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Community & Consciousness: One Health

ABSTRACT BOOK

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SHORT PAPER SESSION A2

A2.1 Exploring the experiences and perspectives of women with breast cancer in the radiotherapy department in Ghana: A qualitative study

Dr Vivian Della Atuwo-Ampoh[1], Prof Eric Kwasi Ofori[1], Penelope Engel-Hills[2], Margaret Gyapong[1], Mary Boadu[3], Andrew Donkor[4], Elizabeth Davies[5]

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Background

The patient is the recipient of the healthcare services. Patients who participate in the decisions about their health and are effectively considered important members of the healthcare team have better outcomes in recovery (Ciria-Suarez et al., 2021). A study outlining the pathways in managing breast cancer revealed that understanding the needs the patient is important to improve the healthcare system (Mburu et al., 2021).

Methods

A semi-structured interview involving patients was employed to obtain an in-depth understanding of breast cancer care experiences. The NVivo software (version 14) was used to analyse.

Results

A total of 12 patients with breast cancer were interviewed. The participants were all women between the ages of 35 and 70. Five of the women were not employed, and the others were employed either in trading (n = 3/12) or as a nurse (n=2), teacher (n=1), or civil servant (n=1). The women were diagnosed with stage III breast cancer (n=6), stage I (n=1), stage II (n=2) and stage IV (n=3). The three main themes were: firstly, the breast cancer diagnostic journey as a critical step, Secondly, the patients' perceptions of care revealing major barriers and enablers to effective care, and thirdly, an enhanced patient-centred care approach that provides and sustains a supportive network and incorporates an efficient referral system. The study sheds light on women's experiences receiving care within the radiotherapy department. It provided new insight into ways of improving the care experiences of women.

Keywords: breast cancer, radiotherapy, healthcare providers, experiences.

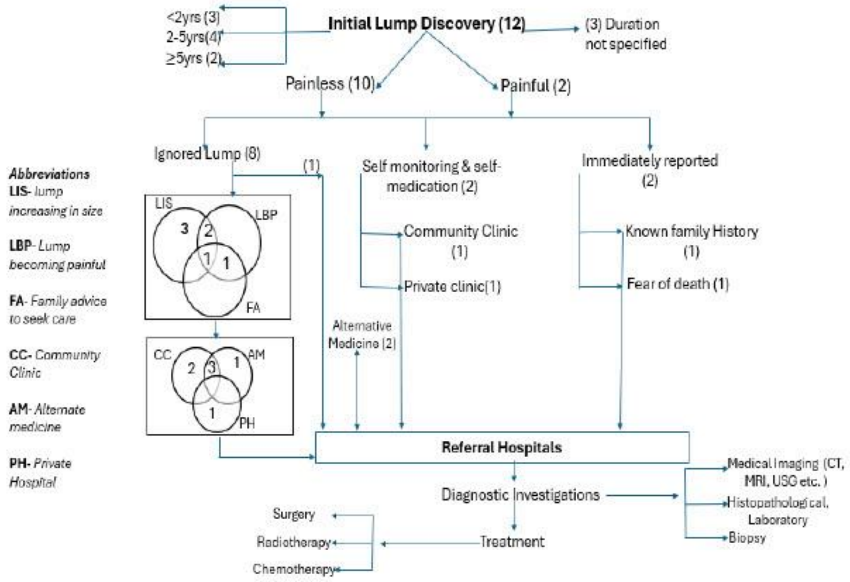

Figure 1. The breast cancer diagnostic journey among 12 women receiving treatment within the Radiotherapy department

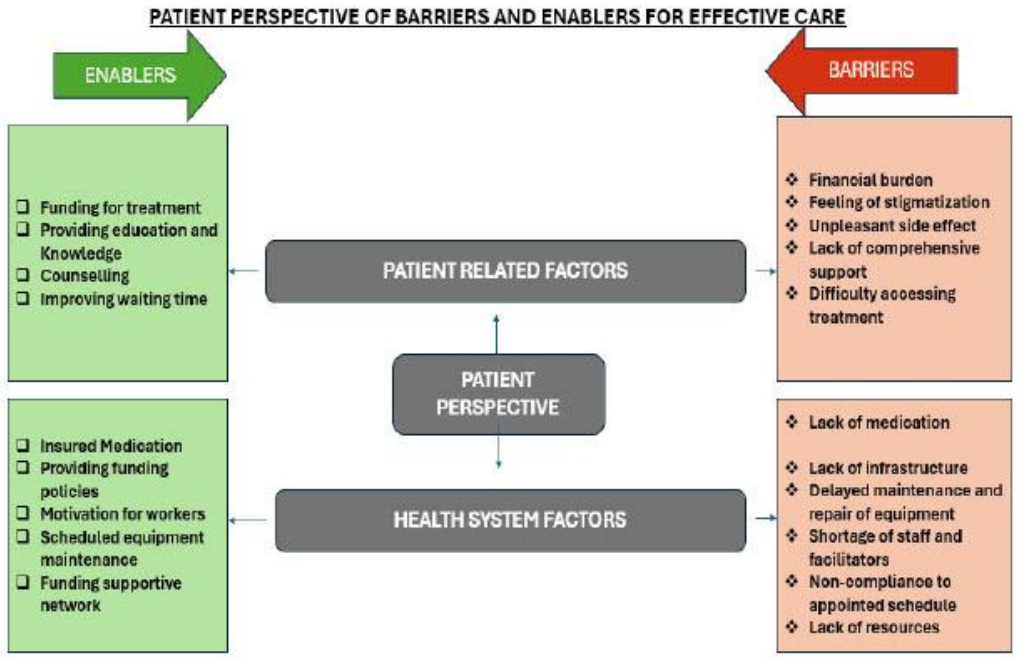

Figure 2 Patient perspective of the barriers and enablers to breast cancer effective care within the Radiotherapy department.

Ciria-Suarez, L. et al. (2021) 'Breast cancer patient experiences through a journey map: A qualitative study', PLoS ONE, 16(9 September), pp. 1–23. Available at: https://doi.org/10.1371/journal.pone.0257680.
Mburu, W. et al. (2021) 'Pathways to Breast Cancer Diagnosis and Treatment Among Women in Ghana: A Qualitative Study', Women's Health Reports, pp. 234–244. Available at: https://doi.org/10.1089/whr.2020.0117.

A2.2 Mammography and people with intellectual disabilities: Radiographers' perspectives

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Background

Breast cancer (BC) is the second most prevalent cancer in Ireland with over 3,000 people being diagnosed each year. BC rates in people with intellectual disabilities (PWID) are similar to those of the general population, however reports indicate that PWID are less likely to undergo screening and often present to symptomatic clinics with far more advanced cancers . While studies have sought to explore contributing factors from the perspective of PWID and the carers, to the authors' knowledge, there is limited research from the health service providers perspective. The aim of this study was to explore mammographers' experiences of undertaking breast imaging on PWID.

Methods

A qualitative approach using semi-structured interviews was undertaken with eleven mammographers from screening and symptomatic settings, all of whom had experience providing mammography for PWID. Questions focused on participants' experiences as well as identifying perceived facilitators and barriers to PWID accessing imaging. Thematic analysis was undertaken.

Results

Three core themes were identified 1) Communication 2) Choice&Autonomy 3) Resources&Logistics. Participants expressed a wish to provide inclusive and compassionate care, highlighting the importance of communication, choice, engaging with caregivers and offering practical accommodations for PWID. Participants also identified some existing barriers that may contribute to poorer experiences.

Conclusion

This study emphasised the importance of communication between health care professionals when supporting PWID as well as identifying the need for increased interdisciplinary collaboration/education. There is a need for the standard use of accessible communications and resources to cater for all patients across a diverse range of needs.

A2.3 Radiographers' and student radiographers' perceptions, knowledge, and attitudes towards older people

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[1]University College Cork, Cork, Ireland, [2]University of Sydney, Sydney, Australia, [3]University of Southern Denmark, Denmark

Background: The ageing global population presents significant challenges and opportunities for healthcare, particularly for diagnostic radiographers who provide essential imaging services. This study aims to evaluate the perceptions, knowledge, and attitudes of qualified and student diagnostic radiographers towards older individuals.
Methods: A cross-sectional online survey design was employed and delivered using Qualtrics. A combination of customised questions and validated instruments, including the Kogan's Attitude towards Older People (KAOP) scale and an adapted version of Palmore's Facts on Aging Quiz (FOAQ) were selected as research instruments. Following data collection analysis involved descriptive statistics.
Results: A total of 149 respondents participated, 94 (63%) were radiographers and 55 (37%) were students. Results indicated that many participants recognise the additional challenges when imaging older patients and feel inadequately trained. Female radiographers scored higher on both the KAOP and FOAQ scales when compared to males. A significant number of participants reported insufficient formal education on geriatric care / imaging.
Conclusions: The study highlights the need for enhanced educational curricula and ongoing professional development. Improvements need to be focused on geriatric care specific to radiography. Improving the knowledge and attitudes of radiographers towards older patients through targeted interventions could also lead to better patient outcomes and a more respectful healthcare environment. The findings underscore the importance of specialised training to meet the unique healthcare needs of an ageing population.

A2.4 Patient experiences of additional MR imaging during the non-small cell lung cancer radiotherapy pathway

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Background
Patients' experiences are an important consideration when developing new MRI-guided radiotherapy techniques. The aim of this study was to explore patient experiences of additional MRI performed as part of a clinical study of MRI-guided radiotherapy for non-small cell lung cancer.
Method
Ten stage I-IV NSCLC patients agreed to participate in semi-structured interviews. Areas of focus for the interviews included:

- Patient experience of imaging sessions
- Improvement of the experience
- What do patients feel is important when implementing a new MR-guided radiotherapy technique?

Thematic analysis was undertaken.
Results
Predominant themes were comfort, compliance and communication. Eight patients experienced some discomfort during MRI, primarily linked to maintaining an elevated arm position during immobilisation. However, participants focused on perceived benefits of MRI, indicating a desire to avoid interruptions and to persevere, rating this as the most significant factor in their continued compliance.
Environmental issues, such as scanner noise and room temperature, also contributed to comfort levels. Patients highlighted the positive impact of clear communication from imaging professionals. Communication of the potential benefits of the scan was perceived as important for implementing new MRI-guided treatments.
Conclusion
Lung cancer patients' experience of MRI is influenced by comfort, and a desire to comply with processes they perceive as being "beneficial" to their treatment. Patients place a high value on supportive communication from the clinical team. The integration of MRI within the lung cancer treatment pathway was seen as feasible by participants, even by those who indicated they struggled with extended imaging times.

A2.5 Supporting the breast cancer community: Respire+ web-based resources for patients and healthcare professionals

Prof Heidi Probst[1], Mrs Helen Dring[2], Miss Iyna Fiaz[3], Mr Stephen Florence[1], Mr Russell Mather[1], Mrs Kirsty Mounsey[3], Ms Helen Simpson[4], Mrs Anna Southworth[5], Dr Janet Ulman[1], Dr Rachel Harris[6]

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Introduction

Over 33,000 episodes of radiotherapy for breast cancer were delivered in 2022-2023(UK). External beam radiotherapy to the breast or chest wall may result in some level of Radiation Induced Skin Reaction (RISR) or breast/trunk lymphoedema(BTL). Psychological stress may increase the RISR experienced and good patient preparation resources may reduce patient anxiety or stress.

Patients report being unprepared for the development of breast/trunk lymphoedema and report difficulties in having their concerns acknowledged by healthcare practitioners. Delay in obtaining a lymphoedema diagnosis leads to anxiety and worsening of symptoms.

The wellbeing costs to the UK economy of a breast cancer diagnosis was estimated to be £17.5 billion for 2024. There is an urgent need for high quality evidence-based information to prepare patients for the potential development of RISR and BTL allowing early interventions and onward referral, reducing complication risk and longer-term healthcare costs.

Methods

Using co-design methodology, patient advocates with experience of RISRs and BTL (n= 11) and Therapeutic Radiographers (n=15) were engaged to understand information needs from key stakeholders.

Workshops and interviews were the basis for the development of patient-led educational resources.

Results

Information needs were reflected in two overarching themes, i) Knowledge is strength, and ii) Someone like me (see Figure 1).

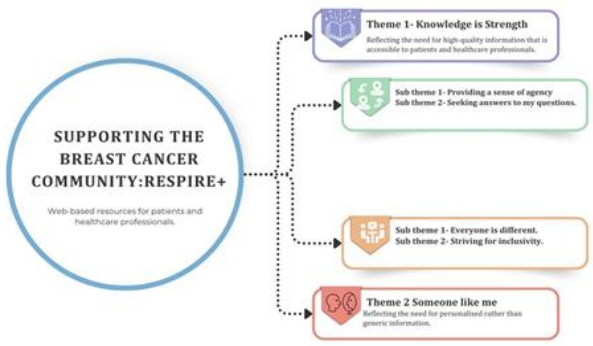
Outcomes: Sustainable web-based resources including two co-designed patient self-monitoring tools, myth-busting animations and 'Talking Heads' patient videos.

Figure 1 One Community for Breast Cancer Care after Radiotherapy.

Conclusion

The Respire+ website will provide sustainable resources, promoting patient self-management and raising awareness across the breast cancer community.

Figure 1 One Community for Breast Cancer Care after Radiotherapy.



1. BUSH L, M. J., MACDONALD S 2024. The cost of breast cancer, modelling the economic impact to the UK London: Breast Cancer Now and Demos.

2. NATIONAL DISEASE REGISTRATION SERVICE. 2024. Radiotherapy Delivery in England [Online]. Available: https://digital.nhs.uk/ndrs/data/data-outputs/cancer-data-hub/radiotherapy-delivery-in-england [Accessed 03-03-2024].

3. KUMAR, K. A., BALAZY, K. E., GUTKIN, P. M., JACOBSON, C. E., CHEN, J. J., KARL, J. J., VON EYBEN, R. & HORST, K. C. 2021. Association Between Patient Education Videos and Knowledge of Radiation Treatment. International Journal of Radiation Oncology*Biology*Physics, 109, 1165-1175.

4. PROBST, H., ROSBOTTOM, K., CRANK, H., STANTON, A. & REED, H. 2021. The patient experience of radiotherapy for breast cancer: A qualitative investigation as part of the SuPPORT 4 All study. Radiography (Lond), 27, 352-359.

5. SUTHERLAND, A. E., BENNETT, N. C. & HERST, P. M. 2017. Psychological stress affects the severity of radiation-induced acute skin reactions in breast cancer patients. Eur J Cancer Care (Engl), 26.

6. ULMAN, J. D., SERRANT, L. P., DUNHAM, M. D. & PROBST, H. P. 2023. Exploring women's experiences of breast or trunk lymphoedema following treatment for breast cancer. J Psychosoc Oncol, 1-16.
7. VERBELEN, H., GEBRUERS, N., BEYERS, T., DE MONIE, A.-C. & TJALMA, W. 2014. Breast edema in breast cancer patients following breast-conserving surgery and radiotherapy: a systematic review. Breast Cancer Research and Treatment, 147, 463-471.

SHORT PAPER SESSION B2

B2.1 Medical imaging students viewpoints of the clinical placement learning environment: A cross-sectional study of years 3 & 4 students of medical imaging in Ghana

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Background
Clinical placements are vital to medical imaging education, bridging the gap between theoretical learning and practical application in the real world.1,2 These experiences enable students to acquire essential knowledge, skills, and professional attributes required for clinical radiography practice. 3 A comprehensive health education integrates classroom-based theoretical instruction, which provides a scientific foundation for the profession, with clinical placements, which play an indispensable role in shaping students' professional competence and capabilities.2,4 Typically, students in medical imaging programs spend most of their training in clinical placements, where they observe professionals, interact with patients and perform procedures under supervision. 5 This study evaluates the clinical placement learning environment from the perspective of Year 3 and Year 4 medical imaging students in Ghana.
Methods
A quantitative cross-sectional survey was conducted using a self-administered questionnaire distributed via social media. The survey explored supervision and support, learning integration, and clinical environment equity. Descriptive and inferential statistics were used to analyse the data.
Results
253 students participated, with the majority being male (65.2%) and aged 18-24 years (85.8%). Positive perceptions were noted in supervision and support ($p<0.001$), learning integration ($p<0.001$), and environment equity ($p<0.001$). However, challenges such as overcrowding (25.9%), increased workload (25.5%), and equipment breakdowns (18.9%) were significant concerns.
Conclusion
While students generally report positive experiences, challenges such as overcrowding, limited supervision, and resource constraints hinder optimal learning. Addressing these issues through structured supervisor training, improved infrastructure, and enhanced coordination between academic and clinical settings is crucial for fostering a supportive clinical placement environment.

1. Jeyandrabalan, M., Punch, A., Rogers, J.M. and Jimenez, Y.A., 2022. Insights into Diagnostic Radiography students' perception of clinical stressors. Radiography, 28(2), pp.499-505.
2. Ofori-Manteaw, B., Yeboah, H.S. and Wuni, A.R., 2024. Enhancing radiography education: The roles and challenges of preceptors I n the clinical supervision and training of student radiographers. Radiography, 30, pp.149-155.
3. Kumsa, M.J., Lemu, B.N., Nguse, T.M., Omiyi, D.O. and Akudjedu, T.N., 2022. Clinical placement challenges associated with radiography education in a low-resource setting: A qualitative exploration of the Ethiopian landscape. Radiography, 28(3), pp.634-640.
4. Ago, J.L., Kilgour, A. and Smith, C., 2024. Understanding the current situation of challenging clinical interactions for medical radiation undergraduates: An integrative literature review. Radiography, 30, pp.104-113.
5. Ondari, B.O., Rajeswaran, L., Ekemiri, K.K., Xavier, S.F. and Baptiste, N.J., 2019. Experiences of medical imaging students and clinical learning in a limited resource setting-a qualitative study in Rwanda. Journal of Global Radiology, 5(1).

B2.2 Exploring apprentice motivations for choosing the degree apprenticeship pathway into diagnostic radiography

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[1]*Mid Cheshire NHS Foundation Trust, Crewe, United Kingdom,* [2]*University of Exeter, Exeter, United Kingdom*

Background
The diagnostic radiographer degree apprenticeship (DA) pathway was first introduced in 2020 allowing an alternative pathway to help widen participation[1]. Whilst experiences of studying on a DA programme were previously explored[2], little was known as to the true motivations of apprentices and how this will help in the recruitment of diagnostic radiographers to the NHS.
Method
A single higher education institution cohort of radiography apprentices (n=27) were invited to complete an online survey to determine the campus-based research. A quantitative survey used both open and closed ended questions to gain demographic and more detailed responses. Participants were asked to rank the options to identify what was most important to them and discuss their top three choices. Thematic analysis following Braun and Clarke's six steps[3] was used to interpret the data, to analyse and depict patterns to gain a deeper understanding.
Results
20 complete responses were received with a response rate of 71%. Four key themes were identified from the research with apprentices ranking the lack of financial implications as most important, followed by family and lifestyle commitments, then learning on-the-job and finally the opportunity for career progression.

Conclusion
Identifying apprentice motivations has allowed organisations to see what a positive impact the radiography apprenticeship has had on apprentices in allowing them to become diagnostic radiographers. This enables the continuation of the DA program and allows both universities and the NHS to have a better understanding and ultimately help in the recruitment of much needed diagnostic radiographers.

1. Green, D. Heales C.J. (2024) Radiographer degree apprenticeships: where are we now? Imaging and Oncology
2. Green, D., Heales, C.J., Hughes, D., Marsden, A., & Mills, J.A. (2022). Exploring current undergraduate student perspectives on the introduction of the degree apprenticeship scheme in diagnostic radiography - a single institution study. Radiography, 28 4, 1058-1063
3. Braun, V. Clarke, V. Terry, G. Hayfield. G (2018). "Thematic Analysis." In Handbook of Research Methods in Health and Social Sciences, edited by P. Liamputtong, 843–860. Singapore: Springer

B2.3 Perceived stress levels and imposter syndrome in medical imaging students on the traditional and apprenticeship BSc and MSc programmes

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[1]*Portsmouth Hospitals University NHS Trust, Portsmouth, United Kingdom,* [2]*Department of Health and Care Professions, University Of Exeter, Exeter, United Kingdom*

Background
Research has shown elevated perceived stress (PS) and Imposter Phenomenon (IP) levels among healthcare students. Despite rising student numbers, apprenticeship radiography courses remain understudied.
This study aimed to compare the levels of PS and IP between Medical Imaging students on traditional (BSc UG) and apprenticeship (BSc DA and MSc DA) courses at one university in the United Kingdom.
Methods
The study used an online survey to assess PS and IP using the Perceived Stress Scale (PSS-10) and the Clance Imposter Phenomenon Scale (CIPS) respectively. Open text questions allowed for explanation of answers. Statistical analysis and thematic analysis were undertaken.
Results
PSS-10 (n=49 responses)
BSc DA students had a lower level of PS ($\bar{\chi}$=18, $p<0.05$) than BSc UG and MSc DA students ($\bar{\chi}$=24). Most respondents reported moderate or high levels of stress. Thematic analysis highlighted stressors included university and personal factors and overlap between the two areas.
CIPS (n=45 responses)
The highest levels of IP were in BSc UG students ($\bar{\chi}$=71) and the lowest in the BSc apprentices ($\bar{\chi}$=63), however, $p>0.05$. Over 60% of all students had clinically significant IP levels. Thematic analysis found feelings of 'not belonging' and 'self-perception' enhanced feelings of IP, and self-belief was protective.
Conclusion
Most students continue to have high levels of PS and IP regardless of course. Qualitative responses for both found similar contributing factors for all courses; however, 'not belonging' only contributed to IP for BSc UG students suggesting the increased clinical time apprentices experience may be beneficial.

B2.4 Student's perceptions of using escape rooms as an experiential learner-centred revision activity - a pilot study

Beverley Scragg[1], *Dr Samantha Curtin*[1], *Mrs Sian McLean*[1]
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Background
Escape rooms as a learner-centred activity are being used more frequently in medical education (Guckian, et al., 2020). For 24-25 the first year undergraduate Diagnostic Radiography students at the University of Salford participated in an escape room, intended to pilot an end of term revision activity. The game theory-based escape room followed a simple game loop: a challenge (e.g. a locked box), a solution (e.g. a combination), and a reward (e.g. a clue inside the box). The learners worked in teams of 5 and had 30 minutes to escape by solving puzzles on appendicular skeleton anatomy, medical terminology, radiographic positioning and projections.
Method
A survey was used to evaluate students' perceptions of their learning, engagement, and skills utilized during the activity. The evaluation study was approved by the University of Salford's Ethical Approval Panel (Ref: 1245).
Results
A 61% (55/90) response rate was achieved. Learners enjoyed the escape room format. There was strong agreement that the activity supported their team-working and communication skills, while being an engaging way of covering module content. Learners appreciated puzzles linked to the intended learning outcomes and felt that the activity supported identifying gaps within their knowledge and improved terminology comprehension.

Conclusion

While the intention of the escape rooms was to engage learners with the module specific learning objectives, survey respondents placed value on developing team-working and communication skills. Escape rooms may be an engaging opportunity for radiography learners to revise content and hone soft skills essential to the profession; subject to further study.

Guckian, J., Eveson, L., & May, H. (2020). The great escape? The rise of the escape room in medical education. Future healthcare journal, 7(2), 112–115. https://doi.org/10.7861/fhj.2020-0032

B2.5 Reflections on the experiences of a diagnostic and therapeutic radiographer as members of Health Research Authority Research Ethics Committee

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Background

Health Research Authority Research Ethics Committee (HRA REC) evaluates research applications and provides opinions on their ethical acceptability. A national drive to speed up commercial clinical trial setup in the UK saw the government increase investments in research delivery and changes in legislation enabled the HRA to streamline approvals processes for research studies. The HRA expedited recruitment to increase REC members to 883 volunteer members in post in 2023/2024 to improve turnaround target times.

Purpose

We aim to break down perceived barriers to research and show projects need not be reframed as audits or service evaluations to bypass REC reviews. Through shared experience, the authors wish to alleviate anxiety associated with REC reviews by humanising committee members.

Additionally, we highlight volunteering as REC members meaningfully contributes to the research community, learning about a variety of topics and research methodologies and processes along the way.

Summary of content

We will compare and contrast the journey of diagnostic versus therapeutic radiographers as newly appointed HRA REC members. Through shared journeys, we aim to foster a sense of unity and collaboration among radiographers and researchers, delving into personal experiences, challenges, learning, and contributions as REC members. We will provide insights into imposter syndrome, personal growth, and highlight the importance of collective effort in advancing research and improving patient care. Through their roles in HRA REC, we show how imaging professionals can contribute to the broader research community, breaking down barriers and building a supportive network for future advancements.

1. Health Research Authority (2025) Research Ethics Committee Review. Available at: https://www.hra.nhs.uk/approvals-amendments/what-approvals-do-i-need/research-ethics-committee-review/
2. Health Research Authority (2024a) '£100 million of investment in new research hubs announced today'. Available at: https://www.hra.nhs.uk/about-us/news-updates/100-million-of-investment-in-new-research-hubs-announced-today/#:~:text=%C2%A3100%20million%20of%20investment,announced%20today%20%2D%20Health%20Research%20Authority
3. Health Research Authority (2024b) Annual report for Research Ethics Committees (RECs) in England 1 April 2023 to 31 March 2024. Available at: https://www.hra.nhs.uk/about-us/committees-and-services/res-and-recs/research-ethics-committees-annual-reports/annual-report-research-ethics-committees-recs-england-1-april-2023-31-march-2024/
4. O'Shaughnessy, J. (2023) Commercial clinical trials in the UK: The Lord O'Shaughnessy review - final report. Available at: https://www.gov.uk/government/publications/commercial-clinical-trials-in-the-uk-the-lord-oshaughnessy-review/commercial-clinical-trials-in-the-uk-the-lord-oshaughnessy-review-final-report
5. Richardson, S. and McMullan, M. (2007) 'Research ethics in the UK: What can sociology learn from health?', Sociology, 41(6), pp. 1115–1132. Available at: http://www.jstor.org/stable/42858289
6. UK Government (2024) '£100 million public-private health research boost'. Available at: https://www.gov.uk/government/news/100-million-public-private-health-research-boost#:~:text=Funded%20through%20%C2%A3100%20million,Scotland%2C%20Wales%20and%20Northern%20Ireland

SHORT PAPER SESSION D2

D2.1 Radiological evaluation and classification of laryngeal injuries: Retrospective case analysis

Dr Samhitha Alavala-Pomfret[1], *Dr Sabiha Fatima*[1], *Mr Ivan Mani*[1], *Ms Victoria Ward*[1], *Dr Edward Walker*[1], *Dr Nick Spencer*[1]
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Background

Laryngeal fractures, though uncommon, are a potentially life-threatening consequence of blunt neck trauma.[1] Timely and accurate radiological assessment is increasingly valuable for prompt diagnosis and management to optimise patient outcomes. Whilst computed tomography (CT) remains gold standard, variations in imaging findings and classification pose challenges in determining severity and appropriate treatment approach.

Purpose

1. Highlight common radiological features on CT in patients with laryngeal injury
2. Outline the principles of the Schaefer Fuhrman classification (with image examples)
3. Discuss evolving trends in management of laryngeal injuries with relation to the above

Summary of content

We present 19 cases of laryngeal injuries identified between 2018 and 2024, for their radiological and clinical findings. The most common mechanism of injury was assault (42%), followed by sports-related trauma (21%), accidental blunt trauma (21%), and hanging (16%). CT imaging played a pivotal role in diagnosis, with fractures predominantly involving the thyroid cartilage. The Schaefer-Fuhrman classification was applied to assess injury severity, with higher-grade injuries correlating with airway compromise. Flexible nasendoscopy findings were reviewed alongside CT imaging to assess vocal cord function and soft tissue involvement. Management strategies varied according to severity, with most patients undergoing conservative treatment and one patient referred to a tertiary centre for further evaluation and consideration of surgical intervention. Majority had good voice outcomes. This study highlights the indispensable role of radiological evaluation in diagnosing laryngeal injuries, assessing airway risk, and guiding management strategies. An established classification system is highlighted to demonstrate pertinent review areas to reporting radiologists.

1. Moroco, A.E. et al. (2022) 'Systematic Review of Laryngeal Fractures and Trends in Operative Management', Craniomaxillofacial Trauma & Reconstruction, 16(1), pp. 62–69.

D2.2 Encouraging a patient-centred approach to education, designing an eLearning platform to enhance knowledge of HPV positive head and neck cancer: A Delphi Consensus Study

Rebecca Jopson[1], *The Rev'd Dr Mike Kirby*
[1]*University of Liverpool, Liverpool, United Kingdom*

Background

Global rises in head and neck cancer (HNC) rates are evident, with Human Papillomavirus (HPV) accounting for 71% (US) and 51.8% (UK) of all oropharyngeal squamous cell carcinomas (OPSCC)(Lechner, et al. 2022). In 2019 the UK introduced vaccinating adolescent boys for gender-neutral approaches to prevention. However, vaccine uptake remains below target, especially among males, who are high risk. Upon reflection, improved and accessible educational resources are needed, to enhance early detection, prevention and support patient management.

Method

By recruiting a panel of 16 experts with personal/professional experience in HNC, education, virology and cancer awareness and prevention, the Delphi method was employed to reach a consensus on areas of priority, key target audiences and the accessibility/delivery to help design appropriate eLearning resources.

Results

There was 100% response rate for rounds 1 and 2; and 93% for round 3. Thematic analysis was used to derive a consensus which showed that 3 eLearning resources would be optimal; for areas of priority of 'awareness and prevention', 'support through/beyond diagnosis' and 'support for healthcare professionals', focusing on each intended audiences' specific needs. Accessibility was deemed an additional priority, with supplementary resources and a national awareness campaign also highlighted to maximise reach.

Conclusion

The Delphi process proved a robust and effective method for identifying and targeting the scope for the design and production of an eLearning platform on HPV+HNC. The expert panel emphasised the requirement for accessibility through interactive eLearning and tailoring content to specific audiences using multiple eLearning resources to address health inequalities.

Lechner, M., Liu, J., Masterson, L. and Fenton, T.R., 2022. HPV-associated oropharyngeal cancer: epidemiology, molecular biology and clinical management. Nature reviews Clinical oncology, 19(5), pp.306-327.

D2.3 Beyond the usual suspects: Exploring the rarer differentials of cervical lymphadenopathy in adults

Muhammad Khan[1], *Dr Maimoona Akbar*[1], *Dr Nusrat Alam*[1]
[1]*Warrington and Halton Teaching Hospitals NHS Foundation Trust, Liverpool, United Kingdom*

Cervical lymphadenopathy in adults is a common presenting symptom with a vast range of benign and malignant differential diagnoses. Consequently, most patients require further radiological investigation with definitive histological sampling. In this pictorial presentation, we aim to showcase the differential diagnoses for cervical lymphadenopathy in adults and where possible, aim to highlight the salient radiological features that aid in differentiating benign from malignant aetiologies.

A retrospective analysis was conducted on adult patients presenting to our radiology department with cervical lymphadenopathy over the last 10 years. Imaging studies, including ultrasound, CT, and MRI, were reviewed. Where possible, histological reports were reviewed and key radiological characteristics such as lymph node size, shape, enhancement, and ancillary findings were recorded.

Our findings indicate that cervical lymphadenopathy in adults is a common presenting symptom with variable aetiologies. In most scenarios, further investigative work up was required due to the overlap of imaging findings. In our case series, we identified a series of cases showcasing the malignant and non-malignant causes of cervical lymphadenopathy, including benign idiopathic proliferative diseases such as Rosai-Dorfman disease and Kikuchi-Fujimoto disease, a rare subacute necrotising lymphadenitis. Where possible, we have identified radiological features that would help differentiate such pathologies.

Accurate radiological diagnosis of cervical lymphadenopathy in adults is challenging. However, our study showcases some of the salient features to help guide diagnosis, and the importance of a systematic imaging approach to enhance radiological recognition and improve diagnostic accuracy leading to more effective and timely patient care.

D2.4 A clinical audit project (CAP) assessing BHRUT radiology departments' use of the BTA grading system for sonographically detected thyroid nodules

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A clinical Audit Project (CAP) undertaken to find out if BHRUT radiology departments utilise the BTA grading system to grade all thyroid nodules detected sonographically **.** (BHRUT = Barking, Havering & Redbridge University NHS Hospitals Trust; BTA = British Thyroid Association).

Background

BHRUT undertakes a huge number of thyroid ultrasound scans. In 2017, BHRUT adopted the BTA thyroid nodule grading system, however, aside from a few simple service evaluations, no full-fledged CAP has ever been conducted to assess whether all sonographically detected thyroid nodules are graded – and nodule descriptors and appropriate recommendations penned on report.

Methods

Retrospective, quantitative - involved reviewing stored ultrasound reports covering a 16 months' period, and these were stratified into radiologist and sonographer reports. Data collection utilized a stratified sampling frame which was subjected to simple random sampling in each of the above study strata (radiologists & sonographers) to generate an audit sample (80). Data analysis was accomplished by use of IBM SPSS software version 24.

Results - summary table of main findings:

	Audit criterion	Target (%)	Sonographers compliance	Radiologists Compliance	Overall departmental compliance
1	Grading statement written on report	100	(45/49) 93.5%	(29/31) 92.5%	(74/80) 91.8%
2	Nodule descriptor written on report	100	(10/49) 41.9%	(13/31) 28.8%	(23/80) 20.4%
3	Recommendation written on report	100	(18/49) 87.1%	(27/31) 56.2%	(45/80) 36.7%

Conclusion

A lot still desires to be done in order to improve thyroid nodule ultrasound reporting (stating the nodule grade, descriptor and making appropriate recommendations on the report).

Results - summary table of main findings:

	Audit criterion	Target (%)	Sonographers compliance	Radiologists Compliance	Overall departmental compliance
1	Grading statement written on report	100	91.8% (45/49)	93.5% (29/31)	**92.5%** (74/80)
2	Nodule descriptor written on report	100	20.4% (10/49)	41.9% (13/31)	**28.8%** (23/80)
3	Recommendation written on report	100	36.7% (18/49)	87.1% (27/31)	**56.2%** (45/80)

Bibliography
1. AL-CHALABI, H., KARTHIK, S. & VAIDYANATHAN, S. 2019. Radiological-pathological correlation of the British Thyroid Association ultrasound classification of thyroid nodules: a real-world validation study. Clin Radiol, 74, 702-711.
2. CHNG, C. L., TAN, H. C., TOO, C. W., LIM, W. Y., CHIAM, P. P. S., ZHU, L., NADKARNI, N. V. & LIM, A. Y. Y. 2018. Diagnostic performance of ATA, BTA and TIRADS sonographic patterns in the prediction of malignancy in histologically proven thyroid nodules. Singapore Med J, 59, 578-583.
3. FARIHAH, A. G., NURISMAH, M. I., HUSYAIRI, H., SHAHRUN NIZA, A. S. & RADHIKA, S. 2018. Reliability of the ultrasound classification system of thyroid nodules in predicting malignancy. Med J Malaysia, 73, 263-271.
4. FLORIDI, C., CELLINA, M., BUCCIMAZZA, G., ARRICHIELLO, A., SACRINI, A., ARRIGONI, F., POMPILI, G., BARILE, A. & CARRAFIELLO, G. 2019. Ultrasound imaging classifications of thyroid nodules for malignancy risk stratification and clinical management: state of the art. Gland Surg, 8, S233-S244.
5. PEMAYUN, T. G. 2016. Current Diagnosis and Management of Thyroid Nodules. Acta Med Indones, 48, 247-257.
6. PERSICHETTI, A., DI STASIO, E., GUGLIELMI, R., BIZZARRI, G., TACCOGNA, S., MISISCHI, I., GRAZIANO, F., PETRUCCI, L., BIANCHINI, A. & PAPINI, E. 2018. Predictive Value of Malignancy of Thyroid Nodule Ultrasound Classification Systems: A Prospective Study. J Clin Endocrinol Metab, 103, 1359-1368.
7. SINGH OSPINA, N., INIGUEZ-ARIZA, N. M. & CASTRO, M. R. 2020. Thyroid nodules: diagnostic evaluation based on thyroid cancer risk assessment. BMJ, 368, l6670.

D2.5 Clinicopathological characteristics and survival outcomes of patients with nasopharyngeal carcinoma treated with definitive chemoradiation at a major radiotherapy center in Ghana

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Background
This study aimed to determine the survival outcomes and clinic-pathological characteristics of patients with Nasopharyngeal Cancer (NPC) who were treated with chemo-radiation in Ghana.
Methods
A retrospective cohort study was conducted, and data was collected from the files of patients who received curative chemo-radiation treatment for NPC between 2012 and 2021.
Results
A total of 83 patients were included in the study, comprising 58 (69.9%) being male and 23 (30.1%) females. A few (n=6, 7.2%) of them had co-morbidities such as asthma, hypertension, respiratory distress, and diabetes. The majority of patients had a performance status level of O (n=64, 77.1%) and most of them were at clinical stage IVB (n=32, 38.6%). The most common types of NPC were the non-keratinized undifferentiated type (n=53, 63.9%), non-keratinizing differentiated squamous cell carcinoma (SCC) (n=24, 28.9%), and keratinizing differentiated type (n=6, 7.2%). Three-Dimensional (3D-Conformal) (n=38, 45.8%), Intensity Modulated Radiotherapy (IMRT) (n=27, 32.5%), and 2-Dimensional (2D) (n=18, 21.7%) were the common treatment techniques. The majority of patients received a total tumor dose of 70 Gy. The study found that the mean survival time for Disease Free Survival (DFS) and Overall Survival (OS) were 32.3+27.3 and 43.6+27.1 months, respectively. The log-rank test showed a significant association between DFS and Radiotherapy technique ($P < 0.0001$) and Radiotherapy dose ($P < 0.018$).
Conclusion
This study provides substantial evidence supporting the correlation between clinic-pathological characteristics, treatment techniques (with a focus on 3D conformal radiotherapy), radiation treatment dose on survival outcomes in NPC patients treated with definitive chemo-radiation.

Stage	Mean				Median			
	Estimate	Std. Error	95% Confidence Interval		Estimate	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound			Lower Bound	Upper Bound
Stage-I	56.000	.000	56.000	56.000	56.000	.	.	.
Stage-II	50.000	6.439	37.380	62.620	53.000	17.065	19.553	86.447
Stage-III	44.235	6.204	32.076	56.395	38.000	2.058	33.966	42.034
Stage-IVA	44.955	5.790	33.607	56.303	36.000	9.381	17.614	54.386
Stage-IVB	39.344	5.358	28.843	49.844	30.000	2.828	24.456	35.544
Overall	43.446	2.975	37.616	49.276	36.000	2.530	31.040	40.960

a. Estimation is limited to the largest survival time if it is censored.

1. AYMAN, R. et al. (2021). Epidimiological profile and Clinicopathological, Theraputic, and prognostic Characterstics of Nasopharyngeal carcinoma in Northern Morocco. Morroco cancer control, (28) 1-12.

2. MILA, R. et al. (2018). Outcome of Nasopharyngeal carcinoma in Finland: A Nation-Wide study. Acta Oncologica, 57(2), 251-256.
3. ZHANG W, et al. (2020). Histological Subtype Remains a Significant Prognostic Factor for Nasopharyngeal Carcinoma: A Propensity Score-matched Analysis of the SEER database. Front Oncol, 10.
4. YARNEY J. et al. (2017). Does Concurrent Chemo Radiotherapy Proceed by Chemotherapy Improve Survival in Locally Advanced Nasopharyngeal Cancer Patients? Experience from Ghana. Accra Biomed Central, 2(4).
5. YEH S, et al. (2021). Outcomes of patients with NPC treated with IMRT. Journal of Radiation Research, 438-447.

D2.6 Modelling normative brain growth in childhood to enable radiotherapy toxicity assessment

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Introduction

Radiotherapy (RT) is an effective treatment for childhood brain cancer, but often causes long-term side effects decades later. Identifying patterns of normative growth for brain anatomy would enable RT-related toxicity analysis. Historically, this has been modelled using small datasets and with simplified measures. In this study, we develop a population-based model of normative brain growth using automated tools, providing a baseline to quantify normal growth and variation in healthy children, discriminating by sex.

Methods

734 T1-weighted MRIs of children aged 3-21 were obtained from the PING (Paediatric Imaging, Neurocognition, and Genetics) dataset [2]. The machine-learning segmentation tool FastSurfer [1] was used to split the brain into 20 structures. Outlier segmentations were visually checked. Structural changes with age were analysed using fractional volume (structure volume/brain volume). For analysis, children were grouped by sex (49% female, 51% male). We report the results of linear regressions (slope and intercept), and their measure of correlation (r).

Results

FastSurfer segmentations were determined to be accurate. Significant linear change (males: $|r| > 0.135$; females: $|r| > 0.139$; $p = 0.01$) with age was seen in 17 and 15 structures for females and males, respectively. Table 1 displays the linear fit results for all 20 structures, and Figure 1 shows example structures.

Conclusion

Here, we describe a detailed population-based model of the growing brain using MRI. Not all structures followed a linear pattern of change, with some displaying no change with age. These models will guide future intra-patient assessment and aid study of RT-related toxicity.

	Female			Male		
Structure	Gradient [%/year]	Intercept [%]	r	Gradient [%/year]	Intercept [%]	r
Cerebral cortex*	−0.53	52	**−0.88**	−0.51	51	**−0.86**
Cerebral white matter*	0.42	30	**0.82**	0.4	31	**0.80**
Brain stem	0.025	1.3	**0.73**	0.025	1.3	**0.72**
Ventral diencephalon*	0.0081	0.60	**0.71**	0.0082	0.59	**0.70**
Cerebellum white matter*	0.027	2.0	**0.58**	0.018	2.1	**0.43**
Pallidum*	0.0027	0.31	**0.50**	0.0027	0.30	**0.48**
Choroid plexus*	0.002	0.056	**0.40**	0.0026	0.050	**0.44**
Thalamus proper*	0.0058	1.3	**0.38**	0.0066	1.2	**0.41**
Amygdala*	0.0015	0.27	**0.32**	0.0023	0.26	**0.40**
Hippocampus*	0.0031	0.68	**0.29**	0.0033	0.66	**0.30**
Lateral ventricle*	0.022	0.52	**0.28**	0.029	0.50	**0.30**
3rd ventricle	0.00082	0.052	**0.28**	0.00064	0.055	**0.20**
4th ventricle	0.0018	0.11	**0.25**	0.0022	0.11	**0.26**
Inferior lateral ventricles*	0.0006	0.035	**0.16**	0.0007	0.036	**0.17**
White matter hypointensities	−0.001	0.10	**−0.16**	–	–	0.014
Cerebrospinal fluid	0.00044	0.073	**0.15**	0.0006	0.068	**0.19**
Accumbens area*	−0.00038	0.12	**−0.14**	–	–	**−0.079**
Putamen*	–	–	0.074	–	–	**0.087**
Cerebellum cortex*	–	–	0.036	–	–	**0.050**
Caudate*	–	–	−0.0023	–	–	**0.022**

Table 1: Gradients, intercepts and r values from plots of each structure's fractional volume against age, split by sex. The table is sorted by $|r|$ value of the female brains, and statistically significant values of $|r|$ are in bold. Gradients and intercepts are left blank if no significant trend was found. Structures labelled with a * represent two lateral structures which have been combined.

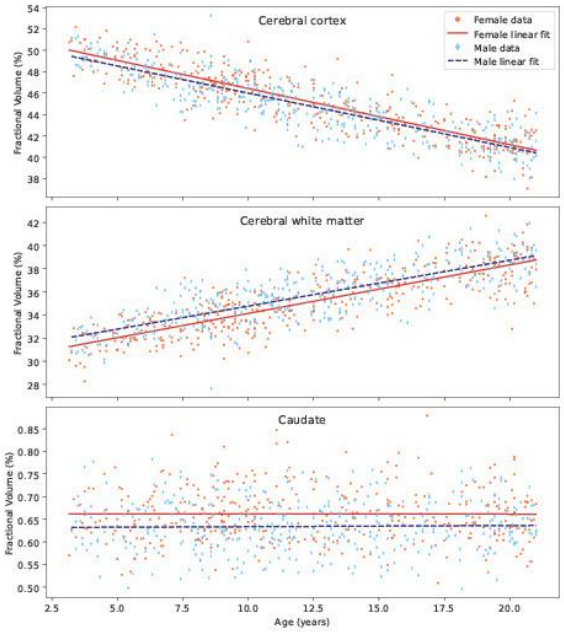

Figure 1: Three example linear fits of fractional volume against age, with gradients, intercepts and r values seen in Table 1. The legend and x axis are shared across the plots. The cerebral cortex and cerebral white matter show strong linear trends while the caudate depicts no significant change with age.

1. Henschel, L., Conjeti, S., Estrada, S., Diers, K., Fischl, B. and Reuter, M., 2020. Fastsurfer-a fast and accurate deep learning based neuroimaging pipeline. NeuroImage, 219, p.117012.
2. Jernigan, T.L., Brown, T.T., Hagler Jr, D.J., Akshoomoff, N., Bartsch, H., Newman, E., Thompson, W.K., Bloss, C.S., Murray, S.S., Schork, N. and Kennedy, D.N., 2016. The pediatric imaging, neurocognition, and genetics (PING) data repository. Neuroimage, 124, pp.1149-1154.

SHORT PAPER SESSION E2

E2.1 A novel educational tool to optimise lung cancer screening in Australia

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In Australia, 15,000 newly diagnosed cases of lung cancer occur each year and whilst age-standardised rates are declining for males, for females the reverse is happening, with incidence increasing by about 30% since 2004. The National Lung Cancer Screening Program (NLCSP) in Australia will commence in mid-2025 and with approximately 5%[1] of radiologists in Australia being chest subspecialists, a rapid and effective educational intervention is required.
This current multi-State work involves thoracic radiologists and physicians, radiographers, biomedical engineers and physicists across clinical, academic, professional college and industrial domains and will deliver a regimen that incorporates on-line delivery, latest educational innovations and artificial intelligence (AI).
There are three strands: interactive on-line modules; a webinar series delivered by experts; a novel image viewing platform available 24/7 to clinicians wherever they are located.
The viewing platform will be configured to accept both 2D and 3D images of the lungs to enable real-life case interactions using the clinicoradiological Nodule Management Protocol derived for the NLCSP and full image processing facilities. The educational platform features AI-powered tools to tailor training pathways based on user profiles, learning behaviour, deep learning based radiomic signatures as well as first-order statistical measures and second-order Haralick texture descriptors.
The platform features robust reporting capabilities for clinical leads and screening managers, providing insights into individual and group performance. The solution facilitates the most effective and rapid learning experience for all diagnosticians involved in the Australian NLCSP with outputs relevant across all radiologic specialties and geographic locations.

1. https://www.ranzcr.com/college/document-library/2020-workforce-census-report-australia

E2.2 Evaluating the effectiveness of a gamification simulation in enhancing chest X-Ray interpretation proficiency among third-year radiography students

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Background
Chest X-rays (CXR's) are the most frequently performed imaging examinations in the UK, requiring radiographers to develop strong interpretation skills ensuring accurate diagnosis (Gefter et al,. 2023). Gamification in education has shown promise in enhancing engagement and achieving learning outcomes (D'Amore et al., 2012). This study evaluates the effectiveness of gamification in improving CXR proficiency amongst third-year radiography students.
Methods
This study involved the development and implementation of CXR RadPath, a gamified education tool designed to enhance CXR interpretation. The game structured six key categories related to CXR interpretation. Participants completed a baseline assessment before the gamification, followed by a post-intervention assessment to measure improvements in proficiency and confidence. Data was collected both quantitatively and qualitatively to assess students' perceptions of gamification as a learning tool and it's effectiveness in supporting radiographic education. Quantitative results were compared to measure changes in competency, whilst qualitative responses were thematically analysed to identify themes in student experience.
Results
Student's demonstrated a significant improvement in CXR interpretation proficiency after engaging with a gamified simulation. Confidence levels increased notably, 83% of students progressed from ''Moderately Confident'' to ''Very Confident'' in their ability to interpret CXR's. Similarly, 67% of students improved in identifying abnormalities on CXR's. Quantitative results showed an improvement in mean scores by 31%. Pathology identification also improved. The simulation was deemed engaging, effective and beneficial for enhancing systematic radiographic analysis skills.
Conclusion
Gamification as an educational tool significantly improved students' confidence and accuracy in CXR interpretation, demonstrating the effectiveness of gamification.

D'AMORE, A., JAMES, S. and MITCHELL, E.K.L., 2012. Learning styles of first-year undergraduate nursing and midwifery students: A cross-sectional survey utilising the Kolb Learning Style Inventory. Nurse education today, 32(5), pp. 506–515.
GEFTER, W.B., POST, B.A. and HATABU, H., 2023. Commonly Missed Findings on Chest Radiographs: Causes and Consequences. Chest, 163(3), pp. 650–661.

E2.3 The RADICAL study: A large mixed-methods study evaluating whether CXR algorithms can assist in the detection of urgent suspicion of cancer (USC)

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Diagnosing and treating lung cancer in early stages is essential for survival outcomes [1]. Image analysis by machine-learning software has the potential to support radiology workflows with a focus on immediate triage of suspicious X-rays. Based in NHS Greater Glasgow and Clyde, the RADICAL study is a stepped-wedge cluster-randomised study consisting of a retrospective technical evaluation and prospective clinical effectiveness study alongside the assessment of acceptability via qualitative work and evaluation of cost-effectiveness via a cost utility analysis. The primary objective is to assess the clinical effectiveness of qXR software to prioritise patients with suspected lung cancer on CXR for follow-up CT. Secondary objectives look at the utility, safety, technical performance, health economics and acceptability of the intervention. Early results for 80,000 CXRs interpreted over 12 months will be presented alongside a retrospective technical evaluation.

Link to BMJopen study protocol: https://bmjopen.bmj.com/content/14/9/e081062#ref-2

1. Tsai C-H, Kung P-T, Kuo W-Y, et al. Effect of time interval from diagnosis to treatment for non-small cell lung cancer on survival: a national cohort study in Taiwan. BMJ Open 2020;10:e034351. doi:10.1136/bmjopen-2019-034351

E2.4 The significance of breast lesions identified incidentally on lung health check CT

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Background

The Targeted Lung Health Check Programme is a screening initiative offering low-dose CT (LDCT) scans to populations at higher risk of lung cancer. Like other forms of cross-sectional imaging, this can produce incidental findings, resulting in increased patient anxiety due to further investigations. We investigated the frequency of incidental breast lesions found through this programme and their outcomes.

Method

A retrospective review of all patients with breast findings detected by LDCT from November 2019 and July 2024 (n=52). Their referral method for breast assessment at one-stop clinic (OSC), findings on breast imaging, and biopsy results were recorded.

Results

52 patients had breast findings at LDCT. 41 patients triaged by breast radiologist. 24 required no further investigation. 17 patients required referral to One Stop Breast Clinic. 13 patients have completed the pathway and 5 malignancies were identified. 11 cases were referred without discussion with a breast radiologist. None of these cases identified a malignancy.

Conclusion

Discussion with the breast radiologist for triage resulted in almost half of potential breast clinic referrals to be avoided thus avoiding undue anxiety for patients and freeing capacity in the clinics to enable 2 week wait targets to be met. All the malignancies identified had been triaged by a breast radiologist. With the expansion of Lung Health Check Screening there is a rise in the number of incidental findings and it is essential to avoid unnecessary cases overloading already stretched resources in breast clinics. Example cases with pertinent distinguishing features will be presented.

E2.5 What is the significance of IVC contrast reflux on CTPA? A direct comparison with echocardiogram

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Objective

Reflux of contrast into the inferior vena cava (IVC) is frequently seen on CT pulmonary angiogram (CTPA), but there is a lack of evidence to prove its significance. This project aims to investigate whether IVC contrast reflux is an accurate indicator of tricuspid regurgitation (TR).

Method

A retrospective cohort study with consecutive patients who had a CTPA from Jan-Oct 2022, and an echocardiogram within 1 year of the CTPA. Arm 1 consisted of CTPAs without IVC reflux (control group). Arm 2 included CTPAs with IVC contrast reflux. Severity of TR was recorded from corresponding echocardiogram reports (none, trace, mild, moderate, severe).

Results

217 patients were included. Arm 1 consisted of 100 patients' CTPAs (average age 68 years) and echocardiograms (37 with no TR, 43 trace, 15 mild, 5 moderate, 0 severe). Arm 2 consisted of 117 patients' CTPAs (average age 75 years) and

echocardiograms (15 with no TR, 34 trace, 26 mild, 28 moderate, 13 severe). Having TR or no TR on echocardiogram was significantly different compared to CTPAs of each Arm (P<0.05). However, exclusive analysis of patients with moderate/severe TR (46/217) on echocardiogram were not significantly different compared to corresponding CTPA (P>0.05). There were 5/46 false positives (no IVC reflux on CTPA, but moderate/severe TR on echocardiogram). Therefore when TR is moderate/severe, IVC reflux on CTPA has 89% (41/46) TR detection accuracy.

Conclusions

IVC reflux on CTPA could detect moderate/severe TR as observed on corresponding echocardiograms. These patients would benefit from early cardiology input for further investigation.

E2.6 Internal target volumes of lung tumours can be more accurately localised with pre-fraction 4D-MRI than with 4D-MRI captured at radiotherapy planning

Mr Mark Warren[1], *Lynn Bell, Dr Neeraj Bhalla, David Cobben, Abhishek Mahajan, Miss Louise Turtle, John Fenwick*

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Background

MR-linacs could allow daily adaption of the Internal target volume (ITV) at each treatment fraction. This would require capturing a pre-fraction 4D-MRI, followed by a roughly ten-minute adaption period before treatment delivery.
This study investigated if the ITV observed on a pre-fraction rather than a planning 4D-MRI would provide a more accurate representation of the ITV during treatment delivery.

Method

Fourteen lung cancer patients underwent repeat respiratory-correlated 4D-MRI, using a 2D T2-weighted HASTE sequence.
For each patient, repeat 4D-MRI were used to form three types of ITV, representing timepoints analogous to: daily pre-fraction verification (ITVpre); treatment delivery ten minutes later (ITVpost); and treatment delivery around two weeks later (ITV~2weeks). Changes to the extent of the ITV between planning and treatment were determined using the Hausdorff Distance HD. The 90th percentile of the maximum distances that ITVpost and ITV~2weeks extended outside ITVpre were also calculated.

Results

Table one shows that after correction for centroid drift, mean HD between ITVpre and ITVpost was smaller than between ITVpre and ITV~2weeks (7.6mm vs 11.1mm, p<0.01). The 90th percentile of the maximum distances that ITVpost extended outside ITVpre was smaller than that for ITV~2weeks (9.5mm vs 17.3mm).

Conclusion

The HD of ITVs defined on repeated 4D-MRI datasets collected ten minutes apart were more similar than those collected weeks apart. For 90% of patients, the margin required to encompass changes to the ITV observed over ten minutes is ~7mm smaller than that needed to encompass changes observed over two weeks.

Table 1. Values of *HD* between ITVs captured at ten minute and two-weekly intervals

	HD (mm)	
Patient	ITV_{pre}/ITV_{post}	$ITV_{\sim 2weeks}/ITV_{pre}$
1	9.8	10.6
2	10.8	18.8
3	7.6	6.1
4	6.7	8.7
5	10.2	10.2
6	3.5	9.4
7	2.3	22.6
8	8.1	9.2
9	10.7	12.6
10	8.5	13.8
11	4.0	6.7
12	8.7	12.5
13	6.5	7.7
14	8.4	6.7
Mean	7.6*	11.1
Median	8.3*	9.8

Key. *- paired differences of HD are significantly lower between ITVs delineated on 4D-MRI collected at 10-minute intervals, than between ITVs delineated on 4D-MRI collected at two-week intervals (p<0.01).

SHORT PAPER SESSION F2

F2.1 Enhanced level practice: Understanding the current landscape in radiography

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Background

Enhanced level practice in radiography bridges the gap between foundation and advanced practice, those working at this level contribute to patient care and service improvement, clinical safety and staff development.1 The CHEERs project sought to socialise the awareness and understanding of enhanced practice across the radiography profession in the UK. This presentation reports on the survey element of the larger project which was commissioned and funded by NHSE.

Methods

To gain a baseline of data on current awareness of the enhanced level two parallel online mixed method surveys were undertaken across managers and practitioners. Open for 8 weeks in Summer 2024 responses were collated through the online platform (Jisc). Closed and open questions enabled understanding, perceptions and myths to be collated.

Results

Overall 552 responses were received and 67.5% of diagnostic and 76.2% of therapeutic radiographers had heard of enhanced practice. However, only 30.3% of respondents reported that there had been discussion in their organisation. This confirms that the adoption in practice is lacking with only 34.4% being aware of the appropriate scope of practice of an individual working at an enhanced level. Other answers confirm that there is confusion on the appropriate educational level and the differences between enhanced and advanced practice.

Conclusion

The survey provided information on the misconceptions and confidence levels of the radiography community on enhanced practice which has further informed the development of resources and training to socialise enhanced practice in radiography.

1. The College of Radiographers. (2022) Education and Career Framework for the Radiography Workforce (4th edition) https://www.sor.org/getmedia/b2f6bf07-668f-4155-950a-b9d96c48eae1/12604-CoR-ECF-Interactive-v9a [Accessed 09/02/2025]

F2.2 The Imaging Support Workforce: "Without them there wouldn't be a service at all"

Dr Rob Appleyard[1], Dr Sarah Etty[1], Prof Beverly Snaith[2,3], Prof Julie Nightingale[1]
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Background

Diagnostic imaging services face a long-standing workforce crisis.[1,2] A strategy being used to combat this crisis is skill mix,[3] however, little is known about the deployment and utilisation of Support Workers and Assistant Practitioners (SWAP) within diagnostic imaging,[4] a key workforce in the application of skill mix. This study explored stakeholder perceptions regarding SWAP roles and responsibilities, contribution to service provision, and career progression.

Methods

Using a case study approach, semi-structured interviews (n=38, service/modality leads) and focus groups (n=15, SWAPs) were completed across nine NHS Trusts in England. Sampling was purposive, aiming for representative diversity in SWAP utilisation levels and geographical spread. Data analysis involved thematic analysis within and across cases.

Results

Four themes emerged: (1) operational efficiency and service impact, where SWAPs were critical in optimising workflows and service delivery; (2) roles and responsibilities, with noted role clarity but some ambiguity leading to role strain; (3) career progression, support, and training, highlighting opportunities yet significant barriers to advancement; and (4) workforce dynamics and job satisfaction, where high job satisfaction contrasted with challenges in role stability and professional recognition.

Conclusion

SWAPs substantially enhance imaging service delivery, providing crucial operational support and patient interaction. Despite this, there is a lack of role clarity and career progression for SWAPs that can impact on inherently high job satisfaction. Rotation of support workers can address some service needs, whereas static deployment enhances consistency, team dynamics and job satisfaction. The findings advocate for a structured framework to guide the implementation of effective practice models.

1. The Royal College of Radiologists. Clinical Radiology workforce census 2023 report. London: The Royal College of Radiologists June; 2024. https://www.rcr.ac.uk/media/5befglss/rcr-census-clinical-radiology-workforce-census-2023.pdf; 06.02.25.
2. Society of Radiographers. Diagnostic radiography workforce UK census. https:// www.sor.org/getmedia/6994cd5d-0155-4a7e-a8a7-32a9bbda81c3/DiagnosticRadiography-Workforce-UK-Census-2022-report.pdf; 2022. 06.02.25.
3. Radiography Skills Mix. A Report on the Four- Tier Service Delivery Model. (2003), Department of Health. London

4. Snaith B, Etty S, Nightingale J. Has the skills mix promise been broken? A scoping review of the support and assistant workforce in diagnostic imaging. Radiography 2024;30:1468-73. https://doi.org/10.1016/j.radi.2024.08.006.

F2.3 "Making it work in the face of extreme adversity" - Exploring perceptions for the future of the imaging and oncology workforce using 'soundbite' interviews

Mr James Harcus[1], Gina Ferrari[1], Miss Erin Berry[1], Ed Cadogan[1], Ciara McNally[1], Ash Bardwell[1], Nicola Singh[1], Dr Jamie Beck[1]

[1]University of Bradford, United Kingdom

Background

Public demand and scrutiny, an aging population, inefficient funding and the legacy of Covid-19 are just some of the challenges our health service faces.1,2 In imaging and oncology, there has been an exponential growth in service need against a workforce which is struggling to recruit and retain.2,3 This project explored what the workforce perceive the main opportunities and solutions, threats and risks are.

Method

Very short structured 'soundbite' interviews were employed to capture brief opinions or 'snippets' of dialogue. Participants recruited at an imaging and oncology congress were asked what they considered the most significant opportunity/solution and threat/risk related to the future workforce. Descriptive and content analysis was undertaken to provide evaluation of frequency of themes.

Results

88 'soundbite' interviews were undertaken lasting between 30 seconds and four minutes in length. The most common themes relating to opportunities/solutions considered education and students, workforce development and skill mix, and the use of technology. The most common threats/risks were identified as a lack of support for the workforce, recruitment and retention, national strategic issues, and barriers to workforce development.

Conclusion

The workforce perceives a greater number of threats/risks for the future than potential opportunities/solutions. In particular, burnout and staff attrition were the most frequent perceptions of risk, though role development was often highlighted as the biggest opportunity. Interestingly AI and technology were frequently considered both opportunity and threat. This study highlights a lot needs to be done to support our future workforce and make best use of potential opportunities and solutions.

1. NHS England. (2023). NHS long term workforce plan. NHS England, England.
2. Elliott J. Hodges C. Boots M, Pattinson R, Gillen E, Whybrow D, Bundy C (2024). Mixed shift rotations, sleep, burnout and well-being in professions similar to radiographers: a systematic review. Radiography 30, 1194-1200
3. Nightingale J, Burton M, Appleyard R, Sevens T, Campbell S. (2021). Retention of radiographers: a qualitative exploration of factors influencing decisions to leave or remain within the NHS. Radiography. 27(3):795-802

F2.4 Do reporting radiographers understand the difference between the enhanced and advanced levels of practice?

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Background

The enhanced level of practice was introduced into NHS terminology in 2019[1] and into the radiography career framework in 2022.[2] Yet there is inherent confusion and inconsistent alignment of the levels within practice exacerbated by differing educational achievements, capabilities and scopes of practice.[3] This abstract reports on the online survey element of a multiphase College of Radiographers Industry Partnership Scheme (CoRIPS) funded project aiming to understand the perceptions of those in this field.

Method

An electronic survey was distributed in autumn 2024. The eligibility for participation included UK trainee or qualified reporting radiographers working in projectional radiography. Closed and open questions were utilised.

Results

188 unique eligible responses were received, including 14 (7.4%) from current trainees. 66.5% of respondents indicated they understood the difference between the enhanced and advanced levels. For those already independently reporting highest qualifications varied from PgCert to PhD. Based on self-defined level of practice they identified as practitioner (1.7%), enhanced (46.0%), advanced (42.0%) and consultant (5.7%). There was a significant link between highest qualification and self-defined level ($p<.05$). Of the 86 who defined themselves at the enhanced level, one fifth had the term 'advanced' in their job title. 84.5% of respondents are being paid at Agenda for Change band 7 although 10 were on a split pay band, higher when reporting.

Conclusion
Despite the majority of survey respondents stating their understanding of the different levels of practice the application of the levels into practice is inconsistent and confusing for practitioners and patients.

1. Leary A. Enhanced Practice. Health Education England. 2019.
2. College of Radiographers. Education and Career Framework. College of Radiographers, London. 2022
3. Murphy L, Nightingale J, Calder P. Difficulties associated with reporting radiographer working practices—a narrative evidence synthesis. Radiography. 2022; 28: 1101–1109.

F2.5 An evaluation of the clinical factors impacting the psychological wellbeing of diagnostic radiographers in the UK

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Background
Care and compassion are fundamental components underpinning healthcare practice. Evidence suggests that healthcare practitioners witnessing the suffering of others may result in emotional reactions impacting upon their ability to demonstrate empathy and compassion (Sabo, 2006). Diagnostic radiographers are often overlooked as a profession when evaluating compassion and interaction with patients due to the perceived solely technical aspects of their role (Robertson et al., 2022). This qualitative research aimed to explore the psychological effects of clinical radiography practice on radiographers in the UK.

Method
The data was generated through in-depth one-to-one semi-structured interviews with twenty-three radiography practitioners working in the UK. Participants were recruited through the research teams' professional networks, the Society of Radiographers Live and via the UKIO Congress 2024 Research Hub. The collated anonymised and transcribed data was analysed using iterative thematic analysis.
Results
The analysis generated four themes pertaining to the remit of radiography practice influences on radiographers' psychological wellbeing: 'role perception and normalisation', trauma and burnout', 'support networks', and 'training needs.' These themes provide meaningful insights into the current status of radiography practice and its potential psychological impacts from the radiographers' perspective.
Conclusion
The four themes suggest that there can be detrimental effects on the psychological wellbeing of radiographers in carrying out their clinical roles. Improved pre and post graduate education together with the addressing of radiographers' role perceptions and expectations is needed to enhance and maintain radiographers' wellbeing in clinical practice.

1. Robertson, S., Olanloye, E.E., Hon, Y., England, A., McNair, H., Cruikshank, S. (2022) Are Radiographers suffering from symptoms of compassion fatigue due to occupational stress: A systematic review. Radiography; 28(3): 857-864.
2. Sabo, B.M. (2006) Compassion fatigue and nursing work: Can we accurately capture the consequences of caring work? International Journal of Nursing Practice: 12(3): 136-142.

F2.6 Occupational stress and mental wellbeing: A qualitative exploration of migrant sonographers working in the UK

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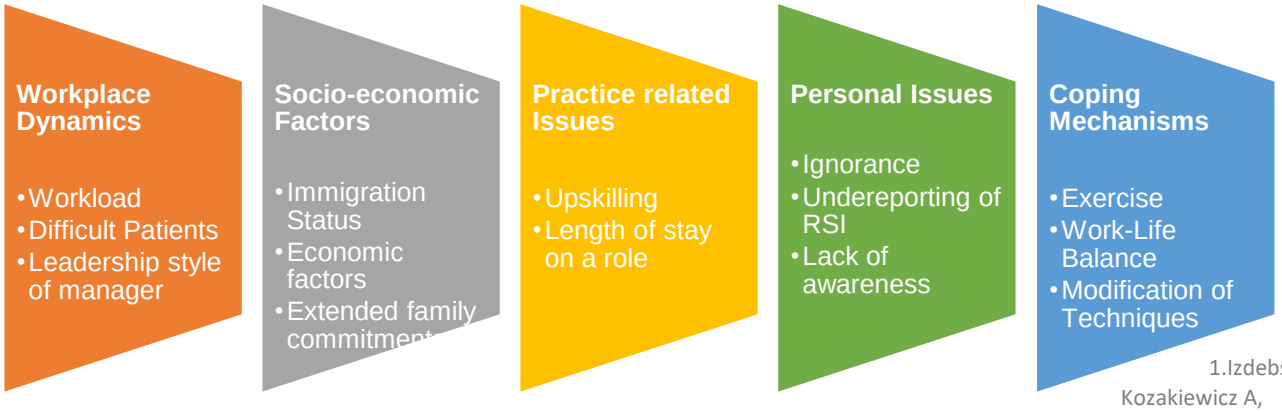
Background
Occupational stress (OS) and burnout are prevalent in healthcare, including ultrasound. These challenges are exacerbated by staff shortages, increasing workload, and ageing population growth, leading to a growing reliance on ultrasound for diagnosis. In the UK, migrant sonographers fill critical staffing gaps but face unique work-related stressors that impact their well-being and mental health. This study explored the experiences and perspectives of migrant sonographers practising in the UK regarding OS and well-being.
Method
Ethical approval was obtained (HRS-2024-ECYBI). Semi-structured interviews were conducted with 12 HCPC-registered migrant sonographers across ten regions in the UK who had experienced OS. These interviews were conducted via Microsoft Teams, transcribed verbatim, and analysed thematically using NVivo software. A descriptive qualitative approach was employed.
Findings
Five major themes were developed: workplace dynamics, socioeconomic factors, practice-related factors, personal issues and coping mechanisms. Primary sources of stress identified were workload, difficult patients, managerial/leadership

challenges, immigration issues, and lack of awareness of the procedure for reporting repetitive stress injury (RSI) and work-related stress.

Conclusion

The findings highlight unique stressors associated with migrant sonographers that negatively impact their mental/physical well-being and performance. Thus, emphasising the need for inclusive managerial approaches and culturally tailored support systems. Customised onboarding, stress management training, and RSI reporting protocols can enhance well-being, job satisfaction, and retention.

Implications for practice: Healthcare institutions must address the unique needs of migrant practitioners. Culturally competent onboarding programs and ongoing support systems should be prioritised to foster a resilient and satisfied workforce.



1.Izdebski Z, Kozakiewicz A, Białorudzki M, Dec-Pietrowska J, Mazur J. Occupational burnout in healthcare workers, stress, and other symptoms of work overload during the COVID-19 Pandemic in Poland. Int J Environ Res Public Health. 2023 Jan 30;20(3):2428. doi: 10.3390/ijerph20032428. PMID: 36767797; PMCID: PMC9916221.

2.Simona, Dobešová, Cakirpaloglu., Panajotis, Cakirpaloglu., Ondřej, Skopal., Barbora, Kvapilová., Tereza, Schovánková., Šárka, Vévodová., Jane, Greaves., Alison, Steven. 2. Strain and serenity: exploring the interplay of stress, burnout, and well-being among healthcare professionals. Frontiers in Psychology, (2024). doi: 10.3389/fpsyg.2024.1415996

SHORT PAPER SESSION H2

H2.1 Benefit of dedicated Radiotherapy Clinical Trial Education sessions to Cancer Research Network Staff

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Background
Dedicated education sessions focused on radiotherapy (RT) and RT clinical trials are not delivered routinely to staff involved in clinical trials across the cancer network. The project was undertaken to assess any benefit in delivering a RT education session by evaluating changes in non-RT staff knowledge following a half day educational session on these topics.

Methods
A baseline survey was distributed via email prior to attendance and made available for completion upon arrival to the education session. A post-session survey was then circulated by email after the session. The baseline survey asked for self-reported RT knowledge and RT trials knowledge, graded as none, little or a lot, as well as the identification of which of the four session topics (RT basics, delivery, techniques, data) participants felt they needed a better understanding of. The post-session survey asked if RT knowledge and RT trials knowledge had stayed the same, slightly or greatly improved; and identify if their knowledge had improved in any of the four session topics.

Results
Twenty two baseline surveys were completed. Of those 90.0% reported having little or no knowledge of RT and 72.7% knew little or nothing about RT clinical trials. 77.3% reported needing a better understanding in all four of the session topics.
Twelve participants completed the post-session surveys. 100% of those felt both their knowledge of RT and RT clinical trials had improved slightly or greatly.

Conclusion
A dedicated RT education session enables non-RT staff to enhance their knowledge on RT and RT clinical trials.

H2.2 Can radiological response to 1st line chemotherapy predict the response to Immunotherapy as 2nd line in patients with advanced or metastatic oesophageal squamous cell carcinoma?

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Background
Oesophageal squamous cell carcinoma (SCC) accounts for 90% of oesophageal cancer and has a poor prognosis. Patients with unresectable locally advanced or metastatic SCC, 2nd line nivolumab is the standard of care based on the results of phase III ATTRACTION-3 trial, demonstrating better overall survival (OS) and a favourable toxicity profile compared with chemotherapy. We audited the outcomes of patients treated with nivolumab and investigated if radiological response to 1st line chemotherapy correlated with nivolumab outcomes.

Methods
We retrospectively identified patients who had received nivolumab following chemotherapy between 2022 and July 2024. Demographic data, toxicity, baseline serology and, radiological response was collected from electronic medical records. Radiological response was defined using the RECIST criteria. Statistical analysis was conducted using SPSS.

Results
Data from 19 patients was collected. Median age was 68. 47% were male, 63% had metastatic disease, 47% had immunotherapy toxicity and, 42% progressed on first line chemotherapy. The median OS from the start of nivolumab between patients who responded/progressed radiologically to 1st line chemotherapy was 11 months (95% CI:4.7-17.3) and 5 months (95% CI:0-10.5) respectively (p=0.043). First line response to predict nivolumab response was not significant (p=0.085), however, the duration of 1st line chemotherapy control was associated with better response to nivolumab (p=0.036).

Conclusion
We observed a better median OS with nivolumab when patients had a good radiological response to 1st line chemotherapy. Duration of 1st line control was associated with a better response to nivolumab. Larger patient cohorts are required to further validate these findings.

Table

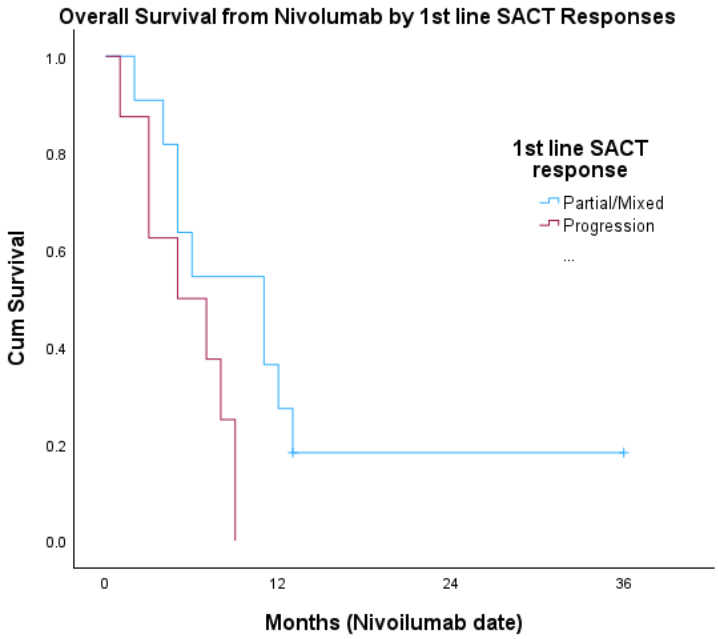

Figure 1| Kaplan-Meier curve showing the overall survival of patients treated with nivolumab second line from the start of nivolumab treatment separated by whether they had a response to 1st line chemotherapy (p=0.043).

H2.3 Novel approach: Adaptive MR-guided SABR as an alternative to HDR brachytherapy boost in gynaecological cancers

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Background

Curative treatment for locally advanced cervical cancer is chemo-radiation with external beam radiotherapy (EBRT) and brachytherapy[1]. However, brachytherapy is not always feasible due to patient factors, including refusal, or technical challenges.

We investigate Adaptive MR-Guided SABR as an alternative to brachytherapy boosts. This approach adapts dose to daily anatomical variations, with superior soft tissue contrast, continuous intrafraction tracking, reduced PTV margins,dose escalation and Dmax > 150% akin to brachytherapy.

Method

Eight cases were retrospectively planned. Dose prescription was 30Gy/5#s to PTV, simultaneously boosting CTV to 35Gy. 45Gy/25# was delivered with EBRT. 0% organ at risk (OAR) recovery was assumed. Maximum PTV dose was 1 cc at 150% of 35Gy. EMBRACE-II 2cc OAR constraints were applied (bladder 90Gy, rectum/bowel 70Gy) and 0.1cc dose constraints to displace hotspots. Projected cumulative dose was calculated using α/β ratio of 5 for bladder/rectum, and 4 for bowel. Minimum cumulative EQD2 target coverage was D90% CTV≥90Gy, D90% PTVhigh≥85Gy and D90% PTV≥80Gy.

Results (Table 1, Figure 1)

Mean CTV volume was 50.4cc (range 13.1–121.7). Mean combined EQD2 D90% for CTV and PTVhigh were 93.9Gy (range 84.0-100.9) and 87.5Gy (range 83.9-91.6), respectively. Maximum (median) 2cc OAR doses to the bladder, rectum and bowel were 84.6Gy (79.3), 69.9 (69.7) and 69.5Gy (64.3),. Rectum was the dose limiting structure.

Conclusion

Adaptive MR-Guided SABR Boost has demonstrated good target coverage within OAR constraints similar to brachytherapy. This supports clinical feasibility studies with the potential of improving outcomes in patients unable to undergo brachytherapy.

Table 1 Overview of results from the eight test Gyane MRgRT boost trials. D%: dose for that specific percentage of volume. Total: summation of the base and boost treatments. CTV: clinical target volume, Px: Prescription, PTV: Planning Target Volume, EQD2: Equivalent Dose in 2 Gy per fractions, Gy: Gray, cc: Cubic centimetre, St Dev: Standard deviation

Test No	Px	Vol_CTV (cc)	D98% Boost CTV EQD2 (Gy)	D98% Boost PTVhigh EQD2 (Gy)	D98% Boost PTV EQD2 (Gy)	D90% Total CTV EQD2 (Gy)	D90% Boost PTVhigh EQD2 (Gy)	D90% Total PTVhigh EQD2 (Gy)	D90% Total PTV EQD2 (Gy)	Prescription Dose Spillage	Estimated Delivery Time (minutes)	Global D-Max (Gy)
1	30Gy/5# 35Gy CTV Boost	13.1	45.0	35.8	29.3	99.4	42.7	87.0	81.4	1.05	10.5	53.2
2	30Gy/5# 35Gy CTV Boost	27.0	40.5	35.9	27.5	93.4	43.2	87.5	79.7	1.03	11.0	54.1
3	30Gy/5# 35Gy CTV Boost	40.0	40.8	37.7	28.4	96.4	43.4	87.6	81.1	1.04	9.0	53.1
4	30Gy/5# 35Gy CTV Boost	27.9	38.4	39.3	26.4	93.2	47.3	91.6	79.9	1.07	12.0	55.3
5	30Gy/5# 35Gy CTV Boost	59.4	35.2	33.6	24.6	84.0	39.7	83.9	73.7	1.05	10.8	53.3
6	30Gy/5# 35Gy CTV Boost	31.9	49.8	38.9	28.3	100.9	44.9	89.2	87.4	1.09	8.1	51.3
7	30Gy/5# 35Gy CTV Boost	82.3	37.1	36.2	28.2	91.8	41.8	86.0	79.8	1.03	11.8	54.6
8	30Gy/5# 35Gy CTV Boost	121.7	35.9	35.1	23.6	91.8	43.1	87.3	78.4	1.06	8.7	53.6
Mean		**50.4**	**40.3**	**36.6**	**27.0**	**93.9**	**43.3**	**87.5**	**80.2**	**1.05**	**10.2**	**53.6**
St Dev		**36.0**	**5.0**	**2.0**	**2.0**	**5.3**	**2.2**	**2.2**	**3.8**	**0.0**	**1.5**	**1.2**

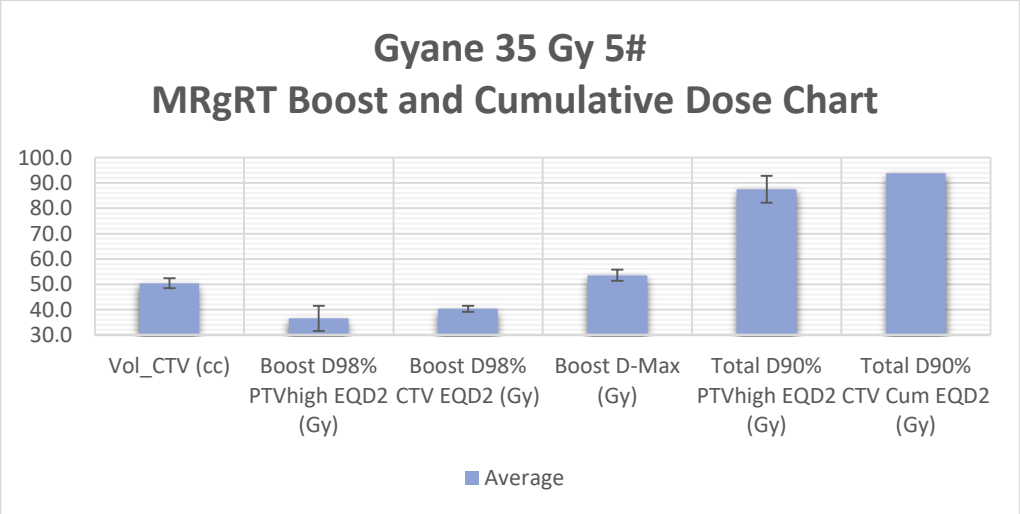

Figure 1 Mean values for boost and cumulative dose coverage for PTVhigh and CTV, as well as the standard deviations, for a total of eight test MRgRT trials.

1. Potter R, Tanderup K, Schmid MP, et al. (2021) MRI-guided adaptive brachytherapy in locally advanced cervical cancer (EMBRACE-I): a multicentre prospective cohort study. Lancet Oncol. 22(4), 538-47.

H2.4 Feasibility of soft-tissue structure registration in radiotherapy for pancreatic cancer using CBCT

Alice Paterson[1,2], *Ms Lynsey Devlin*[1,2,3], *Ms Aileen Duffton*[1,2,3]
[1]*Beatson West of Scotland Cancer Centre, Glasgow,* [2]*NHS Greater Glasgow and Clyde, Glasgow, United Kingdom,* [3]*Institute of Cancer Sciences and University of Glasgow, Glasgow*

Radiotherapy (RT) for pancreatic cancer is challenging, with significant internal motion affecting image quality and IGRT verification protocols. Beyond fiducials and biliary-stent as surrogates for tissue matching, there is limited information on soft-tissue structures in decision making. Highlighting the need for further research to improve RT precision and accuracy to increase dose-escalation opportunities.

Aim

Feasibility of identifying the superior-mesenteric vein (SMV), superior-mesenteric artery (SMA), celiac axis (CA), portal vein (PV) biliary-stent (BS) on daily CBCT and quantify their variability to a region of interest (ROI)-registration

Objectives

- Determine if relevant soft-tissue structures for pancreatic IGRT can be visualised and registered on CBCT
- Quantify displacement of each soft-tissue structure from ROI match
- Quantify differential motion between soft-tissue structures associated with the pancreas

Methods

A retrospective analysis was conducted. Patients were treated with VMAT using a Varian TrueBeamTM (Varian Medical Systems, Palo Alto, CA). CBCT was acquired in breath-hold before each treatment. An automatic ROI-match was performed and checked for GTV/PTV coverage, values were recorded. Radiographer adjustments for the SMV, SMA, CA, PV, and BS, were recorded to calculate the variation.

Results

11 patients, with 65 data sets were reviewed, and displacement of 300 (100%) soft-tissue structures from the ROI match were quantified. Patient demographics are available in Table 1.Mean displacement values (cm) are available in Table 2.

Conclusion

Our analysis indicates feasibility of soft-tissue registration in pancreatic RT. Due to the variability, further work on larger data sets would be required to support the use of surrogate soft-tissue registration.

Table 1. Patient Demographics

Demographic	**Number (%)**
Gender	
Male (M)	9 (69.2)
Female (F)	4 (30.8)
Total	13
Age (in years)	
Range	44 – 77
Mean	60
Median	58
IQR	9
Variance	80.9
SD	9
Tumour location	
Head (H)	12 (92.3)
Tail (T)	1 (7.7)
Biliary stent (BS)	
Yes	8 (61.5)
No	5 (38.5)
Dose (Gy)/fractionation (#)	
30Gy/5#	7 (53.8)
35Gy/5#	3 (23.1)
50Gy/5#	3 (23.1)

Table 2. Mean (SD) displacements of soft-tissue structures from ROI, in cm.

		Displacement from ROI mean (SD) in cm				Paired t-test (significance $p \leq 0.05$)	
Registered structure number of patients with structure (n)	**Total number of structures within data sets (n)**	**Translation**					
		VRT		**LNG**		**LAT**	
SMA (n= 13	n = 65	0.09 (0.12)	0.03	-0.11 (0.19)	0.05	0.10 (0.10)	0.54
CA (n = 13)	n = 65	0.13 (0.13)	0.76	-0.05 (0.15)	< 0.001	0.11 (0.15)	0.90
SMV (n = 13)	n = 65	-0.02 (0.13)	< 0.001	-0.04 (0.15)	< 0.001	0.07 (0.14)	0.26
PV (n = 13)	n = 65	0.04 (0.11)	< 0.001	0.00 (0.16)	0.01	0.05 (0.11)	0.02
BS (n = 8)	n = 40	-0.12 (0.13)	< 0.001	-0.05 (0.14)	0.09	0.07 (0.11)	0.30
Total	300						

H2.5 Genome-wide transcriptomic response of whole blood after X-ray exposure

Ahmed Salah, Dr Daniel Wollschläger, Dr Maurizio Callari, Prof Heinz Schmidberger, Dr Federico Marini, Dr Sebastian Zahnreich
[1]*University Medical Center Of Johannes Gutenberg University, Mainz, Germany*

Background
Ionizing radiation (IR) is used in radiotherapy (RT) across a wide dose range, from 0.5 Gy for benign conditions to ≥2 Gy for malignancies. In both cases, IR induces cell death and modulates inflammatory responses within the highly radiosensitive hematologic system, and this impact remains a key clinical concern. These effects may contribute to challenges in multimodal therapy concepts as in combined radio-immunotherapy, particularly in achieving systemic (abscopal) responses. Therefore, understanding the IR-induced transcriptional response in peripheral blood is crucial for optimizing RT's immunomodulatory effects and improving clinical outcomes.
Methods
Whole blood from two male and one female donor was exposed to 0, 0.5, 1, 2, and 4 Gy of X-rays and incubated for 2 and 6 h. RNA was extracted and sequenced using the Illumina platform. Differentially expressed genes (DEGs) were identified while accounting for donor and time effects (FDR < 0.05).
Results
We found extensive gene expression variability attributed to strong inter-donor variation and time post-exposure. The degree of gene regulation was both time and dose-dependent where higher doses and longer incubation stimulated more DEGs. Lower doses (≤1 Gy) activated DNA damage responses, while higher doses (≥2 Gy) triggered proinflammatory pathways such as T cell proliferation (GO:0042098) and B cell activation (GO:0042113). Notably, we identified 34 previously unrecognized radiosensitive genes, including GPN1, MRM2, G0S2, and PTPRS.
Conclusion
This first genome-wide RNA-seq study of ex vivo X-ray-irradiated human blood identified novel radiosensitive genes and pathways, providing insights into RT-induced immune modulation and potential biomarkers for radiation exposure assessment.

SHORT PAPER SESSION I2

I2.1 Understanding patients' perceptions of advanced practitioners providing healthcare: Implementing outcomes into education and training

Melanie Clarkson[1], *Professor Ricardo Khine*
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Background

The increasing demand for non-surgical oncology (NSO) has driven workforce innovation, with skilled nursing, allied health professionals and pharmacists undertaking education and training to undertake advanced responsibilities in clinical decision-making and patient management. Regional disparities in education and training present challenges, to address these inconsistencies a national capability framework for Advanced Practitioners (APs) in NSO has been developed with the inclusion of the patient voice being an integral part of its development.

Method

A two-phased qualitative study was conducted using a phenomenological approach to explore patient and carer perceptions of advanced practice. Phase one involved an online survey distributed through patient networks (n=7), while phase two consisted of an online focus group (n=4) discussing the capability framework. Descriptive statistics were used to analyse the survey. Braun and Clark's thematic analysis was undertaken on the transcribed focus group discussions.

Results

Survey respondents generally supported being cared for by an AP but emphasised the need for clear role identification and professional visibility. Thematic analysis of the focus group identified four key themes:

- Development of attitudes and behaviours to foster trust
- Involvement of those with lived experience in training and assessment
- Consideration of the impact of training and expectations of APs
- The four pillars of practice and the expected standard of training

Conclusion

Findings reinforce the need for a structured, patient-informed framework for APs in NSO. Ensuring role clarity, high educational standards, AP well-being and patient-centred competencies is vital for fostering trust and improving care quality.

I2.2 Exploring UK sonographers views on the use of professional supervision – Stage two findings

Mrs Gillian Coleman[1], *Dr Emma Hyde*[1]
[1]*University Of Derby, Derby, United Kingdom*

Background

Professional Supervision (PS) is a formal process which supports the clinical skills and emotional wellbeing of a professional [1-3]. Within the United Kingdom (UK), PS is not part of standard practice for sonographers unlike many other healthcare professionals[4].

A two-stage mixed methods study was conducted to explore UK sonographer views on the use of PS in practice. This abstract reports on stage two findings.

Method

Following ethical approval, a series of online semi-structured focus groups or interviews were undertaken across four subgroups of participants. The four subgroups were sonographers (3), clinical specialist and consultant sonographers (1), ultrasound managers (3) and professional body officers (1).

Results

Thematic analysis was completed by two researchers who identified strong themes around the definition of PS and how this was interpreted and misunderstood at times. Barriers to PS were noted with staffing retention and demands of workloads being strong themes. Participants noted strong support mechanisms in workplaces however these were not formal processes and often relied on peer support. The impact on quality patient care was highlighted as being a potential benefit of PS. The emotional burden and wellbeing was noted across all subgroups and the potential impact that better support mechanisms and PS could have on this.

Conclusion

This study has provided insight into the views of the sonographer workforce on PS and the impact this could have on the sonographer role. There is potential for a positive

1. Wallbank, S., Hatton, S. Reducing burnout and stress: the effectiveness of clinical supervision. Community Practi. 2011; 84: 7: 31-35.
2. Lynch, L., Hancox, K., Happell, B., Parker, J. Clinical supervision for nurses. 2009. Wiley Blackwell, UK.
3. Lyth, G.M. Clinical Supervision: A concept analysis. J Adv Nurs. 2000; 31: 3: 722-729
4. Coleman, G., Hyde, E. Is there a role for professional supervision in supporting the professional and personal wellbeing of the sonographic workforce? A literature review. Radiography. 2022; 28 991-998.

I2.3 Utilising summer internships as an on-ramp to clinical science in radiotherapy

Mr James Gibson[1]
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This hospital has used charitable funding to fund five years of summer internships in radiotherapy across two sites. These internships consist of eight weeks of placement, comprising both of traditional shadowing opportunities as well as actioning targeted projects which are undertaken with the support of registered clinical scientists.
After three years of the programme, all interns able to be followed up with are now studying under the STP or imminently applying to do so. Additionally, the work done by these interns has led to specific service improvements which likely would not have happened without the opportunity to give dedicated time to implementation.
This presentation aims to discuss the funding model, application process, candidate selection rationale and programme management used, in addition to presenting a range of of specific projects and their benefits. We believe that this model can be replicated in other departments to convert charitable funding to improvements in 1) specific quality-of-care developments, and; 2) potential of of STP candidates, without requiring prohibitive amounts of staff time.

I2.4 The design, implementation, and evaluation of national preceptorship training for therapeutic radiographers

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Background
The Workforce Radiography Reform Programme (WRAP)[1] identified priorities and reform measures to strengthen workforce, with one workstream focussing on preceptorship, which embeds a culture to support and build practitioner confidence in newly-qualified staff and for those in transitioning roles. Additionally, national AHP workforce benchmarking data demonstrated inconsistency in accessibility and quality of preceptorship[2].

Key stakeholders, including the NHS AHP preceptorship workforce lead, radiotherapy service mangers, educators, newly-qualified staff and professional body members, were invited to form a national project team to provide steer, influence, and insight regarding preceptorship in Therapeutic Radiography.
The project aimed to improve standardisation and quality of preceptorship at a national level, by adopting a critical mass approach.
Method
Online synchronous preceptorship training packages - for preceptorship champions and preceptors – were designed with alignment to NHS England Allied Health Professional (AHP) Preceptorship Standards[2].
Radiotherapy departments were invited to access training remotely. Evaluation of participant experience followed training delivery.
Results
Between March and December 2024, 50 preceptor champions (across 4 cohorts) and 53 preceptors (across 3 cohorts) attended the training.
Evaluation has captured participant progression in knowledge, skills, professional profiling, and an increase in radiotherapy departments' motivation and commitment to strengthen and sustain preceptorship initiatives.
Conclusion
The project influences system level change to address local workforce issues in line with national policy recommendations. Development of a community of practice provides focus for national direction, support, and innovation for therapeutic radiographers as change agents within preceptorship. The training design provides a transferrable model for other AHP groups.

1 . The Society of Radiographers (2023) AHP Workforce Reform Programme: Outcomes &
Next Steps. The Society of Radiographers. Available at: AHP Workforce Reform Programme: Outcomes & Next Steps I SOR (www.sor.org)
2. NHS England (2024) Allied Health Professional (AHP) Preceptorship Standards and Framework. NHS England Workforce, training and education. Available at: Allied Health Professional (AHP) Preceptorship Standards and Framework I NHS England I Workforce, training and education (www.hee.nhs.uk)

I2.5 Evaluation of the BMUS Preceptorship and Capability Development Framework for sonographers: A realist approach

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Background

In 2022, the British Medical Ultrasound Society (BMUS) launched their Preceptorship and Capability Development Framework, the first document of its kind for sonographers and an important professional milestone[1]. Since its publication, the impacts on practice have not been evaluated. To address this gap, a preliminary realist evaluation was conducted. Its aim was to advance our understanding of why the framework 'works' (or not), how, for whom, in what context, and to what extent.

Method

As a preliminary realist enquiry, the central objective was to elicit initial programme theories (IPTs) about how the framework effects change (intended or otherwise) in different contexts. The IPTs were generated 'retroductively'. First, the incarnate theories embedded within the framework were inductively surfaced. Then, these were deductively tested in two semi-structured focus groups, comprising eight participants. Themes were surfaced using thematic analysis, from which IPTs emerged as 'context-mechanism-outcome' configurations (CMOCs).

Results

In total, the analysis surfaced four core themes: 'structure', 'systems thinking', 'people', and 'benefits'. From these, thirty IPTs emerged in the form of CMOCs, capturing the causal pathways between contexts, mechanisms, and outcomes.

Conclusion

This study advances the preceptorship agenda by evaluating the framework and offering valuable insights into its 'real world' functionality. The surfacing of IPTs as functional units (CMOCs) narrows the knowledge-to-practice gap; stakeholders can readily discern which outcomes are triggered in which circumstances, so can target their efforts accordingly. As such, the study has important implications for practice, as its design and outputs facilitate the development of holistic implementation strategies.

1. British Medical Ultrasound Society (2022) BMUS Preceptorship and Capability Development Framework for Sonographers. Available at: https://www.bmus.org/mediacentre/news/bmus-preceptorship-and-capability-development-framework-for-sonographers/ (Accessed: 1 February 2025).

I2.6 Preceptorship in Radiography: Cross-Sectional scoping of profession specific needs

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A recent report suggests that 17% of the radiography workforce leave within the first two years of service (Palmer, Rolewicz and Dodsworth, 2023). These figures align with the findings of the Society of Radiographers' Workforce Census for both diagnostic and therapeutic radiography (Society of Radiographers, 2022). Attrition amongst early-career stage radiographers not only places strain on clinical services but also does not deliver value from public investment into education. It has been highlighted that good quality structured support may enable retention of healthcare professionals as they commence their professional role (Health Education England, 2018; Harvey and Morris, 2020; Scholes et al, 2017). With the publication of the AHP Preceptorship Standards and Framework (NHS England, 2023) and the Health and Care Professions Council (HCPC 2023) Preceptorship Principles, this scoping study was commissioned and funded by NHS England to establish diagnostic and therapeutic radiography profession specific needs.

Method

Three online surveys were distributed across the four countries of the UK, with follow up focussed discussion groups being hosted following an initial analysis of these to delve deeper into the responses. Service Managers and practice educators, preceptors and newly qualified practitioners were specifically approached.

Results:

33 service managers, 64 preceptors and 290 radiographers completed the surveys. 16 service manager /practice educators, 5 preceptor and 1 preceptee took part in focussed discussion groups.

Conclusions

Professional clarity on preceptorship (what it is and what it is not), and the role of the preceptor (knowledges, skills behaviours) is required. The importance of protected time was emphasised.

1. Harvey-Lloyd, J. and Morris, J. (2020). Supporting Newly Qualified Diagnostic Radiographers: Are We Getting It Right? International Journal of Practice-based Learning in Health and Social Care. 8(2), 57-67.
2. HCPC (2023). Principles for preceptorship. Available at: https://www.hcpc-uk.org/resources/information/principles-for-preceptorship/.
3. Health Education England (2018). RePAIR Reducing Pre-registration Attrition and Improving Retention Report.
4. Palmer, W., Rolewicz, L. and Dodsworth, E. (2023). Waste not, want not. Strategies to improve the supply of clinical staff to the NHS. Nuffield Trust.

5. NHS England (2023). Allied Health Professions (AHP) Preceptorship Standards and Framework. Available at: https://www.hee.nhs.uk/sites/default/files/NHSE%20AHP%20Preceptroship%20standards%20and%20Framework.pdf.
6. Scholes, J., Petty, N.J., McIntosh, T., Green, A. and Flegg, M. (2017). Managing support for newly qualified practitioners: lessons learnt from one health care region in the UK. Journal of Nursing Management. 25(2), 102-109. doi: 10.1111/jonm.12446.
7. Society of Radiographers (2022). Radiotherapy Radiographic Workforce Census 2022.

SHORT PAPER SESSION J2

J2.1 Forensic and post mortem imaging - a modality for everyone

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The Association of Forensic Radiographers (now International Association of Forensic Radiographers) was established in the UK 20 years ago.
2024 also saw the release of the revised Forensic and Post-Mortem Radiography Guidance, a joint venture by UK-IAFR and the Society of Radiographers (SoR), which saw several changes including the importance of education and raising awareness of this specialist area to radiographers, students and assistant practitioners.
It is the aim of this presentation to give an over view of where we are now in the UK in terms of education, the provision of post-mortem imaging services including how it compliments more traditional postmortems, and how it is of benefit to the whole community regardless of potential religious and cultural differences.

J2.2 Embedding patient and public involvement (PPI) in the implementation of breast ultrasound elastography quality assurance (QA): A collaboration between the Institute of Cancer Research and the NHS

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Background
Ultrasound elastography is a non-invasive imaging technique that provides information about the elasticity of tissues. In breast, it has the potential to detect abnormalities and aid diagnosis, speeding up treatment and improving patient outcomes. The clinical benefits of ultrasound elastography are unquestionable. However, there is limited routine QA or performance assessment of elastography protocols in ultrasound scanners due to lack of resources, equipment, and expertise. Investment in an elastography phantom, plus proper training, and the development of a QA programme, embedding PPI, would alleviate the problem.
Purpose
- To increase awareness of breast ultrasound elastography. Women under 50 tend to have denser breast tissues and ultrasound can be more effective at detecting abnormalities.
- To understand patients' experiences of ultrasound and understand barriers towards equity in healthcare. Black and ethnic minority women are diagnosed with later-stage breast cancer at a younger age and have a higher mortality rate than white women.
- To collaborate with patients on the design of ultrasound elastography QA programme, addressing potential concerns.

Summary of content
If we are implementing a risk stratified breast screening programme in the NHS, which can include ultrasound elastography, we have a moral obligation to ensure that we are involving patients and the public in the design of it, building a culture of inclusion across all aspects of the service.
Patients think ultrasound QA is crucial but recognise the constraints of limited time and resources within the NHS. Patients do not mind if QA is performed by NHS or subcontracting.

References
1. Cancer Research UK, Black women more likely to be diagnosed with late-stage cancer, accessed January 2025
2. https://nationalscreening.blog.gov.uk, UK National Screening Committee – News and updates from the UK National Screening Committee, accessed January 2025
Acknowledgments
The author acknowledges funding support from the IPEM Innovation Grant

J2.3 A clinical audit of patient identification check, and adequacy of imaging request forms in an outpatient computed tomography unit

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Background
The Ionising Radiation (Medical Exposure) Regulations 2017 (IR(ME)R) ensure patient safety in the UK through optimisation of ionising radiation exposures. In 2023/24, the Care Quality Commission (CQC) reported 447 accidental exposures from diagnostic imaging departments, 65% of which occurred in Computed Tomography (CT) imaging. Reacting to this, the Society of Radiographers (SOR) has called for enhanced training, particularly in CT departments. This audit evaluates the roles of referrers, practitioners, and operating radiographers in ensuring patient safety in CT imaging.

Methods
This study employed a retrospective, cross-sectional design to assess compliance with patient identification and request form completion standards in an outpatient CT department. Using convenience sampling, a total of 109 CT scans were observed for patient ID check adherence. 109 CT imaging request forms were analysed for presence of background clinical information and differential diagnoses. Data were analysed using binary check box method.
Results
Findings revealed an 82.6% compliance rate for patient ID checks, falling short of the 100% target, with significant correlation between compliance and radiographer experience. Issues with request form completion were also identified: 80.7% of forms were compliant, but 19.3% lacked a differential diagnosis. Notably, external referrers were more likely to omit this crucial detail.

Conclusion
Results suggest a need for improved staff training, particularly for newly qualified radiographers and external referrers, as well as adoption of standardized protocols and potential technological solutions to enhance compliance and ensure patient safety.

1. Care Quality Commission [CQC] (2024) IR(ME)R annual report 2023/24: CQC's enforcement of the Ionising Radiation (Medical Exposure) Regulations 2017. Available at: https://www.cqc.org.uk/publications/irmer-annual-report/2023-2024 (Accessed: 7 January 2025).
2. Rawoo, R. (2018) 'Clinical audit of the completion of CT scan request forms', British Journal of Radiology, 91(1089), article number 20180272. Available at: https://doi.org/10.1259/bjr.20180272
3. Society of Radiographers (2024) 'SoR update on Care Quality Commission's Annual IR(ME)R report', 07 October 2024 [Press release]. Available at: https://www.sor.org/news/radiation-protection/care-quality-commission%E2%80%99s-annual-ir(me)r-report (Accessed: 7 January 2025).

J2.4 Preventing deaths and harm from misplaced nasogastric tubes: Long term results of radiographer-led pathway

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Purpose
To evaluate whether radiographer identification and action for misplaced nasogastric (NG) feeding tubes prevent patient harm and deaths in a multisite tertiary centre.
Materials and methods
Healthcare systems cause death and harm from feeding into misplaced nasogastric tubes. Service transformation was triggered by 4 adverse events in a 762-day period in our Trust covering 2,500 beds related to NG xray (NGXR) interpretation and miscommunication.
Radiographers were trained to provide immediate NGXR interpretation and take action to remove or arrange repositioning for misplaced NG. Continuous surveillance of NG adverse events and radiographer NGXR interpretation accuracy were evaluated for 4,953 days after implementation in a service performing 10,000 NG placements per annum.
Results
Trained radiographer NGXR evaluation and action on misplaced tubes prevented any episodes of harm after pathway implementation (0 events in 4953 days vs 4 events in 762 days). Pathway change reduced NGXR requesting (preintervention 75% vs 9.3% post) with increased first line pH testing of gastric aspirate (pre intervention pH 12% vs 84%). Accuracy of NGXR position compared with radiologist review was 99%.
Conclusion
Radiographer training and empowerment to immediately evaluate and act on NGXR findings produced sustained prevention of patient harm, reduced NGXR requesting and improved pathway compliance. This should serve as a basis for a national patient safety programme. We propose an achievable NGXR accuracy standard over 95% in a large trained radiographer workforce.

J2.5 One Health and its relevance for diagnostic imaging

Dr Rachel Toomey[1], *Dr Michaela Davis*[1], *Ms. Shauna Daly*[1], *Dr. Catherine D'Helft*[1]
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Background
One Health is defined as "an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems" [1]. Despite One Health's critical role in addressing global health challenges, its relevance within medical imaging remains underexplored. This work aims to enhance awareness of One Health among imaging professionals and highlight its applications.
Purpose
This work aims to allow attendees to:

- Develop an understanding of the One Health concept
- Consider the importance of One Health in tackling global and local health issues
- Consider ways in which medical imaging can contribute to, and benefit from, a One Health approach
- Explore strategies for integrating a One Health framework into medical imaging practices, considering enablers and barriers

Summary of content

The core concepts of One Health - including the interconnectedness of human, animal and environmental health and the value of interdisciplinary contribution - will be introduced, giving examples (including zoonoses, climate, antimicrobial resistance, pollutants and more). The history of the One Health concept and key landmarks, including the quadripartite Joint Plan of Action 2022-26, will be outlined. The dichotomy of imaging as both a contributor and solution to issues will be considered. A review of recent research and developments relevant to One Health and imaging, and of current awareness in imaging, will be provided. Finally, areas where imaging professionals could contribute to One Health approaches - and the advantages of a One Health approach can bring to imaging - will be discussed.

FAO, UNEP, WHO, and WOAH (2022). One Health Joint Plan of Action (2022-2026). Working together for the health of humans, animals, plants and the environment. Rome. https://doi.org/10.4060/cc2289en

J2.6 Exploring end of life care provision during medical imaging in hospitals: Analysis of survey data from the UK radiography workforce

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Background

Patients receiving end-of-life care often undergo medical imaging examinations in hospitals to inform symptom management and care. Yet little is known about the experiences of the radiography workforce who deliver it. This study aims to describe and explore experiences of the UK radiography workforce delivering medical imaging as part of patients' end-of-life care.

Method

A cross-sectional online survey disseminated via social media and national organisations from September 2023 to January 2024. Diagnostic radiographers, assistant practitioners and radiology assistants involved in the medical imaging of patients receiving end-of-life care in UK hospitals.

Results

120 valid responses were received. Most respondents received no education/training (91.6%) on the role of medical imaging in end-of-life care, despite 87.7% expressing a need for education, particularly around adopting supportive/palliative-centric communication techniques. Although most respondents (89.2%) had heard of end-of-life care, some had difficulty understanding the role of medical imaging in end-of-life care. Insufficient information provided on imaging requests hindered the workforces' ability to determine and understand the appropriate use of medical imaging during end-of-life care. These uncertainties exacerbated negative emotions, with 80.8% of respondents indicating that they felt emotional during or after imaging patients on end-of-life care.

Conclusion

This study has evidenced the important role the radiography workforce play in generalist end-of-life care. Educational and policy needs were identified around facilitating more supportive/palliative-centric communication techniques and providing the radiography workforce with the knowledge to better understand, explain, deliver and where necessary, challenge the use of medical imaging in end-of-life care.

Spacey, A., Heaslip, V., & Szczepura, K. (2024) Exploring end of life care provision during medical imaging in hospitals: Analysis of survey data from the UK radiography workforce. Radiography. 30(5), 1308-1316.
Spacey, A., Heaslip, V., & Szczepura, K. (2023). Understanding experiences of the Radiography workforce delivering medical imaging as part of patients' end of life care: An exploratory qualitative interview study. Radiography. 2:30132-140.

SHORT PAPER SESSION K2

K2.1 Modified Delphi Study - A UK DRAD standardised clinical assessment tool

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Background
A full systematic review and scoping review were conducted. The systematic review found a considerable amount could be learned from the processes, methods and evaluations of standardisation in other professions. The scoping review found that standardisation already exists for clinical placement in some areas. However, there are elements of current clinical assessment tools that require further discussion and standardisation.

Method
The objective of the modified-Delphi study was to consult key stakeholders to reach consensus on content and wording of a new, standardised clinical assessment tool. Components included were: underlying principles; draft elements, draft clinical competencies; draft professional behaviours; integrated review process; marking criteria; and roles and responsibilities. Participants were asked to respond to consensus statements via Likert Scale and provide qualitative comments, which would be analysed via thematic analysis.
Results
Round one was completed by 110 participants, including students, academics, practice educators and clinical staff across the UK. Consensus was reached for the integrated review process, roles and responsibilities, professional behaviours and draft elements. Data from the Likert and open-ended questions were used to shape round two which reviewed the wording used for clinical competencies and the marking criteria. At the point of submission, the results from round two were being analysed in preparation for disseminating round three.
Conclusion
The results of the modified Delphi will support the design of a clinical assessment tool in diagnostic radiography This will provide a consistent approach to clinical assessment processes for education providers and placement providers across the UK.

K2.2 Research supervision and engagement: Experiences of an NIHR undergraduate internship for radiographers

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Background
As a profession, radiography is underrepresented in clinical research (Peckham et al, 2021), however it is an integral part of teaching, learning and professional practice. For radiographers there is a need to refine skills in research supervision and increase confidence in mentorship on their trajectory to future research leader. Undergraduate diagnostic radiography curricula aim to provide students with foundational knowledge of research design and evidence-based practice through engagement with the literature or low risk, small-scale primary research (McKnight, 2022). However, opportunities to gain practical knowledge and experience of research governance, deliver 'real-world' clinical research, shadow research-active radiographers and develop understanding of research careers are limited.
Purpose
Undergraduate student placement provision at research centres have developed ad hoc as institutions seek innovative ways to increase placement capacity. New programmes such as Undergraduate Internships (National Institute for Health and Care Research (NIHR)) now formally offer the opportunity for early-to mid-career researchers to experience what it takes to supervise research interns. For organisations, they are a mechanism for research capacity and reputation building.
Summary of content
We will present the experiences of two undergraduate diagnostic radiography students who have recently completed a research internship. We will map their motivations for applying for the placement, the knowledge, skills and experience gained and how this experience will inform their future career. Alongside, we will present the perspective of the host researcher who designed and delivered the placement underpinned by an ethos of Team Science.

1. Knight, K.L. (2022) Research Pedagogy in a UK radiography setting. Radiography 28(1): 80-87.
2. Peckham, S., Eida, T., Zhang, W., Hashem, F., Spencer, S., Kendall, S., Newberry Le Vay, J., et al. (2021). Creating Time for Research: Identifying and improving the capacity of healthcare staff to conduct research. Creating Time for Research (February 2021) - Full Report.

K2.3 Perspectives on audit and research participation amongst radiology trainees and radiographers

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Aim

To investigate the interest level, opportunities, challenges and barriers to undertaking audits and research experienced by radiology trainees and radiographers at the University Hospitals of Leicester (UHL).

Methods

An online survey comprising a combination of 17 multiple choice and free text questions was distributed to all radiology trainees and radiographers at UHL.

Results

Out of 69 respondents 35% were Radiology trainees (n=24) and 59% (n=41) were radiographers. Ninety-eight percent of respondents expressed an interest in completing a research-related activity, ranging from audit completion (49%) to formal training in research (29%). However, while a total of 48% respondents had completed an audit or quality improvement project, either as the lead (26%) or in a team (22%), only 29% had presented their work at a conference and 28% had led to publication. Main barriers included: lack of time; lack of skills and training; difficulty identifying opportunities and starting a research project; equipment restrictions; and a lack of support. Suggested facilitators included: improving awareness and access to opportunities; dedicated research contacts; guidance or mentorship; formal training and teaching such as statistical methods; and allocated research time.

Conclusion

Radiology trainees and radiographers are eager to participate in research however opportunities for learning and networking are lacking. These findings suggest a demand for our newly established local imaging research network to synergise inter-professional training in imaging and improve access to research opportunities and facilities in compliance with global curricula requirements [1-3].

Table

Grade	Number of Respondents
Radiology ST6+	0
Radiology ST5	5
Radiology ST4	6
Radiology ST3	5
Radiology ST2	5
Radiology ST1	3
Radiographer B8	5
Radiographer B7	14
Radiographer B6	16
Radiographer B5	6
Other	4

Base Site	Number of Respondents
Leicester Royal Infirmary	18
Leicester General Hospital	9
Glenfield Hospital	22
Other	3

Does your post have an allocated research time?	Number of Respondents
Yes	11
No	58

Previous Research Education	Number of respondents
PhD	0
MRes/MSc or equivalent dissertation	12
MBBCh/BSc or equivalent dissertation	10
PGCert/PGDip	11
Training without formal qualification	2
None	9
Other	8

Aims	Number of respondents
Commence Audit project	23
Complete Audit project already commenced	11
Commence a research project	16
Complete a research project already commenced	4
Conduct a systematic review or meta-analysis	8
Submit completed project for conference presentation	7
Submit completed project for publication	4
Apply for a research grant or funding	5
Gain formal research training	20
Complete formal research training already commenced	2
Apply for ethical approval	0
Other	6

Have you previously presented your work at a conference?	Number of responses
Yes – as 1st or co author	15
Yes – as 2nd or named author	5
No	32

Have you previously had your work published?	Number of responses
Yes – as a 1st or co-author	13
Yes – as a 2nd or named author	6
No	33

How would you rate the level of research support in your department?	Number of responses
Significant	6
Moderate	14
Poor	16
Minimal	33

How would you rate the level of support for statistical analysis?	Number of responses
Significant	1
Moderate	9
Poor	18
Minimal	41

Are you aware of any statistical analysis network available?	Number of responses
Yes	1
No	68

Which areas of research do you feel you require most support?	Number of responses
Research planning and study design	58
Analysis of data collected	37
Interpreting data	33
Final report draft	32

Main barriers to research goals
1. Time 2. Don't know where to start 3. Finding a supervisor 4. Lack of training 5. Lack of guidance 6. Statistical training

Interventions you believe could be of benefit
1. Regular research forum 2. Regular research club 3. Regular research teaching 4. Statistics teaching 5. Mentorship 6. Timetables research self-development day

1. The Royal College of Radiologists (2019) RCR Curriculum Clinical Radiology Curriculum Update 15 May 2023. London: The Royal College of Radiologists. Available at: https://www.rcr.ac.uk/exams-training/specialty-training/clinical-radiology-curriculum/
2. The College of Radiographers (2021) College of Radiographers Research Strategy 2021–2026. London: SCoR. Available at: https://www.collegeofradiographers.ac.uk/research-grants-and-funding/cor-research-strategy/
3. Sloane, C. and Miller, P.K. (2017) Informing radiography curriculum development: The views of UK radiology service managers concerning the 'fitness for purpose' of recent diagnostic radiography graduates. Radiography, 23, pp.S16–S22.

K2.4 Establishing consensus priority areas for the use of simulation in pre-registration education and training of diagnostic radiographers

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Background

Simulation based education (SBE) is a widely used pedagogy with an increasing evidence base for supporting development of knowledge, skills, and behaviors through authentic experiences in a controlled and safe learning space, demonstrating its value as an adjunct to practice placement1-5.

Method

A UK Delphi and focus group was undertaken to determine the priority areas of pre-registration diagnostic radiography education which could be supported with SBE, a suitable framework, how SBE could be structured within the curriculum, and methods of evaluation. This work was commissioned and funded by NHS England.

Results

Priority areas of the curriculum for the use of SBE fell into 4 themes: Imaging practice; Collaborative person-centered care; Safe and effective practice; Professional behaviors, attributes and skills. Learning outcomes determine the design of appropriate simulation activities, though resource availability is a factor in design. SBE is appropriate throughout training to scaffold learning and increasingly complex competencies, aligning with the new Standards of Proficiency. Within a model of preparation, brief, facilitation, debrief and evaluation, emphasis was placed on effective debrief to promote understanding and enhance learning. Evaluation should be used to improve effectiveness of simulation activities, and further research undertaken to objectively measure the learning gain and sustainability of SBE.

Conclusion

SBE is seen as a valuable and effective learning tool to support development towards professional capabilities in a safe controlled learning environment, adjunct to practice placement learning, despite its resource intense nature.

1. Chau, M; Arruzza, E; Johnson, N Simulation-based education for medical radiation students: A scoping review. Journal of medical radiation sciences 2022;69(3):367-381
2. Hazell, L; Lawrence, H; Friedrich-Nel, H Simulation based learning to facilitate clinical readiness in diagnostic radiography. A meta-synthesis. Radiography 2020;26(4):e238-e245
3. Lee, K; McInerney, J Transferability of Learning from Computed Tomography Simulation into Clinical Practice: Student Perspectives. Interactive Learning Environments 2024;32(1):67-77
4. O'Connor, M.; Rainford, L. The impact of 3D virtual reality radiography practice on student performance in clinical practice Radiography 2023;29(1):159-164
5. Partner, A.; England, A.; Young, R.; Shiner, N.; Bridge, P. Post COVID-19 trends in simulation use within diagnostic radiography and radiation therapy education Radiography 2023;29(4):684-689

SHORT PAPER SESSION L2

L2.1 A plan quality comparison between a simple palliative planning technique and an alternative, restricted-VMAT technique for spine metastases: A quantitative retrospective service evaluation and improvement project.

Miss Amelia Clark[1], *Dr Lynne Gordon*[2]
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Background
The standard (STND) planning technique describes the direct and parallel opposed pair fields used for palliative radiotherapy. A restricted-VMAT (RVMAT) technique aims to deliver dosimetric advantages, whilst limiting the resources associated with a complex technique. A retrospective service evaluation and improvement study aims to assess the quality of the current STND technique whilst simultaneously comparing and evaluating RVMAT.
Methods
Retrospective and consecutive selection identified 40 datasets treated with either an 8Gy/1# or 20Gy/5# prescription to vertebral metastases with the STND technique. Each was re-planned using RVMAT and quantitative dosimetric evaluation using statistical and descriptive analysis was undertaken.
Results
25% and 72.5% of STND plans failed to achieve 80% target and target+1 coverage respectively, whereas all RVMAT plans met and exceeded these D98 objectives. 40% of STND plans failed the DMax objective with hotspots of ≥120% and all RVMAT plans met this objective. Whilst V30 increased in 29 RVMAT plans, V50 and V80 decreased significantly in all RVMAT plans. Monitor units for all plans increased with RVMAT, increasing the delivery time on average by 33 seconds from the STND technique.
Conclusion
The STND technique produces plans of varying quality, with many falling below quality standards. RVMAT significantly improves target coverage, reduces hotspots and reduces high dose normal tissue irradiation. A small increase in low dose irradiation may be an expected consequence of RVMAT, however this was not the case for all plans. An increase in monitor units and delivery time is expected with RVMAT when compared to the STND technique.

L2.2 The impact of the Macmillan Consultant Therapeutic Radiographer on the metastatic spinal cord compression pathway

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Background and aims
Metastatic spinal cord compression is an oncological emergency and national and local Trust policies state that radiotherapy should be delivered within 24 hours of diagnosis to prevent worsening of symptoms and improve quality of life. A Macmillan Consultant Therapeutic Radiographer was introduced to streamline the bone metastases pathway including this cohort of patients. The project involved two new processes: the planning and prescribing of the radiotherapy by the Radiographer and the visual prompt of a red wallet for the patient's treatment paperwork to treat ASAP. The aim was to shorten the length of time from radiotherapy referral to delivery.
Methods
Timings for each step of the treatment pathway were collected and calculated for 5 financial years and subdivided according to which professional planned and prescribed the treatment and those patients treated prior to and after the implementation of the red wallet. The data was analysed using a Mann-Whitney U test to compare the timings between a Clinical Oncologist/Specialist Registrar and the Radiographer planning and prescribing and pre- and post-red wallet.
Results
The overall time taken from referral to treatment and the step from the planning scan to sign-off of the treatment was significantly shorter with the Radiographer planning and prescribing. The use of the red wallet had no impact on the overall length of the pathway.
Conclusions
The Macmillan Consultant Therapeutic Radiographer has had an impact on this patient pathway however further investigation is required to identify the barriers to efficacy of the red wallet.

L2.3 Demonstrating the clinical utility of Gallium-68 DOTATATE PET imaging in brain tumour management - three real-world cases highlighting its role in radiotherapy planning, tumour targeting, and normal tissue preservation

Mrs Sheila Hassan[1], Dr Gopikrishna Shyam[1], Mrs Yasmin Akhtar[1], Miss Rhiannon Davies[1], Dr Kazumi Chia[1], Dr Omar Al-Salihi[1], Dr Vishal Manik[1], Dr Sugama Chicklore[1], Dr Rohit Srinivasan[1], Dr Mohammad Emarah[1], Dr Angela Swampillai[1], Dr Lucy Brazil[1], Dr Mark MacDonald[1], Dr Asif Mazumder[1]
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Background
Accurate delineation of gross tumour volume (GTV) is critical for radiotherapy planning in meningeal-based tumours, such as meningiomas. Although contrast-enhanced MRI is standard, it may fail to clearly define tumour boundaries, particularly in the post-surgical setting. Gallium-68 DOTATATE PET imaging, which targets somatostatin receptor overexpression in meningiomas, offers improved tumour visualisation and planning accuracy.
Methods
A retrospective analysis of three patients undergoing radiotherapy for recurrent meningeal-based tumours post-surgery was conducted. This study evaluates the impact of incorporating Gallium-68 DOTATATE PET in radiotherapy planning and its effect on clinical decision-making and patient outcomes.
Results
Case 1: Recurrent WHO grade 2 meningioma in the upper cervical spine. Gallium-68 DOTATATE PET showed low-grade uptake, indicating inflammatory post-surgical change, leading to a shift from radiotherapy to surveillance, sparing the patient unnecessary treatment.
Case 2: Recurrent haemangiopericytoma in the posterior fossa. Gallium-68 DOTATATE PET identified a discrete recurrence, enabling precise stereotactic radiosurgery, maximising tumour control while minimizing radiation exposure to healthy tissue.
Case 3: Recurrent WHO grade 2 parasagittal meningioma in a patient unable to undergo MRI due to neurosurgical clips. Gallium-68 DOTATATE PET allowed accurate tumour delineation, minimising the risk of radiation damage to healthy tissue and identifying a second, previously undetected intracranial meningioma.
Conclusion
The combination of MRI and Gallium-68 DOTATATE PET enhances tumour detection and delineation, improving radiotherapy planning and patient outcomes by optimising tumour control while minimising radiation exposure to healthy tissue. These findings support the integration of Gallium-68 DOTATATE PET into radiotherapy protocols for complex meningeal tumours.

1. Rachinger W, Stoecklein VM, Terpolilli NA, Haug AR, Ertl L, Pöschl J, Schüller U, Schichor C, Thon N, Tonn JC. Increased 68Ga-DOTATATE uptake in PET imaging discriminates meningioma and tumor-free tissue. J Nucl Med. 2015 Mar;56(3):347-53. doi: 10.2967/jnumed.114.149120. Epub 2015 Jan 29. PMID: 25635133.
2. Galldiks, N., Albert, N.L., Sommerauer, M., Grosu, A.L., Ganswindt, U., Law, I., Preusser, M., Le Rhun, E., Vogelbaum, M.A., Zadeh, G. and Dhermain, F., 2017. PET imaging in patients with meningioma—report of the RANO/PET Group. Neuro-oncology, 19(12), pp.1576-1587.

L2.4 Comparing the clinicopathologic and radiologic features of early and later-onset breast cancer in a resource-limited setting: Is it time to rethink screening guidelines?

Dr Ukamaka Itanyi[1], Ayobami Ademola[2], Dr Jonathan Madukwe[3], DR Hembadoon Kpamor[1], Dr Oluranti Famooto[4], Dr Ricahrd Samuel[1], Ivy Okereke[5], Professor King-David Yawe[1]
[1]University Of Abuja Teaching Hospital, Gwagwalada, Nigeria, [2]Institute of Human Virology, Abuja, Nigeria, [3]National Hospital, Abuja, Nigeria, [4]University of Maryland School of Medicine , Baltimore, USA, [5]Maidstone Hospital , Maidstone, England

Background
Although the increasing incidence of early-onset breast cancer (EOBC) is a global trend, racial/ethnic variations have been reported with most cases occurring in younger black women who have more invasive disease and higher mortality.[1] Treatment is often hampered by a lack of comprehensive guidelines for early BC detection in average-risk young women coupled with limited resources for diagnosis. We aim to compare the features of BC in young women and those with later onset breast cancer (LOBC) in a cohort of Nigerian women and propose suggestions for early detection.
Methods
This retrospective, descriptive study was done with data from 104 women who were managed for breast cancer over 15 months in a hospital in Abuja, Nigeria. Data included patient demographics, clinical findings, ultrasonography, mammography, and histopathology reports.
Results
EOBC occurred in 36/104 (34.1 %) women with a significant difference (p-<0.001) in the mean ages of the two groups. Six (5.8%) participants with positive family history were reported in only women with EOBC. Advanced disease (T3, T4) was

predominant in 88.8% and 70.6% of EOBC and LOBC respectively. The ultrasound and mammographic assessments were mostly BI-RADS V. IDC was the most common histological type (90.4%) in both groups. Triple- negative BC occurred in 28.6% of EOBC and 15% of LOBC.

Conclusion

Early-onset BC in Nigerian women tends to be advanced at presentation, with more aggressive biological characteristics. There is a need for targeted education as well as re-evaluation of screening guidelines for young average-risk women with considerations for racial/ethnic differences.

Hirko, K.A., Rocque, G., Reasor, E., Taye, A., Daly, A., Cutress, R.I., Copson, E.R., Lee, D.W., Lee, K.H., Im, S.A. and Park, Y.H., 2022. The impact of race and ethnicity in breast cancer—disparities and implications for precision oncology. BMC medicine, 20(1), p.72.

L2.5 Advocating for world-class radiotherapy in the UK

Ms Sarah Quinlan[1], *Lynsey Rice*[2], *Professor Pat Price*[3]
[1]*Radiotherapy Uk, Belfast, United Kingdom,* [2]*Radiotherapy UK, Cambridge, United Kingdom,* [3]*Radiotherapy UK, London, United Kingdom*

Purpose

Radiotherapy is crucial for curing and controlling cancer, alleviating symptoms, and improving quality of life. Access to radiotherapy is linked to improved survival and positive outcomes for many cancers. Despite its cost-effectiveness, significant regional disparities in access exist across the UK.

In 2023, the All-Party Parliamentary Group for Radiotherapy tasked Radiotherapy UK to facilitate a vision for world-class radiotherapy in the next decade, leading to the report: World-class Radiotherapy in the UK: Right Patient, Right Treatment, Right Time.

Methods

Radiotherapy UK runs a comprehensive advocacy campaign, collaborating with radiotherapy professionals, patients, radiotherapy stakeholders, campaigners, and other cancer charities. The charity spotlights radiotherapy needs in the media and government, proposing short- and long-term solutions, the need for sustained investment and long-term strategic planning.

Results

Radiotherapy was a headline investment in the Autumn 2024 budget, with funding for radiotherapy machines ringfenced. In December 2024, the Secretary of State confirmed the development of a dedicated cancer plan. Over 100 MPs attended a radiotherapy-focused drop-in session on World Cancer Day 2025, engaging with the frontline workforce, patients, and academics. A Westminster Hall debate on 'accessibility to radiotherapy' was held on World Cancer Day, with the responding Health Minister committing to include radiotherapy in the cancer plan and collaborate with Radiotherapy UK.

Conclusion

The radiotherapy community is stronger when working together to describe solutions and influence decision-makers. Radiotherapy is key to improving cancer patient outcomes, and it is essential to effectively communicate these solutions to those with the power to fund and implement change.

SHORT PAPER SESSION L1O

L10.1 Albert Salomon: the man behind the mammogram

Kimberley Bradshaw[1], *Prof Paul Miller*[1]
[1]*University Of Cumbria, Lancashire, United Kingdom*

Background

Albert Salomon is considered to be one of the earliest pioneers of breast imaging, however little is documented about his fascinating life and career. During his life, he overcame many personal adversities in order to remain committed to his profession and research. Through his research, Albert Salomon was able to distinguish between cancerous and benign breast tissues and started to explore how x-rays could be used to image the breast. His early work also explored the importance of microcalcifications and their significance in breast disease. Although his research was ultimately disrupted by the events of the Second World War and the Holocaust, his work created a foundation for other clinicians to build upon, contributing to the development of modern-day mammography.

Purpose

- To celebrate the life of Albert Salomon.
- To consider Albert Salomon's achievements.
- To consider Albert Salomon's impact on modern day mammography.

Summary of content

This submission focuses on Albert Salomon's life and work and the impact his research had on modern day mammography. This submission also explores the adversities faced by Albert Salomon, including the impact of the rise of the Nazi Party in Germany, the subsequent Second World War and the Holocaust.

L10.2 The origins and specialisation of radiology in the United States of America: historical and contemporary perspectives

Dr John Chen[1,2], *Scott Podolsky*[2]
[1]*Department of Radiology, University of Cambridge, , United Kingdom,* [2]*Department of Global Health and Social Medicine, Harvard University, , United States of America*

Although the history of radiology is usually traced back to the fortuitous discovery of x-rays by Röntgen in 1895, that did not alone usher in the era of radiology that we know today.

Radiology began as a disorganised mass of investigators and practitioners; physicians and nonphysicians; legitimate practitioners and quacks. There were no recognised training programmes or standards. Yet, over the next decades, radiology would be transformed from an unregulated technical discipline into an exclusively medical specialty, where physicians emerged as the only licensed practitioners. How did this transformation take place? What forces shaped the specialty during its formative years? Part of the change was due to technological developments that enabled radiology to gain increasing prominence. But more profound were changes in professional organisation, where physicians took control of the growing discipline, generating conflicts with technical colleagues, other medical specialists, and manufacturers. More than a century after x-rays were revealed, how relevant are these historical factors today? Remarkably, the same influences that moulded the specialty in its early years continue to shape its development: tensions with technical colleagues, paralleled in controversies over evolving roles of radiographers; with other medical specialists, observed in modern territorial conflicts; with visibility to colleagues and patients, and its own professional standing, particularly given the proliferation of outsourcing and teleradiology; with new technologies and commercial interests, amidst the disruptive rise of artificial intelligence. Will these modern crises shake the professional status quo, or will radiologists retain authority over their field, as they have in the past?

Brecher, R. and Brecher, E.M., 1969. The Rays: A History of Radiology in the United States and Canada. Williams and Wilkins.

Eisenberg, R.L., 1992. Radiology: An Illustrated History. Mosby-Year Book.
Grigg, E.R.N., 1965. The Trail of the Invisible Light: From X-Strahlen to Radio(bio)logy. Charles C Thomas.
Howell, J.D., 1995. Technology in the Hospital: Transforming Patient Care in the Early Twentieth Century. Johns Hopkins University Press.
Kevles, B., 1997. Naked to the Bone: Medical Imaging in the Twentieth Century. Rutgers University Press.
Mould, R.F., 1993. A Century of X-rays and Radioactivity in Medicine. Institute of Physics Publishing.
Stevens, R., 1998. American Medicine and the Public Interest: Updated Edition with a New Introduction. University of California Press.
Thomas, A.M. and Banerjee, A.K., 2013. The History of Radiology. Oxford University Press.
Weisz, G., 2006. Divide and Conquer: A Comparative History of Medical Specialization. Oxford University Press.

L10.3 Constantin Shilovsky and the conception of ultrasonics

Dr Francis Duck[1]
[1]*Independent, Bath, United Kingdom*

Background
The name of the Russian inventor Constantin Shilovsky (Chilowsky) is linked with the genesis of ultrasonics, although it is Paul Langevin who is generally recognised as the 'originator of modern ultrasonics'. This presentation will review who Chilowsky was, and how his role was critical in the conception and subsequent development of ultrasonics.
Method
Recent access to Chilowsky's Russian biography has enabled a critical assessment of his role in the origin of ultrasonics, especially from his proposal "On the possibility of vision underwater', which was taken up by Langevin. It also adds detail to Chilowsky's role in the commercialisation of ultrasonic depth-sounding after the war.
Results
Chilowsky is revealed as a prolific inventor and patentee, supporting himself entirely on his income from selling and licensing his IP. Thus, his attitude to exploiting technology was opposed to Langevin's, who had no interest in financial gain, and regarded all science to be shared for the common good. The resulting tension between the two men was essential to the genesis and subsequent development of ultrasonics.

Conclusion
Work on ultrasonics for submarine detection in France and subsequent work on Asdics in Britain would not have commenced during WWI without Chilowsky's initiative and drive. While he played only a minor role the practical engineering, his motivation to commercialise ultrasonics after the war, seeking financial gain from his own participation and patent, served as the driving force that resulted in the subsequent widespread exploitation of ultrasonics including, eventually, for medical imaging.

L10.4 Replayed stratification - what can the increasing prevalence of layered sculpture teach us about the past, present and future of cross-sectional imaging?

Michael Jackson[1]
[1]*NHS Lothian, Edinburgh, United Kingdom*

Relatively uniform layered structures occurring as natural phenomena such as clouds and rock strata predate our earliest human ancestors, and architecture has utilised uniform sized layers stacked on top of one another for several millennia. However, the use of regular step or slice-like layered units to produce art (and specifically sculpture representing the human body) seems to be a much more recent trend.
This presentation will explore the use of the "stack" or "stratified slices" in numerous examples of sculpture from across the world. In some cases, exemplified by artists including Marilene Oliver and Angela Palmer, the influence of CT and MRI scans is explicit, whilst in examples from others, such as Matthew Darbyshire and Danny Lane, the relationship may be more tangential. Nevertheless, the growth in popularity of this technique closely mirrors the growth of cross-sectional imaging in chronology, and radiological techniques, along with greater availability of 3-D printing would appear to be instrumental in the adoption of this increasingly familiar style of sculpture.
Furthermore, the adoption and promulgation of specific visual schemes and techniques has a more profound relevance to clinical radiology in the era of AI. Emerging techniques such as synthetic CT (in which CT-like images are constructed from an MRI dataset) and "synthetic-pseudo MR" (effectively the opposite) pose fundamental questions about how best to visualise the body for the benefit of patients.

1. Upadhyay, J., Iwasaka-Neder, J., Golden, E. and Bixby, S., 2023. Synthetic CT assessment of lesions in children with rare musculoskeletal diseases. Pediatrics, 152(2), p.e2022061027.
2. Abu-Qasmieh, I.F., Masad, I.S., Al-Quran, H.H. and Alawneh, K.Z., 2022. Generation of synthetic-pseudo MR images from real CT images. Tomography, 8(3), pp.1244-1259.

L10.5 Sebastian Gilbert Scott and radiological photography

Dr Adrian Thomas[1]
[1]*Canterbury Christ Church University, Bromley, United Kingdom*

Sebastian Gilbert Scott (1879-1941) was a pioneer radiologist at the Royal London Hospital. He was appointed as Radiologist to the Royal London Hospital in 1909, holding the post until 1930.
Scott came from the family of architects; his grandfather was Sir George Gilbert Scott, his father George Gilbert Scott and his brother Sir Giles Gilbert Scott.
He gave an interesting account of the photographic aspects of radiology when he started at the Royal London Hospital. He describes encountering piles of glass X-ray plates and 'accidently' knocking them over!
I knew his radiologist son Dr Michael Gilbert Scott well, and he gave me his father's photographic material and books from the 1900s to the 1940s.
This material comprises:

- Radiographs on glass plates - a beautiful collection, and some with clinical details.
- Radiographs on paper - several collections of interesting radiographs including Great War injuries (shrapnel etc).
- Radiographs on film - particularly rich in musculoskeletal radiograms. There are also many fluoroscopically acquired barium/bismuth meals. Also, a stereo-pair is included.
- An album with a very varied collection of clinical photographs. Much of this is pre- Great War material.
- Scott's teaching collection of slides (traditional large format slides on glass). Some slides are only partially prepared.
- His magic lantern (slide projector) that he used for lectures.
- A collection of radiological books including his own publications.

The talk will describe this collection and will emphasise the photographic aspects, and the development of early radiographic photography.

Thomas, A.M.K (2022) Invisible Light, The Remarkable Story of Radiology. Boca Raton: CRC Press (Taylor and Francis Group).

L10.6 Ernest "Harry" Harnack III - the medical establishment and its reluctant relationship with the first radiographer

Dr Mark Viner[1]
[1]*Barts & The London School Of Medicine & Dentistry, Queen Mary University Of London, London, United Kingdom*

Harnack was born in Hoxton in 1868, into a family descended from German Immigrants. After working for a lithographic printers, he joined the London Hospital in 1884 as a clerk at the age of 15. He was recognised as a diligent worker, and by 1895 he was deputy clerk to the Registrars, a post responsible for all hospital photography.
In May 1895, after years of indecision, the Hospital Medical Council established an electrical department, appointing a "Medical Electrician" on October 19th. Dr William Hedley took up this post on 1st January 1896, four days after the publication of Rontgen's communication.
In February 1896, Hedley, along with two medical colleagues, conducted experiments in roentgenography, including an X-ray examination of a patient which he exhibited at the Hospital's Medical Society on March 12th. Photographic expertise and processing was provided by Harnack.
The London Hospital was one of the first hospitals to pioneer the use of radiography in the United Kingdom. Despite early attempts by Hedley to secure medical assistants within the Electrical Department, responsibility for X-ray work continued to fall upon Harnack who eventually gained the support of Hedley and the House Governor and was officially appointed as "radiographer" to the hospital in December 1898.
Harnack helped establish the London Hospital as one of the leading X-ray departments of its time, conducting pioneering work in technique, equipment design and radiation protection and sharing knowledge through articles and teaching. He suffered terribly from the effects of radiation, retiring from ill health in 1909.

1. Hedley, (1896) The scope and Value of Electricity in Medicine, Abstract of a paper read before the Medical Society of the London Hospital on March 12th.The Lancet, May 1896
2. London Hospital Gazette (1896) May 1896 (Vol 3, No 1, page 2) Royal London Hospital Archives MC/A/25/1
3. London Hospital House Committee Minutes (1898), 12th December 1898. Royal London Hospital Archives, LH/A/5/47
4. London Hospital Medical Council Minutes (1895), October 19th 1895, Royal London Hospital Archives LM 1/1 & 1/2

SHORT PAPER SESSION M2

M2.1 Comparison of image quality between photon counting and energy integrating CT for Prostate Artery Embolisation (PAE) planning with detectability index (d')

Mr Angus Fraser[1], *Michael Barnard, Robert Wise, Ben Kemp, David J Platten, Kawal Rhode*
[1]*Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom*

Background

Prostate artery embolisation (PAE) is one of the preferred treatments for benign prostate hyperplasia and can be planned with pre-procedural CT angiography. The small size, location and variability of the prostatic vascular anatomy (PVA) and typical comorbidities of patients undergoing PAE present significant challenges for conventional energy integrating CT (EI-CT) scanners. Our centre began directing patients to a novel photon-counting CT (PC-CT) scanner for PAE planning as its technical specifications indicated it should be particularly well suited for the task1. Our study aimed to assess whether this is the case by comparing image quality (IQ) for each system.

Method

IQ was assessed using detectability index (d'), a task-based, repeatable and clinically relevant metric for IQ. We chose to model d' for depiction of contrast enhanced arteries 0.5-3.0 mm in diameter, with the average diameter of the prostatic artery (PA) being 0.5-1.5 mm. A Mercury 4.0 phantom comprising of 5 sections of varying diameter, with each containing a uniform section and a 10 mg ml-1 iodine insert, was measured for noise-power spectrum and task-specific resolution, respectively.

Results

The PC-CT consistently outperformed the EI-CT under the most difficult imaging conditions, i.e., for the smallest blood vessel diameters in the largest WEDs, while delivering a lower patient dose.

Conclusion

Our findings indicate that the PC-CT outperforms EI-CT in depicting contrast enhanced blood vessels overall under clinically representative conditions. The EI-CT appeared to have been technically limited while the PC-CT demonstrated significant potential for further optimisation without additional dose.

1. CORNELIS, F., BILHIM, T., HACKING, N., SAPOVAL, M., TAPPING, C. & CARNEVALE, F. 2019. CIRSE Standards of Practice on Prostatic Artery Embolisation. Cardiovascular and interventional radiology, 43.
2. MACLEAN, D., MAHER, B., HARRIS, M., DYER, J., MODI, S., HACKING, N. & BRYANT, T. 2018. Planning Prostate Artery Embolisation: Is it Essential to Perform a Pre-procedural CTA? CardioVascular and Interventional Radiology, 41, 628-632.
3. SAMEI, E., BAKALYAR, D., BOEDEKER, K. L., BRADY, S., FAN, J., LENG, S., MYERS, K. J., POPESCU, L. M., RAMIREZ GIRALDO, J. C., RANALLO, F., SOLOMON, J., VAISHNAV, J. & WANG, J. 2019. Performance evaluation of computed tomography systems: Summary of AAPM Task Group 233. Medical Physics, 46, e735-e756.
4. WILLEMINK, M. J., PERSSON, M., POURMORTEZA, A., PELC, N. J. & FLEISCHMANN, D. 2018. Photon-counting CT: Technical Principles and Clinical Prospects. Radiology, 289, 293-312.

M2.2 Anthropomorphic bone phantoms for simulating osteoporosis

Mr Jingrui Hu[1]
[1]*University Of Exeter, Exeter, United Kingdom*

Background

Osteoporosis-related fractures (ORF) are rising globally due to ageing populations [1, 2]. Revolutionary scanners such as digital-tomosynthesis (DT), aim to enable early diagnosis and intervention, but validation remains challenging due to the need for diverse disease states. High-fidelity phantoms replicate trabecular architecture and disease progression are essential. This study presents an anthropomorphic bone phantom framework with controllable trabecular structure and bone mineral density (BMD), reducing reliance on cadaveric tissues and animal models while simulating varying fracture risks.

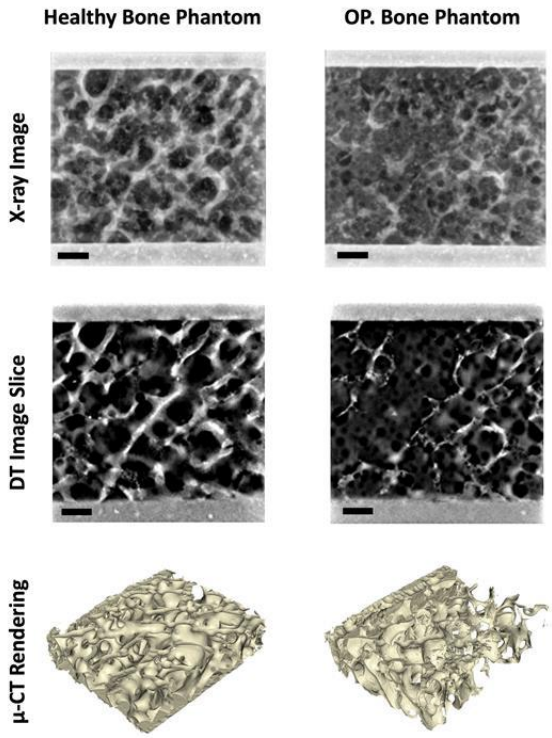
Method

Barium sulphate (BaSO4) powder pre-coated with Polyvinylpyrrolidone (PVP) was mixed with Epofix resin to create a radiopaque material. The of BaSO4 concentration was calibrated to match patient BMD data. PVP coating prevented powder precipitation during resin curing. A µ-CT scan of a lamb hip was segmented to generate a trabecular bone model, which was digitally modified to simulate various health conditions, including osteoporosis (OP). The bone marrow cavity was 3D printed by high-resolution SLA to create a mould for the phantom, which was then filled with BaSO4-infused resin.

Results

The anthropomorphic bone phantoms, representing healthy and OP trabecular structures, were evaluated using 2D X-ray, and 3D µ-CT and DT. All imaging modalities effectively differentiated cortical and trabecular bone. X-ray images showed the OP phantom had lower grayscale values, while µ-CT and DT captured morphological changes across different health conditions.

Conclusion
The developed phantoms provide realistic trabecular structures and are compatible with X-ray, µ-CT, and DT systems. This approach may accelerate 3D-based precision diagnostics and reduce reliance on extensive clinical data.



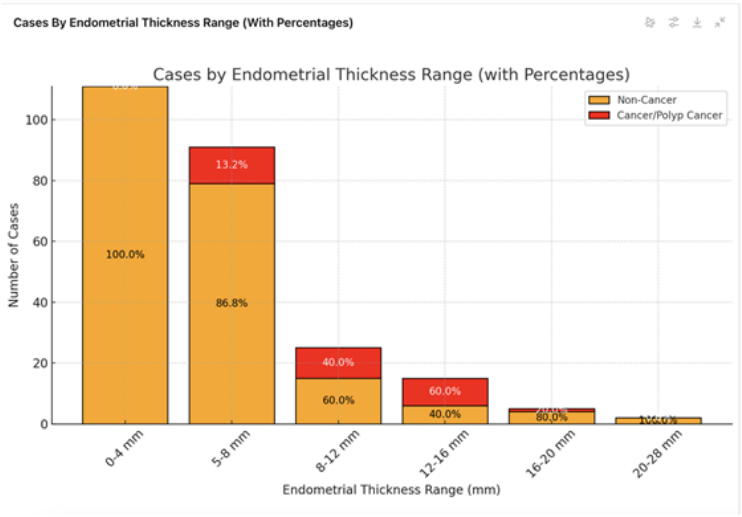
[1] T. Sözen, L. Özışık, N.Ç. Başaran, An overview and management of osteoporosis, European journal of rheumatology 4(1) (2017) 46.
[2] A. Creecy, O.D. Awosanya, A. Harris, X. Qiao, M. Ozanne, A.J. Toepp, M.A. Kacena, T. Mccune, COVID-19 and Bone Loss: A Review of Risk Factors, Mechanisms, and Future Directions, Current Osteoporosis Reports 22(1) (2024) 122-134.

M2.3 The relevance of incidental sonographic findings undergoing investigations for postmenopausal bleeding

Hind Omer[1], Paula March, Dilani Manuel
[1]Leeds Teaching Hospital, Leeds, United Kingdom

Background
Postmenopausal bleeding (PMB) is a key indicator of endometrial cancer. An endometrial thickness (ET) ≤4 mm has a >99% negative predictive value for malignancy.
Renal ultrasound (US) & other sonographic pelvic pathology assessments are frequently included, adding further pressure to under sourced healthcare services. The clinical significance of these additional assessments remains unclear. This study evaluates the relevance of unexpected renal & pelvic pathology in PMB investigations.
Method
A retrospective review off 300 consecutive patients underwent US for PMB between January & May 2023. Data included age, ET, pelvic & renal pathology, hysteroscopy results, HRT use, & histology-proven malignancies
Results
The mean age was 59 years (43-96). 7 samples were reported as Cancer or metaplasia with atypia. 112 cases had an endometrial thickness>5mm, no cancer cases detected with ET<4. 104 (34.6%) had hysteroscopy. 15 patients had renal pathology (6 AML and the rest were benign pathologies). There were no ovarian malignancies and the majority were benign pathologies.
Logistic regression analysis of the results didn't show an association between the presence of pelvic or renal pathology & cancer/polyp cancer.
Conclusion
The study confirms adherence to NICE and ROG current guidelines for PMB investigations in our unit. However, no correlation found between incidental pelvic or renal pathology findings & cancer, suggesting routine screening assessment of these findings may be irrelevant. Streamlining more targeted imaging protocols could reduce unnecessary investigations & optimise resource allocation.

Table



M2.4 Optimising primary care referrals for groin ultrasound: a quality improvement project

Dr Joshua Wong[1], *Dr Michelle Wei Xin Ooi*[1]
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Background

There is limited evidence for use of ultrasound in diagnosing groin hernias, with minimal impact on surgical decision-making. However, increasing numbers of unnecessary ultrasound for groin hernia diagnosis are being performed at our institution. This study aimed to reduce unnecessary scans and associated costs and streamline referral pathways to enhance patient outcomes.

Method

A retrospective analysis was performed on patients over 16 years of age who underwent groin ultrasounds between January and June 2024 at a tertiary centre, with referrals originating from primary care. Data collected included patient demographics, referral indications, and study outcomes. Bilateral groin examinations were considered as a single study.

Results

A total of 2104 patients were included in the study. The mean age was 55.5 years, of whom 77.2% were male. Among all referrals, 53.8%(1133/2104) were solely for suspected hernia, representing inappropriate requests. Of these, 62% (702/1133) confirmed the presence of a hernia, while 35.5%(402/1133) were negative for hernia. 8.7%(184/2104) of all referrals lacked a clear clinical question. Postoperative referrals constituted 17.3%(365/2104) of all studies, while musculoskeletal causes were suspected in 0.3%(7/2104) of cases. A malignant soft tissue mass was detected in 0.9%(19/2104) of cases.

Conclusion

The majority of groin ultrasound were found to be unnecessary, resulting in inefficiencies and increased costs. Following this review, the institution has collaborated with surgical and primary care teams to revise guidelines and streamline referral processes. The improved pathway has been updated on the institution's intranet. Additionally, targeted educational newsletter and sessions will be delivered to primary care clinicians.

1. HerniaSurge Group (2018) 'International guidelines for groin hernia management', Hernia: The Journal of Hernias and Abdominal Wall Surgery, 22(1), pp. 1–165. Available at: https://doi.org/10.1007/s10029-017-1668-x.
2. Kwee, R. M. and Kwee, T. C. (2018) 'Ultrasonography in diagnosing clinically occult groin hernia: systematic review and meta-analysis', European Radiology, 28(11), pp. 4550–4560. Available at: https://doi.org/10.1007/s00330-018-5489-9.
3. Liu, N. et al. (2021) 'Unnecessary use of radiology studies in the diagnosis of inguinal hernias: a retrospective cohort study', Surgical Endoscopy, 35(8), pp. 4444–4451. Available at: https://doi.org/10.1007/s00464-020-07947-0.
4. Marcil, G. et al. (2022) 'The role of routine groin ultrasonography in the management of inguinal hernia', Canadian Journal of Surgery, 65(5), pp. E614–E618. Available at: https://doi.org/10.1503/cjs.003421.
5. Miller, J. et al. (2014) 'Role of imaging in the diagnosis of occult hernias', JAMA Surgery, 149(10), pp. 1077–1080. Available at: https://doi.org/10.1001/jamasurg.2014.484.
6. Niebuhr, H. et al. (2017) 'Groin hernia diagnostics: dynamic inguinal ultrasound (DIUS)', Langenbeck's Archives of Surgery, 402(7), pp. 1039–1045. Available at: https://doi.org/10.1007/s00423-017-1604-7.

M2.5 Can we cap gadolinium doses for paediatric MRI examinations without compromising quality?

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Background

Although macrocyclic gadolinium based contrast agents (GBCAs) are generally regarded as safe, concern has grown regarding deposition within the brain, particularly for repeated doses.1,2 Environmental impact of GBCA manufacture and water pollution following use is also alarming.3,4 Following reports that diagnostic enhancement can be achieved with a maximum dose of 10mls gadoterate meglumine in children (regardless of patient size), this study examined if a capped dose of 10mls provided sufficient enhancement for a range of MRI examinations.

Methodology

86 consecutive MRI examinations in patients weighing >50kg were performed with a 10ml dose (instead of the previous 0.5ml/kg regimen). Examinations were independently reviewed by two consultant paediatric radiologists to determine quality of enhancement. Prior uncapped examinations (if available) were also reviewed.

Results

Examinations covered all body regions in a variety of indications (oncology, rheumatology, infection etc). Enhancement was judged diagnostic quality for all 86 examinations by both reviewers. 56 patients had previous uncapped examinations: in 43 enhancement was deemed equal; in 6 the higher (uncapped) dose was considered superior; in 7 the lower (uncapped) dose was considered superior. For these 86 patients a total of 265.4ml GBCA was saved.

Conclusion

Capping paediatric doses of GBCA at 10ml does not appear to compromise scan quality and has been implemented locally since this study was conducted. However, MSK colleagues have queried this dose modification for synovitis studies - subgroup analysis is being undertaken at the time of submission.

1. Zhang, Z., Jiang, W., Gu, T., Guo, N., Sun, R., Zeng, Y., Han, Y. and Yu, K. (2024) 'Anthropogenic gadolinium contaminations in the marine environment and its ecological implications', Environmental Pollution, 359, p. 124740. doi:10.1016/j.envpol.2024.124740.
2. Brünjes, R. and Hofmann, T. (2020) 'Anthropogenic gadolinium in freshwater and drinking water systems', Water Research, 182, p. 115966. doi:10.1016/j.watres.2020.115966.
3. Layne, K.A., Dargan, P.I., Archer, J.R.H. and Wood, D.M. (2018) 'Gadolinium deposition and the potential for toxicological sequelae - A literature review of issues surrounding gadolinium-based contrast agents', British Journal of Clinical Pharmacology, 84(11), pp. 2522-2534. doi:10.1111/bcp.13718.
4. Ouyang, M. and Bao, L. (2025) 'Gadolinium contrast agent deposition in children', Journal of Magnetic Resonance Imaging, 61(1), pp. 70-82. doi:10.1002/jmri.29389.

M2.6 DULLNESS and MELUCCI; An evidence-based approach to liver lesions in oncology surveillance imaging

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Aims

Since moving to a 3T scanner in 2021, increasing numbers of indeterminate liver lesions have been detected in oncology surveillance scans, causing dilemmas at our local oncology MDTM. Combining local experience with a literature review, we developed an evidence-based pathway in which unnecessary imaging and biopsies were minimised.

Method and Materials

Literature search for evidence regarding liver lesions in post treatment paediatric cancer patients yielded 6456 titles for review. 31 items were downloaded for further analysis.

Results

Benign liver lesions (typically FNH or “FNH like” lesions) are well described in paediatric patients following oncology treatment, particularly following high dose, multi agent or platinum based chemotherapy, and in neuroblastoma patients. Variability in appearance is described in the literature, so we deemed making a firm diagnosis less important than excluding features suggestive of malignancy. The labels DULLNESS (“Doubtful or Uncertain Liver Lesion Not Enlarging on Serial Scans”) and MELUCCI (“Modestly Enlarging Lesion Unaccompanied by Concerning Characteristics on Imaging”) were coined to describe two common scenarios in which additional imaging or biopsy was considered unnecessary. Reported red flag features requiring consideration of biopsy or short interval repeat scan include indeterminate imaging features, rapidly increasing lesion size, increasing multiplicity and short interval between initial malignancy diagnosis or end of treatment and lesion development.

Conclusion

We present an evidence-based flowchart to guide imaging and management of liver lesions detected during paediatric oncology surveillance. MDT discussion remains central to the decision making process, but awareness of commonly occurring benign lesions may help avoid unnecessary biopsy.

1.Citak, E.C., Karadezeniz, C., & Oguz, A. (2007). Nodular regenerative hyperplasia and focal nodular hyperplasia of the liver mimicking hepatic metastasis in children with solid tumors and a review of literature. Pediatric Hematology and Oncology, 24, pp. 281–289.
2.Wanless, I.R., Mawdsley, C., & Adams, R. (1985). On the pathogenesis of focal nodular hyperplasia of the liver. Hepatology, 5, pp. 1194–1200.
3.Kumagai, H., Masuda, T., Oikawa, H., Endo, K., Endo, M., & Takano, T. (2000). Focal nodular hyperplasia of the liver: Direct evidence of circulatory disturbances. Journal of Gastroenterology and Hepatology, 15, pp. 1344–1347.
4.Do, R.K.G., Shaylor, S.D., Shia, J., Wang, A., Kramer, K., Abramson, S.J., Price, A.P., & Schwartz, L.H. (n.d.). Variable MR imaging appearances of focal nodular hyperplasia in pediatric cancer patients.
5.Özcan, H.N., Karçaaltıncaba, M., Seber, T., Yalçın, B., Oğuz, B., Akyüz, C., & Haliloğlu, M. (n.d.). Hepatocyte-specific contrast-enhanced MRI findings of focal nodular hyperplasia-like nodules in the liver following chemotherapy in pediatric cancer patients.

RAPID FIRE EPOSTER PRESENTATIONS

P001-rf Best practice MR imaging for penile malignancies for surgical planning, re-staging and post treatment surveillance: When intracorporeal agents can make a difference

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Background

Penile malignancies are rare constituting only 0.5% of all cancer types in males in the UK.[1] Penile amputation carries significant psychosexual morbidity. For organ-sparing surgical planning; imaging needs to accurately predict invasion of the tunica albuginea. All published literature concurs this is best achieved with MRI. Although not widely adopted as standard, use of an intracorporeal agent to produce tumescence has been shown to improve diagnostic accuracy by between 33 to 90%.[2,3]

Purpose

To provide an overview and analysis of best practice MRI protocol for imaging of penile malignancies performed for surgical planning, re-staging and post treatment surveillance. Drawing on the direct experience of radiologists and clinical specialist radiographers from a specialist penile cancer treatment centre. Key learning outcomes include sequence selection, optimal technique, image evaluation and how and when to incorporate the use of intracorporeal agents and contrast. Addressing barriers around adopting novel techniques, such as intracorporal agents and how they can be introduced safely and efficiently into scanning departments.

Summary of Content

Case studies are utilised to follow the patient pathway from imaging through to treatment and outcomes. Images of pathology are displayed to allow a direct comparison between CT, US, MRI and PET CT. Radiographer and scanning technique is described. Results demonstrate that good radiographer technique and novel imaging can lead to better organ sparing surgical treatment options for patients.[4,5]

Table

	Artificial erection using Caverject before MRI	
	Yes	No
TA		
Sensitivity, %	93	69
Specificity, %	76	72
Urethra		
Sensitivity, %	86	44
Specificity, %	81	83

Fig 21. Table depicting sensitivity and specificity in detecting corporal and urethral invasion of penile tumours with and without an artificial erection (Hanchanale et al 2015)

1. Kochhar R, Taylor B, Sangar V (2012) 'Imaging in primary penile cancer: current status and future directions' European Radiology 20: pp36–47
2. Hanchanale V, Yeo L, Subedi N, Smith J, Wah T et al (2016) 'The accuracy of magnetic resonance imaging (MRI) in predicting the invasion of the tunica albuginea and the urethra during the primary staging of penile cancer' BJUI International, 117:pp 439–443
3. Scardino E, Villa G, Bonomo G et al (2004) Magnetic resonance imaging combined with artificial erection for local staging of penile cancer. Urology 63:1158–1162
4. Suh , Baheti A, Tirumani S H, Rosenthal M H et al (2014) 'Multimodality imaging of penile cancer: What radiologists need to know.' Abdominal Imaging 40 pp 424–435
5. Galgano S, Norton J, Porter K, West J (2022) 'The role of magnetic resonance imaging in the local staging of penile cancer.' Diagnostics 12 70

P002-rf Retrospective analysis to assess improved identification of vertebral fragility fracture on chest X-ray

Miss Sarah Simpson[1], *Faye Frost*[1], *Lauren Berger*[1], *Dr Claire Barker*[1], *Dr Fenella Wong*[1]
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Background

Vertebral fragility fracture (VFF) is the most common osteoporotic fracture and is frequently under-reported by radiologists (RCR, 2021). The objective of this study was to evaluate the utility of artificial intelligence (AI) assisted interpretation for increased detection of vertebral fracture on chest x-ray (CXR).

Method
An AI-driven computer aided detection (CAD) device (Annalise Container v2.2) was used to evaluate all CXRs performed over a 1-month period (n=1,669). Of all studies evaluated, 955 (57%) included a lateral projection. The AI device flagged 100/955 (10.5%) studies as containing a VFF. All flagged studies were reviewed by 5 reporters who independently graded each study retrospectively for visibility of the fracture with the AI output.
Results
There was 100% concordance with the AI classification for 76/100 studies and only 4/100 studies where there was 100% discordance with the AI. 34 of the studies flagged by the AI had no mention of fracture in the report and, out of those, 23 had ≥ 80% consensus with AI for presence of VFF on retrospective review.
Conclusion
Missed opportunity to report VFF can have a critical impact on patient morbidity and quality of life. Incorporating AI support tools when reviewing CXR can enhance detection of VFF. Early identification of VFFs is critical to ensure patients are appropriately managed and offered preventative treatments where appropriate.

RCR: The Royal College of Radiologists. (2021) "Radiological guidance for the recognition and reporting of osteoporotic vertebral fragility fractures (VFFs)". London: The Royal College of Radiologists.

P003-rf Ultrasound for characterisation and risk stratification of scalp lesions: a guide for the general radiologist

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Background
Ultrasound is commonly used for initial assessment of scalp lesions, but can be diagnostically challenging due to the broad spectrum of benign to aggressive pathologies which may be encountered.
Purpose
To help the clinician to differentiate between benign and aggressive lesions using imaging features, clinical details and previous imaging. To aid appropriate onward management if required.
Content
A case series demonstrating key sonographic features of benign and aggressive lesions will be presented.
Key learning points will include:

- Sonographic features which help characterization or risk stratification of scalp lesions
- Importance of considering clinical history and prior imaging when proposing a diagnosis
- When to recommend further imaging and /or tissue diagnosis.

1. C. Ju and N. Pham (2022) Superficial Soft-Tissue Masses of the Head and Neck: A Pictorial Review
Neurographics 2022 July-September;12(3):151–161; www.neurographics.org

P004-rf Countering the effect of scan projection radiograph (SPR) magnification and minification on automatic exposure control (AEC) using an additional SPR

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Background

Patient centring can have a large effect on the dose delivered to a patient on a CT scanner under automatic exposure control (AEC). This is due to the magnification or minification effect in the scan-projection radiograph (SPR) and is well documented and easy to demonstrate. Siemens have identified this as a problem and they offer a solution (1); if a second, orthogonal SPR is provided then a correction can be applied. This may be beneficial to specific patient groups where centring in the isocentre is not always possible (such as breast radiotherapy planning patients).

Method

A Kyoto anthropomorphic phantom was scanned at a range of bed heights with different combinations of SPRs. The average CTDIvol was compared and the AEC response at the extremes of bed heights examined.

Results

The addition of a second SPR does correct the average CTDIvol almost back to the “ideal” value. This correction breaks down at the extremes of bed heights where anatomy is no longer encompassed fully in either SPR. Excluding the extremes of bed heights, just an anterior posterior (AP) SPR had an average CTDIvol sample Variance of 2.6 mGy^2 and with the additional SPR this was reduced to 0.1 mGy^2.

Conclusion

For specific situations the inclusion of an additional orthogonal SPR will make the average CTDIvol and therefore image quality and patient dose more consistent and predictable. This is especially useful for patients where anatomy such as arms may be excluded from a single SPR.

1. Siemens Healtheneers (2021), CARE Dose 4D –
Updated Dual Topogram Behavior Job Aid. HOOD05162003162880, available at: https://pep.siemens-info.com/en-us/care-dose-4d-dual-topogram-behavior-job-aid/view (accessed: 7th February 2025)

P006-rf Delivering an accelerated route into radiography via a 24 month degree apprenticeship programme: Early experiences and reflections

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Background

The Diagnostic Radiographer apprenticeship standard [Institute for Apprenticeships and Technical Education, 2024] provides an option for delivery as a pre-registration MSc programme of study for individuals already holding a degree. Consequently, our Higher Education Institute launched a two-year accelerated degree apprenticeship in November 2022.

Purpose

The purpose of this poster is to share our experiences of delivering an accelerated (24-month) diagnostic radiographer degree apprenticeship. We will draw on the tripartite nature of apprenticeships, reflecting on our experiences and feedback received from the degree apprentices (DAs) and their workplaces/employers.

Summary of Content

By drawing on experiences from each of the three key parties we will provide an overview of the benefits and challenges of this route into radiography.

The educational perspective will consider challenges such as developing a curriculum that builds on the DAs' prior degree-level education so as to fit within a 24-month period whilst ensuring both the apprenticeship standard and Health and Care Professions Council Standards of Proficiency [HCPC, 2023] are also met.

The workplace perspective will focus on how DAs are supported in achieving clinical proficiency in a shortened period (compared with 36-month routes), including the responsibility placed on the workplace to tailor clinical rotas in the latter half of the programme to meet learning needs.

The DA perspective will consider the transition to M-level study, the impact of an accelerated curriculum and taking responsibility for their own clinical learning.

The poster will conclude by discussing how this route widens entry into the profession for current graduates.

HCPC Standards of Proficiency for Diagnostic Radiographers accessed at https://www.hcpc-uk.co.uk/globalassets/standards/standards-of-proficiency/reviewing/radiographers---new-standards.pdf (accessed 28th November 2024).
The Institute for Apprenticeships and Technical Education Diagnostic Radiographer Apprenticeship Standard accessed at https://www.instituteforapprenticeships.org/apprenticeship-standards/diagnostic-radiographer-v1-3 (accessed 28th November 2024)

P007-rf 2 week rule CT scans ordered by GPs to assess for pancreatic cancer - are they meeting the referral criteria?

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Background

The National Institute for Health and Care Excellence (NICE) updated its suspected cancer recognition and referral guideline in October 2023. One of the many recommendations from this update, is for GPs to have direct access CT scans under the 2 week rule, if pancreatic cancer is suspected.

The indication for the CT scan should be to assess for pancreatic cancer in patients aged 60+ with weight loss, and any of the following:

- Diarrhoea
- Back pain
- Abdominal pain
- Nausea
- Vomiting
- Constipation
- New-onset diabetes

Objective

The purpose of this study was to assess if referral criteria are being adhered to with a target of 100%.

Methods
Data was collated retrospectively from January 2021 using the online referral and imaging system, resulted in 50 consecutive requests. Only requests which specifically included terms such as “pancreatic cancer/mass/suspicious pancreatic lesion” were included.
Results
68% of patients had weight loss and were over 60 however overall there was only 44% compliance with the NICE recommendations. 1 patient was diagnosed with pancreatic malignancy and 1 patient with another unrelated malignancy. Incidental pathologies were also noted such as gallstones and Intraductal Papillary Mucinous Neoplasm (IPMN).
Conclusion
Overall poor (<50%) compliance with the guidelines with other reasons documented in the referral such as sudden worsening of type 2 diabetes and family history.
Recommendations to improve compliance included electronic referral proforma for GPs with mandatory tick boxes to ensure criteria are met, presentation and dissemination of audit results to local GP practices.

Nice.org.uk. (2015). Recommendations organised by site of cancer | Suspected cancer: recognition and referral | Guidance | NICE. [online] Available at: http://www.nice.org.uk/guidance/ng12/chapter/1-Recommendations-organised-by-site-of-cancer#upper-gastrointestinal-tract-cancers [Accessed 17 Dec. 2024].

P008-rf A review of motion management and recommendations for the East Midlands

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Introduction
Intrafraction motion is an issue that is becoming increasingly relevant in an era of Radiotherapy in which the focus is on image-guidance, margin reduction, hypofractionation and dose-escalation.
Background
Intrafraction motion can be broken down into voluntary and involuntary motions and can be caused by the respiratory, musculoskeletal, cardiac and gastrointestinal systems. Motion management describes any technique, equipment or drug that reduces or eliminates intrafraction motion.
Recommendations
To provide effective motion management a department should offer both an active and passive solution for respiratory gating. It should also have an assisted solution for patients not suitable for either respiratory gating option. The goal being to provide a versatile motion management offering with as few systems as practicable to reduce costs and training/competency burden.
Summary
Surface Guided Radiotherapy systems should be the primary method of motion management for all centers. Procurement of SGRT should be high priority and included in any upcoming equipment replacement programs. SGRT enables a variety of patient-led motion management and can account for voluntary and involuntary motion for all treatment sites. Centers should aim to have SGRT and abdominal compression as a minimum to offer a diverse range of motion management solutions. Additionally, RPM/RGSC systems are required to take 4D-CBCT scans on Varian linear accelerators. Supplementary equipment such as mechanically assisted breath-hold systems are desirable but non-essential. Each center should review current techniques delivered and any upcoming techniques and use the information in these recommendations to suit their needs.

De Vet, S., Van Oorschot, S. C. H., Gerling, M., Kouwenhoven, E., Kwakkel, L., Mast, M., Rietveld, P., Roos, J., Van der Voort van Zyp, N., & Van de Vaart, P. (2015). PO-1086 Target volume comparison in lung cancer based on slow CT, 4DCT and ABC CT-scans. Radiotherapy and Oncology, 115, S586–S587.
Li, F., Li, J., Zhang, Y., Xu, M., Shang, D., Fan, T., Liu, T., & Shao, Q. (2013). Geometrical differences in gross target volumes between 3DCT and 4DCT imaging in radiotherapy for non-small-cell lung cancer. Journal of Radiation Research, 54(5), 950–956.
Al-Hallaq, H. A., Cerviño, L., Gutierrez, A. N., Havnen-Smith, A., Higgins, S. A., Kügele, M., Padilla, L., Pawlicki, T., Remmes, N., Smith, K., Tang, X., & Tomé, W. A. (2022). AAPM task group report 302: Surface-guided radiotherapy. Medical Physics (Lancaster), 49(4), e82–e112.
Sorgato, V., Ghazouani, K., Queffelec, Y., Julia, F., Clement, S., Fric, D., & Farah, J. (2022). Benchmarking the AlignRT surface deformation module for the early detection and quantification of oedema in breast cancer radiotherapy. Technical Innovations & Patient Support in Radiation Oncology, 21, 16–22.
Wunderink, W., Méndez Romero, A., de Kruijf, W., de Boer, H., Levendag, P., & Heijmen, B. (2008). Reduction of Respiratory Liver Tumor Motion by Abdominal Compression in Stereotactic Body Frame, Analyzed by Tracking Fiducial Markers Implanted in Liver. International Journal of Radiation Oncology, Biology, Physics, 71(3), 907–915.

P009-rf Exploring and understanding current experiences and perspectives surrounding autism and neurodiversity in radiographic and radiotherapeutic settings: a systematic review

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Background
Radiographers attending the 2024 Annual Delegates Conference for Radiography highlighted the need for greater education on the autistic experience of radiographic procedures. These procedures can present significant sensory challenges for the autistic population(1,2,3). With an estimated 1–1.5% incidence of autism in the general population(4), it is reasonable to expect similar representation amongst radiographers. The profession faces a 13% staffing shortfall(5), and improving workplace support for autistic, neurodivergent, and disabled professionals could enhance recruitment and retention(6). A 2020 British Medical Association report on disability in medicine(7) found that 77% of autistic and neurodivergent professionals feared negative consequences from disclosure, emphasizing the need for a more inclusive culture.
Methods
A literature search carried out according to PRISMA guidelines(8) identified studies in English covering quantitative, qualitative, and mixed-methods research.
Results
Twenty-three relevant publications were identified. There were three key elements of the experience of autistic people; firstly that radiographic examinations present sensory challenges and test practitioner confidence; secondly, that autistic patients have communication needs that are not always met, such as identity-first language utilisation; thirdly, that autistic people face barriers regarding information accessibility and timely communication prior to and during radiographic examinations.
Conclusions
Although there is little evidence exploring autism within radiography, existing research suggests that changes in communication and attitude could improve patient and practitioner experience.
This project is funded by the College of Radiographers Industry Partnership Scheme (CoRIPS) Research Grant [251]. The views expressed are those of the authors and not necessarily those of the College of Radiographers.

1: Hudson, D.M., Heales, C., and Meertens, R. (2022) Review of claustrophobia incidence in MRI: a service evaluation of current rates across a multi-centre service. Radiography (London). 28 (3), 780-787.
2: Stogiannos, N., Harvey-Lloyd, J.M., Nugent, B., Brammer, A., Carlier, S., Cleaver, K., McNulty, J.P, Sa dos Reis, C. and Malamateniou, C. (2022) Autism-friendly MRI: Improving radiography practice in the UK, a survey of radiographer practitioners. Radiography (London). 28 (1), 133-141.
3: Carlier, S., Vorlet, P., Sa dos Reis, C. and Malamateniou, C. (2023) Strategies, challenges and enabling factors when imaging autistic individuals in Swiss medical imaging departments. Journal of Medical Imaging and Radiation Sciences. 54 (4S), S53-S63.
4: National Autistic Society. What is autism? Available from: https://www.autism.org.uk/advice-and-guidance/what-is-autism
5: Society of Radiographers (2024). "SoR urges workplace reform in response to NHS waiting list numbers". Available from: https://www.sor.org/news/government-nhs/sor-urges-workplace-reform-in-response-to-nhs-wait
6: BUPA. Supporting neurodiversity in the workplace. Available from: https://www.bupa.co.uk/business/~/media/files/mms/bins-05299.pdf
7: British Medical Association (2020). Disability in the medical profession: Survey findings 2020. Available from: https://www.bma.org.uk/media/2923/bma-disability-in-the-medical-profession.pdf
8: Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G. and PRISMA Group. (2009) Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med. 6 (7), e1000097.

EPOSTERS

P010 A real-world insight into the application of an artificial intelligence algorithm for the analysis of chest radiographs

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Background

The integration of artificial intelligence in chest radiograph evaluation offers considerable promise for improving diagnostic precision and streamlining radiology workflows. However, the extent of real-world implementation across radiology departments in England varies significantly, necessitating the need for assessment in clinical settings.

Method

This study investigated the performance of a commercially available artificial intelligence system for interpreting chest radiographs. A retrospective analysis was conducted on 300 real-life cases of chest radiographs performed from 2005 to 2023 (including normal and abnormal cases), stored in a secured teaching archive. Each case was analysed using the AI algorithm, and the results were validated against subsequent CT scans and an independent reference standard review by two experienced consultant radiologists, blinded to the AI outputs. Diagnostic performance was assessed using statistical metrics, including sensitivity, specificity, confusion matrices, area under the curve, and predictive values.

Results

The AI Algorithm demonstrated high diagnostic accuracy, sensitivity, specificity and predictive values in identifying acute pathologies and normal radiographs, emphasising its complementary role in supporting emergency radiology workload and enhancing workflow triaging through robust screening. However, limitations were observed. Ten illustrative cases—including false positives, and false negatives—are presented to highlight the algorithm's real-world applications, strengths, and weaknesses.

Conclusion

While AI has shown to be an important adjunct to radiologists in managing growing imaging workloads while maintaining reporting accuracy, there are several factors that may influence its diagnostic accuracy. Further training and refinement of AI algorithms are needed to enhance their diagnostic performance and expand its integration in clinical practice.

1. Ahn, J. S. et al. (2022) 'Association of artificial intelligence-aided chest radiograph interpretation with reader performance and efficiency', JAMA Network Open, 5(8), p. e2229289. Available at: https://doi.org/10.1001/jamanetworkopen.2022.29289.
2. López Alcolea, J. et al. (2024) 'Diagnostic performance of artificial intelligence in chest radiographs referred from the emergency department', Diagnostics (Basel, Switzerland), 14(22), p. 2592. Available at: https://doi.org/10.3390/diagnostics14222592.
3. Monti, C. B. et al. (2025) 'Diagnostic performance of an artificial intelligence model for the detection of pneumothorax at chest X-ray', Clinical Imaging, 117, p. 110355. Available at: https://doi.org/10.1016/j.clinimag.2024.110355.
4. Schalekamp, S. et al. (2024) 'Performance of AI to exclude normal chest radiographs to reduce radiologists' workload', European Radiology, 34(11), pp. 7255–7263. Available at: https://doi.org/10.1007/s00330-024-10794-5.

P011 Evaluation of AI-driven reconstruction for diagnostic accuracy in CT head

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AI driven deep learning reconstruction algorithms (AIDL) are becoming more common in neuroimaging, offering advantages beyond conventional iterative methods.(1) Although AIDL has been shown to improve lesion detection in CT chest (2), its impact on diagnostic accuracy in neuroimaging is not yet established.

This study evaluates one such algorithm- AiCE (Canon Medical Systems)(3) in CT Head (CTH), assessing its effectiveness in improving lesion detection, anatomical differentiation, and potential challenges for the radiologist.

Method

Two consultant neuroradiologists independently assessed 34 CTH scans reconstructed with and without AiCE. They evaluated the scans for lesion conspicuity (across multiple pathologies, including haemorrhage, infarcts, and mass lesions), grey white matter differentiation and any limitations.

Results

AiCE was noted by both neuroradiologists to show improved grey-white matter differentiation in 91%(31/34) of cases, improved lesion conspicuity in 32%(11/34), and either improved or unchanged lesion conspicuity in 94% (32/34) of cases . Both neuroradiologists noted reduced lesion conspicuity in 3%(1/34).

AiCE limitations included exaggerated white matter changes, increased hypodensity in the brainstem, reduced isodense lesion sensitivity, and novel artefacts.

Conclusion
AiCE deep learning reconstruction improves grey-white matter differentiation and lesion conspicuity, with potential to enhance neuroimaging diagnostic confidence. Whilst there are advantages of such algorithms, the reporting radiologist should be aware of potential diagnostic pitfalls and artefacts.

1. Chandran M, O., Pendem, S., P S, P., Chacko, C., Priyanka and Kadavigere, R. (2024). Influence of deep learning image reconstruction algorithm for reducing radiation dose and image noise compared to iterative reconstruction and filtered back projection for head and chest computed tomography examinations: a systematic review. F1000Research, [online] 13(1), p.274. doi:https://doi.org/10.12688/f1000research.147345.1.
2. Greffier, J., Frandon, J., Si-Mohamed, S., Dabli, D., Hamard, A., Belaouni, A., Akessoul, P., Besse, F., Guiu, B. and Beregi, J.-P. (2022). Comparison of two deep learning image reconstruction algorithms in chest CT images: A task-based image quality assessment on phantom data. Diagnostic and Interventional Imaging, 103(1), pp.21–30. doi:https://doi.org/10.1016/j.diii.2021.08.001.
3. Canon Medical Systems (2024). AiCE Deep Learning Reconstruction | CT | Canon Medical Systems. [online] Medical.canon. Available at: https://global.medical.canon/products/computed-tomography/aice_dlr [Accessed 7 Feb. 2025].

P012 The ethical implications of AI in radiography: Balancing automation with the role of human radiographers

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The integration of artificial intelligence (AI) in radiography is transforming medical imaging, with AI tools now capable of assisting or even performing tasks traditionally handled by radiographers. While these advancements promise improved efficiency, accuracy, and diagnostic potential, they raise significant ethical concerns about the evolving role of human professionals in the field. This study explores the ethical implications of AI in radiography, focusing on balancing automation with the irreplaceable human elements in healthcare.
A qualitative research design was employed, using semi-structured surveys with radiographers, AI developers, and healthcare ethicists, alongside a review of relevant literature and policy documents. Participants discussed ethical challenges related to job displacement, accountability, patient care, and the preservation of human expertise.
The study revealed a consensus among radiographers that AI could enhance diagnostic capabilities but raised concerns about dehumanizing patient care and eroding traditional radiographic skills. Ethical issues such as biased algorithms, lack of transparency in AI decision-making, and undermining professional autonomy were highlighted. However, participants also recognized AI as a tool to support, rather than replace, human radiographers.
In conclusion, the ethical implications of AI in radiography call for a balanced approach where technology complements human expertise. Training programs should evolve to equip radiographers to work alongside AI, ensuring the human touch remains central to patient care. Ethical frameworks must guide AI integration, ensuring accountability and transparency while safeguarding professional integrity. AI should be viewed as a partner in healthcare, not a replacement.

P014 The role of AI within interventional radiology

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Artificial Intelligence (AI) is increasingly more and more being used in standard practice during Interventional procedures to improve accuracy and efficiency, reduction in radiation dose, screening time and contrast usage. In this educational poster we will demonstrate different areas/procedures where AI have been successfully implemented to clinical IR practice in our department and have improved patient care, overall service and ultimately patient outcomes. Areas discussed will include Fusion Imaging, CT-Navigation Systems, 3D Navigational (Automated Feeder detection) software, Rapid AI software detection for Thrombectomy procedures and future technology developments.

1. Hall, J. (2024) Can fiber optic realshape (FORS) technology provide a viable alternative to X-rays for aortic procedures?, Diagnostic Imaging. Available at: https://www.diagnosticimaging.com/view/fiber-optic-realshape-technology-viable-alternative-to-x-rays-aortic-procedures
2. Rick Middleton, R.D. (2023) IMACTIS CT-NavigationTM System: BVM Medical, BVM Medical |. Available at: https://www.bvmmedical.com/products/imactis-ct-navigation-system/

P015 Enhancing CT examination efficiency with ChatGPT-4o for multilingual Hajj Pilgrims: A short communication

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Background

The annual Hajj pilgrimage brings millions of Muslims from diverse linguistic backgrounds to Makkah, posing significant communication challenges in medical settings. Effective communication is crucial in computed tomography (CT) examinations to ensure patient compliance and optimize image quality. Traditional translation methods are often inadequate, leading to longer examination times and increased scan artifacts. This study evaluates the impact of integrating ChatGPT-4o real-time translation technology in a tertiary care hospital's radiology department during the Hajj season.

Method

A quantitative study was conducted comparing data from two Hajj periods: June 20–July 8, 2023 (pre-implementation) and June 7–June 23, 2024 (post-implementation). Ethical approval was obtained. Key metrics included mean examination time (minutes), patient throughput (cases per shift), and the number of scans with artifacts. Patient and radiographer satisfaction were assessed. A paired t-test compared outcomes between the two periods ($P<0.05$).

Results

Mean examination time significantly decreased from 15.4 (2.1) to 11.1 (1.7) minutes ($P<0.01$), with patient throughput increasing from 49.5 (4.8) to 56.2 (5.3) cases per shift ($P<0.01$). Scan artifacts reduced from 30/748 (4.0%) to 8/885 (0.9%) ($P<0.01$). Both patients and radiographers reported improved communication and lower stress levels.

Conclusion

ChatGPT-4o significantly improved multilingual communication, reducing scan artifacts and increasing workflow efficiency. The technology enhanced patient compliance and reduced examination time. While initial adaptation challenges were noted, overall satisfaction was high. Future research should explore its broader applications in healthcare.

Table

Figures and Tables

Table 1: Developed protocols for using the ChatGPT-4o translation tool.

Scenario	Protocol description	Example prompt
Initial patient interaction	Start the interaction by asking for the patient's permission to use the translation tool.	"Translate this to [language]: 'May I use a translation tool to help us communicate better?'"
Pre-examination instructions	Explain the procedure, sensations during the injection, and potential risks associated with radiation exposure.	"Translate this to [language]: 'You might feel a warm sensation when the contrast media is injected, and this is a normal feeling.'"
Screening questions	Ask necessary screening questions to ensure patient safety, such as allergies to contrast media or iodine.	"Translate this to [language]: 'Do you have any allergies to contrast media or iodine?'"
During examination instructions	Provide real-time instructions such as holding breath and staying still during the scan.	"Translate this to [language]: 'Do not move during the scan and stay still.'"
Post-examination care instructions	Provide aftercare instructions, including hydration.	"Translate this to [language]: 'After the scan, make sure to drink plenty of water.'"
Addressing patient concerns	Respond to any additional questions or concerns the patient might have.	"Translate this to [language]: 'Do you have any questions or concerns about the procedure?'"
Final report	Provide explanations of when to expect the final report.	"Translate this to [language]: 'Your final report will be ready on [time].'"

Table 2: Examples of patient language and scan details in 2023.

N	Exam date	Patient language	Body part	Artifacts reported (Yes – No)	Scan repetition (Yes – No)	Acquisition time (min)	Total cases per shift
1	21 June	Indian - Hindi	Abdomen	Yes	No	12	50
2	21 June	Indonesian (Bahasa Indonesia)	Head & neck	No	No	9	50
3	22 June	Indonesian (Bahasa Indonesia)	Head	No	Yes	10	52
4	23 June	Bengali (Bangla)	Chest	No	No	10	40
5	23 June	Indonesian (Bahasa Indonesia)	Chest	No	No	9	40
6	24 June	Ethiopian - Amharic	Chest	Yes	No	14	57
7	24 June	Pakistan - Urdu	Chest	Yes	Yes	14	57
8	24 June	Turkish	Head & neck	No	No	11	57
9	26 June	Guinea - French	Head & neck	No	No	27	54
10	27 June	Bengali (Bangla)	Head & neck	No	No	8	38

Table 3: Examples of patient language and scan details in 2024.

N	Exam date	Patient language	Body part	Artifacts reported (Yes – No)	Scan repetition (Yes – No)	Acquisition time (min)	Total cases per shift
1	11 June	Turkish	Head	No	No	11	54
2	11 June	Ethiopian - Amharic	Abdomen	No	No	12	54
3	13 June	Indonesian (Bahasa Indonesia)	Head	No	No	9	49
4	13 June	Turkish	Head	No	No	10	49
5	13 June	Indonesian (Bahasa Indonesia)	Head & neck	No	No	13	49
6	14 June	Indian - Hindi	Head & neck	No	No	14	52
7	19 June	Bengali (Bangla)	Coronary	No	No	16	51
8	21 June	Bengali (Bangla)	Chest	No	No	11	67
9	22 June	Indonesian (Bahasa Indonesia)	Chest	No	No	8	60
10	23 June	Afghanistan - Dari	Head	No	No	7	66

Table 4: Scan request to completion time for In-patients and ER-patients (2023-2024).

Year	Period	Number of cases	"Request to scan time" In-patients (min) (mean ± SD)	"Request to scan time" ER-patients (min) (mean ± SD)
2023	20 June – 08 July	748	480 ± 60	180 ± 30
2024	07 June – 23 June	885	400 ± 50	60 ± 20

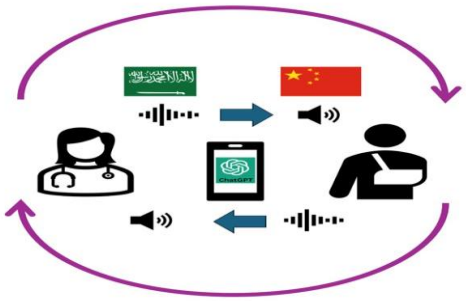

Figure 2: Schematic illustrating the concept of ChatGPT-4o real-time translation.

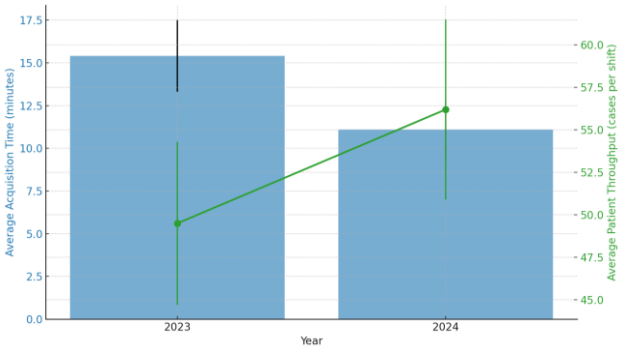

Figure 3: CT scan acquisition time and patient throughput (2023 vs 2024).

1. Betancourt JR, Tan-McGrory A, Flores E, López D (2019) Racial and Ethnic Disparities in Radiology: A Call to Action. Journal of the American College of Radiology 16:547–553. https://doi.org/10.1016/J.JACR.2018.12.024

https://doi.org/10.1186/S12912-021-00684-2/FIGURES/1
2. Pandey M, Maina RG, Amoyaw J, et al (2021) Impacts of English language proficiency on healthcare access, use, and outcomes among immigrants: a qualitative study. BMC Health Serv Res 21:1–13. https://doi.org/10.1186/S12913-021-06750-4/FIGURES/1
https://doi.org/10.1001/JAMANETWORKOPEN.2023.1204
3. Hernáez-Rioja I, Gonzalez-Lopez JA, Christensen H (2023) Special Issue on Applications of Speech and Language Technologies in Healthcare. Applied Sciences (Switzerland) 13:. https://doi.org/10.3390/APP13116840
4. Aldossari MR, Aljoudi A, Celentano D (2019) Health issues in the hajj pilgrimage: A literature review. Eastern Mediterranean Health Journal 25:744–753. https://doi.org/10.26719/2019.25.10.744
5. Overgaard SM, Graham MG, Brereton T, et al Implementing quality management systems to close the AI translation gap and facilitate safe, ethical, and effective health AI solutions. nature.com. https://doi.org/10.1038/s41746-023-00968-8
6. Sarella P, Practice VM-IJ of P, 2024 undefined (2024) AI-driven natural language processing in healthcare: transforming patient-provider communication. researchgate.net 17:21–26. https://doi.org/10.5530/ijopp.17.1.4
7. Madai VI, Higgins DC (2021) Artificial Intelligence in Healthcare: Lost In Translation?
8. Boylen S, Cherian S, Gill F, et al Impact of professional interpreters on outcomes for hospitalized children from migrant and refugee families with limited English proficiency: a systematic review. journals.lww.com
9. Hwang K, Williams S, Zucchi E, et al (2022) Testing the use of translation apps to overcome everyday healthcare communication in Australian aged-care hospital wards—An exploratory study. Nurs Open 9:578. https://doi.org/10.1002/NOP2.1099

P016 Artificial intelligence for missed lung cancer detection on chest X-rays: Evaluating enhanced detection rates

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Background

Detecting lung cancer on chest X-rays (CXR) remains challenging, with a significant risk of missed diagnoses [1]. Artificial intelligence (AI) offers the potential to improve detection by highlighting abnormalities that may prompt further investigation [2]. This feasibility study evaluates the Enhanced Detection Rate (EDR) of AI in identifying lung cancers that were retrospectively visible but missed during initial CXR reporting.

Method

A retrospective review was conducted on 105 of 1,600 CXRs referred from general practice, performed within six months of a confirmed lung cancer diagnosis, where abnormalities were present but initially unreported. Each CXR was reviewed in two phases: first without AI assistance, then with AI support (Annalise.ai). Changes in clinical recommendations (CX codes) and error types (observational vs. interpretative) were recorded. EDR was calculated as the proportion of additional true-positive detections identified with AI compared to the original reports.

Results

Preliminary results indicate that AI identified 41% of lung cancers missed during initial reporting, potentially improving overall lung cancer EDR on CXR by 3.7%. AI-driven changes in clinical management, reflected in adjustments to CX codes, were also observed. The majority of missed diagnoses (71%) were due to observational errors.

Conclusion

AI demonstrates promise in enhancing lung cancer detection on CXRs, particularly by addressing observational oversights. These findings will inform the design of a larger retrospective study, incorporating a broader range of reporters, including Consultant Radiologists, Registrars, and Reporting Radiographers.

1. Healthcare Safety Investigation Branch, 'Missed detection of lung cancer on chest X-rays of patients being seen in primary care', HSIB Investigation report. Accessed: Feb. 9, 2025. [Online]. Available: https://www.hssib.org.uk/patient-safety-investigations/missed-detection-of-lung-cancer-on-chest-x-rays-of-patients-being-seen-in-primary-care/investigation-report/

2. NHS England, 'Artificial intelligence-derived software to analyse chest X-rays for suspected lung cancer in primary care referrals: early value assessment', NICE Guidance HTE12. Accessed: Feb. 9, 2025. [Online]. Available: https://www.nice.org.uk/guidance/hte12

P018 Deep learning-based synthetic-CT generation from MRI for enhanced precision in MRI-only radiotherapy dose planning

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Background

Radiotherapy aims to precisely target tumors while sparing healthy tissue, traditionally relying on CT imaging for accurate dose planning. However, CT has limitations in soft tissue contrast and exposes patients to ionizing radiation. MRI offers superior soft tissue contrast without radiation but lacks electron density information, restricting its use in dose planning. This study addresses this gap by developing deep learning models to generate pseudo-CT images from MRI, enabling MRI-only workflows in radiotherapy.

Method

Paired MRI and CT scans from 12 subjects were processed using normalization, alignment, and masking. Four deep learning architectures (U-Net, Pix2Pix, CycleGAN, and conditional GAN (cGAN)) were trained to generate synthetic CT images from MRI data. Model performance was evaluated using metrics including mean absolute error (MAE), mean squared error (MSE), peak signal-to-noise ratio (PSNR), structural similarity index (SSIM), and Pearson correlation coefficient (PCC).

Results

Pix2Pix achieved the highest SSIM and PSNR, indicating strong structural preservation and reduced noise. It also had the lowest MAE and MSE, showing high accuracy in synthetic-CT generation. The cGAN model scored highest in PCC, highlighting its effective intensity alignment with real CT data. Statistical tests confirmed Pix2Pix's superior performance, though CycleGAN and cGAN also showed notable results in alignment accuracy.

Conclusion
Deep learning models, particularly Pix2Pix, can generate reliable pseudo-CT images from MRI, supporting MRI-only radiotherapy planning. This approach reduces radiation exposure and may streamline radiotherapy workflows, offering a promising advance for patient-centered cancer

P019 Can CT texture analysis be used to improve the diagnostic yield of parathyroid MIBI SPECT-CT scans?

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Background
CT texture analysis is an emerging technique that evaluates tissue characteristics from CT images, holding potential for detecting abnormalities. It may serve as a valuable tool in localizing parathyroid adenomas, as this task often requires complex interpretation of various imaging methods. Although Parathyroid MIBI SPECT-CT scans are useful, there remains room for enhancing accuracy, possibly by incorporating additional CT information not typically used.
Method
In the initial phase of our project, we aimed to identify CT texture parameters most commonly linked to abnormal MIBI scans, ensuring optimal use of CT data. We retrospectively analysed a set of positive MIBI scans and performed CT texture analysis using LifeX software. A small spherical region of interest was placed over the abnormal area on the CT slices. The CT texture parameters examined included gray levels, compactness, skewness, entropy, and kurtosis.
Results
CT texture analysis revealed a narrow range of “low compactness” across all scans, with other features such as HU, skewness, entropy, and kurtosis, showing more varied results, without a clear or consistent pattern.
Conclusion
In this exploratory study, we evaluated a few parameters for CT texture analysis in patients with high likelihood of parathyroid adenomas and found “low compactness” as a promising feature worth further consideration. Further research is required to validate these findings and to establish standardized protocols for texture analysis in clinical practice.

C Nioche, F Orlhac, S Boughdad, S Reuzé, J Goya-Outi, C Robert, C Pellot-Barakat, M Soussan, F Frouin, and I Buvat. LIFEx: a freeware for radiomic feature calculation in multimodality imaging to accelerate advances in the characterization of tumor heterogeneity. Cancer Research 2018; 78(16):4786-4789. LIFEx, RRID:SCR_025284, www.lifexsoft.org

P024 Breast cancer disease extent demonstrated by contrast enhanced mammography compared to standard digital mammography

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Background
In the diagnosis of breast cancer, Contrast Enhanced Mammography (CEM) has been shown to be as sensitive and specific as MRI (1) and more cost effective (2). However, MRI is not routinely used for the initial diagnosis of breast cancer and is only recommended in specific circumstances (3), with the majority of cases undergoing locoregional staging via standard Digital Mammography (DM) and ultrasound. We aim to assess whether using CEM provides a difference in locoregional staging when compared with DM in our centre.
Method
Retrospective study compiling all locally performed diagnostic CEMs over 12 months (177 cases); initial DM report findings were categorised as “non-mass abnormality” (distortion, calcification, density, opacity, asymmetry) or “mass”, the latter subdivided into focal/multifocal/multicentric or bilateral, with a note of footprint size. The subsequent CEM findings were compared for changes in mass detection, footprint size and multiplicity.
Results
Only 8% of cases showed no definite difference between the two modalities. Where a non-mass abnormality was detected on DM, CEM demonstrated mass-type enhancement in 91% of cases. Where a mass was detected on DM, CEM demonstrated a larger mass footprint in 63%, a smaller mass footprint in 18%, more extensive disease in 27%, and less extensive disease in 3% of cases.

Conclusion
CEM demonstrated differing locoregional staging to DM, with the potential of affecting subsequent treatment decisions, highlighting its usefulness in breast cancer diagnoses outside of simply being an alternative to MRI.

1. Covington, M.F., Fajardo, L.L., Salmon, S. and Weaver, B.D. (2024). 'State-of-the-art for contrast-enhanced mammography'. British Journal of Radiology, 97(1156), pp. 695–704.
2. Jin, H. and Savaridas, S. (2023). 'Costing analysis to introduce a contrast-enhanced mammography service to replace an existing breast MRI service for local staging of breast cancer'. Clinical Radiology, 78(5), pp.340–346.

3. National institute for health and care excellence (2018). 'Early and locally advanced breast cancer: diagnosis and management'. NICE Guideline NG101. Last updated 16 January 2024. Available at: https://www.nice.org.uk/guidance/ng101. (Accessed 3 February 2025).

P025 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.

P028 The role of MRI and contrast-enhanced mammography as supplementary imaging modalities for breast cancer detection in the dense breast population

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Background
Dense breast tissue poses a challenge for the diagnostic performance of digital mammography (DM). The sensitivity of DM declines as breast density increases, highlighting the need to explore additional imaging techniques. Breast MRI is a widely accepted supplementary screening tool that reveals occult breast cancers within dense tissue. Contrast-enhanced mammography (CEM) has recently emerged as an alternative to MRI; overcoming its limitations by being more readily available and cost-effective. Comprehensive comparisons of MRI and CEM and their benefits in breast cancer screening are limited in the literature. Consequently, the current systematic review presents a direct comparison of the performance of MRI and CEM, regarding sensitivity and specificity, for detecting abnormalities within dense tissue.
Method
A literature search was conducted through PubMed and Scopus. Key characteristics including sensitivity, specificity, number of patients/lesions and 95% confidence intervals (CIs) were extracted from the selected articles. The study quality was determined using the QUADAS-2 critical appraisal tool. The pooled sensitivity and specificity of MRI and CEM were computed and visualised in forest plots.
Results
Nine studies were included in the review. MRI and CEM demonstrated high sensitivity (97% and 89%, respectively) and high specificity (88% and 76%) for detecting cancer within dense breast tissue. However, the sensitivity of breast MRI was considered significantly greater than that of CEM.
Conclusion
Findings confirm the potential of CEM as a supplementary screening modality for women with dense breasts. More research is required to confirm the findings of the present review through a meta-analysis.

P029 Women's tolerance of breast propagation-based phase-contrast CT imaging positioning procedure: progress towards world-first clinical trial

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Background

Propagation-based phase-contrast (PB-CT) as an advanced imaging modality for breast cancer detection is approaching the world-first clinical trial. Due to the stationary nature of the synchrotron x-ray beam, patients must be rotated to capture CT data, yet patient tolerance to this rotation has not been previously assessed.

Methods

In this study (March 2024), 27 participants underwent a simulated PB-CT procedure involving breast support cups fitting and bed rotations at 10, 20, and 30 degree per second (°/s). The 30°/s rotation was repeated under three conditions: eyes-open, eyes-closed and breath-held. Participants completed comfort assessments via the Fast Motion Sickness Scale (FMS) to measure nausea, the State Anxiety (STAI-S) survey to measure short-term anxiety, comfort questionnaire and debriefing questions. Statistical analysis involved comparing baseline FMS and STAI-S scores with scores at each rotation speed, as well as evaluating the degree of change from baseline across rotation speeds for both measures.

Results

Although FMS scores showed a significant increase at medium ($p = 0.002$) and fast speeds ($p < 0.001$), median sickness scores consistently remained low across all speeds and conditions, with a median score of 2 out of 20, where 0 represents "no sickness at all" and 20 represents "severe sickness." STAI-S scores showed no significant changes across speeds and conditions, suggesting that while faster rotations may increase physical discomfort, discomfort is limited and does not substantially elevate participant's anxiety.

Conclusion

These findings suggest that PB-CT 3D imaging can be conducted comfortably at rotation speeds relevant to the future clinical trial.

P030 Triple assessment in a male breast: Tips for effective diagnosis - a pictorial educational review

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Background

Male breast diseases, although rare compared to female breast diseases, are commonly encountered in one-stop symptomatic breast clinics. Cancer Research UK statistics show there are approximately 370 cases of male breast cancer each year in the UK compared to 55,500 cases of female breast cancer[1]. Males with breast cancer often present at a later stage which, in part, can be due to a lack of awareness both by patients and clinicians which can result in a delay in diagnosis.

Apart from isolated primary breast malignancy, there are other pathologies, ranging from benign diseases such as sebaceous cysts or gynaecomastia to metastatic disease from breast and non-breast primaries.

Purpose

This pictorial case review aims to discuss a selection of common and uncommon lumps that male patients at a district general hospital breast service present with. This review would therefore aid in a better understanding of male breast disease with clinical, radiological and pathological corelation.

Summary of content

Our collection of 16 cases include: gynaecomastia, lymphoma, metastatic breast, metastatic melanoma, sarcoidosis as well as rare cases such as desmoid type fibromatosis. This review will include clinical presentation, multi-modality radiological findings and where necessary pathological features with a learning point for each case. The review demonstrates the importance of both patient awareness of breast diseases in males as well as clinician awareness, both in clinical and radiological settings.

We hope this will provide a concise overview of important male breast diseases particularly for trainee and general radiologists.

1. Cancer Research UK (2023) Breast cancer in men. Available at: https://www.cancerresearchuk.org/about-cancer/breast-cancer/types/male-breast-cancer (Accessed: 04/02/2025).

P031 Retrospective analysis of the outcomes of incidental breast lesions detected on CT imaging which are subsequently referred to a symptomatic breast clinic

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Background

The majority of breast cancers are usually diagnosed following triple assessment at symptomatic breast clinics or by being detected as part of breast screening. With liberal use of cross-sectional imaging in modern healthcare, many breast lesions are picked up incidentally on these scans. The aim of this study was to investigate the outcomes of such lesions detected incidentally on cross-sectional imaging.

Method

This is a retrospective study conducted to assess the outcomes of incidentally found breast lesions, which were detected on body CT scans that were conducted for non-breast-related indications over several months at a major regional London hospital.

Results

We identified 51 patients who were referred to the symptomatic breast service, under the 2-week-wait cancer referral pathway, following an incidental finding of a breast lesion on CT. Of these cases, we diagnosed 9 cancers (i.e. a PPV of 18%) and the rest varied across the spectrum from benign (e.g. B2) to axillary lymphadenopathy, skin lesions, and gynaecomastia. Adjusting for lesions present on previous studies (i.e. clinically not significant), the adjusted PPV would be 21%.

Conclusion

CT imaging is important for systematic investigation in many specialties. Therefore, the alertness of reporting radiologists for potential lesions in the breasts is critical for not missing developing breast pathologies and encouraging appropriate referral to specialised breast care.

1. Eniola Falomo, Strigel, R.M., Bruce, R., Munoz, A., Adejumo, C. and Kelcz, F. (2018). Incidence and outcomes of incidental breast lesions detected on cross-sectional imaging examinations. ˜The œbreast journal, 24(5), pp.743–748. doi:https://doi.org/10.1111/tbj.13040.
2. Hussain, A., Gordon-Dixon, A., Almusawy, H., Sinha, P. and Desai, A. (2010). The incidence and outcome of incidental breast lesions detected by computed tomography. Annals of the Royal College of Surgeons of England, [online] 92(2), pp.124–126. doi:https://doi.org/10.1308/003588410X12518836439083.

P033 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.

Niwińska, A., Pogoda, K., Michalski, W., Kunkiel, M. and Jagiełło-Gruszfeld, A., 2018. Determinants of prolonged survival for breast cancer patient groups with leptomeningeal metastasis (LM). Journal of neuro-oncology, 138, pp.191-198.
Puri, A., Mylavarapu, C., Xu, J., Patel, T.A., S. Teh, B., Tremont-Lukats, I., Chang, J.C. and Niravath, P., 2022. Clinical factors and association with treatment modalities in patients with breast cancer and brain metastases who develop leptomeningeal metastases. Breast Cancer Research and Treatment, 193(3), pp.613-623.
Huppert, L.A., Fisch, S., Tsopurashvili, E., Somepalle, S.S., Salans, M., Vasudevan, H.N., Jo Chien, A., Majure, M., Rugo, H.S., Balassanian, R. and Boreta, L., 2024. Demographic and clinical characteristics of patients with metastatic breast cancer and leptomeningeal disease: a single center retrospective cohort study. Breast Cancer Research and Treatment, pp.1-12
Heo, M.H., Cho, Y.J., Kim, H.K., Kim, J.Y. and Park, Y.H., 2017. Isolated pachymeningeal metastasis from breast cancer: Clinical features and prognostic factors. The Breast, 35, pp.109-114.
Scott, B.J. and Kesari, S., 2013. Leptomeningeal metastases in breast cancer. American journal of cancer research, 3(2), p.117. Gauthier, H., Guilhaume, M.N., Bidard, F.C., Pierga, J.Y., Girre, V., Cottu, P.H., Laurence, V., Livartowski, A., Mignot, L. and Diéras, V., 2010. Survival of breast cancer patients with meningeal carcinomatosis. Annals of oncology, 21(11), pp.2183-2187. Mollica, L., Leli, C., Puglisi, S., Sardi, S. and Sottotetti, F., 2021. Leptomeningeal carcinomatosis and breast cancer: a systematic review of current evidence on diagnosis, treatment and prognosis. Drugs in Context, 10.

P034 Audit into surveillance imaging for women below the age of forty following primary treatment for breast cancer

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Introduction

Younger women present unique challenges due to dense breast tissue, aggressive tumor biology, and potential genetic predispositions, necessitating tailored imaging strategies. This audit evaluates the effectiveness and appropriateness of surveillance imaging for women under the age of 40 following primary treatment for breast cancer at the East Cheshire NHS Trust Breast Imaging Unit over a five-year period (2019-2024).

Method

The study retrospectively reviewed 31 patients, focusing on imaging modalities such as mammography, ultrasound, and MRI, and assessed breast density using the Bi-RADS classification.

Results

Key findings indicate that mammography remains the primary surveillance tool, despite its reduced sensitivity in younger women with dense breasts. MRI was utilized in high-risk cases, though documentation of risk factors and imaging justifications was often lacking. The audit identified gaps in adherence to guidelines, particularly for patients with mammographically occult lesions, where MRI was underutilized.

Conclusion

The study underscores the need for personalized surveillance strategies, integrating patient risk profiles and emerging technologies like Digital Breast Tomosynthesis (DBT) and Contrast-Enhanced Spectral Mammography (CESM). Recommendations include the development of local guidelines, improved documentation of risk factors, and tailored imaging protocols to enhance early detection of recurrences while minimizing over-diagnosis. Further research is essential to refine surveillance practices for this demographic, balancing efficacy and cost-effectiveness

1. Royal College of Radiologists. (2019). Guidance on Screening and Symptomatic Breast Imaging. Fourth Edition.
2. Wernli KJ, Ichikawa L, Kerlikowske K, Buist DS, Brandzel SD, Bush M, Johnson D, Henderson LM, Nekhlyudov L, Onega T, Sprague BL. Surveillance breast MRI and mammography: comparison in women with a personal history of breast cancer. Radiology. 2019 Aug;292(2):311-8.
3. Lawson MB, Herschorn SD, Sprague BL, Buist DS, Lee SJ, Newell MS, Lourenco AP, Lee JM. Imaging surveillance options for individuals with a personal history of breast cancer: AJR expert panel narrative review. American Journal of Roentgenology. 2022 Dec 11;219(6):854-68.
4. Cardoso F, Loibl S, Pagani O, Graziottin A, Panizza P, Martincich L, Gentilini O, Peccatori F, Fourquet A, Delaloge S, Marotti L. The European Society of Breast Cancer Specialists recommendations for the management of young women with breast cancer. European journal of cancer. 2012 Dec 1;48(18):3355-77.

5. Lam DL, Houssami N, Lee JM. Imaging surveillance after primary breast cancer treatment. American Journal of Roentgenology. 2017 Mar;208(3):676-86.
6. Swinnen J, Keupers M, Soens J, Lavens M, Postema S, Van Ongeval C. Breast imaging surveillance after curative treatment for primary non-metastasised breast cancer in non-high-risk women: a systematic review. Insights into imaging. 2018 Dec;9:961-70.
7. Mulder RL, Hudson MM, Bhatia S, Landier W, Levitt G, Constine LS, Wallace WH, van Leeuwen FE, Ronckers CM, Henderson TO, Moskowitz CS. Updated breast cancer surveillance recommendations for female survivors of childhood, adolescent, and young adult cancer from the International Guideline Harmonization Group. Journal of Clinical Oncology. 2020

P035 Assessing the outcomes of image-guided vacuum-assisted excisions in the management of B3 breast lesions of uncertain malignant potential

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Background

The current recommendation for breast lesions of biopsy-proven uncertain malignant potential (B3) is to remove them from the breast. The trend is now towards using image-guided vacuum-assisted excision (VAE) rather than diagnostic surgical excision under general anaesthetic.

We aimed to evaluate the outcome of the management of these lesions post-VAE in a single breast care unit.

Method

The study population comprised all patients who had a B3 result, were referred to Radiology, and underwent a VAE between July 2016 and December 2023. Patients with ipsilateral cancers were excluded. Diagnostic biopsy and VAE histology results were reviewed retrospectively.

Upgrade rates were calculated and statistical significance was tested to determine the variation between B3 pathologies.

Results

184 VAEs for B3 lesions were performed. Overall upgrade rate was 3.8% (7 of 184).

Among all B3 lesions, there were 67 papillomas (36%), 52 lesions with atypia (28%), 47 radial scars (26%), 14 LCIS (8%), and a single case each of phyllodes, mucocoele, adenomyoepithelioma, and microglandular adenosis.

28 excisions, performed during 2016-2019, completed their 5-year follow-up period by the end of 2024. Of these, 26 did not develop an ipsilateral cancer. Of the 2 which did, one did so within a year and the other in the third year. 2 patients developed a cancer in the other breast.

Conclusion

The results reinforce the value of using VAE for managing B3 lesions. It is debatable whether the excision of papillomas, in this context, is worthwhile.

1. McLachlan, C., Jackson, M. and Valencia, A. (2023). Evaluating the use of vacuum-assisted excisions in the management of B3 breast lesions. The British Journal of Radiology, [online] 96(1151). doi:https://doi.org/10.1259/bjr.20230528.
2. Sharma, N., Cornford, E., Cheung, S., Price, H. and Kearins, O. (2021). The impact of vacuum-assisted excision in the management of indeterminate B3 lesions in the NHS Breast Screening Programme in England. Clinical Radiology. doi:https://doi.org/10.1016/j.crad.2021.01.021.

P036 Is there a role for annual mammography in women aged 30 – 39 undergoing breast MRI screening for very high risk of breast cancer?

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Background

Women at very high risk of breast cancer undergo annual magnetic resonance imaging(MRI) until age 39, with mammograms added from 40. Evidence supports the combined use of MRI and mammography over 40, as well as their individual effectiveness in younger women. However, the benefit of adding mammograms to MRI in women under 40 remains unclear. This project evaluates whether annual mammograms provide any additional benefit when combined with annual MRI in women aged 30–39.

Method

Retrospective review of records from our family history service identified women aged 30–39 at very high risk who had both mammograms and MRIs for screening between 2007 and 2023. Recall rates, biopsy rates, and cancer detection rates were analysed.

Results

297 women were identified as meeting the inclusion criteria. These included gene carriers, untested first-degree relatives of gene carriers, and women with a lifetime breast cancer risk >40%. Of 1787 imaging, 988 were mammograms and 799 were MRIs. Recall was triggered by 6%(n=55) of the mammograms and 12%(n=95) of the MRIs. 25%(n=15) of mammographic recalls and 44%(n=42) of MRI recalls resulted in a biopsy. Of 11 cancers detected, 4 were from mammographic and 11 from MRI recalls. There were no interval cancers. Among the 4 cancers detected following mammographic recall, 3 were invasive carcinomas and 1 was high-grade DCIS.

Conclusion

Annual mammograms appear to offer limited additional benefit for women under 40 undergoing annual MRI screening for very high risk of breast cancer. Their role in this age group requires further evaluation.

P037 The diagnostic accuracy of SPECT/CT lymphoscintigraphy compared to 18F-FDG PET/CT in the assessment of lymph node involvement in breast cancer after neoadjuvant chemotherapy; A systematic review

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Background

Breast cancer is prevalent among women, particularly in the postmenopausal group 1. The disease can be fatal if diagnosed late and if managed poorly2,3. The utilisation of SPECT/CT Lymphoscintigraphy and 18F-FDG PET/CT as imaging modalities of choice following neoadjuvant chemotherapy in breast cancer offers reliable results in assessing therapeutic response4. However, fewer primary studies demonstrate the application of these two imaging modalities after neoadjuvant chemotherapy in advanced breast cancer.

Method

PubMed, CINAHL Plus, MEDLINE (via EBSCO), Science Direct and Grey Literature databases were systematically searched. Full-text English studies from January 2014 up to July 2024 that met the eligibility criteria were included and their quality was checked using the QUADAS-2 assessment tool 5.

Results

Eighteen of the 558 studies were included. Key findings showed that the diagnostic accuracy of SPECT/CT ranged from 56.8% to 100%. On the other hand, 18F-FDG PET/CT had an acceptable accuracy rate that ranged between 52.2% and 100%. Most studies had a low risk of bias after quality assessment. Several key themes stood out across the literature and they included; the identification of pathologic axillary lymph nodes6 different techniques of radiotracer injection7, ultrasound guidance8, planar versus SPECT/CT imaging and the role of 18F-FDG PET/CT in assessing pathologic complete response9.

Conclusion

Overall, SPECT/CT lymphoscintigraphy had a high accuracy rate in identifying pathologic sentinel lymph nodes. More so, 18F-FDG PET/CT was sensitive in determining pathologic complete response after neoadjuvant chemotherapy by evaluating axillary disease status.

1. Cao, X.-S. et al. (2016) 'Axillary and internal mammary sentinel lymph node biopsy in breast cancer after neoadjuvant chemotherapy', Oncotarget, 7(45), pp. 74074–74081.
2. Dilege, E. et al. (2023) 'SPECT/CT Lymphoscintigraphy Accurately Localizes Clipped and Sentinel Nodes After Neoadjuvant Chemotherapy in Node-Positive Breast Cancer', Clinical Nuclear Medicine, 48(7), pp. 594–599.
3. Fusco, D. et al. (2018) 'An update in breast cancer management for elderly patients', Translational Cancer Research, 7(Suppl 3)
4. Gherghe, M. et al. (2023) 'Quantitative Assessment of Treatment Response in Metastatic Breast Cancer Patients by SPECT-CT Bone Imaging—Getting Closer to PET-CT', Cancers, 15(3).
5. Huang, Q.-X. and Huang, X.-W. (2022) 'QUADAS-2 tool for quality assessment in diagnostic meta-analysis', Annals of Palliative Medicine, 11(5), pp. 1844845–1841845.
6. Ilic, L. et al. (2022) 'Trends in female breast cancer incidence, mortality, and survival in Austria, with focus on age, stage, and birth cohorts (1983–2017)', Scientific Reports, 12(1), p. 7048.
7. Manson, E.N. and Achel, D.G. (2023) 'Fighting breast cancer in low-and-middle-income countries – What must we do to get every woman screened on regular basis?', Scientific African, 21, p. e01848.
8. Sung, H. et al. (2021) 'Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries', CA: a cancer journal for clinicians, 71(3), pp. 209–249.
9. Wu, S. et al. (2020) 'Subtype-Guided 18 F-FDG PET/CT in Tailoring Axillary Surgery Among Patients with Node-Positive Breast Cancer Treated with Neoadjuvant Chemotherapy: A Feasibility Study', The Oncologist, 25(4), pp. e626–e633.

P039 MammoViT: A custom vision transformer architecture for accurate BIRADS classification in mammogram analysis

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Early and accurate classification of mammograms is critical for effective breast cancer screening and improved patient outcomes. However, manual interpretation using the BIRADS (Breast Imaging-Reporting and Data System) remains challenging due to subtle imaging features, inter-reader variability, and increasing radiologist workload. Traditional computer-aided detection systems often struggle with feature extraction and contextual understanding of mammographic abnormalities.

To address these challenges, we propose MammoViT, a novel hybrid deep learning framework integrating ResNet50's hierarchical feature extraction with the Vision Transformer's ability to capture long-range dependencies. A multi-stage approach was implemented, where ResNet50 performed initial feature extraction from mammogram images. To mitigate the class imbalance in the four-class BIRADS dataset, SMOTE (Synthetic Minority Over-sampling Technique) was applied to generate synthetic samples for minority classes. Extracted features were processed into non-overlapping patches with positional encodings for Vision Transformer analysis. Multi-head self-attention mechanisms captured both local and global relationships between image patches, enhancing classification performance. The model was optimized using Keras Tuner and trained with 5-fold cross-validation and early stopping to prevent overfitting.

MammoViT achieved 97.4% accuracy in BIRADS classification, outperforming conventional methods. Comprehensive evaluation metrics, including classification reports and confusion matrices, validated its effectiveness. These results demonstrate MammoViT's potential as a robust tool for supporting clinical decision-making in breast cancer screening.

Recent advancements in breast cancer detection and diagnosis have leveraged cutting-edge artificial intelligence and imaging technologies. Vision transformers and deep learning models have demonstrated significant improvements in breast ultrasound and mammographic image analysis, enhancing accuracy and efficiency (Ayana & Choe, 2022; Wang et al., 2022; Khamparia et al., 2021). Studies have highlighted the importance of MRI in detecting and classifying breast lesions, offering valuable insights for treatment planning (Houser et al., 2021; Washington et al., 2024).

The role of machine learning in breast cancer classification continues to evolve, with hybrid models combining convolutional neural networks (CNNs) and transformers achieving state-of-the-art performance in tumor segmentation and lesion detection (Yao et al., 2019; Yurttakal et al., 2020; Qin et al., 2022). Additionally, advancements in non-invasive biomarkers and automated imaging analysis have enhanced early detection strategies, improving patient outcomes (Li et al., 2020; Ganesan et al., 2012).

Public health studies emphasize the necessity of awareness and early screening, particularly in younger populations, where disparities in diagnosis and disease progression persist (Elshami et al., 2022; Zabicki et al., 2006). Moreover, novel methodologies integrating data augmentation and deep belief networks have further optimized classification techniques, fostering advancements in precision medicine (Kannappan et al., 2023; Abdel-Zaher & Eldeib, 2016).

P040 Evaluating the role of a Nigerian cancer foundation in breast cancer screening outcomes.

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Background

Screening mammography remains the gold standard for early breast cancer(BC) detection.[1] Unavailability and high cost remain major limitations to detection in Nigeria with private organizations attempting to bridge the gap. With limited resources, poor healthcare allocations, and other competing interests, increasing research on the benefits and yield of screening mammography could lead to greater acceptability and funding for BC screening.[2] This study aims to determine the diagnostic yield of screening mammography in a cohort Nigerian women and the role of a private foundation in breast care .

Methods

Clinical and mammographic data of women who presented for screening mammography over two years (January 2020-December 2021) in a private cancer foundation in Abuja, Nigeria were retrospectively evaluated .

RESULT: The age range of 360 women in the study-group was 32-78years,mean 49.2±7. Majority (55.7%) were between 40-49years. 9.2% had a relevant family history of BC and 47.8% of the patients had at least one previous mammogram. 145 (40.3%) of the women had heterogenous and extremely dense breast patterns. Twelve (3.3%) women had suspicious and malignant findings (BI-RADS category 4 and 5) with 50% of the lesions in the 40-49 year age group. There was positive correlation between increasing breast density and negative outcome.

Conclusion

There is an appreciable uptake of screening mammography in a wide age range of Nigerian women especially with increasing availability and subsidized costs. Negative outcomes in a small percentage of women justifies increased advocacy and widespread cancer awareness and screening in Nigeria.

1.Fitzjohn, J., Zhou, C. and Chase, J.G. (2023). Critical Assessment of Mammography Accuracy. IFAC-PapersOnLine, 56(2),5620-5625.
2. Gutnik, L.A., Matanje-Mwagomba, B., Msosa, V., Mzumara, S., Khondowe, B., Moses, A., Kohler, R.E., Carey, L.A., Lee, C.N. and Gopal, S. (2016). Breast cancer screening in low-and middle-income countries: a perspective from Malawi. Journal of global oncology, 2(1), pp.4-8.

P041 A comparison of coronary computed tomography angiography (CCTA) and cardiac magnetic resonance imaging (MRI) in the diagnosis of coronary artery disease (CAD): A systematic review

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Background: Coronary artery disease (CAD) is a prevalent heart disease estimated to affect 315 million people worldwide. According to the NICE guidelines, CCTA is the first-line modality used when investigating CAD. However, recent studies have shown cardiac MRI to be able to accurately identify functional myocardial ischaemia. Given the strengths and limitations of both modalities, their diagnostic accuracy remains an area of ongoing clinical interest.

Method: A systematic review methodology was selected to evaluate the effectiveness of cardiac MRI and coronary CT angiography in the diagnosis of coronary artery disease in adults using outcome measures of sensitivity and specificity. Literature was obtained from MedLine, Scopus and Web of Science medical databases using relevant search terms. Eligibility criteria were used to filter the literature and PRISMA guidance was followed. The CASP tool was used to critical review each paper.
Results: Although this study found CMR to have a higher diagnostic accuracy with a sensitivity range of 86-89% and specificity range of 85-87%, CCTA is still considered the gold standard for diagnosing CAD. This study produced a sensitivity of 79% and specificity range of 75-85% for CCTA.
Conclusion: CCTA and CMR are complementary modalities. CCTA excels in anatomical assessment and rapid diagnosis, while CMR provides additional functional characterisation for myocardial ischaemia. Together, these modalities provide comprehensive diagnostic information, to help patient management and to guide treatment to improve patient outcomes.

P042 Fall in ejection fraction between stress and rest myocardial perfusion imaging: Frequency and potential clinical significance

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As part of standard Myocardial Perfusion Imaging (MPI) reporting, resting Ejection Fraction (EF) is commonly included. However, the latest ASNC guidelines emphasize the importance of detecting a decline of 10% or more in EF between rest and stress images as an independent indicator of poor prognosis.
We analyzed images and reports of a group of patients referred for MPI. In some patients, both stress and rest EF were documented (with some showing a substantial drop, while others had minimal changes). A larger group exhibited a decrease in EF greater than 10% between stress and rest, but this change was not recorded. In the remaining studies, some patients had a higher stress EF than resting EF, others experienced a mild decrease, and some showed no notable difference in EF.
In phase 2, we will cross-reference these findings to track significant cardiac events or markers of poor prognosis within a year of the scan.
Within our cohort, only a small fraction of patients had both stress and rest EF recorded. This suggests that there is limited awareness of this guideline among most reporters. A closer look revealed that several patients had a drop of over 10% in EF between stress and rest images, yet this was not initially noted. We are currently conducting a more thorough analysis of patient outcomes within a year following the MPI scan and will further explore the true clinical implications in our cohort. This will also help raise awareness among reporters regarding these guidelines.

P043 An evaluation of elective endovascular aortic aneurysm repair on patients' quality of life

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Background
Treatment options for abdominal aortic aneurysms include open surgery and endovascular aortic aneurysm repair (EVAR). Though it is a well-known fact that post elective EVAR recovery is better than that of open surgery, procedure related morbidity and its effect on the frail and elderly requires further evaluation. Data on quality of life (QOL) of patients' post-elective EVAR is also insufficient.

Method

This pilot study prospectively evaluated 10 male patients' QOL outcomes post-elective EVAR in a single UK centre, using the Short-Form 36 (SF-36) QOL questionnaire and Groningen Frailty Indicator (GFI). Both of these questionnaires were chosen as they are nationally valid for use in patient assessment.

Results

Patients experienced a significant limit to both physical and emotional health at 3 weeks post elective EVAR. Along with increased levels of frailty at this stage. However, by 3 months patients had returned to baseline levels or better in the majority of cases.

Conclusion

Although a small single-centre study. This project has shown that for this small group of participants who underwent elective EVAR, physical and emotional QOL were significantly impacted along with frailty in the initial few weeks post-procedure. Wider research is needed to inform patient care both pre and post-elective EVAR in the future.

1. Avishay D.M., Reimon J.D. (2024) Abdominal Aortic Repair. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. Available from: https://www.ncbi.nlm.nih.gov/books/NBK554573/
2. British Geriatrics Society. (2018) Tools for Clinical History-Taking. https://www.bgs.org.uk/sites/default/files/content/attachment/2018-07-05/gfi.pdf
2. Clinmed Journals. (2022) SF-36 Questionnaire. https://clinmedjournals.org/articles/jmdt/jmdt-2-023-figure-1.pdf
3.Horrocks, M. (2018) Vascular Surgery GIRFT Programme National Specialty Report. The Royal National Orthopaedic Hospital NHS Trust and NHS Improvement https://gettingitrightfirsttime.co.uk/wp-content/uploads/2018/02/GIRFT_Vascular_Surgery_Report-March_2018.pdf
4. Vascular Society. (2023) Abdominal Aortic Aneurysm (AAA). https://www.vascularsociety.org.uk/patients/conditions/2/abdominal_aortic_aneurysm_aaa

P044 Clinico-radiologic features of acute on chronic pulmonary embolism – a case report

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Pulmonary thromboembolism (PE) is a common, potentially fatal condition. However acute on chronic thromboembolism is rare, estimated to account for less than 0.1%–0.5% of all cases of pulmonary embolism (1) .

A 40-year-old woman, was admitted on account of dyspnea on mild exertion of 2years, which worsened 4/12 prior to presentation, productive cough with occasional blood stain, and painless bilateral leg swelling of 2 months

Chest x-ray was non-specific, CTPA showed filling defect in the right pulmonary artery adherent to the arterial wall and a filling defect in the main & left pulmonary artery with the polo-mint and railway appearance in the coronal and axial views respectively. There was dilation of the pulmonary artery, as well as signs of right sided heart failure. The lung window showed patchy areas of differing pulmonary attenuation on CT giving the mosaic appearance, interlobular septal thickening and a wedge shaped opacity suggestive of an area of pulmonary infarction.

An assessment of acute on chronic thromboembolism complicated by chronic thromboembolic pulmonary hypertension (CTEPH) and right sided heart failure was made.

She was initially suspected to have a cardiac failure from dilated cardiomyopathy rather than a chronic pulmonary thromboembolism.

CTPA showed features of acute and chronic PTE.

CTEPH is the most serious long-term complication of chronic pulmonary embolism (PE), affecting 2–4% of survivors [2-4] was noted.

Clinicians and radiologists' awareness and recognition of both direct and indirect signs of acute PE, chronic PE and their overlap are cornerstones in the diagnosis and management of pulmonary thromboembolism.

(1) Danwang C, Temgoua MN, Agbor VN, Tankeu AT, Noubiap JJ. (2017) Epidemiology of venous thromboembolism in Africa: a systematic review. Journal of Thrombosis and Haemostasis. Sep;15(9):1770- 81. https://doi.org/10.1111/jth.13769
(2) Delcroix M, Kerr K, Fedullo P. (2016) Chronic thromboembolic pulmonary hypertension. epidemiology and risk factors. Ann Am Thorac Soc; 13: Suppl. 3, S201–S206. doi:10.1513/AnnalsATS.201509-621ASGoogle Scholar
(3) Ende-Verhaar YM, Cannegieter SC, Vonk Noordegraaf A, et al (2017). Incidence of chronic thromboembolic pulmonary hypertension after acute pulmonary embolism: a contemporary view of the published literature. Eur Respir J; 49: 1601792.Abstract/FREE Full TextGoogle Scholar
(4) Kim NH, Delcroix M, Jais X, et al (2019). Chronic thromboembolic pulmonary hypertension. Eur Respir J; 53: 1801915.Abstract/FREE Full TextGoogle Scholar

P045 Pleural vents vs chest drains in post CT guided biopsy pneumothorax

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Introduction

CT guided Lung biopsy is a commonly used procedure for diagnosing pulmonary conditions by collecting lung tissue samples. This procedures carry various risks and complications; most common being pneumothorax (1). Depending on the size of the pneumothorax, the time at which the pneumothorax occurs and the clinician performing the biopsy they are treated in three main ways; i) observation, ii) pleural aspiration, iii) intercostal drain/pleural vent (1). Consequently, the primary aim of this study was to determine whether insertion of pulmonary vents to treat pneumothorax following lung biopsy at decreased length of stay post biopsy.

Methods

Of the 98 scheduled biopsies over a one year period, 81 met the inclusion criteria, 17 biopsies were excluded from the data set due to resolution of lesions, abandonment of biopsy or biopsies taken from anatomical areas outside of the lungs.

Results

Of the 81 patients, 39 experienced complications, 30 of which were pneumothorax and 9 were haemothorax. 9 of the 30 pneumothorax required interventions, 4 were managed by pleural vents inserted at the time of the CT biopsy by the operating radiologist, 5 were indwelling chest drains inserted by the respiratory team or emergency department team. Average length of stay for those with pleural vents was 1.5 days compared to 1.8 days for those with chest drains.

Conclusion

From this data we have concluded the introduction of pleural vents inserted at time of biopsy appears to reduce length of stay when compared to chest drains.

1. Pneumothorax rates in CT-guided lung biopsies: a comprehensive systematic review and meta-analysis of risk factors . J Radiol 2020. 93. 1108

P046 Diagnostic yield of percutaneous ultrasonography guided core needle biopsy of lung lesion and its complications in tertiary hospital

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Background

Prompt diagnosis of lung cancer can reduce its mortality and morbidity. Minimally invasive image guided percutaneous core needle biopsy can obtain tissue sample for diagnosis of subpleural lung cancer, which is crucial for correct management of lung lesions. Common complications of lung biopsy include pneumothorax, parenchymal haemorrhage and haemoptysis. The study was aimed to determine diagnostic yield and complications of the percutaneous ultrasonography guided core needle biopsy of lung lesion in tertiary hospital.

Methods

Hospital based prospective study was performed in 28 patients in Tribhuvan University Teaching Hospital, Nepal. USG guided biopsy of lung lesions was performed with 18-gauge semi-automated biopsy instrument. The complications following the biopsy were recorded and correlated with different factors using chi-square test. Histopathology report were obtained to measure the diagnostic yield.

Results

Among 28 patients who underwent guided lung biopsy, histopathology showed definitive diagnosis in 26 patients; 21 malignant and 4 benign lesions. Pneumothorax, parenchymal haemorrhage, and haemoptysis were seen in 3, 1 and 1 respectively; however, none required active intervention. Numbers of pleural punctures used was predictive factors of complication (p-value <0.05).

Conclusions

The study showed percutaneous image guided core needle biopsy has high diagnostic yield with fewer complication rates and is thus recommended for routine biopsies of lung lesions in resource limited setting as well.

Keywords: Complication; Diagnostic yield; Lung lesion; Ultrasound guided biopsy.

Figure 1: Ultrasonography image during USG guided right upper lobe lung biopsy with needle within the mass

Variables		Frequency	Percentage (%)
Size (cm)	<2	5	17.8
	2-4	19	67.8
	>4	4	14.2
Location in lung	LUL	13	46.4
	LLL	4	14.3
	RUL	6	21.4
	RML	4	14.3
	RLL	1	3.6
Depth from skin (cm)	<3	24	85.7
	3-6	3	10.7
	>6	1	3.6
Distance from hilum (cm)	<2	1	5
	2-4	13	62.5
	>4	14	32.5
Number of puncture	1	24	85.7
	2	4	14.3
Pneumothorax		3	10.7
Parenchymal haemorrhage		1	3.6
Haemoptysis		1	3.6

Table 1: Frequency of different variables related to lesion, traversing lung and complications (n=28).

Variables	Frequency	Percentage (%)
Benign	4	14.3
Malignant		
Adenocarcinoma	10	35.7
Squamous cellcarcinoma	6	21.4
Spindle cell carcinoma	1	3.6
Adenosquamous carcinoma	3	10.7
Metastasis	1	3.6
Inadequate	3	10.7

Table 2: Histopathology of the lesions (n=28).

1. Begum AN, Ekram A, Uddin D, Islam Q, Alam M, Hoque M, et al. (2007) Ultrasound and computed tomographic guided fine needle aspiration cytology of intrathoracic lesions. TAJ: Journal of Teachers Association. 20(2):110-5.
2. Blandin Knight S, Crosbie PA, Balata H, Chudziak J, Hussell T, Dive C (2017) Progress and prospects of early detection in lung cancer. Open Biol.7(9):170070.
3. Ikezoe J, Morimoto S, Arisawa J, Takashima S, Kozuka T, Nakahara K.(1990) Percutaneous biopsy of thoracic lesions: value of sonography for needle guidance. AJR American journal of roentgenology. 154(6):1181-5.
4. Jarmakani M, Duguay S, Rust K, Conner K, Wagner JM(2016) Ultrasound Versus Computed Tomographic Guidance for Percutaneous Biopsy of Chest Lesions. Journal of Ultrasound in Medicine. 35(9):1865-72
5. Piya MK, Acharya SC(2012) Oncology in Nepal. South Asian J cancer. 1(1):5-8.
6. Spira A, Halmos B, Powell CA. Update in Lung Cancer (2015) Am J Respir Crit Care Med. (2016);194(6):661-71.
7. Zhang H, Guang Y, He W, Cheng L, Yu T, Tang Y et al (2020) Ultrasound-guided percutaneous needle biopsy skill for peripheral lung lesions and complications prevention. J Thorac Dis. 12(7):3697-705.

P047 X-ray service improvement planning to meet the national optimal lung cancer pathway

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This report describes service design planning for a pilot study and service improvements to improve care for patients with signs and symptoms of lung cancer. Service design will utilise non-medical practice in primary and secondary care to assess, refer for imaging, provide a clinical report and onward referral. The pathways described will benefit primary care patients, and will be inclusive of those who may struggle to access an appointment with their general practitioner (GP).
This proposal outlines how a large teaching hospital and local cancer alliance will set out to improve services and meet requirements outlined within the Faster Diagnosis Standard (FDS) and National Optimal Lung Cancer Pathway (NOLCP) (NHS England and NHS Improvement, 2022; NHS England, 2024).
Barriers to care are explored. Challenges to GP primary care access in the United Kingdom (UK) are complex, vacancies in the traditional GP medical workforce being a significant contributor. In 2024, every employed whole time equivalent (WTE) GP post is now responsible for an average of 2,291 patients. This represents an 18% increase (an additional 354 patients) per post since 2015 (National Audit Office, 2015; NHS Digital, 2024).
Stakeholder considerations included: patients, Pharmacy, Radiology, GP's, Integrated Care Board, Respiratory specialist services.
Risk evaluations included: Result communications, non-cancer/acute abnormal results, staff training, false positive rates, inappropriate referrals, activity, capacity, establishment, patient consent and service longevity.
A staged implementation is described.

National Audit Office (2015) Stocktake of access to general practice in England. Available at: https://www.nao.org.uk/reports/stocktake-of-access-to-general-practice-in-england/ (Accessed: 11 June 2024).
NHS England (2024a) National Optimal Lung Cancer Pathway (NOLCP) for suspected and confirmed lung cancer: referral to treatment. Available at: https://www.cancerresearchuk.org/sites/default/files/national-optimal-lung-cancer-pathway_v4_01jan2024.pdf (Accessed: 6 August 2024).
NHS England and NHS Improvement (2022) NHS Cancer Programme: Faster Diagnosis Framework. Available at: www.england.nhs.uk/wp-content/uploads/2019/07/B1332-NHS-Cancer-Programme-Faster-Diagnosis-Framework-v5.pdf (Accessed: 4 June 2024).
NHS Digital (2024) Appointments in General Practice, May 2024. Available at: https://digital.nhs.uk/data-and-information/publications/statistical/appointments-in-general-practice/may-2024 (Accessed 28 June 2024).

P048 An AI-driven educational solution to support UK-based lung cancer screening

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Approximately 50,000 new cases of lung cancer are diagnosed in the UK each year with ten-year survival rates remaining stubbornly low at less than one in ten individuals. In 2023, the UK government announced the commencement of a targeted lung cancer screening program which would result in almost 1 million low dose computed tomography (LDCT) examinations each year. To ensure diagnostic preparedness of radiologists and other involved personnel, we propose a novel on-line educational platform that will incorporate the latest education innovations and AI-algorithms to optimise diagnostic performance. The platform has been designed by a collaboration between expert lung radiologists, scientists and industry and will be available 24/7 within any geographic location. 2D and 3D images of the lungs will be accommodated as well as full image-processing facilities. Careful workflow paradigms are built into the solution to reflect the most comprehensive clinician-image interactions and diagnostic pathways. An AI "on-off" toggle has been introduced to train radiologists in using AI tools effectively while fostering critical independent diagnostic skills. To personalise the training experience, the platform will feature AI-educational algorithms to tailor training pathways based on user profiles, learning behaviours, deep learning based radiomic signatures as well as first and second order image statistics. Finally, platform analytics will enable detailed insights into individual and group performance over time. This novel platform will accelerate and personalise learning so that clinicians involved in the lung cancer screening program consistently demonstrate optimised diagnostic performances.

P050 Pancoast tumours: A clinical guide for radiographers

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Background

Pancoast tumours are rare tumours that arise from the apex of the lung, accounting for approximately 5% of all bronchogenic carcinomas (Manenti et al, 2013).They often present with clinical symptoms that appear not to relate to the chest, for example pain in the shoulder and elbow with weakness or parasthesia in the fingers (Panagopoulos, et al, 2014). Whilst Pancoast tumours are rare the prognosis is poor and it is imperative that Radiographers are aware of the clinical symptoms and how Pancoast tumours appear radiographically, so they can identify tumours as early as possible and prioritise for reporting.

Purpose

This poster aims to provide Radiographers an everyday reference guide to Pancoast tumours, summarising the epidemiology, clinical presentation and treatment options. We will review a variety of radiographic examples and discuss how radiographers should systematically review both chest and shoulder X-rays for possible Pancoast tumours.

Summary of Content

1. Clinical presentation
2. Appropriate clinical referrals
3. Epidemiology
4. Treatment options
5. Radiographic guide to Pancoast tumours

1. Manenti G, Raguso M, D'Onofrio S, Altobelli S, Scarano AL, Vasili E, Simonetti G. (2013) Pancoast tumor: the role of magnetic resonance imaging. Case Rep Radiol. 2013;2013:479120. doi: 10.1155/2013/479120.
2. Panagopoulos N, Leivaditis V, Koletsis E, Prokakis C, Alexopoulos P, Baltayiannis N, Hatzimichalis A, Tsakiridis K, Zarogoulidis P, Zarogoulidis K, Katsikogiannis N, Kougioumtzi I, Machairiotis N, Tsiouda T, Kesisis G, Siminelakis S, Madesis A, Dougenis D. (2014) Pancoast tumors: characteristics and preoperative assessment. J Thorac Dis. 2014 Mar;6 Suppl 1(Suppl 1):S108-15. doi: 10.3978/j.issn.2072-1439.2013.12.29.

P051 Service evaluation of the outcome of GP referred chest X-ray patients who are recommended for a repeat 6 week follow up X-ray, using a semi-automated report code

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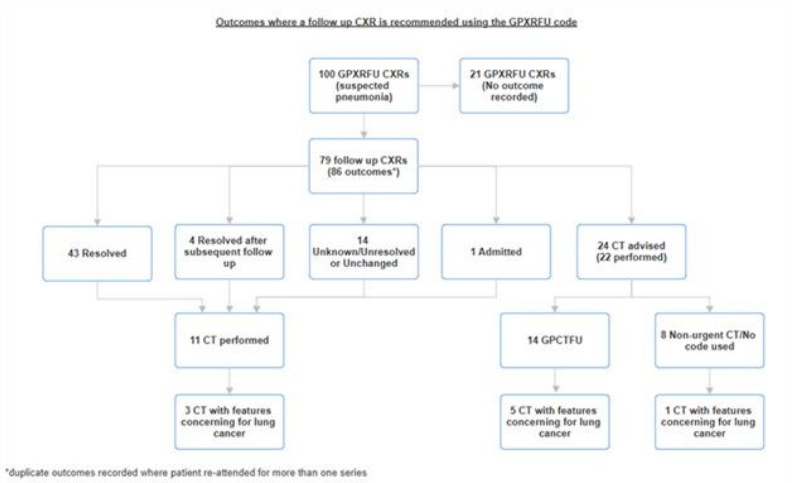
Background

British thoracic society guidelines (2019) recommend “A chest radiograph should be arranged after about 6 weeks for all those patients who have persistence of symptoms or physical signs or who are at higher risk of underlying malignancy (especially smokers and those aged >50 years) whether or not they have been admitted to hospital”. This service evaluation reviews the imaging pathway and reports of 100 GP patients referred for a repeat follow up chest x-ray after 6 weeks.

Methods
100 patients where an automated follow up code (GPXRFU) was used were selected from retrospective data. Report text of these x-rays and of subsequent imaging was analysed. Measurements included: time to follow up, whether each patient went on to have further imaging and whether features concerning for lung cancer were identified.
Results
The use of follow up codes in conjunction with chest x-ray recommendations, was in most cases consistently utilised as intended. 43 consolidations had resolved on the follow up chest x-ray (figure 1), suggesting the pathway is effective for monitoring pneumonia and excluding lung cancer in most instances. Clinical presentation may supersede the follow up CXR with alternative means of assessment such as CT.
Conclusion
Findings demonstrate the challenges of making recommendations based solely on chest x-ray appearances. Clinical evaluation by the GP is paramount to deciding the appropriate imaging pathway for symptomatic patients.
Clear radiology report recommendations and the avoidance of ambiguous report terminology can produce actionable reports that positively inform GP decision making to optimise patient outcomes.

Table



British Thoracic Society (2019). Pneumonia Adults | British Thoracic Society | Better lung health for all. [online] Brit-thoracic.org.uk. Available at: https://www.brit-thoracic.org.uk/quality-improvement/guidelines/pneumonia-adults/.

P052 Increasing early detection rates of lung cancer in the community

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Background
Early detection of lung cancer significantly reduces mortality, especially among individuals with smoking history. Studies indicated early-stage identification of lung cancer improves patient outcomes and lowers long-term healthcare costs, hence the national screening programme. Community-based Lung Health Programmes enhance early detection by increasing accessibility for high-risk populations who may avoid traditional medical care due to fear, stigma, or logistical barriers. By offering community-based lung health checks, these programmes really do encourage earlier diagnosis and improved survival rates.
Purpose
We evaluate real-world effectiveness of community-based Lung Health Check (Lung Cancer Screening) Programmes in identifying early lung cancer, particularly in high-risk groups.
Summary of Content
We explore how community-based Lung Health Check/Lung Cancer Screening Programmes truly engage specific patient populations in less accessible locations, reaching individuals who might otherwise avoid medical care. Key benefits include local service accessibility, eliminating the need for visits to conventional medical facilities, and providing ongoing support. Outcomes highlight a significant increase in early-stage lung cancer detection, other cancers, and other incidental pathologies. Within one region to date around 1000 cancer diagnosis have been made, of which 600 were lung cancer.
In conclusion, Targeted Lung Health Check Programmes are effective, patient-friendly and improve early detection, enhance health outcomes, and reduce long-term healthcare costs, particularly for reluctant care seekers. Ultimately, the paper advocates for the targeted programmes as a community-focused strategy to enhance public health outcomes.

1. NHS Lung Cancer Screening Programme. (2023). New lung cancer screening roll-out to detect cancer sooner.
2. National Screening Committee. (2022). UK NSC recommends introduction of targeted lung cancer screening.

3. National Screening Committee. (2024). Timely detection of thousands of cancers underlines benefits of a national lung cancer screening programme.
4. UK Health Security Agency. (2023). Pathway for lung cancer screening.

P054 Use of CT detectability index for practical optimisation

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Background
Optimisation in CT is necessary to ensure patients receive appropriate imaging with the lowest ionising radiation dose practicable. Recently, a "detectability index" (d') has been proposed, and its validation against human observers studied. This poster aims to relate experiences utilising this metric in three "real-life" optimisation scenarios in hospital radiology departments.
Purpose
The aim of this poster is to share our experiences using d' in a practical hospital setting. In particular, it highlights the importance of relating the metric to clinical image quality and communicating a quantitative, abstract concept to the clinical user.
Summary of Content
This poster will describe three projects that have utilised d'. For each it will detail the practical question, the methodology, conclusions drawn, and the manner of communicating this information to the clinical user. The projects include:

1) Comparisons of image quality achieved by old and new scanners, when a hospital carried out a full replacement. In particular, focusing on examinations highlighted for optimisation via patient dose audit.
2) Addressing concerns from reporting radiologists regarding image quality achieved on a head protocol, to improve image quality with minimal increase to patient dose.
3) Comparisons of image quality achieved by an outgoing scanner and its replacement, one of the same model type. D' is utilised to investigate whether optimisation is appropriate, and the repeatability of the metric when used in similar conditions is assessed.

P056 Assessment and management of computed tomography contrast-induced allergic reactions: Experiences of diagnostic radiographers in Ghana

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Background
Radiographers play a crucial role in preparing and administering contrast media (CM) during computed tomography (CT) examinations, providing pre-medication to patients at risk of hypersensitivity reactions to CM (George and Koch, 2016; Singh and Sandean, 2021). However, there is a lack of research investigating the experiences of radiographers in Ghana in recognising and managing common allergic-like reactions related to CM during CT.
Methodology
This study employed a quantitative cross-sectional design involving radiographers who perform CT. A self-structured questionnaire was administered to 107 radiographers, including items related to demographics, the types of contrast media used, experiences in managing contrast-induced allergic-like reactions, and proficiency in recognising such reactions. Data was analysed using the SPSS.
Results
Ninety radiographers participated in the study. Most [80(69.6%)] reported using non-ionic low osmolar CM for CT examinations. Fifty-one (61.1%) radiographers received post-undergraduate training on allergic-like contrast reactions. Nausea/vomiting was the most common mild allergic-like contrast reaction [59(29.6%)], with hypotension being the most common severe allergic-like reaction [22 (44.9%)] experienced. Fifty-eight (64.4%) reported that their departments routinely evaluated patients for risk factors and allergies before administering CM. Forty-three (47.8%) radiographers believed screening patients for pre-existing allergies was the most effective preventive measure for contrast reactions.
Conclusion
The study indicated that radiographers had a fair understanding of recognising and managing hypersensitivity reactions to CM. However, they exhibited deficiencies in their capacity to manage severe reactions.

Table 2: Training and experiences with allergic-like contrast reactions

Variable	Category	Frequency	Percentage
Contrast media allergic-like reactions education was part of undergraduate training.	Yes	77	85.5
	No	8	8.9
	Somewhat	5	5.6
	Total	**90**	**100.0**
Had additional training/education on handling contrast media allergic-like reactions after undergraduate qualification	Yes	55	61.1
	No	27	30.0
	Somewhat	8	8.9
	Total	**90**	**100.0**
Type or form training	Inhouse training/workshop	40	63.5
	Continuous professional development	17	27.0
	Formal postgraduate training	6	9.5
	Total	**63***	**100.0**
Encountered patients exhibiting allergic-like contrast reactions during contrast CT examinations?	Yes	63	70.0
	No	27	30.0
	Total	**90**	**100.0**
Frequency of observed allergic-like contrast reactions in patients during contrast CT examinations	Rarely	46	73.0
	Occasionally	17	27.0
	Frequently	0	0.0
	Total	**63***	**100.0**
Time of occurrence of allergic-like contrast reaction observed by the radiographers.	Immediately	42	66.7
	Within 30 minutes	15	23.8
	Within an hour	5	7.9
	After an hour	0	0.0
	Days/ weeks after	1	1.6
	Total	**63***	**100.0**
Observed any trends or patterns in the occurrence of allergic-like contrast reactions in certain patient populations or demographics	Yes	11	17.5
	No	52	82.5
	Total	**63***	**100.0**
Patient populations or demographics observed to be more prone to allergic-like contrast reactions during contrast CT examinations	Paediatrics patients	1	9.1
	Geriatric patients	1	9.1
	Patients with pre-existing allergies	8	72.7
	Patients with renal impairment	1	9.1
	Total	**11***	**100.0**
Patients are informed to report allergic-like contrast effects even after days or weeks after the CT contrast examination.	Strongly agree	38	42.2
	Agree	27	30.0
	Neutral	13	14.4
	Disagree	11	12.2
	Strongly disagree	1	1.1
	Total	**90**	**100.0**
Frequency of patients reporting late allergic-like contrast reactions	Never	22	24.4
	Rarely	58	64.4
	Occasionally	10	11.1
	Frequently	0	0.0
	Total	**90**	**100.0**

*The number of responses was based on previous responses

Table 1: Common contrast agents used for CT studies

Variable	Category	Frequency	Percentage
Type of contrast media used by radiographers	Iodinated contrast media (Non-ionic low osmolar)	80	69.6
	Iodinated contrast media (Non-ionic iso-osmolar)	21	18.3
	Iodinated contrast media (Ionic high osmolar)	14	12.2
	Total	**115***	**100.0**
Intravenous contrast media used by radiographers	Iohexol (Omnipaque)	71	58.7
	Iopamidol (Isovue)	43	35.5
	Iopamiro	2	1.7
	Iodipamide (Cholografin)	2	1.7
	Diatrizoate sodium	2	1.7
	Iodixanol (Visipaque)	1	0.8
	Total	**121***	**100.0**
Oral contrast media used by radiographers	Iohexol (Omnipaque)	59	59.0
	Gastrografin	23	23.0
	Iopamidol	8	8.0
	Iopamiro	7	7.0
	Mannitol	2	2.0
	Oralvist	1	1.0
	Total	**100***	**100.0**

**Radiographers were allowed to select more than one response*

Table 3: Radiographers' experiences in recognising and managing allergic-like contrast reactions.

Variable	Category	Frequency	Percentage
Radiographers play an important role in educating patients about contrast media and in reporting and documenting allergic-like reactions during CT examinations	Strongly agree	67	74.4
	Agree	21	23.3
	Neutral	2	2.2
	Disagree	0	0.0
	Strongly disagree	0	0.0
	Total	**90**	**100.0**
Our unit routinely evaluates patients for risk factors and their allergy history before administering contrast media for a CT examination	Strongly agree	58	64.4
	Agree	20	22.2
	Neutral	9	10.0
	Disagree	1	1.1
	Strongly disagree	2	2.2
	Total	**90**	**100.0**
In your experience, which of the following patient factors have been associated with a higher risk of allergic-like contrast reactions during CT examinations?	History of prior hypersensitivity reactions to contrast media	78	48.4
	History of asthma or other respiratory conditions	56	34.8
	Age	21	13.0
	Gender	1	0.6
	Diabetic patients taking metformin	1	0.6
	History of seafood allergy	1	0.6
	Low GFR (Glomerulus Filtration Rate)	1	0.6
	Eating shortly before the procedure	1	0.6
	Fasting a few hours to the procedure	1	0.6
	Total	**161***	**100.0**
In your experience, what are the most effective preventive measures that can be taken to minimize the occurrence of allergic-like (hypersensitivity) contrast reactions during contrast CT examinations?	Pre-medication with antihistamines	20	22.2
	Use of lower-risk contrast agents	26	28.9
	Screening patients for pre-existing allergies	43	47.8
	Communication	1	1.1
	Total	**90***	**100.0**
How do you typically manage patients who exhibit allergic-like (hypersensitivity) contrast reactions during CT examinations?	Discontinue the contrast injection	64	40.8
	Administer antihistamines or corticosteroids	52	33.1
	Substitute ionic with non-ionic contrast	13	8.3
	Provide oxygen therapy or assist with breathing	27	17.2
	Contact the radiologist or physician for further instructions	0	0.0
	Never managed hypersensitivity contrast reactions	1	0.6
	Total	**157***	**100.0**
What steps do you believe can be taken to further improve the recognition and management of allergic-like (hypersensitivity) contrast reactions in patients undergoing CT examinations?	Improved education and training for radiographers	87	28.3
	Improved communication between radiographers and other healthcare providers	63	20.5
	Standardised protocols for managing allergic-like reactions	79	25.7
	Improved patient education and informed consent processes	78	25.4
	Total	**307***	**100.0**

**Radiographers were allowed to skip and/or select more than one response*

George, G. and Koch, V. (2016) 'Knowledge, clinical competencies and medico-legal responsibilities required for the administration of intravenous contrast media by radiographers', Durban University of Technology, (October), pp. 1–172.
Singh, V. and Sandean, D.P. (2021) 'CT Patient Safety And Care'.

P059 Quantifying benefit and detriment in radiology

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Background

Under UK law, before a medical exposure can take place, a documented decision has to be made by the IR(ME)R Practitioner that the benefit will exceed the risk. So does the Practitioner actually know whether it does or not? Although they might diligently follow all of the guidance in place, it is unreasonable to expect proof that an anticipated medical benefit exceeds the probabilistic future cancer risk from a medical radiation exposure when the two are not only not in the same units, but are entirely different concepts.

Method

The established bodies of work on effective dose carried out by the International Commission on Radiological Protection, and on disability-adjusted life years (DALY) carried out by the World Health Organisation are combined to explore a route to quantitative justification of medical radiation exposure in terms of benefit.

Results

With the application of a suitable model, the rate of change of the lifetime DALY detriment with age at acute exposure to 1 Sv of ionising radiation can be used to derive a dose-dependent DALY disability weight. This can be compared with the many DALY disability weights for disease states and injuries which might be diagnosed by radiology to produce a quantitative estimate of the ratio of benefit to detriment.

Conclusion

Analysis of over 70 types of radiological examination shows the medical benefit to exceed the radiation detriment in every case. The result essentially highlights the progress of optimisation in radiology.

Kotre C J 2024. Increasing the public awareness of justification. J. Radiol. Prot. 44 013501 https://doi.org/10.1088/1361-6498/ad1cd5
Kotre C J 2023. Comparing benefit and detriment from medical diagnostic radiation exposure using disability-adjusted life years: towards quantitative justification J. Radiol. Prot. 43 041512 https://doi.org/10.1088/1361-6498/ad1159
Kotre C J 2025. Definition of a disability weight for human exposure to ionising radiation and its application to the justification of medical exposure BJR Open https://doi.org/10.1093/bjro/tzae043

P060 An evaluation of the inter and intra-observer reliability values to determine if the cobb angle method is reliable when using projectional radiography and EOS. Through evaluating manual, semi-automatic and automatic measuring techniques

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Aim

This review evaluates the reliability of Cobb angle (CA) measurement for adolescent idiopathic scoliosis (AIS) by comparing manual, semi-automatic, and automatic methods across imaging modalities, focusing on inter- and intra-observer variability using correlation coefficients (ICC).

Methods

Literature was retrieved from MEDLINE, Scopus, and Web of Science Core Collection using keywords: adolescent idiopathic scoliosis, Cobb angle, accuracy, EOS, measurement, and observer reliability. Studies published between 2012 and 2023, peer-reviewed, in English, and examining inter- and intra-observer reliability for manual, semi-automatic, and automatic CA measurements on EOS or projectional imaging were included. The CASP tool was used to ensure quality.

Findings and Conclusion

Semi-automatic methods showed <5° variability on EOS and projectional radiographs with ICC values >0.9. Manual methods had ICC values of >0.9 for projectional imaging and >0.88 for EOS. Both methods demonstrated excellent reliability with minimal variability, supporting their interchangeability. Automatic methods were unreliable due to large measurement variations and failures. 3D reconstruction from micro-dose EOS was also deemed unreliable for CA measurements.

Experience influenced reliability slightly but was not statistically significant. Projectional and 2D low-dose EOS imaging are the most reliable and consistent modalities for CA measurement, with EOS offering a significant dose reduction for adolescents. Where available, 2D EOS is preferred due to comparable reliability and lower radiation exposure. However, projectional imaging remains the gold standard due to EOS system availability limitations.

1. Alamolhoda, M., Ayatollahi, S.M.T. and Bagheri, Z. (2017). A Comparative Study of the Impacts of Unbalanced Sample Sizes on the Four Synthesized Methods of meta-analytic Structural Equation Modeling. BMC Research Notes, [online] 10(1). doi:https://doi.org/10.1186/s13104-017-2768-5.
2. Allam, Y., El-Fiky, T., Farghally, M.Y., Al-Sabagh, S. and Siam, A.E. (2015). Comparison between Oxford Cobbmeter and Digital Cobbmeter for Measurement of Cobb Angle in Adolescent Idiopathic Scoliosis. European Spine Journal, [online] 25(2), pp.444–449. doi:https://doi.org/10.1007/s00586-015-4162-0.

3. Altaf, F., Gibson, A., Dannawi, Z. and Noordeen, H. (2013). Adolescent Idiopathic Scoliosis. BMJ, [online] 346(apr30 1), pp.f2508–f2508. doi:https://doi.org/10.1136/bmj.f2508.
4. American Association of Neurological Surgeons (2019). Scoliosis–Symptoms, Diagnosis and Treatment. [online] Aans.org. Available at: https://www.aans.org/Patients/Neurosurgical-Conditions-and-Treatments/Scoliosis [Accessed 18 Feb. 2023].
5. Caesarendra, W., Rahmaniar, W., Mathew, J. and Thien, A. (2022a). Automated Cobb Angle Measurement for Adolescent Idiopathic Scoliosis Using Convolutional Neural Network. Diagnostics, [online] 12(2), p.396. doi:https://doi.org/10.3390/diagnostics12020396.
6. Chan, A.C.Y., Morrison, D.G., Nguyen, D.V., Hill, D.L., Parent, E. and Lou, E.H.M. (2014). Intra- and Interobserver Reliability of the Cobb Angle–Vertebral Rotation Angle–Spinous Process Angle for Adolescent Idiopathic Scoliosis. Spine Deformity, [online] 2(3), pp.168–175. doi:https://doi.org/10.1016/j.jspd.2014.02.006.
7. Chung, N., Cheng, Y.-H., Po, H.-L., Ng, W.-K., Cheung, K.-C., Yung, H.-Y. and Lai, Y.-M. (2018). Spinal Phantom Comparability Study of Cobb Angle Measurement of Scoliosis Using Digital Radiographic Imaging. Journal of Orthopaedic Translation, [online] 15(1), pp.81–90. doi:https://doi.org/10.1016/j.jot.2018.09.005.
8. Dumas-Mallet, E., Button, K.S., Boraud, T., Gonon, F. and Munafò, M.R. (2017). Low Statistical Power in Biomedical science: a Review of Three Human Research Domains. Royal Society Open Science, [online] 4(2), p.160254. doi:https://doi.org/10.1098/rsos.160254.

P062 Dosimetric Validation of ProjectionVRTM

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Background

A radiographer needs an in-depth understanding of dosimetry to reduce harmful effects from radiation. A virtual reality programme ProjectionVR™ has played a role in positional teaching of radiological examinations but has not been validated in its dosimetric capabilities. Therefore, this study aims to validate ProjectionVR™ dosimetric capabilities by comparing radiation output to experimental data when performing dosimetry experiments.

Methods

Entrance surface dose (ESD) and dose area product (DAP) were measured on ProjectionVR™ and experimentally whilst increasing the mAs, kVp, source image distance (SID), collimation field size, and the thickness of copper filter, with and without a pelvis phantom.

Results

For both simulation and experimental, ESD and DAP increased linearly with mAs (R^2= 0.99-1) and increased in a power law relationship with kVp (kVp1.7-2). In both systems DAP decreased with SID in accordance with the inverse square law, DAP increased linearly with collimation size (R^2= 0.99-1), and there was variation in ESD with collimation size (R^2= 0.67-1). DAP and ESD decreased exponentially with copper filter thickness in both systems, with the half value layer ranging between 0.22mm and 0.24mm. The output for ProjectionVR™ was consistently higher than the experimental in all experiments.

Conclusion

This study was the first full dosimetric validation for ProjectionVR™ confirming that it can be used as a dosimetric educational tool for radiographers and the wider imaging team. ProjectionVR™ was also shown to be capable of demonstrating the effects of scatter. This could allow pilot studies to be conducted on ProjectionVR™ before performing on x-ray units.

P063 Audit of Horizontal Beam Lateral (HBL) hip image quality

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Background

Horizontal beam lateral (HBL) hip projection radiography can be a technically demanding radiographic technique for assessment of fracture that can be compromised by sub-optimal image quality (Charnley et al, 2016), and local anecdotal evidence seems to confirm this.

Method

The aim of this audit was to identify which aspects of image quality were sub-optimal and to develop an action plan to increase radiographer awareness and improve radiographic technique. Trauma HBL hip images from 2023 were identified, with 5% of cases (101 cases) included for image quality assessment using the criteria proposed by Flintham and Snaith (2006). Criteria were scored based on whether they were fulfilled entirely (2), partially fulfilled (1) or not fulfilled (0). The percentage of criteria fulfilled was compared to the audit standard (100%).

Results

None of the 7 image quality criteria were fulfilled at the 100% standard. The most success was found with the visually sharp reproduction of the femoral shaft, with 58% compliance. The greatest difficulty was found with providing adequate collimation, with only 11% of cases demonstrating 4 sides of collimation. Poor collimation has a direct impact on the quantity of scattered radiation and quantum mottle in the image, which in turn limits the visually sharp reproduction of the acetabulum (21% fulfilled) and contrast between bone and tissue (14% fulfilled).

Conclusion

The audit demonstrated that optimal image quality was achieved in a small proportion of trauma HBL hips.
A re-audit using binary image quality criteria of ‘diagnostic’ and ‘undiagnostic’ is planned.

Charnley, C. England, A. Martin, A. Taylor, S. Benson, N. Jones, L. (2016) 'An option for optimising the radiographic technique for horizontal beam lateral (HBL) hip radiography when using digital X-ray equipment' Radiography, 22 (2) pp 137-142
Flintham, K & Snaith, B. (2006). Horizontal Beam lateral view of the hip. Imaging & Therapy Practice (April 2006) pp 15-17.

P064 Investigating methods of testing the deviation index in quality control surveys

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Background

To mitigate the risk of overexposure or underexposure in digital imaging, modern systems utilise an Exposure Index (EI) as a quantitative measure of the detector response for a given radiation exposure. Manufacturer preferences demonstrate differences in naming convention for displayed EI. Most modern radiographic systems now use a deviation index (DI) to provide an instant assessment of the quality of the clinical image.

Current QC testing considers differences in EI that are manufacturer specific and ensures that these correspond to Dose Air KERMA (DAK) measurements as expected. This is achieved through linearisation of results to allow direct comparison to ensure correspondence with expected image quality and dose. An assessment of the DI accuracy could form part of routine QC testing to ensure that a clinical protocol is optimised to produce adequate image quality, and to monitor dose creep.

Purpose

Review a selection of clinical protocols with both PMMA and an anthropomorphic phantom under a range of mAs and record index values. DI values typically range from -3 to +3. It is expected that the DI remains around a value of 0 for given target regions. Results to compare relationship with AEC and detector performance testing.

Summary of content:

A review of the benefits of implementing DI accuracy testing with consideration for how existing physics QC could be developed alongside current testing methodology. Review of the deviation in EI/DI in clinical protocols that can potentially be used as a protocol optimisation tool or provide quantitative assessment of clinical image quality.

P065 Accidental radiation exposure among healthcare workers: A single-centre study

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Introduction

Despite advancements in radiation protection, accidental radiation exposure among healthcare workers remains a significant concern. Radiation protection measures such as lead-shielded walls, lead aprons, dosimeters, warning signs, and survey monitors are designed to mitigate these risks1,2. Nonetheless, when these measures fail often due to inadequate maintenance, lack of periodic quality assurance, or insufficient training, the occupational dose for healthcare workers can increase significantly. This study aimed to investigate the factors contributing to accidental exposures at a single centre in Ghana.

Methods

A cross-sectional study design was utilized, involving 90 healthcare workers recruited through purposive sampling. Data was collected using a validated structured questionnaire addressing demographic characteristics, knowledge of radiation protection, and exposure incidents. Descriptive and inferential analyses, including regression analysis, were performed to identify significant predictors of accidental exposure.

Results

The study revealed that 91% of participants experienced accidental radiation exposure, most of whom were nurses (54%). Systemic factors, such as malfunctioning warning lights (64%), emerged as the primary cause; negligence (19%) and inadequate knowledge of radiation equipment (12%) were some of the factors. Regression analysis highlighted that systemic deficiencies were significant predictors of exposure ($p = 0.0014$), while the frequency of room entry was not ($p = 0.849$).

Conclusion

The study identifies systemic deficiencies and knowledge gaps as critical contributors to accidental radiation exposure. Targeted interventions, policy reforms, and enhanced training are recommended to ensure the safety and well-being of healthcare workers in radiation-prone environments.

Nilantha, W., Pallewatte, A., & Rajendra, J. (2015). A study on plain radiography rooms in Sri Lanka with emphasis on radiation protection. Sri Lanka Journal of Radiology, 1(0), 13. https://doi.org/10.4038/sljr.v1i0.3
Eze, C., Abonyi, L., Njoku, J., Irurhe, N., & Olowu, O. (2013). Assessment of radiation protection practices among radiographers in Lagos, Nigeria. Nigerian Medical Journal, 54(6), 386. https://doi.org/10.4103/0300-1652.126290

P069 National scoping review on current clinical portfolios and stakeholder's perspective for diagnostic radiography

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Background

The objective was to scope the current status of national work on standardised Clinical Assessment Tools (CAT) in Diagnostic Radiography (DR) education, to provide recommendations to support further work in relation to consideration of a national standardised assessment for DR.

Methods

A call was put out through the UK Heads of Radiography Education group for Higher Education Institutions (HEIs) delivering pre-registration DR education to be involved. 14 HEIs opted to be involved. Alongside the review of clinical assessment documentation, 6 focus groups occurred – 2 with DR students, 2 with HEI's and 2with clinical partners. Focus group questions were designed by the project team and reviewed by the project steering group. Focus group questions were also circulated via MS Forms to capture participants who could not attend. The MS Forms data was combined with focus group transcripts to provide a combined data set.

Results

It was evident that several items in the clinical assessment tools reviewed could already be considered standardised, such as induction. However, data collected in the scoping review indicated that there were significant differences in the number and types of competencies. There were also elements that required further discussion before standardisation, including use of a continuous portfolio, use of marking rubrics, standardised feedback, list of competencies and assessments to be included, and the introduction of tripartite-style reviews for DR training programmes.

Conclusion

The findings of the scoping review were to recommend a Delphi consensus study to co-produce content for a new standardised CAT with key stakeholders.

P070 Utilisation and effects of a clinical conversation training intervention as a low-cost, low-resource simulation scenario for improving confidence in the communication skills of pre-clinical radiography students

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Introduction

Effective communication is central to patient care. Confidence plays a crucial role in healthcare professionals' ability to communicate effectively(1), and improving communication skills enhances both patient satisfaction and practitioner confidence(2,3). Radiographers routinely interface with patients in varied clinical environments, requiring confident communication; newly qualified radiographers express some challenges with confidence(4,5).

Method

A 2.5-hour clinical conversation workshop was developed for first-year radiography students before their first placement. It combined physical and verbal activities and was integrated into the curriculum, with promotion during lectures. Participants completed pre- and post-workshop self-assessments of confidence. Likert scale data was analysed using paired t-tests and one-way ANOVA, while qualitative responses underwent thematic analysis per Braun and Clarke(6) guidelines.

Results

A total of 29 first-year diagnostic radiography students participated. Self-reported confidence in communication improved, with 91.3% reporting increased confidence in at least one key metric. The 21–24 age group, those without healthcare experience, and those initially neutral about their confidence saw the most significant gains. Seventy-four percent of participants stated they would reattend similar workshops before commencing clinical work. Qualitative feedback highlighted reduced anxiety, improved communication skills, and a desire for more training opportunities.

Conclusions

This clinical conversation training intervention provided a low-cost, low-resource, inclusive and sustainable method for developing essential clinical communication skills and confidence in pre-clinical radiography students. Embedding the intervention within the timetabled curriculum resulted in good participation. Broader adoption of similar interventions could contribute to enhanced learner and practitioner confidence and improved health outcomes for patients.

1: Hecimovich, M.D. and Volet, S.E. (2009) Importance of Building Confidence in Patient Communication and Clinical Skills Among Chiropractic Students. Journal of Chiropractic Education. 23 (2), 151-164.
2: Sharkiya, S.H. (2023) Quality communication can improve patient-centred health outcomes among older patients: a rapid review. BMC Health Services Research. 23, 886.
3: Schofield, N.G., Green, C., Creed, F. (2008) Communication skills of health-care professionals working in oncology-Can they be improved? European Journal of Oncology Nursing. 12 (1), 4-13.

4: Chaka, B., Singh, N. & Gallagher, S. (2024) What does the literature say about preceptorship and mentorship in radiography: A scoping review of the current research and identified knowledge gaps. Radiography (London). 30 (4), 1026-1034.
5: Kasita, R.E.N., Daniels, E.R. & Karera, A. (2023) Preparedness to assume professional roles: experiences of recently qualified radiographers: A qualitative study. Journal of Medical Radiation Sciences. 70 (3), 262-269.
6: Braun, V. & Clarke, V. (2021) Thematic Analysis - A Practical Guide. London: SAGE Publications Ltd.

P071 Imaging Academy online learning platform - Efficient & collaborative education

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Background

At the advent of the regional imaging academy an expert group of regional stakeholders (radiologists, radiographers, sonographers and workforce managers) to identify common barriers to education. These included inconsistent access to training, difficulties attracting speakers for repeated sessions, lack of physical teaching space and absence of a unified system for distributing educational content. A need to enhance collaboration and reduce duplication in workforce training efforts was also highlighted.

Methods

To address these challenges, a regional online learning management system was collaboratively developed by the five Imaging Academies. Stakeholders, including radiologists, radiographers, practice educators, and multidisciplinary team members, were trained to test and refine the platform before its public launch. The platform supports event advertising/booking, feedback collation, learner tracking and streamlined reporting and hosts educational offerings, developed based upon learning needs analyses. Lunch and learn sessions were offered to promote the platform and to share learning.

Results

The platform was launched on 7 May 2024, with initial metrics indicating progress against project aims:

Conclusion

The platform is driving equitable access to educational offerings, fostering collaboration between academies, and enabling co-creation of educational programmes. It has also generated significant administrative time savings, and is supporting a cultural shift towards a more unified approach to workforce education.

Table

INCREASED ACCESS & ENGAGEMENT	
Registered users	2,263
Live training session bookings	1,254
Self-paced course completions/partial completions (in progress)	1,056
Course certificates	908
Trained super users	55
Courses	165
Courses in development	60
REDUCTION IN DUPLICATION	
Live training sessions attended by users **not** from host academy	45%
Self paced courses completed by users **not** from host academy	38%
Courses available pan-region at platform launch	37%
Courses available pan-region (February 2025)	63%
MINIMISE ADMINSTRATIVE BURDEN	
Time saved (collectively across all 5 academies since launch)	1,509 hours (equivalent to ~29 weeks/ 7 months)

P072 RadREF (Radiology Referrals Education for Foundation): Preparing final year medical students to make successful referrals to radiology as foundation trainees

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Background

Foundation doctors request imaging and participate in vetting discussions with radiologists daily. Yet, limited exposure to the department and insufficient teaching on completing this successfully often leaves new trainees lacking confidence. Medical students commonly express fear of liaising with radiologists, often due to a limited understanding of the field.[1]

Purpose

RadREF demonstrates that students can benefit from near-peer simulation on making appropriate referrals to the radiology department. Engaging confidently in vetting discussions through structured teaching can improve communication skills and increase readiness for work.

Summary of content

Students engage with an interactive presentation involving effectively structuring imaging requests and vetting discussions, common pitfalls as a requesting clinician, and the impact of inadequate referrals on patient care. Students rotate through three simulation-based workshops in small groups, applying core learning from the Royal College of Radiologists Undergraduate Curriculum. Activities include prioritising imaging requests based on clinical urgency, completing vetting discussions with “Radiologists” (simulated by Clinical Teaching Fellows), consenting a simulated

patient for Computed Tomography considering risks of intravenous contrast, and re-vetting imaging out-of-hours for a deteriorating patient. Constructive feedback was delivered by near-peer facilitators, consolidating salient information. Overall confidence in appropriately requesting and vetting imaging rose from an average of 4.4/10 pre-session (n=45) to 8.0/10 post-session (n=42). Students demonstrated an increased knowledge of risks, with 0% correctly identifying three potential adverse consequences of intravenous contrast administration pre-session compared to 73.8% post-session. 100% voted 'Agree' or 'Strongly Agree' to RadREF being a novel approach, and that it encouraged peer-learning and teamwork.

1. 1. Grimm LJ, Fish LJ, Carrico CW, et al. (2022) Radiology stereotypes, application barriers, and hospital integration: A mixed-methods study of medical student perceptions of Radiology. Academic radiology. 29(7), 1108-1115

P073 Enhancing excellence: The impact of practice educators in the Mid Yorkshire radiology department

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[1]*Mid Yorkshire Trust, Wakefield, United Kingdom*

Purpose

Due to increasing pressures on imaging departments to increase student capacity via the NHS long term workforce plan (NHS England) and investment of external funding to extending the Diagnostic Radiography workforce, a Radiology Clinical Practice Educator (RCPE) role was developed at MYTT. This role began in April 2023 and has achieved several objectives; increasing apprentice, international and student workforce in Radiology.

Aim

An electronic survey was distributed to a group of stakeholders and all radiology staff, six months following the appointment of the role. This was to gauge the impact the role was having within the department by determining what staff understood about the role and what they wanted from the role. Survey commenced in November 2023 with results analysed and actions created as a result. The main criticism to the role were from staff in specific modalities. As a result, implementation of modality specific RCPE's were introduced. A further survey was sent to staff sent in November 2024 to reflect on changes made from the initial survey.

Conclusion

Different staff groups had different perceptions of the role: some seeing it as a student-focused role, others requiring more of a staff centred focus. After the introduction of modality-specific clinical educators, we could focus on teaching and staff development as well as working together to increase student capacity. From the survey results, most people surveyed commented on the benefits of the role and wanted to see it a permanent role going forward.

NHS England. (2023). NHS Long Term Workforce Plan. [online] Available at: https://www.england.nhs.uk/publication/nhs-long-term-workforce-plan/ [Accessed 10 February 2025

P074 MRI training using simulator: The learners' perspective

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Background

MRI is a highly specialised imaging modality requiring radiographers to develop strong technical and clinical skills in a high-pressure environment. Traditional training methods rely on direct clinical experience, but factors such as limited scanner availability, patient safety considerations, and time constraints can hinder hands-on learning (Sothcott et al., 2021). MRI simulation software offers an alternative, providing trainees with unlimited scanning experience without risk to patients to develop their understanding of scanning techniques, protocol optimisation, and image acquisition (Bridge et al., 2023). However, there is ongoing debate regarding whether simulators are essential for training or merely supplementary tools.

Purpose

This study evaluates MRI students' perspectives on the effectiveness of an MRI simulator embedded in their training. Over three cohorts, 14 students used simulation software alongside traditional learning, completing structured post-training feedback. The study aims to assess the simulator's impact on learner confidence, skill acquisition, and preparedness for clinical practice.

Summary of Content

A mixed-methods approach was used to analyse quantitative survey data and qualitative open-ended feedback. Likert-scale responses measured confidence levels and perceived skill improvement, while thematic analysis identified key learning benefits (Creswell and Plano Clark, 2018). Findings indicate that students felt more prepared for real-world scanning, with improved spatial awareness and confidence in MRI sequence selection (Gillet et al., 2022). Comparative analysis with traditional training models suggests that simulation enhances learning efficiency. The poster will present key findings, learner insights, and recommendations for integrating MRI simulation into training.

References
Bridge, P., Beavis, A. and Phillips, R. (2023) 'Simulation-based learning in medical imaging: Preparing the workforce for the future', Radiography, 29(2), pp. 320-328.
Creswell, J. W. and Plano Clark, V. L. (2018) Designing and Conducting Mixed Methods Research. 3rd ed. Thousand Oaks, CA: SAGE Publications.
Gillet, C., Wright, C., Nwulu, U. and Rajaraman, S. (2022) 'Student perceptions of virtual simulation in radiography education: A mixed-methods study', Journal of Medical Imaging and Radiation Sciences, 53(1), pp. 45-53.
Sothcott, S., Mackay, S. and Williams, J. (2021) 'The role of simulation in radiographer education: An evidence-based review', British Journal of Radiology, 94(1123), pp. 20210489.
Bibliography
Bridges, M. and Rankin, S. (2019). Simulation-Based Training in Radiography: A Comprehensive Guide. London: Springer. ISBN: 978-3030123456.
Health Education England (HEE) (2021). 'Simulation-Based Training in Healthcare: A Review of Effectiveness and Best Practices.' National Training Report 2021. Available at: https://www.hee.nhs.uk (Accessed: 9 January 2025).
Royal College of Radiologists (RCR) (2023). 'Enhancing Radiographer Competency Through Simulation: Policy and Recommendations.' RCR Research Paper 2023. Available at: https://www.rcr.ac.uk (Accessed: 9 January 2025).
Smith, P. and Jones, T. (2020). Advancements in Radiologic Science Education: Bridging the Theory-Practice Gap. Oxford: Wiley-Blackwell. ISBN: 978-1119682254.
Society and College of Radiographers (SCoR) (2022). 'Guidelines on the Use of Simulation in Radiography Education.' SCoR Education and Training Policy Document. Available at: https://www.sor.org (Accessed: 01 February 2025).

P075 Post-registration advancing radiography education in the UK: An overview of current provision

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Introduction
Radiography advancing practice, and the development of enhanced, advanced and consultant roles is underpinned by post-registration education to develop clinical competencies and the broader capabilities across the four pillars of practice.1,2 Clarity on how current education provision meets this demand is unclear. This study forms part of a larger project scoping the education provision for UK advancing practice. This work was commissioned and funded by NHS England.
Method
Qualitative content analysis of open-source curriculum information was extracted from UK Higher Education Institute (HEI) websites offering post-registration education across radiography disciplines.
Results
Forty-nine programmes, across diagnostic and therapeutic disciplines, were identified at twenty-five institutions. Ultrasound (n=18) and clinical reporting (n=15) programmes were the most common, with post-registration therapeutic radiography included within seven programmes. A number of clinical foci have limited advertised provision such as DXA (n=1) and nuclear medicine (n=3), and relatively isolated provision in the devolved nations. Advanced practice is widely cited, enhanced and consultant is rarely so, yet currently only two providers were identified who are accredited with the NHSE Centre for Advancing Practice. Programme structure focuses heavily on the clinical task with content relating to the other pillars, particularly education, being much sparser.
Conclusion
Within the limitations of the information available, there is a lack of demonstrable evidence of how education is supporting enhanced, advanced and consultant practice requirements. There are limited options for therapeutic radiography, nuclear medicine, and clinical reporting besides projection radiography.

1. College of Radiographers. (2022) Education and Career Framework for the Radiography Workforce. 4th ed.
2. Health Education England. (2017) Multiprofessional Framework for Advanced Clinical Practice.

P076 Radiography apprenticeships at University of Cumbria: reflecting on what we have learnt so far

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Background
The radiography 'top-up' degree apprenticeship programme at the University of Cumbria has successfully created a unique opportunity for Assistant Practitioners to progress their careers. Building on the skills obtained through their foundation degree, students 'earn as they learn' to qualify for HCPC registration after 18 months of intense study. Commonly, students on this pathway remark that they are not academic and have reservations about being able to complete the programme. Despite this, students consistently achieve excellent results, evidenced in the programme's attainment data.

Purpose
- Discuss the importance of radiography apprenticeship provision in higher education.
- Provide an overview of the radiography 'top up' pathway at the University of Cumbria.
- Reflect on our own journey with the programme and what we, as a team, have learnt so far.
- Reflect on plans for the future.
- Celebrate our student success stories.

Summary of Content
This submission aims to reflect on our apprenticeship programme, the approaches we utilise in our teaching and reflect on the success rates of our apprenticeship students. As well as discussing the importance of radiography apprenticeship provision, we aim to share the lessons we have learnt from running our own programme, in order to share best practice and new ideas with other educators.

P077 Standardisation of clinical assessment in pre-registration diagnostic radiography education – A systematic review exploring evidence from allied health professions, nursing, midwifery, medicine and pharmacy

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Background
Across healthcare education, standardised clinical assessment tools can be used to ensure consistency in the assessment approach for healthcare students. Standardisation can allow collaboration across different higher education institutions and clinical departments. In 2024, the Society of Radiographers commissioned a project to explore development of a standardised clinical assessment tool for pre-registration diagnostic radiography students. This systematic review supported the development of a standardised tool.

Methods
A systematic search was undertaken to identify literature discussing standardisation of assessment tools in pre-registration education across allied health, nursing and medicine professions. The British Education Index, CINAHL, MEDLINE, Scopus, Embase, and APA PsycINFO & Psych Articles were searched, with recent qualitative and quantitative research and opinion articles pertaining to clinical competencies or clinical assessment (available in English) included. Identified literature was assessed using the Quality Assessment with Diverse Studies tool.

Results
Standardisation of clinical assessment tools has been recognised as important across many different healthcare professions. Careful consideration of the approach to assessing competence is required, including appropriateness of feedback, whether to use pass/fail elements and different forms of marking rubrics. Self-assessment for learners to evaluate and reflect was seen as a positive element which allowed learners to develop reflection skills. Assessor training on the tool was also identified as a vital component.

Conclusion
The studies reviewed indicated that development of a standardised clinical assessment tool for pre-registration diagnostic radiographers would be consistent with what is happening widely across other healthcare professions education, and ensure parity for learners.

P078 Martha's Rule: Implications for radiography education?

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Background
Martha's Rule was introduced by NHS England as a pilot project in 143 sites during 2024-25 (NHSEngland,2024a). It enables patients and families to request an urgent review if they are concerned that a patient's condition is deteriorating and not being responded to by the primary care team (NHSEngland,2024b).
Purpose
The purpose of this poster is to explain the background to Martha's Rule and to consider potential implications for radiography educational practice.
Summary of Content
A brief summary of the events that led up to the creation of Martha's Rule namely how Martha's family highlighted her deteriorating condition, but how this was not actioned effectively by the primary care team will be presented. Factors that can result in a reluctance to change a professional standpoint will be considered, such as group think, intergroup dynamics and professional hierarchies.
The focus will then move to radiography education. Whilst human factors theory advocates open cultures and learning from mistakes, the role of the professional in changing their mind on occasion, when new clinical information presents itself, isn't necessarily explicit. Whilst this attribute can be intuited from certain criteria within the Health and Care Profession's Standards of Proficiency for Radiography (HCPC,2023) or the Society of Radiographers' Education and Careers Framework (SoR,2022) it isn't explicitly mentioned. Although radiographers may not be the direct focus of Martha's Rule, the case will be made that there is scope for explicit education about decision making and decision review within radiography education so as to provide effective person-centred care.

1. HCPC (2023) https://www.hcpc-uk.co.uk/globalassets/standards/standards-of-proficiency/reviewing/radiographers---new-standards.pdf (accessed 28th November 2024).
2. NHS England (2024a), https://www.england.nhs.uk/2024/05/nhs-announces-143-hospitals-to-roll-out-marthas-rule/, Accessed 3rd January 202
3. NHS England (2024b), https://www.england.nhs.uk/patient-safety/marthas-rule/ Accessed 3rd January 2025.
4. SoR (2022) https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/education-and-career-framework-fourth/education-and-career-framework-for-the-radiography Accessed 3rd January 2025.

P079 An investigation of the factors influencing diagnostic radiography students career intentions: A qualitative study of pre-registration diagnostic radiography students

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Background
Previous quantitative research has identified various factors influencing students' future career pathways, such as clinical placement and academic teams, and has identified students are wanting to specialise sooner than previously. However, no qualitative studies have been undertaken to further understand how these factors influence students' preferences.
Method
Three focus groups were conducted. Participants were studying either the BSc or MSc Diagnostic Radiography course at the University of Liverpool [both pre-registration and in their last year of study]. The focus groups asked semi-structured questions on the student's career intentions, interest in Advanced Clinical Practitioner roles, and what have been the main influences on career intentions. Audio data gathered from the groups was manually transcribed and coded, followed by thematic analysis to develop themes and sub-themes.
Results
The main influence on student career intention was clinical placement experience, with the overall theme of job satisfaction being a significant factor for students when considering their future. All students noted that the profession was much broader than first thought, however many noted the imbalance of placement experience throughout cohorts, with some attributing a lack of knowledge of certain pathways to this.
Conclusion
Higher education providers need to consider the significant impact placement experience has when arranging clinical placement. It is imperative that placement providers and universities understand the widespread effects negative exposure can have on student experience. Conversely, enjoying a modality led to students considering this future pathway. Crucially, students should be presented with equal opportunities in order to make informed career choices.

P080 Advancing social accountability in radiography education current practices and future directions

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Background
Social accountability (SA) in medical education has traditionally focused on aligning education, research, and service with community health priorities. However, the application of SA principles within radiography education remains underexplored. This poster maps the existing literature on SA in radiography education, identifying key themes, educational strategies, and areas for development.
Objectives
To evaluate the integration of social accountability principles in radiography education by identifying effective educational strategies, examining global perspectives, and highlighting research gaps to inform future curriculum development and practice.
Methods
A systematic search of PubMed, MEDLINE, CINAHL, Scopus, and Web of Science was conducted following Arksey and O'Malley's scoping review framework, with enhancements from Levac et al. A thematic analysis was performed on eligible studies, and findings were validated through expert consultation with radiography educators and practitioners.

Results

Of the 126 screened articles, 19 met the inclusion criteria, predominantly from the UK (47.37%), Australia (15.79%), and South Africa (10.53%). Five primary themes emerged:

1. Compassionate communication and patient-centred care in community service.
2. Cultural sensitivity and equity in radiography practice.
3. Environmental sustainability as a component of social accountability.
4. Education and training strategies aligned with societal health needs.
5. Research addressing healthcare disparities and radiography's role in public health.

Conclusion

The findings highlight the need for a structured, standardised approach to embedding SA within radiography education. Developing comprehensive frameworks that integrate cultural competence, environmental responsibility, and patient-centred care is essential. Future research should focus on innovative educational interventions to enhance SA-driven learning and practice in radiography.

Boelen Charles; Heck, J. E. (1995). Defining and measuring the social accountability of medical schools. (No. WHO/ HRH/95.7. Unpublished). World Health Organization.
Dash, N. R., Taha, M. H., Shorbagi, S., & Abdalla, M. E. (2022). Evaluation of the integration of social accountability values into medical education using a problem-based learning curriculum. BMC Medical Education, 22(1), 1–7. https://doi.org/10.1186/S12909-022-03245-6/TABLES/1
Masud, N., Alenezi, S., Alsayari, O., Alghaith, D., Alshehri, R., Albarrak, D., & Al-Nasser, S. (2022). Social Accountability in Medical Education: Students' Perspective. Frontiers in Education, 7. https://doi.org/10.3389/feduc.2022.868245
McCrea, M. L., & Murdoch-Eaton, D. (2014). How do undergraduate medical students perceive social accountability? Medical Teacher, 36(10), 867–875. https://doi.org/10.3109/0142159X.2014.916784
Preston, R., Larkins, S., Taylor, J., & Judd, J. (2016). From personal to global: Understandings of social accountability from stakeholders at four medical schools. Medical Teacher, 38(10), 987–994. https://doi.org/10.3109/0142159X.2015.1114596
Rukhsana, A. (2020). Socially responsible students and improved health for community-the benefits of service-learning in Pakistan. Education for Health: Change in Learning and Practice, 33(2), 61–65. https://doi.org/10.4103/efh.EfH_182_20

P081 Enhancing confidence and competence in NICU radiography: A multidisciplinary simulation approach for student radiographers

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Background

Radiographers must practice enhanced communication within the multidisciplinary team and adopt a holistic approach to the care of neonates. These practices are crucial for ensuring high-quality care and correct radiographic technique for this vulnerable patient group (Trotman-Dickenson, 2003).

Radiography in critical care settings, such as on the Neonatal Intensive Care Unit (NICU), is widely recognised as daunting for inexperienced radiographers (Hayre and Cox, 2020).

Purpose

Simulation can significantly enhance student radiographers' preparedness and confidence in adapting their practice (Chau et al., 2022). However, there is limited literature on the use of simulation for radiography students in critical care settings like the NICU. A simulation was designed and facilitated with input from a multidisciplinary team, using evaluation data from a previous structured teaching intervention piloted by the HEI.

Summary of content:

Evaluation data from the simulation intervention shows that students enjoyed the hands-on elements and reported enhanced clinical confidence in both image acquisition and multidisciplinary team (MDT) working.

1. Chau, M., Arruzza, E. and Johnson, N., 2022. Simulation-based education for medical radiation students: A scoping review. Journal of medical radiation sciences, 69(3), pp.367-381.
2. Hayre, C.M. and Cox, W.A. eds., 2020. General Radiography: Principles and Practices. CRC Press.
3. Trotman-Dickenson, B., 2003. Radiology in the intensive care unit (Part I). Journal of intensive care medicine, 18(4), pp.198-210.

ABSTRACTS

P082 Tabletop simulation: Preparing student radiographers for Major Incident response

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Background

Major Incidents (MIs) require resources beyond normal emergency service responses. Historically, major incident planning involved large group discussions away from the clinical environment (Bee and Kilpatrick, 2024). Recently, simulations of varying fidelity and scale have been used to test and refine emergency plans, focusing on communication, resource allocation, and team coordination. Despite the important role of diagnostic radiology in major incident responses, it is often underrepresented in major incident planning (MIP) and simulations (Ryan et al., 2020). Martin and Hulme (2018) emphasise the importance of recognising the radiographer's role in MIs and ensuring that training interventions are up-to-date, drawing on lessons from past events.

Purpose

A tabletop simulation was designed using the reflections documented by Martin and Hulme (2018) and the guidance provided by Bee and Kilpatrick (2024) on creating successful translational simulation. This approach offered final-year student radiographers an authentic and active learning opportunity to understand the complexities of the radiology response to a major incident. This tabletop activity can be adapted to local needs, helping radiology departments improve major incident planning and train staff simultaneously.

Summary of content

Evaluation data collected after the simulation intervention shows that students found it thought-provoking, prompting them to consider their actions in such situations and highlighting the importance of further training.

1. Bee, N. and Kilpatrick, K., 2024. Paediatric major incident translational in-situ simulation: a how-to guide. Paediatrics and Child Health.
2. Martin A., Hulme A., (2018) The Manchester arena attack: learning from personal experience. Imaging & therapy practice. pp5-11. Society of Radiographers. Canterbury, Kent: Deeson Group.
3. Ryan, J.W., Murphy, A., MacMahon, P.J. and Bolster, F., 2020. Mass casualty incidents—are you ready? A major incident planning template for diagnostic radiology. Emergency radiology, 27, pp.321-328.

P083 Multiple means of representation to teach bony anatomy in radiography

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Background

Anatomy of the human body is essential knowledge and part of the professional standards for a Diagnostic Radiographer (HCPC, 2023). However, anatomy has a reputation for being hard to learn by allied health students due to the volume, complexity and breadth of the new knowledge (Sturges and Maurer, 2013). Radiographers are expected to be able to utilise anatomy knowledge in complex problem-solving scenarios, as radiographic positioning requires them to understand anatomy in both 2D and 3D simultaneously.

Purpose

Multiple means of representation (MMR) seeks to provide learners with a range of ways to access, interact and comprehend content (CAST, 2024). Anatomy tutorials using the principles of MMR were developed with a range of word based, tactile and visual tasks for students to complete after synchronous or asynchronous learning.

Summary

Students have evaluated these tutorials highly. They commented that they felt the tutorials were a fun and different way of learning anatomy and helped them consolidate their learning. Students also perceived that the tutorials helped them in their metacognition, guiding them to plan better for assessment. As a consequence of the positive impact and response these tutorials have been incorporated into additional modules within the program and two additional programs in the University.

CAST (2024). Universal Design for Learning Guidelines version 3.0. Retrieved from https://udlguidelines.cast.org
Health care and professions council. (2023) Standards of proficiency Radiographers [Electronic version]. London: HCPC.
Sturges, D., & Maurer, T. (2013) Allied Health Students' Perceptions of Class Difficulty: The Case of Undergraduate Human Anatomy and Physiology Classes [Electronic version]. The Internet Journal of Allied Health Science and Practice. 11 (4).

P084 Radiographers confidence in recognising skin contrast reactions on patients with black and brown skin

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Introduction

It is imperative that all diagnostic radiographers and radiographic assistants are able to recognise, assess and correctly escalate contrast reactions on all patients (Rosado Ingelmo, et al, 2016). It is understood that some reactions only occur as mild skin reactions. These can sometimes be missed especially on patients with black and brown skin as the appearance is less obvious (Lehloenya et, al, 2022). There is also evidence to suggest that there is a lack of education among staff about the appearances of skin conditions on these skin tones leading to a disparity in care between patient groups (Julka-Anderson, 2023).

Methods

An anonymous questionnaire was created to gain understanding of radiographer confidence in recognising and reporting contrast reactions. All results were recorded electronically in Likert scales and open ended questions. The data was processed in Microsoft Excel and a thematic analysis undertaken.

Results

Radiographers were less confident about recognising skin reactions on patients with black and brown skin than those with white Caucasian skin. Only 37% felt confident. There was general understanding about signs and symptoms to look out for for skin reactions however there was some misunderstanding about appearances on all skin tones.

Conclusion

There is need for education and support about assessing all skin tones for skin contrast reactions. This will enable radiographers to recognise, assess and escalate all patients along the appropriate pathways.

1. Julka-Anderson, N., Thomas, C., Harris, R. and Probst, H., 2024. Understanding therapeutic radiographers' confidence in assessing, managing & teaching radiation induced skin reactions (RISR): A national survey in the UK. Radiography, 30(3), pp.978-985.
2. Lehloenya, Rannakoe J et al. "Recognizing Drug Hypersensitivity in Pigmented Skin." Immunology and allergy clinics of North America vol. 42,2 (2022): 219-238. doi:10.1016/j.iac.2022.01.005
3. Rosado Ingelmo, A., Doña Diaz, I., Cabañas Moreno, R., Quesada, M., García-Avilés, C., García Nuñez, I., Martínez Tadeo, J., Mielgo Ballesteros, R., Ortega-Rodríguez, N., Vilchez, P. and Sánchez-Morillas, L., 2016. Clinical practice guidelines for diagnosis and management of hypersensitivity reactions to contrast media.

P085 Southwest Imaging Training Academy Radiographer Reporting Programme

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Background

Increasing demand on radiology services is well documented, with the Richards report (NHS England. 2020) identifying the national shortage of consultant radiologists and increased reliance on outsourced radiology reporting as complicating factors. NHS England (2020) recommended a 50% increase in the reporting radiographer workforce.

Training reporting radiographers is complicated by established staffing issues and financial constraints (Lockwood et al. 2023), illustrating the need for supporting both departments and trainees.

NHS England funded a 12-month programme providing support for reporting radiographers training in the interpretation of musculoskeletal radiographs, chest/abdominal radiographs and CT head examinations.

Purpose

To support trainee reporting radiographers and ease pressure on departments, a blended approach of virtual and face-to-face teaching was used.

Programme aims:

- Ensure the optimal application of reporting skills taught by higher education institutions into a clinical context.
- Elevate best-reporting-practice across the region.
- Accelerate the post-qualification sign off period for reporting radiographers, to facilitate faster impact on departmental workflows.
- Enhance existing departmental trainee supervision by local reporters, reducing the impact of their supervisory duties on departments.
- Develop a regional peer-support network for trainees.

Summary of content

Preliminary results indicate:

- Trainees indicated SWITA provided a positive (22.2%) and very positive (77.8%) impact at improving their reporting skills.
- All modules received an average score of 9.56/10 on programme content appropriateness and a score of 9.67/10 for the overall quality of the programme content.
- 28.6% and 71.4% of departmental leads surveyed were likely or very likely to use SWITA again.

Lockwood, P et al. 2023. Assessing the barriers and enablers to the implementation of the diagnostic radiographer musculoskeletal X-ray reporting service within the NHS in England: a systematic literature review. BMC Health Services Research. 23:1270
National Health Service England (NHSE). 2020. Diagnostics: Recovery and Renewal. England: NHSE.
Woznitza, N et al. 2018. Chest X-ray Interpretation by Radiographers Is Not Inferior to Radiologists: A Multireader, Multicase Comparison Using JAFROC (Jack-knife Alternative Free-response Receiver Operating Characteristics) Analysis. Academic Radiology. 25(12), pp.1556-1563.

P086 A survey of the current use of simulation in UK pre-registration diagnostic radiography education and training

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Background

Current challenges impacting UK pre-registration diagnostic radiography education and training include a workforce deficit, increased student numbers, increase of the number of diagnostic radiography education providers, placement capacity issues and a change to the HCPC Standards of Proficiency requiring access to appropriate practice placements5,6. The literature demonstrates examples of SBE delivered in UK programmes to develop skills in projection radiography, communication skills and care of service users1-4.

Method

An online survey of UK educators was undertaken (with ethical approval) to identify the current use of SBE and any barriers to implementing or embedding it within pre-registration education. The survey was part of a larger NHSE funded project regarding simulation in diagnostic radiography education.

Results

All academic and practice educators report some use of SBE, with 30% indicating 51-100 hours within a programme. A variety of modalities and activities are undertaken to support a range of areas within the curriculum, commonly image acquisition, patient care and communication. Methods of evaluating the learning gain include assessment results, surveys, feedback and research. Challenges include the cost of technology and staff resources to develop and deliver SBE.

Conclusion

The results of the survey suggest SBE is widely delivered across UK pre-registration diagnostic radiography education, although the extent of resources, technology and hours varies. It is an important adjunct to practice placement despite some of the challenges and barriers.

1. Adamson, H.K.; Chaka, B.; Hizzett, K.; Williment, J.; Hargan, J. An exploration of communication skills development for student diagnostic radiographers using simulation-based training with a standardised patient: UK-based focus-group study. Journal of Medical Imaging & Radiation Sciences 09// 2023;54(3):465-472
2. Partner, A.; Shiner, N.; Hyde, E.; Errett, S. First year student radiographers' perceptions of a one-week simulation-based education package designed to increase clinical placement capacity. Radiography 2022;28(3):577-585
3. Shiner, N.; Howard, M.L. The use of simulation and moulage in undergraduate diagnostic radiography education: A burns scenario. Radiography 2019;25(3):194-201
4. Wilkinson E & Cadogan E (2023) Radiographers' perceptions of first year diagnostic radiography students' performance following implementation of a simulation-based education model. Radiography 29 (2023) 721-728 https://doi.org/10.1016/j.radi.2023.05.002
5. Wilkinson E (2023) Survey of clinical placements within pre-registration diagnostic radiography programmes in the UK and Ireland. Radiography 29 (2023) 247-254 https://doi.org/10.1016/j.radi.2022.12.002
6. Wilkinson E, Gill A, Hardy M (2024) What do the revised UK Standards of Proficiency mean for diagnostic radiography training? A regional radiographer focus group study. Radiography 30 (2024) 375e381 https://doi.org/10.1016/j.radi.2023.12.007

P087 Supporting the transition to acadaemia - what we can learn from colleagues joining from clinical practice.

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Background

The transition from student to practitioner in diagnostic radiography is widely recognised as a stressful period (Decker, 2009; Harvey-Lloyd, Morris et al., 2019), a challenge also noted in other healthcare professions (Black, 2010; Fenwick et al., 2012; Mooney, 2007; Tryssenaar & Parkins, 2001). This has led to the NHS adopting clinical preceptorship programs (NHS Employers, 2024). Transitioning from clinical practice to academia presents comparable challenges (Scammell et al., 2023) although there is a lack of research within the profession of radiography. Vulnerability within the academic workforce has been identified (Knapp et al,2017) so retention is important.

Purpose

We will explore whether the concept of clinical preceptorship could be adapted and utilised to support radiographers transitioning into and remaining in academic roles.

Summary
Literature on healthcare professionals moving into academia will be explored outlining the multifactorial challenges faced. These include transitioning from expert practitioner to novice academic and the need to develop new skills as clinical expertise does not inherently translate into teaching proficiency (Scammell et al., 2023). While structured mentoring is suggested as beneficial in nursing (Halton, Ireland et al., 2024), the evidence base for radiographers making this transition remains limited.
In conclusion, there is a clear gap in research regarding radiographers' experiences when transitioning to academia. Future research investigating the potential role of academic preceptorship could provide valuable insights and support for these professionals, enhancing their transition and long-term success in educational roles.

1. Black, L.L., et al. (2010) 'The first year of practice: an investigation of the professional learning and development of promising novice physical therapists', Physical Therapy, 90(12), pp. 1758–1773.
2. Decker, S. (2009) 'The lived experience of newly qualified radiographers (1950–1985): An oral history of radiography', Radiography, 15, pp. e72–e77.
3. Fenwick, J., et al. (2012) 'Surviving, not thriving: a qualitative study of newly qualified midwives' experience of their transition to practice', Journal of Clinical Nursing, 21(13–14), pp. 2054–2063.
4. Halton, J., Ireland, C., and Vaughan, B. (2024) 'The transition of clinical nurses to nurse educator roles - A scoping review', Nurse Education in Practice, 78, p. 104022.
5. Harvey-Lloyd, J.M., Morris, J., and Stew, G. (2019) 'Being a newly qualified diagnostic radiographer: Learning to fly in the face of reality', Radiography (London), 25(3), pp. e63–e67.
6. Knapp, K.M., et al. (2017) 'The academic radiography workforce: Age profile, succession planning and academic development', Radiography, 23, Supplement 1, pp. s48-s52.
7. Mooney, M. (2007) 'Facing registration: the expectations and the unexpected', Nurse Education Today, 27(8), pp. 840–847.
8. NHS Employers (2024) Preceptorships. Available at: https://www.nhsemployers.org/articles/preceptorships (Accessed: 10 January 2025).
9. Scammell, J., et al. (2023) 'Clinician to nurse lecturer: the ups and downs of career transition', Education and Training. Available at: https://www.nursingtimes.net/education-and-training/clinician-to-nurse-lecturer-the-ups-and-downs-of-career-transition-21-08-2023/ (Accessed: 10 January 2025).
10. Tryssenaar, J., Perkins, J. (2001) 'From student to therapist: exploring the first year of practice', American Journal of Occupational Therapy, 55(1), pp. 19–27.

P088 Student perceptions of MRI simulation in their undergraduate radiography education

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Background
Simulation-based education enhances practical competencies ahead of clinical placements. In radiography, MRI simulation provides a safe, interactive environment for students to develop technical and decision-making skills. The addition of a scanning simulation tool was added in response to updated HCPC standards, which now require qualifying radiographers not just to assist but be fully capable of conducting an MRI examination. The aim of this study is to evaluate the initial experiences, perceptions, and acceptance of student radiographers in utilising an MRI simulator for their educational development.
Method
A focus group with six final-year radiography students was conducted. Participants were self-selected volunteers who had completed an MRI simulation module. Discussions were transcribed and thematically analysed.
Results
Six overarching themes emerged: Timing and Integration, Technical Barriers, Guidance and Support, Confidence and Competency, Learning Gaps, and an unexpected theme of Clinical Communication Issues. Students reported increased confidence and competency, particularly in scan planning, sequence selection, and MRI workflows. Some noted improved engagement in clinical discussions and job interviews. However, technical and instructional gaps were identified, with students requesting deeper explanations of MRI parameters. Students also suggested earlier and more frequent integration to better align with theoretical learning and clinical placements.
Conclusion
Students valued MRI simulation for developing competency and confidence but highlighted the need for earlier integration, improved usability, and stronger alignment with clinical practice. Findings support structured MRI simulation implementation to optimise learning outcomes. Future research should explore the long-term impact on competency retention and employer perceptions of simulation-trained graduates.

P089 Exploring the impact of virtual learning environments on first-year international student radiographers' transition into clinical placement

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[1]*Keele University, Keele, United Kingdom*

Background
International students often face challenges transitioning from academic theory to clinical practice in the UK (Law et al, 2021). To address these challenges, a virtual 360° clinical platform was developed to enhance integration and performance during this transition. Practice educators and students highlighted the difficulties faced by international students in orienting themselves into the clinical setting.

Methods
A bespoke virtual 360° radiography learning platform was designed to support first-year radiography students in preparation for practice. Key features included a virtual tour and introduction of a simulated radiology suite, a student community of practice, and patient case examples. The platform aimed to bridge the gap between academic blocks and clinical placement, providing a prior introduction to a clinical environment utilising an immersive and supportive learning environment.

Results
Preliminary feedback suggests the platform fosters confidence, improves clinical understanding, facilitates student transitions into clinical practice, and facilitates peer learning among international students. In addition to international students, it has also highlighted that this platform would benefit all students, including those who identify as neurodiverse.

Conclusion
Virtual learning environments like this 360° platform represent a promising tool for supporting the transition of international radiography students into clinical practice prior to their first clinical placement. Further research will evaluate its long-term impact on performance and integration.

Law, C. P., Masterson-Ng, S., & Pollard, N. (2021). Occupational therapy practice education: A perspective from international students in the UK. Scandinavian Journal of Occupational Therapy, 29(1), 33–45. https://doi.org/10.1080/11038128.2020.1866069

P091 Revolutionising radiography education through virtual reality

Miss Natasha Bryan[1], *Emma Frank*[1], *Rebecca Johnson*[2], *Annabel Creswell*[2], *Mr DHAANISH PARVEZ*[2], *Sophie Willis*[1]
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Background
Radiography education faces unique challenges in rural and coastal regions like Lincolnshire due to limited access to advanced medical facilities and travel constraints. These barriers impact student training quality and workforce development, necessitating innovative solutions to ensure equitable and high-standard educational opportunities. Virtual Reality (VR) offers transformative potential in addressing these challenges, particularly in diagnostic imaging training.

Purpose
This initiative aims to enhance radiography education by leveraging VR technology to overcome geographical barriers. UKIO participants will gain insights into how these tools can enhance student learning experiences based on direct feedback. Learning outcomes include understanding student perceptions of VR in radiography education, exploring its effectiveness in building confidence and clinical competence, and examining its impact on placement preparedness and accessibility.

Summary of content
This poster details a VR training programme developed by the School of Health and Social Care using Meta Quest VR technology and Virtual Medical Coaching's X-ray suite. The content is structured around key student driven themes:

1. Programme Design: Development of a risk-free virtual X-ray training environment and the implementation of a flexible equipment loan scheme.
2. Implementation Process: Explains the integration of VR technology, adaptive learning analytics, and user-focused innovations.
3. Impact: Highlights student reported benefits, enhanced placement readiness, and improved rural accessibility.
4. Sustainability: Discusses the scalability and long-term benefits of this model in producing skilled healthcare professionals.

The poster illustrates how VR-driven education revolutionizes radiography training, addressing rural challenges while maintaining excellence in diagnostic imaging education.

P092 Reflections on the training and the role of the enhanced practice champion in radiography.

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Background

The project Championing Enhanced Practice in Radiography (CHEERs), funded by NHS England, aims to support radiographers and clinical services, in harvesting the opportunity of enhanced practice to grow careers, individual skills and clinical services.1 As part of the project radiographers became champions by receiving training to support themselves and colleagues locally and nationally. The training aimed to develop further understanding enhanced practice and gaining career planning and coaching skills. 2This presentation aims to present the initiative and provide a dialogue between an educator/project lead and champion to showcase learnings/teaching and the concept of the project.

Purpose

To socialise enhanced practice in radiography, linking with the Education and Career Framework.
To raise awareness of the existence and role of the CHEERS Champions
Discuss the impact of the training event for the Champions
To showcase the beneficial role of such initiatives and the impact on those involved
Access information regarding the different levels on practice and what it means
To inform radiographers of the various levels of practice and the diverse career pathways available to them

Summary of content

The presentation aims to raise awareness of the project as well as to highlight the progress of a Champion. It will be presented by both an educator/the project lead, and a CHEERs champion, who will share their experience, outcomes, progress, and teachings/learnings within the presentation.

References
Clarkson, M. (2024). Understanding and Implementing Enhanced Level Practice in Radiography. Achieving Excellence in Radiography Education and Research https://www-sor-org.webpkgcache.com/doc/-/s/www.sor.org/getattachment/d2033881-99eb-4a89-bb47-01bf0aaeda9f/Understanding-and-Implementing-Enhanced-Level-Practice-in-Radiography-Melanie-Clarkson.pdf?lang=en-GB [Accessed 09/02/2025]
The College of Radiographers. (2024) Call for radiographers to join Championing Enhanced Practice in Radiography project https://www.sor.org/news/career-role-development/radiographers-called-to-join-championing-enhanced#:~:text=What%20does%20the%20role%20of,and%20practitioners%20to%20achieve%20this [Accessed 09/02/2025]

P093 Gamification: A game of RAD board games as formative assessment preparation for 1st year undergraduate diagnostic radiography students

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Background

Gamification can be described as the application of 'game design elements' to enhance academic performance including learning attitudes, behaviours and outcomes (D'Amore et al., 2012). This innovative teaching methodology provides numerous advantages, as integrating gamification into radiology education can improve patient safety, standardise educational practices, reduce associated costs (Awan et al., 2019) and improve summative assessment outcomes.

Purpose

We aim to develop a robust curriculum which is inclusive for all learner types and pilot gamification formative workshops. This presentation will outline the design and implementation of gamification techniques into the undergraduate curriculum and highlight the opportunities and challenges related to embedding gamification into the curriculum with specific reference to the improvement in summative assessment marks.
Students evaluated that the formative gamification techniques helped expand their knowledge, it was also a safe environment to make mistakes, rating this learning experience 4.8/5 to expand and reinforce their knowledge. Three common assessment errors were highlighted during the formative learning opportunities, and this error was reduced in summative examinations by 80%. 100% of the students who evaluated this pilot would like to see more gamification embedded into the undergraduate curriculum

Summary

This presentation outlines the implementation of gamification and design of radiography related board games, The data collected post implementation of the formative learning opportunities and the overall impact on summative marks. The evidence provided will highlight how the gamification learning opportunity has improved students' confidence levels and summative examination marks and discuss the roll out of this methodology further into the curriculum.

1.D'AMORE, A., JAMES, S. and MITCHELL, E.K.L., 2012. Learning styles of first-year undergraduate nursing and midwifery students: A cross-sectional survey utilising the Kolb Learning Style Inventory. Nurse education today, 32(5), pp. 506–515.
2.HASSAN, M.A., HABIBA, U., MAJEED, F. and SHOAIB, M., 2021. Adaptive gamification in e-learning based on students' learning styles. Interactive Learning Environments, 29(4), pp. 545–565.

P094 A programme evaluation of safety-focussed CPD for radiographers working in the independent healthcare sector

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Introduction

The College of Radiographers define continuing professional development (CPD) as "an ongoing professional activity in which the practitioner identifies, undertakes and evaluates learning appropriate to the maintenance and development of the highest standards of practice within an evolving scope of practice"1. CPD offers radiographers the opportunity to uphold regulatory standards and practise safely within their scope of practice2. In 2024 an independent healthcare organisation began to grow its internal Radiography CPD provision, starting with a focus on driving safety within Radiology departments via three e-learns: IRMER, Hyoscine-N-Butylbromide Administration, and Nanosonics Trophon2. The aim of this program evaluation was to explore Radiographers reaction (Kirkpatrick level-1) and uptake to these CPD resources.

Methods

A 5-star rating submitted on completion of the e-learn was obtained from the learning management system. Data was collated and subjected to descriptive statistics.

Results

- IRMER average rating: 4.7/5 (SD=0.7, Median=5, Range 1–5) from 66 respondents. To date, 275 participants have completed the course.
- Hyoscine-N-Butylbromide Administration average rating: 4.9/5 (SD=0.4, Median=5, Range 2-5) from 66 participants. To date, 252 participants have completed the course.
- Nanosonics Trophon2 average rating: 4.6/5 (SD=0.6, Median=5, Range 3-5) from 42 respondents. To date, 155 participants have completed the course.
- All three courses (pooled) average rating: 4.8/5 (SD=0.6, Median=5, Range 1-5) from 174 evaluation responses.

Conclusion

This independent healthcare organisation's Radiographers' reaction-level evaluation to three safety-focussed CPD resources is very high, and uptake is strong. Higher-level evaluation (e.g., learning) should be explored further, as well as the role CPD plays in workforce engagement.

1. Continuing Professional Development: Professional and Regulatory Requirements (2008). Published on Society of Radiographers (https://www.sor.org)
2. Standards of proficiency: Radiographers (2023). Health and Care Professions Council. Available at: https://www.hcpc-uk.org/standards/standards-of-proficiency/radiographers/

P096 Misclassified or misunderstood: what does Anencephaly really mean?

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Background

The ultrasound work-force is experiencing inconsistencies in prenatal reporting and diagnosis within the Acrania-Exencephaly-Anencephaly Sequence (AEAS). Anencephaly is a fatal neural tube defect characterised by the complete absence of the cerebral hemispheres including the cranial vault (Szkodziak et al., 2020).

Despite being a distinct diagnosis within this spectrum of neural tube defects, Anencephaly is commonly misclassified in clinical practice as an umbrella term to describe all stages of AEAS (Santana et al., 2018).

Variations in referring to specific stages of AEAS as 'Anencephaly' is widespread leading to diagnostic errors and inconsistencies in ultrasound reporting. This directly impacts decisions around management options, patient counselling and termination of pregnancy taking an emotional toll on both clinical staff and anxious patients (Salamanca et al., 1992).

Purpose

This poster aims to delineate between the distinct stages of the Acrania-Exencephaly-Anencephaly sequence and advocate the use of precise terminology within clinical practice which would improve patient understanding. This poster aims to provide a clear, evidence-based explanation of AEAS and its ultrasound appearances allowing the reader to integrate this knowledge into clinical practice. Therefore, patients will receive a precise diagnosis which will contribute to a clear understanding endorsing improved decision making.

Summary of content

Illustrative examples of ultrasound cases at each stage of AEAS will be presented with recommendations of best practice including emphasis on enhancing the skills and knowledge required to make a confident diagnosis with practical recommendations for exploring standardised reporting across the field.

Salamanca, A., Gonzalez-Gomez, F., Padilla, M.C., Sabatel, R.M., Cámara, M. and Cuadros, J.L. (1992). Prenatal ultrasound semiography of anencephaly: sonographic-pathological correlations. Ultrasound in Obstetrics and Gynaecology, 2(2), pp.95–100. doi:https://doi.org/10.1046/j.1469-0705.1992.02020095.x.

Santana, E.F.M., Araujo Júnior, E., Tonni, G., Da Silva Costa, F. and Meagher, S. (2018). Acrania-exencephaly-anencephaly sequence phenotypic characterization using two- and three-dimensional ultrasound between 11 and 13 weeks and 6 days of gestation. Journal of Ultrasonography, 18(74), pp.240–246. doi:https://doi.org/10.15557/jou.2018.0035.
Szkodziak, P., Krzyżanowski, J., Krzyżanowski, A., Szkodziak, F., Woźniak, S., Czuczwar, P., Kwaśniewska, A. and Paszkowski, T. (2020). The role of the 'beret' sign and other markers in ultrasound diagnostic of the acrania–exencephaly–anencephaly sequence stages. Archives of Gynaecology and Obstetrics, 302(3), pp.619–628. doi:https://doi.org/10.1007/s00404-020-05650-y.

P098 Third year student peer review on academic's teaching practices to improve student feedback mechanisms, confidence and ability to understand constructive feedback

Mrs Emma Edwards[1], *Miss Jessica Roberts*[1]
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Background

Qualified Radiographers have a responsibility to supervise learners (HCPC., 2023). Radiographers are required to have high level feedback skills, and may be asked to provide feedback to students, peers and superiors (Thompson and Taylor., 2020). Third year students previously have expressed concerns that they lack skill and confidence in delivering constructive feedback that is impactful. Thus affecting their future practice and learning journeys of future students.

Purpose

We aim to develop a robust curriculum to future proof our graduates, successfully shaping radiography students with skills essential to clinical and educational development and essential characteristics to enable them to be future leaders in radiography. A pilot peer review element was added to educational leadership placement focusing on the skill of delivering constructive feedback. The sessional design constructed of three elements; online training, pre-review meeting and post-review professional discussion.

Summary

Initially students felt daunted at a "power" dynamic however, due to the scaffolding, support and training this was overcome once students had undertaken the placement. Students stated "they felt more prepared and confident to give constructive feedback to a range of people, including those in higher positions". The most surprising aspect was how students commented on their increased confidence and understanding of "how to ask for constructive feedback as part of their CDP" as early career Radiographers. This poster will highlight design, implementation and challenges found during this innovation.

Health Care Profession Council (2023). Health and care professions council - standards of proficiency – Radiographers. London: HCPC.
Thompson, A. and Taylor, D. (2020) Finding ways to support radiographers as teachers. Journal of Medical Radiation Sciences. 67 (3), 199-207.

P102 Optimising medical imaging requests: a novel educational platform based on iRefer guidelines

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Background

In the UK alone, approximately 45 million medical imaging examinations are requested each year, with annual increases being greater than 2% [1]. While a large proportion of these requests come from general practitioners and other medically qualified professionals, referrals by nurses, physiotherapists, occupational therapists, paramedics, and others are becoming more common.

Purpose

Each request must be justified to meet clinical needs, reduce risks, and optimise limited resources; thus the Royal College of Radiologists and the Royal Australian and New Zealand College of Radiologists emphasize the need for expert training for all referrers [2]. The current work describes a unique solution involving interactive vignettes based on iRefer guidelines, accessible 24/7 to any health professional, anywhere.

Content Summary

Built with HTML, PHP, JavaScript, and SQL, the platform is hosted on Azure cloud for global access. Real-life scenarios from iRefer guidelines allow participants to embark on an interactive journey. Patient details are provided, requiring responses on examination choice, 2D/3D image interpretation (full resolution with post-processing), clinical conditions, and further imaging. At each stage, users answer questions to progress, receiving immediate expert feedback. At the end, each user receives a score, a pass/fail award and the opportunity to repeat the exercise. This data feeds into platform analytics, which create personalised user portfolios that document details on completed activities and associated CPD points, supporting continuous learning by providing clear progress tracking and actionable feedback. This novel interactive solution should support referrers wherever they are so that imaging requests are optimized and patient outcomes assured.

1. NHS England (2023) Annual Statistical Release 2022-23, NHS England. Available at: https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2023/11/Annual-Statistical-Release-2022-23-PDF-1.3MB-1.pdf (Accessed: 5 November 2024).
2. The Royal College of Radiologists, The Society of Radiographers and Royal College of Nursing (2025). Good practice guidance for enabling equitable access to clinical imaging referrals for registered healthcare professionals working in advancing practice roles. [online] London: The Royal College of Radiologists. Available at: https://www.rcr.ac.uk/news-policy/latest-updates/good-practice-guidance-launched-for-enabling-equitable-access-to-clinical-imaging-referrals-for-registered-healthcare-professionals-working-in-advancing-practice-roles/ (Accessed: 31 January 2025].

P103 Exploring knowledge, attitudes, and practices toward sustainability in radiology and radiography: A comparative study across diverse settings

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Background
Sustainability in healthcare is increasingly recognized as a priority, yet its implementation varies across economic and resource contexts. Radiographers and radiologists play a crucial role in reducing the environmental impact of medical imaging. However, their knowledge, attitudes, and engagement in sustainable practices remain underexplored, particularly in diverse healthcare settings.
Objectives
To evaluate the knowledge, attitudes, and practices of radiographers and radiologists toward sustainability in healthcare, identify key barriers, and propose targeted strategies to enhance sustainable practices in medical imaging across diverse healthcare settings.
Methods
A cross-sectional survey was conducted among 441 radiographers and 111 radiologists from Asia and Africa between August and October 2024. The survey assessed participants' knowledge, attitudes, and practices (KAP) regarding sustainability, as well as perceived barriers and institutional support. Statistical analyses were performed to identify differences between professional groups and regional variations.
Results
Knowledge levels were moderate in both groups, with radiographers showing higher engagement in daily sustainable practices like digital documentation, while radiologists focused on waste reduction and resource efficiency. Common barriers included insufficient training, financial constraints, and limited institutional support. Radiographers were more likely to perceive a lack of institutional prioritization for sustainability. Gender and regional differences highlighted the need for context-sensitive interventions.
Conclusion
This study highlights the need for enhanced institutional support, targeted training, and policy development to foster sustainability in medical imaging. Addressing barriers through tailored strategies can improve the integration of sustainable practices in radiology and radiography, ultimately contributing to environmentally responsible healthcare systems.

Akudjedu, T. N., Toomey, R., & Precht, H. (2024). Sustainability in Radiography: Securing the future through greener clinical practice and education. In Radiography (Vol. 30, pp. 117–118). W.B. Saunders Ltd. https://doi.org/10.1016/j.radi.2024.08.013
Bwanga, O., Chinene, B., Mudadi, L., Kafwimbi, S., Nyawani, P., Matika, W., Mushosho, E. Y., Mutandiro, L., & Ohene-Botwe, B. (2024). Environmental sustainability in radiography in low-resource settings: A qualitative study of awareness, practices, and challenges among Zimbabwean and Zambian radiographers. Radiography, 30, 35–42. https://doi.org/10.1016/j.radi.2024.05.010
Chau, M. (2024). Enhancing safety culture in radiology: Key practices and recommendations for sustainable excellence. In Radiography (Vol. 30, pp. 9–16). W.B. Saunders Ltd. https://doi.org/10.1016/j.radi.2024.04.025
Chinene, B., Mudadi, L. S., & Mushosho, E. Y. (2024). Sustainability in radiography education: A case study of a tertiary institution in Zimbabwe. Radiography, 30, 23–29. https://doi.org/10.1016/j.radi.2024.04.018
Currie, G. M., Hawk, K. E., & Rohren, E. M. (2024). Challenges confronting sustainability in nuclear medicine practice. Radiography, 30, 1–8. https://doi.org/10.1016/j.radi.2024.04.026
Debnath, M., Ojha, S., Sharma, D. A., Shah, S., & Boora, N. (2024). Role of green and sustainable practices in shaping the future of medical imaging technology: A cross-sectional multi-stakeholder analysis among students, radiographers, and academic experts. Radiography, 30(5), 1332–1341. https://doi.org/10.1016/j.radi.2024.07.017

P104 Mastering MRI simulation: Bridging the gap between theory and practice

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Background

Training MRI healthcare professionals is often challenging, costly, and time-consuming due to limited availability of MRI scanners.

Method

An MRI Simulator was developed to enhance medical education and research. It mimics real MRI scanner functionality, including a graphical planning interface, and can produce diverse MR images by modeling tissue properties using anatomical models and the Bloch equations. The simulator generates realistic MR images, gradient sounds, and displays live k-space data, evolving MR images, sequence waveforms, and MR signals.

Results

The simulator successfully replicated real MRI scanner capabilities, generating T1-weighted, T2-weighted, and Proton Density weighted MR images. It mimicked signal intensity, contrast, image quality, and simulated GRAPPA under-sampling and artifacts. The simulator also simulated tissue lesions and offered an online MRI course with lectures, exercises, and tests. Trainees and students received the live MRI Physics display well, demonstrating the link between sequence waveforms and k-space data collection.

Conclusion

The MRI Simulator effectively generates a wide range of MR images similar to those from a real MRI scanner. It demonstrates the link between errors in k-space and image artifacts, allowing trainees to view the results of scan planning decisions instantly. The simulator, along with online courses, improves medical imaging training and enables comprehensive MRI technique studies without an actual MRI scanner.

Table

1. H.Benoit-Cattin, G.Collewet, B.Belaroussi, H.St-Jalmes, C.Odet. (2005) The SIMRI project: a versatile and interactive MRI simulator. JMR Volume 173, Issue 1, March 2005, Pages 97-115.
2. RB Lufkin, R. Keen, M. Rhodes, J. Quinn, W. Glenn, and W. Hanafee. MRI simulator for instruction in pulse-sequence selection. American Journal of Roentgenology 147, no. 1 (1986): 199–202. http://dx.doi.org/10.2214/ajr.147.1.199.
3. D. TreceñoFernández, J. Calabia-del-Campo, F. Matute-Teresa,M. L. Bote-Lorenzo, E. Gómez-Sánchez, R. de Luis-García, C. Alberola-López1. (2021) Magnetic Resonance Simulation in Education: Quantitative Evaluation of an Actual Class.
4. J Zhou 1, X Golay, P C van Zijl, M J Silvennoinen, R Kauppinen, J Pekar, M Kraut. Magn Reson Med . 2001 Aug;46(2):401-6. doi: 10.1002/mrm.1204. Inverse T(2) contrast at 1.5 Tesla between gray matter and white matter in the occipital lobe of normal adult human brain.

P105 Academic's experience of peer review from third year students; An equal safe learning environment for collobration

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Background

Radiographers are required to have exceptional feedback skills to provide feedback to students and colleagues (Thompson and Taylor, 2020). Academics and Radiographers are required to reflect and practice CPD to ensure their practice aligns with current standards (HCPC, 2023).

Purpose

Enlisting radiography students with skills essential to clinical and educational development, enabling them to be future educators in radiography is essential. A pilot peer review element was added to educational leadership placement focusing delivering constructive feedback. A surprising outcome of this pilot was the extent to which the student's feedback impacted academic's professional insights and development. Academics are required to regularly engage with reflective practice and peer review of their practice (Advance HE, 2023).

Summary

Initially academics were anxious at the potential "power" dynamic students may feel would prevent students from being honest in their feedback, and apprehensive about receiving constructive feedback from students. However, due to the scaffolding, support and training this was overcome once students had undertaken the peer-review. Student's comments were insightful and aided lecturers to shift their perspective to the student lens and experience of learning. Academics who took part in the peer review processes reflected on how they have changed their practice with regards to inclusivity. Academics felt a growth in confidence within their own role and it was rewarding to also see students' confidence grow when giving constructive feedback. This pilot reinforced the collaborative learning community between students and academics. This poster will highlight design, implementation and challenges discovered during this innovation.

Advance HE (2023). Professional Standards Framework for teaching and supporting learning in higher education 2023. York: Advance HE.
Health Care Profession Council (2023). Health and care professions council - standards of proficiency – Radiographers. London: HCPC.
Thompson, A. and Taylor, D. (2020) Finding ways to support radiographers as teachers. Journal of Medical Radiation Sciences. 67 (3), 199-207.

P106 The Australian experience: Advancing quality WIL with an authentic medical radiation science curriculum

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The academic curriculum for an Australian Medical Radiation program is designed to provide a solid foundation for medical radiation practice in the lead up to work-integrated learning (WIL). WIL is used to provide real-life clinical experiences to what has been taught academically. The WIL and academic learning and assessment requirements are both aligned with the capability standards developed by the Medical Radiation Practice Board of Australia (MRPBA) so the students have continuity in their learning. The medical radiation academic curriculum is designed to promote authentic learning experiences for students using x-ray simulation labs, cloud-based Computed Tomography and Magnetic Resonance Imaging software, Digital Subtraction Angiography workshops, and hands-on Ultrasound labs to bridge the gap between the academic curriculum and WIL. A robust academic curriculum comprised of lectures, tutorials, and authentic simulated experiences provides optimum preparation for students to embark on the WIL requirements as they consolidate their learning needs with real-life patient experiences building on what has been taught in the academic setting.

Purpose

-Explore the Australian method of academic curriculum design at an Australian University which produces best student outcomes.
-Explore the resources utilised in the Australian higher education program to enhance student preparedness for WIL.
-Explore how the academic curriculum, learning and teaching play a key role in student success.

Summary

A well-structured academic curriculum will allow students to gain more from the WIL experience as they shift their focus from the theoretical and technical aspects to application of these in the clinical environment and towards patient centred care.

P107 The Australian experience: Preparing medical radiation science students for the workforce

Karim Yacoub[1], Associate Professor Andrew Kilgour, Naomi Gibson, Mrs Victoria Hughes
[1]*RMIT University, Melbourne, Australia*

Australia was one of the first countries in the world to introduce degree programs for the training of Medical Radiation professionals. The change of program structure meant a transition from hospital- or clinic-based training to a clinical placement program, where students are rotated through a variety of clinical settings, where their capability is developed and assessed. In developing clinical programs, it was important that they were integrated and scaffolded with academic content, and that equitable opportunity for students was provided, considering that clinical experiences would differ across their academic journeys.

Australian medical radiation students' training, which qualifies them for general registration, is comprised of four years of undergraduate training within their chosen specialty of medical imaging, radiation therapy, or nuclear medicine. Throughout their program, students are prepared academically and undertake varying amounts of clinical placement, depending on the University they attend. Academic and clinical aspects of the program have commonalities and differences, and each has unique purposes and roles in producing well-rounded graduates.

Purpose

-Explore the relationship between the academic and clinical working environments to support student education.
-Understand the Australian tertiary education clinical placement structure and processes.
-Understand how students and educators are supported throughout clinical placement periods.

Summary of content

Summary: This presentation will shine a light on the Australian tertiary education clinical placement structure and processes: how clinical placements are engaged with the university, how clinical placement quality is monitored, and importantly, how students and educators are supported throughout clinical placement periods.

P109 Career aspirations of diagnostic radiography students: Results from the end of the first year of a longitudinal cohort study

Nicola Singh[1], Kayleigh Hizzett, Beverley Snaith
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Choosing a radiography career and speciality is a complex decision choice, one that can affect the future workforce of specialist areas within radiography.

It is already known experiences within undergraduate training are important within career choice (Hizzett and Snaith, 2022).

It is important to explore the perceptions of radiography students with regards potential career choice upon graduating to what steps can be taken in the educational setting to ensure that the perceived 'lower profile' modalities are not misrepresented.

A longitudinal study is currently being undertaken. First year UG students within one UK HEI are invited to complete an online survey at various points within their programme. Questions related to anticipated career choice, motivational factors, influences and clinical experiences are asked.

End of year 1 questionnaires analysed; comparison is made from the results from Entry point.

Response rate for end Yr 1 questionnaire was 38.9% (n=28).

Participants were asked to indicate current radiography career preferences, ranking each imaging modality 1-9 (1 - 1st preference, 9 - least preferred). There is an option for participants to answer 'do not know enough about this area'.

Analysing the data, focusing on rankings 1-3, the most preferred areas for career preference were CT (n=10; 35.7%) and MRI (n=9; 32.14%). These areas, along with Ultrasound scored the lowest for the 'do not know enough about this area'.

It is evident that HEI radiography programme delivery may have an influence on career decisions. The first year of the programme has a module dedicated to introducing Cross-Sectional Imaging.

Hizzett, K & Snaith B (2022); Career intentions, their influences and motivational factors in diagnostic radiography: A survey of undergraduate students; Radiography; Feb22 (1) 162-167
HCPC Standards of Proficiency for Radiographers (Revised 2023)

P110 Use of a pre-clinical imaging facility to teach BSc diagnostic radiography students

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Background

Our students learn science and technology of imaging modalities via classroom-based teaching; they then put this learning into context whilst on clinical placement. Timing of their modality placements are not necessarily well-timed with respect to corresponding classroom learning. Students find it challenging to grasp scientific concepts behind new modalities, where physics differs from X-ray imaging.

Purpose

To introduce more practical scientific learning, students attended a pre-clinical imaging research facility with micro scanners designed for small animals. They observed a CT, MRI and PET scanner, then completed a worksheet to consolidate their learning.

Summary of content

Students had the opportunity to ask questions about the facility, its purpose and how animals were treated; no students declared any ethical issue with attending the facility. Students were split into groups and spent 30 minutes at each station where phantom images were acquired. Each station was hosted by its own researcher who explained how the scanner worked and answered questions. Within the following week, students submitted worksheets and a short feedback questionnaire.

All the students reported a positive learning experience, stating the worksheets helped them differentiate the modalities. They enjoyed learning from the researchers, and found exposure to the facility to be interesting. A better understanding of MRI and PET were reported by 92% and 86% of students respectively, and all but one recommended it for future students. One reported “we were able to see intricate designs which helped our understanding as to what the function was and how it was performed.”

P111 The courtship of cadaveric and radiographic anatomy: A collaborative approach to radiographic anatomy teaching

Michelle Ellwood[1], *Mrs Tanya Chamberlain*[1], *Mrs Sarah East*[1]
[1]*University Of Leeds, Leeds, United Kingdom*

Human anatomy is a core component of the curriculum for healthcare and medicine degree and essential to patient diagnosis, treatment and management. Correlating 3D anatomy with 2D radiographic images can be a challenge for students (1).

A co-teaching partnership was formed between an anatomy and radiography lecturer to develop a workshop to help physician associate (PA) students consolidate their learning of cadaveric anatomy by linking it to radiographic anatomy. Presenting x-ray images side by side with cadavers has been documented to increase student interest and consolidate learning of anatomy (2,3)

The workshop consisted of six cases representing a range of thoracic anatomy and pathology, and artefacts such as cardiac pacemakers, sternotomy wires and breast implants. PA students were invited to identify radiographic anatomy, pathology and artefacts on the radiographic images.

Student feedback indicated they found it useful to have cadaveric remains that directly link to the anatomy as seen on radiographs. They also found it thought-provoking and relevant to real-life scenarios and reflected the working environment. The combination of theory and practice consolidated their anatomical knowledge and its relevance to their clinical practice. They asked for opportunities for more similar workshops to be developed.

Further workshops are being developed to support teaching in other programmes including diagnostic radiography.

1. Wilson et al. (2018). Cost-Effective Teaching of Radiology with Preclinical Anatomy. Anat Sci Educ. 11:196-206.
2. Murphy et al. (2015) Medical Student Perceptions of Radiology Use in Anatomy Teaching. Anatomical Sciences Education. 8, 510-517.
3. Grigno B, Oldrini G and Walter F. (2015) Teaching medical anatomy: what is the role of imaging today? Surg Radiol Anat. 38:253-260

P113 The Australian perspective: Empowering medical radiation science students for best WIL outcomes

Karim Yacoub[1], *Mrs Victoria Hughes*, *Naomi Gibson*
[1]*RMIT University, Melbourne, Australia*

The discipline of medical radiation consists of three streams: medical imaging, radiation therapy, and nuclear medicine. All enrolled students at our Australian tertiary education setting complete 51 weeks of work-integrated learning as part of their 4-year program. Quality student WIL experiences are pivotal for best student learning outcomes and ultimately, patient care. To achieve this, academics and clinical educators work collaboratively to ensure students not only have quality experiences but to ensure they are supported throughout their clinical placement. These initiatives put in place also fulfil the Medical Radiation Practice Board of Australia (MRPBA) program accreditation requirements.

Purpose

- Understand how students are supported in the WIL space by academics in Australia.
- Understand how clinical educators and supervisors are supported in the WIL space.
- Explore innovative strategies initiated to support students and educators whilst addressing accreditation conditions..

Summary

In this presentation, best practice in preparing students for clinical placement. The clinical site visitation program initiated by academic staff to not only support students but also to connect and support clinical educators with the im to enhance the student WIL experience profile is a vital part of the strategies employed. These strategies have proven to not only achieve quality student experiences, but students feel empowered and supported as they embark on public, private, metropolitan, interstate, and regional/rural clinical placements. This enhances the student WIL experience and allows the student's development into a well-rounded medical radiation practitioner upon graduation.

P114 Imaging tests for memory impairment

Dr Sadia Salam[1], *Dr Vineet Pant*[1], *Dr Faisal Naeem*[1], *Dr Amrith Chamnan*[1], *Dr Lauren Yeung*[1], *Prof Sobhan Vinjamuri*[1]
[1]*Royal Liverpool University Hospital, Liverpool , United Kingdom*

Memory impairment could be due to early Alzheimers dementia (AD), Fronto-temporal dementia, Lewy-Body dementia or other non-dementing aetiologies such as Depression. After clinical review, selected patients can undergo a range of tests including Tc99m-HMPAO SPECT, FDG-Brain PET, I123-DaTScan and 18F-Amyloid scans. These tests can be used in sequence to answer the clinical question more accurately.

After initial CT / MRI to exclude a tumour or a stroke, the next imaging test depends on the predominant symptoms and local availability. DaT scan would be the first choice of test if the patient has cognitive impairment along with visual hallucinations and /or other Parkinsonian features. If the patient has cognitive impairment with sequential memory impairment, vascular dementia can be suspected and either a Tc99m-HMPAO SPECT or a Brain-FDG PET scan can be conducted. If there is clinical suspicion of AD, an Amyloid scan is more definitive for the diagnosis. However, due to the difficulty in accessing amyloid tracers either an initial Tc99m-HMPAO or an FDG-PET-CT can be considered first. Due to the high negative predictive value of these tests, Amyloid scanning can be reserved for complex patients and those deemed to have Young Onset Dementia.

In conclusion, there are a range of brain imaging tests that can be used in the setting of cognitive impairment. These can be used in sequence if required, thereby enabling the more efficient use of scant resources and reserving more complex and logistically difficult tests for those with the biggest need.

P115 The revised HCPC standards of proficiency 1 year on, impacts upon pre-registration learning in practice

Sue McAnulla[1], *Mrs Jenny Shepherd*[1]
[1]*University Of Exeter, Exeter, United Kingdom*

Background

The Health and Care Professions Council (HCPC) Standards of Proficiency (SoP) for radiographers changed on the 1st September 2023 introducing a greater emphasis on cross-sectional imaging skills (HCPC, 2023). As all prospective registrants need to demonstrate they meet these SoPs, this placed a requirement on education providers to ensure their clinical placement provision includes the updated range of clinical experience.

Purpose

The purpose of this poster is to share our initial reflections on the management of this transition for our diagnostic radiography learners (both undergraduate students and pre-registration learners).

Summary of content

The poster will briefly summarise the key differences between the previous and current SoPs for diagnostic radiographers and consider how there is flexibility within the wording which can be utilised by clinical departments.

We will then reflect on our experiences of working with clinical colleagues in terms of managing this transition; identifying successes and challenges in implementing the new SoPs, such as providing a generic protocol for performing MRI and discussions about the changes to support required from cross-sectional imaging teams.

We will also share our main learning point; namely the need to ensure clarity in relation to the purpose of the Standards of Proficiency, that proficiency is not the same as competency, and that the aim is for a pre-registration learner to be able to perform the clinical examination or skill safely, under supervision.
The poster will conclude by describing how diagnostic radiographers now qualify with a broader clinical skill set for performing diagnostic imaging examinations.

https://www.hcpc-uk.co.uk/globalassets/standards/standards-of-proficiency/reviewing/radiographers---new-standards.pdf (accessed 28th November 2024)

P116 A comparison of transvaginal ultrasound and magnetic resonance imaging in the accuracy of myometrial invasion assessment in endometrial carcinoma across all women: a systematic review

Ms Rachel Hanna[1], *Dr Stuart Mackay*[1]
[1]*University Of Liverpool, Liverpool , United Kingdom*

Background
According to the National Health and Care Excellence (NICE) guidelines, the initial investigation of Endometrial cancer (EC) should be carried out using transvaginal ultrasound. However, recent literature suggests that MRI provides superior diagnostic accuracy in assessing myometrial invasion, a key factor in staging and guiding surgical management. This study aims to compare the diagnostic accuracy of TVUS and MRI in detecting myometrial invasion in EC to determine the most effective imaging modality.
Method
The aim is to compare the diagnostic accuracy of MRI and TVUS in detecting myometrial invasion in women with endometrial carcinoma. Sensitivity and specificity were considered when evaluating each modality. A narrative review methodology was used. Literature was obtained from Scopus, MEDLINE and Web of Science databases using relevant search terms. Sources were further filtered for eligibility with the CASP tool. Only literature that followed predetermined eligibility criteria were included in the study. 375 papers were harvested from the databases with 11 papers used in the review following filtering.
Results
This study challenged the NICE guidelines and found that MRI is likely to have a higher diagnostic accuracy in assessing myometrial invasion. Evidence suggested that MRI's sensitivity and specificity values lie within 73-89.6% and 81.2-89.6% respectively whereas, TVUS's sensitivity and specificity values are likely to lie within 65.6-77% and 80.3-88% respectively.
Conclusion
These results highlight MRI's potential to reduce diagnostic errors and improve treatment planning for patients with endometrial cancer. Further research is suggested in MRI to confirm these findings.

P117 The role of ultrasound in the antenatal diagnosis of ventricular septal defect

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Background
Heart defects are identified as the most prevalent of all congenital anomalies with ventricular septal defect being the most common diagnosis both antenatally and within the first year of life (Wang 2023).
Research has identified that aetiology of intraventricular septal defect is multifactorial with increased prevalence positively correlated to significant improvements in healthcare. However, most congenital heart defects occur in low risk pregnancies without either maternal or fetal risk factors suggesting diagnosis is heavily reliant on cardiac anomaly screening during routine obstetric ultrasound examination (Shan et al., 2022).
Purpose
The purpose of this poster is to share examples of normal cardiac views along with those demonstrating ventricular septal defects with the aim of educating sonographers and equipping them with skills and knowledge to take forward into their practice.
Summary of content
The poster presentation will include evaluation of ultrasound as a chosen modality in detecting ventricular septal defect. The use of grey scale and Doppler ultrasound will be explored and differentials discussed.

1. Shan, W., Yuanqing, X., Jing, Z., Xi, W., Huifeng, G., Yi, W., (2022) 'Risk factor analysis for adverse prognosis of the fetal ventricular septal defect (VSD)' BMC Pregnancy and Childbirth (23) p638
2. Wang, Y., Li, R., Fu, F., Huang, R., Li, D., Liao, C., (2023) 'Prenatal genetic diagnosis associated with fetal ventricular septal defect: An assessment based on chromosomal microarray analysis and exome sequencing' Frontiers in Genetics 24 (14)

P119 The effect of gestational age on the texture and shape of placental MRI

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[1]School of Mechanical, Aerospace and Civil Engineering, University Of Sheffield, Sheffield, UK, [2]Department of Clinical Sciences, University of Sheffield, Sheffield, UK

Background

Successful radiologic diagnosis of impaired placental function is challenging, and dependent on operator experience. Quantitative texture and shape analysis of placental MRI has been proposed to aid this. However, there is limited research of the effect of gestational age (GA) in normal pregnancy, despite the visual increase in heterogeneity on MRI. Therefore, the aim of this study is to establish any correlation between texture and shape features and GA in the second and third trimesters.

Method

Thirty-nine MRI scans from 28 healthy pregnancies (19-36 weeks GA) were manually segmented. A total of 2525 texture and shape features were extracted from each MRI using Pyradiomics (van Griethuysen et al., 2017). Spearman's rank correlation coefficient (ρ) was used to identify any monotonic relationships between the features and GA.

Results

Twelve texture and 4 shape based features exhibited a strong correlation with GA (ρ>0.8); Gray level non-uniformity (GLNU) exhibited the highest ρ (0.85). An increasing GLNU indicates that the distribution of grey levels within the image is increasing in heterogeneity, likely due to increased oxygenation and vascularisation to accommodate the growing foetus. Voxel volume, mesh volume and surface area exhibited the highest ρ of any shape features (0.83), further supporting the growth of the placenta throughout gestation.

Conclusion

The results indicate that some texture and shape features demonstrate a strong correlation with GA. Future work will involve quantifying the relationship of these features with GA, so that shape and texture features indicating placental dysfunction can be identified independently of GA.

1. van Griethuysen, J. J. M et al. (2017) 'Computational Radiomics System to Decode the Radiographic Phenotype', Cancer Res., 77(21), e104-e107.

P120 An evaluation of the diagnostic performance of MRI compared to transvaginal ultrasound in diagnosing deep infiltrative endometriosis of the rectum

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Aims

The UK currently has an 8-year delay in the diagnoses of deep infiltrative endometriosis due to the dismissal of symptoms. The prevalence of endometriosis in women undergoing infertility is up to 50%. With there being no current gold standard for imaging deep infiltrative endometriosis, MRI and transvaginal ultrasound are seen as considerable methods to aid in diagnosis. This review explores the diagnostic accuracy of MRI and transvaginal ultrasound in diagnosing deep infiltrative endometriosis. A comparison of their diagnostic accuracies will allow for appropriate imaging of rectosigmoid endometriosis and assist in reducing the delay of diagnosis.

Method

A PICO framework was established and databases such as Medline, PubMed and Google Scholar were searched to extract papers which were later screened through the PRISMA flow diagram with a set inclusion and exclusion criteria. A CASP tool was used to assess quality of the studies. Data was extracted from the appropriate studies and recorded in a table. A statistical software "MedCalc" was used to extract confidence intervals for values of sensitivity and specificity.

Results

Three appropriate studies were selected, and forest plots were formed from the data in the created un-pooled tables. The results demonstrated that transvaginal ultrasound had higher sensitivity and specificity values overall compared to MRI. However, an outlier was noted for one study.

Conclusion

Transvaginal ultrasound had a better overall diagnostic accuracy compared to MRI in diagnosing rectosigmoid endometriosis. However, study limitations were noted that could introduce a risk of bias in the results.

Tables and Figures

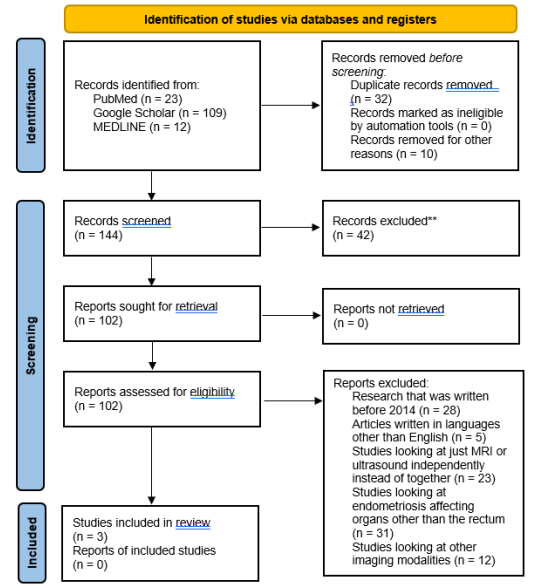
Key words and the Boolean search operators used to conduct the literature search:

Database used	Key words used with Boolean operators
PubMed MedLine Google Scholar	"diagnostic accuracy" OR "accuracy" AND "MRI" AND "ultrasound" OR "transvaginal ultrasound" OR "imaging" AND "rectosigmoid endometriosis" OR "endometriosis affecting the rectum" OR "endometrial abnormalities in the rectum" OR "rectosigmoid endometriosis abnormalities" OR "deep infiltrative endometriosis in the rectum".

The selected eligibility criteria:

Inclusion criteria	Exclusion criteria
Studies comparing transvaginal ultrasound with MRI	Studies looking at only MRI or only transvaginal ultrasound
Studies looking at endometriosis affecting the rectum	Studies looking at endometriosis affecting other organs not including the rectum
Articles that contain primary or secondary research	Articles that were written and published in all other languages than English
Articles that were written and published in English	Studies discussing the diagnostic accuracy of other imaging modalities
Studies discussing the diagnostic accuracy of MRI and transvaginal ultrasound together	Papers dated before 2014
Papers published in 2014 or after	

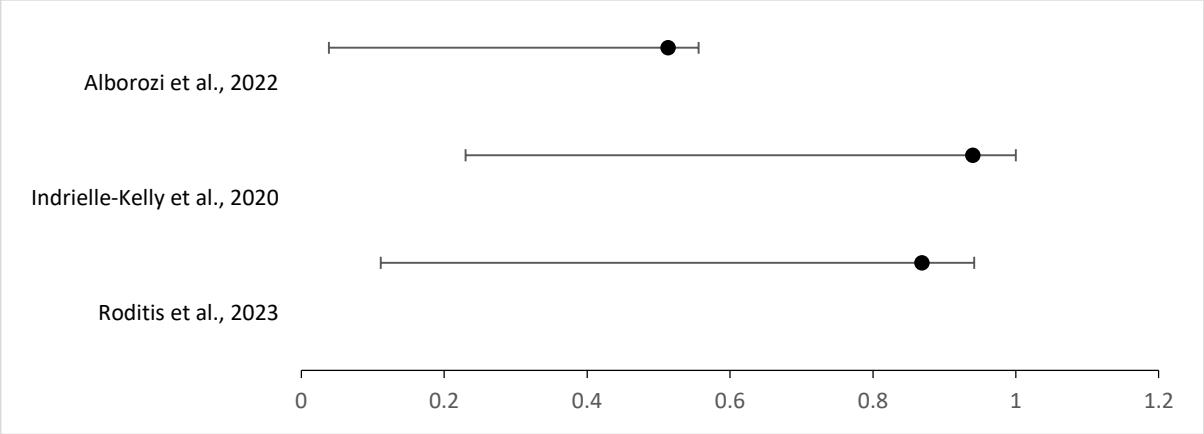
PRISMA flow diagram:



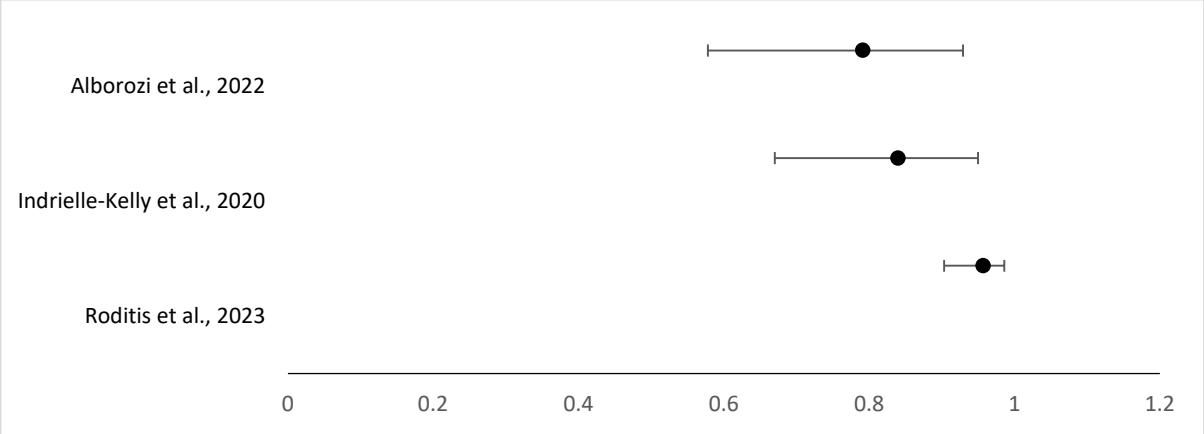
Data extraction table:

Study number, study type, study authors and publication year	Sample size of the study	Sensitivity of MRI (95% Confidence Interval)	Specificity of MRI (95% Confidence Interval)	Sensitivity of transvaginal ultrasound (95% Confidence Interval)	Specificity of transvaginal ultrasound (95% Confidence Interval)
Study 1, Retrospective Cohort Study, Roditis et al., 2023	61	0.869 (0.758 – 0.942)	0.957 (0.903 – 0.986)	0.836 (0.719 – 0.919)	0.932 (0.870 – 0.970)
Study 2, Prospective Observational Cohort Study, Indrielle-Kelly et al., 2020	49	0.94 (0.71 – 1.0)	0.84 (0.67 – 0.95)	0.94 (0.71 – 1.0)	0.84 (0.67 – 0.95)
Study 3, Cross-sectional Study, Alborozi et al., 2022	555	0.5137 (0.4751 – 0.556)	0.7917 (0.578 – 0.929)	0.6955 (0.654 – 0.734)	0.9130 (0.72 – 0.989)

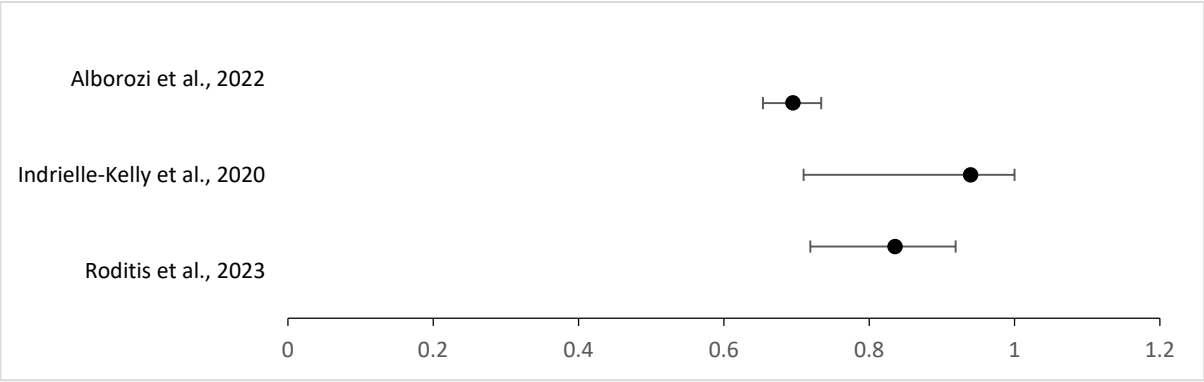
MRI results of un-pooled sensitivity values:



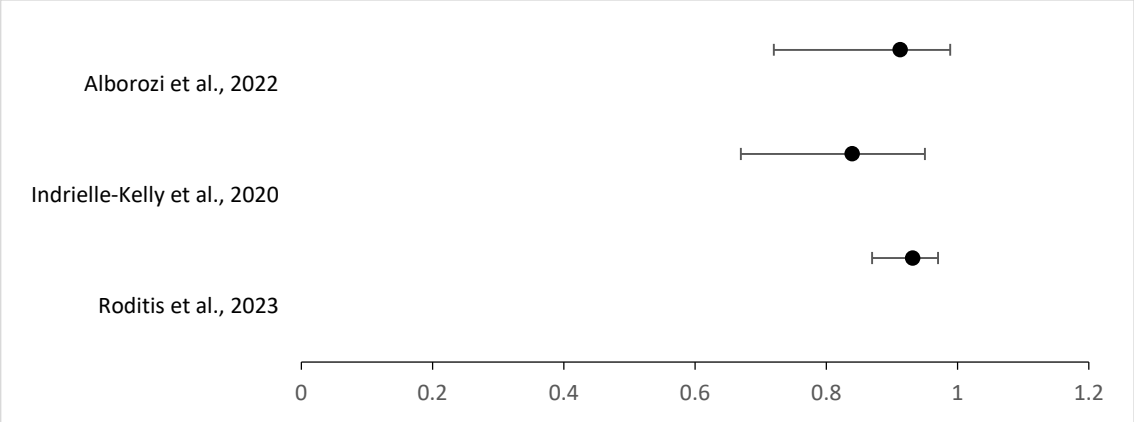
MRI results of un-pooled specificity values:



Transvaginal ultrasound results of un-pooled sensitivity values:



Transvaginal ultrasound results of un-pooled specificity values:



Abrão, M.S., Petraglia, F., Falcone, T., Keckstein, J., Osuga, Y. and Chapron, C. (2015) Deep endometriosis infiltrating the recto-sigmoid: critical factors to consider before management. Human Reproduction Update. 21(3), pp.329–339.
D'Alterio, M.N., D'Ancona, G., Raslan, M., Tinelli, R., Daniilidis, A. and Angioni, S. (2021) Management Challenges of Deep Infiltrating Endometriosis. International Journal of Fertility & Sterility. 15(2), pp.88–94.
Foti, P.V., Farina, R., Palmucci, S., Vizzini, I.A.A., Libertini, N., Coronella, M., Spadola, S., Caltabiano, R., Iraci, M., Basile, A., Milone, P., Cianci, A. and Ettorre, G.C. (2018) Endometriosis: clinical features, MR imaging findings and pathologic correlation. Insights into Imaging. 9(2), pp.149–172.
Long, H.A., French, D.P. and Brdataooks, J.M. (2020) Optimising the Value of the Critical Appraisal Skills Programme (CASP) Tool for Quality Appraisal in Qualitative Evidence Synthesis. Research Methods in Medicine & Health Sciences. 1(1), pp.31–42.
Martire, F.G., Russo, C., Selntigia, A., Nocita, E., Soreca, G., Lazzeri, L., Zupi, E. and Exacoustos, C. (2022) Early non-invasive diagnosis of endometriosis: dysmenorrhea and specific ultrasound findings are important indicators in young women. Fertility and Sterility. 119(3).
Monaghan, T.F., Rahman, S.N., Agudelo, C.W., Wein, A.J., Lazar, J.M., Everaert, K. and Dmochowski, R.R. (2021) Foundational Statistical Principles in Medical Research: Sensitivity, Specificity, Positive Predictive Value, and Negative Predictive Value. Medicina. 57(5), p.503.
Yin, S., Lin, Q., Xu, F., Xu, J. and Zhang, Y. (2020) Diagnosis of Deep Infiltrating Endometriosis Using Transvaginal Ultrasonography. Frontiers in Medicine. 7.

P121 Malignant transformation of mature cystic ovarian teratoma: A pictorial review of pertinent imaging findings

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Background

Mature cystic ovarian teratoma (MCOT) is the most common type of ovarian germ cell tumour and a benign entity. More than 80% of cases present during reproductive period, typically around the age of 30 years. Malignant transformation is a rare complication of MCOT that occurs in only 1–4% of cases, usually in postmenopausal women. The majority of malignant transformations are histologically squamous cell carcinoma, however they can also be adenocarcinoma, carcinoid tumour, melanoma, and rarely sarcoma [1,2]. Unfortunately, due to non-specific symptoms at presentation as well as the low incidence of malignant transformation patients are diagnosed with advanced disease resulting in poor outcomes. We have described a case of mature cystic teratoma with malignant transformation.

Purpose

The purpose of this poster is to review a case of rare malignant transformation of a mature cystic ovarian teratoma and the pertinent findings on multimodality imaging.

Summary of content

This 'e- poster' will chronologically follow the case of a 34-year-old female who was found to have malignant transformation of a mature cystic ovarian teratoma. We will review cross sectional imaging findings from MRI's, CT's, nuclear medicine studies and interventional radiology procedures during the course of diagnosis and ongoing management. We will carefully evaluate the imaging findings from each modality, including secondary complications from malignant transformation and how to identify them. This e-poster will act as an imaging primer for radiologists of all grades to equip them with the knowledge to detect the disease earlier and improve patient outcomes.

Chen R-J, Chen K-Y, Chang T-C, Sheu B-C, Chow S-N, Huang S-C. (2008) Prognosis and treatment of squamous cell carcinoma from a mature cystic teratoma of the ovary. Journal of the Formosan Medical Association 107(11):857–68
reports
Tehranian A, Ghahghaei-Nezamabadi A et al (2021) Ovarian mature cystic teratoma with malignant transformation: two case reports. Journal of Medical Case Reports 15, 23

P122 MRI in treatment position for vulval radiotherapy: Implementing the RCR recommendations into clinical practice

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Background

Contouring soft tissue targets for radiotherapy in gynaecological malignancies, particularly vulval cancer, can be challenging on CT planning scans. Inadequate definition of these targets may result in larger GTV/CTV margins and increased dose to organs at risk. This pilot project aimed to evaluate whether MRI in the radiotherapy planning position would be feasible and improve soft tissue target delineation.

Purpose

The RCR Vulval Radiotherapy Expert Panel (2024) identified CTV landmarks for target delineation. MRI fusion with CT for radiotherapy planning for inoperable vulval cancer and/or nodal disease could assist in the identification of soft tissue GTVs and relevant CTV landmarks. Additionally, for post-operative adjuvant treatment, MRI may help detect scars at the primary tumor and lymph node dissection sites informing dose delivery to involved nodal beds. This pilot investigated the potential of MRI to improve target delineation and treatment planning in vulval cancer.

Summary of content
Three patients participated in the pilot—one with inoperable vulval cancer and two in the adjuvant setting. A multidisciplinary team, including radiologists, oncologists, medical physicists, diagnostic and therapeutic radiographers collaboratively developed tailored MRI protocols and streamlined the pathway. Challenges such as positioning, bolus, logistics and blad
der filling were addressed. Feedback from patients and the multidisciplinary team contributed to refining the process. The outcomes may lead to the expansion of this approach to other gynaecological sites, such as the cervix, enhancing treatment precision.

P123 Protecting the pregnant- examining the utility of Computed Tomography Pulmonary Angiography (CTPA) in pregnancy

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Background
Pulmonary embolism (PE) in pregnancy is a life-threatening condition, occurring at a rate of 1.3 per 10,000 pregnancies. Diagnosing PE is challenging due to overlapping symptoms, such as leg swelling and breathlessness, common in pregnancy.
CTPA and ventilation-perfusion (VQ) scans are the primary diagnostic tools, with CTPA often preferred despite a considerable proportion yielding non-diagnostic results. This study assessed departmental CTPA utilisation, focusing on diagnostic accuracy, radiation exposure, and clinical data quality.
Method
100 patients, spanning all trimesters and including both inpatients and emergency department (ED) attendances, were retrospectively evaluated between January 2024 and May 2022. Patient demographics, clinical details, and outcomes were reviewed. Diagnostic quality was assessed by measuring Hounsfield units (HU) in the pulmonary trunk, documenting breathing artefacts, and comparing radiation doses to national standards.
Results
4 patients were confirmed to have PE. No statistically significant correlation was found between PE occurrence and trimester, or non-diagnostic scans. Breathing artefacts were observed in 45 patients, and 51 scans had quality issues, with 25 reported as non-diagnostic. 27 patients had pulmonary trunk opacification below the Trust benchmark of 250 HU, with a median HU of 315 observed in the remaining patients. Clinical information prior to chest X-ray was absent in 20 cases.
Conclusion
Pregnancy-specific imaging protocols that minimises any patient radiation exposure are currently being discussed with ED. Scanning parameters have been modified to improve pulmonary trunk opacification and improved patient information leaflets to support informed decision-making have been designed.

1. Astani, S.A., Davis, L.C., Harkness, B.A., Supanich, M.P. and Dalal, I. (2014). Detection of pulmonary embolism during pregnancy. Nuclear Medicine Communications, 35(7), pp.704–711. doi:https://doi.org/10.1097/mnm.0000000000000114.
2. Ehrlich, R. and Löwe, S. (2023). An audit of CTPA and V/Q scan for investigation of pulmonary embolism in pregnancy. Obstetric Medicine. doi:https://doi.org/10.1177/1753495x231197563.
3. Hogan, S., Greene, J. and Flemming, J. (2019). Rate of Nondiagnostic Computerized Tomography Pulmonary Angiograms (CTPAs) Performed for the Diagnosis of Pulmonary Embolism in Pregnant and Immediately Postpartum Patients. Obstetrics and Gynecology International, 2019, pp.1–5. doi:https://doi.org/10.1155/2019/1432759.

P124 Fostering support and safety in antenatal ultrasound imaging: Addressing challenges for sonographers and support staff

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The antenatal care (ANC) department faces significant challenges in balancing patient preferences, cultural sensitivities, and staff well-being. Sonographers and support staff, particularly in obstetric imaging, often experience conflicts resulting from unmet expectations and misunderstandings. This issue is critical to diagnostic imaging as it impacts workforce safety, morale, and effectiveness, ultimately compromising patient care.
This poster provides actionable insights into addressing workplace challenges in ANC ultrasound imaging. Learning outcomes include strategies to enhance staff support, reduce aggression in clinical settings, and create a more inclusive and equitable environment.
The poster highlights the rising trend of violence and aggression against staff, with Trust figures showing incidents increasing from 36 in January 2021 to 75 in January 2024. The NHS Staff Survey reveals that 14.5% of the workforce has experienced violence and aggression from those they care for. Previously, the belief that “the patient is always right” discouraged sonography teams from reporting incidents, leading to low morale, reluctance to work in obstetric departments, strained staff interactions, and male staff feeling degraded and unworthy. Data collected via staff questionnaires, pre and post interventions.

Interventions include enhanced communication with patients, bespoke staff training in emotional intelligence and conflict resolution, and physical safety measures such as body cameras, panic alarms, and CCTV. Current and future efforts involve engaging community leaders, creating educational videos, and improving communication during booking processes. By addressing these challenges, the department aims to restore morale, foster inclusivity, and ensure a safer, more supportive environment for staff and patients alike.

P125 Antenatal clinic DNA audit: Trends, impact, and recommendations at King George Hospital (BHRUT NHS Trust) – April to September 2024

John Ndugga[1], Trainee sonographer Aarany Thurairetnam[1], Rakhee Jagatia[1]
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King George Hospital is one of two main sites within Barking, Havering, and Redbridge University Hospitals NHS Trust. Missed appointments (DNAs) cause delays in diagnosis and treatment, impact waiting lists, resulting in financial losses. DNA rate across NHS England is 6.7%, costing approximately £672 million annually, with 650,000 slots lost monthly. This audit aims to quantify DNAs, identify factors influencing attendance and provide recommendations for improvement. Understanding impact of DNAs is one stride in formulating strategies to enhance patient compliance and optimize resource use.

A DNA was defined as a patient who failed to attend or arrived too late to be accommodated. Appointments were scheduled via post and the Patient Knows Best app. Data was collected using Aptvision RIS, Qlik Sense and direct contact by the booking team and ANC department.

Findings from this first DNA audit showed a DNA rate of 10% (April 2022 – September 2023). Appointment volume increased by 5.5% (2022–2024), while DNAs rose by 3.8%. Growth scans had the highest DNA rate (27%), with key reasons being care changes and failed contact attempts. The 20–30 age group accounted for 53% of DNAs, peaking in May (23%).

Recommendations

- telephone reminders for all appointments.
- Regularly update patient contact details.
- Minimise time between booking and examination.
- Follow-up audit in two years.

Limited resources impact contacting patients for appointment confirmation and service efficiency.

(1) Martin SJ, Bassi S, Dunbar-Rees R (2012) Commitments, norms and custard creams - a social influence approach to reducing did not attends (DNAs). J R Soc Med 105, 3, 101-10. CrossRefPubMed.
(2) National Institutes of Health (NIH.gov). The power of digital communications: improving outpatient attendances in south London.
(3) NHS England, Reducing did not attends (DNAs) in outpatient services guidance,
(4) Northumberland, Tyne and Wear NHS Foundation Trust NTW(C)06 - Non Attendance (Did not Attend Policy) –- V04-Sep17.
(5) Reducing missed appointments by making healthcare more accessible, Cheshire and Mersey side NHS trust
(6) Office for National Statistics (2012) 2011 Census: key statistics for local authorities in England Wales, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/2011censuskeystatisticsforlocalauthoritiesinenglandandwales (accessed 2 Nov 2020).
(7) Tom Margham, Crystal Williams, Jack Steadman and Sally Hull.British Journal of General Practice 2021; 71 (702): e31Reducing missed appointments in general practice: evaluation of a quality improvement programme in East London -e38. DOI: https://doi.org/10.3399/bjgp20X713909.

P126 Exploring pre-operative imaging pathways in a patient cohort with primary hyperparathyroidism

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Background

Preoperative imaging is a prerequisite for minimally invasive parathyroidectomy (MIP) in patients with primary hyperparathyroidism (pHPT). Options for imaging typically include ultrasound (US), nuclear medicine sestamibi (MIBI) scanning, and computed tomography (CT). The NICE guidelines (NICE, 2019) recommend a stepwise approach, US first, with MIBI performed only if it will further inform the surgical approach. This study explores real-world imaging pathways, assessing the number and combination of scans performed before parathyroid surgery for pHPT.

Methods

Retrospective cohort study (n=112, M:30 F:82 (mean age:62 years)) with biochemically confirmed pHPT who underwent parathyroidectomy at a single institution. Data collected included preoperative imaging records, pre and postoperative calcium levels, and the dates of surgery. **Results**: Fifty-seven patients (51% of the total cohort) underwent one imaging modality before surgery (MIBI in 55 (96%)). Forty-eight patients (43%) underwent two imaging scans, with 33 (69%) receiving MIBI and US, and 15 (31%) having MIBI and CT. The remaining seven patients (6%) underwent three imaging

scans, including six (86%) who had MIBI, CT, and US. Primary surgery achieved biochemical cure (consistently normal calcium post-operatively) in 105 (94%) patients, with 7 (6%) requiring a second surgery to achieve cure.

Conclusion

These data demonstrate that a pragmatic and flexible approach to parathyroid adenoma detection with conventional imaging (Sestamibi, CT, and USS) yields a high-level of surgical success. Notably, MIBI was used alone in nearly half of the cases, but this may in part be due to COVID-19. Further research is needed to define the optimal, cost-effective imaging pathway

National Institute for Health and Care Excellence (NICE) (2019) Hyperparathyroidism (primary): diagnosis, assessment and initial management (NG132). Available at: https://www.nice.org.uk/guidance/ng132 (Accessed: 10 February 2025).

P128 Graves' disease or multi-nodular goitre as a cause for hyperthyroidism: Role of the isotope thyroid scan

Dr Amrith Chamnan[1], Dr Vineet Pant, Dr Faisal Naeem, Dr Sadia Salam, Dr Lauren Yeung, Prof Sobhan Vinjamuri
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Hyperthyroidism could be due to Graves' disease or multi or toxic nodular goitre. The diagnosis is based on clinical, biochemical and imaging tests. Diagnostic challenges are frequent, and a comprehensive approach is essential for accurate characterisation including the use of isotope thyroid scans.

We conducted a retrospective study on 328 patients who were referred for a Tc-99m thyroid scan at the Royal Liverpool University Hospital between January 2022 and March 2023. (Age range 19 to 92, M:F 90:238), clinical impression on initial referral and post-pertechnetate thyroid scan findings were tabulated and analyzed.

Of the 328 patients, 132 were referred with possible Graves' disease, 105 with possible MNG and 91 were indistinctive, merely mentioning hyperthyroidism without attributing a cause. In 220 / 237 patients, the initial clinical impression matched the post-scan findings. In 17 patients the initial clinical impression did not concur with the post-scan findings (10 patients had Graves', 3 MNG pattern, 2 thyroiditis and 2 normal, different to initial impression). In the noncommittal 91 hyperthyroid patients, the majority had MNG (45), Graves' (37), normal (5) and thyroiditis (4).

In summary, we have confirmed the clinical value of isotope thyroid scans in the diagnostic evaluation of hyperthyroidism. Although the initial clinical impression of the aetiology of hyperthyroidism is frequently accurate, this may need to be revised in a small proportion of patients after the scan, and this may influence treatment options, such as medication, surgery, or radioiodine therapy, as well as the appropriate dosage of radioiodine when applicable.

P129 Brain metastasis in primary bone tumours

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Introduction
Brain metastasis, while a rare complication, has significant difficulties in treatment and a poor prognosis. This study presents the largest case series of primary bone tumours that have metastasised to the brain, looking at incidence, histology, and prognosis.
Methods
A retrospective study was conducted at our tertiary orthopaedic oncology unit utilising our radiology and oncology databases reviewing cases over a 28-year period, identifying primary bone tumours that had led to brain metastases.
Results
From our database, we looked at 3175 patients with bone sarcomas over a 28-year period, of which 12 were identified as having brain metastases either diagnosed with brain biopsy or confirmed on clinical letters. 6 of these were Ewing Sarcomas, 5 were osteosarcomas, and 1 chondrosarcoma was identified.
Conclusion
Our findings present a number of primary bone tumours with brain metastases, with Ewing Sarcomas being the most prevalent, followed by osteosarcomas and chondrosarcoma.

P131 Comparison of the cerebrovascular response produced by a sinusoidal respiratory protocol vs a block respiratory protocol in healthy participants, measured using MRI

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***Background**: Cerebrovascular reactivity (CVR) is the change in cerebral blood flow following CO2 exposure. A CVR test could predict and assess the risk of neurological conditions which present with impaired CVR [2]. The outcomes of this study were to investigate whether the CVR magnitude and timing was equivalent between a sinusoidal CO2 respiratory protocol and a block CO2 respiratory protocol and to investigate intra-regional CVR variations.*
Methods: Data was analysed from a study utilising blood oxygen level dependent MRI to measure each protocol's CVR delay/amplitude [1]. It used balanced sex sampling to select 10 consenting, healthy, blinded, volunteers who used a prospective end-tidal gas targeting system. The data was analysed using Quantiphyse to create a delay/amplitude integrated grey matter map. R, R2, T test and Bland Altmann (BA) statistics compared the protocols.
Results: 10 subjects were analysed for amplitude, 9 for delay. Amplitude was greatest in the parietal lobe and smallest in the caudate for both protocols. For amplitude R=0.71, R2=0.51, T test=0.00000000078 ($P < 0.05$, CI: 0.069 to 0.125), BA analysis showed disagreement between the protocols with -0.096 %/mm Hg bias. Delay was greatest in the thalamus and smallest in the frontal lobe/putamen for both protocols. For delay R=0.51, R2=0.26, T test=0. 0.00000004 ($P < 0.05$, CI: -1.040 to -0.521), BA analysis showed disagreement between the protocols with -0.782 second bias.
Conclusion: CVR delay and amplitude vary between regions, the clinical implications of this requires research. The block and Sinusoid protocols are not equivalent for CVR amplitude or delay.

1. Blockley, N. P., Harkin, J. W., & Bulte, D. P. (2017). Rapid cerebrovascular reactivity mapping: Enabling vascular reactivity information to be routinely acquired. NeuroImage, 159, 214-223.
2. Goode, S. D, Krishan, S., Alexakis, C, Mahjan, R., & Auer, D. P. (2009). Precision of r reactivity assessment with use of different quantification methods for hypercapnia functional MR imaging. American Journal of Neuroradiology, 30(5).

P132 Optimising digital subtraction angiography for arteriovenous malformations - A pictorial review

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Background
Arteriovenous malformations (AVMs) are complex vascular anomalies that present significant diagnostic and therapeutic challenges. Digital Subtraction Angiography (DSA) remains the gold standard for AVM assessment, offering superior spatial and temporal resolution compared to non-invasive imaging techniques. Accurate DSA imaging is essential for identifying feeding arteries, nidal morphology, and venous drainage patterns, which directly impact treatment strategies. Given the role of radiographers in providing optimal neurovascular imaging, a deeper understanding of DSA techniques for AVM evaluation is crucial to ensure seamless interprofessional collaboration and better patient outcomes (e.g. reduced dose and examination time).
Purpose
This pictorial review aims to enhance the knowledge and technical expertise of radiography students and professionals by:
- Demonstrating key angiographic features of AVMs and their classification.

- Highlighting radiographer contribution to the optimisation of DSA protocols, including contrast injection strategies, oblique projections, and artifact minimisation.
- Showcasing case studies illustrating the role of angiography in pre-treatment planning and post-intervention assessment.

Summary of content

The poster will present a structured visual guide on AVM imaging, featuring high-quality DSA images with annotations. It will include DSA Fundamentals in AVM Evaluation (overview of angiographic phases and essential views), case-study examples of AVM characterisation and embolisation planning. Furthermore, it will include technical considerations such as acquisition protocols, common pitfalls and troubleshooting.

Conclusion:

By providing a practical perspective, this work encourages radiographers to explore neurovascular specialities, understand angiography applied to AVM studies and treatment, and ultimately providing high quality imaging and enhancing patient care.

1. Radiopaedia (n.d.) Digital subtraction angiography. Available at: https://radiopaedia.org/articles/digital-subtraction-angiography (Accessed: 10 February 2025).
2. Law, M., Yang, S., Babb, J. S., Klem, J. and Golub, J. (2000) 'Time-resolved MR digital subtraction angiography of cerebral arteriovenous malformations', American Journal of Neuroradiology, 21(4), pp. 707-711. Available at: https://www.ajnr.org/content/21/4/707 (Accessed: 10 February 2025).
3. Hetts, S. W., Shams, S. A., Joshi, C., Moser, M., Amans, M. R. and Heit, J. J. (2017) 'Application of time-resolved 3D digital subtraction angiography to plan cerebrovascular interventions', American Journal of Neuroradiology, 38(4), pp. 740-745. Available at: https://www.ajnr.org/content/38/4/740 (Accessed: 10 February 2025).

P133 Retrospective review of CT brain perfusion imaging at the Queen's Hospital

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The purpose of the e-poster is to illustrate retrospectively the CT brain perfusion imaging examined at the Barking, Havering and Redbridge University Hospital NHS Trust (BHRUT). The e-poster overviews the wholistic scenario of the stroke patterns with the application of the colour enhancement on the CT brain images by the Brainomix and the brain perfusion software.

At Queen's Hospital, we daily received about ten to twenty patients who are suspected experiencing ischemic stroke or intracranial infarct. The implementation of the CT brain perfusion examination depends on the time of the suspected ischemic stroke occurred and the time of the CT scan taken place. We perform the plain CT brain examination prior to the CT brain perfusion examination, and occasionally followed by the CT scan on both carotid aortas and intracranial angiogram.

1. Krishnan, P. et al. (2017) CT-based techniques for brain perfusion. Top Magn. Reson Imaging. 26(3), 113-119.
2. Vagal, A. (2019) Automated CT perfusion imaging for acute ischemic stroke: pearls and pitfalls for real-world use. Neurology. 93(20), 888-898.
3. Cianfoni, A. et al. (2007) Brain perfusion CT: principles, techniques and clinical applications. Radiol. Med. 112(8), 1225-1243.

P136 The reliability of Fractional anisotropy (FA) in the cervical spinal cord of healthy participants: within participants and between observers' evaluation

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Background

Diffusion Tensor Imaging (DTI) is a quantitative approach that measures molecular diffusion of water, to assess microstructural and directional features of the WM tracts in the brain and spinal cord. Fractional Anisotropy (FA) measures the degree of tissues water diffusion anisotropy, with 0 indicating isotropic diffusion and 1 indicating anisotropic diffusion.

Aim

The aim was to assess the within-participant and between observers' reliability of FA in the cervical spinal cord (CSC).

Methods

A pre-existing data set of 20 control participants was examined (Female/male:10/10 mean□SD= 40□12.4. Inclusion was participants who had no history of neurological disorders or contraindications. All participants were scanned twice at 3T with conventional DTI sequences. The DTI data was correcting for motion artefacts, then segmented, and registered to a template and then FA was calculated with all processing taking place using Spinal Cord Toolbox (SCT). ROIs were chosen between the 2nd and 5th of (CSC): WM (White Matter), VC (Ventral Columns), LC (Lateral Column), and DC (Dorsal Columns). Analysis was done independently by two observers to examine methodology robustness. Single and average intra-class correlation coefficients (ICC) for within participants and between observers was assessed.

Results
The single/average ICC of within-participants reported between fair and good reliability with values of 0.461/0.631, 0.426/0.597, 0.480/0.649, and 0.487/0.655. Between-observers reported excellent reliability with values of 0.995/0.998, 0.990/0.995, 0.993/0.996, and 0.995/0.997, for WM, VC, LC, and DC, respectively.
Conclusion
Based on the results of this reliability study, FA appears to be a promising quantitative biomarker for assessing changes in CSC.

P137 A comparison of magnetic resonance imaging and non-contrast computed tomography in the accuracy of the diagnosis of acute ischaemic stroke

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[1]*University Of Liverpool, Liverpool, United Kingdom*

Background
Acute Ischaemic Stroke is a leading cause of mortality and long-term disability worldwide, requiring rapid and accurate diagnosis to guide timely intervention. Non-enhanced Computed Tomography is used as the initial imaging modality, as recommended by the NICE guidelines. However, NCCT has limited sensitivity in detecting early ischaemic changes. In contrast, Magnetic Resonance Imaging has demonstrated superior sensitivity for early infarct detection, aiding in more precise diagnosis and patient selection for reperfusion therapies.
Method
Literature was acquired from Medline, Scopus and Web of Science online databases using the search terms; Magnetic Resonance Imaging/MRI, Acute Ischaemic Stroke/Acute Ischemic Stroke, Non-enhanced Computed Tomography/Non-contrast Computed Tomography/CT, sensitivity and specificity. Sources were further filtered for eligibility utilising a CASP tool and only literature relevant to the aim of the study and from the past 10 years were included.
Results
A sensitivity and specificity analysis was conducted. With regards to MRI, the sensitivity values ranged from 80%-100% and the specificity values from 75%-100%. Non-enhanced CT exhibited sensitivity values of 25.4%-85% and specificity values of 82%-97.81%.
Conclusion
MRI exhibited greater sensitivity in the detection of AIS. Both MRI and non-enhanced CT revealed similar sensitivity values. This suggests the enhanced diagnostic accuracy of MRI in the detection of ischaemic lesions, making it a valuable tool for confirming stroke diagnosis and assessing tissue viability. However, CT remains as the first-line imaging modality due to its widespread availability, rapid acquisition time and effectiveness in ruling out intracranial haemorrhage.

Chen, W., Wu, J., Wei, R., Wu, S., Xia, C., et al (2022) Improving the diagnosis of acute ischemic stroke on non-contrast CT using deep learning: a multicenter study.
Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC9723089/ (Accessed: 01/11/2024)
Demeestere, J., Garcia-Esperon, C., Garcia-Bermejo, P., Ombelet, F., et al (2017) Evaluation of hyperacute infarct volume using ASPECTS and brain CT perfusion core volume. Availablen at: https://pmc.ncbi.nlm.nih.gov/articles/PMC5567320/ (Accessed: 10/11/2024)
Kuang, H., Qiu, W., Najm, M., Dowlatshahi, D., et al (2020) Validation of an automated ASPECTS method on non-contrast computed tomography scans of acute ischemic stroke patients. Available at: https://journals.sagepub.com/doi/10.1177/1747493019895702 (Accessed: 10/11/2024)
Lu, J., Zhou, Y., Lv, W., Zhu, H., et al (2022) Identification of early invisible acute ischemic stroke in non-contrast computed tomography using two-stage deep-learning model. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC9330528/ (Accessed: 04/11/2024)
National Institute for Health and Care Excellence (2022) Stroke and transient ischaemic attack in over 16s: diagnosis and initial management. Available at: https://www.nice.org.uk/guidance/ng128/chapter/Recommendations - imaging-for-people-who-have-had-a-suspected-tia-or-acute-non-disabling-stroke (Accessed: 22/10/2024)
Nishio, M., Koyasu, S., Noguchi, S., Kiguchi, T., et al (2020) Automatic detection of acute ischemic stroke using non-contrast computed tomography and two-stage deep learning model. Available at:
https://www.sciencedirect.com/science/article/pii/S0169260720315443?via=ihub (Accessed: 03/11/2024)
Piliszek, A., Witkowski, G., Sklinda, K., Szary, C., et al (2016) Comprehensive imaging of stroke – Looking for the gold standard. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0028384316300251 (Accessed: 08/11/2024)
Sahoo, P.K., Mahopatra, S., Wu, C.Y., Chang, T.L., et al (2022) Automatic identification of early ischemic lesions on non-contrast CT with deep learning approach. Available at: https://www.nature.com/articles/s41598-022-22939-x (Accessed: 02/01/2025)

P138 Magnetic resonance Imaging findings suggestive of an intraspinal nephroblastoma in a young dog

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Background

Numbers of reported cases of intramedullary spinal cord tumours in dogs are low. The spinal cord can be a site of primary and metastatic disease and definitive diagnosis is most often achieved from postmortem evaluation. Intraspinal nephroblastoma is an uncommonly encountered subset of these tumour types.

Purpose

This case describes some of the magnetic resonance imaging (MRI) findings in a 16-month-old Great Dane dog that was assessed for recent onset of pelvic limb paraparesis and scuffing of the left PES.

Summary of content

Many of the features of this case are suspicious for rare intraspinal nephroblastoma. A brief review of the case and the literature is presented here.

Brewer, D. M., Cerda-Gonzalez, S., Dewey, C. W., Diep, A. N., Van Horne, K., & McDonough, S. P. (2011). Spinal cord nephroblastoma in dogs: 11 cases (1985-2007). Journal of the American Veterinary Medical Association, 238(5), 618–624
Pancotto, T. E., Rossmeisl, J. H., Jr, Zimmerman, K., Robertson, J. L., & Werre, S. R. (2013). Intramedullary spinal cord neoplasia in 53 dogs (1990-2010): distribution, clinicopathologic characteristics, and clinical behavior. Journal of veterinary internal medicine, 27(6), 1500–1508.
Traslavina, R. P., Aleman, M., Affolter, V. K., LeCouteur, R. A., Ramsamooj, R., & Higgins, R. J. (2013). Pathology in practice. Spinal cord (ectopic) nephroblastoma in a dog. Journal of the American Veterinary Medical Association, 242(12), 1661–1663.

P139 Magnetic resonance imaging findings suggestive of intracranial granular cell tumour in a dog

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Background

It is difficult to provide a definitive antemortem diagnosis for intracranial neoplasia in veterinary species. There is overlap in the imaging characteristics of many dural-based lesions in the brain. However, ordered differentials draw on an informed interpretation of the constellation of findings.

Purpose

This case describes some of the magnetic resonance imaging (MRI) findings in a 13 year- old Bichon Frise dog that was assessed for recent onset of generalised tonic-clonic seizures with obtundation on presentation. The prioritised differential diagnosis was that of an intracranial granular cell tumour (GCT).

Summary of content

GCT is a rare neoplasm in dogs and one of unclear origin. A brief review of the case and the literature is presented here.

Anwer, C. C., Vernau, K. M., Higgins, R. J., Dickinson, P. J., Sturges, B. K., LeCouteur, R. A., Bentley, R. T., & Wisner, E. R. (2013). Magnetic resonance imaging features of intracranial granular cell tumors in six dogs. Veterinary radiology & ultrasound : 54(3), 271–277
Mayor, C., Verdés, J., Alomar, J., Novellas, R., Pumarola, M., & Añor, S. (2023). Intracranial Granular Cell Tumours in Three Dogs: Atypical Magnetic Resonance Imaging Features and Immunohistochemical Study. Veterinary sciences, 10(2), 134.
Wisner, E. R., Dickinson, P. J., & Higgins, R. J. (2011). Magnetic resonance imaging features of canine intracranial neoplasia. Veterinary radiology & ultrasound. 52(1 Suppl 1), S52–S61

P141 Mass miniature radiography: the tuberculosis screening programme in post-war Britain

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Background

After the Second World War ended, the Department of Health and the National Health Service developed a new screening programme to tackle tuberculosis (TB). TB was prevalent in Great Britain and a community screening approach was deemed the most appropriate way to tackle the endemic. A robust public health campaign was used to encourage attendance. The widespread campaign involved posters, stamps, pamphlets, newspaper adverts, and specially commissioned songs. The population were offered incentives such as badges, bookmarks, chocolates and cigarettes. Those who attended were often put into a draw to win prizes such as electrical goods and brand-new cars. Mass miniature radiography images were produced and viewed on a projector. The use of mass miniature radiography screening for TB declined in the 1960s, once TB infection rates slowed.

Purpose

- To explore the history and impact of the mass miniature radiography screening programme for TB.
- To explore the public health campaign approaches used.

- To determine to impact of this early screening programme on modern-day healthcare practice.

Summary of content

This submission aims to explore the history behind mass miniature radiography and how it was utilised for TB screening in post-war Britain. This submission also explores the robust public health campaign, and the incentives used to encourage compliance with chest x-ray attendance. This submission will conclude how this early screening programme impacted on current healthcare practices, including how community-based screening programmes are still utilised today.

-P142 A centenary of The International Congress of Radiology

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The First International Congress of Radiology took place in 1925 in London. It was organised by Thurston Holland a radiologist from Liverpool along with a team that included Alfred Barclay, Stanley Melville and Humphrey Rolleston a distinguished physician. Bragg was involved in the physics section.

Papers were presented by radiologists from the USA including Dr Cole, from Europe with Kienbock talking about bone tumours and from Argentina with Hauser talking about radiography in early pregnancy. Until then meetings were often more local or regional affairs as international travel was more difficult for all.

The meeting was greatly praised by the Americans with complimentary reports appearing in the journal Radiology and great strides were made in radiation protection and measurement issues which has resulted in great benefit to the radiology community to this day.

Gusta Forsell of Sweden was chosen to lead the second congress in Stockholm three years later. The third congress took place in Paris under the Presidency of Beclere.The congress went from strength to strength being held three yearly at rotating venues. More latterly the venues included countries in Latin America and Asia where the congress has provided postgraduate education to people worldwide some who would be unable to travel abroad from their own countries. The latest meeting held post Covid was in 2023 in Egypt.

In this presentation the early years of the congress will be described along with vignettes of some of the key people involved.

P143 A short history of brachytherapy from 1900s to the present day

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Background

The word Brachytherapy was first used in 1901 by Alexandre Danlos and Paul Bloch (using radium). (Brachy meaning “short distance” in Greek, is a type of radiotherapy using radioactive material on or inside the body to destroy cancer cells).

Early Years

This presentation will progress in time from these early years, when various doctors were using radium to treat skin disease, and cancers. Several centres of excellence were formed: Paris (Marie Curie and Charles Regaud: Institute Curie); Manchester ,Christie Hospital (R Paterson ,HM Parker) and Stockholm (Gosta Forssell).

Brachytherapy Established

In order to clarify the use of radium by 1970 the author will describe his experiences at Newcastle General Hospital using radium needles and radium tubes using Manchester dosimetry.

When radium was discontinued in 1976, caesium 137 took its place. The much smaller caesium sources allowed for afterloading of sources for Gynae Brachytherapy (making the process safer for nursing staff), and Iridium-192 wire, which was for radioactive implants.

Remote afterloading systems were developed from 1970-: LDR, HDR , mainly using Ir-192. (Selectron, Gammamed).

Surveys of radiotherapy centres in 1990s demonstrated the increase in remote afterloading systems throughout the UK.

References
Lederman, M . (1981) The Early History of Radiotherapy 1895-1939’. Int J Radiat Oncol Biol Phys 7(5), pp. 639-48.
Dutreix, J et al. (1998) ‘The Hazy Dawn of Brachytherapy’ . Radiother Oncol. 49(3), pp. 223-32

P144 Future-proofing diagnostic services: Implementing a high-capacity, low-latency, secure and dedicated digital diagnostics network to underpin new systems and solutions

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Background

CAMRIN has developed a high-capacity, low-latency, and secure Digital Diagnostic Network (DDN) across 11 Trusts to tackle infrastructure challenges in image sharing, system resilience, and scalability. This cutting-edge network will support a fully hosted Cloud-based Picture Archiving and Communication System (PACS), which will consolidate imaging data at a system-wide level. The DDN will also support enhanced business continuity and interoperability by supporting an immutable backup solution, enable the procurement of a clean room environment, and host a new artificial intelligence (AI) imaging and support tool, that will enable assistive diagnostics.

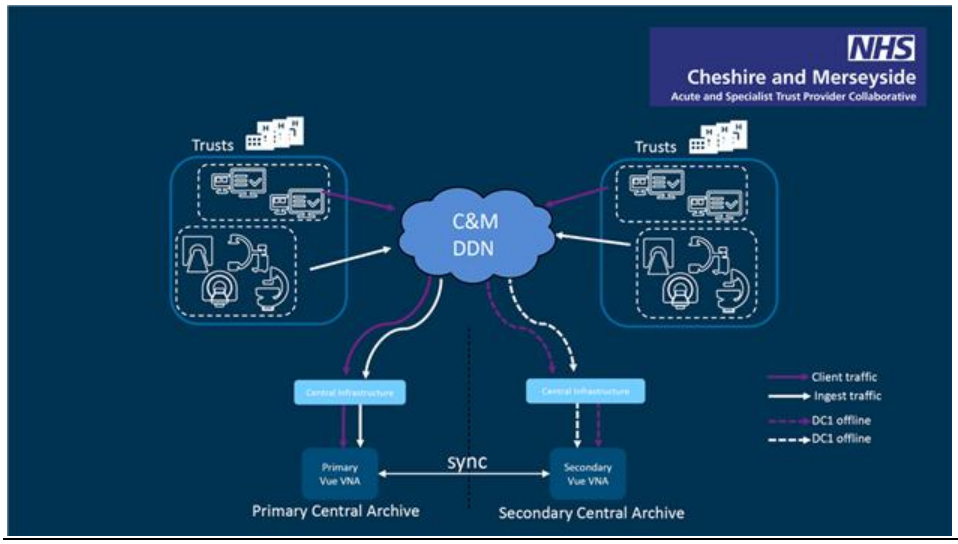
Purpose

This ePoster aims to highlight how the DDN will underpin CAMRIN's Cloud PACS, providing faster login times, more reliable cross-site image access, and reduced downtime. The DDN also supports immutable backups, the procurement of a clean room environment, and will host an AI imaging tool that will expedite lung cancer diagnostics. Therefore, the network serves as a scalable blueprint for other regions to develop similar infrastructure that can be used to protect sensitive imaging data, enable faster recovery times, aid forensic analysis, and expedite diagnostics.

Summary of content

The ePoster outlines the DDN's implementation approach and highlights how the network is already being used to support the rollout of the CAMRIN's Cloud based PACS, for immutable backups, and to enhance workflows. It also outlines how the network could be built on further, and it will serve as a blueprint for other diagnostic networks, demonstrating the potential to modernise healthcare infrastructure and enhance outcomes for both staff and patients.

Table



P145 Improvement of image quality applying scatter correction software for Grid-less lumbar spine radiography: Subjective image quality assessment

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Background

Scattered X-ray is undesirable as it effects the image quality. Recently, scatter correction software (virtual grid-VG) has been released to correct for scattered X-rays and reduce radiation dose [1]. This study aims to assess the performance of scatter correction software in grid-less lumbar spine radiography.

Method

An anthropomorphic phantom was scanned with different phantom thickness by adding fabricated FTES layers, and LTES layers (19.6, 23.6, 26.8, 27.6, 29, 30, 32.5 cm). AP lumbar spine X-ray projection was applied with images acquired sequentially without an anti-scatter grid. The exposure factors kept constant (80 kVp and 110 SID) with AEC. Radiographs were postprocessed with VG. The radiographs were then independently evaluated by 23 participants with various experences. A five-step rating scale and visual grading analysis were used. The test image was set to be VG image, and the reference image was grid-less image. ViewDEX software to facilitate image viewing and survey answering was used.

Results

Images with VG for all phantoms were generally rated to be better or much better than raw images in term of image contrast, sharpness, visibility of spinous and transverse processes, and visibility Sacro-iliac joint (with fair to moderate interrater agreement). For diagnostic appropriateness, the number of observer rated for VG images to be appropriate is higher than not appropriate, phantom 1,2,3,4,5,6,7 and 8: 100%, 91.3%, 95.6%, 73.91%, 69.5%, 65.22%, 56.52% and 52.17%, respectively.

Conclusion

VG software improves the image quality of grid-less lumbar spine radiography.

1. KAWAMURA, T., NAITO, S., OKANO, K. & YAMADA, M. 2015. Improvement in image quality and workflow of x-ray examinations using a new image processing method,"Virtual Grid Technology". Fujifilm Res Dev, 60, 21-7.

P147 Measuring intervertebral motion using real-time MRI in a standard 3T horizontal bore scanner: visual assessment of image quality for application of tracking algorithms

Dr Fiona Mellor[1], Dr Susan Hopkins[1], Sue McAnulla[1], Dr Lianne Wood[1], Mr James Davies[1], Dr Kevin Brownhill[2], Profressor Alan Breen[3]
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Introduction/Background

Increasing acquisition speed in Magnetic resonance Imaging (MRI) now enables a series of rapidly acquired images to demonstrate motion i.e. kinetic MRI (kMRI). This study investigates the use of kMRI in the lumbar spine region, examining whether images of suitable quality can be obtained for application of a tracking algorithm (TA) to accurately assess motion related to low back pain (1, 2, 3).

Method

Mid-sagittal slices were obtained from ten healthy participants (five male & five female, 18-51 years, BMI< 31) using a 60cm bore Siemens Magnetom Prisma 3T horizontal scanner whilst flexing and extending their lumbar spine in three separate motions, one active and two passive. Several scanning sequences were initially trialled, and two experts subjectively assessed that Haste and TrueFISP showed greatest potential to produce images of required quality. For each motion, images were acquired twice using Haste and twice using TrueFISP to allow comparison between the sequences and intra subject repeatability. For eight participants, images were rated from T12 to S1 in ImageJ by a single rater for key qualities (vertebral corners, margins, and artefact) appropriate for TA application.

Results

Initial indications are that Haste sequences produce better quality images for TA application with an overall rating for combined key quality criteria of 83% acceptable or above compared to 49% for TrueFISP

Conclusion

Lumbar spine motion can be captured using kMRI in a horizontal bore scanner using HASTE sequences. The next step will be the application of image tracking algorithms and the determination of reliability.

1. Breen, A. C., D. S. Teyhen, F. E. Mellor, A. C. Breen, K. W. N. Wong and A. Deitz (2012). "Measurement of Intervertebral Motion Using Quantitative Fluoroscopy: Report of an International Forum and Proposal for Use in the Assessment of Degenerative Disc Disease in the Lumbar Spine." Advances in Orthopedics 2012: 802350.
2. Brownhill, K., F. Mellor, A. Breen and A. Breen (2020). "Passive intervertebral motion characteristics in chronic mid to low back pain: A multivariate analysis." Med Eng Phys 84: 115-125.
3. Mellor, F. E., P. W. Thomas, P. Thompson and A. C. Breen (2014). "Proportional lumbar spine inter-vertebral motion patterns: a comparison of patients with chronic, non-specific low back pain and healthy controls." Eur Spine J 23(10): 2059-2067.

P148 A collaborative innovation blueprint for enhancing teleradiology services

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Background:
The healthcare industry operates in a volatile, uncertain, complex and ambiguous (VUCA) environment, necessitating organisational agility and innovation. Dynamic capabilities, defined as the ability to integrate and reconfigure competencies are critical for facilitating adaptability and leveraging ecosystems to enhance value creation (Lutjen et al, 2019). Ecosystems connect diverse actors, enabling innovation through collaborative networks that drive both incremental and radical changes (Cobben et al, 2022). This research explores how additional value can be created through enhancing teleradiology services with wider ecosystem partners and medical professionals through improved collaboration or exploring further opportunities through innovation.

Purpose:
This blueprint provides UKIO participants with a practical framework for applying collaborative innovation to diagnostic imaging. Learning outcomes include strategies for facilitating ecosystem partnerships, implementing advanced technologies, and overcoming challenges in teleradiology.

Summary of content:
The blueprint offers a well-organised framework for coming up with ideas, setting priorities, defining roles and responsibilities, validating ideas, keeping track of performance, and sharing knowledge. It promotes a culture of innovation and accountability by encouraging original thought, methodical evaluation, and resource allocation.
By encouraging cooperation between stakeholders, the collaborative innovation blueprint promotes innovation. It simplifies the procedure, eliminates duplication, aligns common goals, controls conflict, makes the best use of resources, raises quality, and directly benefits patients. It boosts operational effectiveness, reduces costs, encourages lifelong learning and development, and uses KPIs for evaluation. Additionally, the blueprint recognises the contributions of each cooperating organisation, encouraging a productive collaborative culture.

Table

1. Cobben, D., Ooms, W., Roijakkers, N., & Radziwon, A. (2022). Ecosystem types: a systematic review on boundaries and goals. Journal of Business Research, 142, 138–164. https://doi.org/10.1016/j.jbusres.2021.12.046
2. Lütjen, H., Schultz, C., Tietze, F., & Urmetzer, F. (2019). Managing ecosystems for service innovation: a dynamic capability view. Journal of Business Research, 104, 506–519.
3. Teece, D.J., Pisano, G. and Shuen, A. (1997) Dynamic capabilities and strategic management, Strategic Management Journal, 18(7), pp. 509–533.

P149 A comparative analysis of procedure time and patient dose of weight-bearing computed tomography and weight-bearing X-ray of the feet and ankles

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Background

Functional weight-bearing imaging has for many years been achieved by weight-bearing X-rays (WBXR). However, WBXR has many limitations [1 2 3]. Weight-bearing Computed Tomography (WBCT) was introduced in 2012 enabling functional three-dimensional imaging of the foot and ankle at a lower dose than Multi Detector Computed Tomography [4].
A pilot observational comparative analysis of procedure time and radiation dose of WBCT and WBXR of the feet and ankles was performed at a UK specialist orthopaedic centre.

Method

Two variables were investigated, procedure time and radiation dose. Simulated procedure times for both WBCT and WBXR were observed and recorded. Radiation doses were recorded using an anthropomorphic phantom.

Results

The mean procedure time for WBCT was statistically significantly lower than for WBXR, 196.43 seconds compared to 348.33 seconds (p=<0.001). The effect size of 1.29 demonstrated a significantly large result. There was a 43.61% reduction in the mean procedure time when comparing WBCT to WBXR. WBCT radiation dose was constant with an effective radiation dose of 4.90 microsieverts. WBXR achieved a mean effective dose of 0.29 microsieverts. The effective doses for WBXR and WBCT were statistically significantly different (p=0.002). The WBXR projections have on average a 16.9 times lower radiation dose than WBCT.

Conclusion

WBCT can be recommended to replace WBXR for foot and ankle imaging with a potential for the significant reduction in procedure time. WBCT can be recommended despite a larger dose, as the radiation dose burden is comparable to less than one day's background radiation in the UK.

1. Conti, M.S. and Ellis, S.J. (2020) 'Weight-bearing CT scans in Foot and Ankle Surgery.' Journal of the American Academy of Orthopaedic Surgeons, 28(14), pp. e595-e606. Available at DOI: 10.5435/JAAOS-D-19-00700
2. Lintz, F., Beaudet, P., Richardi, G., Brilhault, J. (2021) 'Weight-bearing CT in foot and ankle pathology.' Orthopaedics & Traumatology: Surgery & Research, 107.
3. Mendes de Carvalho, K.A., Mansur, N.S.B., de Cesar Netto, C. (2023) 'Cone-Beam Weight-Bearing Computed Tomography of Ankle Arthritis and Total Ankle Arthroplasty.' Foot and Ankle Clinics, 28(3), pp. 509-528.

4. Richter, M., Lintz, F., de Cesar Netto, C., Barg, A., Burssens, A. (2020) 'Results of more than 11,000 scans with weightbearing CT – Impact on costs, radiation exposure and procedure time.' Foot and Ankle Surgery, 26, pp. 518-522.

P150 The influence of imaging protocols on complex ankle fracture manipulation in the ED: A before and after study

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[1]Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, United Kingdom, [2]University of Bradford, Bradford, United Kingdom

Background
Ankle injuries that present to the ED with instability of the joint due to multiple fractures/disruption of the mortise need to be re-aligned promptly to minimise complications.[1] A protocol change was introduced whereby mobile radiographs were performed in the ED resuscitation room during manipulation of these injuries. The aim of this study was to determine if the overall time to definitive reduction had reduced for these patients, improving patient flow.
Method
Data was collected from patients attending the ED with a complex or unstable ankle injury in a UK single centre over 6-month periods, pre pathway introduction (2019), immediately post change (2021) and 2 years post implementation (2023).
Results
More than 3,000 patients had ankle radiographs performed in each cohort of data collection with an average of 2.9% of injuries requiring manipulation, consistent across the cohorts (p=0.246). Increasing compliance with the new pathway was evident over time with a significant time reduction demonstrated from initial ED presentation to final post manipulation imaging if mobile radiographs were obtained, with the mean time 113 minutes quicker than those performed in the radiology department in 2023 (p=0.00).
Conclusion
Although it takes time to embed new pathways and changes in practice, this study demonstrated that a simple change in imaging provision had a positive impact for patients with a complex ankle injury. Providing post manipulation radiographs in the ED resuscitation room allowed earlier confirmation of restored anatomical alignment and enabled clinicians to perform multiple manipulation attempts, if necessary, under the same sedation episode.

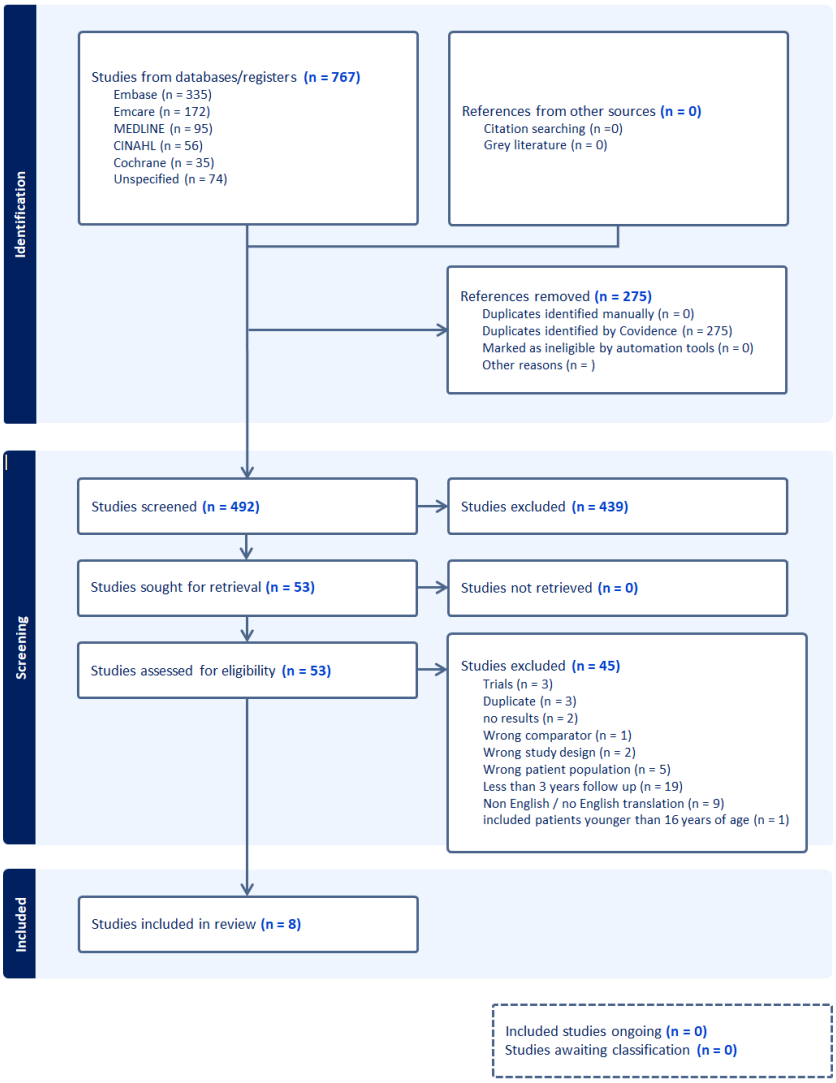
1. Westerman, R.W. and Porter, K. (2007) Ankle fractures in adults: an overview. Trauma 9(4) 267-272

P152 A systematic review: Radiological findings at a minimum of 3 years follow-up for unstable ankle fractures in adults treated with surgery.

Mr Anthony Okoye[1,2], Dr Linzy Houchen-Wolloff[1], Dr Nimra Akram[3], Despina Laparidou[2], Dr David Nelson[2], Dr Samuel Cooke[2], Prof. Jitendra Mangwani[1,4,5]
[1]University Hospitals Of Leicester NHS Trust, Leicester , United Kingdom, [2]University of Lincoln, Lincoln, United Kingdom, [3]Frimley Health NHS Foundation Trust, Frimley, United Kingdom, [4]University of Bath, Bath, United Kingdom, [5]University of Leicester, United Kingdom

Background
Radiological investigations is critical to diagnosis and treatment of many musculoskeletal diseases including detecting earliest degenerative changes like osteoarthritis (OA) in patients with unstable ankle fractures (AF) that were managed surgically. Despite the high incidence of ankle OA, research into early detection using imaging remains sparse.
Method
The protocol for this systematic review was registered with PROSPERO. Five databases were searched and four out of the seven reviewers independently screened the titles, and abstracts of all retrieved papers using Covidence systematic review management tool and discrepancies were resolved by 3 reviewers. Criteria used are in line with PRISMA guidelines.
Results
767 studies were identified on 5 database searches, and 492 abstract titles were screened, while 53 papers were selected for full review. From these only 8 articles met the inclusion criteria. A total of 905 participants aged 18 years and above (mean 46.4 years, 53.8% male) presented with a range of AF classifications. This includes 423 cases of Weber classification, 225 cases of OTA/AO, 204 Lauge-Hansen classifications, and 53 medial malleoli. From these, 34.7% cases of OA were identified on radiological imaging. This showed a positive correlation with worst patient reported outcomes and the degree of OA.
Conclusion1
in 3 patients treated for unstable AF with open reduction internal fixation will show signs of OA after 3-7 years of index procedure though with good functional outcome. Despite the low sensitivity of X-ray in early detection of OA, we identified a lack of studies on MRI and/or CT imaging.

Radiological findings in adult post-surgery for unstable ankle fracture: a systematic review



1.Ewalefo SO, Dombrowski M, Hirase T, Rocha JL, Weaver M, Kline A, Carney D, Hogan MV. Management of Posttraumatic Ankle Arthritis: Literature Review. Curr Rev Musculoskelet Med. 2018 Dec;11(4):546-557.
2. Aboelmagd SM, Low SB, Cahir JG, Loveday D, Marshall AT, Teh J, Vaughan P, Grainger A, MacGregor A, Toms AP. The Norwich Osteoarthritis of the Ankle MRI Score (NOAMS): a reliability study. Clinical Radiology. 2022 Jun;77(6): e449–57.

3. Do T, Sutter R, Skornitzke S, Weber M-A. CT and MRI Techniques for Imaging Around Orthopedic Hardware. RöFo - Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren. 2017 Sep 21;190(01):31–41.
4. Elgohary MMIA, Abdul Rahim SAA, Ibrahim TAA. Role of MRI in Evaluation of Traumatic Ankle Injuries. The Egyptian Journal of Hospital Medicine. 2017 Oct;69 (3):2016–24.
5. Dissemination CF. Systematic reviews: CRD's guidance for undertaking reviews in healthcare. York: University of York NHS Centre for Reviews & Dissemination. 2009.
6. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, Shamseer L, Tetzlaff JM, Akl EA, Brennan SE, Chou R, Glanville J, Grimshaw JM, Hróbjartsson A, Lalu MM, Li T, Loder EW, Mayo-Wilson E, McDonald S, McGuinness LA, Stewart LA, Thomas, J, Tricco AC, Welch VA, Whiting P, Moher D. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021; 372:n71.
7. Modified Coleman Score -Injury. Available at www.injuryjournal.com
8. Covidence systematic review software, Veritas Health Innovation, Melbourne.

P153 A pilot study to evaluate inter-rater reliability (IRR) in the reporting of radiographic knee osteoarthritis (OA) by reporting radiographers

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[1]*University Hospitals Leicester, United Kingdom*

Background

The United Nations have predicted that by 2050, 20% of the world's population will be over 60 with 15% of these experiencing symptomatic OA. OA of the hips and knees appear to cause the greatest burden on the quality of life, with individuals with knee OA often experiencing associated stiffness and knee deficits.

Treatment options are dependent on the severity of OA and patient preference with radiographs commonly used for the assessment of loss of joint spaces.

Scoring systems can standardise the interpretation of x-rays and inform the clinician's decision on appropriate management. Initial work by Garland in 1959 found that two readers disagreed with each other in approximately 30% of the 5,000 cases reviewed and with themselves in one-fifth of them. Kellgren and Lawrence (KAL) established the first scoring system for knee OA. This continues to be used in current practice with numerous other scoring systems since being proposed, however no system has been universally adopted. A more recent approach from the OA research society International addressed some of the limitations of the KAL system by separately evaluating joint space narrowing and osteophyte formation on both medial and lateral compartments using a 4-point scale.

Purpose

The aim of this study was to determine the inclusion of OA knee scoring from routine clinical data and the reliability of OA scoring of knee radiographs in an experimental setting.

Summary of content

The poster will outline the method used, result findings and discussion.

Altman, R.D. and Gold, G.E., 2007. Atlas of individual radiographic features in osteoarthritis, revised. Osteoarthritis and cartilage, 15, pp.A1-A56.

Bennell, K.L., Hunter, D.J. and Hinman, R.S., 2012. Management of osteoarthritis of the knee. Bmj, 345.

Kellgren, J.H. and Lawrence, J.S., 1957. Radiological assessment of osteo-arthrosis. Ann Rheum Dis, 16(4), pp.494-502.

LH, G., 1959. Studies on the accuracy of diagnostic procedures. The American journal of roentgenology, radium therapy, and nuclear medicine, 82(1), pp.25-38.

Losina, E., Walensky, R.P., Reichmann, W.M., Holt, H.L., Gerlovin, H., Solomon, D.H., Jordan, J.M., Hunter, D.J., Suter, L.G., Weinstein, A.M. and Paltiel, A.D., 2011. Impact of obesity and knee osteoarthritis on morbidity and mortality in older Americans. Annals of internal medicine, 154(4), pp.217-226.

Michael, J.W., Schlüter-Brust, K.U. and Eysel, P., 2010. The epidemiology, etiology, diagnosis, and treatment of osteoarthritis of the knee. Deutsches Arzteblatt International, 107(9), p.152.

Richmond, J., Hunter, D., Irrgang, J., Jones, M.H., Levy, B., Marx, R., Snyder-Mackler, L., Watters, W.C., Haralson, R.H., Turkelson, C.M. and Wies, J.L., 2009. Treatment of osteoarthritis of the knee (nonarthroplasty). JAAOS-Journal of the American Academy of Orthopaedic Surgeons, 17(9), pp.591-600.

Wittenauer, R., Smith, L. and Aden, K., 2013. Background paper 6.12 osteoarthritis. World Health Organisation.

P155 The inter-rater precision of long leg radiographs (LLR) measurements of total knee arthroplasty (TKA) alignment assessment

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Purpose

Long leg radiographs (LLR) are used for treatment planning in total knee arthroplasty (TKA) to optimise leg alignment. The aim of this study was to assess the inter-rater precision of LLR measurements for the assessment of alignment in (TKA) patients.

Methods

Pre- and post-operative LLRs from 30 TKA patients were evaluated to assess the inter-rater precision errors with two trained radiographers undertaking the measurements independently from each other. Hip-knee-ankle (HKA) angle, lateral distal femoral angle (LDFA), and medial proximal tibial angle (MPTA) were measured by two operators using the MicroDicom software. A two-way random-effects model intraclass correlation coefficient (ICC) was calculated using the SPSS (29.0.1.0 (171) IBM, NY).

Results

The measurements of HKA has ICC values of 0.998 pre-operatively (95% CI: 0.997–0.999) and 0.998 post-operatively (95% CI: 0.995–0.999). Measurements of LDFA was 0.982 ICC (95% CI: 0.963–0.992) pre-operatively and post-operatively 0.913 ICC (95% CI: 0.827–0.958). Measurements of MPTA was 0.916 (95% CI: 0.832–0.959) and 0.905 (95% CI: 0.809–0.953) pre- and post-operatively respectively.

Conclusion

These results indicate low inter-rater precision errors for the radiographic analysis of both pre- and post-operative TKA evaluations. These data demonstrate these measurements are precise when undertaken by two different trained radiographers and appropriate for prosthetic alignment planning and post-operative assessment.

P157 Are we performing too many trauma cervical spine X-ray examinations?

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Background

Despite the publication of NICE guidance (NG41) in 2016 [1], advocating the use of computed tomography (CT) to assess for cervical spine (C-spine) injury in adults, anecdotal evidence suggests that X-rays are still being performed.

Method

A service evaluation was conducted at a single NHS Foundation Trust to confirm C-spine imaging referral patterns and compliance with the NICE guidance. A quantitative retrospective approach was undertaken and data included patients, aged 16 years and over, referred for imaging of the C-spine from the Emergency Department during a 12-month period (01.01.23 – 31.12.23).

Results

The cohort contained 302 females and 301 males, with a median age of 55 years. According to their clinical information 12.1% (n=73/603) of the patient cohort were categorically at no risk of C-spine injury and therefore should not have required diagnostic imaging. 65.5% (n=395/603) of patients were correctly managed and had CT as the initial imaging modality. Of those where imaging was justified, 135 patients had the incorrect initial diagnostic test (X-ray as opposed to CT) with 26 also having a subsequent CT. The quality of all of the X-rays was reviewed and only 39.5% (n=73/185) of cases were diagnostic.

Conclusion

In 2023, the Trust was 34.5% non-compliant with NG41, with patients referred for unjustified imaging examinations and/or the wrong initial imaging modality. The consequences of which included treatment delays, prolonged immobilisation, over irradiation and impact upon resources, along with potentially missed pathology due to inconclusive X-rays. The poster concludes with recommendations for practice.

1. National Institute for Health and Care Excellence (NICE). (2016) Spinal injury: assessment and initial management [Clinical guideline]. NICE. NG41. NG41 Full guideline Accessed 4 November 2023.

P159 MRI of the brachial plexus: a pictorial review of imaging techniques, anatomy and pathologies

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Background
The brachial plexus is a network of nerves arising from the ventral rami of C5 to T1, carrying motor and sensory axons supplying the upper limb. MRI is the modality of choice in imaging this complex anatomy and its pathologies, in both traumatic and atraumatic setting. It is frequently used as an adjunct to clinical examination and electromyography, allowing further evaluation of brachial plexopathy and peripheral neuropathy. Recent advances in MRI sequences have elevated the quality of brachial plexus imaging.
Purpose
Gain insight into the choice of MRI sequences and their strengths and weaknesses.
Identify optimal MRI sequences for specific pathologies and indications, and justify their use.
Applying a systemic approach to interpreting brachial plexus imaging.
Explore anatomical variants, pathologies, limitations of imaging, and pitfalls.
Summary of content
We will discuss the indications of imaging the brachial plexus, encompassing traumatic, malignancy, radiation effects, inflammation, and neurogenic thoracic outlet obstruction. Illustrative cases will demonstrate the application of various MRI sequences that we use, including different fat suppression technique (chemical fat suppression, STIR, Dixon) and 3D isotropic imaging. We will share a systemic approach on how we read MRI of the brachial plexus, guiding the attendees through normal anatomy, anatomical variants (such as cervical ribs and fibrous bands, accessory muscles), and a range of pathologies, while highlighting potential pitfalls in image interpretation.

P160 Congenital anomalies and variations of the sternum: A pictorial review

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Background
To illustrate how the sternum is imaged, including the appearances of congenital variations and anomalies - as well as their clinical and radiological significance.
Purpose
The sternum is critical in the skeletal architecture for protecting the thoracic viscera. Increased awareness among radiologists of the radiological appearances of the sternum, including variations, pathologies and mimics can aid with diagnosis to improve patient care. An appreciation of the embryology and early-life development of the sternum will also aid clinicians
in understanding this structure further as well as how it relates to the rest of the thorax.
Summary of content
A pictorial review of the radiological appearances of the sternum, including congenital variations and anomalies. This will include a basic overview of the anatomy and development of the sternum, as well as the different appearances of the sternum on various imaging modalities.

[1] T.W. Sadler. Langman's Medical Embryology, 14E. 14th ed. Lippincott, Williams & Wilkins; 2019:158.
[2] Larsen W, Schoenwolf G, Bleyl S, Brauer P. Larsen's Human Embryology. 5th ed. Edinburgh: Churchill Livingstone; 2015:179-180.
[3] Hamilton W, Boyd J, Mossman H. Hamilton, Boyd, And Mossman's Human Embryology. Baltimore: Williams & Wilkins; 1976.
[4] Keibel F, Mall F. Manual Of Human Embryology. Philadelphia, Pa.; London: J. B. Lippincott Company; 1912.

P161 Imaging the extremities: A pictorial review of acquisition using dedicated musculoskeletal cone beam CT

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Background
Computed tomography (CT) is commonly utilised for musculoskeletal imaging particularly in the context of whole-body trauma and the characterisation of complex fractures (Carrino et al, 2024). Technological advancements have been made in cone beam CT (CBCT) systems including extended field of view and arthrography capabilities. Coupled with high resolution bone and orthopaedic hardware visualisation, patient benefits include improved comfort and lower radiation dose burden (Posadzy et al, 2018). Despite growing evidence of the diagnostic value of CBCT utility early in musculoskeletal care (Snaith et al, 2022), this technology is not widely adopted in the NHS.
Purpose
The aim of this poster is to illustrate the use of CBCT for a broad spectrum of musculoskeletal disorders referred for imaging in 2024-2025. With careful attention paid to patient positioning and immobilisation, images have been acquired

on a CBCT system with a 770mm gantry opening, patient bed with longitudinal and transverse movement, and optimised automatic exposure protocols (NewTom 7G, Cefla S.c, Verona, Italy). We will demonstrate the diagnostic quality and clinical usefulness of this technology in comparison to other imaging techniques.

Summary of content

This case series demonstrates the clinical application of CBCT in a UK NHS acute trust setting. We aim to stimulate discussion and debate as to the potential role of this technology in patient management at diagnosis, surgical planning and follow up of musculoskeletal injuries, including occult fractures and evaluation of degenerative disorders and compound pathologies.

1. Carrino, J.A., Ibad, H., Lin, Y., Ghotbi, E., Klein J., Demehri, S., Del, F. et al. (2024) CT in musculoskeletal imaging: still helpful and for what? Skeletal Radiol, 53: 1711-1725.
2. Posadzy, M., Desimpel, J., Vanboenacker, F. (2018) Cone Beam CT of the musculoskeletal system: clinical applications. Insights Imaging, 9:25-45.
3. Snaith, B., Harris, M., Hughes, J., Spencer, N., Shinkins, B., Tachibano, A., Bessant, G., et al. (2022) Evaluating the potential for cone beam CT to improve the suspected scaphoid fracture pathway: InSPECTED: A single-centre feasibility study. J Med Imaging Radiat Sci, 53(1): 35-40.

P162 A rare case of Giant Cell Tumour of the Tendon Sheath (GCTTS) of the Peroneus Longus

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Background

Giant Cell Tumour of the Tendon Sheath (GCTTS) is a benign but locally aggressive soft tissue tumour that commonly affects the hand, though it may also appear in the foot and ankle (1,2).

Purpose

This report details a rare case of GCTTS involving the peroneus longus tendon sheath.

Summary of content

Case Presentation: A 48-year-old male presented with a gradually enlarging, painless swelling over the lateral malleolus for three months. Clinical examination revealed a firm, non-tender mass without a history of trauma or prior surgery. Ultrasound showed a well-defined, oval, hypoechoic heterogeneous lesion measured 16 x 8 × 18 mm adjacent to the peroneal tendons, with mild peripheral vascularity. MRI demonstrated a 14 × 9 × 19.5 mm soft tissue mass posterolateral to the peroneus longus tendon, associated with the tendon sheath. The lesion had intermediate-to-low signal intensity on T1-weighted images and heterogeneously hyperintense signal on T2-weighted images, with avid post-contrast enhancement. No evidence of infiltration was observed.

Based on imaging findings, a diagnosis of GCTTS of the peroneus longus tendon sheath was established in Multidisciplinary Team (MDT) Meeting (4,5).

Discussion

Although GCTTS primarily affects the digits, its occurrence in the foot and ankle remains rare (3,4).

MRI is essential for diagnosis and differentiation from other soft tissue masses, given its characteristic low T2 signal and hemosiderin-induced blooming artefacts (5,6). Due to a 4%–30% recurrence rate, complete surgical excision is the preferred treatment, with MRI help guiding preoperative assessment and surgical planning (3,4,5).

1. Jelinek, J.S., Kransdorf, M.J. and Moser, R.P. (2013) 'Imaging of tendon sheath and bursal disorders', Radiographics, 33(4), pp. 1119–1135.
2. Van der Heijden, L., Mastboom, M.J. and Dijkstra, P.D. (2013) 'Giant cell tumors of the tendon sheath: diagnostic imaging and treatment', Journal of Foot and Ankle Surgery, 52(5), pp. 575–580.
3. Rao, A.S. and Vigorita, V.J. (1984) 'Pigmented villonodular synovitis (giant-cell tumor of the tendon sheath and synovial membrane): A review of eighty-one cases', JBJS, 66(1), pp. 76–94. Available at: https://pubmed.ncbi.nlm.nih.gov/22849738/ [Accessed 8 Feb. 2025].
4. Goni, V.G., Behera, P. and Aggarwal, A. (2016) 'Giant cell tumour of the tendon sheath: Review of literature and case reports', Journal of Clinical and Diagnostic Research, 10(4), pp. RE01–RE04. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC4845462/ [Accessed 8 Feb. 2025].
5. Garg, R., Aggarwal, A. and Gupta, P. (2016) 'Tenosynovial giant cell tumor: A rare case report and review of literature', Journal of Clinical Orthopaedics, 6(2), pp. 78–83. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC4841104/ [Accessed 8 Feb. 2025].
6. Lucas, D.R. (2012) 'Tenosynovial giant cell tumor: case report and review', Archives of Pathology & Laboratory Medicine, 136(8), pp. 901–906. doi:10.5858/arpa.2012-0165-CR

P163 Comparison of ultrasound and fluoroscopic guided injections in MR arthrography of the shoulder

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Background
This study aims to compare the effectiveness of ultrasound-guided and fluoroscopy-guided injections in MR arthrography of the shoulder, focusing on key parameters such as contrast injection accuracy, diagnostic quality, and user satisfaction.
Methods
A retrospective analysis was conducted on all shoulder MR arthrograms performed at Warrington and Halton Hospitals NHS Trust between May 18, 2022, and December 8, 2023. A total of 41 procedures were included: 25 with fluoroscopic guidance and 16 with ultrasound guidance. Parameters assessed included the presence of contrast within the joint, the presence of intra-articular gas, study diagnostic quality, and user satisfaction.
Results
Both injection techniques successfully achieved diagnostic scans with adequate contrast in the joint. Of the ultrasound-guided injections, 6.2% showed contrast extravasation in soft tissues, compared to 4% in fluoroscopically guided injections. No significant differences were observed in the diagnostic quality or overall success of the injections.
Conclusion
This study demonstrates that ultrasound-guided injections for MR arthrography of the shoulder are non-inferior to fluoroscopic-guided injections. Both techniques proved effective in providing diagnostic-quality imaging with comparable user satisfaction.

1. Martínez-Martínez, A., García-Espinosa,J., Ruiz-Santiago, F., et al. (2016). Comparison of ultrasound and fluoroscopic guidance for injection in CT arthrography and MR arthrography of the hip. Radiography, 22(4), 275-280. https://doi.org/10.1016/j.rxeng.2016.07.006
2. Ng, A. W., Hung, E. H., Griffith, J. F., Tong, C. S., & Cho, C. C. (2013). Comparison of ultrasound versus fluoroscopic guided rotator cuff interval approach for MR arthrography. Clinical Imaging, 37(3), 548-553. https://doi.org/10.1016/j.clinimag.2012.08.002
3. Rutten, M. J. C. M., Collins, J. M. P., Maresch, B. J., et al. (2009). Glenohumeral joint injection: A comparative study of ultrasound and fluoroscopically guided techniques before MR arthrography. European Radiology, 19(3), 722–730. https://doi.org/10.1007/s00330-008-1200-x

P164 Assessing inter-rater precision errors in manual ROI drawing for quantifying radionuclide uptake in TKA SPECT/CT

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Purpose
SPECT/CT is a valuable imaging modality for evaluating painful Total Knee Arthroplasty (TKA). While quantitative analysis of radionuclide uptake can reduce subjectivity, manual region of interest (ROI) drawing introduces variability. The purpose of this study was to evaluate inter-observer precision errors in manually drawn ROIs for radionuclide uptake quantification in SPECT/CT imaging of TKA. Intra-observer precision errors were previously assessed and showed excellent reliability.
Methods
Thirty SPECT/CT knee examinations from patients with asymptomatic TKAs were analysed. ROIs were manually drawn, based on the Hirschmann localization scheme [1], by two independent observers. Each observer drew the same ROIs across five slices per patient, and uptake values were extracted for six key quantitative metrics: mean, median, standard deviation (SD), sum, minimum, and maximum. The Intraclass Correlation Coefficient (ICC) was used to measure inter-observer agreement.
Results
The results demonstrated excellent inter-observer reliability for mean, median, SD, and maximum measurements, with ICC values ranging from 0.947 to 1.000 for mean, 0.931 to 1.000 for median, 0.940 to 0.997 for SD, and 0.936 to 1.000 for maximum. Minimum measurements exhibited good to excellent reliability, with an ICC range of 0.704 to 0.997. Sum measurements showed the most variability, with ICC values between 0.200 and 0.882.
Conclusion
The findings indicate low inter-observer precision errors across most metrics, supporting the reproducibility of manual ROI drawing based on the Hirschmann localization scheme. These results contribute to the larger objective of understanding radionuclide uptake in asymptomatic TKA and provide a foundation for future research.

1. Hirschmann, M.T., et al., A novel standardized algorithm for evaluating patients with painful total knee arthroplasty using combined single photon emission tomography and conventional computerized tomography. Knee surgery, sports traumatology, arthroscopy, 2010. 18(7): p. 939-944.

P167 Multicentric ostetoid osteoma: A series of five cases and review of the literature

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Background

Osteoid osteomas (OO) are the third most common benign tumour, representing 10-14% of all benign bone neoplasms. Despite this, multicentric (two nidi in a single lesion) and multifocal (two nidi in the same bone) remain extremely rare. Although traditionally resected using surgery, modern methods of ablation including radiofrequency ablation (RFA) has become the treatment of choice.

We present a series of five cases to determine whether RFA remains a reliable and effective treatment in this unusual presentation of a common condition.

Method

We used clinical noting, imaging appearances and histological results to review a series of five multicentric OO cases; with lesions in the tibia, spine, femur, humerus and radius. The last of these is a unique trifocal case which has not previously been described in the literature.

Results

All five cases presented with the usual presenting symptom of pain. The lesions all demonstrated typical dense, fusiform, reactive sclerosis, however had multiple central nidi. They affected the common OO locations in the spine, lower and upper limbs.

All five multicentric OO were treated using RFA to good effect, with complete symptomatic resolution and no recurrence.

Conclusion

This is the largest series to date of multicentric osteoid osteoma and establishes key imaging features of such lesions. This also includes the only case of a tricentric OO ever published. Furthermore, this series also demonstrates the successful treatment of all these lesions using RFA, showing it remains a reliable and effective treatment in this unusual presentation.

1. Chai, J.W., Hong, S.H., Choi, J.-Y., Koh, Y.H., Lee, J.W., Choi, J.-A., Kang, H.S., 2010. Radiologic Diagnosis of Osteoid Osteoma: From Simple to Challenging Findings. RadioGraphics 30, 737–749. https://doi.org/10.1148/rg.303095120
2. Kransdorf, M.J., Stull, M.A., Gilkey, F.W., Moser, R.P., 1991. Osteoid osteoma. RadioGraphics 11, 671–696. https://doi.org/10.1148/radiographics.11.4.1887121
3. Rimondi, E., Mavrogenis, A.F., Rossi, G., Ciminari, R., Malaguti, C., Tranfaglia, C., Vanel, D., Ruggieri, P., 2012. Radiofrequency ablation for non-spinal osteoid osteomas in 557 patients. Eur. Radiol. 22, 181–188. https://doi.org/10.1007/s00330-011-2240-1
4.Sampath Kumar, V., Khan, S.A., Palaniswamy, A., Rastogi, S., 2013. Multifocal osteoid osteoma of tibia. BMJ Case Rep. 2013, bcr2013201712. https://doi.org/10.1136/bcr-2013-201712
5. Singh, D.K., Katyan, A., Kumar, N., Nigam, K., Jaiswal, B., Misra, R.N., 2020. CT-guided radiofrequency ablation of osteoid osteoma: established concepts and new ideas. Br. J. Radiol. 93, 20200266. https://doi.org/10.1259/bjr.20200266
6. Tepelenis, K., Skandalakis, G.P., Papathanakos, G., Kefala, M.A., Kitsouli, A., Barbouti, A., Tepelenis, N., Varvarousis, D., Vlachos, K., Kanavaros, P., Kitsoulis, P., 2021. Osteoid Osteoma: An Updated Review of Epidemiology, Pathogenesis, Clinical Presentation, Radiological Features, and Treatment Option. In Vivo 35, 1929–1938. https://doi.org/10.21873/invivo.12459

P169 Musculoskeletal and bone health implications of long COVID: A feasibility study on bone mineral density, joint changes, and body composition (LOCOMUS study)

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Introduction

After SARS-CoV-2 infection, some individuals suffer from persistent symptoms, a condition preferably called long COVID (LC). Previous studies have documented that post-viral syndromes and systemic inflammations resemble LC, triggering musculoskeletal (MSK) changes. Nevertheless, little is known about LC effects on MSK health, particularly bone and joint integrity. This study aimed to assess changes in bone mineral density (BMD), total body composition (TBC), and joint alterations.

Methods

A cross-sectional feasibility study was conducted on 45 LC and 40 well-recovered individuals (WR). BMD and TBC were assessed via dual-energy X-ray absorptiometry (DXA), while MSK ultrasound was used to evaluate synovial hypertrophy, effusion, and Power Doppler signals in hand and knee joints.

Results

No statistically significant differences had been observed in lumbar spine and hip BMD. However, LC participants demonstrated a trend toward lower L1-L4 BMD compared to WR. TBC analysis showed a significant increase in gynoid and android fat percentages in the LC group and reduced lean mass. MSK ultrasound findings indicated a higher prevalence of synovial hypertrophy in LC participants' metacarpophalangeal and proximal interphalangeal joints ($p=0.0036$ and $p=0.0150$, respectively). In contrast, WR participants exhibited more synovial hypertrophy and effusion in the knee ($p=0.0102$ and $p=0.0027$, respectively).

Conclusions

This study provides preliminary evidence of potential MSK changes in LC patients, including trends toward lower BMD, increased adiposity, reduced muscle mass, and articular changes. Our findings underscore the need for larger longitudinal studies to elucidate the mechanisms behind these alterations. Early screening and targeted interventions may help mitigate long-term MSK complications.

Table/figures:

Table 1: Study Inclusion/Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Adults aged ≥18 years of any gender and ethnicity.	Participants who had hospitalisation due to COVID-19 requiring intubation, ICU admission, or ventilatory support (to exclude post-intensive care syndrome).
Participants with a history of SARS-CoV-2 infection confirmed via RT-PCR or antigen testing.	Individuals with pre-existing osteoporosis or metabolic bone diseases (e.g., primary hyperparathyroidism, osteogenesis imperfecta).
LC participants met the WHO and NICE definitions of long COVID, confirmed diagnosis of LC	Those undergoing long-term corticosteroid therapy (≥5 mg prednisolone daily) or taking bisphosphonates, denosumab, or teriparatide.
	Pregnant or breastfeeding women due to the use of ionising radiation in DXA scans.
	Participants with recent fractures (<12 months) or conditions affecting joint health, such as rheumatoid arthritis (RA) or systemic lupus erythematosus (SLE).

Table 2: Study inclusion and exclusion criteria; RT-PCR: reverse transcription polymerase chain reaction; WHO: World Health Organization; NICE: National Institute for Health and Care Excellence; LC: long COVID; WR: Well Recovered.

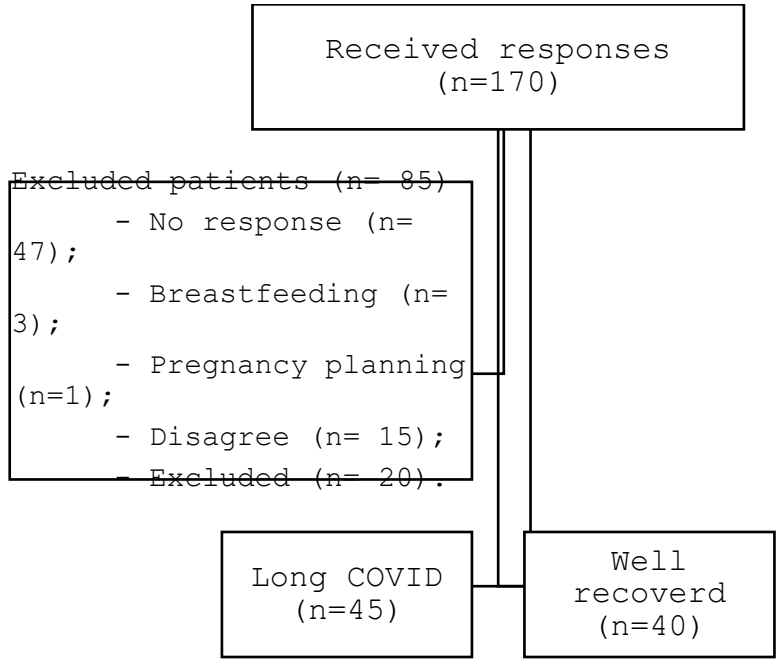

Figure 4The flowchart for the selection of the study population.

Table 2: Participant Characteristics

Variables	Participants (n=85)	WR (n=40)	LC (n=45)	*p*-value
Age (yr), mean ± SD		51.75 ± 15.42	53.04 ± 9.932	0.6430
Female gender, n (%)	57 (67.05)	19 (47)	38 (84.45)	
BMI mean ± SD		28.28± 6.27	28.84± 7.31	0.2142
Ethnicity, n (%)				
White or not stated	80 (94.1)	39 (97.5)	41 (91.11)	
Indian	2 (2.4)	0	2 (4.44)	
Pakistani	1 (1.2)	0	1 (2.22)	
Black African	1 (1.2)	1 (2.5)	0	
Chinese	1 (1.2)	0	1 (2.22)	
Cormobidites				
Diabetes, n				
Non-diabetic		38	43	
Type 1		1	0	
Type 2		1	2	
Smoking status, n				
Non-smoker		26	35	
Ex-smoker		8	8	
Light smoker (less than 10)		2	2	
Moderate smoker (10 to 19)		3	0	
Heavy smoker (20 or over)		1	0	
Alcohol status, n				
Non		15	22	
< 1 unit per day		12	10	
1-2 units per day		9	8	
3-6 units per day		1	4	
7-9 units per day		1	0	
>9 units per day		2	1	
Asthma or (COPD), n		2	11	
Rheumatoid Arthritis/(SLE), n		0	4	
Taking antidepressants, n		1	12	
Previous Fracture, mean, n		14	12	
Parent Hip Fractured, n		2	2	
Taking Glucocorticoids, n		0	1	

*Table 3: COPD: Chronic obstructive pulmonary disease; SLE: Systemic lupus erythematosus; BMI: Body Mass Index; SD: standard deviation; yr: years; * Statistically significant at p≤0.05.*

Table 3: Lumbar Spine and Hip Area DXA scan results

Region	No. Participant Total (WR/LC)	Side	Mean ± SD		*p*-value
			Well Recovered	Long COVID	
L1-L4 T-score	65 (32/33)	-	0.244 ± 1.789	0.138 ± 1.184	0.7802
L1-L4 BMD (g/cm^2)	65 (32/33)	-	1.232 ± 0.221	1.204 ± 0.142	0.5466
Neck BMD (g/cm^2)	84(39/45)	Rt	0.967 ± 0.144	0.974 ± 0.134	0.8194
	84(39/45)	Lt	0.969 ± 0.154	0.976 ± 0.152	0.8426
Total hip BMD (g/cm^2)	84(39/45)	Rt	1.025 ± 0.160	1.024 ± 0.138	0.9596
	83(39/44)	Lt	1.023 ± 0.173	1.017 ± 0.135	0.8762
Total Hip T-score	84(39/45)	Rt	-0.247 ± 1.099	0.015 ± 1.036	0.2632
	83(39/44)	Lt	-0.273 ± 1.174	-0.033 ± 1.043	0.3262

*Table 4: DXA scan of the Lumbar spine and hips; DXA: dual-energy X-ray absorptiometry; BMD: bone mineral density (g/cm2); Rt: Right; Lt: Left; SD: Standard deviation; * Statistically significant at p≤0.05.*

Table 4: TBC Test DXA scan results

Region	Mean ± SD		*p*-value
	Well Recovered (n=39)	Long COVID (n=45)	
***Gynoid Region Fat (%)**	0.402 ± 0.089	0.472 ± 0.085	0.0004
***‡Gynoid Fat Mass (kg)**	8.484 ± 0.365	8.695 ± 0.389	0.0126
***Gynoid Tissue Fat (%)**	0.412 ± 0.090	0.482 ± 0.085	0.0004
‡Gynoid Lean Mass (kg)	8.853 ± 0.224	8.771 ± 0.212	0.0863
***Android Region Fat Mass (%)**	0.422 ± 0.101	0.475 ± 0.112	0.0267
***Android Tissue Fat (%)**	0.426 ± 0.101	0.479 ± 0.112	0.0271
***Legs Tissue Fat (%)**	0.363 ± 0.103	0.439 ± 0.102	0.0011
***Legs Lean Mass (kg)**	16,156.81 ± 3,655.392	14,526.62 ± 3464.668	0.0391
Total Lean Mass (kg)	48,914.26± 1610.99	45,326.66± 1513.918	0.0872

*Table 5: Total Body Composition DXA scan; TBC: Total Body Composition; DXA: dual-energy X-ray absorptiometry; SD: Standard deviation; * Statistically significant at p≤0.05; ‡ after normalisation.*

Table 5: Ultrasound Hand (MCPJ and PIPJ) and Knee joint results

Region	No. Participant	Mean Total Score ± SD		*p*-value
		Well Recovered (n=40)	Long COVID (45)	
***MCPJ Synovial Hypertrophy**	85	3.075 ± 1.9	4.244 ± 1.694	0.0036
MCPJ Synovial Effusion		0.725 ± 1.013	0.844 ± 0.999	0.4690
MCPJ Power Doppler		1.95 ± 1.783	1.956 ± 2.0993	0.7621
***PIPJ Synovial Hypertrophy**		2.55 ± 2.253	4.733 ± 4.403	0.0150
PIPJ Synovial Effusion		0.375 ± 0.838	0.489 ± 0.727	0.1467
PIPJ Power Doppler		0.475 ± 0.906	0.556 ± 0.893	0.5032
***Knee Synovial Hypertrophy**		0.258± 0.08	0.024 ± 0.024	0.0102
***Knee Synovial Effusion**		0.38 ± 0.09	0.098 ± 0.047	0.0027
Knee Power Doppler	72 (31/41)	0.065 ± 0.045	0	0.1014

*Table 6: MCPJ: metacarpophalangeal joint; PIPJ: proximal interphalangeal joint; SD: Standard deviation; * Statistically significant at p≤0.05.*

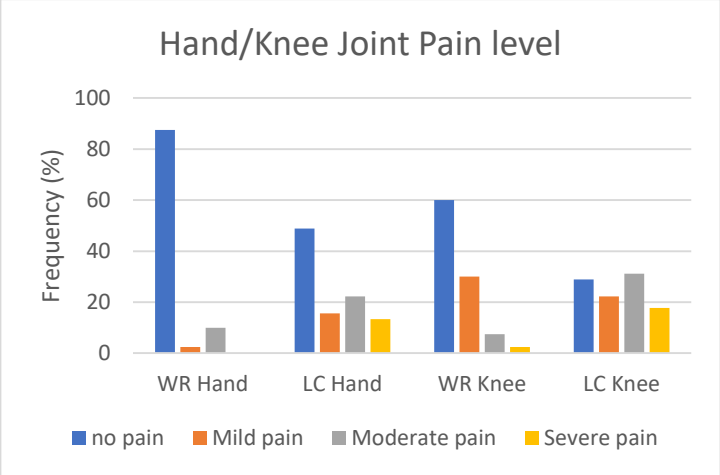

Figure 5: The figure shows how often different pain levels occur in the hand and knee for both groups: WR (n = 40) and LC (n = 45). WR: well recovered; LC: long COVID.

P170 CT findings of calcinosis cutis in a child with ichthyosis, a rare association

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Background
Ichthyoses are an extended family of skin disorders characterised by scaly and dry skin. Ichthyosis vulgaris (IV) is the mildest form of ichthyosis, with an estimated prevalence in UK schoolchildren of 1 in 250. Dystrophic soft tissue calcifications, including calcinosis cutis that primarily affects the dermis and subcutaneous fat, are associated with various connective tissue diseases (i.e., scleroderma, dermatomyositis, Sjogren syndrome), occurring in devitalised or damaged tissue. Although an association of the ichthyoses with autoimmune diseases has been sporadically reported in the literature, the association of IV with calcinosis cutis has not been described.
Purpose of Poster
We present the CT imaging findings of calcinosis cutis in a 15-year-old male with IV, without any underlying connective tissue disease. The patient was diagnosed with IV at the neonatal period. At 13 years, he developed a hard mass at the extensor surface of the right distal arm. Radiography showed focal dense calcifications in the soft tissues. All rheumatologic laboratory values were normal. On CT images, a dense mass contained within the subcutaneous fat was seen, associated with some small rounded calcified foci. The calcified mass abutted the skin surface and followed the contour of the deep fascia. The mass was excised and histology disclosed calcinosis cutis with inflammatory infiltrate and fibrosis.
Summary of content
This extremely unique case shows that calcinosis cutis may occur in association with IV, without any underlying connective tissue disease. Radiologists may need to be familiar with this unusual manifestation of cutaneous disease (ichthyosis) on CT images.

1. El Hachem M, De Marco R, Soria de Francisco JM, et al. Ichthyosis: multinational European study on patient characteristics, involved body sites and impact on quality of life. Br J Dermatol 2024;190:773-775
2. Kim KH, Kim KM, Woo SS, et al. Updated solution for diagnosis and management of calcinosis cutis: A retrospective review. Medicine (Baltimore). 2024;103 (32): e39139

P172 Comparison and review of MVCT and kVCT verification images acquired on radixact tomotherapy with CBCT images acquired on conventional linac for patients with metallic prosthetic replacements

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In radiotherapy, verification images are acquired immediately prior to treatment (1). Metallic prosthetic replacements produce artefacts (shadow/streaking) which distorts structures, limiting the ability to assess target volume and surrounding Organs at Risk (OAR). This case study aims to compare MVCT (Megavoltage Computed Tomography), kVCT (kilovoltage Computed Tomography) and CBCT (Cone Beam Computed Tomography) to determine the superior imaging quality required for patients with metallic prosthetic replacements.
Two patients (N=2) with artificial hip replacements were identified within this retrospective study. Three imaging modes (kVCT 'Normal', MVCT 'Normal' and MVCT 'Coarse') were acquired on Radixact Tomotherapy (2). A 3D CBCT was also acquired on conventional linac for both patients.

The images acquired were assessed independently by two advanced therapeutic radiographers, with a focus on target, OAR visibility and coverage, especially at multiple slices at the level of artificial hip. This was performed using a Likert scale of 0-3 where 0 represents low confidence and 3 high confidence.
Radiographers' assessment determined a higher confidence (score 3) with MVCT 'Normal' when reviewing target and OAR in comparison to other modalities (score 1 and 2) (Table 1). Time taken to review was <2minutes. In addition, MVCT delivered less dose to the patient compared to kVCT 'Normal' and CBCT. The dose delivered ranged from 14.8 – 35.0 DLP (Dose Length Product) cGy.cm.

This study demonstrates MVCT 'Normal' mode, provides the superior image quality for patients with metallic prosthetic replacements compared to kVCT and CBCT imaging modality, whilst adhering to ALARP (As Low as Reasonably Practical) principle.

Table 1 *Average confidence score by two radiographers*

	kVCT 'Normal		MVCT 'Coarse		MVCT 'Normal'		CBCT	
Patient	A	B	A	B	A	B	A	B
Target Volume	1	1	2	2	**3**	**3**	1	1
OAR	1	1	2	2	**3**	**3**	1	1
Time taken to review images	1 min 59 secs	2 mins 10 secs	1 min 41 secs	3 mins 08 secs	1 min 16 secs	1 min 43 secs	2 mins 20 secs	2 mins 30 secs

Table 2 *Scanning doses for each modality*

	Scan	DLP (cGy.cm)	CTDI vol (cGy) Radixact Only	CTD1w (cGy) C-ARM only	Slice interval (mm)	Length (mm)	Slices
Patient A	kVCT 'Normal'	22.3	0.9	n/a	1.8	162	90
	MVCT 'Coarse'	14.8	0.9	n/a	3	165	55
	MVCT 'Normal'	**21.2**	**1.3**	**n/a**	**2**	**160**	**80**
	CBCT	27.5	n/a	1.1	2	220	111
Patient B	kVCT 'Normal'	47.6	1.4	n/a	1.8	253	141
	MVCT 'Coarse'	22.2	0.9	n/a	3	252	84
	MVCT 'Normal'	**31.7**	**1.3**	**n/a**	**2**	**242**	**121**
	CBCT	35.0	n/a	1.4	2	220	111

1. Society and college of Radiographers, The Institute of Physics and Engineering in Medicine and The Royal College of Radiologists, (2021) on target 2 updated guidance for image-guided radiotherapy. Available at rcr_publication-on-target-2-updated-guidance-for-image-guided-radiotherapy.pdf (Accessed 03/02/2025).
2. Accuray (2023) Radixact. Available at Global-Radixact-Overview-Brochure.pdf (Accessed 03/02/2025).

P175 Driving change through data and analytics: Developing a Microsoft Power BI application to support a regional diagnostic network and its local diagnostic services

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Background

CAMRIN developed “CAMDASH”, a Microsoft Power BI application that consolidates radiology imaging dashboards, reports, and key datasets from sources such as Trust Radiology Information Systems. CAMDASH establishes a single source of truth, providing stakeholders with near-real-time views of Trust-level and Integrated Care System-level radiology data. This enables data-driven decision-making and enhances operational transparency. CAMDASH is evolving to ingest additional data sources, positioning it to support other diagnostic services such as Community Diagnostic Centres, Endoscopy, and Pathology, thus expanding its impact beyond radiology.

Purpose

This ePoster aims to highlight how CAMDASH has significantly benefited local Trusts and System-level teams within CAMRIN. It demonstrates how CAMDASH supports monitoring against national diagnostic targets, streamlines data submissions to NHS Cheshire and Merseyside’s Integrated Care Board, and tracks key metrics such as radiology equipment utilisation, Did Not Attend (DNA) rates, and imaging reporting turnaround times. The tool serves as a scalable blueprint for other regions to develop similar data-driven applications for their own diagnostic networks.

Summary of content

This ePoster will provide an overview of the CAMDASH project, the approach that was taken to develop CAMDASH, and the outcomes that the application has achieved to date. It will showcase the tool’s ability to improve performance tracking, streamline data submissions to Integrated Care Boards and/or National bodies, and to enhance decision-making across radiology services. The poster will also highlight how CAMDASH serves as a blueprint for other diagnostic networks to develop similar tools, supporting better patient care and operational efficiency.

P176 The role of MRI in the diagnosis of depression

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Background
There is currently no diagnostic image testing utilised to diagnose depression, potentially leading to improper and missed diagnoses. This review researches the role of Magnetic Resonance Imaging (MRI) in assisting in this diagnosis. The key research aims were to obtain information on the different neurobiology of depressed brains compared to healthy controls (HCs) to find potential biomarkers for the disease and then evaluate whether MRI can detect these and, hence, accurately diagnose and classify depression.
Method
The research question was formed using the PICO framework. The methodology of this dissertation is a critical literature review incorporating quantitative data. Peer-reviewed research was retrieved from CINAHL and Medline (accessed through EBSCOhost) and PUBMED.
Results
There were clear intrinsic functional and effective connectivity alterations for patients with depression compared to HCs, mainly in the default mode network (DMN), salience network (SAL) and limbic network (LIM). These were the most reiterated findings, although there was conflicting research on the connectivity of the DMN for major depressive disorder (MDD) patients.
Conclusion
Further research is required to identify specific biomarkers for depression, but DMN, SAL and LIM connectivity alterations seem the most consistent. Automatic classification of depression using the random forest (RF) model showed the highest level of accuracy and could be a beneficial diagnostic tool, although neuroradiologists still interpreting the images could further prevent misdiagnoses.

Title	Author	Year	Type of study	Sample size	Country	Key notes	Results
Common and specific large-scale brain changes in major depressive disorder, anxiety disorders, and chronic pain: a transdiagnostic multimodal meta-analysis of structural and functional MRI studies	F. Brandl, B.Weise, S.M. Bratec, N. Jassim, D.H. Ayala, T. Bertram, M. Ploner and C. Sorg	2022	Meta-analysis	320 studies (131 MDD studies): 11,135 controls (5,425 controls in MDD studies) 10,931 patients (5,248 MDD patients)	United States of America	A transdiagnostic coordinate-based meta-analysis of brain MRI studies comparing healthy controls to patients with MDD, anxiety and chronic pain investigating properties of intrinsic functional connectivity and regional gray matter volume.	Specific hyperconnectivity between the default-mode network and the dorsolateral prefrontal cortex indicates default-mode-frontoparietal network, default-mode-salience network and within default-mode network hyperconnectivity. Specific hypoconnectivity was observed between the limbic-salience networks, limbic-frontoparietal networks and within the limbic network. No specific gray matter volume changes in MDD.
Classification of Major Depressive Disorder Based on Integrated Temporal and Spatial	Q. Gai, T. Chu, K. Che, Y. Li, F. Dong, H. Zhang, Q. Li, H. Ma, Y. Shi, F. Zhao, J. Liu,	2022	Prospective	245 patients 230 controls	United States of America	Combined machine-learning techniques with temporal and spatial variability of the brain	The MRI model with separate feature selection method achieved the best classification performance with a sensitivity of 0.96, specificity of 0.9

Functional MRI Variability Features of Dynamic Brain Network	N. Mao and H. Xie					network to discriminate individuals with MDD from health controls. Compared their discovery cohort with an external validation cohort from a large MDD resting-state fMRI database (REST-meta-MDD).	and an accuracy of 0.933. The most discriminated features were located in the visual network, cognitive control network, default mode network, sensorimotor network, subcortical network and cerebellum network. Temporal and spatial variability have potential value in discriminating MDD patients from healthy controls.
Large-scale Dynamic Causal Modeling of Major Depressive Disorder Based on Resting-State Functional Magnetic Resonance Imaging	G. Li, Y. Li, Y. Zheng, D. Li, X. Liang, Y. Chen, Y. Cui, PT. Yap, S. Qiu, H. Zhang and D. Shen	2020	Prospective	100 patients 100 controls	United States of America	An effective connectivity study identifying abnormal causal links as potential biomarkers of MDD based on resting-state fMRI data.	The network-based statistics found significant group differences of effective connectivity between the normal controls and MDD patients involved mainly the default model network and the salience network with the nodes in these networks having

							higher degrees. Excitatory effective connectivity within the default model network was reduced in MDD patients with the inhibitory influence at the network level being abnormally increased within the same network. Increased functional connectivity and inhibitory effective connectivity of the default model network could contribute to depressive symptoms. More group differences were identified by the parametric empirical Bayes approach than the network-based statistics.

Diagnosis of Major Depressive Disorder Using Machine Learning Based on Multisequence MRI Neuroimaging Features	Q. Li, F. Dong, Q. Gai, K. Che, H. Ma, F. Zhao, T. Chu, N. Mao and P. Wang	2023	Prospective	139 patients 112 controls	United States of America	Prospective study to calculate the two attributes of brain regions based on the multilayer network of dynamic functional connections and fuse morphological and anatomical network features to diagnose patients with MDD.	Patients with MDD demonstrated distinct structural and functional aberrance compared with healthy control patients. The brain regions with recruitment and integration difference in patients with MDD were mainly located in the visual network, cognitive control network, auditory network and default mode network. In the functional network, the integration and recruitment degree of the visual and cognitive control networks in MDD patients was significantly reduced. The random forest classifier model showed the best performance in MDD diagnoses, with an accuracy of 88.24%, 94.44%

							sensitivity and 84.85% specificity.
Automated Diagnosis of Major Depressive Disorder With Multi-Modal MRIs Based on Contrastive Learning: A Few-Shot Study	T. Li, Y. Guo, Z. Zhao, M. Chen, Q. Lin, X. Hu, Z. Yao and B. Hu	2024	Prospective	62 patients 66 controls	United States of America	Using a computer-aided diagnosis model to exploit the multi-modal semantic information within a limited sample set for the automatic diagnosis of MDD.	The best classification performance was achieved when combining structural-MRI, functional-MRI and diffusion tensor imaging. In unimodal experiments, diffusion tensor imaging demonstrated the highest classification performance. As the Gaussian kernel size increases, the model's performance gradually decreases; while larger kernels enhance the blurring effectiveness, they may result in loss of

							crucial details. The DMN and cerebellum related regions exhibited significant effects on classification performance and could serve as biomarkers for the diagnosis of MDD.
The Amygdala Connectivity with Depression and Suicide Ideation with Suicide Behavior: A Meta-Analysis of Structural MRI, Resting-State fMRI and Task fMRI	H. Nawaz, I. Shah and S. Ali	2023	Meta-analysis	30 studies	United Kingdom	A meta-analysis to study the activation between the amygdala region with depression and suicidal behaviour using structural MRI, resting-state functional MRI and task functional MRI.	Participants with a high level of depression exhibited significant connectivity with the left amygdala in structural and task MRI. Nine studies' combined effect sizes showed significant connectivity between depression and the right amygdala. The structural imaging showed that the amygdala volume significantly positively correlates with depression.
Automatic Classification of Major Depression Disorder Using	R. Ramasubbu, E.C. Brown, L.D. Marcil, A.S. Talai	2019	Prospective	22 patients 22 controls	Japan	Prospective study to investigate the use of high-level machine-	Support vector machine classifier-based differentiation using arterial spin labeling

Arterial Spin Labeling MRI Perfusion Measurements	and N.D. Forkert					learning methods based on an arterial spin labeling cerebral blood flow dataset for the diagnostic classification of MDD.	cerebral blood flow and biological data achieved an accuracy of 77.3%, sensitivity of 75% and specificity of 80%. 25% of patients with MDD and 20% of control patients were not correctly classified. Classification accuracy of the cerebral blood flow based machine-learning model could be improved by integration other multimodal imaging measures.
Reproducibility of Functional Brain Alterations in Major Depressive Disorder: Evidence from a Multisite Resting-State Functional MRI Study with 1,434 Individuals	M. Xia, T. Si, X. Sun, Q. Ma, B. Liu, L. Wang, J. Meng, M. Chang, X. Huang, Z. Chen, Y. Tang, K. Xu, Q. Gong, F. Wang, J. Qiu, P. Xie, L. Li and Y. He	2019	Prospective	709 patients 725 controls	United States of America	A large functional MRI dataset was used to calculate individual functional activity maps that represent local to long-range connections and examine functional brain alterations in	They identified a repeated pattern of significant functional alteration in patients with MDD that was mainly distributed in the prefrontal, parietal and occipital regions. There was a repeated pattern of hypoactvity in the orbitofrontal sensorimotor and visual cortices and
						patients with MDD.	hyperactivities in the frontoparietal cortices in MDD patients compared to healthy control patients.

1. Brandl, F. et al. (2022) 'Common and specific large-scale brain changes in major depressive disorder, anxiety disorders, and chronic pain: a transdiagnostic multimodal meta-analysis of structural and functional MRI studies', Neuropsychopharmacology, 47(5), 1071-1080.
2. Gai, Q. et al. (2022) 'Classification of Major Depressive Disorder Based on Integrated Temporal and Spatial Functional MRI Variability Features of Dynamic Brain Network', J Magn Reson Imaging., 58(3), pp.827-837.
3. Li, G. et al. (2020) 'Large-scale dynamic causal modeling of major depressive disorder based on resting-state functional magnetic resonance imaging', Hum Brain Mapp., 41(4), 865-881.
4. Li, Q. et al. (2023) 'Diagnosis of Major Depressive Disorder Using Machine Learning Based on Multisequence MRI Neuroimaging Features', J Magn Reson Imaging., 58(5), 1420-1430.
5. Li, T. et al. (2024) 'Automated Diagnosis of Major Depressive Disorder With Multi-Modal MRIs Based on Contrastive Learning: A Few-Shot Study', IEEE Trans Neural Syst Rehabil Eng. : a publication of the IEEE Engineering in Medicine and Biology Society, 32(1), 1566-1576.

6. Nawaz, H., Shah, I. and Ali, S. (2023) 'The amygdala connectivity with depression and suicide ideation with suicide behavior: A meta-analysis of structural MRI, resting-state fMRI and task fMRI', Prog Neuropsychopharmacol Biol Psychiatry., 124(1), 110736.
7. Ramasubbu, R. et al. (2019) 'Automatic classification of major depression disorder using arterial spin labelling MRI perfusion measurements', Psychiatry Clin Neurosci., 73(8), 486-493.
8. Xia, M. et al. (2019) 'Reproducibility of functional brain alterations in major depressive disorder: Evidence from a multisite resting-state functional MRI study with 1,434 individuals', NeuroImage., 189(1), 700-714.

P177 A comparison of 68Ga-PSMA-11 Positron Emission Tomography/Computed Tomography and 99mTc-MDP Bone Scintigraphy for the detection of bone metastases in prostate cancer: A systematic review

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Background

Prostate cancer (PCa) is the most commonly diagnosed malignancy and the second leading cause of cancer-related mortality among men in the United Kingdom (UK) (Cornford, P et al., 2024). Accurate diagnosis and evaluation of bone metastases (BM) are essential for optimising treatment strategies and determining prognosis. Bone scintigraphy (BS) using Technectium-99m-labelld methylene diphosphate (99mTC-MDP) remains the standard imaging modality for BM detection (Parker, C et al., 2020). However, positron emission tomography/computed tomography (PET/CT) using prostate-specific membrane antigen (PSMA) ligands, such as 68Ga-PSMA-11, is increasingly recommended for high-risk PCa patients (Freeman-Cass D et al., 2021). This review aims to compare the diagnostic accuracy of both modalities in detecting PCa BM.

Methods

A systematic review was conducted using MEDLINE, Scopus, CINAHL, and Web of Science databases through November 2024. Studies published in English within the past five (for 68Ga-PSMA-11 PET/CT) and ten (for 99mTc-MDP BS) years were included. Bias and quality were assessed using the JBI Critical Appraisal Checklist and QUADAS-C tool.

Results

Six studies comprising 532 patients were included. 68Ga-PSMA-11 PET/CT demonstrated superior sensitivity (90.9-100%) and specificity (93%-100%) compared to that of 99mTc-MDP BS (50%-95.5% and 19.2%-94.9% respectively) in BM detection across all measures of accuracy. The overall risk of bias was moderate due to the retrospective nature of most included studies.

Conclusion

68Ga-PSMA-11 PET/CT outperforms 99mTc-MDP BS in detecting BM in PCa. Moreover, 99mTc-MDP BS provides minimal additional diagnostic value in patients with negative 68Ga-PSMA-11 PET/CT findings. Future research should aim to establish the clinical significance of these findings.

1. Cornford P, van den Bergh RCN, Briers E, Van den Broeck T, Brunckhorst O, Darraugh J, et al. (2024) EAU-EANM-ESTRO-ESUR-ISUP-SIOG Guidelines on Prostate Cancer-2024
Update. Part I: Screening, Diagnosis, and Local Treatment with Curative Intent. Eur Urol. 2024;86(2):148-63.
2. Freedman-Cass D, Berardi R, Shead D. (2021) NCCN Guidelines Version 1.2022 eProstate Cancer. Plymouth Meeting, Pennsylvania: National Comprehensive Cancer Network 2021.
3. Parker C, Castro E, Fizazi K, Heidenreich A, Ost P, Procopio G, et al. (2020) Prostate cancer:
ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. Annals of Oncology. 2020;31(9):1119-34.

P178 Pre-test probability calculator for MCUG; A potential triage and training tool

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Aims

Micturating cystourethrogram (MCUG) is commonly performed in infants during investigation of urinary tract infections. Low volume bladder emptying or premature expulsion of the catheter can cause a dilemma over how long to pursue an examination. Tailored pre-test probability of VUR may help guide technique in such settings, and when supervising trainees of variable experience.

Method and Materials

Retrospective review of MCUG examinations performed over a 5 year period in two departments was conducted, collating prior microbiology and ultrasound findings prior to iteratively develop a calculation tool to stratify risk of a positive examination. Risk stratification was applied to (retroactively) gauge likelihood of reflux, with risk of renal scarring on subsequent DMSA (when available) also evaluated.

Results

180 examinations were identified of which 155 were included. Utilising the calculator in combination with "traffic light" style risk stratification, likelihood of demonstrating reflux on MCUG or scarring on DMSA was 7% (5/73) and 8% (5/63) respectively in green/ low risk category; 28% (11/39)and 11% (4/36) in amber/moderate risk category; 65% (28/43) and 40% (18/46) in red/ high risk category

Conclusion
This calculator tool shows promise as a potential triage tool if access to MCUG is limited, how doggedly to pursue bladder filling in challenging examinations and a means to pre-allocate examinations to trainees with the appropriate level of expertise. AI input in combination with larger datasets is likely to improve accuracy of forecasts going forwards. Prospective evaluation is planned.

1. Hua, L., Linke, R.J., Boucat, H.A.P. and Khurana, S., 2016. Micturating cystourethrogram as a tool for investigating UTI in children - an institutional audit. Journal of Pediatric Urology, 12(5), pp.292.

P179 Are repeat ultrasound scans for ovarian torsion in paediatric patients helpful?

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Background
Ovarian torsion (OT) is rare in the paediatric population but a common clinical concern in the context of acute abdominal pain.1 Local impression that ultrasound scans (USS) often repeated in this setting due to inadequate initial bladder filling. Evidence suggests signs of acute ovarian pathology are typically present regardless of bladder filling.2 Can local data support safe refusal of out-of-hours repeat if initial USS is reassuring?
Method
Retrospective study performed reviewing abdominal/pelvic USS reports undertaken over two year period for 8 to 16 year old females at a tertiary paediatric centre. Examinations containing: “ovary”, “ovaries”, “ovarian”, “adnexal” or “torsion” in the report were retrieved. Non-acute examinations were excluded. Outcomes for patients who had a repeat USS within one week or possible ovarian torsion reported were recorded.
Results
716 relevant USS reports were identified.
34 patients had a repeat USS within 1 week, none of which identified new OT. 19 repeats were due to an underfilled bladder and 8 were within 12 hours. 3 USS found possible pathology on a repeat not seen on the first scan (2 appendicitis and 1 pneumonia).
22 patients had a sonographic diagnosis of possible OT. 10 were confirmed at surgery, 8 were managed conservatively, 2 were appendicitis at theatre and 2 were not torted at surgery.
Conclusion
The likelihood of missing OT due to underfilled bladder is low. Repeat USS within 12 hours of initial normal is considered unnecessary unless significant clinical concern. Input from the Gynaecology team can be helpful in equivocal cases.

1. Dasgupta, R., Renaud, E., Goldin, A.B. et al., 2018. Ovarian torsion in pediatric and adolescent patients: A systematic review. Journal of Pediatric Surgery, 53(7), pp.1387-1391. https://doi.org/10.1016/j.jpedsurg.2017.10.053.
2. Shapira-Zaltsberg, G., Fleming, N.A., Karwowska, A., Trejo, M.E.P., Guillot, G. & Miller, E., 2019. Non-visualization of the ovaries on pediatric transabdominal ultrasound with a non-distended bladder: Can adnexal torsion be excluded?. Pediatric Radiology, 49(10), pp.1313-1319. https://doi.org/10.1007/s00247-019-04460-y.

P180 Diagnostic radiography students’ experience when undertaking paediatric imaging: A qualitative study

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Introduction
Paediatric imaging focuses on diagnosis and treatment of children. Radiographers experience unique challenges when c aring for paediatric patients. Students’ experiences in paediatric imaging in the UK has limited exploration. The aim of this study is to uncover diagnostic radiographer students’ experiences during paediatric imaging, allowing them to explore thoughts on preparations for placement along with any challenges.
Method
A phenomenological design was used. Seven participants were interviewed individually online. The interviews were semi structured to allow for in-depth responses to be collected. Bracketing was used to set aside any preconceived thoughts around the phenomenon. Interviews were recorded and transcribed verbatim. Data was analysed using Colaizzi’s method.
Results
Three main themes and seven subthemes emerged. 1. Preparedness for clinical placement 1a. Impact of university teaching sessions, 1b. Reflecting on initial feelings. 2. Challenges encountered in paediatric imaging, 2a. Communication between students and patients, 2b. The influence of parents/guardians in paediatric imaging, 2c. Understanding pain and the influence on technique. 3. Experiential learning, 3a. The influence of qualified radiographers, 3b. Placement experience and perceived confidence.

Conclusion
Understanding the lived experience of students within paediatric radiography has allowed for exploration of the challenges that they face. The findings confirm the importance of placement experience for students, to develop skills required to be competent in paediatric imaging. They also suggest a current gap in students' knowledge and skills. This potentially leading to a required change in the academic delivery and clinical placement structure in this subject area.

P181 AI-assisted detection of paediatric metaphyseal tibial fractures on X-rays

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Background
Paediatric metaphyseal tibial fractures are often subtle and challenging to detect on X-rays, increasing the risk of missed diagnoses, particularly in busy clinical environments or when assessed by non-specialist radiologists. Artificial intelligence (AI) is increasingly applied in medical imaging, yet its role in detecting these fractures has not been extensively studied [1,2]. This research explores whether a deep learning-based AI model (YOLOv8) can assist in accurately classifying metaphyseal tibial fractures, potentially improving diagnostic accuracy and workflow efficiency.
Method
A dataset of 245 fracture and 637 non-fracture anterior-posterior X-rays was used, covering multiple fracture types, including buckle, spiral, transverse, oblique, periosteal, toddler and greenstick fractures. The dataset was split into training (65%), validation (15%), and test (20%) sets, with augmentation applied to address class imbalance. A pre-trained YOLOv8 model was fine-tuned for fracture classification over 200 training epochs, using an image size of 1024 pixels and a batch size of 16.
Results
Across five validation folds, the model achieved sensitivity = 0.70, specificity = 0.97, accuracy = 0.89. On test data, results were sensitivity = 0.55, specificity = 0.96, accuracy = 0.84. Buckle fractures had the highest classification accuracy (77.8%).
Conclusion
AI-assisted fracture detection could enhance workflow efficiency, helping radiologists detect subtle fractures earlier and reducing diagnostic uncertainty. While results demonstrate feasibility, further clinical validation and multi-centre studies are needed before integration into routine practice. AI-driven classification could become a valuable adjunct in paediatric musculoskeletal radiology.

1. Alshammari, A.T., Oates, A.J., Rigby, A.S. and Offiah, A.C. (2024). Diagnosis of metaphyseal fractures in infants and young children with suspected inflicted injury: a systematic review of cross-sectional imaging techniques. Clinical radiology, 79(3), pp.221-229.
2. Kuo, R.Y., Harrison, C., Curran, T.A., Jones, B., Freethy, A., Cussons, D., Stewart, M., Collins, G.S. and Furniss, D. (2022). Artificial intelligence in fracture detection: a systematic review and meta-analysis. Radiology, 304(1), pp.50-62.

P182 "Fasthead" MRI scans for children with headache: A review of two years practice

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Background
Following a successful pilot, a "Fasthead" MRI protocol was introduced in February 2023. This reduces scan time from 13 to 4 minutes accompanied by a modest loss of image quality, considered acceptable in this clinical setting with agreed clinical criteria/ exclusions. Following a two year period of use, this project sought to determine if scans are of diagnostic quality and whether this protocol is being adhered to.
Methodology
MRI scans performed over a two year period in which "headache" was included in the clinical information were identified via EPR and retrospectively reviewed to determine if the "Fasthead" or conventional sequences were performed. Adherence to the agreed clinical criteria was determined for each examination. Findings of the examination and requirement for further neuroimaging was established.
Results
399 examinations were identified. 172 were appropriate conventional scans (43%)
72 were appropriate Fastheads (18%). 133 were conventional scans which met criteria for a Fasthead scan (33.3%). 22 were Fasthead scans in which criteria had not been met (5.5%).
4 of 94 Fasthead scan patients underwent further imaging. MRI in 3 cases (one space-occupying lesion; features of raised intracranial pressure; callosal lipoma), CT was subsequently performed in one case, but considered a separate presentation.
Only one case was identified in which the patient may have benefitted (modestly) from a conventional scan rather than Fasthead.
Conclusion
Study demonstrates scope for improvement in vetting requests but Fasthead is considered safe and efficient. Estimated 23.5 hours scan time saved during this period.

P185 Creating a welcoming environment for patients with Autism attending radiology, with innovative waiting room design: A scoping review

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Background
Autism, affecting approximately 1% of the population globally can, in some affected individuals, significantly reduce sensory filtering compared to neurotypical individuals. This can lead, in turn, to heightened and sustained anxiety responses to a range of stimuli, not least bright lights, crowded spaces and loud noises. This paper reports findings of how environmental design in radiology departments impacts upon autistic patients, and how environmental adaptations could be made to help autistic patients manage sensory overstimulation.
Method
A scoping review of autism-specific healthcare design principles was conducted, using peer-revied articles retrieved via a metasearch of key medical databases, and grey literature from trusted sources.
Results
Analysis revealed three primary findings: (a) Environmental modifications based on the Autism ASPECTSS™ Design Index, such as reducing acoustic noise levels to below 40db, have potential for significant anxiety reduction and improvements in comfort and compliance; (b) Targeted adjustments to existing departmental environments, particularly regarding lighting/sound management, can be highly effective in improving patient experience; and (c) Autism-related environmental adaptations may have positive impacts for non autistic patients, as evidenced by reductions in prescribed pain and psychiatric mediation.
Conclusions
The findings underscore that environmental modifications in radiological settings can significantly impact upon autistic patients' healthcare experience. While departmental design may offer optimal solutions, immediate wins can be achieved through relatively minor adjustments to lighting and sound levels in extant facilities. These observations have practical implications for radiology departments (and healthcare facility managers) seeking to provide more inclusive and effective diagnostic imaging services in the future.

Bortz, K. (2018) 'Small changes to environment may improve care, education of children with autism', Infectious diseases in children, 31(6), pp. 1–3.
Diagnostic and statistical manual of mental disorders : DSM-5. (2013) 5th edn. Arlington, Va: American Psychiatric Association.
Fletcher, T., Chen, A., Norris, A., Pizarro, E., Tran, J. and Tripp, M. (2023) 'Guidelines for Sensory Havens in Autism and Sensory-Friendly Events', Teaching exceptional children, , pp. 4005992311717 Available at: 10.1177/00400599231171715.
Keehn, B., Westerfield, M. and Townsend, J. (2019) 'Brief Report: Cross-Modal Capture: Preliminary Evidence of Inefficient Filtering in Children with Autism Spectrum Disorder', Journal of Autism and Developmental Disorders, 49(1), pp. 385–390 Available at: 10.1007/s10803-018-3674-y.
World Health Organization (2023) Autism. Available at: https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders (Accessed: Jan 2025).
Ziegler, U. (2015) 'Multi-Sensory Design as a Health Resource: Customizable, Individualized, and Stress-Regulating Spaces', Design issues, 31(1), pp. 53–62 Available at: 10.1162/DESI_a_00309.

P186 Delivering person-centred care for autistic individuals in diagnostic imaging

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Introduction
Autism is a life-long neurological condition that affects how one communicates and experience the world around them (NHS England, 2019). Autistic adults face barriers in healthcare, ranging from communication challenges and sensory sensitivities to systemic issues within the healthcare setting (Doherty, McCowan and Shaw, 2023). While access to diagnostic imaging is crucial for autistic people to diagnose and track treatment progress for conditions that may be more common to them than the neurotypical population (Stogiannos et al., 2022), attending for imaging exams can feel overwhelming due to environmental factors such as noises or due to communication breakdown. These cause heightened stress and anxiety leading to withdrawal, non-attendance for imaging exams and consequently, poor health outcomes (Carlier et al., 2023; Stogiannos et al., 2023). With studies showing lack of preparedness of healthcare institutions in providing high quality care for autistic adults (Nicolaidis et al., 2021) and more studies targeted at autistic children, it is important to educate diagnostic radiographers on strategies involved in delivering truly person-centred care for autistic adults to improve imaging access and health outcomes for this group.
Purpose
The poster aims to educate radiographers on barriers autistic adults face in accessing healthcare and strategies involved in the delivery of person-centred care for them.

Summary of content

The poster will cover the following:

- Background on autism
- Importance of imaging in the care of autistic people
- Barriers autistic adults face in accessing healthcare
- Strategies involved in person-centred care delivery for autistic adults.
- Recommendations for practice

1. Carlier, S., Vorlet, P., Sá dos Reis, C. and Malamateniou, C. (2022) 'Strategies, challenges and enabling factors when imaging autistic individuals in Swiss medical imaging departments', Journal of Medical Imaging and Radiation Sciences, [online] 54(4), pp. 53-63.
2. Doherty, M., McCowan, S. and Shaw, S.C. (2023) 'Autistic SPACE: a novel framework for meeting the needs of autistic people in healthcare Settings', British Journal of Hospital Medicine, [online] 84(4), pp.1–9.

3. NHS England (2019) People with a learning disability, autism or both. Available at: https://www.england.nhs.uk/wp-content/uploads/2020/01/Learning-disability-and-autism.pdf (Accessed: 03 January 2025).
4. Stogiannos, N., Carlier, S., Harvey-Lloyd, J. M., Brammer, A., Nugent, B., Cleaver, K., McNulty, J. P., Dos Reis, C. S., & Malamateniou, C. (2022) 'A systematic review of person-centred adjustments to facilitate magnetic resonance imaging for autistic patients without the use of sedation or anaesthesia', Autism : The International Journal of Research and Practice, 26(4), 782–797.
5. Stogiannos, N., Harvey-Lloyd, J.M., Brammer, A., Cleaver, K., McNulty, J.P., Dos Reis, C.S., Nugent, B., Simcock, C., O'Regan, T., Bowler, D., Parveen, S., Marais, K., Pavlopoulou, G., Papadopoulos, C., Gaigg, S.B., & Malamateniou, C. (2023) Toward Autism-Friendly Magnetic Resonance Imaging: Exploring Autistic Individuals' Experiences of Magnetic Resonance Imaging Scans in the United Kingdom, a Cross-Sectional Survey. Autism in Adulthood : Challenges and Management, 5(3), 248–262.

P187 Imaging people with dementia: How the radiographer can improve patient experience and outcomes

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Introduction

Anxiety and behavioural and psychological symptoms of dementia (BPSD) in people living with cognitive decline correspond with poorer health outcomes1 but interventions designed to alleviate these have largely been investigated in environments outside of acute care such as care homes and nursing homes. However, the nature of this demographic and their co-morbidities often means that they frequently attend and/or are admitted to hospital. With most people undergoing some form of diagnostic imaging along their hospital pathway, people with dementia (PWD) are very likely to meet with radiographers. For PWD imaging can be an unfamiliar, challenging and distressing environment, with some imaging (such as MRIs or ultrasound) taking time and provoking anxiety and undiagnostic images2. The aim of this study is to identify challenges and barriers to person-centred care and successful imaging of PWD in Radiology.

Methods

Semi-structured interviews with 25 radiographers working in all areas of Radiology were conducted at a large NHS Trust followed by thematic analysis. The results will inform future research and the development of a pathway for PWD when attending for imaging.

Results and Conclusions

Preliminary investigations suggest it is necessary to take a patient-centric approach to imaging, involving carers and PWD from the outset. The use of non-pharmacological interventions and training and support for Radiology staff will have the best outcomes for diagnostic imaging of PWD. The limitations of this paper revolve around use of a single study site.

1. Fogg, C. Griffiths, P. Meredith, P. and Bridges, J. (2018) Hospital outcomes of older people with cognitive impairment: An integrative review. Int J Geriatr Psychiatry. 33(9),1177–97. doi: 10.1002/gps.4919.
2. McArthur, V. Wastell, E. and Saunders, N. 2024 Using dementia flags in electronic health records. Insight 12.

P188 Experiences of hard of hearing service users attending an X-ray examination

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Background

People with hearing loss and members of the Deaf community face challenges navigating X-ray departments and communicating with healthcare providers[1'3]. Research into patient experiences often combines sign language users and those preferring to communicate using a spoken language[2]. This unnuanced grouping means the focus in healthcare has predominantly been on access to sign language, failing to offer solutions designed for people with a hearing impairment with English as a first language. This project explores the experiences of hard of hearing service users, against the Quality Standards for Imaging (QSI).

Methods

An online questionnaire was advertised by a national hearing loss charity and promoted through social media. Quantitative data was collected in either an array question type or graded forced choice format to determine if the QSI standards had been met. Qualitative data was obtained from free-response questions and analysed thematically to explore unknown variables and influences.

Results

14 responses were received of which none had experiences that met all the applicable QSI standards. The communication aids QSI demonstrated the best compliance (n=8; 57%) while the standard for respect was only met in 7% of cases (n=1). Qualitative analysis yielded several themes with both positive and negative feedback. Respondents provided recommendations for service improvement encompassing awareness and communication training, access to alternative information formats and extended examination times.

Conclusions

This study demonstrated that currently the experiences of hard of hearing service users for X-ray examinations are negative. Further work is needed to develop and implement improvements for this group.

1. Hulme, C., Young, A., Rogers, K. and Munro, K.J. (2024) Deaf signers and hearing aids: motivations, access, competency and service effectiveness. International Journal of Audiology. 63(2), 136-145
2. Lyons, G. and Normandin, P.A. (2023) Strategies to Improve Emergency Department Care of the Deaf and Hard of Hearing Patient. Journal of Emergency Nursing. 49(4), 489-494.
3. O'Riordan, J., England, A., Young, R., Albeshan, S., Alashban, Y. and McEntee, M. (2024) The experiences and opinions of deaf service users accessing radiology. Journal of Radiation Research and Applied Sciences. 17(1), 100786.

P189 Patient perception of the value and stresses involved with fetal MRI scans

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Background

Magnetic resonance imaging (MRI) is an effective second-line imaging tool to address limitations of Ultrasound, providing detailed, multiplanar images with a broad field of view. This capability aids in diagnosing fetal abnormalities and can reduce patient uncertainty. However, the process may induce anxiety, creating mixed patient experiences. The study aims to evaluate and understand, from the patient's perspective, the value of fetal MRI.

Methods

The research assessed anxiety associated with fetal MRI, focusing on differences based on referral reasons e.g., brain, body, or placental abnormalities. The study involved qualitative interviews with pregnant women attending MRI scans locally and broader qualitative and quantitative data from a national survey.

Results

Pre-scan anxiety was the highest across all abnormalities. Interviews revealed that brain abnormalities elicited the highest anxiety throughout the process, while questionnaire data indicated similar levels for body abnormalities. Placental cases, despite experiencing less anxiety during the MRI, often retrospectively viewed the experience more negatively.

Conclusion

Despite specific dislikes, all patients, even those with poor prognoses or no answers, valued fetal-MRI for its detailed imaging and ability to clarify some uncertainties. Anxiety in brain cases remained high post-scan, possibly due to public concerns about brain conditions. Anxiety decreased post-MRI for body cases, likely due to more treatment options. Placental cases had the lowest anxiety levels, however, they reported negative retrospective opinions, possibly due to administrative issues and lack of clinical urgency. When developing fetal MRI guidelines, it is important to consider patients' experiences to help reduce anxiety.

1. Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. Qualitative Research in Psychology 3, 77–101.
2. Treboux, D., n.d. State Trait Anxiety Inventory.

P190 Understanding and addressing social frailty in radiotherapy

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Background

Frailty has received much attention in recent decades, as health and social care providers reflect on how best to support an aging population. Frailty is increasingly recognised as a multidimensional concept, encompassing physical, cognitive, psychological, and social domains.

Social Frailty is an emerging concept in the frailty evidence base (Bunt et al., 2017, Yamada and Arai, 2023). Research has illustrated the delicate balance older adults maintain between social ability and social frailty. In addition, the evidence base on social frailty has raised questions about whether social frailty precedes physical frailty. Therapeutic radiographers are uniquely positioned in cancer care pathways to screen and identify individuals vulnerable to social frailty; and where necessary signpost or refer to appropriate community services.

Purpose

Addressing social frailty through early screening and integration with social prescribing can significantly improve the quality of care for older adults in radiotherapy pathways. Therapeutic Radiographers have a pivotal role in this process, ensuring that vulnerable individuals receive the support they need.

Summary of content

This poster / presentation provides an overview of the concept of social frailty, emphasising:

- Benefits of Social Frailty Screening: Highlighting the importance of early identification in radiotherapy pathways.
- Integration with Social Prescribing: Linking social frailty screening to the broader social prescribing agenda.
- Screening Tools: Presenting a range of social frailty screening tools that can be implemented in radiotherapy pathways.

1. Bunt S, Steverink N, Olthof J, van der Schans CP, Hobbelen JSM (2017) Social frailty in older adults: a scoping review. European Journal of Ageing. 14(3):323-334. doi: 10.1007/s10433-017-0414-7.
2. Yamada, M and Hidenori, A (2023) Understanding social frailty. Archives of Gerontology and Geriatrics. 115. doi: 10.1016/j.archger.2023.105123

P191 Elements of person-centred diagnostic imaging care in low and middle-income countries: A systematic review

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Introduction

Diagnostic imaging professionals are trained to deliver safe and high-quality person-centred radiographic diagnostic imaging care. The term person-centred care has been described as a confused concept without a unified definition. This systematic review identified the elements that have been used to measure person-centred care in diagnostic imaging in low- and middle-income countries (LMICs)

Methods

A systematic review was conducted and reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis statements. Embase, MEDLINE and Cochrane Library were searched. Bias was assessed using the Critical Appraisal Skill Programme and Mixed Method Appraisal Tool. A narrative synthesis guided by the Picker Principles of person-centred care was undertaken

Results

Of the 4482 articles identified, 26 articles were included. The studies were from 12 LMICs. Synthesis of the literature generated six themes, namely access to high quality and safe diagnostic imaging care, effective communication and shared diagnostic imaging decision making, suitable diagnostic imaging environment for physical comfort, respectful and compassionate diagnostic radiographers, effective coordination of diagnostic imaging care process, and family and friends involvement in diagnostic imaging care.

Conclusion

Medical imaging facilities in most LMICs continue to struggle with issues of access, safety, quality, and responsiveness to patients' needs. The need for innovative, person-centred diagnostic imaging care interventions in LMICs has become urgent

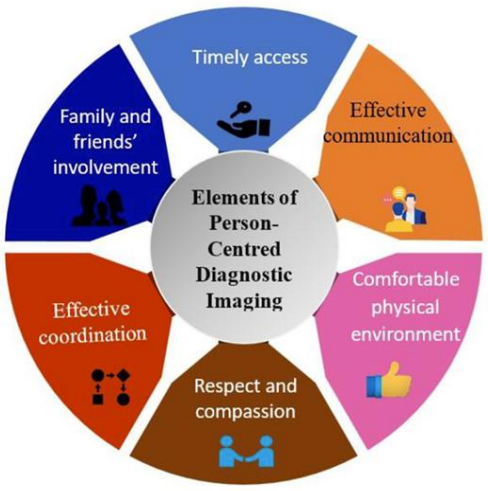

Figure 3. Elements that define person-centred diagnostic imaging care in the literature from LMICs.

1. Bensbih, S., Souadka, A., Diez, A.G. and Bouksour, O., 2020. Patient centered care: focus on low and middle income countries and proposition of new conceptual model. Journal of Medical and Surgical Research, 7, pp.755-763.
2. Beatrice, D.F., Thomas, C.P. and Biles, B., 1998. Essay: Grant Making With An Impact: The Picker/Commonwealth Patient-Centered Care Program: A successful multimillion-dollar program offers lessons to grantmakers about how a foundation can advance a field. Health Affairs, 17(1), pp.236-244.

P194 Can delayed cardiac PET-CT improve diagnostic yield for cardiac infections?

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Aim

This study investigates whether delayed imaging enhances the diagnostic accuracy of FDG PET-CT in detecting cardiac infections, particularly when initial scans are inconclusive. Additionally, we assess the overall diagnostic yield of FDG PET-CT in infections related to cardiac devices, vascular grafts, and native valves.

Methods

We retrospectively reviewed FDG PET-CT scans of patients suspected of having cardiac infections. Each patient underwent whole-body imaging at 60 minutes and delayed scan of chest were acquired at 90 minutes. The images were carefully reanalysed—intense, focal, or irregular uptake patterns were considered suggestive of infection; while mild, diffuse uptake was considered negative. If delayed imaging altered or strengthened the diagnosis, it was classified as having incremental benefit.

Results

Infections were confirmed with a high diagnostic value of FDG PET CT in cardiac infection involving cardiac devices, vascular grafts and native valves. Notably, delayed imaging appeared to improve diagnostic confidence, particularly by reducing uncertainty in negative cases. Delayed imaging is also useful when initial scans were inconclusive.

Conclusion

Our findings suggest that delayed imaging improves confidence, particularly in ruling out infection with confidence. Its significance may vary, especially if diagnostic positive uptake is seen on initial images itself. Could this additional step refine clinical decision-making and reduce unnecessary treatments? Further research may help establish its role in routine practice. Additionally, in overall analysis, FDG PET-CT plays a key role in assessing suspected cardiac infections.

P195 High scores, healthy community: Patient satisfaction in diagnostic centres

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Background

Net Promoter Score (NPS) is a key metric for assessing patient satisfaction. For Community Diagnostic Centres (CDCs), maintaining a high NPS is crucial to ensuring patient trust and loyalty. The organisational benchmark for NPS is 85%. The median NPS across all sites from February 2024 to January 2025 is 78.1%, with a standard deviation of 9.1%.

Purpose

To establish a suitable benchmark for NPS in diagnostic centres and summarise NPS data for various centres over the study period.

Summary of content

External Benchmark: The NHS Friends and Family Test (FFT) is commonly used to assess patient experience in the UK healthcare system. While there is no direct NPS equivalent, NHS Trusts typically report high recommendation rates, with figures such as 97% for inpatients and 79% for A&E patients. Given the organisational benchmark of 85% (for NPS), many CDCs exceed this target, demonstrating strong patient satisfaction.

NPS Data Sample Summary:

Oldham Community Diagnostic Centre: 96.2%

Taunton Diagnostic Centre: 86.9%

South Tyneside Integrated Diagnostic Centre: 85.6%

The data overall indicates that CDCs consistently achieve higher NPS compared to other sites. With a median NPS of 78.1% (SD: 9.1%), CDCs perform above the NHS FFT benchmarks, reflecting high patient satisfaction and loyalty.

1. Reichheld, F.F., 2003. The one number you need to grow. Harvard Business Review, 81(12), pp.46-55.
2. Stone, M., 2013. The NHS Friends and Family Test: A patient feedback mechanism. International Journal of Market Research, 55(2), pp. 1-13.
3. Crawford, C., 2016. Measuring patient experience: The NHS Friends and Family Test and its application. Journal of Health Services Research & Policy, 21(3), pp. 150-157.
4. NHS England, 2019. The NHS Friends and Family Test: Guidance for NHS providers. [online] Available at: https://www.england.nhs.uk

P196 Effectiveness of post-stroke rehabilitation interventions in West Africa: A systematic review of evidence and challenges

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Background
Stroke is a leading cause of disability worldwide, including in West Africa, where unique sociocultural and healthcare challenges impact rehabilitation outcomes. Despite the growing burden, there is limited evidence assessing the efficacy of post-stroke rehabilitation interventions tailored to this region.
Objective
This systematic review evaluates the effectiveness of post-stroke rehabilitation interventions in West Africa, focusing on functional outcomes, quality of life, and overall well-being.
Methods
A thorough literature search was performed using PubMed, Embase, Academic Ultimate, PubMed, CINHAL, and SCOPUS databases via the EBSCOhost federated search engine to identify studies on post-stroke rehabilitation within West African. Inclusion criteria were guided by the PRISMA framework and encompassed randomized controlled trials (RCTs), quasi-experimental studies, and observational studies. The analysis emphasized functional improvements, intervention approaches, and sociocultural relevance.
Results
Ten studies met the inclusion criteria, examining interventions such as physiotherapy, occupational therapy, and multidisciplinary programs. These interventions demonstrated significant improvements in functional abilities, quality of life, and well-being among stroke survivors. However, methodological limitations, including small sample sizes, non-standardized outcome measures, and intervention heterogeneity, were notable.
Conclusion
This review highlights the potential of post-stroke rehabilitation interventions in improving outcomes for West African stroke survivors. To strengthen evidence-based practice, future research should employ robust designs, larger cohorts, standardized measures. Furthermore, development of comprehensive imaging pathways into the stroke initial diagnosis and rehabilitation process. Culturally tailored interventions are essential to enhance regional applicability and optimize rehabilitation strategies, ultimately advancing stroke care and survivors quality of life in West Africa.

Abdullahi, A., Candan, S.A., Soysal Tomruk, M., Yakasai, A.M., Truijen, S. and Saeys, W., 2021. Constraint-induced movement therapy protocols using the number of repetitions of task practice: a systematic review of feasibility and effects. Neurological Sciences, 42, pp.2695-2703.
Aho, K., Harmsen, P., Hatano, S., Marquardsen, J., Smirnov, V.E. and Strasser, T., 1980. Cerebrovascular disease in the community: results of a WHO collaborative study. Bulletin of the World Health Organization, 58(1), p.113.
Akinyemi, R.O. and Brainin, M., 2021. The African Stroke Organization—a new dawn for stroke in Africa. Nature Reviews Neurology, 17(3), pp.127-128.
Al-Whaibi, R.M., Al-Jadid, M.S., ElSerougy, H.R. and Badawy, W.M., 2022. Effectiveness of virtual reality-based rehabilitation versus conventional therapy on upper limb motor function of chronic stroke patients: a systematic review and meta-analysis of randomized controlled trials. Physiotherapy theory and practice, 38(13), pp.2402-2416.
Oktar, H.N. and Inal, H.S., 2021. Efficacy of mirror therapy for improving unimanual motor skills in chronic stroke patients: A case series. Physiotherapy Practice and Research, 41(2), pp.163-170.
Langhorne, P. and Legg, L., 2003. Evidence behind stroke rehabilitation. Journal of Neurology, Neurosurgery & Psychiatry, 74(suppl 4), pp.iv18-iv21.

P197 Patient satisfaction with imaging services in Ghana

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Background

Patient satisfaction is the degree to which patients believe the service provider meets their requirements and expectations. It indicates the effectiveness of treatments and fosters confidence between patients and providers1. Prioritising patient satisfaction can enhance the overall patient experience and improve health outcomes, making it an essential aspect of healthcare organisations' standards. 2. Improved patient compliance and a greater sense of trust in healthcare professionals are linked to higher patient satisfaction levels. The study explored patient satisfaction with medical imaging services in Ghana.

Methodology

An online survey using a structured questionnaire was used to collect data on patient satisfaction with imaging services. The research instrument with participant information and who to contact for clarifications and further information were shared on multiple social media sites, including Facebook, LinkedIn, and WhatsApp. Statistical analysis was performed using Statistical Package for Social Scientists (SPSS) version 25.

Results

A significant portion of the participants (57.10%) were dissatisfied with waiting time, while friendliness and courtesy of radiographers received a 70.79% excellent and very good rating. The data also showed that 29.4% of patients felt the staff listened well to their concerns, and 16.8% rated the staff's listening skills as very poor. Overall, 60.52% of the participants reported being either extremely or very satisfied with radiographers.

Conclusion

Waiting periods in medical imaging departments are long and therefore a source of dissatisfaction amongst patients. Communication is key to improving patient satisfaction.

1. Efanga, S.A., Ao, A. and Ci, O., 2021. Evaluation of patient satisfaction of the Radiological services in a tertiary health facility in Calabar, Nigeria: a pilot study. OSR Journal of Dental and Medical Sciences (IOSR-JDMS), 20(7), pp.12-23.
2. Amporfro, D.A., Boah, M., Yingqi, S., Cheteu Wabo, T.M., Zhao, M., Ngo Nkondjock, V.R. and Wu, Q., 2021. Patients satisfaction with healthcare delivery in Ghana. BMC health services research, 21, pp.1-13.

P198 Histotripsy disrupting a century old challenge – tumour hypoxia

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Radiotherapy and chemotherapy ineffective for hypoxic cells. Causing local control to be undermined. Histotripsy destroys these cells and enhances radiotherapy treatment. Histotripsy, a focused ultrasound therapy uses high-frequency ultrasound waves, to generate mechanical forces via cavitation. This non-invasive, non-ionising and non-thermal technique, reduces side effects, preserves critical structures (~no penumbra) and promotes tissue regeneration. In Oct 2023, the FDA approved Histotripsy to treat liver tumours.

Histotripsy creates microbubbles, which collapse. Generating stress and strain, that mechanically disrupts tumour cells. Cavitation occurs when acoustic intensity exceeds a specific threshold. Using tissue selectivity to preserve critical structures, ensuring precision.

Histotripsy causes tumour ablation and apoptosis, followed by an innate immune response. Preclinical studies show its efficacy across diverse malignancies. Slowed tumour growth, increased survival, reduced metastasis (abscopal effects) and enhanced efficacy of immunotherapy. In breast cancer studies, histotripsy enhanced radiotherapy by reducing hypoxia and improving radiation sensitivity. Enabling lower radiation doses. Targeted tissue is absorbed, rather than leaving a necrotised remnant, minimising long-term complications.

Hypoxic tumours are resistant to current standard of care i.e. radiation, chemotherapy and immunotherapy. Correlating with poor outcomes. Histotripsy has palliative and curative potential, for prolonging survival and improved quality of life. It may serve as essential adjuvant therapy, unlocking the potential of emerging immunotherapies. Ongoing clinical trials aim to confirm its long-term safety and efficacy. This highly disruptive technology brings us closer to more effective, kinder treatments. With broad clinical applications (~200 diseases and conditions) in cancer treatment and beyond.

1. Sharma, D. (2024) Ultrasound-Based Radiation Enhancement: Concepts, Mechanisms and Therapeutic Applications. Technology in Cancer Research & Treatment. 23
2. Sharma, D. (2024) A Promising Therapeutic Strategy of Combining Acoustically Stimulated Nanobubbles and Existing Cancer Treatments. Cancers. 16(18), 3181.
3. Moore-Palhares, D. (2024) Radiation enhancement using focussed ultrasound-stimulated microbubbles for head and neck cancer: A phase 1 clinical trial. Radiotherapy and Oncology. 198, 11038
4. Moore-Palhares, D. (2024) Radiation enhancement using focussed ultrasound-stimulated microbubbles for breast cancer: A Phase 1 clinical trial. PLOS Medicine. 21(5)
5. Iwanicki, I. (2023) Histotripsy induces apoptosis and reduces hypoxia in a neuroblastoma xenograft model. International Journal of Hyperthermia. 40(1).

6. Sandilos, G. (2024) Histotripsy – hype or hope? Review of innovation and future implications. Journal of Gastrointestinal Surgery. 28(8), 1370-1375.
7. Xu, Z. (2021) Histotripsy: the first noninvasive, non-ionizing, non-thermal ablation technique based on ultrasound. International Journal of Hyperthermia. 38(1), 561–575.
8. Xu, Z, (2024) Histotripsy: A Method for Mechanical Tissue Ablation with Ultrasound. The Annual Review of Biomedical Engineering. 26, 141-167.
9. Baumann, M. (2020) What will radiation oncology look like in 2050? A look at a changing professional landscape in Europe and beyond. Molecular Oncology. 14(7), 1577–1585.

P199 Effective radiographer-patient communication and its impact on patient care in a low resource setting

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Background
Effective communication between patients and radiographers is essential for establishing trust, reducing anxiety, and ensuring a positive patient experience. Communications between patients and radiographers should be effective to ensure patient compliance and satisfaction when undergoing imaging examination1. The significance of patient-centered care in medical imaging has been increasingly recognised, with a focus on improving interactions between patients and radiographers2. This study explored radiographer-patient interaction and identified the factors that influence effective communication between radiographers and their patients.
Method
A cross-sectional study design was used. Data was collected through a validated, semi-structured questionnaire via Google Forms. The questionnaire was distributed to radiographers with the assistance of the Ghana Society of Radiographers via WhatsApp on their various platforms. Data collected from the respondents was analysed with Statistical Package for Social Scientists (SPSS) software version 24.0.
Results
While radiographers felt confident in patient-centered communication, there was a significant gap in addressing language barriers, potentially impacting patient care. Anxiety during radiographic examinations was identified as a crucial factor, highlighting the need for better training in handling emotionally challenging situations. Lastly, most radiographers faced communication challenges, primarily related to language barriers and anxiety, underscoring the need for additional training and resources in effective communication and patient-centered care.
Conclusion
The study presents a nuanced understanding of the complexities surrounding communication between radiographers and patients. While most radiographers feel adequately trained and confident in their ability to communicate, significant gaps exist, underscoring the need for targeted interventions.

McIntosh, J., 2022. Communication and patient care in radiography. South African Radiographer, 60(1), pp.25-31.
Kambala, A., Karera, A., Amkongo, M. and Izaacs, L., 2022. The quality of care received by patients during general X-ray procedures at a public hospital in Namibia: a cross-sectional survey. PAMJ-One Health, 7, p.23.

P201 Oncology outpatient waiting time experiences and their impacting factors

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Background
Time spent waiting is an integral feature of patient experience when attending radiotherapy (1). Despite its significance, there is limited evidence exploring or describing patient experiences of waiting times and the factors that influence these within radiotherapy.
Methods
A systematised literature review was conducted searching seven online databases, supplemented by targeted journal and reference list searches (2). Pre-determined inclusion and exclusion criteria were applied to identify relevant studies, followed by critical appraisal to assess the quality of retrieved articles, with those of insufficient quality excluded (3). Inductive thematic analysis was performed on the remaining included articles by a single author (3, 4).
Results
14 eligible articles were included. Four themes emerged: Emotions, physical sensations and vulnerability, supportive spaces with reflective and existential meanings, heterogeneity, agency and contradiction in a fixed space and perception of time.
Conclusion
The literature suggests that waiting time experiences in radiotherapy are heterogeneous, often characterised by negative physical sensations and emotional responses. These experiences may be influenced, either exacerbated or alleviated, by

factors such as the physical environment and the availability of distractions during waiting periods. Radiotherapy waiting areas emerge as a reflective, emotive, and symbolic spaces with the potential to serve as a therapeutic component of holistic, person-centred care. However, definitive recommendations cannot be made due to limitations in the age, reliability, validity, and generalisability of the available data. Understanding outpatient waiting time experiences offers the potential to inform meaningful, person-centred service development and guide future research aimed at improving radiotherapy care.

(1) Grilo, A., Santos, B., Baptista, I., Monsanto, F. (2021) Exploring the cancer patients' experiences during external radiotherapy: A systematic review and thematic synthesis of qualitative and quantitative evidence. European Journal of Oncology Nursing. 52, pp. 101965.
(2) Grant, M.J. and Booth, A. (2009) A typology of reviews: an analysis of 14 review types and associated methodologies. Health Information & Libraries Journal. 26 (2), pp. 91–108.
(3) Aveyard, H. (2023) Doing a Literature Review in Health and Social Care: A Practical Guide. 5td ed. Jefferson: McGraw-Hill Education.
(4) Naeem, M., Ozuem, W., Howell, K., Ranfagni, S. (2023) A Step-by-step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. International Journal of Qualitative Methods. 22.

P202 Developing a paperless pathway to improve efficiency and accountability within radiotherapy clinical trials

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Our department went fully paperless in 2017 using ARIA (Varian, Palo Alto, CA) to support this. Until recently, clinical trial activities had not been captured in ARIA, due to their diverse nature. Previously, over-reliance on manual record-keeping and individual recollection created a single point of failure in the event of annual leave or sickness. The development of trial-specific tasks aimed to create accountability and provide an audit trail. Care paths enable the delegation of work; improving efficiency and ensuring time-sensitive tasks are completed promptly. Key performance indicators can be tracked through ARIA task reporting. This data can be utilised to identify service shortfalls, inform gap analysis and support funding bids.
Care paths offer a sustainable solution for departments looking to go paperless. Our experience demonstrates that by using care paths enables collaborative working and improves communication, especially for teams who work remotely. Time stamped tasks allow activity to be measured and ensure that both trial and departmental targets are met.
This poster will provide an overview of Varian CarePaths and our department's experience of implementing them in the clinical trial setting. Examples of workflows and checklists that have been developed by our team to meet current trial requirements and aid service improvement will be provided using screenshots and/or pictures. We will demonstrate how ARIA tasks can be used to generate trial activity reports and discuss how this data is utilised in our department and how we hope to use it in the future.

P203 Investigation into VMAT techniques for TBI on a C-arm Linear Accelerator (LINAC), for an efficient and optimal treatment solution

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Background
Volumetric-Modulated-Arc Therapy (VMAT) for total-body-irradiation (TBI) giving improved target dose distribution and reduced lungs 'doses has been used at limited hospitals worldwide. This technique requires multiple overlapping arc treatments and has been found to be very time consuming.
Method
Anonymised computed tomography image datasets for 10 patients were obtained from 2 external sources. Data preparation involved auto-delineation with 'Limbus', fusion with '3D slicer', image registration, and creation of optimisation structures. >75 plans were created using Eclipse (v.18) aided by use of a new local script. Planning variables were sequentially investigated for fields' overlap, number of arcs per isocenter, energy, fields' distribution and the optimisation objectives. Plans were evaluated using normalisation value, homogeneity index, doses to OARs, planning time and beam duration.
Results
9 cm overlapping arcs, 4 arcs each at the thorax and the abdomen, 2-3 arcs in other body segments and 10 MV yielded the most efficient solution. Positional errors of 1 cm laterally and longitudinally increased lung doses by 0.23 – 0.29 Gy and 0.12 – 0.16 Gy respectively. The most complex plan with seven isocenters, passed (89.0-98.4% with 3%/3mm) the quality assurance check, demonstrating deliverability on LINAC.

Conclusion

VMAT-TBI planning could provide an optimal and efficient treatment when it is automated, with use of suitable parameters. The separation between the overlapping arcs is crucial to achieving a good balance of plan quality and complexity. Further work to quantify the effects of positional errors is suggested. This study was limited by the number of available imaging datasets.

1. Kovalchuk N., Simiele E., Skinner L., Yang Y., Howell N., Lewis J., HUI C., Blomain E., Hoppe R., and Hiniker S. (2022) The Stanford Volumetric Modulated Arc Therapy Total Body Irradiation Technique. Practical Radiation Oncology. 12(3):245-258.
2. Quast U. (1987). Total body irradiation: review of treatment techniques in Europe. Radiother Oncol. 9, 91-106.
3. Simiele E., Skinner L., Yang Y., Blomain R., Hoppe S., Hiniker S and Kovalchuk N. (2021) A Step toward Making VMAT TBI More Prevalent: Automating the Treatment Planning Process. Practical Radiation Oncology. 11(5):415-423.
4. Tas, I., Durmus, A., Okumus, O., UZEL E., Gokce H., Goksoy H. and Ozsahin E. (2018) Total-body irradiation using linac-based volumetric modulated arc therapy: Its clinical accuracy, feasibility and reliability. Radiother Oncol.129 (3):527-533.

P204 Reducing CTV-PTV margins for mediastinal lymphoma DIBH patients

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Background

Mediastinal lymphoma patients are treated in DIBH in our centre. The advantage is reduced motion of the target, which may allow further reduction to the relatively large CTV-PTV margins (1.0cm). This audit assessed reducing the CTV-PTV margin from 1.0cm to 0.5cm. Reducing margins could reduce irradiation of healthy tissue. This is important as the mediastinum is a site with high toxicity due the proximity of the heart, lungs and oesophagus adjacent to the target volume; this patient group is young.

Method

20 patient datasets, treated in 2021–2023 were selected and anonymised. The CTV-PTV margin was regrown from 1.0cm to 0.5cm (PTV_1 and PTV_0.5, respectively), and radiotherapy plans were re-optimised with the PTV_0.5 volume. PTV volumes were measured in cm3. Coverage of target with PTV_0.5 was assessed on three patients' CBCTs. Additionally, doses to OAR on the original plan (PTV_1) and re-optimised plans (PTV_0.5) were compared.

Conclusion

Reducing CTV-PTV margin by 0.5cm decreased the volume of tissue treated, whilst still providing adequate target coverage in 100% of the sample, therefore not compromising treatment effectiveness. An average reduction of 14-18% in dose received by the heart, lungs and oesophagus was seen, which translates to reduced toxicity. The next step is to do error calculations on the data, assess dose to breast tissue and introduce into practice.

P205 Pilot vulvo-vaginal atrophy clinic for female cancer survivors

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Background

Vulvovaginal Atrophy (VVA) is a common post-treatment effect for female survivors of breast, gynaecological, colorectal and other cancers. Causes include pelvic radiotherapy, pelvic surgery, systemic chemotherapy and/or hormone therapy causing oestrogen deprivation. A pilot clinic has been developed to provide these women with support in our region.

Method

The monthly clinic includes a Clinical Oncologist, Consultant Gynaecologist, Clinical Nurse Specialist and Trainee Consultant Therapeutic Radiographer. It was publicised throughout acute services and primary care. Symptom scoring alongside validated tools including EORTC QLQ 30, FSFI-19, ALERT B and the PRDA Symptom checklist can track progress and quantify unmet need. Patient experience and feedback surveys are also utilised. Advice and progress on potential interventions are monitored.

Results

Results are being collated as the clinic progresses. However early signs are that women referred are grateful for the opportunity to discuss and receive tailored support for VVA which can be difficult to manage in short timeframes within acute/GP settings. Multidisciplinary working with specialists focussing on VVA enables networking and investigation of the feasibility of introducing cutting edge treatments from contemporary VVA clinical research. Feedback from patients identifies gaps in knowledge where the specialist team considers providing education to other multidisciplinary colleagues throughout the regional NHS trusts.

Conclusion

Development of this specialist clinic can improve QOL of female cancer survivors affected by VVA, improving ease of access. It can take pressure off busy primary care services and facilitate introduction of novel and emerging therapies for VVA.

P206 Utilising digital tools to create a scottish radiotherapy trial dataset

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Background

Having an awareness of radiotherapy (RT) clinical trials across Scotland is challenging. However, having access to this information can be advantageous in facilitating trial set-up and portfolio management at sites. An independent report to Scottish Government 'Improving equity of access to cancer clinical trials in Scotland' highlighted this barrier, finding limited visibility of available trials and identified the potential to use digital tools to enhance awareness and access [1]. The aim of this project was to utilise EDGE, an already embedded digital tool across Scotland to create a national dataset for RT clinical trials, which could be implemented in future to enhance trial visibility and accessibility.

Methods

Engagement with the Scottish multidisciplinary RT community was initiated via poster presentation at the Scottish Radiotherapy Research Forum and via email distribution to research motivated colleagues across all five Scottish RT

departments. Microsoft Forms was used to collate responses and provide a list of data points that the RT community thought would be valuable.
A digital form was created in EDGE for data items that did not have existing fields and was added to each 'RT' trial across Scotland. An EDGE report was built to extract all the required data items in Excel format.

Results

An excel spreadsheet of all Scottish RT trials and associated data items has been exported from EDGE. This can be updated and generated at regular intervals.

Conclusion

We have created and extracted a national dataset from EDGE containing information relevant to the RT trials community.

The Scottish Government (2023) Improving equity of access to cancer clinical trials in Scotland. https://www.gov.scot/publications/improving-equity-access-cancer-clinical-trials-scotland/.

P207 Case report describing value of peptide receptor radionuclide therapy – the magical treatment?

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Background

Peptide receptor radionuclide therapy (PRRT) with radiolabelled somatostatin analogues (SSAs) is an established treatment for well-differentiated gastroenteropancreatic (GEP) neuroendocrine neoplasms. This case highlights the successful use of PRRT in treating neuroendocrine tumors (NETs).

Case Summary/Purpose/Learning

A 41-year-old male presented with collapse and abdominal pain. Imaging (CT) identified a large vascular tumor in the right upper quadrant, which was surgically resected. Histology confirmed a grade 2 well-differentiated neuroendocrine tumor with a low Ki-67 index (3%). Post-surgery, a Gallium scan showed localized activity at the resection site, liver metastases, and a positive mediastinal node, confirming metastatic disease. MRI (August 2016) revealed multiple liver metastases.
After a multidisciplinary team discussion, the patient proceeded with three cycles of PRRT over four months. Post therapy Gallium scan showed partial response with residual disease in the liver and possibly a precaval node. Subsequent Gallium scan (January 2018) demonstrated continued response. Cross-sectional imaging indicated gradual but sustained tumor response.
By September 2024, cross-sectional imaging as well as another Gallium scan showed no evidence of neuroendocrine tumor. The patient remains disease-free and continues receiving monthly Lanreotide injections to maintain disease control.

Conclusion

This case exemplifies the potential effectiveness of PRRT, demonstrating a long-term response with careful monitoring and support along with somatostatin analogues like Lanreotide. The patient is stable and disease-free, illustrating the importance of close monitoring and evolving strategies in NET treatment.

P208 Development of a rapid-access MR-guided gynae SABR boost pathway

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Background

Brachytherapy, to achieve HRCTV EQD2 85-95Gy, is an essential part of the curative treatment of locally advanced cervical cancer1 with a proven survival advantage over external beam radiotherapy (EBRT) boost in this clinical setting2. Rarely, brachytherapy cannot be delivered for patient related or technical factors. In this scenario the MRLinac offers an online adaptive approach facilitating boosting doses potentially more replicable of brachytherapy which may improve outcomes3. Other factors such as overall treatment time (OTT) also impact on survival and must be considered carefully4.

Purpose

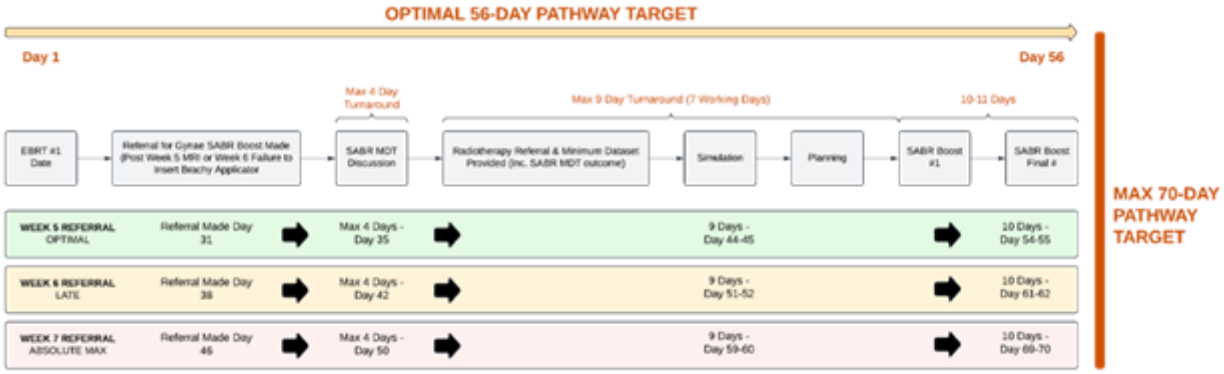
An outline of the development of a rapid-access MR-guided Gynae SABR boost pathway, highlighting key feasibility factors, as well as the pathway complexity and how this can be balanced against the rapid access to treatment required to maintain clinical efficacy. Patient selection criteria, dose objectives, adaptive planning workflows, and test plan outcomes will also be covered. The educational aim is to highlight an effective rapid access pathway and technique for implementing SABR boosts when brachytherapy is not possible, while maintaining rigorous governance.

Summary of content

The poster will cover:

- Referral and MDT processes to rapidly identify eligible patients
- MR-Linac based imaging, patient preparation, and plan objectives
- Outlining how the complexity of the planning process can be integrated within routine practice, facilitating rapid access to treatment

- Highlighting total pathway turnaround times and potential barriers to scaling
- Demonstration that MRL SABR boosts can be delivered within a 50–56-day window, offering a compelling alternative where brachytherapy is not possible



DINCER, N., UGURLUER, G., MUSTAFAYEV, T. Z., SERKIZYAN, A., AYDIN, G., GUNGOR, G., YAPICI, B., ATALAR, B. & OZYAR, E. 2024. Dosimetric comparison of stereotactic MR-guided radiation therapy (SMART) and HDR brachytherapy boost in cervical cancer. Brachytherapy, 23, 18-24.
EAKIN, A., WAIRIRI, L., STADTLANDER, W., BRUEGL, A., EMERSON, J., WILLIAMSON, C. & KAHN, J. 2023. Identifying disparities in brachytherapy delivery for locally advanced cervical cancer. Brachytherapy, 22, 461-467.
MAZERON, R., CASTELNAU-MARCHAND, P., DUMAS, I., DEL CAMPO, E. R., KOM, L. K., MARTINETTI, F., FARHA, G., TAILLEUR, A., MORICE, P., CHARGARI, C., LEFKOPOULOS, D. & HAIE-MEDER, C. 2015. Impact of treatment time and dose escalation on local control in locally advanced cervical cancer treated by chemoradiation and image-guided pulsed-dose rate adaptive brachytherapy. Radiother Oncol, 114, 257-63.
POTTER, R., TANDERUP, K., SCHMID, M. P., JURGENLIEMK-SCHULZ, I., HAIE-MEDER, C., FOKDAL, L. U., STURDZA, A. E., HOSKIN, P., MAHANTSHETTY, U., SEGEDIN, B., BRUHEIM, K., HUANG, F., RAI, B., COOPER, R., VAN DER STEEN-BANASIK, E., VAN LIMBERGEN, E., PIETERS, B. R., TAN, L. T., NOUT, R. A., DE LEEUW, A. A. C., RISTL, R., PETRIC, P., NESVACIL, N., KIRCHHEINER, K., KIRISITS, C., LINDEGAARD, J. C. & GROUP, E. C. 2021. MRI-guided adaptive brachytherapy in locally advanced cervical cancer (EMBRACE-I): a multicentre prospective cohort study. Lancet Oncol, 22, 538-547.

P209 A retrospective investigation, carbon fibre versus foam headrests for head and neck radiotherapy

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Background
At the time of this study there was a gap in the literature exploring set-up accuracy of carbon fibre headrests for head and neck radiotherapy patients, with there being no peer reviewed research available. Therefore, due to the potential economic benefits of carbon fibre headrests, the aim of this retrospective study was to compare them with foam headrests for head and neck radiotherapy patients.
Methods
One Thousand imaging datasets from 50 head and neck patients treated radically were analysed. Patient datasets were divided equally between head and neck cancer patients treated with radiotherapy immobilised with either a carbon fibre headrest (group one) or foam headrest (group two). The population mean, systematic and random errors were evaluated for statistical differences in five degrees of freedom, set-up error differences of <0.1cm/° where deemed negligible. All statistical tests performed were deemed statistically significant at the < 0.05 level.
Results
Regarding population mean error differences, there was none between the two groups. Concerning population systematic error differences there was only one difference, a 0.23° reduction in the pitch direction for patients in group one. Lastly there was no differences in population random error between both groups.
Conclusion
Carbon fibre and foam headrest appeared equivalent in regards to translational and rotation errors. These findings suggest that more comparable headrest research needs to be done to advocate use of either headrest for head and neck patients in the United Kingdom. I would suggest that when findings are equivocal that therapeutic radiographers should consider patient comfort.

P210 Elapsed radiation treatment time as a predictor of survival in head and neck cancer patients treated with radiotherapy at a major cancer treatment center in Ghana

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Background
Delayed completion of radiotherapy for neoplasm presents a significant issue affecting patient survival. Unexpected, elapsed radiation treatment time due to equipment downtime, radiation side effects, and patient non-compliance can compromise effectiveness.
Aim
To evaluate the impact of elapsed radiation therapy treatment time on the survival of patients with head and neck cancer treated with radiation therapy with curative intent.
Method
The research was conducted in Ghana with 159 head and neck cancer patients using purposive sampling. The data obtained were analyzed with Chi-Square and Kaplan-Meier statistical software tools.
Results
The 2-year and 5-year overall survival (OS) rates and disease-free survival (DFS) for patients with ≤55 days was 91% for 2-years, and the 5-year OS rate was 89%. In contrast, for patients with >55 days, the OS rate was 82% for 2 years and 80.5% for 5 years. The analysis confirmed that elapsed radiation treatment time had an impact on the overall survival outcome (p = 0.019). When considering the duration of elapsed treatment days, patients with ≤55 days had a DFS rate of 81.5% for 2 years and 76% for 5-year DFS. The test results indicated a significant association between DFS and CCRT (P=0.02). The analysis showed a significant impact of the treatment site on overall survival outcomes (p=0.001).
Conclusion
Elapsed radiation treatment time plays a significant role in patients' survival, requiring measures to prevent prolonged treatment and minimize treatment breaks.

Table

Variable	Chi-Square Value	df	Significance Level (p-value)
Elapsed treatment time	2.055	1	0.152
Stage	9.875	1	0.117
Chemotherapy	2.464	1	0.002
Number of breaks	0.797	1	0.372
Toxicity	5.850, 7.963	8,7	0.664
Treatment site	7.963	7	0.336

1. Bhat, G. R., Hyole, R. G., & Li, J. (2021). Head and neck cancer: Current challenges and future perspectives. In Advances in cancer research (Vol. 152, pp. 67-102). Academic Press
2. Chaturvedi A. K. (2012). Epidemiology and clinical aspects of HIV in head and neck cancers. National Library of Medicine, 16-24.
3. Ferreira, J. A. G., Olasolo, J. J., Azinovic, I., & Jeremic, B. (2015). Effect of radiotherapy delay in overall treatment time on local control and survival in head and neck cancer: a review of the literature. Reports of Practical Oncology and Radiotherapy, 20(5), 328-339.there
4. Kang, kiess, & Chung. (2015). E merging biomarkers in head and neck cancer in the era of genomics. Clinical oncology, 11-26.

P211 Team Science: An opportunity for radiographers to build interdisciplinary research communities

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Background

The benefit of radiographers conducting interprofessional research have been described previously (Hogg & Cresswell, 2021), however a uniprofessional approach to large scale problem solving and implementation of complex interventions is commonplace. The principles of Team Science encompass inclusive collaboration, open communication and Trust, building capacity, creating positive culture and recognising teamwork. The aim is to harness the influence of contributory expertise and the social process of knowledge creation (Love et al, 2022). Team Science builds researchers' collaborative skills so that they can work across disciplinary boundaries and develop strong and diverse teaming relationships. Identifying and reflecting on individual and collective strengths and weaknesses of the team can contribute to maximising team effectiveness (Lotrecchiano et al, 2023), and allow radiographers to examine their own needs in relation to their research and career goals.

Purpose

As an under-represented profession within clinical research, opportunities present for radiographers to participate in new interdisciplinary research teams and embed the ethos of team science into their research, and wider practice. Through multi-professional collaboration, radiographers can advocate for the profession and contribute to applied healthcare research.

Summary of content

We will present the experiences of two research-active radiographers who have engaged with the Team Science approach and continue to collaborate with inclusive teams of researchers from different disciplines, institutions and sectors, as well as public contributors to address a gap in applied health and social care research methodology. This includes opportunities for personal and professional development as well as the challenges encountered and learning achieved.

1. Hogg, P. and Cresswell J. (2021) Interprofessional research teams in radiography-where the magic happens. Radiography. 27(suppl 1): S9-S13.
2. Love, H.B., Fosdick, B.K., Cross, J.E., Suter, M., Egan, D., Tofany, E., and Fisher, E.R. (2022) Towards understanding the characteristics of successful and unsuccessful collaboration: a case-based team science study. Humanit Soc Sci Commun. 9:371. https://doi.org/10.1057/s41599-022-01388-x.
3. Lotrecchiano, G.R., Bennett, L.M., and Vovides, Y. (2023) A framework for developing team science expertise using a reflective-reflexive design method (R2DM). Humanit Soc Sci Commun. 10:810. https://doi.org/10.1057/s41599-023-02298-2.

P212 The creation of a radiographer research steering group; the learning points, challenges and barriers

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Background

There is a growing focus on research culture within Radiography, aiming to promote evidence-based practice (EBP), to improve patient care quality and contribute to progression of the profession (Balushi, Watts and Akudjedu, 2024). In the Society and College of Radiographers (SCoR) Research Strategy (2021), special attention is given to research fostering in clinical practice, stating that job descriptions across the Radiography profession should include a responsibility to engage with research at all levels. The creation of a research steering group (RSG) at an NHS Trust, emerged from the necessity to empower Radiographers to take an active role in research and EBP.

Purpose

The RSG was set up as a forum for discussion and development of projects to ensure the radiography service provision was meeting local patient needs. Its aim was also to improve radiographers' academic confidence and skills, by creating opportunities to engage with research activity, aligning with the SCoR research strategy (2021).

Summary of content

On establishing the RSG, multiple learning points were realised, as well as difficulties encountered along the way. For example, whilst many Radiographers indicated an interest in participating in the group, arranging meeting times due to different work schedules was problematic. This created a challenge to ensure that there was representation across all modalities, different staff bandings and cross-site availability. The poster will provide details about projects undertaken, learning points gathered and challenges faced for Radiographers wanting to engage with research and innovation projects.

1. Al Balushi, H., Watts, H. and Akudjedu, T.N., 2024. Research and evidence-based practice in clinical radiography: A systematic review of barriers and recommendations for a new direction. Radiography, 30(2), pp.538-559.

2. The College of Radiographers (2021). Research Strategy 2021-2026. Available at: https://www.collegeofradiographers.ac.uk/getattachment/Research-grants-and-funding/cor-research-strategy/cor-research-strategy-2021-26.pdf?lang=en-GB (Accessed 27th November 2024).

P213 A systematic review into the training and preceptorship of reporting radiographers in the NHS

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Introduction

Reporting radiographer (RR) training and preceptorship is rigorous, but resource intensive. A qualitative systematic review was conducted to explore the experiences and perceptions of NHS RRs as they transition from training to independent practice.

Method

CINAHL, MEDLINE and PubMed databases, and the index of the Radiography journal were searched, with a date range of 2014-2024.

Results

Initial search returned 271 results, after exclusions for duplicates, eligibility and relevance, eight studies were selected for review. No research on solely preceptorship was found. Thematic analysis of the studies identified the following themes common to the training and preceptorship of reporting radiographers; time, radiologist support, mentor support, department and managerial support, four pillars of advanced practice, cost implications, peer support and educational achievement.

Discussion

The key themes could be organised into three categories; structural and organisational factors, radiologist, mentor and interpersonal factors, and the RR's personal motivations. The factors affecting RRs mirror those of other health professionals, in particular support from managers, doctors and NHS institutions, time and funding.

Conclusion

The strategic, interpersonal and personal obstacles that prevent RRs from flourishing are not insurmountable and are not restricted to the radiography profession alone. Promotion and effective utilisation of RRs will require resources, planning, leadership and building better relationships with other professions, most especially radiologists.

Further research into the preceptorship of reporting radiographers would be beneficial. The author intends to a piece of primary research based upon this study, which would be a survey of the preceptorship process for RRs throughout the NHS.

Harcus, J.W. Snaith, B. (2019) Expanding training capacity for radiographer reporting using simulation: Evaluation of a pilot academy project. Radiography, 25, pp. 288-293

House, S. Snaith, B. Sevens, T. Expectation of radiographer reporting roles: A multimethod evaluation across a single imaging network. Radiography, 29 pp. 1070-1076

Milner, R.C. Snaith, B. (2017) Are Radiographer fulfilling the role of advanced practitioner. Radiography, 23 pp. 48-54

Sevens, T. McGivern, T. (2022) Reporting radiographer academy training model; an evaluation of the impact for trainees and clinical service. Radiography, 28 pp. 798-803

Stevens, B.J. (2019) A survey assessment of reporting radiographers' scope of practice on the West Midlands region of the United Kingdom. Radiography, 25 pp. 214-219

Stevens et al (2021) Radiographers reporting chest X-ray Images: identifying the service enablers and challenges in England, UK. Radiography, 27 pp. 1006-1013

Woznitza, N. Steel, R. Piper, K. Burke, S. Rowe, S. Bhowmik, A. Maughn, S. Springett, K. (2018) Increasing radiology capacity with the lung cancer pathway: centralised work-based support for trainee chest X-ray reporting radiographers. Journal of Medical Radiation Sciences, 65 pp. 200-208

Woznitza, N. Steel, R. Hussain, A. Gower, S. Groombridge, H. Togher, D. Lofton, L. Lainchbury, J. Compton, E. Rowe, S. Robertson, K. (2021) Reporting radiography peer review systems: a cross-sectional survey of London NHS Trusts. Radiography, 27 pp. 1-173-177

P215 Understand and evaluate the perceptions and barriers to research within radiology

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Background

Advancement of radiology is dependent upon knowledge and implementation of new technologies and practices (Auffermann and Tridandapani, 2016). Acknowledged by McNulty (2018), radiographers need to progress beyond merely assisting with research and take on more collaborative and research leadership roles. England and Thompson (2019) agreed that radiology research publications had increased over the past decade, but numbers remained low. Radiographer perceptions towards radiology research remain hard to find (Saukko et al., 2021). Radiology led research is under-represented within North East and North Cumbria (NENC), understanding the reasons for this will enable teams to work together educating the workforce and assessing removal of barriers.

Method
Qualitative research was performed using an electronic survey containing 16 open and closed questions concentrating on research awareness, barriers and educational needs. Open questions were thematically analysed. Survey was emailed to all 8 NHS Trusts in the NENC region, targeting Radiology service managers to disseminate to their workforce.
Results
149 responses from a variety of roles within Radiology. >60% unaware of Radiology research, 70% are interested in research. Main barriers were time 76%, knowledge 40%, support 36% and access to funds 29%.
Conclusion
Results show a need to raise regional awareness and promote access to funding and educational events supporting Radiology research. Working with these results could embed research into clinical practice leading to increased job satisfaction and retention. Limitations have been lowered in 2024 as the National Institute for Health and Care research (NIHR) acknowledged 'Imaging' as a speciality.

1. Auffermann, W. F., & Tridandapani, S. (2016). Clinical radiology and radiology research in a sea of change. Academic Radiology, 23(1), 6-7.
2. England, A., & Thompson, J. D. (2019). Evolving the landscape of research. Radiography, 25, S1-S3.
3. McNulty, J. (2018). Fostering clinical research in imaging departments. Health-Management.org, 18(3).
4. Saukko, E., Andersson, B. T., Bolejko, A., Debess, J., Fridell, K., Henner, A., & Sanderud, A. (2021). Radiographers' involvement in research activities and opinions on radiography research: A Nordic survey. Radiography, 27(3), 867-872.

P216 The AutReAcH (Autistic/ADHD Research Accessibility in Healthcare) framework: Principles for inclusive healthcare research with Autistic and ADHD individuals in radiography and medical radiation technology

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Background
Autistic and ADHD individuals are often excluded from healthcare/radiography research due to inaccessible methodologies and systemic biases, perpetuating well-documented health inequalities. While researchers can recognise this, they may be unequipped to address it effectively. This narrative review introduces the AutReAcH (Autistic/ADHD Research Accessibility in Healthcare) framework, which provides practical guidance for designing and conducting accessible, inclusive and participatory healthcare/radiography research.
Method
Two searches of peer-reviewed studies (2019–2024) were conducted using Emcare, MEDLINE, Social Policy and Practice, CINAHL, the Psychology and Behavioral Sciences Collection, Google Scholar, and PubMed. The key themes were identified, and a framework was synthesised that aligns with different stages of the research lifecycle (planning to dissemination).
Results
The searches retrieved 86 articles: 54 methodological and 32 original research. Key themes are presented as a 12-item framework. The AutReAcH framework outlines practical strategies such as diversifying research teams, ensuring equitable power-sharing, prioritising participatory methods, and adapting research designs to neurodivergent needs. It also emphasises the importance of accessible recruitment, fair compensation, and inclusive dissemination. Additionally, it highlights the role of intersectionality in shaping neurodivergent experiences and provides recommendations to reduce systemic barriers in research.
Conclusion
All healthcare/radiography research should include and respect neurodivergent experiences. The AutReAcH framework empowers researchers to produce more equitable and actionable research by including neurodivergent voices and dismantling barriers to participation. By integrating these principles, healthcare/radiography researchers can improve the participant experience, enhance data quality, and drive systemic change in healthcare/radiography research, moving towards findings that genuinely represent the diversity of the population.

P217 Contrast media extravasation in intravenous contrast-enhanced computed tomography with power injector: Incidence, follow-up outcomes, and risk factors in a cohort of 217,320 patients

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This study aims to evaluate the incidence, follow-up outcomes, and risk factors associated with intravenous contrast media extravasation during CT scans utilizing a power injector in a large cohort. This research seeks to enhance our understanding of this complication and inform strategies for its prevention and management in clinical practice.

Materials and Methods:
This retrospective study encompassed patients who received intravenous (IV) contrast-enhanced CT scans from January 2015 to December 2023. Each incidence of extravasation was digitally documented in Radiology Information System (RIS). Institutional Review Board exemption was obtained. Data on the frequency of extravasation were collected, along with patient demographics, injection parameters, and follow-up outcomes. Potential risk factors such as age, patient setting, type of examination, venous access site, injection rate, and contrast extravasated volume were analyzed using logistic regression models to identify significant predictors of extravasation. Generalized estimating equations (GEE) model was applied.

Result
617 patients encountered contrast extravasation, resulting in a rate of 0.3%. Notable risk factors, including age >70 years old, female, inpatient setting, and higher injection rate demonstrated significant associations with extravasation. The predominant trend in follow-up outcomes was an improvement, a favorable outcome.

Conclusion
Contrast extravasation during CT scans with power injectors records higher frequency though the majority outcome is improved over the next few days. Identifying high-risk patients through predictive factors can aid in implementing preventive strategies to minimize the incidence and improve patient safety.

Table

Univariate and Multivariate regression analysis for the occurrence of CM extravasation

GEE	Univariate OR (95% CI)	p-value	Multivariate aOR (95% CI)	p-value
Gender				
Female	Ref		Ref	
Male	0.74 (0.63-0.87)	<0.001	0.80 (0.65, 0.99)	0.042
Age (years)				
≤ 50	Ref		Ref	
51-60	1.37 (1.03,1.83)	0.028	1.49 (1.03, 2.19)	0.036
61-70	1.36 (1.04-1.78)	0.023	1.40 (0.98, 2.01)	0.068
> 70	2.43 (1.92-3.09)	<0.001	1.82 (1.31, 2.52)	<0.001
Patient Type				
Outpatient	Ref		Ref	
Inpatient	3.27 (2.69, 3.97)	<0.001	2.83 (2.14, 3.73)	<0.001
A & E	2.09 (1.57, 2.77)	<0.001	1.77 (1.18, 2.63)	0.005
Others	-	-	-	-
Injection Rate (ml/s)				
≤ 3	Ref		Ref	
3.1 - 4	2.06 (1.69, 2.51)	<0.001	1.79 (1.36, 2.38)	<0.001
> 4	1.52 (1.14, 2.01)	0.004	1.22 (0.79,1.89)	0.366
Side				
Left	Ref		Ref	
Right	0.53 (0.43, 0.65)	<0.001	0.66 (0.53, 0.82)	<0.001

OR= odds ratio, aOR=adjusted odds ratio, 95% CI= 95% confidence interval

Reasons of extravastion	Frequency	Percentage
Fragile Vein	475	77.61
IVDA	47	7.68
Multiple Attempts	38	6.21
Muscular Patient	21	3.43
Damage Vein	14	2.29
Violent Patient	7	1.14
Other Reasons	6	0.98
Kink Needle	2	0.33
Thrombosed Vein	1	0.16
Ultrasound guided	1	0.16

Follow-up Outcomes	Number	Percentage
Improved	547	88.80
No entry	45	7.31
Unable to reach patient	9	1.46
Not required	8	1.30
Still the same	4	0.65
Patient deceased	1	0.16
Worse	1	0.16
Not related numbness	1	0.16

Year	Total	Extravasation Cases	%
2015	19,177	41	0.21
2016	22,136	45	0.20
2017	22,210	43	0.19
2018	22,307	59	0.26
2019	23,426	82	0.35
2020	24,759	87	0.35
2021	27,289	65	0.24
2022	27,844	118	0.42
2023	28,789	75	0.26

American College of Radiology. (2023). ACR Manual On Contrast Media. https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf
Cleary, N., McNulty, J. P., Foley, S. J., & Kelly, E. (2017). An investigation into current protocols and radiographer opinions on contrast extravasation in Irish CT departments. Radiography, 23(4), e87–e92. https://doi.org/10.1016/j.radi.2017.05.009
Ding, S., Meystre, N. R., Campeanu, C., & Gullo, G. (2018). Contrast media extravasations in patients undergoing computerized tomography scanning: A systematic review and meta-analysis of risk factors and interventions. Jbi Database of Systematic Reviews and Implementation Reports, 16(1), 87–116. https://doi.org/10.11124/JBISRIR-2017-003348
Hwang, E. J., Shin, C.-I., Choi, Y. H., & Park, C. M. (2018). Frequency, outcome, and risk factors of contrast media extravasation in 142,651 intravenous contrast-enhanced CT scans. European Radiology, 28(12), 5368–5375. https://doi.org/10.1007/s00330-018-5507-y

P218 Subjective assessment of bone health from wrist radiographs

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Background

Osteoporosis is a highly prevalent condition associated with an increased risk of debilitating fractures. The subjective assessment of radiographic osteopenia is a common referral pathway for Dual X-ray Absorptiometry (DXA), the standard for diagnosing osteoporosis, however, there is little evidence of its reliability. This study, funded by the College of Radiographers' Industry Partnership Scheme (CoRIPS), seeks to address this gap by assessing the level of agreement between subjective clinician evaluations of wrist radiographs and objective DXA-based bone mineral density (BMD) measurements.

Methods

Using a survey approach, participants were asked to review and assess 28 anonymised posterior-anterior wrist radiographs for radiographic osteopenia at the 2024 European Congress of Radiology. Agreement within and between participants were investigated utilising four repeat cases. Subgroup analysis explored professional role, clinical experience and reporting status. Free-text feedback on clinical understanding of radiographic osteopenia was also collected.

Results

104 radiology-related clinicians responded. Results indicated poor agreement between assessment of radiographic osteopenia, and subsequent DXA outcomes (mean individual percentage agreement 51% (SD 10%; range 25-79%)). There was poor agreement between respondents, and no statistically significant associations in performance with professional role, experience or reporting status. Free-text responses indicated diverse clinical approaches to identifying radiographic osteopenia, with a focus on bone appearance, cortical features and patient age.

Conclusion

Results suggest limited reliability of subjective radiographic assessments compared to DXA highlighting the risk of missed or mis-referrals thereby impacting patient outcomes. Our study highlights the need for enhancements to training to improve the consistency of reporting of radiographic osteopenia.

P219 Exploring the workplace culture and leadership within PET CT departments across the United Kingdom

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Introduction

Positron Emission Tomography (PET) uses imaging locate radionuclide concentrations within a patient's body for various referral pathways (Royal College of Radiologists et al., 2022). The PET-CT imaging rollout across the United Kingdom (UK) has been slow to date(NHS England, 2024), with a varied skills mix in the workforce(Cook et al., 2024) and inconsistent service provision (Husband et al., 2005; Dickson and Eve, 2016). This study explored the workplace culture and leadership within PET-CT departments across the UK.

Method

A mixed-method cross-sectional survey using purposive sampling of private provider PET-CT sites (n=260) across the UK. The survey was divided into n=6 sections: demographics, teamwork, standards and processes, professional development, workload levels, and work environment questions. Data analysis applied descriptive statistics and thematic analysis for reoccurring themes and patterns.

Results

Twenty-five responses were received, providing a range of answers on what makes an effective team, from communication (64%), collective decision-making (28%), the efficiency of standardisation of protocols (68%), and adequate work environments (72%). To barriers of variations across sites (64%), lack of work appraisals (28%), time to complete mandatory training (48%), and time to complete daily tasks (60%).

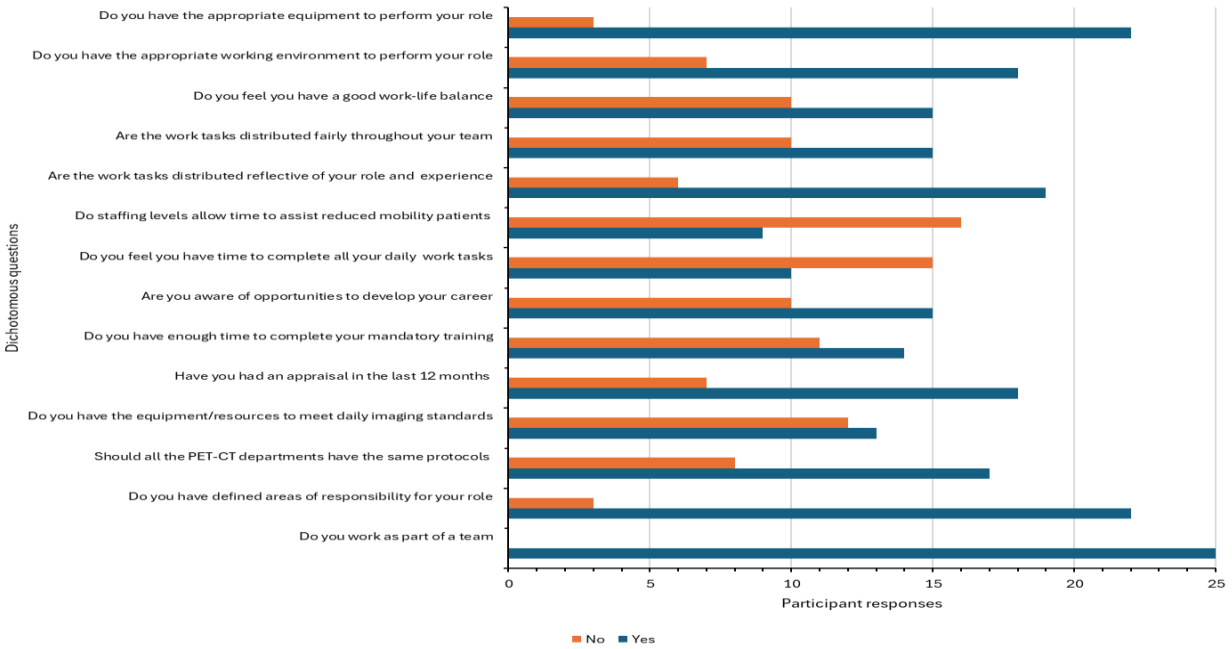
Conclusion

The survey findings present opportunities to improve the culture and leadership by reviewing PET-CT unit staffing levels and workforce planning. The dissemination of information within and between teams was identified as an area for future improvement. At the local and national level, there was a need to focus on staff training needs and provide opportunities for career progression.

Table 1. Demographic information of participants.

Demographics (Individual-level variables)		Count (*n*)	Percent (%)
Age			
	18-24 years old	1	4
	25-34 years old	5	20
	35-44 years old	6	24
	45-54 years old	7	28
	55-64 years old	4	16
	>65 years old	1	4
Gender			
	Female	16	64
	Male	9	36
	Other	0	
	Prefer not to say	0	
Race/Ethnicity			
	White	21	84
	Hispanic or Latino	0	
	Black or African American	2	8
	Asian / Pacific Islander	1	4
	Other	1	4
	Prefer not to say	0	
Education			
	Secondary Education	2	8
	Post-Secondary Education	4	16
	Vocational Qualification	4	16
	Undergraduate Degree	7	28
	Post-graduate Degree	8	32
	Doctorate (PhD)	0	
	Prefer not to say	0	
Role			
	Administrator	4	16
	Clinical Assistant	6	24
	PET CT Assistant Practitioner	0	
	PET CT Technologist	7	28
	PET CT Radiographer	5	20
	Unit Manager	3	12
	Other	0	
Healthcare working years			
	<1 year	2	8
	2-5 years	4	16
	6-10 years	2	8
	10-15 years	2	8
	15-20 years	5	20
	>20years	10	40
PET-CT working years			
	<1 year	2	8
	2-5 years	8	32
	6-10 years	7	28
	10-15 years	4	16
	15-20 years	3	12
	>20years	1	4

Table 2. Participants' responses to questions on teamworking, standards and processes, professional development, workload, and work environment.



1. Cook, G.J.R. et al. (2024) 'BNMS UK PET standards', Nuclear Medicine Communications, 45(1), pp. 1–15.
2. Dickson, J. and Eve, J. (2016) 'IPEM survey of the current status of PET/CT imaging', Scope, 25, pp. 10–15.
3. Husband, J. et al. (2005) 'PET-CT in the UK: a strategy for development and integration of a leading edge technology within routine clinical practice'.
4. NHS England (2024) Engagement Report for Positron Emission Tomography - Computed Tomography (PET CT) Scanning (All Ages) No.2266. London.
5. Royal College of Radiologists et al. (2022) Evidence based indications for the use of PET-CT in the United Kingdom. London.

P220 What if - A survey of current practice in the management of incidental findings in research

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Background
Medical imaging plays an important role in research and can lead to major medical advances, however it can also detect incidental findings of potential health importance.
A report by the Royal College of Radiologists suggested Imaging Research centres should have a clear policy on management of IF and should communicate this to research participants when recruited. However, there is still a wide variation in practice.
This survey aimed to understand how research-based imaging is reviewed and reported across the UK, as well as what processes are in place when an IF is identified in order to create guidelines for best practice.
Method
This mixed-methods study was conducted electronically, promoted at conferences and shared across professional networks and social media to maximise participation and reach. Additionally, it was sent to clinical and research imaging facilities throughout the UK.
Results
Responses were received from NHS Trusts, independent providers and University research departments. Radiologists, radiographers, physicists, and researchers responded, with 78% having a departmental IF research policy and 53% departments provided IFreporting. Most of the reporting is done by NHS staff, although only 14% said they charged for this service. Opinions on best practice for communicating IFs to volunteers varied.
Conclusion
This highlights the considerable variation in managing and communicating incidental findings across the UK. This inconsistency is important for research participants, as abnormal findings may have serious health implications. Further work is needed to gather research volunteers' perspectives and develop co-produced guidelines for managing IFs, ensuring all stakeholders are involved.

1. Royal College of Radiologists (2011) Management of incidental findings detected during research imaging. Available at: https://www.rcr.ac.uk/publication/management-incidental-findings-detected-during-research-imaging (Accessed: 4 May 2023).
2. UK Research and Innovation (2020) Guidance: Framework on the feedback of health-related findings in research. Available at: https://www.ukri.org/publications/framework-on-the-feedback-of-health-related-findings-in-research/ (Accessed: 4 May 2023).
3. Wardlaw, J. M., et al. (2015) 'Acting on incidental findings in research imaging', BMJ (Clinical research ed.), 351, h5190. doi: 10.1136/bmj.h5190.

P221 Prevalence and severity of imposter phenomenon in consultant radiographers

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Background
Imposter Phenomenon (IP) is defined as a pervasive psychological experience of perceived intellectual and professional fraudulence (Clance and Imes, 1978; Matthews and Clance, 1985). In the health setting, IP has widely been reported amongst medical staff and is associated with poor job satisfaction, burnout, mental health illness and career progression (Deshmukh et al; Ord et al, 2024). The authors are not aware of any literature specific to IP in Consultant Radiographers.
Method
An online mixed method survey to explore IP in consultant radiographers was designed using an adaptation of the validated Clance Imposter Phenomenon Scale. A pilot of the survey was conducted on 8 consultant/advanced practice radiographers. The survey was distributed to all consultant and trainee consultant radiographers who are members of a professional body supported platform. The survey was open from July to September 2024.
Results
The response rate was 45%. Moderate or worse IP was demonstrated in 85.7% of respondents and was more common in females. 50% of trainee consultant radiographers experienced frequent or severe IP compared with 35.2% of established consultant radiographers. Length of time in role was associated with less-severe imposter symptoms. 64.5% of

respondents with the most severe IP characteristics recognised this in themselves. Respondents had sometimes novel ways of dealing with and attempting to overcome IP. Two-thirds of respondents found that IP could be advantageous in some scenarios.

Conclusion

IP is common in trainee and established consultant radiographers. Tools should be developed and promoted to support radiographers recognise and overcome IP.

Clance, P. R., and Imes, S. A. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. Psychotherapy: Theory, Research & Practice, 15(3), 241–247. https://doi.org/10.1037/h0086006
Matthews, G. and Clance, P. R. (1985) 'Treatment of the Impostor Phenomenon in Psychotherapy Clients', Psychotherapy in Private Practice, 3(1), pp. 71–81. doi: 10.1300/J294v03n01_09.

P222 Clinical experience vs. qualifications: How new NHS banding scales could reshape the career trajectory for radiographers

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The NHS Banding scales significantly influence the career progression and remuneration of healthcare professionals, including radiographers. Recent updates to the banding structure have raised concerns about their impact on radiographers' careers, particularly in balancing clinical experience with formal qualifications. This study explores the implications of these changes on career development, professional identity, and job satisfaction.

A mixed-methods approach was used, combining a longitudinal survey of radiographers at various career stages with qualitative interviews. The survey focused on the perceived value of qualifications versus practical experience in relation to the updated banding scales. Interviews with radiographers, managers, and HR professionals provided insights into the real-world impact of the changes on career progression. Data on retention rates, job satisfaction, and professional development under the new system were also collected.

The findings revealed a complex relationship between qualifications and experience. Many radiographers felt that hands-on experience was undervalued compared to formal qualifications. However, the changes appeared to offer more professional growth opportunities in higher bands, particularly for those with additional qualifications. For newly qualified radiographers, the new system seemed to provide clearer progression pathways.

In conclusion, while the updated banding scales aim to recognize both experience and qualifications, discrepancies between these factors may create workforce tensions. A more integrated approach that values both experience and professional development could improve career satisfaction and retention in the NHS.

P223 A prospective audit on CT and MRI scanner utilisation for emergency department (ED) and inpatients at an NHS Foundation Trust

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Background

Local evidence from practice suggests a rising demand for CT and MRI scans in both Inpatient and ED settings at an NHS Foundation Trust. With limited scanning and portering capacity, it is crucial to use available time slots efficiently as possible. Additionally, it can be distressing for patients who are sent back without their scans. This audit therefore assessed CT and MRI scanner utilisation in these patients and factors resulting in unperformed examinations.

Method

Data was collected using pre-designed sheets distributed in all scanning areas over a two-month period. Staff in the two main hospital sites of the Trust documented instances when patients were sent back without performing their scans and the accompanying reasons. The audit was measured against a local standard that all CT and MRI appointments should be performed on patient arrival to the departments.

Results

Over the two-month period, 93 patients were sent back without being scanned. The reasons were grouped into categories. While cannula issues represented more reasons for unperformed scan in CT (41.9%; n= 26/62), it was intolerability of the scan for the MRI modality (35.5%; n=11/31).

Conclusion

A significant number of patients were sent back without scans. Cannula-related issues were common in CT, while MRI patients struggled with claustrophobia or incompatible implants. Findings will help refine existing practices and guide implementation of new practices to better utilise scan time.

P224 Does the level of the conus medullaris affect CSF leak incidence during spinal surgery?

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Background and Aims
This study examines whether the level of the conus medullaris affects the incidence of cerebrospinal fluid (CSF) leaks in spinal surgery.

Material and Methods
Retrospective analysis was performed on 55 patients who had suffered from CSF leaks postoperatively. The data was stratified by spinal pathology, age, and sex using patient records and MRI scans/reports.

Results
The results show that more patients with a CSF leak had surgery for disc pathologies as opposed to spinal stenosis. Additionally, patients with spinal stenosis were generally older, and there were more women in the CSF leak cohort. Notably, patients with disc pathologies had a higher conus level than those with spinal stenosis, with no CSF leaks occurring in patients with low-lying conus levels at or below L3.

Conclusion
We did not find any correlation between level of conus and CSF leaks.

P225 A quality improvement project to measure compliance after the implementation of EEBH

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Background
The preferred motion management strategy for abdominal radiotherapy is End expiration breath hold (EEBH). This technique was implemented at our institution in 2018. A quality improvement project was completed to measure compliance after the implementation of EEBH.

Method
Patients who were referred for EEBH treatment during January 2018 to January 2021 were audited. Data was analysed for 51 patient's. There were varying treatment sites referred including 38 Liver patients, 5 lower oesophagus patients, 2 pancreas patients and 5 abdominal node patients.

Results
94% of referral forms correctly indicated EEBH was required for treatment
23.5% of patients were not scanned in EEBH.
78.4% of patients had their treatment plan created in EEBH
72.5% of patients did not require a rescan
2% of patients were not fit for treatment
25.5% of patients required a rescan
33.3% of patients did not have SABR treatment because they could not achieve EEBH
47% of patients had issues with compliance on treatment
63% of patients required additional imaging
69% of patients took longer than their allocated appointment slot

Conclusion
The department has successfully implemented EEBH. The majority of patients are successfully scanned and treated in EEBH. The majority of patients do not require a rescan and the majority of patients did not have any problems on treatment.
Areas for improvement are to reduce concomitant imaging on treatment as the majority of patients require additional imaging. Also, more consistency in appointment times allocated would be beneficial and this has been implemented.

Kao, D., Ma, Z., Lyu, S., & Dejene, F. (2023). Investigating the role of signaling pathways in tumor progression. PMC, 10189463. https://pmc.ncbi.nlm.nih.gov/articles/PMC10189463/

P226 Evaluating discrepancy rates in out-of-hours cranial CT reporting by radiology residents

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Background

The demand for out-of-hours cranial CT imaging has increased, with radiology residents providing provisional reports under indirect supervision, reviewed by consultants within 24 hours. Evaluating accuracy of oncall reports is essential to ensure patient safety and maintain clinical standards. This study assessed the discrepancy rates between provisional reports issued by on-call radiology residents and the final interpretations by consultant radiologists for emergency cranial CT studies and the clinical significance of discrepancies.

Method

Consecutive cranial CTs reported by on-call residents over one month (February–March 2024) at a two-site acute NHS trust (including a large major trauma and neuroscience centre) were retrospectively analysed. The dataset included adult and paediatric plain and contrast-enhanced CTs. Discrepancies were classified as major, minor, or none, with reviews by a neuroradiology resident and two neuroradiologists. Royal College of Radiologists (RCR) guidelines recommend <5% major and <10% minor discrepancies.

Results

Out of 1311 emergency cranial CTs, 1017 (77.6%) were provisionally reported by residents. Significant discrepancies occurred in 0.49% (5/1017) of cases, and minor discrepancies in 2.16% (22/1017). Major discrepancies included subdural hematomas and an orbital wall fracture. Subacute lacunar infarction was the commonest minor discrepancy. No significant differences in discrepancy rates were noted between junior and senior residents.

Conclusion

Discrepancy rates for provisional out-of-hours cranial CT reporting were within recommended RCR standards, confirming radiology residents' competency in provisionally reporting emergency cranial CT scans. No adverse clinical outcomes were observed. Recommendations include targeted teaching on common misses and establishing a secure shared case library for educational purposes.

Filippi, C.G., Schneider, B., Burbank, H.N., Alsofrom, G.F., Linnell, G. and Ratkovits, B. (2008) 'Discrepancy rates of radiology resident interpretations of on-call neuroradiology MR imaging studies', Radiology, 249(3), pp. 972–979. Available at: https://doi.org/10.1148/radiol.2493071543.
Parker, J., Lewis, A., Hosseini, M. and Cross, J.J. (2022) 'On-call CT head reports: Auditing accuracy rates and discrepancy feedback mechanisms', Clinical Radiology, 77(S3), p. S3. Available at: https://doi.org/10.1016/j.crad.2022.01.009.
Storjohann, S., Kirsch, M., Rosenberg, B., Rosenberg, C., Lange, S., Syperek, A., Schweikhard, F.P. and Hosten, N. (2021) 'The accuracy of on-call CT reporting in teleradiology networks in comparison to in-house reporting', Healthcare (Basel, Switzerland), 9(4), p. 405. Available at: https://doi.org/10.3390/healthcare9040405.
The Royal College of Radiologists (2019) Is that your final answer? An audit of provisional versus final reports of on-call CT imaging. Available at: https://www.rcr.ac.uk/media/0lebdh2x/rcr-audits_-is-that-your-final-answer-an-audit-of-provisional-versus-final-reports-of-on-call-ct-imaging_june-2019.docx (Accessed: [insert date]).
Wang, M.L. (2010) 'Discrepancy rates of on-call radiology residents' interpretations of CT angiography studies of the neck and circle of Willis', AJR. American Journal of Roentgenology, 194(3), p. W282. Available at: https://doi.org/10.2214/AJR.09.3539.
Wysoki, M.G., Nassar, C.J., Koenigsberg, R.A., Novelline, R.A., Faro, S.H. and Faerber, E.N. (1998) 'Head trauma: CT scan interpretation by radiology residents versus staff radiologists', Radiology, 208(1), pp. 125–128. Available at: https://doi.org/10.1148/radiology.208.1.9646802.

P227 Plain film facial bone imaging assessment: a service evaluation project

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Background

Image optimisation is an area the Quality Standard for Imaging expects all imaging departments to evaluate. Due to the possibility of associated brain injury and its greater diagnostic accuracy, plain film imaging of facial bones has predominantly been superseded by Computed Tomography (CT) and is now relatively uncommon in medical imaging departments within the United Kingdom. For this reason, this procedure is often over-looked in service evaluations and audits.

Aim

The aim of this study was to carry out a service evaluation on plain film facial bone X-rays to evaluate if this procedure infrequency has led to a reduction in image quality and suggest quality improvement recommendations where necessary.

Methods

A retrospective study was conducted within an acute Trust between the 1st and 31st May 2024. Data were collected from the Trust imaging systems for any patient that had undergone plain film facial X-rays within the time frame. The facial images were then assessed by a reporting radiographer against a set of image quality criteria.

Results

30 patients were identified (0.31% of the total patients in May). All procedures were found to be justified, but image quality assessment identified collimation, exposure and patient positioning as being suboptimal.

Conclusion
These findings suggest that staff retraining within the department is recommended to improve the quality of imaging. Training should primarily focus on improving collimation and patient positioning techniques, to aid diagnostic accuracy. It is also a recommendation to reconsider the use of cylindrical scatter restrictors to produce circular collimation.

P228 Honestly, Doctor?

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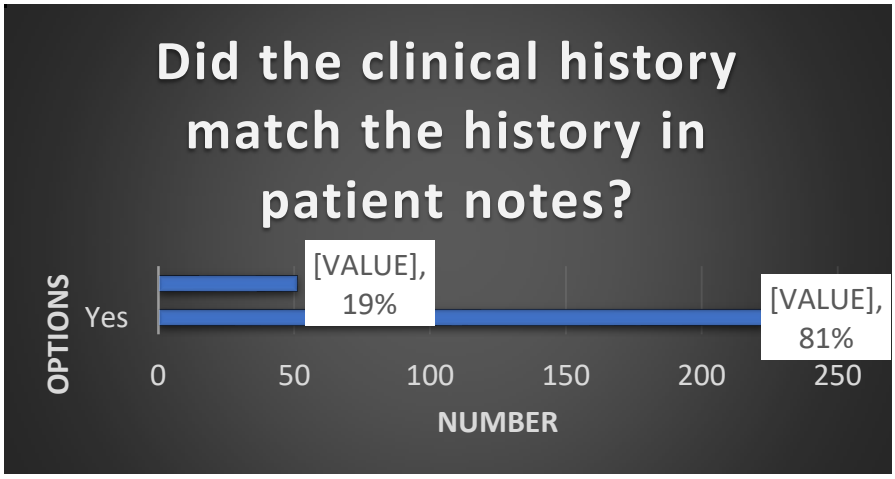
[1]*Walsall Hospitals Nhs Trust, Walsall, United Kingdom*

A retrospective audit of all CT scans requested and performed in a 1 week period in September.

- The online request card reviewed to see:
- If iRefer tool was triggered, and if so, if the scan was indicated or not.
- If differential given by iRefer matched the clinical history given in the clinical history
- CAS card on CareFlow reviewed to see if the clinical history given on the request matches the notes with no discrepancies.

274 scans and requests were analysed.
iRefer differential did not match clinical history in only 16/274
51/274 (19%) were shown to have a discrepancy between the clinical history on the request and the history on the cas card.
There was a spectrum of discrepancies identified, from relatively trivial to serious difference in presentation.
Study by Leslie and Jones (2000) demonstrated that 19% of clinical reports were changed after the clinical history was known – half of these were major changes
The Ionising Radiation (Medical Exposure) Regulations 2017 state that no exposure should take place unless it can be justified by the Practitioner. If the clinical history provided is incorrect, the exposure is not justified.
The Ionising Radiation (Medical Exposure) (Amendment) Regulations 2024 state that referrers must follow the employer's referral procedures

Further actions:
Results shared with ED team
Education to junior doctors regarding responsibilities of referrers to be provided on induction
Repeat audit to assess any change in practice



Leslie, A & Jones, AJ & Goddard, Paul. (2000). The influence of clinical information on the reporting of CT by radiologists. The British journal of radiology. 73. 1052-5. 10.1259/bjr.73.874.11271897.
The Ionising Radiation (Medical Exposure) Regulations 2017, available at: https://www.legislation.gov.uk/uksi/2017/1322/contents: Accessed February 2025
The Ionising Radiation (Medical Exposure) (Amendment) Regulations 2024, available at: https://www.legislation.gov.uk/uksi/2024/896/made: Accessed February 2025

P229 Communities of practice: An alternative approach to bridging the theory-practice gap in radiography?

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Objectives

There is an increasing need to engage with evidence-based practice (EBP) and continuing professional development (CPD) to effectively respond to the current healthcare demands and challenges. This review critically synthesises key knowledge diffusion and implementation theories, with particular emphasis on Communities of Practice (CoPs), a theory as yet unexplored in radiography practice.

Key findings

Prominent theories including implementation science, translational science and knowledge diffusion theories have previously been proposed to bridge the theory-practice gap. However, the radiography profession is a fast-paced, complex and a highly regulated profession which makes the application of rigid theories more challenging. CoPs, which have their origins in Social Learning Theory, represents a potentially more viable approach to bridging the theory-practice gap.

Conclusion

Cultivating and maintaining CoPs is a more practical approach to improve knowledge dissemination, EBP and CPD, allowing radiographers in practice to share knowledge, best practices, and experiences out with an organisational hierarchy. The collective pool of knowledge, and history created may contribute to further establishing the radiography profession and the radiographer identity as the CoPs connect, expand, and advance over time.

Implications for practice

CoPs may be cultivated and further investigated in radiography practice to improve knowledge dissemination, EBP and CPD, with the ultimate aim of improving individual and organisational performance in radiography practices.

Table

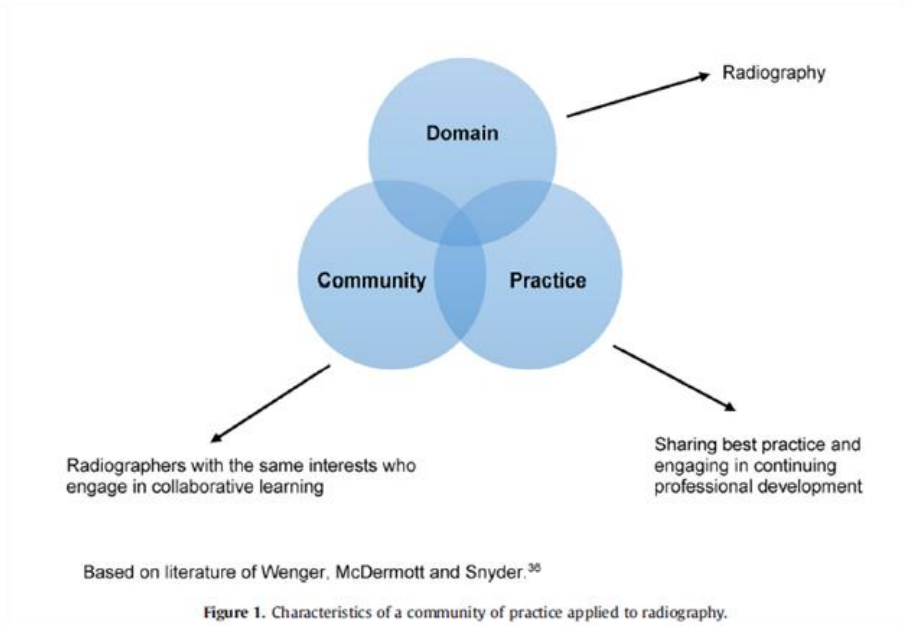

Figure 1. Characteristics of a community of practice applied to radiography.

Ramazan, F. Graham, Y. and Hayes, C. (2024) Communities of practice: An alternative approach to bridging the theory-practice gap in radiography?. Radiography. 30, 1167-1172.

P231 Optimizing computed tomography pulmonary angiogram (CTPA) image quality: A retrospective audit and improvement implementation

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Background

Incidental pulmonary embolism (PE) is increasingly detected in cancer patients, often in those with advanced disease or undergoing active treatment[1]. Untreated emboli are the second leading cause of death after cancer itself[2].
The main technical challenge in obtaining optimal Computed Tomography Pulmonary Angiogram (CTPA) scan is inadequate intravenous contrast opacification due to early, late, or interrupted scanning during bolus tracking[3].
This audit evaluates CTPA image quality against national standards and published literature to identify areas for improvement and optimal diagnostic accuracy.

Methodology

A retrospective review of 58 CTPA scans performed between 12/06/2023 and 26/06/2024 was conducted. Scans were categorized by radiologist-reported quality descriptors ("excellent," "good," "adequate," or "poor"). Hounsfield Unit (HU) measurements were taken at key points: the main pulmonary artery during triggering, the completed scan, and the descending aorta.

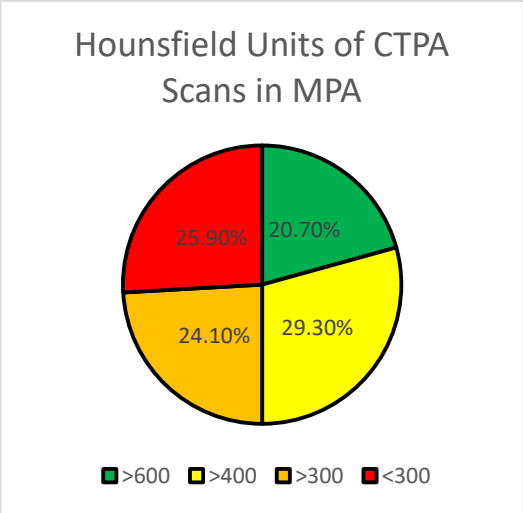
Results

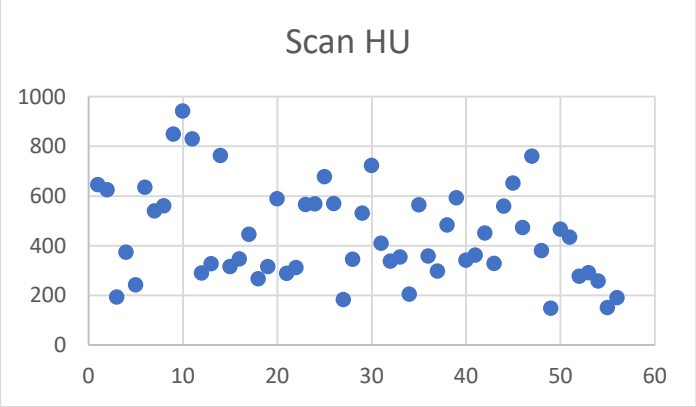
20.7% of scans were rated as "excellent" (HU > 600); 29.3% as "good" (HU > 400); 24.1% as "satisfactory" (HU > 300); and 25.9% as "poor" (HU < 300).

Inconsistent timing between bolus injection and scanning initiation resulted in suboptimal opacification in several cases, highlighting common pitfalls related to contrast timing and administration.

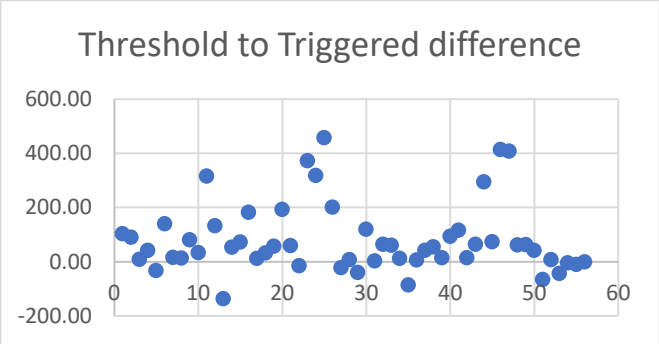
Conclusion

The audit revealed notable inconsistencies in HU measurements, indicating potential problems with the timing of contrast injection and scan initiation. To address this, the delay between injection and the first monitoring slice has been reduced from 8 seconds to 4 seconds. This adjustment aims to enhance scan quality and diagnostic accuracy by capturing the first blush more effectively.

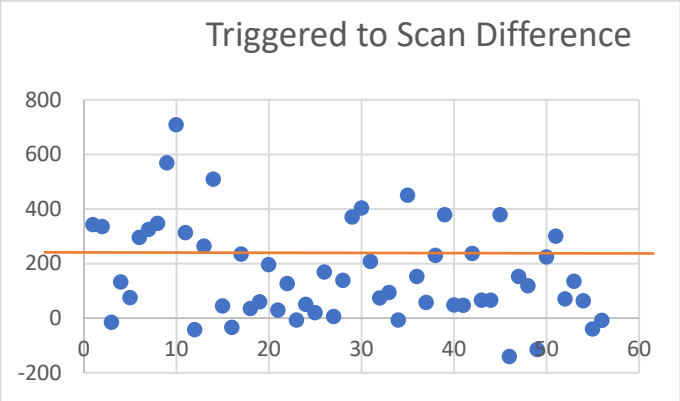




Graph 1: Scan HU should be above 600 HU as per articles for accurate findings. Colours represent pie chart in the results and different threshold HU.

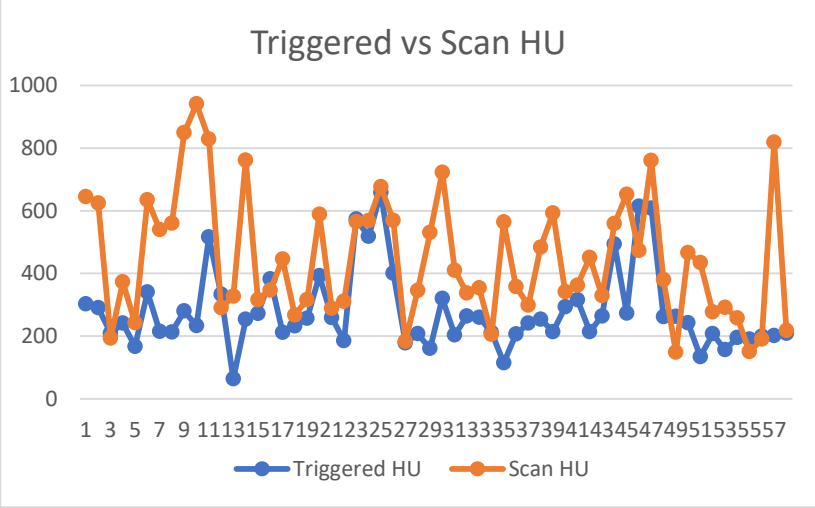


Graph 2: Difference between Triggered HU and Threshold HU. If threshold is 200 HU, then a small increase (but below 100 HU) is acceptable but not negative values. Large differences mean injecting too early hence scan results are late. Closer to 0 is good as it means triggered well in time.



Graph 3: If triggering at 200 HU, the scan difference should be 2 times more and above 200 (larger differences are good, smaller differences suggest an early injection start and late scanner start). Both injection and scan start should happen simultaneously and main scan readings should be much higher than 200 HU. 58% are under.

Graph 4: Scan HU should be significantly higher than triggered HU



1. Abdel-Razeq, H., Mansour, A. and Ismael, Y. (2011) 'Incidental pulmonary embolism in cancer patients: clinical characteristics and outcome --a comprehensive cancer center experience,' Vascular Health and Risk Management, Volume 7, pp. 153–158.
2. Poenou, G. et al. (2022) 'Pulmonary embolism in the Cancer Associated Thrombosis landscape,' Journal of Clinical Medicine, 11(19), p. 5650.
3. Nguyen, E.T. et al. (2022) 'Canadian Society of Thoracic Radiology/Canadian Association of Radiologists Best Practice Guidance for Investigation of Acute Pulmonary Embolism, Part 2: Technical Issues and Interpretation Pitfalls,' Canadian Association of Radiologists Journal, 73(1), pp. 214–227.

P232 Audit on ultrasound performance in soft tissue tumour assessment

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Background

Because of its accessibility, cost, and real-time imaging capabilities, ultrasound is the main imaging modality used for the first assessment of soft tissue masses (1,2). Its primary goals, which have an immediate bearing on patient care, are to verify the existence of a lesion and distinguish between benign and malignant features (3). To guarantee accuracy and consistency, standardized imaging techniques are necessary because ultrasound is extremely operator-dependent (4). Doppler ultrasonography evaluation for vascularity assessment, three-dimensional size measurement, and focus zone optimization are essential elements of soft tissue tumor assessment (2,5). Following recommended practices makes follow-ups more dependable and improves diagnostic accuracy (6).

Methods

From April 2, 2024, to May 15, 2024, 50 ultrasound scans of patients referred to the musculoskeletal team were reviewed retrospectively . Normal scans, diffuse pathology, lymphadenopathy, and interventional procedures were removed, and only cases with discrete soft tissue masses were included.

Results

97.5% of the 82% of patients with size measurements in three orthogonal dimensions were reported. Only 80% of cases had Doppler vascularity documented, compared to 98% that had been evaluated.

Conclusion

More than 80% of reports, according to the audit, followed the Royal College of Radiologists' (RCR) requirements (6). Doppler assessment compliance was higher than size documentation compliance. Accuracy and reporting uniformity may be improved by teaching radiologists and sonographers standardized procedures (5,6). A re-audit and the implementation of defined processes for soft tissue mass measurement will assist guarantee ongoing adherence to best practices.

1 • Nazarian, L.N. (2008) 'The top 10 reasons musculoskeletal sonography is an important complementary or alternative technique to MRI', AJR American Journal of Roentgenology, 190(6), pp. 1621–1626.
2 • American Institute of Ultrasound in Medicine (AIUM) (2017) 'AIUM practice parameter for the performance of a musculoskeletal ultrasound examination', Journal of Ultrasound in Medicine, 36(6), pp. 1231–1241.
3 • Carra, B.J., Bui-Mansfield, L.T., O'Brien, S.D. and Chen, D.C. (2014) 'Sonography of musculoskeletal soft-tissue masses: techniques, pearls, and pitfalls', AJR American Journal of Roentgenology, 202(6), pp. 1281–1290.
4 • Serafin-Król, M. and Maliborski, A. (2017) 'Diagnostic errors in musculoskeletal ultrasound imaging and how to avoid them', Journal of Ultrasonography, 17(70), pp. 188–196.
5 • Noebauer-Huhmann, I.M., Vanhoenacker, F.M., Vilanova, J.C., et al. (2024) 'Soft tissue tumor imaging in adults: European Society of Musculoskeletal Radiology-Guidelines 2023—overview, and primary local imaging: how and where?', European Radiology, 34(7), pp. 4427–4437. doi:10.1007/s00330-023-10425-5.
6 • The Royal College of Radiologists (RCR) (2022) Audit on ultrasound performance in soft tissue tumor assessment. London: RCR.

P233 A systematic review of clinical decision support systems in prostate magnetic resonance imaging: The role of nomograms and key clinical features

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Background

The PI-RADS steering committee recommends on-table radiologist monitoring during prostate MRI to reduce contrast agent injections (Schoots et al., 2021). However, the global radiologist shortage (Jeon et al., 2023) challenges feasibility. Radiographers already oversee image quality and anatomical coverage (Swinburne, 1971). A CDSS could assist radiographers in on-table prostate MRI monitoring, reducing radiologists' workload and enhancing patient care. This review is part of a phased mixed-methods study to develop a prostate MRI pathway for an NIHR Doctoral Clinical and Practitioner Academic Fellowship.

Review Question: What CDSSs are used for prostate MRI analysis, and what key clinical variables inform their design?

Purpose

his review explores CDSSs for prostate MRI and their significant clinical features.

The review results will be presented at the congress.

Methodology

Studies meeting predefined eligibility criteria were selected.

Inclusion Criteria

- CDSSs used in prostate MRI pathways (derivation, validation, or impact analysis).
- Electronic tools generating prostate MRI patient-specific assessments.

Exclusion Criteria

- CDSSs unrelated to prostate MRI.

- Articles published before 2014.
- Ineligible formats (e.g., conference abstracts, reviews, commentaries).
- Non-English or inaccessible full texts.

Search Strategy

A systematic search in Medline, Cochrane, CINAHL, Web of Science, and ProQuest used Boolean operators, truncations, and MeSH headings. Key terms included "Prostatic Neoplasms," "Clinical Decision-Making," and "Magnetic Resonance Imaging."

Data Extraction & Quality Appraisal

The QUADAS-2 tool assessed bias, and data extraction was conducted using Microsoft Excel.

1. Jeon, S.K., Lee, J.M., Joo, I., Yoon, J.H. and Lee, G. (2023) Two-dimensional Convolutional Neural Network Using Quantitative US for Noninvasive Assessment of Hepatic Steatosis in NAFLD. Radiology. 307(1), p. e221510.
2. Schoots, I.G., Barentsz, J.O., Bittencourt, L.K., et al. (2021) PI-RADS Committee Position on MRI Without Contrast Medium in Biopsy-Naive Men With Suspected Prostate Cancer: Narrative Review. AJR American Journal of Roentgenology. 216(1), 3–19.
3. Swineburne, K. (1971) Pattern recognition for radiographers. The Lancet. 1(7699), 589–590.

P234 Opportunistically identified vertebral fractures – an evaluation of patient behaviours in a fracture liaison service (FLS)

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[1]Somerset Foundation Trust, Taunton, United Kingdom, [2]Exeter University, Exeter, United Kingdom

Background

Vertebral fragility fractures (VFF) are the most common osteoporotic fracture and significantly increase the risk of future fractures, however these fractures rarely come to clinical attention. RCR guidelines in 2021 recommended routine reporting of opportunistically identified VFF (OIVFF) and onward referral to FLS for osteoporosis review. The aim of this evaluation is to review the behaviours of patients with OIVFF's within the FLS pathway.

Method

A retrospective UK service evaluation was performed using local FLS date from 1/1/22-31/12/22. A total of 1403 patients with acute VFF (AVFF), OIVFF, and non hip spine fragility fractures (NHSFF) were evaluated for differences in patient engagement, fracture awareness, medication compliance and adherence.

Results

Engagement with the FLS pathway was similar for all cohorts. The OIVFF cohort had the highest proportion of men with 32.4% compared to 18.9% and 14.7% in the AVFF and NHSFF cohorts respectively. Fracture awareness was low in the OIVFF cohort with 81.02% of patients unaware of their fractures. OIVFF patients do not appear to behave differently to other symptomatic fracture types in terms of compliance or adherence to medications.

Conclusion

This service evaluation highlights the effectiveness of the local FLS pathway for OIVFF identification which may provide insights for other services. The high number of patients unaware of their vertebral fractures suggests a review of the local communication pathway from radiological report to the patient. Further research in to the increased number of men in the OIVFF cohort is recommended to evaluate potential gender specific risk factors.

Royal Osteoporosis Society (2020) Clinical guidance for the effective identification of vertebral fractures Available at: ros-vertebral-fracture-guidelines-november-2017.pdf
Royal college of Radiologists (2021) Radiological guidance for the recognition and reporting of osteoporotic vertebral fragility fractures (VFF's) Available at: Radiological guidance for the recognition and reporting of osteoporotic vertebral fragility fractures (VFFs) | The Royal College of Radiologists

P235 Community Diagnostic Hubs: Are imaging services adequately provisioned to improve the health of the wider communities in England? A scoping review of current evidence

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[1]Institute of Health, University of Cumbria, Lancaster, United Kingdom, [2]South Warwickshire University Foundation Trust, Warwick, United Kingdom, [3]Alliance Medical LTD, Warwick , United Kingdom

Background

The NHS currently faces an unprecedented elective care backlog of around 6 million people. Community Diagnostic Hubs (CDHs) have emerged as a potential solution for improving healthcare accessibility and addressing regional inequalities by bringing sustainable diagnostic imaging services closer to communities. This secondary study (a) examines the current state of CDH implementation and (b) identifies key challenges in meeting the objectives outlined in the Richards Report (2020).

Method

A scoping review of recent King's Fund (2022–2023) and government reports (published 2019) was conducted, using a systematic search strategy, to assess CDH service provision. Additional data from the Royal College of Radiologists (2024)

and Society of Radiographers (2020-2024) were analysed to evaluate workforce challenges against requirements stipulated in the Richards Report.

Results

Analysis revealed three key findings: (a) Mortality rates in England (2017-2022) showed greatest deficit in the North of England (conforming to inequality theory); (b) NHS service user satisfaction reached historic lows during this period; and (c) Primary implementation barriers included site acquisition costs and specialized workforce shortages, with deprived communities disproportionately affected, therefore supporting CDH expansion.

Conclusions

The review indicates that CDHs represent a promising solution to diagnostic imaging delivery, although current implementation falls significantly short of the government's 17,000,000 test target. Findings indicate two critical requirements for successful CDH implementation: development of an expanded specialised diagnostic workforce (incorporating advanced radiographer practitioners supported by assistant practitioners) and substantial additional investment. These findings have implications for policymakers and healthcare providers in addressing regional healthcare inequalities and service delivery.

1. Bagenal, J. (2022) 'The delivery plan for tackling the covid-19 backlog of elective care falls short', British Medical Journal (online). Vol 377. pp. o995.
2. Cookson, et al (2021) 'The inverse care law re-examined: a global perspective', The Lancet, Vol 397 (Iss 10276). pp. 828-838.
3. Heales, C.J., Mills, K and Ladd, E. (2021) 'Radiographer advanced and consultant practice and community diagnostic hubs – a vision for the future', Radiography, 27 (1), pp. S28 – S33.
4. Jefferies et al (2024) Public satisfaction with the NHS and social care in 2023: Results from the British Social Attitudes Survey.
5. Ministry of Housing, Communities and local Government (2019) The English indices of deprivation 2019 (IoD2019).
6. NHS England (2021) Core 20PLUS5 (adults) – an approach to reducing healthcare inequalities.
7. Office for national statistics (2024) Life expectancy for local areas in England, Northern Ireland and Wales: between 2001 to 2003 and 2020 to 2022
8. Richards et al (2022) 'Diagnostics: a major priority for the NHS', Future Healthcare Journal. 9 (2). pp. 133 – 137
9. The Royal College of Radiologists (2024) Clinical radiology census reports.
10. SoR - Society of Radiographers (2020) CoR Diagnostic Radiography Workforce UK Census 2020.
11. SoR – Society of radiographers (2023) Developing career pathways for diagnostic imaging support worker roles: guidance on roles and responsibilities.
12. The Kings fund (2022) Are community diagnostic centres really moving care closer to home?
13. The Kings fund (2023) Two years on, how are community diagnostic centres doing?

P236 Innovative technology at North East London Community Diagnostic Centre: Exploring MRI patients views about the usefulness of the Autovoice

Dr Christiane Zelenyanszki[1], Mr Ronnie Hernandez[1], Mrs Monika Mesuria[1], Dr Darren Hudson[2]
[1]Barking, Havering And Redbridge University Hospitals NHS Trust, London, United Kingdom, [2]University of Exeter, Exeter

Background

The first Community Diagnostic Centre (CDC) in North East London, has provided a variety of diagnostic tests and scans, including Magnetic Resonance Imaging (MRI). These scans, while crucial, often evoke anxiety and apprehension in many patients (Hudson & Evans, 2023; Bolejko & Hagell, 2020).

This oral presentation aims to provide an overview of the impact of the Autovoice on patient experience and its effectiveness in mitigating anxiety.

Method

A survey design using a twelve-item questionnaire was developed and shared with patients that attended their elective MRI appointments at the CDC during a four week period.

External research and ethics approval was received from the University of Exeter alongside internal approval from the Trust's audit team.

Results

A total of 313 questionnaires were collected. The mean age of participants was 51.23 years (SD=15.73). Most (94%) perceived the 'auto prompt as useful' (i.e. 'A lot & A little') and over 85% of all participants were satisfied with hearing an 'Autovoice'

Entry and preference over delivery of information during the scan neared significance (p=0.054), with those having 'head first' examinations having stronger preference one way or another, although a greater number opted for 'Autovoice'. Perceived anxiety on the day and the benefit of the 'Autovoice' during the examination showed significance (p=0.019).

Conclusion

The utilisation of an 'Autovoice' can significantly improved patients anxiety during scanning procedure. The synergy between 'human' and 'Autovoice' throughout the appointment episodes i.e. from welcoming, over scanning process to leaving the CDC can enhance patient experience.

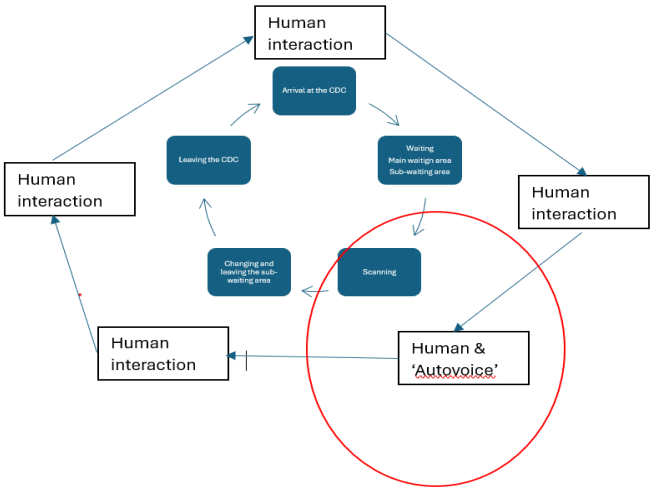

Diagram 1: Ongoing cycle of engagement with the patient

1. Hudson, D.; Evans, R., Heales, C. (2023) Journey to the Centre of the Bore: A Service Evaluation of the Patient Experience in Magnetic Resonance Imaging. Journal of Radiology Nursing, 1-9.
2. Bolejko, A. and Hagell, P. (2020) Effects of an information booklet on patient anxiety and satisfaction with information in magnetic resonance imaging: A randomized, single-blind, placebo-controlled trial. Radiography, 27(1), 162-167.

P237 An exploration of equality, diversity and inclusion principles by radiographers, within radiology

Richard Knox[1], *Eleanor Butterfield*[1], *Daljeet Bing*[1]
[1]*Frimley Health NHS Foundation Trust, Camberley, United Kingdom*

Background

The scope of 'Equality, Diversity and Inclusion' (EDI) across the modalities within radiology healthcare settings are underpinned by the principles outlined in the Equality Act 2010. Also known as 'protected characteristics', these principles seek to improve patient outcomes. However, the commitment to specific research projects presents significant challenges, therefore EDI issues are not adequately investigated (NIHR, 2020). This NHS Trust formed a Radiography Steering Group (RSG) to engage in quality improvement and innovation projects, identifying and targeting the patient population where greatest need for enhancement of quality and equity of care is needed.

Purpose

The purpose of exploring EDI principles within radiology was primarily to improve patient experience by identifying barriers and biases, thus aligning with NHS England EDI improvement plan (2023). Making our services accessible and comfortable to all patients is crucial to providing high quality and efficient care. Additionally, by having EDI ingrained in our mindset, our staff can ensure all patients are appropriately catered for as individuals rather than as a generic patient body.

Summary of content

The newly formed RSG identified key principles of EDI and explored how these principles were considered and supported within the different modalities of their NHS radiology department. In doing so, the group identified potential areas for improvement and developed interventions to provide equity of care. The poster will detail the group's EDI activities, interventions and future plans for improving the patient experience across the modalities within radiology.

Equality Act 2010 (2010). Available at: https://www.legislation.gov.uk/ukpga/2010/15/contents (Accessed: 17th December 2024).

NHS England (2023). NHS Equality, Diversity and Inclusion (EDI) development plan. Available at: https://www.england.nhs.uk/long-read/nhs-equality-diversity-and-inclusion-improvement-plan/ (Accessed 17th December 2024).
National Institute for Health Research (NIHR). (2020) 'Improving inclusion of under-served groups in clinical research: Guidance from the NIHR-INCLUDE project', UK: NIHR, Version 3.0, Available at: www.nihr.ac.uk/documents/improving-inclusion-of-under-served-groups-in-clinical-research-guidance-from-include-project/25435 (Accessed 19th November 2024).

P238 Thinking outside the box: Introducing the pathway navigator in radiotherapy

Mrs Norma Simpson[1], *Holly Tant*[1]
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Background
Nationally, Radiotherapy services have experienced an unprecedented rise in demand, alongside a reduction in the available workforce. Within our service this created a substantial backlog in our prostate pathway, impacting access for all patient cohorts. Consequentially, our cancer performance breached new national 31-day cancer standards .
A number of efficiencies were introduced to improve access for all patient cohorts. A significant initiative was the development was the pathway team, modelled on the CDC navigators.
Method
An analysis of the pathway was conducted using quantitative data, collected locally through the Patient Target List (PTL), includes numbers of patients referred, waiting times and pathway length.
Results
Initially the average prostate pathway was 112 days, diminishing to 29 days
The prostate failure rate for CT has reduced from 50% to 7%. From January 2024 to mid-July 2024 prostate breaches dropped by 94%.
Conclusion
The pathway navigation team, consisting of both clinical and administration staff, has been effective in reducing delays, improving cancer performance and making better use of our highly skilled radiography workforce.

1. NHS England. Changes to Cancer Waiting Times Standards from 1 October 2023. Available online: NHS England » Changes to cancer waiting times standards from 1 October 2023 [Accessed 11/7/2024]
2. Richards, M. NHS. Diagnostics: Recovery and Renewal – Report of the Independent Review of Diagnostic Services for NHS England (NHS England) 2020. Available online: DIAGNOSTICS: RECOVERY AND RENEWAL – Report of the Independent Review of Diagnostic Services for NHS England – October 2020. [Accessed 11/7/2024]

P239 Small steps - working towards a greener radiology department one tourniquet at a time

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Background
Disposable tourniquets have been utilised in recent years, as a more hygienic alternative to traditional fabric reusable tourniquets. Recent focus on greener practices and reducing the environmental impact of healthcare has led to the development of a reusable tourniquet which can be decontaminated between uses, offering a more sustainable alternative. To assess the potential environmental, patient care and functionality impacts of reusable tourniquets, a trial was conducted within a PET/CT department to determine if these can be adopted as a more sustainable practice.
Method
Four staff members were issued a re-usable tourniquet on a trial basis for 4 weeks. Feedback was collected from staff on their experience of using the tourniquet, assessing ease of use, functionality and impact on workflow. Waste reduction and cost implications were assessed to determine the practicality and suitability of re-usable tourniquets being introduced to replace disposable alternatives.
Results
88% of responses strongly agreed that the tourniquet gave a professional impression to patients, posed no contamination risk, felt hygienic and did not impact cannulation success rate. One staff member reported minor skin pinching, whilst adjusting to the release mechanism. Overall feedback was positive from all staff.
Conclusion
Reusable tourniquets offer a sustainable alternative to disposable products, reducing plastic waste, increasing patient comfort and providing staff with an effective and easy to use tourniquet, with no perceived increase in infection risk. Although the initial purchase is associated with a higher cost, tourniquet re-use and reduction in waste results in longer term cost and environmental savings.

1. Salgueiro-Oliveira, A., Oliveira, V., Costa, P., Gama, F., Graveto, J., Parreira, P. and Osório, N. (2020). Tourniquets used in peripheral venipuncture as a potential vehicle for transmission of microorganisms: scoping review. Infectio, 24(2), p.92. doi:https://doi.org/10.22354/in.v24i2.839.
2. Grohmann, M., Schomakers, L., Wolschendorf, F., Grosch, J., Lindner, S. and Witte, A.K. (2020). Reduced bacterial contamination rates detected on silicone tourniquets compared to conventional tourniquets in clinical routine. BMC Infectious Diseases, 20(1). doi:https://doi.org/10.1186/s12879-020-04975-y.
3. Nash, C. and Nelson, J. (2024)/ Reusable tourniquets: their impact on patients, planet and public purse. Nursing Times (online), 120 (8), p1-6. Available online: 240715-Reusable-tourniquets-their-impact-on-patients-planet-and-public-purse.pdf Accessed 14th January 2025.

P240 Cone beam computed tomography (CBCT): An opportunity to harness greener CT pathways?

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Background

Environmental sustainability is increasingly crucial for imaging service providers with high power usage of large diagnostic devices together with multiple peripherals such as workstations and monitors (Schulz et al, 2024), supply-chain emissions and use of contrast media. While all modalities have an impact on carbon emissions, cross-sectional imaging modalities such as Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are more energy intensive (Khanolker and Scheel, 2025). Based on modelling data, 0.8% of global emissions could potentially be attributed to CT and MRI alone (Kouropoulos, 2018) and opportunities to optimise the use of technologies within imaging modalities should be sought.

Purpose

The aim is to summarise the current literature regarding environmental sustainability and diagnostic imaging with a focus on more energy-intense modalities such as CT and MRI The poster will present CBCT as a decisive adjunct to reduce emissions and power usage together with patient pathway streamlining, particularly in musculoskeletal and head and neck imaging pathways.

Summary of content

We will examine the role of CBCT in sustainable practices and summarise the potential ecological-economic impacts, patient benefits and system-wide changes that could be gained from wider NHS implementation. We will also highlight future research priorities.

1. Khanolkar, L. and Scheel, J.R. (2025) Healthcare industry and environmental sustainability: Radiology's next biggest opportunity for meaningful change. Acad Radiol. In press.
2. Kouropoulos, G. (2018) A predictive model for the estimation of carbon dioxide emissions of magnetic resonance imaging (MRI) and Computed tomography (CT) scanners. J Urban Environ Eng, 12:172-187.
3. Schulz, B., Euler, A., Fernandez Leon Jesus Kraft, D., Kaser, Y., Thali, M., Kubik-Huch Rahel, A., Neimann, T. (2024) Assessing environmental sustainability in dual-energy CT: Exploring ecological-economic impact in low utilisation times. Acad Radiol. 31: 4528-4537.

P243 Comparative safety and efficacy analysis of Elucirem in MRI imaging

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Background

Elucirem (gadopiclenol), a novel gadolinium-based contrast agent (GBCA), achieves enhanced diagnostic performance at half the gadolinium dose compared to conventional agents. Its macrocyclic structure offers improved patient safety, though limited real-world data exist. This study evaluates Elucirem's safety and efficacy in MR examinations, focusing on contrast enhancement, nephrogenic systemic fibrosis (NSF) risk, gadolinium retention, and hypersensitivity reactions, using local trial data from InHealth Croydon NHS Trust.

Method

A single-center observational study evaluated 100 patients undergoing MR examinations with Elucirem. Data were collected on demographics, renal function (eGFR levels), hypersensitivity reactions, and diagnostic outcomes. Adverse events were monitored, and safety outcomes compared with historical data for gadoteric acid . All patients received the recommended 0.05 mmol/kg dose.

Results

Of the 100 patients, 96 (96%) achieved high-quality diagnostic imaging at half the gadolinium dose of conventional agents. No NSF cases were reported in patients with normal or mildly impaired renal function (eGFR ≥ 60 mL/min/1.73 m^2). Mild hypersensitivity reactions occurred in 1 patient (2%), consistent with macrocyclic GBCA safety profiles. Gadolinium retention assessments showed no reported long-term effects.

Conclusion

This study reinforces the safety and efficacy of Elucirem, demonstrating reduced gadolinium exposure without compromising diagnostic quality rather enhancing the quality. These findings support its use in routine clinical practice. Future studies should explore its application in patients with renal impairment and long-term outcomes.

1. Essig M, Shiroishi MS, Nguyen TB, et al. Efficacy and safety of gadopiclenol for contrast-enhanced MRI of the central nervous system. Radiology. 2023;[Epub ahead of print]. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC10090311/.
2. Goyen M, Barkhausen J, Breuer J, et al. Efficacy and safety of half-dose gadopiclenol versus full-dose gadobutrol in contrast-enhanced MRI. Radiology. 2022;[Epub ahead of print]. Available at: https://pubs.rsna.org/doi/full/10.1148/radiol.222612.
3. Lin T, Beeres M, Bastiaansen J, et al. A newly emerging gadolinium-based contrast agent: Gadopiclenol. Journal of Magnetic Resonance Imaging. 2023;48(2):345-357.
4. Thomsen HS, Morcos SK, Almen T. Safety of gadopiclenol after its first year of clinical use. Investigative Radiology. 2024;59(1):12-21.
en T, Barkhausen J, et al. A comprehensive overview of the efficacy and safety of gadopiclenol. Investigative Radiology. 2024;59(2):102-109.

ABSTRACTS

P244 "Look into our MRIs": An observational study on the implementation of a novel clinical support pathway utilising hypnosis for claustrophobic/anxious patients

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Objective
For patients with claustrophobia/anxiety, undergoing a magnetic resonance imaging (MRI) scan can be distressing, and often unachievable. Historically, these patients were automatically referred to private upright-MRI (uMRI) providers, which offer suboptimal lower resolution image quality at high financial cost. We report our initial results of a novel MRI Support Pathway developed at an Orthopaedic tertiary referral centre incorporating hypnosis and other supportive measures to successfully complete high resolution MRI scans.

Materials & Method
Over 34 months of service delivery dating from 19th March 2022, 859 patients were identified by referrers as 'claustrophobic/anxious'. These patients had counselled telephone triage for their imaging including; conventional MRI, hypnosis-supported conventional MRI, conventional MRI under general anaesthesia (GA) or uMRI. Outcomes of this imaging pathway and inherent costs were assessed.

Results
859 patients were referred to the support pathway. 46.1% (n=396) of these patients chose to have a hypnosis-supported MRI scan with a 98.99% completion rate. 28.6% (n=246) opted for routine conventional MRI, 24.1% (n=207) for uMRI, and 1.2% (n=10) for GA MRI. Potential cost saving over this period by scanning patients in-house on hypnosis-supported sessions, rather than referring to an external uMRI was estimated at £352,500.

Conclusions
The introduction of this pathway has proven highly effective in providing high-quality imaging, while simultaneously achieving substantial cost savings. The MRI Support Pathway represents a significant advancement in patient-centred care and sets a new standard for managing patients with claustrophobia/anxiety in a specialist clinical setting.

P245 Assessing the trend in increasing imaging (CT and MRI) workload over the last 10 years (2013 - 2023) at our NHS trust

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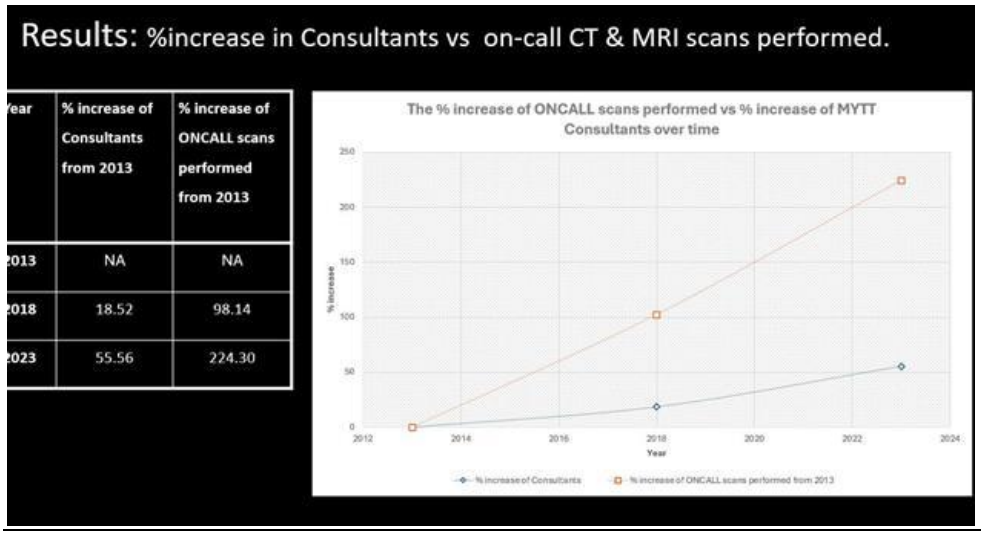
Background
The Royal College of Radiologists' census (2023) reported a 5% annual increase in CT and MRI demand over five years.

Purpose
The aim of this audit is to assess the trend in the increasing imaging workload, focusing on computed tomography (CT) and magnetic resonance imaging (MRI), at our NHS trust in last 10 years.
Data analysis include whether the rise in imaging demand aligns with growth of radiology workforce, using data from 2013, 2018, and 2023. Key metrics include the numbers of total and on-call scan compared to the number of radiologists alongside a detailed examination of common imaging requests performed on-call: CT Head, CTPA, CT Abdomen Pelvis +/- contrast and MRI Spine.

Summary of content
Data was sourced directly from the CRIS database, with Excel used for organisation and analysis. Findings reveal a significant increase in total (98.86%) and on-call CT and MRI volumes (224.30%), with on-call imaging growth outpacing in-hours imaging. Oncall CT scans demonstrated a higher growth rate than MRI, with on-call CT Abdomen showing the largest proportional increase in numbers (443.3%).
Despite a rising workload, the number of consultants and SpR on the on-call rota has remained stagnant over the last decade, highlighting a disparity.
These findings provide quantifiable evidence of workload pressures, supporting potential modifications to job plans, workforce expansion and training initiatives. Further analysis may be required to evaluate referral appropriateness and operational efficiency to facilitate recommendations for sustainable radiology services.



P246 Introduction of a preliminary clinical evaluation (PCE) system for musculoskeletal (MSK) radiographs within an acute setting

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Background

Radiographers have long contributed to first line abnormality detection on MSK radiographs using the 'red-dot' system, supporting emergency staff in their management of patients. Multifactorial drivers have motivated expansion of 'red-dot' to include a formal, written initial opinion by the imaging practitioner; PCE.

Purpose

As a reporting team we looked to implement a formal PCE system, the application of which aims to maximise the expertise of the imaging practitioner and assist in efficient and accurate decision making and patient management by referrers.

- Identify learning needs pre teaching
- Design and deliver a learning package to ensure competence and confidence of all involved staff in delivering this new service
- Pre and post training audit comprising of a bank of images for participants to provide an initial comment on; allowing effectiveness of the training programme to be analysed. Participation voluntary with representation from participants of bands 4, 5, 6 and 7 with varying levels of experience and training
- Once 'live' the comments will be regularly audited by the reporting radiography team and feedback sought from the referring teams
- Anticipated resultant improvement in image quality as interpretation skills grow

Summary of content

Poster content will include overview of the training package with results from image interpretation audits pre and post training and training effectiveness assessed.

Feedback on programme delivery and content will be included along with opinions from participating referrers who are in receipt of the imaging practitioner comments.

1. College of Radiographers. (2008) Continuing Professional Development: Professional and Regulatory Requirements: Policy and Practice Guidance. The College of Radiographers, London.
2. College of Radiographers. (2012) Team working in clinical imaging: Policy and Practice Guidance. London: The College of Radiographers. The College of Radiographers, London.
3. College of Radiographers. (2013). Preliminary Clinical Evaluation and Clinical Reporting by Radiographers: Policy and Practice Guidance. The College of Radiographers, London.
4. College of Radiographers. (2019) Principles for continuing professional development and lifelong learning in health and social care: Policy and Practice Guidance. The College of Radiographers, London.
5. College of Radiographers. (2019) Ionising Radiation (Medical Exposure) Regulations 2017; briefing for radiographers who undertake commenting or reporting: Policy and Practice Guidance. The College of Radiographers, London.
6. Harcus, J.W. & Stevens, B.J. (2023). Radiographer abnormality flagging systems in the UK – A preliminary updated assessment of practice. Radiography [online]. 29(1), 234-239. [viewed 21 January 2025]. Available from: https://doi.org/10.1016/j.radi.2022.11.014
7. Lidgett, T., Pittock, L., Piper, K. & Woznitza, N. (2023). A pilot study to assess radiographer preliminary clinical evaluation (PCE) introduced for emergency department adult appendicular X-ray examinations: Comparison of trained and untrained radiographers. Radiography [online]. 29(2), 307-312. [viewed 21 January 2025]. Available from: https://doi.org/10.1016/j.radi.2023.01.003

8. Verrier, W., Pittock, L., Bodoceanu, M. & Piper, K. (2022) Accuracy of radiographer preliminary clinical evaluation of skeletal trauma radiographs, in clinical practice at a district general hospital. Radiography [online]. 28(2), 312-318. [viewed 21 January 2025]. Available from: https://doi.org/10.1016/j.radi.2021.12.010

P247 A review of efficacy and patient experience in virtual fracture clinics in the UK

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Background

The traditional face-to-face fracture clinic model, heavily dependent on diagnostic radiography, faces mounting pressures from increasing patient numbers and over-stretched resources. In the UK, Virtual Fracture Clinics (VFCs) have emerged as a contemporary solution to these challenges, yet the extent of their impact on patient care and imaging service efficiency remains under-evidenced.

Method

A comprehensive analysis of VFC implementation was conducted, examining patient pathways, imaging requirements, and service user experiences across multiple UK/Irish healthcare sites. In this narrative review, a number of UK/Irish studies on the discussion of VFCs were screened for suitability with a 10-year publishing threshold, 12 papers were deemed appropriate for review. The investigation focused particularly on the role of diagnostic radiography in supporting virtual consultations and patient outcomes.

Results

Analysis of sources revealed significant benefits including a reduction in unnecessary radiographic examinations, with significant decreases in follow-up imaging. Patient satisfaction rates reached 97% for virtual consultations, while also demonstrating a 75% reduction in non-attendance rates. Key challenges identified in these studies included communication barriers for service users and the need for clear protocols in determining cases that would - or would not - be suitable for virtual management.

Conclusions

VFCs represent a potentially transformative approach to fracture management in the UK and Ireland, with the promise of significantly reducing radiography service pressures while maintaining high patient satisfaction. The findings of this study demonstrate that careful patient selection and imaging protocol optimisation are crucial for successful implementation, which would significantly benefit both service providers and users.

P248 Expanding the scope of musculoskeletal radiographer reporting into CT hand and wrist examinations: single centre experience

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Background

Imaging demand is increasing year on year compounded by workforce challenges across the sector. Skill mix is embedded within the UK with radiographers providing reporting capacity alongside their radiologist counterparts. Within cross-sectional imaging radiographer reporting is established within the CT head and increasingly lung nodule follow up[1]. This poster describes the expansion of scope of an experienced musculoskeletal x-ray reporting radiographer into CT interpretation.

Method

In June 2020 an internal training program was initiated followed by assessment of competency and a period of double reporting. Peer review and double reporting continued while the percentage of double reporting for trauma examinations was gradually reduced.

Results

In December 2022 after reporting nearly 200 examinations and achieving a sensitivity of 96.3%, specificity of 99.5% and an overall accuracy of 97.2%, the radiographer was authorised to undertake autonomous reporting of trauma examinations for CT hand and wrist examinations. Due to low numbers, pathology referrals continued to be double reported. Reporting capacity has increased over the 5 years since the initiative commenced, with a subsequent reduction in the workload for consultant radiologists. By 2024 the radiographer was reporting 67.6% (n=72/108) of CT examinations within their scope of practice. Ongoing peer review is available and the expansion of scope is supported by the radiology department and trust.

Conclusion

Radiographer reporting of CT musculoskeletal examinations is feasible within a team environment and can contribute to capacity generation[2]. Format academic programs within this area of practice are required to support further developments within the radiographer workforce.

1. Culpan G, Culpan A-M, Docherty P, et al. Radiographer reporting: a literature review to support cancer workforce planning in England. Radiography 2019; 25: 155–163
2. Richards, M. DIAGNOSTICS: RECOVERY AND RENEWAL Report of the Independent Review of Diagnostic Services for NHS England Available from DIAGNOSTICS: RECOVERY AND RENEWAL – Report of the Independent Review of Diagnostic Services for NHS England – October 2020 accessed September 2024

P250 Working together on ultrasound imaging reports: Phase one of a novel multi-method study

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Background
Diagnostic ultrasound reports are primarily designed for physicians, often rendering them inaccessible to patients with varying levels of health literacy. This communication gap impedes patient engagement and understanding of their care. This study investigates patient and professional experiences of ultrasound reporting to identify challenges and opportunities for improvement.
Method
A novel multi-method study is being conducted, comprising two phases. Phase one utilised Interpretative Phenomenological Analysis (IPA) with semi-structured interviews of patients and sonographers (n= 9), analysed through IPA's six-step method with member checking for validation. Phase two, based on Experience-Based Co-Design (EBCD)1, will build on these findings to explore possible interventions.
Results
Patients reported difficulty with inconsistent and unclear ultrasound reports and sought greater involvement in their care through transparent communication. Sonographers highlighted challenges in reconciling the need for accurate medical terminology with clear patient communication. Concerns over legal and institutional guidelines further impacted their experiences. These issues collectively hinder effective patient-provider communication and patient engagement.

Conclusion
This study identifies a significant gap in ultrasound reporting practices highlighting the need to balance precision with accessibility. Patients struggle with practitioner specific discourse, while sonographers face professional and institutional constraints in communicating their findings fully. Addressing these barriers requires innovative strategies to improve report transparency without compromising medical accuracy. While the small sample size aligns with IPA methodology, further research is necessary to generalise findings and enhance ultrasound reporting practices.

1. Bate P, Robert G. Experience-based design: from redesigning the system around the patient to co-designing services with the patient. Qual Saf Health Care. 2006 Oct;15(5):307-10. doi: 10.1136/qshc.2005.016527. PMID: 17074863; PMCID: PMC2565809.

P251 Self-referral chest X-ray pilot for patients with symptoms raising suspicion of lung cancer

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Background
Lung cancer accounts for over 35,000 deaths annually in the UK. Survival rates are highly dependent on diagnosing lung cancer early. In the UK most cases are diagnosed at an advanced stage with poorer outcomes and often through emergency care pathways.
People living in the most deprived communities are twice as likely to die from lung cancer compared to those in the least deprived areas.
Chest x-rays are usually the first test used to diagnose lung cancer; however, patients may face barriers to accessing care, such as difficulties securing GP appointments or fear of wasting their GP's time. To address this, UHL Imaging, in collaboration with East Midlands Cancer Alliance and GP colleagues, is piloting a project allowing patients over 40 years old with lung cancer symptoms to self-refer for a chest x-ray without needing a GP consultation.
The pilot project involves a cluster of GP practices within a Leicestershire Primary Care Network serving an ex-mining community with high levels of deprivation. The pilot started in November 2024; to date over 140 referrals have been received.
Purpose
To determine the potential benefits of a chest x-ray self-referral pathway and provide practical guidance for other sites interested in implementing a similar approach.
Summary of content
The poster/presentation will outline the development and implementation of the self-referral pilot, detailing the organisational framework and processes. It will present findings from the first six months of the pilot, focusing on patient uptake, early diagnostic outcomes, and lessons learned to inform wider adoption.

P253 How do imaging-specific policies influence radiology provision in low- and middle- income African countries?

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Background

Radiology provision in LMICs falls short of World Health Organisation (WHO) standards (2). LMICs in Africa have started to produce national radiology specific policies rather than just including radiology as a subsection of a greater health policy(3). Policy implementation has been recognised by academic literature as a possible solution for radiology provision in LMICs(1). This research aims to assess the influence of a national imaging-specific policy on radiology provision in African LMICs. To explore what factors, from a radiology service providers perspective, are therefore influential in radiology provision in African LMICs.

Method

A mixed-methods questionnaire was published online for radiology service providers from African countries to complete.

Results

The majority of participants perceive a national radiology policy would influence radiology provision in their country. Participants highlighted 4 main areas where policy would improve provision: funding, teaching, safety and professional recognition. 13% of participants did not believe policy would influence radiology provision, highlighting 3 main reasons why; lack of overall funding, low prioritisation of radiology against other health services and stringent policy reducing ability to provide radiological examinations.

Conclusion

Policy is overwhelmingly thought of as a positive step to improve radiology provision. However, robust plans for implementation of policy are vital to ensure that it unwittingly does not impede another area of radiology growth and making service providers and stakeholders aware of their role in policy. Limitations include a small sample size, due to time constraints, self-selection bias due to the nature of online questionnaires, and language barriers.

1. Hinrichs-Krapels, S. Tombo, L. Boulding, H. Majonga, E. Cummins, C. Manaseki-Holland, S. (2023) Barriers and facilitators for the provision of radiology services in Zimbabwe: A qualitative study based in staff experiences and observations. PLOS Global Public Health. 3(4) e0001796
2. Maboreke, T. Banhwa, J. Pitcher, R. (2019) An audit of licensed Zimbabwean radiology equipment resources as a measure of healthcare access and equity. The Pan African Medical Journal. 34(60).
3. Ministry of Health (2020). National Radiology Policy. Government of Malawi, Ministry of Health.

P254 An appraisal of a radiographer's extended role in interventional radiology: A qualitative research approach

Eleanor Thornton[1], Dr Stuart Mackay[1], Christine Denby[2], Antonio Eleuteri[2], Ms Ruth Buckley[3], Richard Baron[3], Mr Anthony Manning-Stanley[1], Dr Victoria Kinsley[1], Zainab Hussain[1], Vicky Hughes[1], Cath Williams[1]
[1]University Of Liverpool, Liverpool, United Kingdom, [2]Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, United Kingdom, [3]Countess of Chester Hospital, Chester, United Kingdom

Background

Currently there is a shortage of radiologists specialising in interventional radiology, yet there is an increasing demand for this service. Trained diagnostic radiographers are able to perform this service as an extended role. The aim of this research was to explore the views of stakeholders to a radiographer led service in a Trust in the North West of England.

Methods

Semi structured interviews were used to gain the opinions of stakeholders. Purposive sampling allowed participants with experience to be selected and included: one radiology service manager, one interventional radiographer, and two groups of service users. Husselr's descriptive phenomenological approach was used for the thematic analysis of the stakeholder's views of this extended role.

Results

The four themes derived from the stakeholders included: 'Assisting Workload', 'Career Progression and Incentive',' Accessibility and Availability', and 'Skills and Competence'. Positives that resulted from the analysis of stakeholders involved: wait times and departmental demand decreasing with radiographer aid, increased job retention and satisfaction, and overall confidence in radiographers' abilities. Barriers that were noted by the stakeholders included the availability of both professions, funding issues, and potential negative opinions.

Conclusion

A positive attitude was present in stakeholders for the proposed role. The role had benefits to each the radiologist, radiographer and the NHS in terms of workload, retention and economic factors. Further research is required to determine whether these views have transferability to other Trusts.

P256 Advanced clinical practice in the modern NHS: A phenomenological study of an interventional radiology service

Ms Laura Quinn[1], Dr Stuart Mackay[1], Mrs Victoria Hughes[1], Dr Victoria Kinsley[1], Mr Anthony Manning-Stanley[1], Zainab Hussain[1], Cath Williams[1], Richard Barron[2], Ms Ruth Buckley[2], Christine Denby[3], Antonio Eleuteri[3]
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Background
Advanced practice is being encouraged as a strategy to reduce service pressures within interventional radiology (IR). Minimally invasive procedures traditionally only carried out by radiologists are now being performed by advanced practitioner radiographers (APR). Current literature focuses on quantitative data showing success in the role and the impact of APRs.
Methods
A Hermeneutic phenomenological approach was chosen to analyse stakeholder views of the APR within IR. Two radiographers, two referrers and three service users were included to gain broad perspectives. Data was collected through semi-structured interviews. Staff members included were from a trust with an APR undertaking the role of IR.
Results
Five key themes were identified: training and accreditation, impact on the service, career progression and scope of practice, benefits to service users and challenges to implementation. The role was generally perceived as a positive introduction. Reduction in radiologist workload and risk of burnout, reduced service user anxiety, opportunity for career progression and cost-effectiveness were recognised as benefits to the role. All participants agreed radiographers should be able to perform IR procedures following master's level accreditation and training. Challenges identified included departmental pressures, a lack of support and available funding. Benefits and challenges showed similarities to other advanced practitioner roles.
Conclusion
Many benefits were identified through stakeholder experiences, but challenges to implementation may mean the role is not feasible in all trusts. This study provides the first qualitative approach to advanced practice in IR, but further research should be conducted to allow for comparison.

P257 Transforming the suspected oral cancer pathway

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The 'asynchronous, rapid triage' clinic utilises medical photography, located in a North East London Community Diagnostic Centre (CDC), targets patients who are referred onto the 'suspected oral cancer' referral pathway, as the initial diagnostic assessment tool.
The aim of the pilot study is to explore whether the asynchronous rapid triage clinic could accelerate the diagnosis and if applicable the commencement of treatment for oral cancer.
The main underlying objectives are:

- Improve the cancer waiting time targets i.e. FDS, 31 days and 62 days
- Improve the time required to offer an appointment for patients requiring a biopsy
- Improve the time required to offer 'further imaging' following the firs patient management decision
- Improve the efficiency of outpatient appointment but booking 'the right patient' into the 'right 'face-to-face' clinic

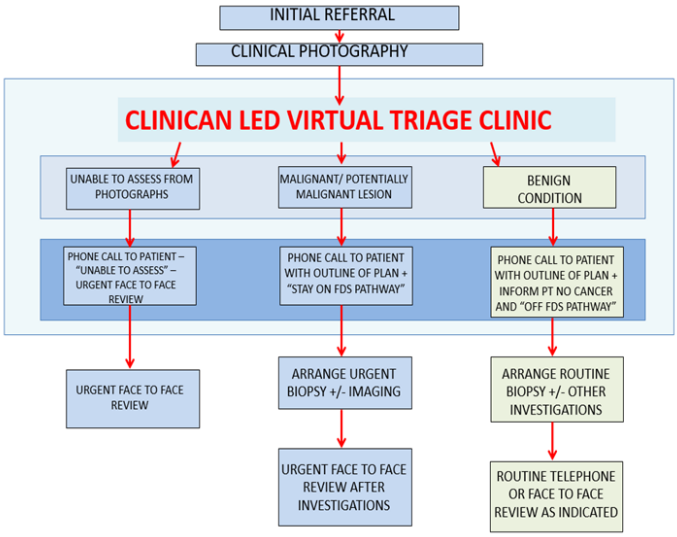
Interim Results
Data from 150 patients who attended the 'Rapid Triage Clinic for Oral Lesions' (RTCOL) compared with 'standard patient cohort'.
The following key results are:

- Suspected cancers: positive predictive value
  - CDC: 100% (6/6)
  - Standard: 25% (11/41)
  - 75% improvement in positive predictive value when patients are seen on 'RTCOL pathway'

- 'Suspected cancer pathway': % of patients taken off.
  - CDC: 10/150 = 94%
- Standard: 117/150 = 33%
- Significantly more patients are taken off the 'suspected cancer pathway' when being on the 'RTCOL pathway.'

- Discharge after first Consultation
  - CDC: 51/150 (35%)

- Standard: 33/150 (22%)
- more patients who are 'RTCOL pathway' were discharged following the first consultation.



P258 How do radiography conferences and networking opportunities influence my approach to clinical practice and continuing education – and has it been worth while? HCPC reflections

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Radiography conferences and networking opportunities provide radiographers with essential platforms for professional development, knowledge exchange, and collaboration. As continuing education is vital for maintaining HCPC (Health and Care Professions Council) registration, these events play a key role in shaping clinical practice. This study explores how participation in such events has influenced clinical skills, lifelong learning, and HCPC compliance.

A reflective approach was taken, following the HCPC's Continuing Professional Development (CPD) framework, combining personal reflection with evidence from conference attendances and networking over the past two years. The reflection was guided by HCPC standards, focusing on the impact of these events on clinical skills, patient care, and professional growth. Feedback from colleagues who attended the same events was also incorporated.

Results showed that conferences and networking significantly influenced clinical practice by enhancing knowledge of emerging technologies, evidence-based practices, and new regulatory standards. Networking fostered collaborations with specialists from other healthcare fields, improving multidisciplinary teamwork and decision-making. These CPD activities positively contributed to HCPC requirements and improved patient outcomes through updated knowledge and skills.

In conclusion, the study emphasizes that radiography conferences and networking offer more than HCPC compliance—they are crucial for advancing professional practice and ensuring radiographers stay at the forefront of healthcare. Despite the time and financial investment, the benefits to clinical competence, patient care, and career progression justify their role in continuing education. Future CPD strategies should prioritize both technical knowledge and cross-disciplinary collaboration.

P259 Early learning experiences of a UK national incident learning system

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Background

Patient safety remains at the forefront of radiological practice. To facilitate shared learning from incidents and near misses at a national level standardised terminology to describe these events was agreed and a taxonomy to categorise them developed. These were published in April 2024 together with user guidance on their use.

In conjunction with key stakeholders national reporting routes and mechanisms for anonymised data were established by UKHSA and a database developed to support collation, analysis and dissemination of key learning from these events. Clinical imaging, MRI and nuclear medicine services across the UK are currently adopting the taxonomy in practice. Use of the taxonomy allows staff to describe, categorise and analyse events and identify trends to reduce or mitigate the risk of re-occurrence.

Purpose

The purpose of this poster is to raise awareness and promote engagement in the national incident learning system. The poster will provide an insight into early learning experience from those using the agreed terminology, taxonomy and reporting routes. In addition, early learning outcomes will be shared.

Summary of content
The poster will outline key findings from the incident learning system. User experience and feedback on the adoption of the system will be shared.
Early learning from incident and near miss report analysis will be presented. The poster will illustrate how the system can be adopted to identify trends in incidents and near miss events. Next steps for this work will be highlighted.

P260 Impact of paper consumption in radiology departments on carbon footprint and climate change: A retrospective analysis and future projections

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Introduction
Climate change and global warming have major contributions from greenhouse gas emissions. Despite the introduction of digitalized systems, many healthcare systems still rely heavily on paper. The purpose of this study is to investigate paper usage in the radiology department of a single hospital institution over the last three years to forecast paper usage upto 2050.
Methodology
This retrospective study was performed in the radiology department of our tertiary orthopedic hospital. The study included forms used for diagnostic and interventional procedures in various departmental modalities. Diagnostic procedures require one to three forms and interventional procedures require three forms each. Based on the established ratio that 1.2 trees are cut for every 10,000 papers used, the study calculated the number of trees cut annually over the past three years and projected paper usage and tree loss until 2050.
Results
Paper usage was distributed between diagnostic and interventional procedures, with 67% used in diagnostics and 33% in interventions. The corresponding number of trees cut during this period amounted to 53.7 trees, with 47.4 trees for diagnostic procedures and 6.4 trees for interventional procedures. A total of 57.8 trees for diagnostic procedures and 11.7 trees for interventional procedures were forecasted to be cut annually from 2024 to 2050, cumulatively being 1227 trees by the year 2050.
Conclusion
Our individual department had a significant contribution from paper usage in the carbon footprint of the department. Adoption of digitalized appointment, prescribing and patient records is important in reducing this and achieving NHS netzero targets.

P262 AI meets MRI : Clinical integration and impact on efficiency, image quality and sustainability

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Artificial Intelligence (AI)-based MRI reconstruction, generates high-quality images in shorter scan times [1, 2].This enhances patient comfort, reduces waiting times and improves accessibility [3,4].Shorter scan times contribute to energy efficiency as MRI scanner energy consumption during active scanning is directly proportional to the total scan length [3].Specifically, Siemens estimate energy saving of up to 13% annually [5].Implementation challenges include imaging artefacts and radiologists' adaptation to evolving imaging features [6]. We developed a collaborative process involving radiologists, physicists and radiographers, to integrate the Siemens Deep Resolve AI acceleration technique into clinical imaging protocols. This process involved comparison of images generated with and without AI-based reconstruction on target sequences, allowing iterative image quality improvement and for artefacts to be addressed. As a result, 20-40% reduction in scan time was achieved, alongside notable improvement in image quality.
Summary
This work shows the transformative impact of AI and deep learning technologies in MRI imaging with examples of identifying and mitigating challenges.
Purpose
Highlight the benefits and challenges
Share Insights by describing the practical approach taken to implement and optimize the AI-based MRI reconstruction package in a clinical setting
Promote Learning and Awareness

1. Rastogi, A., Brugnara, G., Foltyn-Dumitru, M. et al. (2024) 'Deep-learning-based reconstruction of undersampled MRI to reduce scan times: A multicentre, retrospective, cohort study', Lancet Oncology, 25(3), pp. 400–410.

2. Tajima, T., Akai, H., Yasaka, K., Kunimatsu, A., Akahane, M., Yoshioka, N., Abe, O., Ohtomo, K. and Kiryu, S. (2022) 'Clinical feasibility of an abdominal thin-slice breath-hold single-shot fast spin echo sequence processed using a deep learning-based noise-reduction approach', Magnetic Resonance Imaging, 90, pp. 76–83. doi: 10.1016/j.mri.2022.04.005.
3. Chaban, Y.V., Vosshenrich, J. and McKee, H. et al. (2024) 'Environmental sustainability and MRI: Challenges, opportunities, and a call for action', Journal of Magnetic Resonance Imaging, 59, pp. 1149–1167.
4. Foti, G. and Longo, C. (2024) 'Deep learning and AI in reducing magnetic resonance imaging scanning time: advantages and pitfalls in clinical practice', Polish Journal of Radiology, 89, pp. e443–e451. doi: 10.5114/pjr/192822.
5. Siemens Healthineers (2023) Sustainability in MRI: The power of less is more. Siemens. Available at: Siemens Healthineers.
6. Kiryu, S., Akai, H., Yasaka, K., Tajima, T., Kunimatsu, A., Yoshioka, N., Akahane, M., Abe, O. and Ohtomo, K. (2023) 'Clinical Impact of Deep Learning Reconstruction in MRI', Radiographics, 43(6), pp. e220133. doi: 10.1148/rg.220133

P263 Integrating PET-CT in a community diagnostic centre: Opportunities and considerations

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Background

PET-CT plays a vital role in molecular imaging, particularly in oncology, neurology, and cardiology. Traditionally, these services have been confined to large hospital settings. However, integrating PET-CT into Community Diagnostic Centres (CDCs) offers significant opportunities to improve patient access, reduce waiting times, and relieve pressure on secondary care centres. We explore the feasibility, benefits, and key considerations of implementing PET-CT in a CDC setting, reflecting the ongoing transformation of diagnostic services.

Purpose

To outline the key opportunities and considerations regarding the expansion of a PET-CT service into CDCs, with a particular focus on the practical, clinical, and regulatory aspects of introducing PET-CT into a community setting. Ultimately, sharing best practice recommendations and lessons learned from service implementation and workforce development.

Summary of content

The poster will provide a focused analysis of PET-CT integration within a CDC, detailing both the opportunities and challenges. The pictorial content will illustrate patient pathways, patient workflow, and provide site planning considerations, including enhancements in patient accessibility and experience. Organised into key sections—including background, benefits, operational considerations, and best practices—the display will incorporate process maps and a case study approach detailing insights from healthcare professionals working in the CDC setting, ultimately presenting a practical, reflective, and informative resource.

Richards, M. (2020) Diagnostics: Recovery and Renewal. London: Department of Health and Social Care. Available at: https://www.gov.uk/government/publications/diagnostics-recovery-and-renewal

P264 Snapshot audits: A timely solution to monitoring compliance

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Background

The Care Quality Commission (CQC) mandates auditing systems or processes that assess, monitor and drive improvement in the quality and safety of the services provided[1]. Clinical audit is a common practise across healthcare allowing practitioners to evaluate complex areas of practice and are likely to result in changes to practices or processes. A limitation of clinical audits is the inability to continually assess departmental factors on service performance[2]. Snapshot audits can be undertaken across multiple sites at a single point in time or one organisation at repeated time points. Such audits conform to a recognised structure: being time bound and noninterventional[3]. As a result, they are ideal for simpler projects and monitoring compliance against standards throughout the year. This allows issues to be identified and addressed promptly. Ongoing compliance audits can provide assurance against national standards including IR(ME)R and can provide evidence for CQC and other inspections.

Purpose

We will compare various categories of audit and introduce the concept of continual snapshot audits as a way of implementing a sustained audit cycle to address immediate need and broader trends. We will provide examples of compliance audits such as: patient identification, inclusive pregnancy status and safety checklist completion.

Summary of content

We will present the outcomes of one year's data of compliance audits since their introduction at an acute Trust. We will also demonstrate how data is summarised to provide timely feedback for staff groups. Finally, the poster will discuss the relative merits and challenges, as well future directions.

1. Care Quality Commission. (2024) Regulation 17: Good governance. Available at: https://www.cqc.org.uk/guidance-providers/regulations/regulation-17-good-governance (Accessed: 06/02/20025).

2. Grote, H. Toma, K. Crosby, L. Robson, C. Palmer, C. Land, C. Ball, J. Baker, E. (2021) 'Outliers from national audits: their analysis and use by the Care Quality Commission in quality assurance and regulation of healthcare services in England'. Clinical Medicine, 21(5):e511-e516. Available at: https://doi.org/10.7861/clinmed.2020-0695
3. Bass, G.A. Kaplan, L.J. Ryan, E.J. Cao, Y. Lane-Fall, M. Duffy, C.C. Vail, E.A. Mohseni, S. (2022) 'The snapshot audit methodology: design, implementation and analysis of prospective observational cohort studies in surgery', European Journal of Trauma and Emergency Surgery, 49(1): 5–15. Available at: https://doi.org/10.1007/s00068-022-02045-3.

P265 Pictorial review of a pathology: aortic dissection

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Background
Aortic dissections are considered a medical emergency, and most patients die before reaching hospital. If untreated within 48 hours the mortality rate approaches 50% (Levy et al., 2023). CT imaging is the gold standard for diagnosing an aortic dissection (Vardhanabhuti et al., 2016)
Purpose
This poster will provide an overview what an aortic dissection is, why imaging is an essential part of diagnosis with a focus on CT scans, the protocols used and the technology.
Learning outcomes
- What an aortic dissection is, risk factors and symptoms.
- The standard protocol for CT imaging.
- The difference between flash and gated CT techniques.
- Characteristic appearances of an aortic dissection on CT.
- Dissection classifications.

Content
Background
What is an aortic dissection.
Risk factors and symptoms: demographic and physiological factors and symptoms.
The purpose of CT and how the aorta is imaged: the protocol and type of technology used when performing a CT scan for aortic dissection. Including 'Flash' and 'gating' techniques, the topogram, area scanned and phases.
Characteristic appearance on CT: some of the different characteristic appearances of an aortic aneurysm in both phases. Images demonstrating 3 common appearances in each phase.
Discussion: uses of other imaging modalities. The availability of scanners with flash and gating technology is examined and how these two technologies work and differ from each other. Critical evaluation of these two techniques.
Types of aortic dissections: De Bakey and Stanford classifications are discussed (Baliga et al., 2014).

1. Baliga, R. et al. (2014) The role of imaging in aortic dissection and related syndromes, JACC. Cardiovascular imaging. Available at: https://pubmed.ncbi.nlm.nih.gov/24742892/ (Accessed: 06 February 2025).
2. Levy D. et al. (2023) Aortic Dissection, StatPearls [Internet]. https://www.ncbi.nlm.nih.gov/books/NBK441963/ (Accessed: 06 February 2025).
3. Vardhanabhuti, V. et al. (2016) 'Recommendations for accurate CT diagnosis of suspected acute aortic syndrome (AAS)—on behalf of the British Society of Cardiovascular Imaging (bsci)/british Society of Cardiovascular CT (BSCCT)', The British Journal of Radiology, 89(1061), p. 20150705. doi:10.1259/bjr.20150705.

P266 Sustainability and infection prevention and control - what role can radiology play?

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Background
The healthcare sector generates approximately 4 million tonnes of waste annually worldwide, with around 10% of the healthcare carbon footprint attributed to radiology[1]. Due to the increased awareness of the environmental impact of healthcare, focus has shifted to implementing greener, sustainable practices; however, infection prevention and control (IP&C) is often seen as a barrier to implementing change[2]. Collaboration between IP&C teams and radiology departments can have a positive impact on moving towards delivering more sustainable healthcare, without compromising safety.
Purpose
To share greener and more sustainable initiatives that can be adopted by radiology departments to reduce waste, carbon emissions and environmental impact. Small changes, such as reducing use of disposable, single-use products, utilising greener waste streams, and switching to re-usable alternatives have been shown to reduce the environmental impact without impacting patient safety or compliance with IP&C precautions[3].
Summary of content
To promote examples of sustainable changes which can be adopted by radiology departments. Few IP&C initiatives focus on the radiology department, where practices differ greatly from the ward environment. Sharing information on greener IP&C practices, such as reducing unnecessary use of gloves and couch roll, benefits of using tiger-stripe offensive waste

stream and options for switching from disposable to re-usable tourniquets and sharps bins offers opportunities for radiology departments to make greener choices. Working collaboratively with IP&C teams offers many opportunities for radiology departments to reduce environmental impact whilst maintaining safe standards, working towards a more sustainable future.

1. Anudjo, M.N.K. ,Vitale, C., Elshami, w., Hancock, A., Adeleke, S., Franklin, J. and Akudjedu, T.N. (2023). Considerations for environmental sustainability in clinical radiology and radiotherapy practice: A systematic literature review and recommendations for a greener practice. Radiography, 29(6), pp.1077–1092. doi:https://doi.org/10.1016/j.radi.2023.09.006.
2. Shum, P.L., Kok, H.K., Maingard, J., Zhou, K., Van Damme, V., Barras, C.D., Slater, L.-A., Chong, W., Chandra, R.V., Jhamb, A., Brooks, M. and Asadi, H. (2022). Sustainability in interventional radiology: are we doing enough to save the environment? CVIR Endovascular, 5(1). doi:https://doi.org/10.1186/s42155-022-00336-9.
3. Lee, P.S., Frantzis, I. and Abeles, S.R. (2024). Greening Infection Prevention and Control: Multifaceted Approaches to a Sustainable Future. Open Forum Infectious Diseases. [online] doi:https://doi.org/10.1093/ofid/ofae371.

P267 Inconsistency in CT Head PACS data storage: Opportunities for carbon savings?

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Background

With 2024 confirmed to be both the hottest year ever recorded and exceeding 1.5 C above pre-industrial levels, sustainable imaging practice is of increasing urgency. Data storage of imaging examinations is a significant (and growing) source of carbon emissions. While judicious storage of archived examinations is essential for good quality care and clinical governance, anecdotal reports suggest wide variation in the volume of data stored for similar examinations at different centres. This study sought to demonstrate inconsistency in data storage practice, with a view to implementing lean storage practices as a carbon-saving strategy.

Method

Utilising the Scottish National PACS system, a CT head (non-contrast) examination performed within working hours was selected for every registered radiology centre on 7th November 2024. Each examination was interrogated to determine the total number of images stored and the nature of individual folders analysed.

Results

166 CT head examinations from across Scotland were included, with a range of 161 to 1913 images stored per examination. Median of 525 and an interquartile range (IQR) of 286. Co-efficient of variation was 49%. Identified opportunities for savings include: elimination of duplicate scanograms and non-patient images; deletion of thick-slice reconstructions after reporting; elimination of redundant non-diagnostic images. Routine storage of fine bone reconstructions should also be scrutinised according to clinical context, with indefinite storage discouraged where possible.

Conclusion

This study highlights marked variation in data storage practice, and opportunities for energy savings. Robust guidelines to ensure good practice are advocated.

P268 Percutaneus lung biopsy - Safety and adequacy

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Background

CT Guided lung biopsy is a procedure performed widely by Radiologists in the UK. It is safe and good practice in the radiology department to regularly audit their practice with regard to adequate documentation and complication rates vs guidelines.

Purpose

- Evaluate safety including accurate documentation and complication rate
- To do a comparative analysis of the current and prior year audit
- Good practice to audit against recommended standards

Summary of the poster content

Methods

Retrospective audit.

Data collection using Soliton, PACS, Clinical web portal and ICE. Compared it with Standards obtained from RCR and with the previous audit that was done.

Results

Informed Consent: All patients had informed consent .
All patients had WHO checklist performed and scanned .
INR and platelets not documented for 3 patient.
Needle gauge documented for all patients.

Most patients had post procedure CXR done - depending upon the operator and location of lesion. (88% of patients had post biopsy CXR)

Complications

Number of Patients with Pneumothroax 30/102 (29%) (Standard <20%)
Number of Patients requiring a drain 2 (<2%) (standard <2%)
Number of Patients with Haemoptysis 9 (8%) STANDARD: <5% total number of patients with Hemoptysis

Recommendations

Ensure all documentation is scanned and uploaded on to the system, including informed consent and WHO forms.
Accurate documentation- INR/platelets, needle gauge.
Re-audit after one year

P269 Standardising infection prevention in CT: Findings from an eDelphi study

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Background

Effective infection prevention and control (IPC) is essential in healthcare settings, yet adherence to IPC guidelines varies among radiographers in CT, impacting patient safety. While national IPC guidelines exist, there is a lack of specific guidance tailored to CT. This study aimed to develop consensus-based recommendations for IPC practices in CT.

Methods

A three-round modified e-Delphi study was conducted with a panel of experienced CT radiographers and nurses from various healthcare settings across Australia. The statements were based on Australian national IPC guidelines, with experts rating and refining statements related to IPC training, workflow, and best practice for use of contrast injector equipment. Consensus was defined as ≥80% agreement.

Results

In round 1, 34 participants agreed on the importance of personal protective equipment availability, workflow when cannulating, and removing gloves when leaving the CT space. After three rounds, 24 remaining participants reached consensus on 15 of 19 statements, agreeing on hand hygiene practices when setting up the injector and maintaining clean and dirty spaces. Consensus was not reached regarding the risks associated with single-use and multi-use injectors, contamination risk of contrast, and glove use while connecting and disconnecting contrast tubing to patients.

Conclusion

The study established consensus-based recommendations to enhance IPC adherence among radiographers and nurses that are specific to CT yet align with Australian national IPC guidelines. Findings underscore the importance of standardising IPC training and clearer communication of IPC policies. These results can inform policy updates and guide future education and implementation strategies in Australian healthcare settings.

P270 Provisional TAVI analysis and measurements by cardiac advanced practitioners

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Background

At University Hospitals of Leicester (UHL), the demand for TAVI (Trans Aortic Valve Implantation) has increased markedly, with the knock on effect for increased CT imaging. Historically measurements have always been done by radiologists, with this comes the opportunity for extended scope of practise for Advanced Practitioners. My example showcases that Advanced Practitioners are capable of taking on this role, and the impact this has on the service overall at UHL, from referral to procedure, which has drastically reduced

Purpose

- Reduction in consultant radiologist reporting times (example?).
- Increased capacity for TAVI examinations.
- Reduced wait time to be discussed in MDT.
- Highlight the impact of Advanced Practitioner measurements for the TAVI patients.
- Reduced wait times for in/outpatient referrals (from vetting – scan – measurement – MDT- procedure).

Summary of content

- Example of key/all measurements performed (alongside images)
- Analysis time per patients (3mensio)
- How the time for patients has reduced overall (both outpatients and inpatients)

P271 Diagnostic concordance of MRCP with EUS and ERCP findings in diagnosing biliary and pancreatic pathologies

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Background
Magnetic Resonance Cholangiopancreatography (MRCP) is a non invasive imaging modality which is commonly used to identify and diagnose biliary and pancreatic pathologies.
Endoscopic Retrograde Cholangiopancreatography (ERCP) and Endoscopic Ultrasound (EUS) are considered the gold standard procedures for detecting biliary and pancreatic pathology with the additional benefit of enabling direct visualisation, sampling and therapeutic interventions.
The aim of this study is to assess the diagnostic concordance between MRCP and EUS/ERCP findings, in detecting a number of pathologies including biliary strictures, choledocholithiasis and pancreatic lesions (cystic and solid).
Method
A retrospective study was performed involving 50 patients who has undertaken a MRCP study with subsequent investigation with either EUS or ERCP interventions at the current institution. The findings from the MRCP study were analysed and correlated with those from the EUS or ERCP investigation in order to determine diagnostic concordance. Percentage (%) pathology detection rates were calculated for MRCP in detecting biliary strictures, choledocholithiasis and pancreatic lesions(cystic and solid).
Results
The results of the study showed that MRCP has a 68% diagnostic concordance with ERCP and EUS for detecting biliary and pancreatic pathology. The false positive and false negative percentages were both 16%.
Conclusion
Overall, the MRCP study shows good diagnostic concordance between MRCP and EUS/ERCP findings. However, the false positive and false negative percentages highlights the importance of EUS and ERCP investigations at providing direct detailed visualisation of pathologies. MRCP remains an important non invasive diagnostic tool especially when used in conjunction with more invasive methods.

P272 Role of ultrasound in evaluation of testicular tumours: A pictorial essay

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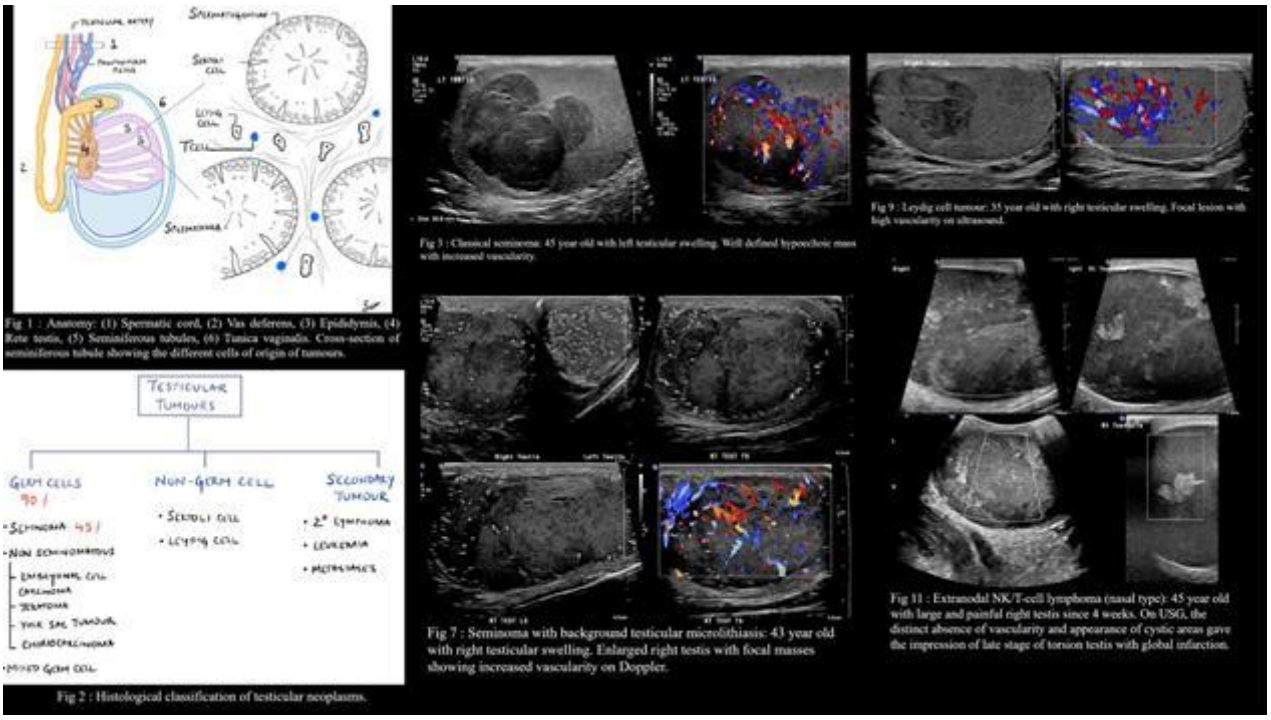
Background
Ultrasound is the first imaging modality for testicular abnormalities. Testicular tumours are the most common non-haematological cancers in men aged 15-49 years. They are usually diagnosed at ultrasonography and staged at Computed Tomography (CT) or Magnetic Resonance Imaging (MRI). The sensitivity of ultrasound for testicular tumours is nearly 100% when combined with physical examination.
Purpose
There are multiple mimics of testicular malignancy such as infection, infarction, granuloma and haematoma which must be distinguished. It is therefore important to be familiar with their imaging features which combined with their clinical findings would optimize management.
In this poster, we provide multiple examples of testicular masses found at ultrasonography in patients from daily practice at our institute which would help familiarize the findings.
Summary of content
The ultrasound and Doppler images of different tumours of testis under various clinical background are depicted. Infection and torsion can be confused for a tumour based on the Doppler findings. Clinical context is therefore very important in testicular tumour management in daily practice.



1. Dogra, V.S., Gottlieb, R.H., Oka, M. and Rubens, D.J., 2003. Sonography of the scrotum. Radiology, 227(1), pp.18-36.
2. Ingledew, P.A., Peacock, M., Dhinsa, J., Oh, J. and Wong, J., 2020. Testicular cancer. Oncology Modules. [online] Last updated 5 June 2020. Available at: https://www.learnoncology.ca/modules/testicular-cancer
3. Kreydin, E.I., Barrisford, G.W., Feldman, A.S. and Preston, M.A., 2013. Testicular cancer: what the radiologist needs to know. American Journal of Roentgenology, 200(6), pp.1215-1225.
4. Moreno, C.C., Small, W.C., Camacho, J.C., Master, V., Kokabi, N., Lewis, M., Hartman, M. and Mittal, P.K., 2015. Testicular tumors: what radiologists need to know—differential diagnosis, staging, and management. RadioGraphics, 35(2), pp.400-415.
5. Rumack, C.M. and Levine, D., 2018. Diagnostic Ultrasound. 5th ed. Philadelphia, PA: Elsevier.

P273 Standardising post water-based contrast agent (WBCA) abdomen radiographs for small bowel obstruction surgical planning: Are the criteria being met?

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Background

Adhesions are the most common cause of small bowel obstructions and are most commonly caused by bowel surgery (Ten Broek et al. 2018; NELA 2024). These patients can often be treated conservatively; however, some will require surgery. The water-based contrast agent (WBCA) challenge is used to aid this decision-making (Lee et al. 2018). Currently, there is no defined standard for WBCA challenges (Ceresoli et al. 2016). With issues raised about the examination locally. a defined standard was agreed upon and put into practice.

Themes identified from a systematic literature review and appropriate data collected will be used to assess if compliance is being achieved locally and identify areas for improvement.

Method

Retrospective secondary source data was collected with convenience sampling from every patient (n=115) who received a WBCA challenge between 23-9-22 and 23-9-23 (6 months pre and post-the local standard implementation (23-3-23)). Microsoft Excel and descriptive statistics were used to present the results due to multiple variables in the data.

Results

The provided WBCA administration times and time frames showed 90.76%(n=59/65) and 75.38%(n=48/65) compliance with the new standard respectively. Also, the overall hospital length of stay (HLOS) reduced slightly by 0.72 days, whilst the need for surgery remained the same.

Conclusion

The results showed good compliance, highlighted areas of improvement and showed that a small change can provide a positive impact to patient care and services. Unfortunately, project limitations did not account for comorbidities or diagnostic quality of images so HLOS and surgery rates may show greater improvements.

1. Ceresoli, M. Coccolini, F. Catena, F. Montori, G. Di Saverio, S. Sartelli, M. Ansaloni, L. (2016). Water-soluble contrast agent in adhesive small bowel obstruction: a systematic review and meta-analysis of diagnostic and therapeutic value. The American journal of surgery 211(6). 1114-1125.
2. Lee, M.J. Sayers, A.E. Wilson, T.R. Acheson, A.G. Anderson, I.D. Fearnhead, N.S. (2018). Current management of small bowel obstruction in the UK: results from the National Audit of Small Bowel Obstruction clinical practice survey. Colorectal Disease 20(7). 623-630.

3. NELA (2024). Ninth Patient Report of the National Emergency Laparotomy Audit. https://www.nela.org.uk/reports. Accessed 30 December 2024.
4. Ten Broek, R.P.G. Krielen, P. Di Saverio, S. Coccolini, F. Biffl, W.L. Ansaloni, L. Velmahos, G.C. Sartelli, M. Fraga, G.P. Kelly, M.D. Moore, F.A. Peitzman, A.B. Leppaniemi, A. Moore, E.E. Jeekel, J. Kluger, Y. Sugrue, M. Balogh, Z.J. Bendinelli, C. Civil, I. Coimbra, R. De Moya, M. Ferrada, P. Inaba, K. Ivatury, R. Latifi, R. Kashuk, J.L. Kirkpatrick, A.W. Maier, R. Rizoli, S. Sakakushev, B. Scalea, T. Søreide, K. Weber, D. Wani, I. Abu-Zidan, F.M. De'Angelis, N. Piscioneri, F. Galante, J.M. Catena, F. van Goor, H. Bologna guidelines for diagnosis and management of adhesive small bowel obstruction (ASBO): 2017 update of the evidence-based guidelines from the world society of emergency surgery ASBO working group. World Journal of Emergency Surgery 13(1). 24[13 pages].

P274 Transrectal ultrasound-guided intraprostatic injection therapy for treatment of chronic prostatitis in a Ugandan population

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Background
Conventional treatment of chronic prostatitis by oral or parenteral routes of drug administration remains a challenge basically because of the poor ability of drugs to penetrate prostate epithelium; the alternative of direct prostate injection has not been thoroughly studied in an African population. This retrospective study aimed at determining the effect of transrectal ultrasound (TRUS)-guided intraprostatic injection on alleviating symptoms attributed to chronic prostatitis in Ugandan patients.
Methods
We conducted a retrospective review of records of 131 patients who were referred with symptoms attributed to chronic prostatitis at the Radiology Department of Ernest Cook Ultrasound Research and Education Institute (ECUREI). Patients were treated using TRUS-guided intraprostatic injection of a cocktail of antibiotics, antifungal agents and long-acting steroids.
Results
Pre-intervention, 90 had pain or burning during urination, 89 had symptoms, which had kept them away from doing things they would usually do and 85 of the total number of patients felt terrible about their symptoms. Post intervention, 2 patients had mild residual symptoms which were; mild pain and burning at urination. None of the patients had symptoms, which kept them away from doing things they would usually do and 62 patients felt delighted about their quality of life, whereas prior to treatment, none was delighted.
Conclusion
TRUS-guided intraprostatic injection therapy for treatment of patients presenting with symptoms attributed to chronic prostatitis has shown a good response in this study. The retrospective nature of the study plus being conducted at a single health facility were the limitations.

Table 3 Patients' symptom pretreatment and at 1 year following TRUS-guided intraprostatic injection

Prostatitis symptom		Baseline (before treatment with the IPIT)	1 year after completion of IPIT
1. Pain or discomfort	Area between rectum & testicles	29	2
	Testicles	39	6
	Tip of the penis	35	4
	Below waist, in pubic or bladder area	83	22
2. Last week experience	Pain or burning during urination	90	2
	Pain or discomfort during or after ejaculation	84	1
3. Frequency of pain or discomfort	Rarely	–	13
	often	4	-
	usually	46	-
	Always	64	-
4. Average pain or discomfort	1	2	11
	2	–	9
	3	4	2
	4	3	–
	5	4	–
	6	15	–
	7	29	–
	8	28	–
	9	28	–
	10	14	–
5. Urination-not emptying bladder in the last week	Not at all	1	–
	Less than 1 time in 5	1	5
	About half time	1	–
	More than half time	19	–
	Almost always	20	–
6. Urinate again less than 2 h after finished urinating	Not at all	1	–
	Less than 1 time in 5	1	4
	About half time	2	–
	More than half time	20	–
	Almost Always	18	–
7. Impact of symptoms	Not at all	1	–
	Only a little	3	14
	some	38	–
	Alot	89	–
8. Think about symptoms last week	Never	1	–
	Only a little	3	9
	some	34	1
	Alot	93	–
9. Quality of Life	Delighted	–	62
	Pleased	–	56
	Mostly satisfied	–	10
	Mixed	–	2
	Mostly dissatisfied	3	–
	unhappy	43	1
	Terrible	85	–

1. Alexander RB, Propert KJ, Schaeffer AJ, Landis JR, Nickel JC, O'Leary MP,Pontari MA, McNaughton-Collins M, Shoskes DA, Comiter CV (2004)Ciprofloxacin or tamsulosin in men with chronic prostatitis/chronic pelvic pain syndrome: a randomized, double-blind trial. Ann InternMed 141:581–589
2. Duloy A, Calhoun EA, Clemens JQ (2007) Economic impact of chronic prostatitis. Curr Urol Rep 8:336–33
3. Hwang SK (2017) Advances in the treatment of chronic pelvic pain: a multidisciplinary approach to treatment. Mo Med 114:47
4. Jiang J, Li J, Yunxia Z, Zhu H, Liu J, Pumill C (2013) The role of prostatitis in prostate cancer: meta-analysis. PLoS ONE 8:e85179
5. Nickel JC (2006) Alpha-blockers for the treatment of prostatitis-like syndromes. Rev Urol 8:S26
6. Oishi M, Abreu A, Ashrafi A, Cacciamani G, Park D, Winter M, Duke KB (2018) PD62-02 intra-prostatic injection therapy for chronic prostatitis: a pilot study. J Urol 199:e1157–e1157
7. Rees J, Abrahams M, Doble A, Cooper A, Group (PERG) PER (2015) Diagnosis and treatment of chronic bacterial prostatitis and chronic prostatitis/chronic pelvic pain syndrome: a consensus guideline. BJU Int 116:509–525
8. Toth A, Guercini FM, Feldthouse DM, Zhang JC (2018) Injection therapy for chronic prostatitis: a retrospective analysis of 77 cases. Arch Ital Urol EAndrol 90:34. https:// doi. org/ 10. 4081/ aiua. 2018.1. 34
9. Tripp DA, Curtis Nickel J, Pikard JL, Katz L (2012) Chronic prostatitis-like symptoms in African males aged 16–19 years. Can J Urol 19:6081

P275 Where a wrong perception can be an expensive mistake

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Background

We present the case of a 58-year-old male with a history of COVID-19 who developed severe thrombotic complications, including an aortic thrombus, superior mesenteric artery (SMA) thrombosis, ischemic bowel, hepatic infarction, and pulmonary embolism, ultimately leading to his death. This case emphasizes the importance of post-discharge monitoring for prothrombotic states and the need for timely imaging, particularly in patients with comorbidities.

Method

The patient was discharged after six days of COVID-19 treatment with a negative CTPA. Within 24 hours, he re-presented with abdominal pain, calf pain, and shortness of breath. A repeat CTPA revealed an aortic mural thrombus, subsegmental pulmonary embolism, and persistent COVID pneumonia. A subsequent triple-phase CT demonstrated SMA thrombosis, bowel ischemia, diminished vascularity in the ascending colon, and hepatic infarction. Surgical intervention was not feasible due to the rapid progression of the disease.

Results

The SMA thrombus caused significant bowel ischemia, rendering the mid and distal ileum non-viable. Despite maximal supportive care, the patient's condition deteriorated rapidly, resulting in multi-organ failure and death. This case highlights the severe thrombotic complications that can occur in COVID-19 patients, even after initial recovery. Literature shows a 1-2% incidence of prothrombotic events in hospitalized COVID-19 patients, with an increased risk in those with comorbidities.

Conclusion

This case underscores the need for heightened suspicion of ischemic complications in post-COVID patients. Early recognition and prompt intervention are crucial, even when initial imaging is negative. Radiologists must maintain vigilance to identify critical imaging findings and facilitate timely intervention.

1. Theprungsirikul, P.P., Saith, S.E. and FACP, S., 2020. Incidence of thrombosis and associated risk factors in hospitalized COVID-19 patients in a New York City hospital system.
2. Tan, J.Y., Tan, C.W., Wong, W.H., Conceicao, E.P., Ng, I.M., Cheong, M.A., Low, J.G., Ng, H.J. and Lee, L.H., 2020. Thrombotic events in COVID-19 patients and its comparison with other non-SARS-CoV-2 respiratory viruses.
3. von Meijenfeldt, F.A., Havervall, S., Adelmeijer, J., Lundström, A., Magnusson, M., Thalin, C. and Lisman, T., 2021. Sustained prothrombotic changes in COVID-19 patients 4 months after hospital discharge.

P276 How common is focal uptake in hiatal hernias on FDG whole body PET-CT scans?

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Background

FDG Whole-body PET-CT is commonly used in Oncology to detect malignancies and stage disease. Incidental findings, such as focal FDG uptake in hiatal hernias, may raise concerns about inflammation or malignancy, potentially requiring further evaluation. This study aimed to identify the incidence of focal uptake in hiatal hernias on FDG Whole-body PET-CT scans and to assess any clinical implications related to these findings.

Method

A retrospective review of 600 FDG PET-CT scans from 2023 was conducted, after excluding patients with known oesophageal or gastric malignancies. PET-CT images were analysed to identify hiatal hernias and examine any focal patterns of FDG uptake associated with them.

Results

In our cohort of patients, 39 (6.5%) were found to have hiatal hernias, and of these, three individuals were identified with focal FDG uptake within their hernias, prompting further investigation to determine the underlying cause and any possible malignancy.

Conclusion

In our cohort, the incidence of hiatal hernias was lower than that reported in other population-based studies (14 to 22%). The occurrence of incidental focal uptake in these hernias is even less common, and we reiterate the need for further investigation in these patients. Larger, multicentre studies will help to provide more comprehensive insights into this finding and its potential clinical relevance in Oncology. We recognise the higher incidence of Gastro-intestinal symptoms and cancers in some populations such as East Asia.

C Nioche, F Orlhac, S Boughdad, S Reuzé, J Goya-Outi, C Robert, C Pellot-Barakat, M Soussan, F Frouin, and I Buvat. LIFEx: a freeware for radiomic feature calculation in multimodality imaging to accelerate advances in the characterization of tumor heterogeneity. Cancer Research 2018; 78(16):4786-4789

P277 Can a short interval PET CT scan be used for downstaging of oesophageal cancer pre-surgery?

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F-18 FDG PET CT scan provides a non-invasive mean of evaluating metabolic activity for diagnosis and staging of oesophageal cancer. Surgeons are increasingly preferring to have the oesophageal cancer down-staged before surgery. Neoadjuvant chemotherapy has been used to downstage such patients, during and after the COVID-19 pandemic.
A retrospective review of PET CT scans of oesophageal cancer patients for response assessment post-neoadjuvant therapy between February and September 2023. 15 patients (age range 54 to 80, 14M) had a short interval repeat PET-CT scan (6 to 29 weeks, mean 16). Primary tumour and regional node SUV max were tabulated and analysed for response assessment and restaging. Any new lesion or other evidence of progressive disease was also noted.
Of 15 scans, 8 have demonstrated significantly reduced SUV max in primary lesion (34 to 79%), involved nodes were also reduced (4 from N1 to N0, and 3 were N0 initially and 1 unchanged). The rest 7 scans have shown essentially unchanged SUV max in the primary tumour (26 % or less). 4 had N0 disease, 2 showed stable nodal disease, and 1 was downstaged to N0. There is no upstaging in between 2 PET CT scans.
To conclude, short-interval PET-CT scans have shown neoadjuvant therapies aided in downstaging oesophageal cancer before surgery, with potential benefits seen in primary tumour and nodal reduction. However, a larger study linking these findings to surgical outcomes and survival are needed for a wider acceptance of this approach.

P279 Follow up imaging for colorectal cancer patients post CEA rise

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Background
Patients who have undergone potentially curative surgical treatment for non-metastatic colorectal cancer should be offered follow-up, for detection of local recurrence and distant metastases for the first 3 years. Follow-up should include carcinoembryonic antigen (CEA) and CT chest abdomen and pelvis (CT CAP). The recommendations do not include what imaging modality to use if a CEA rise is detected. There is variability in practice; some sites use CT CAP first line while others utilise PET-CT and MRI liver.
Aim
Assess recurrence rates and which modality detected recurrence. Determine if we have local evidence to guide whether we should use CT CAP, or MRI liver and PET-CT first line.
Methods
Retrospective study of 50 patients between August 2019 – August 2020. Data was collated using RIS and PACS systems. 4 patients without CEA rise excluded.
Results: 60% of patients had recurrence and 35% did not. 4.5% were indeterminate; ongoing surveillance. Recurrence was detected by CT CAP in 86% of patients. Only in 14% of patients did PET-CT and MRI liver detect a recurrence where CT CAP did not.
Conclusion
Recurrence detected primarily by CT CAP. Utilising MRI liver and PET-CT first line would mean an extra 15 PET-CTs and 26 MRI livers per year. MRI liver (£179) and PET-CT (£795) are much more expensive than CT CAP (£104). Extra 15 PET-CT + 26 MRI Liver = £16 579 per year. Should we use CT as first line and MRI and PET-CT only if persistent CEA rise and CT normal?

www.nice.org.uk. (2021). Recommendations | Colorectal cancer | Guidance | NICE. [online] Available at: https://www.nice.org.uk/guidance/ng151/chapter/Recommendations#ongoing-care-and-support.

P280 To evaluate diagnostic accuracy of ultrasound twinkling artifact for detecting nephrolithiasis, using computed tomography as gold standard - a narrative review

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Background

Nephrolithiasis, commonly known as kidney stones, is a prevalent urological condition affecting millions worldwide. Accurate diagnosis is required to guide management and treatment. Computed Tomography (CT) is the gold standard for detection but poses limitations due to radiation exposure and cost. Ultrasound (US) Twinkling Artifact (TA) offers a non-invasive, radiation-free, and cost-effective alternative. This review evaluates the diagnostic accuracy of US (TA) for detecting nephrolithiasis compared to CT.

Method
A search of the literature was conducted using MEDLINE, Web of Science, EBSCO and Scopus. A narrative review was performed by analysing 13 studies that compared US (TA) and CT for nephrolithiasis detection. Diagnostic accuracy was assessed using sensitivity and specificity.
Results
US (TA) demonstrated variable diagnostic performance, with sensitivity ranging from 42.1% to 100% and specificity from 46.1% to 100%. Factors influencing accuracy included stone size, location, operator expertise, and equipment settings. Larger stones were detected with higher reliability compared to smaller stones (<5mm). Methodological variations among studies, such as imaging protocols and blinding procedures, contributed to heterogeneity in results.
Conclusion
US (TA) shows promise as a complementary diagnostic tool for nephrolithiasis, particularly where radiation exposure is a concern. However, its accuracy remains operator and equipment dependent. Standardised imaging protocols and operator training are essential to improve diagnostic consistency. Further large-scale studies are required to validate US (TA) as a reliable standalone modality and establish clinical guidelines for its application.

1. Brisbane, W., Bailey, M. and Sorensen, M. (2016) An overview of kidney stone imaging techniques. Nature Reviews Urology, 13(11), 654–662.
2. Fontenelle, L.F. and Sarti, T.D. (2019) Kidney Stones: Treatment and Prevention. American Family Physician, 99(8), 490–496. Available at: https://www.aafp.org/pubs/afp/issues/2019/0415/p490.html [Accessed 23 Oct. 2024].
3. Liu, N. N., Zhang, Y., Shan, K., Yang, R. & Zhang, X. N. 2020. Sonographic twinkling artifact for diagnosis of acute ureteral calculus. World Journal of Urology, 38, 489-495.
4. National Institute for Health and Care Excellence (2019) Recommendations | Renal and ureteric stones: assessment and management. Available at: https://www.nice.org.uk/guidance/ng118/chapter/Recommendations#diagnostic-imaging [Accessed 02 Oct. 2024].

P281 Salvation by ablation: A case report illustrating a modern approach to managing renal cell carcinoma

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Background
This is a case report of an 84-year-old female with a background of triple positive breast cancer was incidentally diagnosed with a left-sided clear cell renal carcinoma (RCC) following a surveillance CT scan.
After multidisciplinary team discussion, the decision was made to perform a percutaneous microwave ablation (MWA) of the RCC.
Purpose
This case report highlights the meticulous planning and execution involved in performing an IR procedure for tumour treatment - showcasing the potential to offer targeted and personalised treatments for patients with minimal collateral damage and optimal long-term outcomes.
Summary of content
Multiple ablation procedures were required. The first was performed at 100W for 10 minutes. The antenna was then withdrawn 15mm and a subsequent ablation performed for 10 minutes. The second ablation targeted the superior portion of the tumour using the same 15cm MWA antenna. Ablation images were taken and preserved. Post-ablation, a urine leak was identified on delayed sequences; and the urology team inserted a ureteric stent.
The patient was subsequently discharged and recovered well with minimal pain and an absence of hematuria.
The shift from open surgery to minimally invasive procedures represent a significant leap forward in patient care. Procedures such as microwave ablation reduce patient morbidity, shorten hospital stays, and hasten recovery times for improved patient-centred care.
The multidisciplinary nature of IR fosters collaboration between various specialties. This case highlights the importance of teamwork, with radiologists, urologists, and anesthetists working together to achieve optimal outcomes.

1. Ricker AB, Baker EH, Strand MS, Kalabin A, Butano V, Wells A, Phillips M, Wang H, McKillop I, Iannitti G, Casingal J, Martinie JB, Vrochides D, Iannitti DA. Surgical microwave ablation for the treatment of hepatocellular carcinoma in 791 operations. HPB (Oxford). 2024 Mar;26(3):379-388. doi: 10.1016/j.hpb.2023.11.009. Epub 2023 Nov 25. PMID: 38102029.
2. Horvath KA, Li M, Mazilu D, Guttman MA, McVeigh ER. Real-time magnetic resonance imaging guidance for cardiovascular procedures. Semin Thorac Cardiovasc Surg. 2007 Winter;19(4):330-5. doi: 10.1053/j.semtcvs.2007.10.006. PMID: 18395633; PMCID: PMC2366079.
3. Dai JC, Morgan TN, Steinberg RL, Johnson BA, Garbens A, Cadeddu JA. Irreversible Electroporation for the Treatment of Small Renal Masses: 5-Year Outcomes. J Endourol. 2021 Nov;35(11):1586-1592. doi: 10.1089/end.2021.0115. Epub 2021 Aug 18. PMID: 33926224.

P282 Socializing enhanced practice by mobilizing enhanced practice champions in radiography

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Background

The role of diagnostic and therapeutic radiographers is dynamic and diverse. As Allied Health Professionals (AHP) they have historically been stepping up their skillset to expand their practice to drive workforce innovation.
1 Advanced and Consultant practice are common terminology used in practice, however enhanced practice is a new term, although nothing new to the world of radiography.
2 Enhanced practice is a level of practice, not a role or a task. It supports the development of experienced radiographers to build upon their expertise, undertaking appropriate education and training to extend their scope of practice.
3 The Championing Enhanced Practice in Radiography (CHEERs) project, funded by NHS England, aims to develop enhanced practice champions in radiography to enable them to navigate enhanced practice for themselves and others, facilitating fellow radiographers, locally and nationally, in their career growth.

Purpose

To raise awareness on the existence and role of CHEERs Champions
Access information regarding the different levels of practice and what it means in radiography.

Summary of content

The poster will include a definition of enhanced practice in radiography, the mission of the project, infographics to provide an understanding of the levels of practice and their requirements, and resources to inform and educate. This will include the enhanced practice schema and the Education and Career Framework for the radiography workforce.

References
Snaith, B. and Beardmore, C. (2021) Enhanced practice: A strategy to resolve the inconsistencies in advanced practice implementation. Radiography, Volume 27, S3 - S4 https://www.radiographyonline.com/article/S1078-8174(21)00111-5/fulltext [Accessed 09/02/2025]
The College of Radiographer. (2022) Education and Career Framework for the Radiography Workforce (4th edition) https://www.sor.org/getmedia/b2f6bf07-668f-4155-950a-b9d96c48eae1/12604-CoR-ECF-Interactive-v9a [Accessed 09/02/2025]
Clarkson, M. Mills, K. Snaith, B. (2024). Enhanced level practice in radiography: Busting the myths. Imaging and Oncology. https://society-of-radiographers.shorthandstories.com/imaging-oncology-2024/enhanced-level-practice-in-radiography-busting-the-myths/index.html [Accessed 09/02/2025]
NHS England. (2024). Allied Health Professions Enhanced Level Practice Schemas with Model Curricula. https://www.hee.nhs.uk/sites/default/files/documents/Enhanced-Level%20Practice%20AHP%20Schema%20Combined%20-%20Final%20May%202024%20%5Bfor%20pdf%20website%20upload%5D.pdf [Accessed 09/02/2025]

P283 Transforming advanced practice in non-surgical oncology: Evaluating the implementation of the advanced practice capability framework in brachytherapy

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Background

Advanced Practice (AP) roles in radiotherapy have often evolved organically and positively impact patient care, personal and professional development, team efficiency, and service delivery.1 However, AP education and training in non-surgical oncology lacks standardisation.2 The Non-Surgical Oncology Advanced Practice Capability Framework (NSOAPCF) was designed to address this gap. Since 2021 the framework has undergone a three-stage evidence-based approach comprising of a local evaluation,1 national consensus survey2 and inclusion of the patient voice. In 2024 the co-authors of this poster implemented the framework within their own training alongside their MSc in Advanced Clinical Practice in Radiotherapy and Oncology. After a 6-month implementation they shared their perceptions of the enablers and barriers to their training with the project lead.

Purpose

This poster considers the perceptions of two trainee advanced brachytherapy radiographers when implementing of the framework within their training alongside their MSc. Collectively they identify the barriers, enablers, and recommendations for broader adoption of the NSOAPCF.

Summary of content

The discussion highlights the purpose if the NSOAPCF and how the frameworks capabilities in practice (CiPs) are used to plan an educational pathway. It defines the key enablers, including structured supervision, workplace support and governance, and alignment with master's-level training. Barriers include workload pressures, varying workplace readiness, and lack of national webfolio to collate the evidence required to show capability within the framework. The perceptions will be used to inform a wider implementation project for the NSOAPCF.

Clarkson, M. McDonald, F. Khine, R. (2024) A local evaluation of the non-surgical oncology advanced practice curriculum framework. International Journal of Advancing Practice. Vol.2. No 4. https://doi.org/10.12968/ijap.2023.0055

Clarkson, M. Khine, R. McDonald, F. (2025) A training framework for multi-professional advanced level practice in non-surgical oncology: The journey through development and consultation to consensus. Radiography. Vol 31, Iss 1, 281-289. https://doi.org/10.1016/j.radi.2024.12.002

P284 Effective deployment of the imaging support workforce: the formulation of an evidence-based maturity matrix through a mixed methods synthesis

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Background

Demand for imaging continues to outstrip workforce supply, requiring innovations in skills mix to counter the workforce deficits. Three landmark reports highlighted the urgent need to develop the capacity and capability of the imaging support workforce (support workers and assistant practitioners), yet it is unclear how this vital workforce is utilised. This study explored the deployment of the imaging support workforce across England thorough a six-stage explanatory sequential mixed methods design. The final synthesis phase and development of a maturity matrix is reported.

Method

A quantitative workstream identified the size and scope of the imaging support workforce across England. Qualitative workstreams explored factors influencing deployment at regional, service, department and modality levels. A Triangulation Protocol Method synthesised the findings to identify critical determinants (causal factors). Integration into a determinant framework provided a mechanism to specify individual determinants which act as barriers and enablers (independent variables) that influence implementation outcomes (dependent variables).

Results

The determinant framework comprises three themes: evidence-based workforce planning; deployment; development and progression. Each theme encompasses five critical determinants which are incorporated into an Imaging Support Workforce Maturity Matrix, presenting a series of discrete iterative steps that represent a desired evolutionary path (emerging-developing-maturing-thriving) towards effective deployment.

Conclusion

The matrix enables Imaging Services and Imaging Networks to self-assess their support workforce utilisation to inform future workforce planning, driving capability and capacity development of this pivotal workforce. It is available in word format and in an online interactive tool to assist workforce planning activities.

P285 A qualitative exploration of opinions towards practice development of the diagnostic radiographer in dental and maxillofacial imaging – a national survey

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Introduction

Diagnostic radiographers can learn about dental imaging techniques during pre/post-registration education. They may go on to perform these as part of their job role or core service provision for trauma, hospital dentistry, and oral and maxillofacial surgery (OMFS) patients. This study aims to identify roles, experiences, training and development needs of diagnostic radiographers in the dental field, through the interpretation of survey responses concerning views on practice development.

Methods

In 2023 an electronic survey was disseminated to dental and health care professionals by convenience, purposive and snowball sampling, following a pilot study. A mix of closed questions, free text and scale responses aimed to investigate radiographers' practice, duties, responsibilities and experiences of imaging techniques in dentistry.

Results

Online responses were received from 106 dental and health care professionals participating in the survey, of which 82 provided answers to the free text question. Ten themes were generated, interpretating the views on practice development within dental and maxillofacial imaging: 1) professions and professionalism; 2) imaging modalities; 3) learning, education and development; 4) speciality; 5) multidisciplinary team; 6) barriers and drivers; 7) service; 8) anatomy and physiology; 9) patient; and 10) guidance and regulation. The majority of participants expressed positive perceptions towards maximising radiographers' abilities.

Conclusion

Workforce planners, management, education institutes, trade unions and professional bodies could review findings to support campaigning for a change in legislation and improvements to educational offerings in dental radiography and maxillofacial imaging, and the growth and development of a sub-specialist area of practice.

P286 An evaluation of the challenges clinical radiographers face in developing effective psychological wellbeing strategies

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Background
Care and compassion are fundamental components underpinning healthcare practice. Evidence suggests that healthcare practitioners may experience negative psychological impacts resulting from witnessing the suffering of others which impacts upon their ability to demonstrate empathy and compassion (Sabo, 2006). Such topics are often overlooked given perceptions of diagnostic radiography as a solely technical role. This qualitative study aimed to explore the psychological effects of clinical radiography practice on radiographers in the UK and their coping mechanisms.
Method
Data was generated through in-depth one-to-one semi-structured interviews with twenty-three radiography practitioners working in the UK. Participants were recruited through the research teams' professional networks, the Society of Radiographers Live and via the UKIO Congress 2024 Research Hub. The collated anonymised and transcribed data was analysed using iterative thematic analysis.
Results
The analysis generated four themes focused on radiographers' strategies and challenges in safeguarding their psychological wellbeing. These themes of 'mental health stigma', 'coping mechanisms', 'guilt', and 'switching off' were prevalent across all participants, demonstrating the prominent complex factors impacting radiographers' psychological wellbeing in clinical practice.
Conclusion
These four themes highlight the challenges and difficulties faced by radiographers in safeguarding their psychological wellbeing. The stigma and guilt associated with the seeking of psychological support is a wider issue than radiography specifically. However, implementation of organisational, professional and regulatory psychological wellbeing support structures are required if radiographers' wellbeing is to be meaningfully achieved.

Sabo, B.M. (2006) Compassion fatigue and nursing work: Can we accurately capture the consequences of caring work? International Journal of Nursing Practice: 12(3): 136-142.

P287 Improving competence and confidence in placenta accreta spectrum diagnosis, using MRI, through e-learning

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Background
Placenta accreta spectrum is reported to have a maternal mortality rate of 7%, 30% where antenatal diagnosis is not present. It is believed these mortality rates could be reduced to 0.05% with improved prenatal diagnosis and management (Fonseca and Ayres de Campos, 2021). MRI can enhance this by providing greater visualization and improve ability to assess severity (Srisajjakul, Prapaisilp and Bangchokdee, 2021). Despite rising case numbers, clinicians' exposure remains low. This may have subsequent effects on their competence and confidence.
Methods
The study introduced a training package to aid in identifying significant MRI signs, established by systematic review. The success of the training was assessed through questionnaires. Anonymised historical cases were available through an online platform, Collective Minds. They had a variety of PAS signs and outcomes to be identified in correlation with the questionnaires, which focussed on the ability to accurately identify them and assess their declared confidence levels.
Results
The results obtained showed an overall increase in ability and confidence and were considered statistically significant. Confidence levels saw the greatest ratio of improvement amongst the little or no experience group. It was identified that clinicians attained more accurate identifications in cases where PAS signs were present.
Conclusion
Providing an online training package could have the benefit of improving competence and confidence amongst clinicians in using MRI to enhance PAS diagnosis and improve maternal outcomes. Results were statistically significant and are a good indicator of the potential success of future research.

Fonseca, A. and Ayres de Campos, D. (2021) 'Maternal morbidity and mortality due to placenta accreta spectrum disorders', Best Practice & Research Clinical Obstetrics & Gynaecology, 72, pp. 84–91. Available at: https://doi.org/10.1016/j.bpobgyn.2020.07.011.
Srisajjakul, S., Prapaisilp, P. and Bangchokdee, S. (2021) 'Magnetic Resonance Imaging of Placenta Accreta Spectrum: A Step-by-Step Approach', Korean Journal of Radiology, 22(2), p. 198. Available at: https://doi.org/10.3348/kjr.2020.0580.

P288 What solutions are needed for more diagnostic radiographers to take up generic-AHP leadership roles?

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Background
Despite Radiographers being the third largest of the Allied Health Professions, representation within local, regional, and national generic-AHP lead roles is lacking. Other professions within the "AHP" group have much higher representation within these leadership roles. This study aims to uncover any potential barriers that Diagnostic Radiographers may face when applying for generic-AHP roles and what solutions are required to overcome them, to increase professional diversity with proportionate representation.
Method
A phenomenological approach to qualitative research was utilised, using an online survey to question UK-based Diagnostic Radiographers with experience of working in AHP-related roles, or those that have a desire to. Thematic analysis of the data, using Braun & Clarke's (2022) method, was then used to analyse the information collected.
Results
Participants felt diagnostic radiographers lacked the leadership skills and exposure required for generic-AHP lead roles in comparison with other AHPs. Increased awareness of diagnostic radiographers' skillsets and experience, combined with lack of awareness of AHP roles as a potential career route, also contributed to perceived barriers for progression. Leadership training, strategic experience, networking and role modelling were viewed as essential to allow for career planning, as well as the introduction of AHP careers within professional career frameworks.
Conclusion
Overall, the themes identified answer the research aims and suggest multiple solutions to the diagnostic radiography profession to help overcome perceived barriers to progression into generic-AHP lead roles.

Braun, V. & Clarke, V. (2022). Doing Reflexive TA | Thematic Analysis. [online] www.thematicanalysis.net. Available at: https://www.thematicanalysis.net/doing-reflexive-ta/ [accessed 23/9/2023].

P289 Review of the imaging support worker/assistant practitioner (ISW/AP) workforce in the North West of England (NWE): Opportunities for potential growth and development

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Background
ISW/APs are an essential part of the imaging workforce, undertaking a diverse range of activities including acquisition. Low numbers Band 2 ISWs/Band 4 APs affect skill mix pyramid.
Aim
To scope existing/future development of the ISW/AP workforce across 24 NHS hospital trusts within 3 Integrated Care Boards (ICB) in NWE.
Methods
Mixed-methods questionnaire study sent to Radiology Service Managers in 24 NHS Trusts in NWE. Data collected 23/06/23>27/09/24. Quantitative/qualitative data were analysed and themed.
Results
°718 ISW/AP staff in post.
°AfC Bandings (B): B2=28%, B3=58%, B4=15%, B5=0.1%.
°Vacancy rate: 16% (111 headcount, all bands). B2 29%, B3 51%, B4 21 %, B5 0%.
°Range of job titles, inconsistent, n>16 titles.
°96% employ ISW/APs in ultrasound; 22 CT, 21 MRI, 20 plain film, 18 fluoroscopy, 14 IR, 11 mammography; PET CT/theatre. 96% employ APs for acquisition: PFI 63%, mammography 38%, fluoroscopy 1%. 93% appetite to expand APs in acquisition.
°62% career progression plans for ISW/APs, focused on retention /morale/job satisfaction/development opportunities.
°ISW/APs very low numbers pan NWE and do not match predictions from Richards 2020(1).
Conclusions
°Lack of standardisation of roles creates diverse range skills within/across bandings & pay scales, creating high vacancy rates/poor morale/limited scope for development/multiple titles with lack of identity have negative impact on recruitment/retention.
°Barriers to developing ISWs/APs are backfill/budgetary constraints/available education/training.
°Growth of this workforce REF not matched by predicted increases pan NWE.
°Impacts negatively on radiographer role expansion (e.g. reporting) and radiologist functions.
°Revisit career progression framework so connections exist between all imaging workforce.

1. Richards, M. (2020) Diagnostics: Recovery and Renewal - Report of the Independent Review of Diagnostic Services for NHS England. Publication approval reference: PAR242

P290 Establishing a lunchtime CPD service - Supporting radiographers professional development

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Background
Ongoing professional development is essential in radiography to maintain high standards of practice. Following a significant increase in newly recruited radiographers and the suspension of CPD activities during the COVID-19 pandemic, a structured learning gap was identified. This project aimed to implement a sustainable CPD programme to enhance professional development, align with NHS workforce priorities (HEE 2023), and foster a culture of continuous learning.
Methods
A needs assessment, incorporating staff feedback and workplace observations, identified barriers to CPD engagement. A lunchtime CPD programme was introduced, featuring a mix of in-person and virtual sessions on key clinical and professional topics. To improve engagement, stakeholder collaboration was prioritised, employing targeted communication strategies and political astuteness to align objectives with departmental goals. Attendance and participation were monitored, and qualitative feedback was gathered to evaluate the impact of the programme.
Results
The initiative led to increased engagement, with an attandance from various staff groups. The introduction of recorded sessions further improved accessibility. Over 18 months, there was a notable rise in staff confidence and knowledge-sharing, contributing to a stronger learning culture. The programme received positive recognition via staff feedback and during a recent Quality and Safety Inspection (QSI) visit.
Conclusion
Integrating CPD into daily workflows is achievable and beneficial. While initial resistance was encountered, proactive engagement strategies facilitated uptake

Health Education England (HEE) (2023) '2023/24 - Multi-Year Operational Planning Workforce Collection'. Available at: https://ecollection.hee.nhs.uk/OPS2023 (Accessed: 10 February 2025).

Francis, R. (2013) 'Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry'. Available at: https://www.gov.uk/government/publications/report-of-the-mid-staffordshire-nhs-foundation-trust-public-inquiry (Accessed: 10 February 2025).

P291 The impact of the practice educator role in nuclear medicine

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Purpose
Practice Educators (PE) are well-recognized in Radiography but are largely absent in Nuclear Medicine. This role, typically held by a registered healthcare professional, supports learners in practice alongside clinical and academic colleagues to enhance training and knowledge [1]. To the authors' knowledge, the introduction of two Nuclear Medicine Practice Educators in London marks the first such initiative. This work explores the challenges, opportunities, and future plans associated with this role.
Methods
The authors engaged with 22 hospital sites with Nuclear Medicine departments across London, with 16 responding positively to PE support. A gap analysis and hospital site visits were conducted to identify common challenges and plan resources and training effectively.
Summary
Common themes identified included support for RCT registration, standardised training documents, international recruit knowledge gaps, assessor/mentor competency, exposure to diverse studies, and soft skills development. Department-driven areas of need included PGD's for contrast, cardiac stressing, and recruitment. Initiatives implemented in response included:

- Regional Workforce Meeting including managers from across London
- Online resources via the London Imaging Academy
- Face-to-face teaching for trainees and staff
- Educational and Well-being Newsletters
- Interactive Study days
- Collaboration with universities to promote Nuclear Medicine careers
- Support for training document creation

Conclusion
There is a clear need for the PE role in Nuclear Medicine. Common challenges across the region have been identified, and the initiatives have been widely well-received, demonstrating the value of this role. The authors will continue to evaluate the impact periodically using feedback from pan-London.

Practice Educators | NHS England | Workforce, training and education. (2023, March 15). NHS England | Workforce, Training and Education. https://www.hee.nhs.uk/our-work/cancer-diagnostics/imaging/practice-educators

P292 Multi-professional Computed Tomography Colonography (CTC) technique training: findings from the National CTC Academy England

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Background
CTC serves as the primary radiological investigation for detecting colorectal cancer and polyps. The quality of the examination, alongside the experience and competence of the reader, significantly affects diagnostic accuracy and, consequently, patient outcomes (Halligan et al., 2007; Duarte et al., 2018). Despite Standards and Guidelines published (BSGAR-RCR, 2021), literature highlights a notable lack of skills training and methods to deliver these training requirements for radiographers and radiologists (Obaro, et al., 2022; Obaro, et al., 2022).
Method
To address this training gap, and enhance CTC quality in the NHS, a peer-reviewed bespoke multi-professional online CTC technique education training module, with assessment and structured feedback, was designed. Comprising of an 'Online only' route (17 online knowledge units with MCQ assessments), and a 'Full module' route (online component accompanied with mentorship and face to face technical assessment), with module route dependent on prior experience and role.
Results
The Module has been completed by 129 radiographers and 150 radiologists, of which 95% would agree/strongly agree recommendation to other trainees. CTC Knowledge and understanding scores rose from 28% rating as 'Good'/'Excellent' pre-course to 73% 'Good'/'Excellent' post-course.
Conclusion
This transitional shift in training methodology has been positively received and has enhanced access to CTC experts, best practices, and validated teaching materials for trainees.

Table 1: Enrolment and completion numbers by profession

Role	Experience	Online only (n)		Full module (n)	
		Enrolled	Completed	Enrolled	Completed
Radiographer	Inexperienced	*n/a*	*n/a*	228	98
	CTC PgCert	45	31	*n/a*	*n/a*
Radiologist	Registrar	189	144	*n/a*	*n/a*
	GI fellow	*n/a*	*n/a*	5	2
	Consultant	5	4	*n/a*	*n/a*

BSGAR-RCR (2021). Standards of practice for computed tomography colonography (CTC). Joint guidance from the British Society of Gastrointestinal and Abdominal Radiology and The Royal College of Radiologists. Available at: https://www.rcr.ac.uk/our-services/all-our-publications/clinical-radiology-publications/standards-of-practice-for-computed-tomography-colonography-ctc/.
Duarte, R., Bernardo, W. M., Sakai, C., Silva, G., Gonçalo Guedes, H., Kuga, R., Ide, E., Ishida, R., Sakai, P. and Guimarães Hourneaux de Moura, E. (2018). 'Computed tomography colonography versus colonoscopy for the diagnosis of colorectal cancer: a systematic review and meta-analysis'. Therapeutics and Clinical Risk Management. Dove Medical Press Ltd., Volume 14, pp. 349–360. doi: 10.2147/TCRM.S152147.
Halligan, S., Burling, D., Atkin, W., Bartram, C., Fenlon, H., Laghi, A., Stoker, J., Altman, D. G., Bassett, P., Frost, R., Taylor, S., Honeyfield, L., De Villiers, M., Nicholson, D., et al. (2007). 'Effect of Directed Training on Reader Performance for CT Colonography: Multicenter Study'. Radiology. Radiological Society of North America Inc., 242 (1), pp. 152–161. doi: 10.1148/radiol.2421051000.
Obaro, A. E., McCoubrie, P., Burling, D. and Plumb, A. A. (2022). 'Training in Computed Tomographic Colonography Interpretation: Recommendations for Best Practice'. Seminars in Ultrasound, CT and MRI. Elsevier BV, 43 (6), pp. 422–429. doi: 10.1053/j.sult.2022.06.001.
Obaro, A. E., Plumb, A. A., Halligan, S., Mallett, S., Bassett, P., McCoubrie, P., Baldwin-Cleland, R., Ugarte-Cano, C., Lung, P., Muckian, J., Ilangovan, R., Gupta, A., Robinson, C., Higginson, A., Britton, I., Greenhalgh, R., Patel, U., Mainta, E., Gangi, A., Taylor, S. A. and Burling, D. (2022). 'Colorectal Cancer: Performance and Evaluation for CT Colonography Screening— A Multicenter Cluster-randomized Controlled Trial'. Radiology, 303 (2), pp. 361–370. doi: 10.1148/radiol.211456.

P293 Retention or migration? Exploring the shift of radiography graduates from plain film to specialised imaging modalities

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[1]Radguide Ltd

The radiography field has seen a shift from traditional plain film radiography to specialized imaging modalities. This study explores the factors influencing radiographers' retention in plain film versus their migration to advanced techniques like CT, MRI, and ultrasound. Understanding this trend is essential for addressing workforce shortages and aligning training programs with the evolving healthcare landscape.
A mixed-methods approach was used, combining longitudinal data analysis of graduate career trajectories with electronic surveys on the Jisc platform. Radiography graduates were tracked over one year, and their career choices analyzed in relation to training, professional development, and personal motivations. The study reached 135 respondents, with awareness raised through social media and advisory networks.
Results showed a significant migration to specialized fields, driven by career advancement opportunities, exposure to new technology, and professional satisfaction. However, a considerable number remained in plain film due to job stability, ease of entry, and a preference for predictable work. The majority of respondents (96%) worked in England, with 85% under 28 years old. Most (95%) were employed in the private sector or specialized imaging roles, with 75% in Band 5 positions. Future career advancement was deemed more important than financial benefits by 75% of respondents.
In conclusion, the shift towards specialized imaging highlights the need for tailored educational frameworks. Strategies for workforce retention should focus on clear career pathways and professional development to maintain a balanced, skilled radiography workforce.

P294 Are values-based interview questions a good predictor of band 5 newly qualified radiographer interview outcomes?

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Background
Radiographers are multi-skilled NHS professionals, who should always demonstrate compassion, care and professional values (Newton-Hughes and Strudwick, 2023). Value-based interview questions have played a crucial role in recruitment because of failings in healthcare, as highlighted in the Francis Report (Mid Staffordshire NHS Foundation Trust Public Inquiry, 2013). In response to the failings, a policy was created to encourage recruitment of staff who have personal values that match those of the overall value of the NHS Constitution (Groothuizen, Callwood & Gallagher, 2017). In the Newcastle-upon-Tyne Teaching hospitals, they have recently changed their interview guidance to enforce value-based questions, and candidates must score of minimum of 2/4 on each values based question, in order to be appointed, irrespective of their performance throughout the rest of the interview process (NHS Trust, 2024).
Purpose
The study aims to seek whether the performance of prospective Band 5 radiographer candidates on the value-based questions alone was a good predictor of the overall interview outcome. Thus forth, raising the question of whether there should be multiple stations testing a radiographer's knowledge, image interpretation and practical skills, or are the value-based interview questions sufficient to assess someone's suitability and capability for a newly qualified radiographer post?
Summary of content
The academic poster aims to provide evidence regarding the use of values-based interviews versus a multi-station interview process in recruiting newly qualified radiographers. Graphs and images will be used to support the findings.

1. Groothuizen, J.E., Callwood, A. and Gallagher, A. (2018) 'What is the value of Values Based Recruitment for nurse education programmes?', Journal of advanced nursing, 74(5), pp.1068-1077.
2. Mid Staffordshire NHS Foundation Trust Public Inquiry (2013) Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry. Available at: http://webarchive.nationalarchives.gov.uk/20150407084003/http://www.midstaffspublicinq uiry.com/report (Accessed: 10 February 2025).
3. NHS Trust (2024) Recruitment and Selection (Non-Medical). Available at: https://policies.app/policies/Policies/personnel/RecruitmentandSelectionNonMedical202412.pdf (Accessed: 10 February 2025)
4. Newton-Hughes, A. and Strudwick, R. (2023) 'An exploration of values-based radiography from the perspective of the service user', Radiography, 29, pp.40-45.

P295 Integrating radiography apprenticeships within the independent healthcare sector: A service evaluation of practice assessors' experiences

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Background
Recruiting, training, and retaining appropriately skilled staff presents a significant challenge for healthcare organisations across public and independent sectors[1]. Apprenticeships offer a potential solution to address this challenge and meet increasing service demands[2]. Within Radiology, apprenticeship pathways provide opportunities to upskill support workers into Assistant Practitioners (AP), enhancing workforce capability and capacity[3]. While the experiences of independent sector AP apprentices have been explored[4], there is limited understanding of the experiences of those who assess and support them in practice.

Aim
To explore the experiences of practice assessors in supporting radiography AP apprentices within an independent healthcare organisation.

Method
Four practice assessors each of whom had supported an apprentice assistant practitioner, agreed to share their experience. A series of semi-structured interviews were conducted as part of the service evaluation. The qualitative data gathered from these interviews was subjected to interpretative phenomenological analysis to gain insights into the experiences of the first cohort of practice assessors

Results
Five themes emerged from the data: 1) personal growth and reward, 2) opportunities to provide guidance and support, 3) An informal, natural progression into the role, 4) support workers' seamless transition into the role of apprentice, 5) the challenges associated with balancing multiple roles.

Conclusion
The overall experiences of the four practice assessors were positive, with a strong emphasis on the personal and professional fulfillment they derived from supporting AP apprentices. The results also identified areas where additional support, ringfenced time, and better access to resources for practice assessors could further enhance their experience.

1. IHPN Industry Barometer: State of the Sector 2023 (2024). Available at: A Walkthrough - Independent Healthcare Provider Network.
2. NHS England (2023) NHS Long Term Workforce Plan. Available at: https://www.england.nhs.uk/publications/nhs-long-term-workforce-plan/ (Accessed 10 January 2024).
3. Society of Radiographers (2020) Assistant Practitioners. Available at: https://www.sor.org/learning-advice/career-development/practice-level-information/assistant-practitioners (Accessed 12 January 2024).
4. Cox, S, & Alexanders, J (2024). Integrating radiography apprenticeships within the independent healthcare sector: A service evaluation of apprentice assistant practitioners' experiences. UKIO abstract book. Available at: tqae174_-_abstract_book_2024.pdf

P296 Accessibility of "Blue Light" professions for people with mobility or physical impairments

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Background
In 2019, the Workforce Disability Equality Standard (WDES) was established to measure workplace and career experiences of disabled and non-disabled staff to develop EDI improvement plans[2]. This annual report identifies key areas in which disabled people can be disadvantaged in NHS employment, and the current metrics per region.
We aim to explore the barriers and facilitators to people with mobility and physical impairments accessing health and social care (H&SC) roles in the NHS and beyond.

Purpose
This presentation aims to provide an overview of the current research basis for the accessibility of health and social care careers for people with mobility or physical impairments.

Summary of content
The literature base for fundamental accessibility of H&SC roles within the population for this review was found to be minimal, with a lack of development for further research where gaps had been identified. A large proportion of articles focused on disability resulting from occupational injury or disease, rather than access to the role with a pre-existing impairment. The high number of studies around occupational injury and disease may reflect key areas of focus for researching physical implications within these roles.
Inclusion of people with lived experiences in the continuous development of healthcare roles is essential to ensuring these professions are not exclusionary to those with disability. Against the current context of a workforce crisis in the H&SC sector, strategic improvement to access may be an untapped opportunity to alleviate workforce demands[1].

1. Harcus, J., Ferrari, G., Berry, E., Cadogan, E., McNally, C. S., Bardwell, A., Singh, N. and Beck, J. (2024) "Making it work in the face of extreme adversity" - Exploring perceptions for the future of the imaging and oncology workforce using 'soundbite' interviews. Radiography (Lond) 31 (1), 12-19.

2. NHS England (2023) Workforce Disability Equality Standard 2022 data analysis report for NHS trusts and foundation trusts. 4th Annual Report. https://www.england.nhs.uk/long-read/workforce-disability-equality-standard-2022-data-analysis-report-for-nhs-trusts-and-foundation-trusts/ Accessed 06/02/2025.

P297 Optimising the contribution of the imaging support workforce

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Since 2003, the radiography profession has been at the forefront of the development of the support workforce in the NHS, however recent reports, such as the Richards Review, and research consistently show that this workforce experiences barriers that prevent its full deployment and development (see Nightingale et al., 2025). These include inconsistent access to education, poor job design and truncated career pathways. These have implications for imaging services, staff workload, supply and patient flow.
Our presentation will firstly share findings from surveys of support staff and RSMs conducted in December 2024. Findings will assist participants understand the issues the support workforce face, but also provide insights on how they can be more effectively utilised. Secondly the presentation will explain the resources that the SoR has developed this year, with the support of NHS England, to assist services optimise the contribution of this workforce, improve their job satisfaction and ensure safe practice. Utilisation of the resources will address the barriers and underpin safe, effective and productive care, for example freeing up the time of registered staff. Effective utilisation of the imaging support workforce is essential to address the workforce crisis.
The presentation will cover – original research findings, recruitment, education and training, supervision and delegation, scope of practice and governance.

Nightingale, J., Sevens, T., Etty, S. Fowler-Davis, S., Kelly, R., Appleyard, B., and Snaith, B. (2025) The role, scope and utilisation of the imaging support workforce in England: A qualitative framework analysis. Radiography 31, 264-274

P298 The National CTC Training Academy (NCTCA): Computed Tomography Colonography (CTC) multi-professional interpretation training pilot

Rachel Baldwin-Cleland[1], Dr Anu Obaro[1], Dr Ingrid Britton[2], Prof Stuart Taylor[3]
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Background
To encourage CTC best practice, UK and European evidence-based standards and guidelines have been developed. These encompass technique, clinical quality measures, and performance indicators for interpretation and service provision. Indeed, high quality training is effective: Obaro et al. (2022) demonstrated that a 1-day training intervention increased sensitivity of consultant radiologists by 20.8% at 1 month, compared to those not receiving the intervention. However, there is a lack of resources to deliver the training requirements for CTC interpreters (Obaro et al., 2022).
To fill this training gap a peer reviewed bespoke multi-professional online CTC Interpretation training module was created and piloted for radiologists and radiographers. The aim of this poster is to map the setup, implementation, and convey preliminary pilot findings.
Methods
An 'Online only' training Module with evidence-based knowledge units, MCQ and CTC test case assessment was developed, aimed at more experienced CTC interpreters. For inexperienced interpreters, the online component was supplemented with online expert classroom sessions and mentored local CTC case log collection ('Mentored'). This UK pilot ran from September 2024 to March 2025.
Results
The 'Online only' path comprised of 16 consultant radiologists and 3 CTC reporting radiographers. The 'Mentored' path included 7 radiologists, and 3 radiographers, all inexperienced in CTC reporting. Data will be reported from mixed methods feedback.
Conclusions
This pilot will help establish attitudes, performance and impact of the new method of interprofessional CTC Interpretation training. Feedback analysis will help shape the Module to help deliver more efficient, accessible and supported learning.

Obaro, A. E., McCoubrie, P., Burling, D. and Plumb, A. A. (2022). 'Effectiveness of Training in CT Colonography Interpretation: Review of Current Literature'. Seminars in Ultrasound, CT and MRI. Elsevier BV, 43 (6), pp. 430–440. doi: 10.1053/j.sult.2022.06.002.

Obaro, A. E., McCoubrie, P., Burling, D. and Plumb, A. A. (2022). 'Effectiveness of Training in CT Colonography Interpretation: Review of Current Literature'. Seminars in Ultrasound, CT and MRI. Elsevier BV, 43 (6), pp. 430–440. doi: 10.1053/j.sult.2022.06.002.

P299 A positive impact for overstretched emergency services? A systematic scoping review of radiographer led discharge in minor injury units

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Background

Within contemporary healthcare environments in the UK, increasing pressures on emergency services have mandated innovative approaches to service delivery. The King's Fund (2024) highlights, since 2015, patient waiting times have consistently exceeded the 4-hour national standard, with diagnostic imaging services representing a critical bottleneck in clinical decision-making pathways. The Radiographer Led Discharge (RLD) initiative (Snaith, 2007) emerged as an innovative solution to these challenges. This review aims to further explore the potential of RLD for improving efficiency within UK minor injury units (MIU).

Method

A scoping review of key literature addressed empirical evidence pertaining to RLD implementation from its inception to present. Multi-databases were searched using specific criteria relating to RLD, though only UK-based peer-reviewed articles were included. Particular attention was paid to studies reporting quantitative service metrics and qualitative experiential data within MIUs.

Results

Analysis revealed that RLD implementation demonstrably improves patient pathways, with evidence indicating journey time reductions exceeding 50% for patients managed through this route. Studies consistently report waiting time decreases of up to 60 minutes, alongside high diagnostic accuracy and minimal patient recalls. However, barriers to this implementation persist, chiefly centred on professional role anxiety, compensation concerns, and departmental resource allocation.

Conclusion

RLD demonstrates substantial promise in streamlining care pathways for patients with musculoskeletal injuries, effectively reducing MIU waiting times while maintaining high standards of care. The successful implementation of these services requires appropriate training, organizational support, and clear protocols, with potential benefits from integrating clinical assessment skills within undergraduate curricula to support wider adoption.

1. Snaith B. A. (2007). Radiographer-led discharge in accident and emergency - The results of a pilot project. Radiography, 13(1), 13–17. https://doi.org/10.1016/j.radi.2005.11.002

P302 Development and current effectiveness of a preceptorship e-portfolio for newly qualified diagnostic radiographers

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This poster demonstrates the key elements of a new preceptorship e-portfolio used within our trust, using the regions online learning and education platform.

Developed over the past year, the portfolio incorporates best practices from the HCPC and region specific preceptorship guidelines. The poster illustrates the core elements of the program such as: learning in practice, reflective practice, 1-1 preceptorship support and guided/self-directed CPD activities.

The poster discusses the advantages of the program to date, such as: close monitoring of participants' experiences throughout their first 12 months of training, empowerment of participants, HCPC CPD compliance and greater evidenced development of all pillars of practice and domains of learning.

CapitalAHP Preceptorship Framework 0. (n.d.). Available at: https://www.hee.nhs.uk/sites/default/files/documents/CapitalAHP%20Preceptorship%20Framework.pdf.

HCPC (2023). Principles for preceptorship |. [online] www.hcpc-uk.org. Available at: https://www.hcpc-uk.org/resources/information/principles-for-preceptorship/.