



SHARING BEST PRACTICE

**P176 An AlwaysEvent® in MRI**

*Darren Hudson; Carrie Monteith; Dale Gardiner; Danielle Blake*

InHealth

**Background:** AlwaysEvents® were developed in the United States, and the methodology has been adopted by NHS England (NHSE). In contrast to a Never Event commonly referred to in incident management terms, the concept of an AlwaysEvent® is based around something that should always happen in relation to patient experience. At the heart of this approach are patients and the concepts of co-design and co-production to ensure their involvement throughout. As part of our endeavour to continually improve the experience of having an MRI scan for our patients, the organisation signed up to developing an AlwaysEvent® and piloted this at a hospital based site.

**Purpose:** To demonstrate an example of an AlwaysEvent® within medical imaging. The pilot has seen engagement with over 100 patients so far helping to better understand what matters, their emotional journey throughout, and what could be improved. The feedback has shown that a clear area for improvement was around the 'Warm Welcome'.

**Summary:** The ongoing AlwaysEvent® shows the potential for improvement based on what is important to patients locally. There are challenges with obtaining patient engagement within this environment, but this was achieved through differing approaches. A vision statement for the event, and the aims to support this, were created in the voice of the patient. Potential change ideas to achieve the improvement were generated and voted for by patients. The top five ideas were then developed and implemented with patients, and assessment for positive impact made against the intended aims.

**P177 Close or Open MRI? - a focused management appointment journey for inpatients including the scanxious and corpulent from your ward to us**

*Apollo Exconde*

InHealth Ltd - Croydon University Hospital

**Background:** Presently, examinations are requested online and the usual information are displayed with little to no data are given regarding mobility, metallic implants and mental capacity etc. Due to the increase of demand this may lead to subjects such as unpredictable/unexpected encounters. Thus, to address and identify potential problem that may arise and be a cause of further clinical and radiological investigation, cancellation or delay before giving an anticipated appointment, a scheme was created to ensure that both inpatients and MRI staffs are prepared physically and emotionally.

**Method:** A systematic approach of cross-examination for inpatients using a devised MRI pre-scan-questionnaire slip through telephone follow-up has been the norm to create a tailored, patient-centred approach from ward transition, choice of transport equipment, close or open MRI options from our three scanners, whereby then further categorised from either claustrophobic or their habitus grade and imaging protocol selection which depends on the clinical condition of the inpatient.

**Conclusion:** The content will be set a out of display of charts and plans annotated to explain the stream. Only a of meagre of 2.69% cancellation was recorded between November 2016 to October 2017 and an increase of 3.72% for the following year. A success rate of 96.82% was projected for the last two years, with questions and approach being re-evaluated to cope up with the demands of every patient and has been ultimately proven over time for a smooth patient cycle journey.

1. Solet, DJ et al (2005) Lost in translation: challenges-to-physician communication during patient hand-offs. *Academic Medicine* 80 1094-1099 2. The Joint Commission Center for Transforming Healthcare

**P178 Spodylodiscitis - development of guidelines for equivocal MRI**

*Martin Mitchell; Mohammed Abdeen; Marion Mueller*

Medway NHS Foundation Trust

Diagnosis of spondylodiscitis can be difficult: history and clinical symptoms are vague and non-specific, inflammatory markers may be normal and microbiology cultures negative. tissue biopsies may be problematic to obtain. mri remains the mainstay of diagnosis, however differentiation of acute infection and chronic modic Type 1 changes can be challenging. in this study we evaluated mri with potential discitis and compared these with the clinical notes. As a result clear mri indicators for infection were identified and we subsequently developed a management pathway for patients with equivocal imaging for sponylodiscitis.

Dunbar, J.A.T. Sandoe, J.A.T, Rao, A.S, Crimmins, D.W, Baig, W, Rankine, J.J (2010) The MRI appearances of early vertebral osteomyelitisand discitis. *Clinical Radiology*. 65 , 974-981

Pegrum, J. Altaf, F. (2014). Spondylodiscitis: The Usefulness of Inflammatory Markers and Biopsy. *The Spine Journal*. 14, Issue 11, Supplement, Page S145

**P179 MRI safety: Everyone's responsibility**

*James Shaw; Glenda Shaw; Jasen Whyte*

Royal Cornwall Hospital Treliske

Following two incidents related to MRI safety, the Clinical Imaging MRI team at Royal Cornwall Hospital, decided to put an action plan together to improve MRI safety awareness throughout the hospital. Improved education was needed for all of our hospital



staff in order to reduce the risks to both patients and staff. This poster describes the changes that were made, how they were implemented, the resulting success of our service improvements and the shared learning that resulted.

**P180 The effect of a patient information leaflet on MRI scan outcome for patients suffering from claustrophobia or anxiety**

*Elizabeth Ashburner*

Fairfield General Hospital

**Background:** Anxiety or claustrophobia may be exacerbated by MRI scans leading to failed and cancelled scans, or poor quality images due to patient movement.

**Aim:** To look at information given to patients undergoing MRI scans and whether improving patient knowledge of what to expect during an MRI scan helps reduce feelings of claustrophobia and anxiety.

**Method:** Audit 1 (September 2017) included 475 patients who did not receive any information prior to their appointment. Audit 2 (August 2018) included 495 patients who received a patient information leaflet with their appointment letter. Radiographers completed a questionnaire for patients who expressed anxiety or claustrophobia.

**Results:** 38/475 (8% Audit 1) and 36/495 (7.2% Audit 2) of patients expressed feelings of claustrophobia or anxiety and were included in the audit. Numbers of concerns expressed by patients generally reduced between audit 1 and 2:

Completed scans increased from 29/38 (76.3% Audit 1) to 33/36 (91.7% Audit 2). DNAs and cancellations decreased from 2/38 (5.2% Audit 1) to 0/36 (0% Audit 2). Patients who previously failed an MRI but had successful scans this time increased from 3/38 (7.89% Audit 1) to 33/36 (27.8% Audit 2). Completed scans without movement artefacts or the need to use blade/fast scans increased from 19/36 (50% Audit 1) to 28/38 (77.8% Audit 2).

**Conclusion:** Better informing patients prior to their scan using an information leaflet enables us to help and reassure people suffering from claustrophobia or anxiety, resulting in a positive outcome with a significant improvement in completion rate and scan quality.

**P181 Raising the profile of public health and prevention in radiography**

*Laura Charlesworth*

Sheffield Hallam University

**Background:** In November 2018, the Secretary of State for Health and Social Care released a new vision for public health<sup>[1]</sup>, indicating that an increased focus on prevention will follow in 2019 with the publication of the NHS Long Term Plan and a Prevention Green Paper. With a national focus on prevention, we have the opportunity to further showcase the value and contribution of the Allied Health Professions (AHPs) to the public health and prevention agenda. Public Health England and associated arms length bodies continue to provide support to AHPs<sup>[2]</sup> and an abundance of supporting materials will be launched in 2019, including a new UK AHP Public Health strategic framework, a prevention focused service toolkit and a series of AHP public health leadership events. The Radiography profession is well placed to lead positive change in public health and prevention and can provide innovative solutions.

**Purpose:** This poster aims to:

1. Provide up to date policy context for AHPs related to public health and prevention
2. Apply the context to Radiography professions
3. Empower Radiography professionals to embed public health and prevention in their practice and influence for change
4. Present 3 rapid case study examples of Radiography innovation in public health and prevention (2 with research funding)
5. Provide examples for wider Radiography engagement in public health and prevention.

**Summary:** Explanation of the above aims will form the content for the poster (including case study examples).

1. Department of Health and Social Care. (2018) Prevention is better than cure: our vision to help you live well for longer

2. NHS England. (2017) AHPs into action: using Allied Health Professions to transform health, care and wellbeing. 2016/17 - 2020/21. London

**P182 A modesty garment for patients receiving radiotherapy treatment to the pelvis**

*Candice Martin*

Nova Healthcare & The Leeds Gamma Knife Centre

In recent years there have been positive steps to improve the dignity of patients receiving radiotherapy to the breast. Studies looking at the impact of the implementation of breast gowns to reduce exposure during radiotherapy treatment have all reported positive outcomes and many centres in the UK now use these gowns<sup>[1,2]</sup>. McLean and Hodgson<sup>[2]</sup> discussed the use of gowns for different treatment sites as being beneficial for the wellbeing of all radiotherapy patients as a recommendation of their study analysing patient perception around treatment gowns. Around 13,000 patients receive radiotherapy to the pelvis every year and there has been very little research or development regarding improvement of dignity for this patient group. The poster aims to look at the requirements and implementation of a garment to improve dignity for patients receiving radiotherapy to the pelvis.

1. Harris, Rachel et al. (1997) The use of a breast gown during radiotherapy by women with carcinoma of the breast. *Radiography*, Volume 3, Issue 4, 287 - 291

2. Hodgson, D. and McLean, M (2006) Cancer patients' perceptions of using a "breast gown": a qualitative study. *Journal of Radiotherapy Practice*, Vol 5, 97-107



**P183 Assessing the benefit of a patient history questionnaire in patients attending for whole body bone scan in nuclear medicine**

*Lindsay Watkinson; Ruth Puddy; Karen Harrison; Lisa Matthews; Alison Speakman; Alison Brobyn*

Warrington and Halton Hospitals NHS Foundation Trust

**Background:** Over the last few years it has come to our attention that when a patient is followed through from request to report by the same practitioner, there is a wealth of information available from the patient at the point of care. We wanted to harness this for all staff members, so that any clinically significant information was passed along the chain for those involved with diagnosis.

**Purpose:** A clinical history questionnaire was developed utilising existing patient history research, along with experience of useful information gathered. After cyclical trials, this was made established practice from March 2018. Both NM practitioners and reporters felt it was useful to have extra information than that provided by the referrer. There appears to be a 3-fold benefit to undertaking this questionnaire, with very little impact on the service, as the form takes approximately 2 minutes to complete for each patient, and can be done alongside the preliminary explanation of the examination:

1. Increased confidence in reporting pathologies on whole body bone scans
2. Reduced X-ray requirements for anatomical comparison, resulting in dose reduction
3. Better patient experience, because many scenarios no longer need patient clarification at the time of imaging, the history questionnaire already provides the answers in a pro-active way by asking at the start of the examination.

history questionnaire already provides the answers in a pro-active way by asking at the start of the examination.

**Summary:** Improved patient and staff outcomes of whole body bone scans by embedding a practice of recording information that is freely given by the patients, with scope to extend to other scan types.

**P184 Preparing student radiographers for imaging patients with dementia: An exploratory study of the "what?" and the "how?" in higher education strategy**

*Devon Benton<sup>1</sup>; Paul Miller<sup>2</sup>; Lisa Booth<sup>2</sup>*

<sup>1</sup>Blackpool Victoria Hospital; <sup>2</sup>University of Cumbria

It has been well established across the spectrum of allied healthcare literature that newly qualified practitioners, fresh from university education, often feel unprepared for their early experiences of managing patients with dementia<sup>[1,2]</sup>. Moreover, this situation can have unfortunate knock-on effects regarding practitioner confidence. As Miller, Booth and Spacey observe<sup>[3]</sup>, however, such literature rarely goes beyond proposing that 'more education' is the solution. Rarely unpacked is what content this education should contain at undergraduate level, and how it should be integrated into extant curricula in order to best benefit graduates in their future clinical work.

This exploratory study reports findings emergent of N=6 detailed interviews with final year Diagnostic Radiography students, at the time placed in a variety of hospitals in the North West of England. Employing an analytic model based in the Straussian model of Grounded Theory<sup>[4]</sup>, four global issues were revealed:

- Education around the differentiated forms of dementia should be provided before any student encounters a pertinent patient on placement
- Direct education about best practice in communicating with patients with dementia is essential at the earliest possible stage
- Bringing in dementia carers and other affected parties can help contextualise potential problems in a non-abstract way
- The experiences of undergraduates on other healthcare programmes (particularly nursing) can help inform a student's-eye understanding of dementia in radiography.

It is contended that these findings can open up important pedagogical discussions around an issue that has hitherto remained largely unarticulated in contemporary radiography curricula.

1. Baillie, L., Cox, J. and Merritt, J. (2012) 'Caring for older people with dementia in hospital Part one: challenges', *Nursing Older People*, 24(8), pp. 33-37
2. Baillie, L., Merritt, J. and Cox, J. (2012) 'Caring for older people with dementia in hospital. Part two: strategies', *Nursing Older People*, 24(9), pp. 22-26
3. Miller, P.K., Booth, L. and Spacey, A. (2017) 'Dementia and clinical interaction in frontline radiography: Mapping the practical experiences of junior clinicians in the UK', *Dementia*, in press
4. 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(S1), pp. S16-S22

**P185 Fear of cancer recurrence: The role of the therapy radiographer in addressing and alleviating patient concerns**

*Josie Cameron<sup>1</sup>; Yuan Yang<sup>1</sup>; Gerald Humphris<sup>2</sup>*

<sup>1</sup>Nanfeng Hospital, Guangzhou, Guangdong, China; <sup>2</sup>School of Medicine, St Andrews University

**Background:** Patients with breast cancer may experience distress in the form of fears of cancer recurrence (FCR) during their treatment<sup>[1]</sup>. Moderate to severe FCR is reported in 30 to 70% of patients<sup>[2]</sup>. These levels of FCR can have negative consequences including depression, insomnia, reduced quality of life and increased health service demands<sup>[3]</sup>. There are few studies in the literature which focus on how patient concerns are managed during treatment therefore this study provides valuable insight to this area.



**Methods:** Breast cancer patients (n = 94) attending for radiotherapy treatment had their first two review clinic appointments with their therapy radiographer (TR) audio-recorded. In addition, FCR was assessed (FCR7) at baseline, weekly and at 6-8 weeks following their final radiotherapy visit.

**Results:** Patients' who were younger, separated, had undergone chemotherapy, Herceptin and had 4-field radiotherapy plus a boost reported higher recurrence fears at baseline. Most women experienced a decline in fear during and after RT. Listening to FCR concerns at the review clinic appointments may be crucial to reducing the process of FCR development post treatment.

**Future Developments** A phase 2 study is in progress utilising a co-design process with therapy radiographers, previous patients and an external stakeholder group to develop a communication skills training package to assist therapy radiographers undertaking review consultations address FCR concerns. The acceptability and feasibility of the training package will be evaluated and if found to be effective will be available to healthcare staff involved in cancer treatment via Breast Cancer Now who supported both studies.

1. Dunn LB, Langford DJ, Paul SM, Berman MB, Shumay DM, Kober K, et al (2015) Trajectories of fear of recurrence in women with breast cancer. *Support Care Cancer*. 23:2033-43

2. Simard S, Thewes B, Humphris G, Dixon M, Hayden C, Mireskandari S, et al (2013) Fear of cancer recurrence in adult cancer survivors: a systematic review of quantitative studies. *J Cancer Survivors* 7:300-22

3. Lebel S, Tomei C, Feldstain A, Beattie S, McCallum M (2013) Does fear of cancer recurrence predict cancer survivors' health care use? *Support Care Cancer*.21:901-6

### P186 Values based practice in radiography

*Ann Newton-Hughes<sup>1</sup>; Ruth Strudwick<sup>2</sup>*

<sup>1</sup>University of Salford; <sup>2</sup>University of Suffolk

**Background:** This work presents the findings of a CoRIPS funded study. Radiography practice is changing with an increased demand for services, a need to reduce waiting times, and technological developments. While these influence our service the patient remains at the centre of our practice. This study investigated the values of patients in their radiographic examinations and radiotherapy treatments. The study also identified any similarities or mismatches in the understanding of radiographers and radiology managers in relation to their values and that of patients.

**Method:** Focus groups were conducted with patients who had experience of imaging and radiotherapy treatment. Patients were given an explanation of the concept and their values were sought. A similar process was employed with diagnostic radiographers. Radiology managers were asked for their values via telephone interview or email. The audio recorded data were transcribed and thematic analysis was used.

**Results:** Results revealed that patients expressed similar values irrespective of their pathway (diagnosis or treatment) however a stark difference in experience between diagnostic and therapy encounters was noted. Radiographers' values were somewhat different from those of patients with an emphasis on speed and efficiency not expressed by patients. Similarly, managers expressed different values to that of patients.

**Conclusion:** While the concept of Values Based Practice and recruitment is widely acknowledged little is known of what radiology patients value in their imaging or treatment. This small study has gone some way to address this deficit and identified ways of providing values based care in the current clinical environment.

### P187 Paws for thought..?

*Jennifer Thompson*

Nottingham University Hospitals

In the UK there are 700,000 adults and children approximately who are autistic<sup>[1]</sup>. The National Autistic Society has a helpful set of guidance for healthcare professionals. Each autistic person will have certain difficulties but it affects each person individually. The Society of Radiographers (SCoR) has general advice for diagnostic radiographers regarding how to meet the needs of autistic patients<sup>[2]</sup>. As a therapy radiographer this has been helpful in meeting the needs of a patient with Asperger's syndrome. It would be helpful to have advice for therapy radiographers as in most cases we may treat them for more than one day. Within this poster it will discuss a case study of a breast cancer patient with Asperger's Syndrome and her experience of radiotherapy in our department. As a Radiotherapy Advanced Practitioner this was a challenging case due to lack of awareness and knowledge.

The purpose of the poster is to teach other professionals on how to meet the needs of autistic patients on radiotherapy treatment. The poster will include background on autism, brief outline of the patient's diagnosis. What obstacles we faced in meeting the patients' needs: on treatment reviews, communication and how we dealt with them. It will include photographs to help illustrate this. Whilst on her treatment I built a rapport with her with the help of a squashy. The poster will outline what I have learnt and do differently in the future and how this has changed my practice including introducing squashy's to anxious patients.

1. National Autistic Society. (n.d.) Autism guidance for health professionals

2. Barker, P. (2019) Adults with Autism Spectrum Disorder (ASD): A guide for radiography staff. Society of Radiographers





**P188 A critical review exploring religion, culture and other barriers to breast and cervical cancer screening uptake in BME women in the UK**

*Janet Olowookere; Kerrie-Anne Calder*

The University of Liverpool

**Aim:** To determine the barriers which cause disparities in cancer screening uptake amongst women of BME groups.

**Methods:** A search strategy was developed and key databases were searched to identify primary research studies (published in the last 15 years) that investigated the uptake of breast and cervical cancer screening in Black and minority ethnic (BME) group women living in the UK.

**Results:** The barriers to screening uptake in BME women were found to be religion, culture, lack of knowledge, fear and embarrassment. Quantitative research displayed that screening attendance is lower in areas densely populated by BME groups and is associated with increased mortality in some instances. The barriers identified impacted differently on BME women depending on their culture and religion. Future steps to improve participation include providing pre- and post screening counselling, providing education or training for health care practitioners in cultural and religious beliefs and customs as well as utilising religious and social settings to promote screening.

**Conclusion and discussion:** The majority of the studies were conducted on a very small scale which limits the generalisability. Some studies were conducted with BME and white British women which made barriers affecting BME women alone more distinguishable and highlights barriers which is common across all women. Religion, culture, lack of knowledge, fear and embarrassment are factors which impact on a BME woman's likelihood to attend screening. These barriers impact differently depending on the individual. Improvements suggested include utilising religious leaders and the media to increase BME women's participation in breast and cervical cancer screening.

1. Bambidele O, Ali N, Papadopoulos C, Randhawa G. (2017). Exploring factors contributing to low uptake of the NHS Breast Cancer Screening Programme among Black African women in the UK. *Diversity and Equality in Health and Care*. Aug 1
2. Eilbert K, Carroll K, Peach J, Khatoon S, Basnett I, McCulloch N. (2009) Approaches to improving breast screening uptake: evidence and experience from Tower Hamlets. *British Journal of Cancer*. V101(S2):S64MS67
3. Marlow LA, Waller J, Wardle J. (2015) Barriers to cervical cancer screening among ethnic minority women: a qualitative study. *J Fam Plann Reprod Health Care*
4. Thomas VN, Saleem T, Abraham R. (2005). Barriers to effective uptake of cancer screening among Black and minority ethnic groups. *International journal of palliative nursing*

**P189 CT adaptation techniques used at Queen's Hospital for patients who are unable to positioning themselves when scanning upper extremities**

*Wan Lam Foo*

BHR Univ. Hospitals NHS Trust

At Queen's Hospital, sometimes we have patients who are unable to positioning themselves properly when having CT scan for upper extremities. This poster demonstrates how we apply CT adaptation techniques to patients who are unable to positioning themselves. The upper extremities include hand, wrist, radius and ulna, elbow and humerus. We very often have obese patients who are unable to positioning themselves properly on the scan table or patients who are unable to raise their arms above their heads when scanning upper extremities. Therefore, instead of having laid down on the table we would have patients sitting on the other side of the scanner.

This method not only has resolved the problems mentioned above, it has in addition also improved the image quality. The most important is patients have less stress and more comfy during the CT scan.

1. Mamourian, A.C. (2013) *CT Imaging: practical physics, artifacts, and pitfalls*. Oxford Univ. Press.

**P190 Appropriateness of requests for CT aorta to rule out acute aortic syndrome (AAS)**

*Priya Agarwal; Suraj Amonkar*

Northern Care Alliance

**Background:** Acute aortic syndrome (AAS) encompasses multiple emergency aortic pathology including aortic dissection, having a pre-hospital mortality of 20% and in-hospital mortality of 30%. Therefore, clinicians are expected to have high index of suspicion in ruling out AAS. Ionising Radiation Medical Exposure Regulations state all imaging modalities must be justified. We have seen increased CT scan requests but suspect few show confirmed cases of AAS, although no statistics substantiate this. We aimed to assess justification of CT scans and prevalence of AAS.

**Method:** We retrospectively studied 247 patients who underwent CT aorta scans within emergency departments across our hospital trust in 2017. Using CRIS, we accessed request cards and reports to calculate pre-test likelihood of AAS using European Society of Cardiology (2014)/British Society of Cardiovascular CT (2016) guidelines.

**Results:** 26 (10.5%) patients had confirmed AAS. Request cards were insufficiently completed with documentation of symptoms, examination findings, and comorbidities in 93.9%, 64.0% and 44.9% patients respectively. Retrospectively calculating, 22 (8.9%) patients were high risk AAS and would have justified a CT scan, of which 3 were confirmed AAS. The remaining 23 patients with AAS were deemed low and intermediate risk, yet had significant pathology.

**Conclusion:** Although 91.9% patients were deemed low and intermediate risk of AAS, strict adherence to guidelines (hence no scan) would have missed 23 cases of AAS. Justification of scan relies on good clinical information provided by referrers more



than actual scoring. We urge emergency departments to assess risk of AAS and supply requests with adequate clinical information.

1. Erbel, R. and Aboyans, V. et al. 2014 ESC guidelines on the diagnosis and treatment of aortic diseases. *European Heart Journal* (2014), 35: 2873-2926
2. Vardhanabhuti, V. and Nicol, E. Recommendations for accurate CT diagnosis of suspected acute aortic syndrome (AAS)- on behalf of British Society of Cardiovascular Imaging (BCSI)/ British Society of Cardiovascular CT (BSCCT). *British Journal of Radiology* (2016) 86 (1061): 20150705
3. The ionising radiation (medical exposure) regulations (2017)

**P191 A review of HSC205 CT referrals in a single tertiary centre**

*Yee Mei Koay; Sathi Sukumar*

Manchester University Foundation Trust

**Background:** Health Service Circular 205 (HSC205) is the urgent suspected cancer pathway, whereby referrals are given priority to meet management timescale for oncology patients. Cases that meet criteria include cases of new suspicion of cancer and first staging of cancer patients. It is important that requests made under the pathway are appropriate, to meet scanning targets. Our initial audit found 9.5% of all HSC205 referrals in a month to be unjustified. We re-audited to complete the audit cycle.

**Method:** We retrospectively identified all patients who had a CT scan requested under the HSC205 pathway on the CRIS system in a one month period. Patient details were obtained from PACS and Sunrise ICE system, and entered onto a database. The clinical request information was then reviewed and vetted.

**Results:** A total of 359 CT requests were made under the HSC205 pathway in one month. The average time from request to scan performed was 8 days. 9.5% of CT requests were incorrectly requested under HSC205. The referring specialties were divided into chest, gastrointestinal, genitourinary, breast, head and neck and others. Incorrect requests include pre-operative and pre-treatment interval scans and follow-up scans.

**Conclusion:** Our re-audit cycle demonstrated similar percentage of inappropriate CT requests to the previous cycle, although there has been an overall increase in CT requests. Some HSC205 requests may have been correctly requested, but were deemed unjustified due to insufficient written clinical information. Increased awareness of the HSC205 criteria will minimise inappropriate referrals and meet scanning targets.

**P192 Is the standardisation of CT protocols best? An overview of the potential effect of standardisation of CT protocols across the UK**

*Laura Shell*

UHB (HGS)

The main purpose of the study is to investigate how standardising CT (Computerised Tomography) protocols will impact current methods that are used in the UK and if this is best practice. Many hospitals use different protocols to scan patients regardless of pathology and/or anatomy. However, there are various factors to be looked at to determine whether this is viable, the main one being whether this will reduce the risk to the patient by reducing the incidences of recalls due to missing pathology as well as reducing radiation dose. Also, the benefit to hospitals by improving efficiency and reducing the risk of litigation. This could lead to better patient-centred care and, with radiology resources being limited, may improve efficiency and throughput of patients. The conclusions of the 16th COMARE report issued in 2014 alluded to trying to accomplish this however there may not have been as much progression as hoped.

1. Arthurs O.J, van Rijn R.R and Sebire N.J. Current Status of paediatric post-mortem imaging: an ESR questionnaire-based survey. 2014
2. Beets-Tan R.G.H, Lambregts D.M.J, Maas M, et al. Magnetic Resonance Imaging for clinical management of rectal cancer patients: recommendations from the 2012 European Society of Gastrointestinal and Abdominal Radiology (ESGAR) consensus meeting. 2013
3. Boland A, Cherry M.A and Dickson R. Doing a Systemic Review: A Student's Guide. 2017
4. Brookes-Fazakerley S.D, Shyam Kumar A.J and Oakley J. Survey of the initial management and imaging protocols for occult scaphoid fractures in UK hospitals. 2009
5. Fiebach J.B, Schellinger P.D, Geletneky K, et al. MRI in acute subarachnoid haemorrhage; findings with a standardised stroke protocol. 2004
6. Gauss, Tobias, Balandraud, Paul, Frandon, Julien, et al. Strategic proposal for a national trauma system in France. 2018
7. Haldorsen I.S, Husby J.A, Werner H.M.J, et al. Standard 1.5T MRI of endometrial carcinomas: modest agreement between radiologists. 2012
8. Harm A.W.M Tiddens, Wiewing Kuo, Marcel van Straten, Pierluigi Ciet. Paediatric lung imaging: the times they are a-changin'. 2018
9. Malik A.K, Shetty A A, Targett C, Compson J.P. Scaphoid views: a need for standardisation. 2004
10. Neri E, Brady A.P, Gibaud B, Visser J.J, Nahum Goldberg S and Pyatigorskaya N. ESR paper on structured reporting in radiology. 2018
11. Sampson, M. A., Colquhoun, K. B. M. and Hennessy, N. L. M. Computed tomography whole body imaging in multi-trauma: 7 years' experience 2006
12. Watson S.G, Calder A.D, Offiah A.C and Negus S. A review of imaging protocols for suspected skeletal dysplasia and a proposal for standardisation

**P193 CT colonography - the other side: A patient perspective of bowel preparation and low residue diet**

*Michael Smith*

University Hospital of North Midlands

CT colonography (CTC) bowel preparation with low residue diet, faecal tagging and laxative varies considerably between different hospitals throughout the UK. Having had a personal experience of this examination and the bowel preparation regime adopted by our hospital, this has allowed me to view our regime and patient instructions from a different perspective. This has led to a number of changes in the way we not only prepare our patients but the instructions we give them, both before, during and after the examination. Our previous regime involved a combination of low residue diet 2 days prior to the examination date



followed by a split dose of 100mls of Gastrografin faecal tagging 1 day prior to the examination. The information provided to the patient details the low residue diet and instructs the patient on when and how to administer Gastrografin.

I found the information to be extremely confusing to follow prior to the exam and my experience following CTC was not as I had previously described for many of our patients. In addition, I was not aware of the importance of following the low residue diet regime strictly. The poster will describe my experiences, the previous regime and detail the changes made, including addition of low residue diet menus on the hospital internet site.

1. Connor, A., Tolan, D., Hughes, S., Carr, N. and Tomson, C., 2012. Consensus guidelines for the safe prescription and administration of oral bowel-cleansing agents. *Gut*, 61(11), pp.1525-1532
2. Ghanouni, A., Smith, S.G., Halligan, S., Taylor, S.A., Plumb, A., Boone, D. and von Wagner, C., 2013. An interview study analysing patients' experiences and perceptions of non-laxative or full-laxative preparation with faecal tagging prior to CT colonography. *Clinical radiology*, 68(5), pp.472-478
3. Wu, K.L., Rayner, C.K., Chuah, S.K., Chiu, K.W., Lu, C.C. and Chiu, Y.C., 2011. Impact of low-residue diet on bowel preparation for colonoscopy. *Diseases of the colon & rectum*, 54(1), pp.107-112

## SERVICE DELIVERY AND OPTIMISATION

### P194 Improvement of Raystation volumetric modulated arc therapy (VMAT) delivery quality assurance (DQA) results through plan complexity reduction and beam model fine-tuning

*Elizabeth Harron; Angela McKenna; Alexander Taylor; Jonathan Sutton; Anna Trezza; Jonathan Littler*

Nottingham University Hospitals NHS Trust

**Background:** Accurate modelling of the radiotherapy beam by the treatment planning system is essential for reliable delivery of VMAT. We recently purchased Raystation, which requires the department to produce their own beam model. Open field agreement was good but VMAT DQA results were initially poor and results varied between linacs by up to 6%. We will present our process for improving the DQA results.

**Method:** Test plans were created for 6 challenging cases each of bilateral head & neck and prostate & nodes. DQA was performed with the Delta4 and an ion chamber. A script was written to measure the modulation complexity score (MCS)<sup>[1]</sup> of the test plans. Plans were re-optimised with a limit applied to the monitor units, which resulted in reduced complexity, but a clinically acceptable dose distribution. The new plans' DQA showed the Delta4 results were better than the ion chamber. The beam model parameters of transmission, tongue and groove width and leaf tip were then adjusted iteratively to get good agreement with both DQA methods.

**Results:** By reducing the plan complexity and adjusting the model, Delta4 pass rates increased by a mean of 6% (local gamma 2%/2mm) and the absolute dose agreement improved so that all linacs now deliver dose within 2% of the expected value.

**Conclusion:** Calculating MCS helped us to identify particularly complex beams. We have improved DQA results for beam modelling through improving plan simplicity and iteratively adjusting beam parameters so that we can be confident that plans will pass DQA.

1. Masi, Doro et al (2013) Impact of plan parameters on the dosimetric accuracy of volumetric modulated arc therapy *Med. Phys.* 40 (7)

### P195 Keeping our patients safe 24/7 - does shift-work in Radiology have an impact on safety? A literature review

*Jason Elliott*

Cardiff University

**Background:** UK Radiology departments are under pressure to reduce waiting times whilst providing 24-hour cover for emergency imaging of patients. Departments often utilise a mixed pattern of days and nights, with prevalence of extended days and fast rotating shifts. This increases the risk of Shift Work Disorder (SWD), which has been shown to have an impact on performance; therefore raising the prevalence of error - a key concern when working in radiology for patient outcome.

**Method:** A review of the available literature was planned and executed to investigate the risk of error in out-of-hours work, and the subsequent impact on imaging departments. Narrative synthesis was used to describe the heterogeneous findings of the studies appraised.

**Results:** No radiography-based research was identified, so the search field was expanded to all shift-based healthcare professionals; and the potential impact would be discussed. Four of the five studies selected after critical appraisal suggested a positive correlation of error with increased mental and physical fatigue as a result of shift work or rapid shift rotation. It can be suggested as a result that radiology departments may be at a greater risk of IR(ME)R incidents due to staff fatigue.

**Conclusion:** Considerations need to be made when optimising shift work for healthcare professionals as to avoid Shift Work Disorder and consequential error; particularly in the context of ionising radiation. Research into environmental and lifestyle support should be pursued to study its effect as prevention or management. Further direct study on radiographers is recommended.

### P196 Increasing the radiotherapy research profile of individual cancer centres - rising to the CRUK challenge

*Samantha Cox; Russell Banner; Jayne Caparros; Douglas Etheridge; Stuart Foyle; Les Hammond; Emily Harris; Elizabeth Hawkes; Richard Hugtenburg; Jemma Hughes; Ryan Lewis; Maureen Noonan; Gillian Palmer; Ceri Powell; Adam Selby; Roger Taylor; James Williams; Sarah Gwynne*

UKIO 2019 Abstract Book ROC Events Ltd