waiting times (mean rating score =3.99), costs (mean rating score =3.98), and increased workload (mean rating score =3.95). Factors influencing implementation included cancer risk (mean rating score =3.70) and equipment availability (mean rating score =3.40), while patient preferences (mean=2.16) and cost-effectiveness (mean rating score =2.77) ranked lower. The significant variation in responses ($p < 0.001$) highlights differing priorities, particularly regarding training and resource needs.
Conclusion: There is high awareness of the importance of supplementary screening, yet its implementation is limited by resource and organisational challenges. Enhanced training and clear guidelines would be strongly suggested to facilitate these changes across Europe.

P43 Quantifying the imaging processing parameters used in breast screening over 14 years

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The variability of image processing techniques used in mammography systems poses a challenge to consistent breast screening as well as the integration of AI in image interpretation. The aim of this study was to quantify the number of image processing algorithms used by different mammography systems over time. As part of quality control, images of the TORMAM test object are acquired with clinical image processing. Over 600 processed images of the TORMAM phantom acquired between 2011 and 2024 were collated across 40 different mammography systems.

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Information of the system settings are found in the DICOM header. An in depth review of DICOM tags from TORMAM images demonstrated considerable variability in both the acquisition workstation software version and the image processing settings used over time. 3 to 14 different versions of software for the acquisition workstation were used over time, with up to 5 different versions being concurrently used in Hologic systems. The DICOM information for the image processing used for the Hologic system, showed an increase in the number of available settings with each subsequent upgrade to the acquisition workstation software.
There should be collaborative efforts between medical physicists, clinical staff and manufacturers to understand the effects of image processing and software versions on the quality of the images and subsequent clinical outcomes. In addition, developers of AI software, need to be aware of the differences in image processing can have on their software, especially as their training set of images may appear different for current images.

Mackenzie, A., Loveland, J., & van Engen, R. Survey of image processing settings used for mammography systems in the United Kingdom: How variable is it? (2024). In Proceedings of SPIE (Vol. 13174).

P44 Skin tears in mammography: Combined findings from a narrative and netnographic review

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Background: Mammography exerts a compression force on the breast tissue for the imaging practitioner/mammographer to obtain a high-quality image for diagnostic purposes. However, when compression force is applied during mammography resulting incidences of cutaneous skin tears can occur. Lack of and under reporting of skin tears associated with mammography makes it difficult to ascertain the extent of this problem and scale of its incidence. Yet online discussion forums highlight women's traumatic experiences of this important complication.
Methods: The purpose of this combined narrative review[1] and netnography is to focus on providing an overview of skin tears associated with mammography, and a discussion of the current literature with regards to incidence and diagnosis. This will be against a backdrop of the multifaceted impacts of skin tears resulting from mammography by analysing online discussions and highlighting the importance of addressing this complication.
Results: It is crudely estimated that in the UK 2% of women may potentially go on to develop skins tears annually (n= 3940 /1.97 million)[2]. The findings reviewed point to the detrimental implications these complications along with fear and anxiety have on breast cancer screening programmes and symptomatic services.
Conclusion: To address the lack of information on the epidemiology and extent of the issue, prospective studies are warranted to provide the evidence needed to devise appropriate prevention and management strategies. Monitoring of the complications after a mammogram are required through development of a mechanism of regular reporting and surveillance of these complications.

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P45 Low cost test objects for local quality assurance in contrast enhanced mammography

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Purpose: Create low-cost iodine doped test objects for local quality assurance (QA) of contrast enhanced mammography (CEM) systems.
Background: CEM is increasingly becoming part of the clinical pathway within the diagnosis and treatment of breast cancer. Currently there is limited guidance on CEM QA and test objects are usually beyond the budget of imaging departments. Previous work created a low cost iodine test objects using printer ink cartridges doped with iodine contrast agents(1).
Objectives

(1) Create an iodine doped test object using low-cost materials
(2) Evaluate QA testing of test object
(3) Establish a QA protocol for user QA

Methods: *Method 1: Soaked material*
Omnipaque was diluted into concentrations of iohexol (2, 1 and 0.5 mg/cm^2). Absorbant materials (watercolour paper and gauze) were soaked in the solution, dried, cut and laminated into 2cm^2 square pieces.
Method 2: Cured resin mixture
Iohexol was mixed resin to a concentration of 41 mg/ml and was cured in a thin layer then laminated into a 2cm^2 square piece.

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All test objects will then be tested for their applicability as test objects for local QA by analysing their CNR(2) and stability.
Results: For method 1: Watercolour paper was found not to be suitable, a double-layer of gauze was found to produce a suitable CNR, costed at £13. Method 2 cured resin mixture gave a suitable CNR, and was costed at £3.
CNR results varied proportionally with increased iodine concentration, and inversely with Perspex thickness. Method 1 gave CNR results which varied across manufacturers (Hologic CNR > GE CNR) and within the same manufacturer. Method 1 would require further research to determine whether variations are due to phantom prototypes or Mammographic equipment.
Method 2 CNR > Method 1 CNR (for GE equipment), it is determined that the resin mixture phantom produced a more consistent CNR. Method 2 has been used for a 3 month period of local QA and found to give consistent CNR results for 2 thicknesses.
Uniformity was tested for both phantoms, Method 1 tests show different amounts of SNR deviation across manufacturers (3% GE, 18% Hologic).
Conclusions:

- Low-cost test objects were created using iohexol and readily available materials, two methods of production were successful.
- The resin phantom was the most cost-effective and is recommended for further development as it produced more reliable CNR results
- A local QA protocol was established and showed consistent results over a 3 month period
- Method using watercolour paper was not successful

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P46 Comparison of QC testing and equipment performance for contrast enabled mammography systems

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Background: Contrast-enhanced mammography (CEM) administers an iodinated contrast agent followed by dual-energy x-ray exposures. A recombined image is formed which supresses surrounding tissue to highlight areas of iodine uptake which aid in breast cancer detection. CEM provides an alternative method of image acquisition that is comparable with Magnetic Resonance Imaging (MRI) used for high-risk screening. There is no formal guidance for the routine testing of the dual energy exposure capabilities on a CEM system.
Method: Undertake quality control (QC) testing on contrast enabled mammography equipment from three leading system manufacturers, replicating testing methodologies outlined in equipment technical evaluations published by NCCPM with a focus on automatic exposure control (AEC) performance and mean glandular doses (MGD) to breast. Testing utilised the CIRS Inc. contrast phantom. The phantom consists of varying ratios of adipose and glandular tissue and a target block, containing iodine concentrations of 0.2, 0.5, 1.0 and 2.0 mg/cm at diameters of 10, 5 and 3mm. Investigate QC results, comparing equipment performance between manufacturers. Propose testing methodologies and remedial tolerances that can be applied across all CEM systems.
Conclusions: QC Testing is reproducible across each system, with good correlation to the technical evaluation published by NCCPM. Signal differences in processing algorithms between manufacturers demonstrated some variation but confirmed subtraction of 'normal breast tissue' from the recombined image. Due to differences in clinical default settings, systems of the same manufacturer demonstrated some difference for MGD and CNR. MGD results for all systems were comparable to the existing NDRL for screening mammography.

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P47 Factors affected mammography screening uptake among Southern Vietnamese women

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Background: Breast cancer is the most common cancer among Vietnamese women. While mammography is an effective screening tool, its uptake rate in Vietnam remains low (~10%) due to the lack of national screening guidelines, limited insurance coverage, and patient concerns. Identifying barriers to mammography uptake is essential for improving early detection, especially on the regularity.
Material and methods: A cross-sectional study was conducted among 202 women aged ≥40 attending the Breast Department of a tertiary hospital in southern Vietnam for breast cancer screening. Participants was interviewed demographic characteristics, Health Belief Model questionnaire, mammography uptake and regular mammography screening. The sample was divided into three groups: (1) No mammography, (2) First-time uptake and (3) Repeat mammography
Results: Mean age was 50.1 years (SD ± 7.1). Despite the low national uptake, our center reported a 76% mammography uptake rate. Among 114 women with repeat mammography, 68% had regular screening (every two years), while 32% had irregular uptake. Age ≥ 50 (OR 3.5, 95% CI 1.7 – 7.5), chronic disease (OR 2.1, 95% CI 1.0 – 4.8), history of breast disease (OR 3.3, 95% CI 1.6 – 6) was associated with mammography screening. Multiple regression showed an association between barriers and mammography screening with OR 0.9, 95% CI 0.87 – 0.97, p = 0.003. Misunderstand what mammography would be done and did not receive the recommendation taking mammography from medical staff were barriers declined mammography. Women ≥ 50 years old, received cues to action increased the ability regularity mammography with OR 1.2, 95% CI 1.0 – 1.4, p = 0,047.
Conclusions: Intervention should be based on solving barriers through patient education and increased physician recommendations to improve mammography uptake rates and increasing cues to action to promote the regularity mammography screening of Vietnamese women.

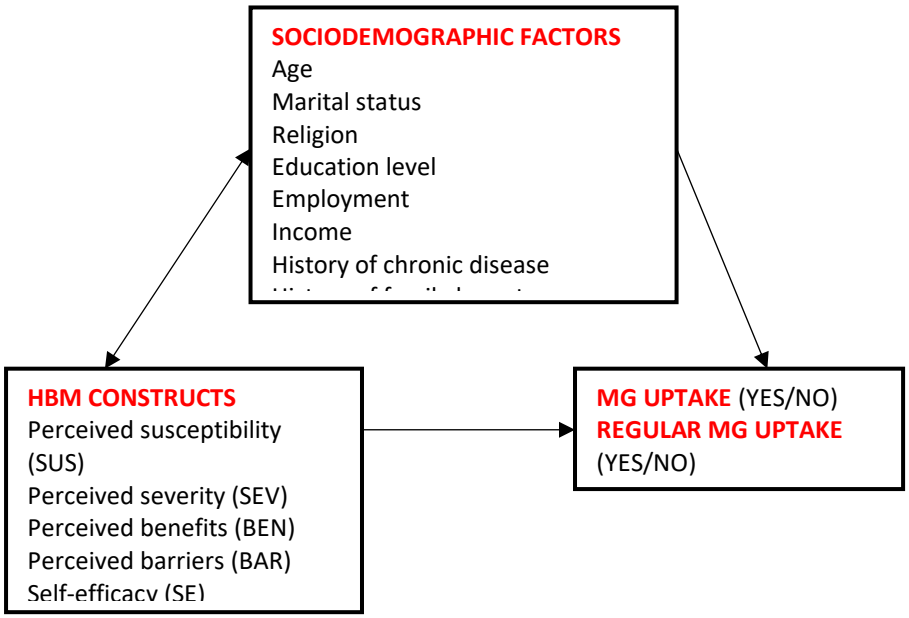

Figure 1. Methods of a cross-sectional study to assess the association between HBM constructs and MG uptake

Table 1. Multivariate logistic regression analysis for MG uptake and regular MG uptake

	MG uptake		Regular MG uptake	
Variables	OR (95% CI)	p	OR (95% CI)	p
Age ≥ 50	3.6 (1.6-8.2)	0.002	2.4 (0.9-6.1)	0.06
Employment				0.06
Income > 275 USD			0.7 (0.3-1.9)	0.5
History of family breast cancer			2.4 (0.5-12.1)	0.3
History of benign breast disease	4.1 (1.9-8.8)	<0.001		

History of chronic disease	1.7 (0.7-4.3)	0.2		
Perceived barriers	0.9 (0.87-0.97)	0.003		
Cues to action			1.2 (1-1.4)	0.047

Embarrassing OR 0.7 (0.5-1)
Fear of unknown procedure OR 0.3 (0.2-0.5)
Not receiving the recommendation of taking mammography from medical staff OR 0.4 (0.3-0.6)``````````

Information about breast cancer on media, newspaper OR 1.8 (1.1-2.8)```

	MG uptake		Regular MG uptake	
Constructs	OR (95% CI)	p	OR (95% CI)	p
Perceived susceptibility (SUS)	0.9 (0.8-1.1)	0.5	0.9 (0.8-1.1)	0.3
Perceived severity (SEV)	0.9 (0.9-1.1)	0.8	0.95 (0.9-1)	0.3
Perceived benefits (BEN)	1.1 (1-1.2)	0.01	1 (0.9-1.1)	1
Perceived barriers (BAR)	0.9 (0.9-1)	0.048	0.96 (0.9-1)	0.1
Self-efficacy (SE)	1 (0.9-1.1)	0.5	1 (0.9-1.1)	0.9
Cues to action (CTA)	1.1 (1-1.3)	0.03	1.1 (1-1.4)	0.05

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P48 Impact of introducing CanRisk for breast cancer risk assessment on mammographic surveillance for family history of breast cancer

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Background: NICE guidelines (CG164) recommends that a person with no personal history of breast cancer presents with breast symptoms or has concerns about relatives with breast cancer, a first- and second-degree family history should be taken to assess risk to allow appropriate classification and care. CanRisk is a comprehensive risk prediction model offering individualised risk assessment compared to clinical algorithms based solely on family history.
A comparative study was created to compare the results of risk assessment done using CanRisk with the standard practise based on NICE guidelines. By utilising this software technology, we were hoping to deliver more individualised care plan in terms of mammographic surveillance and risk reduction strategies.
Objectives: To Compare the risk categories as assessed by NICE guidelines with CanRisk.
Methods: The females referred to family history clinic for breast cancer from June 2023 to October 2024 risk were risk assessed using both NICE guideline and CanRisk. Risk categories as assigned by two methods were compared against each other.

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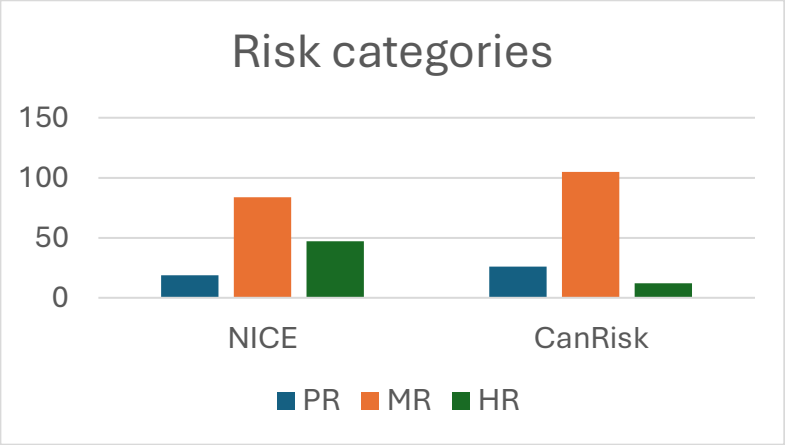
Results: Of the total 150 ladies, 91 showed consistency in the risk category. 31 were downgraded and 13 were upgraded in their risk by CanRisk.
Conclusions: 1. Introducing CanRisk as a risk assessment tool has brought down the overall ladies who would have otherwise received annual mammograms until 50 to 49 by 18.7%.
2. Though a decrease in the overall number of high risk group was noted, there was increase in moderate risk category ladies.

Breakdown of risk category by two models

Nice	Canrisk
HR- 47 (31.3%	HR-19 (12.6%)
MR- 84	MR-105
PR- 19	PR- 26



PR- near population risk
MR- Moderate risk
HR- High risk

Discrepant results

NICE	CanRisk	
HR	MR	28
HR	PR	3
PR	MR	12
MR	PR	15
MR	HR	1

Risk categories (NICE guidelines)

	Near population risk	Moderate risk	High risk
Lifetime risk from age 20	Less than 17%	Greater than 17% but less than 30%	30% or greater
Risk between ages 40 and 50	Less than 3%	3 to 8%	Greater than 8%

Mammographic surveillance- Local protocol

Age categories	Population risk	Moderate risk	High risk
30-39	nil	nil	Consider annual mammography
40-49	nil	Annual mammography	Annual mammography
50-59	Mammography as part of population screening	Mammography as part of population screening	Annual mammography
60-69	Mammography as part of population screening	Mammography as part of population screening	Mammography as part of population screening

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P49 Investigating incidental breast lesions identified by computerised tomography

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Introduction: Most breast lesions are identified through screening programmes and symptomatic clinics. Incidental breast lesions have been found to be reported in 0.7% to 7.63% of chest CT scans, [1-3] with studies reporting between 24% to 70% of these lesions as malignant [1-5]. Given the increasing application of CT imaging, this study aims to investigate the outcome of breast lesions identified incidentally on CT scans performed for non-mammary pathology.
Methodology: Retrospective study over an 18-month period (1st December 2022 - 1st June 2024). All reports of thoracic and abdominal CT examinations performed at NWAFT hospitals containing the keyword 'breast' were reviewed. Patients with incidental breast lesions were searched on the Trust clinical portal for further investigations and outcomes.
Results: Forty-one patients had positive findings, 33 were referred to the breast unit for an incidental breast lesion finding with two patients having two lesions detected. 8 non-referred patients detected during data collection were discussed with the Breast Radiology Lead who advised against follow-up at this time. 1 referred patient did not attend appointment and 1 declined further investigation. Of the 31 patients reviewed, 5 primary breast cancers were identified (16.1%), benign pathologies identified in 20 patients (64.5%), and no breast pathology detected in 6 (19.4%).
Conclusion: These results demonstrate the importance of referring CT detected incidental breast lesions. CT is not recommended for the diagnosis of breast malignancies but with more sensitive CT techniques and rising usage across the UK, there should be increased awareness to refer incidental lesions.

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P50 Elastography of U2 lesions: Can we avoid biopsies

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Aim: To evaluate elastography in solid U2 lesions and compare this with final histology.
Background: As part of the departmental protocol, we perform biopsies of all solid U2 lesions in individuals over 29. Shear wave elastography in U2 lesions may avoid the need for breast biopsy, reducing the number of benign biopsies.
Methodology: We evaluated 219 breast lesions undergoing biopsies with shear wave elastography on a GE Ultrasound machine. A cut-off value of 80 kPa (based on other publications1) was used, where anything below this threshold was considered a soft lesion. Of these, 45 lesions were classified as BiRads category 2, all demonstrating stiffness values below the cut-off and therefore classified as soft. The gold standard was histopathology.
Results: The mean age of patients was 45.7 years. 41 cases had stiffness values indicating soft lesions (true negatives). 4 cases had high stiffness values (false positives). All U2-classified lesions with soft elasticity had benign histopathology (23 fibroadenomas, 3 cysts, and the remaining were B1). No false negative results were recorded.
Conclusion: This study suggests that biopsies can be safely avoided in solid U2 lesions with soft elasticity in a symptomatic setting. This ongoing study aims to collect data on 400 U2 lesions before safe implementation in our unit in line with Evans et al . The findings have the potential to significantly reduce radiologist and pathologist workload, MDT time, and results clinic time, allowing for a more focused approach to complex patient pathways.

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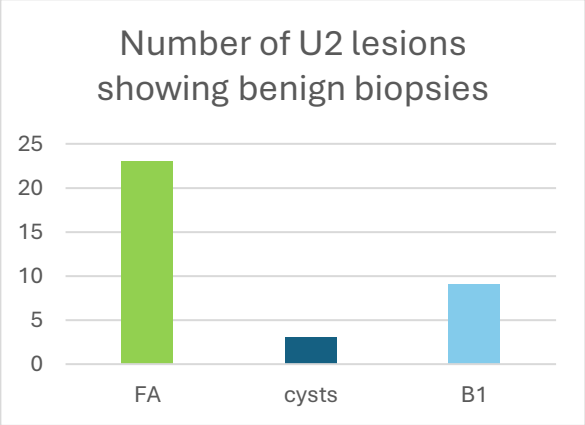

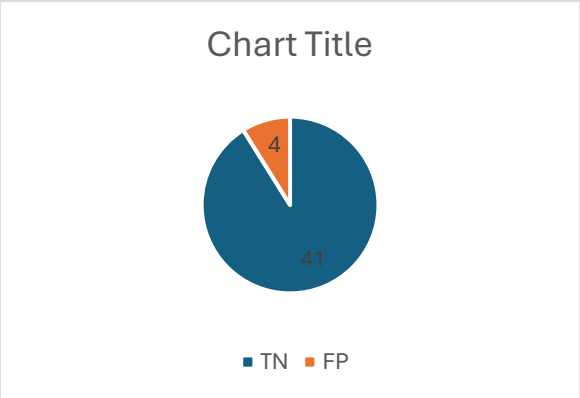

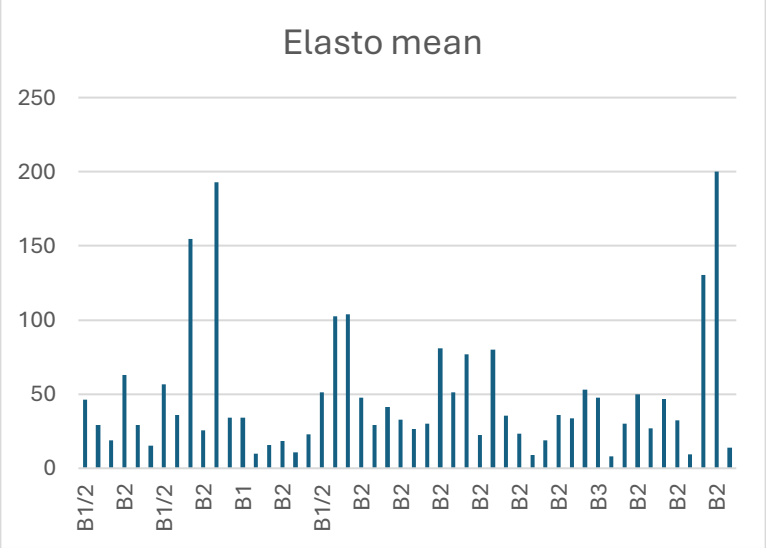

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P51 **To determine the shear wave elastography kPa cut off value on GE ultrasound machine for malignant breast lesions**

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Background: Shear wave elastography (SWE) is an ultrasound tool evaluating tissue elasticity, measuring stiffness in kilopascals (kPa). Studies have demonstrated SWE has high sensitivity and specificity when assessing the stiffness of breast lesions [1,2]. This study aims to establish a kPa cut-off value for malignant lesions on GE ultrasound machines.
Methods: This single-centre study includes patients of all ages from symptomatic and screening services. 219 lesions requiring biopsy underwent elastography. Using four regions of interest in two planes, a mean kPa value was calculated lesions and compared with histopathology results. Lesions were categorised as benign (B1, B1/2, B2 and B3) or malignant (B5a and B5b). To determine the range in which 95% of malignant lesions will be, we used the two-standard deviation rule on malignant mean kPa. Imaging, clinical information, and histopathology results were obtained from the Radiology Reporting System.
Results: • Mean stiffness value for malignant lesions was 207.30 kPa with a standard deviation of 61.65.
• Using the two-standard deviation rule, 95% of the malignant elastography values ranged from 83.99 to 330.61 kPa.
• 84 kPa could therefore be a useful cut-off to confirm a stiff lesion increasing the confidence of malignancy, comparable with previous studies' findings[3].
• With 95% confidence the true cut-off value is between 75.83kPa and 92.17 kPa
Conclusion: 95% of the malignant lesions had a kPa value between 83.99 and 330.61. It provides evidence that using a value of 84 kPa for SWE on GE machines effectively increases the confidence of malignancy.

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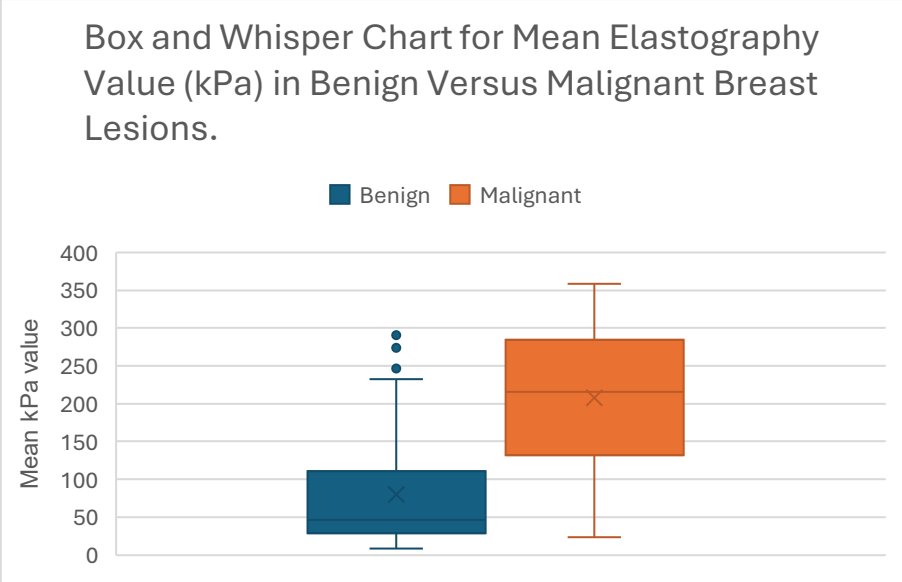

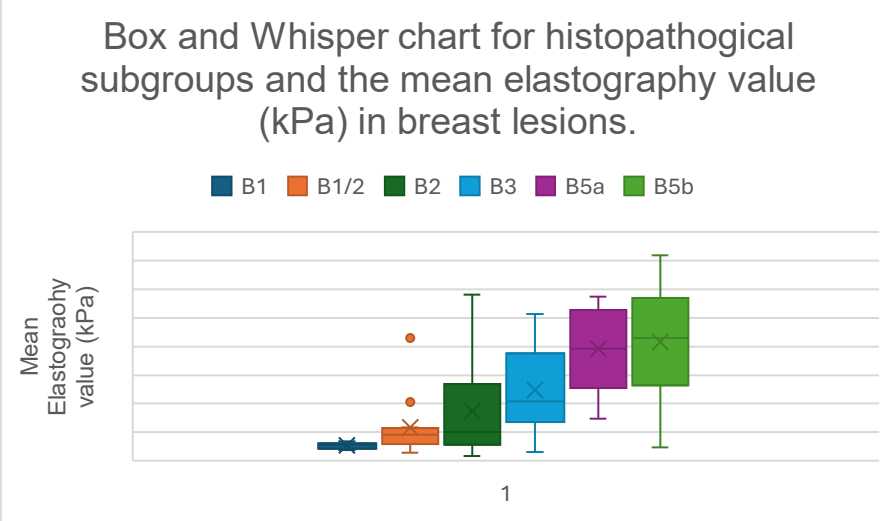

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P52 A service evaluation to assess the yield of second look axillary ultrasound scans following breast magnetic resonance imaging where a breast cancer diagnosis has been made

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Background: Newly diagnosed breast cancer patients may undergo a breast MR for a variety of indications. This can enhance axillary findings and the accuracy of preoperative nodal staging. When MRI demonstrates suspicious axillary findings a second look ultrasound scan is recommended. An investigation into whether the second look scan is worthwhile helps determine whether there should be a low threshold for second look axilla scans if nodes look abnormal on the MRI scan.
Aim: The aim of this study is to assess the yield of second look ultrasound axilla scans following MRI and its added value in staging the axilla in selected patients with a newly diagnosed breast cancer.
Method: A Service Evaluation, looking at quantitative data was carried out as part of a retrospective data set.
Results: Results demonstrated that a second look axilla ultrasound scan is worthwhile following an MRI scan in a patient with a newly diagnosed breast cancer. The second look ultrasound correctly identified an additional 14 lymph node positive patients that weren't identified at the time of the initial symptomatic scan.
Conclusion: Second look axillary ultrasound when performed following suspicious axillary findings on MRI identified lymph node metastasis in 28.6% of patients. This demonstrates that when MRI is performed to evaluate the breasts in

patients with a newly diagnosed breast cancer, axillary findings can increase the accuracy of preoperative nodal staging and therefore, changes treatment planning. there should be a low threshold for a second look axilla scan if the nodes appear abnormal on MRI.

P53 Music intervention during stereo-guided vacuum assisted biopsy-effect of music on pain and overall experience

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Introduction: Tissue retrieval and pathological examination is a key principle in the assessment process of breast abnormalities for both Symptomatic and NHS Breast Screening Services. Stereotactic breast biopsies are the best diagnostic tool for the evaluation of micro calcifications and Ultrasound occult asymmetric densities. Patients report these biopsies are painful [4], uncomfortable [3] and anxiety inducing [2]. Music being played during breast biopsies has been shown to help alleviate these factors [1,2].
Method: Recruitment criteria met (table 1).Patient information leaflet given prior to recruitment. Consented for participation. Stereo VAB procedure completed with randomised allocation to music or no music group. Randomisation predetermined using a random number selector and a randomisation schedule created. Non concealed allocation used. Details of procedure recorded in procedural log. Microsoft Forms questionnaire designed. Nine questions and one free text entry comments box. Questions were a mixture of; three closed questions, two rating scales, four 5 scale Likert scale agreement statements. Biopsy performed with Classic FM playing. Questionnaire completed immediately post procedure. Results analysed; Two paired student T test performed, one for pain scores and one for experience scores between music and control group.
Results: Table 2 displays biopsy characteristics and descriptive statistics. Table 3 displays questionnaire responses post procedure. Both paired student t test shows the result is not significant at $p < .05$
Conclusion: Music playing hasn't shown statistical significance at reducing pain or enhancing the patients experience.

Table 1

Table 1: Criteria for music intervention study								
Inclusion Criteria								Exclusion Criteria
NHS BSP clients recalled to assessment requiring a stereotactic vacuum biopsy								have a medical condition or impairment, that a member of the research teams feels you will be unable to particpate in the study
								have been unable to fully complete the stereotactic vacuum biopsy
								have more than one biopsy site
								Require a repeat stereotactic vacuum biopsy
								Single Advanced Practitoner staffing assessment clinic

Table 2

Table 2 Sample Characteristics n=32				
		n	M (SD)	Range
Equipment				
GE		32		
Lesion Location				
UOQ		25		
UIQ		2		
LOQ		2		
LIQ		3		
Lesion Type				
Asymetric density		4		
Calcification		27		

Distortion		1		
Biopsy Approach				
CC		23		
LM		5		
ML		3		
MLO		1		
Operator				
A		15		
B		15		
C		2		
Number of staff assisting during biopsy				
1		1		
2		25		
3		6		
Volume & strength of anathesia				
10ml 1% Lidocaine		32		
Procedure length (mins)			29.8	20-47

Table 3

Table 3 Questionnaire responses n= 26 (questionnnaires not returned n=6)						
Questions				n	M (SD)	Range
Did you have background music						
Y				14		
N				12		
Overall pain rating of the biopsy					4	01-Oct
Overall experience rating of the biopsy					8	01-Oct
I think music playing would enhance my experience during a biopsy						
Strongly Agree				7		
Agree				11		
Neutral				3		
Disagree				2		
Strongly Disagree				3		
I think music playing is helpful to distract me during a biopsy						
Strongly Agree				4		
Agree				8		
Neutral				11		
Disagree				0		
Strongly Disagree				1		
I think having a choice of music would be best during a biopsy						
Strongly Agree				4		

Agree				8		
Neutral				11		
Disagree				0		
Strongly Disagree				1		
I think music playing would help reduce any pain I might experience d during a biopsy						
Strongly Agree				7		
Agree				7		
Neutral				7		
Disagree				2		
Strongly Disagree				1		
Choice of music in future						
Y				20		
N				6		
Enhance experience						
Choice of music				11		
Oil Diffuser				5		
Mood Lighting				5		

Table 4

Table 4 unpaired T-test for biopsy experience for music and non-music group						
Group		n		sample mean		sample standard deviation
music		15		7.27		3.08
non music		12		7.92		2.35
T= 0.96						
df=25						
significance level 0.05						
accept null hypothesis						

Table 5

Table 5 unpaired T-test for pain for music and non-music groups						
Group		n		sample mean		sample standard deviation
music		15		3.6		3.46
non music		13		3.92		2.67
T= 0.96						
df=26						
significance level 0.05						
accept null hypothesis						

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P54 Quality improvement project implemented in our screening department, focusing on the introduction of Vacuum-Assisted Excision (VAE) techniques from 2017 to the present

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This presentation discusses a quality improvement project implemented in our Screening Department, focusing on the introduction of Vacuum-Assisted Excision (VAE) techniques from 2017 to the present. The project highlights our journey in enhancing cancer diagnosis rates while significantly reducing unnecessary diagnostic excisions for breast patients.
In 2014, our department was identified as an outlier for pre-invasive cancer diagnosis, with a low rate of 78% and a high benign excision biopsy rate of 3%. This was largely due to the absence of VAE, which led to all patients being referred directly for surgical excisions, resulting in low preoperative diagnostic accuracy.
The introduction of VAE in 2017 transformed our practice. This cost-effective technique is performed under local anaesthesia, minimises scarring, and requires specialised expertise. VAE enables the removal of enough breast tissue for detailed examination, facilitating the identification of suspicious lesions while effectively managing benign conditions.
As of the 2023/2024 performance year, our key performance indicators (KPI) show remarkable improvement, with invasive cancer diagnosis rates at 99% and non-invasive at 96.5%. The benign excision rate has decreased to 0.19%. In 2024, we performed VAE on 70 patients, resulting in 53 benign downgrades and 17 cancer upgrades. Additionally, VAE has saved the trust nearly £100,000, as day procedures cost approximately £4,000 compared to just £415 for VAE.
VAE has significantly enhanced patient care by improving diagnostic accuracy and reducing the need for surgical excisions. Its implementation has high preoperative diagnosis rates, decreased referrals for surgical excisions and improved cancer detection.

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P55 Implementing contrast-enhanced mammography in routine clinical practice: A review of indications and benefits

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Background: Although contrast-enhanced mammography (CEM) was introduced in the UK in 2013 [(1)], many centres have yet to implement it due to resource constraints, perceived lack of clinical need, and uncertainty regarding its role in routine care [(2)]. This study aims to review the implementation of CEM clinical indications and its integration into clinical practice
Methods: A retrospective analysis was conducted on CEM performed under new local guidelines between September 2024 and January 2025. The indications for CEM included:

- M3 and above in dense breasts
- M1 U5 on the day of attendance
- M4 calcifications
- U4/U5 <40
- Contraindication to MRI
- Problem-solving at consultant discretion
- Selected cases following MDT discussion or at the discretion of the responsible consultant
- Problem-solving for screening assessment recall

POSTER PRESENTATIONS

Results: Of 29 cases, the most common indications were for local staging (38%) and screening assessment problem-solving (24%). Other indications included 17% for indeterminate suspicious findings in dense breasts, 10% for other selected cases following MDT discussion, 7% for problem-solving at the consultant's discretion, and 3% for mammographically suspicious calcifications to guide VAB.
Conclusion: This study highlights the effectiveness of the use of structured guidelines in implementing CEM into routine practice, which facilitates more efficient patient workup. In doing so, valuable MRI slots have been saved for high-priority cases whilst providing a more sustainable, quicker diagnostic opinion. These are preliminary results, which will be updated to reflect data through to June 2025.

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P56 Pearls and pitfalls of setting up a contrast enhanced mammography (CEM) service

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We experienced significant delay from acquisition of contrast enhanced mammography (CEM) equipment, to service launch. We share our experience for others considering initiating CEM.
Equipment required: Mammographic equipment with CEM capabilities, contrast pump and iodinated contrast.
Staff training: Mammography staff interested in learning CEM technique, cannulation training and life support training (Basic or Intermediate Life Support), in case of anaphylaxis. Team supported to attend CEM workshops/ courses.
Protocols: Reviewed standard operating procedures (SOP) from industry partners and several local departments to create our own standard guidelines for who and how to image (including exclusion criteria for CEM, and contrast administration guidelines based on local hospital policy).
Patients: Patients selected on an individual basis following multidisciplinary team discussion.
Patient information leaflets created with nursing team and circulated online.
Image interpretation: Reporting framework and lexicons were agreed at departmental level utilising national recommendations.
Initial studies performed in conjunction with MRI.
Challenges, delays and ongoing issues include: funding for pump, acquiring correct strength contrast, defining local guidelines (in agreement with multidisciplinary team), renal function testing, appointment related administration and confidence of image interpretation.
Results: -Informal patient feedback reported that CEM was preferred to MRI.
-No adverse reactions reported.
-60/70 cases underwent concurrent MRI (Siemens 1.5T) with comparable results (size and focality).
-CEM (Hologic) showed a higher specificity than MRI.
Conclusions: Setting up a CEM service is a multi-step process requiring multidisciplinary approach. It has, however been an extremely valuable addition to our service and should significantly reduce demands on MRI capacity.

P57 Contrast enhanced spectral mammography: Is it comparable to breast MRI? Our initial experience

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Introduction: Contrast-Enhanced Spectral Mammography (CESM) is a technique that utilizes contrast media to improve the visibility of breast lesions and detect multifocal malignancy. As part of a quality improvement initiative, CESM was introduced in November 2023 to assess its effectiveness in evaluating breast lesions and to determine whether it could reduce the reliance on MRI.
Method: This comparative analysis involved a retrospective review of imaging data from patients diagnosed with breast lesions, between November 2023 and August 2024. A total of 37 patients underwent CESM examinations, with 29 of these patients having comparative MRI scans. All participants had previously undergone full-field digital mammography and targeted ultrasound imaging, and their cases had been discussed at a multidisciplinary meeting. Lesion sizes were extracted from radiology reports in millimetres (mm). The study included patients with varying breast tissue densities to evaluate the performance of each imaging modality.
Results: Analysis of the results reveals that there is no significant size discrepancy between lesions observed on MRI and CESM for the majority of patients. 73% of patients showed equal lesion sizes on both CESM and MRI. In cases where discrepancies in size were noted, lesions were more likely to appear larger on CESM, with 17% of lesions reported as

being more than 1 cm greater than on MRI. Patient feedback was largely positive, with patients finding the examination easy to tolerate with minimal discomfort.
Conclusion: CESM is comparable to MRI in terms of detecting multifocal malignancy and assessing lesion size.

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P58 Contrast Enhanced Mammography (CEM): Setting up a new service: Considerations and challenges

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Introduction: To highlight the processes undertaken when establishing the use of CEM in a busy breast screening department.
Equipment: A CEM license was provided at the time of purchase (Hologic). A case of need had been written at this time for the purchase of the contrast pump. Charitable funds became available, and this was used to secure the funds quickly. Later a contrast warmer was purchased.
Policies and Protocols: A contrast protocol, extravasation policy, CEM specific work instructions, referral criteria and workflows were authored. These were discussed within multidisciplinary governance meetings. The IT department was asked to add CEM to the requesting and RIS modules.
Training: Radiography staff were trained in contrast imaging technique, QA tests, contrast pump use, cannulation, life support and anaphylaxis. The resuscitation team provided essential information. A list of staff was compiled on who could be called upon for difficult cannulations. Radiologists went on a training course for reporting.
Results: A retrospective analysis of 26 patients who have had CEM was conducted. Most were referred for local sizing of a known tumor. Two cases were performed as screening (MRI contraindicated) Of the 26 patients who underwent CEM; 10 also had an MRI.
Conclusion: CEM has been a useful tool in pre-operative planning, based on testimonials from the surgical team. Positives are that it is easy to schedule, and results can be reported and acted upon quickly. This facilitates a smoother patient pathway.
We hope that our experiences will help others in setting up their CEM service.

P59 Are individual patient and tumour features predictive of metastases in patients meeting criteria for CT staging

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Background: Breast cancer is the most common cancer in women in the UK. Metastatic disease at presentation is rare. National guidelines indicate when staging CT is required. However, previous service evaluation found that following these guidelines only identified metastases in 17% of patients scanned, and benign incidental findings requiring further work-up were twice as common. This study aims to evaluate individual patient and imaging features to identify whether any were predictive of metastases in those who had a staging CT.
Methods: Patients diagnosed with primary breast cancer between 01/01/23 - 31/12/24 were identified. Staging CTs performed from diagnosis to six weeks post-surgery were included. Diagnostic imaging and core pathology were reviewed. Patient age, tumour size and presence of multiple foci on imaging, nodal involvement, receptor status and tumour grade were recorded. Data for patients with and without metastases was compared. Categorical data was analysed using fishers exact test, continuous data was analysed with t-test for independent means.
Results: 270 patients were identified, 96 had CT staging were included. Of these, 16 (17%) had metastases. The mean age of patients 69.4yrs vs 60.9yrs for those with and without metastases. The individual features are shown in table 1 (continuous data) and table 2 (categorical data). No individual features show significant variation between groups.
Conclusion: Predicting which patients are most likely to have metastases based of individual features was not possible. This is likely partially due to small sample size and partially due to the interaction of features.

POSTER PRESENTATIONS

P60 'I want to go home' women with disability and the mammography procedure

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Aim: To analyse the experience of women with disability following a mammography procedure. The Health and Care of People with Learning Disabilities Experimental Statistics 2020-2021[1] demonstrated that consistently for clients of screening age, patients with Learning Disabilities (LD) screened 14.6% less on the average from 2016-2021 compared to those without.
Methods & Materials: Data was collated from Dudley, Wolverhampton and Southwest Staffordshire Breast Screening Service. Bespoke questionnaire survey was created December 2024 for this group in an easy read format. The questionnaire was given after each screen to clients identified with LD on screening paper.
This survey is still ongoing, data is collated by the administrative team and feedback to the clinical team at staff meetings.
Results: As of today, 6 responses have been received
Data Analysis

Question	Response	% Response
First Timers	2/6	33.3%
Likely to attend again	6/6	100%
Happy with the experience	6/6	100%
Comfortability	5/6	83.3%
Friendly and supportive staff	6/6	100%

From the results, less feedback from first timers as its quite dicey identifying this group from the start, which could lead to missed opportunity. We got 100% positive feedback on willing to attend next appointment, happy, friendly and supportive staff, but 83.3% positive feedback on procedure comfortability. It is quite difficult to know if this is the best way to get information from this group, but at least its opening lines of communication.
Conclusion: The user seems to find the survey easy to understand to provide feedback. The survey will need re-evaluation, and the data shows us positive feedback so far but still could have the potential to provide information which could lead to modification.
Recommendation: Discussion with repeat non-attenders as a reason why they did not come with the use of easy read format survey.
Barrier: We may not be identifying first timers in this group which could lead to missed opportunity.
Some staff may not be comfortable to give out the questionnaire to this group.

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P61 Civility and the breast imaging workforce: Addressing the workforce shortage challenge

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Staff shortages have been one of the key challenges within Breast Imaging in the UK for many years [4], and the focus has largely been on recruitment, but recent research has demonstrated that civility is one of the key factors to aid staff retention. [1] [2] As staff within Breast Imaging have undergone lengthy and costly training, it is all the more essential that staff are retained, and that their well-being is paramount.
This research poster critically analyses and compares numerous studies examining incivility and civility, and its effects on the workforce, particularly in healthcare. The results demonstrate the benefits of civility and how to achieve this in the workplace, and the effects of not following this philosophy. [3] This includes the direct and indirect costs to the NHS as well as the disruption and reduced quality in service provision, and increased number of safety incidents. This will subsequently be related directly to Breast Imaging. It will be demonstrated that following a positive civility philosophy and strategy is to the benefit of all Breast Imaging departments.

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POSTER PRESENTATIONS

P62 What are the barriers facing breast screening attendance within the Irish Traveller community, and how can we reduce them?

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Background: Evidence shows that Gypsies and Travellers have poorer health outcomes, higher mortality rates and lower life expectancy than the general population[(1)]. Screening attendance is extremely low in comparison to the rest of the eligible population and many nomadic women report difficulties when registering for primary care services[(2)], resulting in them never being invited for routine screening.
Methods: A systematic literature review was undertaken using a combination of comprehensively searching online databases and snowball sampling.
Results: Gypsy and Traveller women have a life expectancy of nearly 12 years younger than that of the general population[(3)], and experience a higher rate of mortality at all ages, with around 22% of deaths in the community citing cancer as the cause[(1)]. Factors such as a lack of access to the internet, low literacy skills[(4)], high levels of poverty and social exclusion and a lack of cultural awareness and understanding from healthcare staff all contribute to low screening attendance within the Gypsy and Traveller community.
Conclusions: The implementation of easy access screening facilities could vastly increase attendance rates amongst the Gypsy and Traveller community, such as flexibility around appointment times in the form of later finish times or even a walk-in service, similarly, setting up a temporary service at a site frequented by Gypsies and Travellers such as the Appleby Fair could increase uptake. Offering breast screening staff CPD accredited cultural awareness training could also help to improve relations and communication between healthcare staff and therefore improve patent experiences.

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P63 Leptomeningeal carcinomatosis in metastatic breast cancer

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Leptomeningeal carcinomatosis is a rare metastatic manifestation of breast cancer. However, the identification of this condition is crucial as there are serious implications for the patient's prognosis and treatment. Unfortunately, for many radiologists its rarity leads to unfamiliarity with the condition, this is compounded by a clinical presentation which is often non-specific with symptoms such as headache and dizziness. The radiological features may also be subtle. It is therefore important for radiologists involved in the care of breast cancer patients to be aware of the condition and consider the diagnosis in the appropriate circumstances. We have reviewed the literature on this disease and highlight the clinical symptomatology, association with specific types of breast cancer and appropriate investigations. We have illustrated the findings on contrast enhanced MRI brain scan with three cases from our own practice.

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POSTER PRESENTATIONS

AWARDED THE CAROLINE RONEY PRIZE FOR EXCELLENCE

P64 Use of automated image quality review software (Volpara) in BreastScreen Victoria

Sue Macaulay, Sarah Mills, Kathryn Smyth
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Background: The traditional process of grading radiographer images is laborious, subjective and does not allow for timely feedback.
Aim: To aid efficiency and provide ongoing, objective feedback to radiographers, BreastScreen Victoria (BSV) rolled out automated Image Quality Review (IQR) software, Volpara Analytics.
Methods: In 2020, to assess the accuracy of Volpara's grading process, we completed a retrospective analysis comparing the manual grading process against Volpara's.
Two senior radiographers reviewed a random selection of 749 studies and graded them using the 'PGMI' system – Perfect, Good, Moderate or Inadequate. We compared their grades against those given by Volpara and discovered a similar spread of scores, with 70% of studies receiving the same score in both methods.
In July 2023, following the promising analysis results, we commenced a proof-of-concept roll-out of Volpara in one catchment. This informed the statewide roll-out, which we commenced in October 2023.
Results: Volpara Analytics was deployed across BSV in late 2023. Since then, we have seen:

- A strong correlation between supervisors who are enthusiastic about Volpara and the engagement of their team with the software, shown through supervisor interaction with the State Radiographer and Volpara login statistics.
- A correlation between increased engagement with Volpara and improved overall performance, shown through Volpara login and performance statistics.

For example, one site showed a 12.6% increase in 'Perfect' and 'Good' images since they began using Volpara, and they are now consistently performing better than the global median. The same site has shown an 8.3% improvement in achieving target compression, and they are now performing in line with the global median.
Conclusions: With supervisor support, teams and individuals have used Volpara Analytics to improve their positioning and compression.

P65 The role of AI in reducing false positive biopsies on ultrasound detected benign lesions in the symptomatic one-breast clinic

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Ultrasound of the breast is the first modality for assessing the breast in women <40 years of age and mammography will be performed if the lesion is suspicious for malignancy.
In our unit in 2023, 30.5% of referrals were for women ≤35years of age, with 412 biopsies performed in 360 patients, accounting for 31% of all biopsies. Only 18 cancers were identified (4% of total cancers).
Method: A retrospective audit was performed of 100 lesions biopsied in our unit from the one stop clinic to assess correlation of US imaging and biopsy with KOIOS AI algorithm.
Results: 100 lesions were identified but either due to incomplete images or opt out, we had 82patients with 86lesions, of which 22 were 35 years or under.
58 cases were benign on histology, 9 B3 lesions and 19 B5b lesions.
Koios AI classified 32 lesions as BIRADS 2; 8 as BIRADS 3; 17 as BIRADS 4A-B and 16 as BIRADS 4C.
Only one false positive in the 4C classification – scar tissue.
All cancers would have been picked up as KOIOS would have advocated a biopsy in all BIRADS 4 cases.
If we applied KOIOS AI algorithm, then all cases classified as U3 and BIRADS 2 in women ≤35years of age, we could have avoided an ultrasound biopsy in 50% of cases without missing any cancers. See table 1 and 2.
Summary: Using an ultrasound AI as reader assist could potentially reduce false positive biopsies in women ≤35years and support patient centred pathway

Table 1: All cases

	BIRADS	2	3	4A-B	4C
HISTOLOGY					
B1/2		34	9	17	1
B3		0	0	6	0
B5		0	0	4	15

Table 2: Women 35 and under

POSTER PRESENTATIONS

	BIRADS	2	3	4A-B	4C
HISTOLOGY					
B1/2		12	3	8	0
B3		0	0	0	0
B5		0	0	0	1

P66 Evaluation of an AI algorithm GAID2.0 to assist in reading digital breast tomosynthesis (DBT) studies in the symptomatic breast unit

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It is recognised that DBT improves cancer detection rate and reduces false positive recalls. The main challenge centred around DBT is reading time and reader fatigue. GAID2.0 is an AI algorithm developed to detect breast cancers on DBT. In our unit women with a malignant feeling lump (P4 or P5) will have combo 2D and 3D tomosynthesis imaging and if a mammographic abnormality is seen on the 2D then they will have ipsilateral synthetic 2D and 3D imaging, as is the case for recalled cases from surveillance mammography (family history or cancer surveillance).
This is a retrospective analysis of a prospective service evaluation of GAID within our service
Methods: The service evaluation ran from 19/01/2024 – 19/01/2025. GAID2.0 analysis was performed in only one of our 2 DBT enabled rooms.
Results: 253 cases were collected but only 241 with complete data, included in the analysis. Cancer was confirmed histologically in 69 cases. Of the 69 cases, GAID identified 64 of the cancers. There were 5 false negative cases and one case was an axillary mass, so excluded. 240cases in total. Of the 4 false negative cases - cancer was mammographically occult in one case and in 3 cases GAID2.0 did not identify the mammographic abnormality.
GAID2.0 had a Sensitivity 94% (64/68), Specificity 52% (89/172); Positive predictive value 44% (54/147) and Negative predictive value 96% (89/93)
Conclusion: GAID2.0 could be used to prioritise worklists to enable accurate and timely work up of suspicious cases supporting the one stop clinic and recalls from surveillance.

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P67 Quality control testing in mammography - how confident are you?

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Purpose: A critical element of Quality Assurance (QA) programme in the NHS Breast Screening Programme (NHSBSP) is the correct functionality and performance of full field digital mammography systems [(1)]. This element is quality control (QC) where routine robust equipment testing is performed. This ensures the equipment is operating within set limits and parameters, ensuring client safety and meeting NHSBSP standards [(2)]. It is the responsibility of all mammographers working under the NHSBSP to understand and participate in QC testing [(3)].
Aim: The aim of this audit is to evaluate how confident NHSBSP Mammographers are at performing and understanding QC testing.
Method: A Microsoft Office Form comprising of 10 questions was circulated amongst screening mammographers in Northern Ireland.
Recruitment was achieved through direct contact and via the Northern Irish Mammography Quality Assurance Team.
Quantitative data analysis was performed.
Results: 17 mammographers from Northern Ireland participated in the study. Current findings reveal that 53% of mammographers were either unconfident or somewhat confident at carrying out QC testing.
65% of participants were not fully confident in understanding what the NHSBSP QC tests represent and 41% of mammographers are also unsure of how to proceed when equipment is out of tolerance.
71% of participants felt a nationwide QC platform would support their endeavors.
Conclusion: This pilot study highlights the need for further support around QC testing. Further recruitment through the Breast Imaging Special Interest Group (BISIG) will enrichen this data and identify how best to support mammographers performing QC tests.

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3. NHSBSP. Guidance for breast screening mammographers. [Internet]; 2020, Sept 16 [Accessed 30 January 2025] Available from: Guidance for breast screening mammographers - GOV.UK

P68 Improving reliability of mammographic image classification

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Introduction: The National Breast Training Centre at Trust A uses PGMI (perfect, good, moderate, inadequate) to grade the quality, and thus competence, of student mammographers. As PGMI is known to be subjective and unreliable, a number of measures are in place to ensure consistency in grading. However, this strategy also raises a number of risks to the service. The aim of this service development study was to produce a new PGMI classification guide to improve inter-rater reliability and address current service risks.
Methods: An expert rater and 13 radiographers rated 20 bilateral mammograms using a new PGMI classification guide with more detailed descriptors. Inter-rater agreement of each radiographer compared with the expert rater was assessed using Kappa statistics.
Results: Results showed varying levels of agreement between each participant and the expert rater, with Kappa values ranging from 0.216 (fair agreement) to 0.691 (good agreement). p-values ranged from 0.0004 to 0.114, with nine out of the 13 participants indicating statistically significant p-values of <0.05. Conversely, the p-values of four participants were >0.05 thus representing non-statistically significant scores.
Conclusion: In comparison to past-published studies, this project has shown better agreement with raters when using more detailed PGMI descriptors. However, variation between raters is still apparent, which could be attributed to their individual interpretation of each descriptor. Collaborative inclusion of key stakeholders in further development of the descriptors, in conjunction with specific training on using the image classification guide could lead to further improvements in inter-rater reliability.

P69 Retrospective audit on well-defined-mass recalls found in prevalent screening cases in 2022-2023 and 2023-2024

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Objective: The aim of this audit is to evaluate the outcomes and identify patterns in these two screening rounds, in order to:

1. Identify recall rates associated with well-defined masses during prevalent screening.
2. Assess the appropriateness of recalls
3. Analyse the diagnostic outcomes
4. Identify trends or changes between the two audit periods.
5. Propose recommendations.

Methods:

- Study Design: Retrospective audit using data collected over two screening rounds
- Study Population: Prevalent cases flagged as "well-defined mass recalls" in the NBBS records during the specified period.
- Inclusion Criteria: All cases with confirmed outcomes.
- Data Collection: data from NBBS records such as patient's age, reports from SOLITON, and follow-up outcomes.
- Ethical Considerations: Ensure compliance with data privacy and ethical standards.

Results: Overall Trends:

- Total recalls reduced from 174 to 77, indicating improved screening processes and potentially better diagnostic accuracy.
- False positive rates decreased slightly but remain high, suggesting room for improvement in screening techniques.
- True positive rates are low in both years, warranting further exploration of potential reasons, including:
  - Newly qualified film readers in 2022-2023.
  - Overcalling due to COVID-19-related implications.

Conclusion: While the audit demonstrates progress in reducing recall rates, the persistently high false positive rates and low true positive rates underscore the need for further improvements. By addressing these challenges, the department can enhance diagnostic accuracy, optimize resource utilization, and improve patient outcomes.

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P70 Physical characterisation of contrast enhanced mammography for quality assurance

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Background: Contrast Enhanced Mammography (CEM) is a technology used for the investigation of breast conditions. Patients are injected with an iodine-based contrast agent and x-ray images are acquired using the same equipment and views as for 2D mammography. For each view, two sequential images known as Low (LE) and High Energy (HE) are obtained. These are processed to generate a Recombined image with the purpose of highlighting areas of contrast uptake. The development of a CEM Quality Assurance (QA) protocol was proposed as no protocol is currently available in the United Kingdom (UK).
Methods: Tests were performed on Senographe Pristina (GE) and Hologic 3Dimensions (Hologic) systems. The UK full field digital mammography protocol [1] and other published reports [2-4] were used as guidance. Specific tests were included with the use of a CEM phantom. All tests were performed in 2D and CEM mode for the comparison of 2D and LE images.
Results: 2D and LE images are acquired with similar exposure factors and technical characteristics for GE but not for Hologic. The test objects used for 2D tests can be used for the assessment of HE images but not for Recombined images. Each system demonstrated different radiation dose characteristics for a range of breast thicknesses.
Conclusions: The inclusion of CEM tests in routine mammography requires a vendor dependant QA protocol and a specific CEM phantom for the assessment of Recombined images. It also increases the number of images acquired and the time dedicated for the tests.

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P71 Breast imaging special interest group (SIG) relaunch – a community of practice

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Purpose: The Breast Imaging Special Interest Group (SIG) was established to advance breast imaging by supporting enhanced, advanced, and consultant practice, fostering innovation, and promoting professional development. It connects practitioners across the UK and Ireland, including Scotland, Wales, England, Northern Ireland, and the Republic of Ireland.
Methods: Affiliated with the Society and College of Radiographers (SCoR), the SIG utilises the NHS Futures Workspace to facilitate collaboration and shared learning. Membership encompasses assistant practitioners, breast radiographers, advanced practitioners, and consultant radiographers. A committee of specialist radiographers leads initiatives such as advanced practice, artificial intelligence, training, and research. Partnerships with universities, UK imaging academies, the NHS Breast Screening Programme (NHSBSP), and industry manufacturers strengthen its impact.
Results: The SIG has grown to 173 members and counting, with diverse recruitment across professional roles and regions. Key achievements include the first webinar in October 2024, a biannual newsletter launching in January 2025, and a second webinar in March 2025. SIG expertise has been utilised as a springboard for insight into workforce documentation

delivered by the SCoR. Members benefit from leadership opportunities, tailored resources, and multidisciplinary collaboration. The group's diversity fosters inclusivity and innovation, advancing practice and improving breast imaging outcomes.

Conclusion: The Breast Imaging SIG provides a vital platform for collaboration, education, and innovation in breast imaging. By uniting professionals across roles and regions, it supports professional growth and drives advancements in breast cancer care. To join this dynamic group, email breastimagingsig@gmail.com for more information.

P72 Reducing technical repeat rates in breast screening while maintaining diagnostic image quality

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Background: The NHS Breast Screening Programme aims to reduce breast cancer mortality through early detection, reliant on high-quality mammographic imaging with minimal repeat imaging. Repeat mammograms, though sometimes necessary, can increase patient anxiety, delay results, and expose patients to additional radiation. National standards set by the Screening Quality Assurance Service specify a technical repeat rate (SO5b) of <2% and a technical recall rate (SO5a) of <0.7%. An audit in Hereford and Worcester Breast Screening Service (July 2022 to March 2023) identified a sustained breach of the technical repeat rate standard (SO5b).

Aim: To reduce the technical repeat rate and sustain compliance with national standards SO5a and SO5b.

Methodology: Three Plan-Do-Study-Act (PDSA) cycles addressed the breach:

1. Cycle 1 (March 2023): A staff awareness email initiative to improve understanding of technical repeat standards.
2. Cycle 2 (May 2024): Development and implementation of an Image Quality Assurance (QA) SOP and Repeat Imaging Protocol.
3. Cycle 3 (September 2024): Optimisation of mammography equipment in collaboration with medical physics and engineering teams.

Outcomes were monitored for 18 months post-implementation.

Results:

- Technical repeat rate: Sustained compliance for six consecutive months after Cycle 2.
- Technical recall rate: Maintained compliance throughout.
- Radiation dose reduction: 20% reduction without compromising diagnostic image quality.

Conclusion: Targeted, evidence-based interventions resolved the technical repeat rate breach, maintained compliance with recall standards, and improved quality of care for all service users through dose reduction.

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