

Purpose In this pictorial review, we present six cases, describing clinical history and characteristic radiographic findings. The aim is to highlight important review areas when evaluating paediatric pelvic radiographs. Pelvic lesions are often difficult to appreciate due to overlying anatomical structures.

Methods We selected six cases of iliac bone lesions at Royal Manchester Children's Hospital, reviewing clinical history and imaging findings.

Results An 11 year old female was confirmed to have a tuberculosis cold abscess after pelvic X-rays, CT pelvis contrast and MRI pelvis. These images demonstrated destructive changes within the iliac blade, fluid collection and peripheral contrast enhancement. A skeletal survey in a 6 year old male showed an incidental finding of fibrous dysplasia with diffuse sclerotic changes throughout the pelvic bones. An 11 year old female was diagnosed with osteosarcoma. Pelvic X-ray and MRI contrast demonstrated a sclerotic right iliac bone associated with a surrounding large calcified soft tissue mass. A 15 year old male was confirmed to have an aneurysmal bone cyst in the right acetabulum following pelvic X-ray and MRI, which demonstrated a well defined septated expansile lesion. Lastly we have 2 cases of Ewings Sarcoma in a 16 year old male and a 9 year old female. Both cases had patchy sclerotic changes in the pelvic bones, associated with surrounding soft tissue masses. These were confirmed on plain pelvic radiographs, MRI and CT.

Conclusion With careful scrutiny, plain radiographs are fundamental in the diagnosis of bone lesions. This poster outlines the importance of review areas.

p082 **Horsing around: A summary of the CT findings in horse related major trauma**

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Horseback riding is considered more dangerous than motorcycle riding, skiing, automobile racing, football and rugby<1>. This is a retrospective look at the injury types and patterns of horse related trauma at the regional trauma center with a large rural population. We regularly encounter major trauma related to horse riding. This poster aims to look at previous cases with a pictorial review of injuries and statistical analysis to help the reader with future trauma reporting, particularly in the case of horse related injury.

The following issues will be addressed; what are the most common injuries and effected systems? Is there a correlation between patient demographics and severity of injury? Are there any tips for review areas from difficult cases? This will be displayed answering the 3 questions above with one column for each question with patient images to illustrate.

<1>Jill E Ball, Chad G Ball, Robert H Mulloy, Indraneel Datta and Andrew W Kirkpatrick; *Ten years of major equestrian injury: are we addressing functional outcomes? Journal of Trauma Management & Outcomes 20093:2*

HEAD, NECK AND NEURORADIOLOGY

p083 **Percutaneous CT-guided biopsy of the spine**

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Background: Our aim was to determine the success rate of percutaneous spinal biopsies for infection and neoplasia in comparison to national data and regional guidelines.

Methods: The 1st audit was between January 2010-February 2012, the 2nd audit November 2014-November 2016. Local radiology information systems were used to obtain data on all patients undergoing a percutaneous biopsy noting the site, indication, histology and microbiology.

Results: 1st Audit: 82 biopsies with 37 for infection and 45 for neoplasia. In 17% of cases bacteria were isolated with tuberculosis being most common. 56% had a definite neoplasia and 44% had no neoplasia/indeterminate biopsy. 2nd Audit: 91 biopsies with 19 for infection, 68 for neoplasia and 4 for infection or neoplasia. In 36% of cases bacteria were grown, with staphylococcus aureus being most common. 60% had a definite neoplasia, 33% had no neoplasia, 7% had indeterminate biopsy. In each audit, 3 cases with initial negative biopsy showed a neoplasia on subsequent sampling.

Conclusion: Following the low yield results for infection from previous auditing, a change was made to the protocol. A higher proportion were performed for atypical imaging features or failure to respond to antibiotics, which may account for the reduced number and yield when comparing to national standards. Increased biopsies of neoplastic lesions may reflect trends for more aggressive management of metastatic disease and need for histology. Although we have a high rate of diagnostic sampling, it is lower than the national findings and may suggest a lower regional threshold for sampling indeterminate lesions.

p084 **CBCT for temporal bones: The new gold standard**

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Cone Beam CT (CBCT) is fast proving its capability for temporal bone exploration, therefore in order to understand the diagnostic potential of CBCT for temporal bones, a retrospective radiology report investigation was conducted and case studies chosen to display a number of ear pathologies/variants.

Referring criteria: anatomical variants, dysplasia, chronic otitis, deformity, trauma, pre and post-cochlear implantation.

Imaging: JMorita Accuitomo F170 and NewTom 5G

Radiation dose: Typically between 150 microSv & 250 microSv (approx. 20-40% of conventional CT)

Findings: The case review clearly indicates semi-circular dehiscence. CBCT's low sensitivity to metallic artefacts makes it the technique of choice in the follow up of cochlear implants if location of electrodes in question and similarly for post-tymanopasty surgery. The Newtom 5G 15x5cm FOV is proving to be diagnostically advanced when imaging temporal bones with high depiction and differentiation of the inner and middle ear complexes as well as identifying bilateral otitis media. The 80-micron high resolution CBCT slices allow visualisation of very early anatomical changes such as minor soft tissue lining of the epitympanic membrane, minor thickening and faint calcification. Alongside CBCT's high specificity, the significantly lower radiation doses delivered using CBCT in relation to CT complement guidance for best clinical practice.

1. Liktor, B. (2014) Diagnostic value of cone-beam CT in histologically confirmed otosclerosis. *Eur Arch Otorhinolaryngol.* 271(8):2131-8. 2. Pein, M.K. (2014) Visualization of subtle temporal bone structures. Comparison of cone beam CT and MDCT. *Radiologe.* 54(3):271-8. 3. Sauret-Jackson, V. (2011) Cone-beam computed tomography imaging of the middle ear: Refining scanning and visualisation protocols. UKRC

p085 **Are ultrasound detected thyroid nodules graded and investigated in accordance to the British Thyroid Association guidelines?**

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Introduction: The prevalence of thyroid nodules is common, varying between 30-70% in the general population with an increasing incidence of thyroid malignancy. 1. However mortality remains stable with clinicians becoming increasingly reliant on ultrasound grading within their MDT approach. 2. There is much dependence on the morphological features of ultrasound imaging with poor correlation between nodular size and malignancy risk .3-6.

The aim of this quality improvement project was to evaluate whether ultrasound detected thyroid nodules were assigned a grade in accordance with the British Thyroid Association (BTA) 2014 Ultrasound (U) classification(U1-U5) and whether US guided fine needle aspirations (FNAC) were performed for nodules assigned a grade U3-U5.

Methods: We retrospectively identified 87 patients between January-April 2016. Radiology reports, imaging and laboratory results were analysed for ultrasound grading (U1-5) of thyroid nodules, and cytology specimen outcomes.

Results: Out of 87 patients, 30 patients had thyroid nodules detected with 50% assigned a grade varying from U1-U3. For nodules which had FNAC performed, 67% were ungraded, 25% were U2 and 8% were U3. There was a 50% inadequacy rate for cytology specimens.

Discussion: Following local presentation of the results, it was stressed there was a need for improvement with ultrasound grading standards. In particular, operators felt the BTA guidance was ambiguous with regard to multinodular goitres which accounted for 70% of the thyroid nodules in this population. There was also difficulty with accessing and understanding the ultrasound chart. After education and further distribution of the guidelines, we aim to re-evaluate practice.

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p088 Pathology of the external auditory canal - what every radiologist should knowFiona Lyall; [Jonathan Stokes](#); Benjamin Rock*Royal Cornwall Hospital*

Background: The external auditory canal is regularly imaged as part of a CT of the head. Common pathologies of this area are often benign, such as uncomplicated otitis externa, and do not require imaging. However, less common pathologies such as necrotising otitis externa and squamous cell carcinoma of the external auditory canal may cause significant morbidity and even mortality. The general radiologist should include the EAC as an important review area on CT head and have an appreciation of the common and serious pathologies.

Purpose: We present a pictorial review of pathologies of the external auditory canal, emphasising the key findings that should be recognised by the general radiologist. As the EAC is frequently covered by a CT head, this is pertinent to any general or on-call radiologist.

Summary: The poster will describe the normal anatomy of the external auditory canal. Congenital abnormalities, infections, neoplasms and other acquired conditions, such as exostoses and cholesteatoma will be presented, together with salient imaging findings and key distinguishing features, as well as important negatives.

p089 Central nervous system tuberculosis: A pictorial review of radiological findingsAhmed Ali; [Muhammad Khan](#); Raheel Nazir; Shahid Hussain*Birmingham Heartlands Hospital*

Causing an estimated 1.4 million deaths in 2015, Tuberculosis (TB) is the deadliest infectious disease in the world¹. With the potential to affect virtually any organ, TB can present in a variety of radiological fashions. Central nervous system (CNS) involvement is perhaps its most devastating form, carrying with it formidable complications². These include cranial nerve neuropathies, TB meningitis, cerebral infarction and abscess formation^{3,4}. Radiological signs may mimic other pathologies such as lymphoma and metastasis, thereby adding to the diagnostic confusion. Early recognition of imaging signs is thus a critical step in improving patient care. Tuberculous meningitis is the most common manifestation of CNS TB⁵. Clinical findings include headache and fever as well as signs of meningeal irritation such as photophobia and neck stiffness. Post contrast magnetic resonance (MR) being the imaging modality of choice, leptomeningeal enhancement and exudates in the Fossa interpeduncularis may be seen^{3,6,7}. A common complication is communicating hydrocephalus which develops secondary to cerebrospinal fluid (CSF) disruption in the basal cisterns^{8,9}. The most common brain parenchymal lesion in CNS TB is a tuberculoma⁹ which is usually seen as a ring-like lesion with minimal surrounding oedema. This may present as solitary or multiple lesions^{10,11}. Depending on the histological composition, a target sign may be visualised on contrast enhanced computed tomography (CT). This is composed of an outer ring enhancement with a central focus of calcification and is diagnostic¹². The aim of this poster is to pictorially review the common radiological findings of CNS TB.

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p090 Imaging the facial nerve[Jonathan Stokes](#)¹; Fiona Lyall¹; Benjamin Rock²¹*Peninsula Radiology Academy*; ²*Royal Cornwall Hospitals Trust*

Background The facial nerve is comprised of motor, sensory and parasympathetic neurones. Its predominant function is to supply motor innervation to the muscles of facial expression and other muscles derived from the second branchial arch. The facial nerve nuclei are located in the pontine tegmentum. From here their fibres exit the brainstem, traverse the cerebellopontine cistern, and pass into the internal auditory meatus, entering the petrous temporal bone via the fallopian canal. Within the temporal bone, the parasympathetic, motor and sensory fibres divide at the geniculate ganglion. The motor fibres for

the muscles of facial expression emerge via the stylomastoid foramen, passing through the parotid gland, dividing into 5 terminal branches.

The variety of tissues by which the facial nerve is surrounded and through which it passes, means not only that it can be affected by a host of pathologies, but also that no single imaging modality is best suited to visualise the facial nerve in its entirety.

Content We review the course of the facial nerve and pathologies which commonly affect it. We aim to refresh the reader's knowledge of the circumstances in which each modality is best implemented for accurate diagnosis and treatment.

Summary: The poster will contain a pictorial review of the anatomy of the facial nerve, with select cases to illustrate the pathologies which commonly affect its different subsites, and the modalities with which these are best seen.

p092 **CT-head scanning for traumatic head injury: Auditing for NICE-guideline compliance and investigating its diagnostic value for intracranial haemorrhage**

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Background: Head injury is the commonest cause of death and disability in individuals between 1-40 years in the UK. Prognosis could be improved with early detection of intracranial haemorrhage, which would promptly facilitate appropriate management. NICE guidelines (QS74) recommend that adult head injuries should have a CT-head performed within 1 or 8-hours depending on identified risk factors, and that a provisional report should be made available within 1-hour of the scan being performed. These criteria formed the standard for our report, namely that 100% of patients who fulfil these criteria should have a scan and report within above time frames.

Methods: We performed a retrospective study of all CT-head scans (n=185) following trauma at a district general hospital in a one-month period. We interrogated 'breach' scans as to the cause of delay and also examined the diagnostic yield of CT-head scans for intracranial haemorrhages.

Results: 5% of CT-head requests did not meet time-limit standards. Following discussion in radiology and emergency medicine multi-disciplinary meetings, inadequate request information and logistical difficulties were cited as putative causes. 7% of CT-head scans were found to be positive for intracranial haemorrhage.

Conclusion: Our results demonstrate that the majority of scans were performed and reported within expected time frames, but there remains capacity for improvement. Suggested changes include: improved requesting information and elimination of redundant steps between scan-request and patient transfer to scanner. Further research is warranted to improve the diagnostic yield of CT-head scans for intracranial haemorrhage, however our results are comparable to other centres.

1. National Institute for Health and Clinical Excellence. CG176. Head Injury :assessment and early management. London. January 2014. <https://www.nice.org.uk/guidance/cg176> 2. iRefer. The Royal College of Radiologists. Making the best use of clinical radiology services 7th Edition. 2012. www.rcr.ac.uk/content.aspx?pageid=995

p093 **3T MR Neurography of the brachial plexus: Combining 3D and multi-segmented diffusion weighted imaging**

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Background: Brachial plexus injuries are most effectively evaluated by MRI. Fat suppressed T2- weighted, inversion recovery sequences usually demonstrate brachial plexus disease whilst the T1- weighted images are used to delineate the anatomy. However, conventional techniques are limited by their inability to produce 3-dimensional (3D) images and similarity of signal of the brachial plexus to adjacent background tissues and veins.

Purpose: To illustrate our experience with transition to MR Neurography (MRN), which combines 3D and multi-segmented diffusion-weighted imaging (DWI), and benefits of MRN through case examples.

Content: Multi-segmented DWI when used concurrently with maximum intensity projection (MIP) and post-processing techniques increases the contrast of brachial plexus compared to the surrounding tissues markedly.

Additionally, 3D isometric sequences scanned in the main plane allow visualisation of the long axis and short axis of the brachial plexus. Due to its curvature, the brachial plexus is often not well demonstrated and difficult to trace in a single plane on conventional sequences. Reconstruction can be done to optimally view the plexus in 3D, and allowing the nerves to be traced easily.

Retrospective review of all brachial plexus MR imaging in which MRN was performed from January 2015.

Discussion Although MRN has both advantages and disadvantages, the advantages outweigh the disadvantages as shown through the case examples. Nevertheless, new protocols should be introduced gradually to streamline processes and learning

curves for both technologists and radiologists while the process is still being set up. The cases collected thus far validates the advantages of MRN vis-à-vis conventional protocol.

p094 **Good gas, bad gas: A pictorial overview of intracranial gas, its causes, distribution and prognosis**

Thomas Davies; Harriet Bowles; Mufudzi Maviki; Jo Fowler

Plymouth Hospitals NHS Trust

Background Pneumocephalus is defined as the presence of air or gas in the cranial cavity. There are a number of causes including trauma, surgical intervention, intracranial infection and invasive neoplasms. In the context of trauma pneumocephalus occurs in 0.5-1% of cases, and the average reporter of emergency CT will see up to 2-3 cases per year.¹ Whilst pneumocephalus overall is rare, it may have significant implications for clinical management of patients. Furthermore, it is important to recognise incidental, benign causes of intracranial air as these patients, if correctly identified, will not require unnecessary clinical follow up or further imaging studies.

Purpose This poster outlines the common causes of pneumocephalus and describes the underlying pathology. Cases displaying different anatomical distributions of gas will be individually discussed and the use of this as a prognostic indicator will be explored. This poster will also highlight the importance of windowing in the detection of pneumocephalus during routine reporting. The poster is aimed at those who routinely report CT imaging of the head, whether as a trainee, general radiologist or those with a neuroradiology specialty interest. Cases explored include: Trauma, infection, iatrogenic and benign venous gas.

Conclusion This poster explores the different appearances and causes of pneumocephalus, and the techniques for evaluation. Several cases will be used to demonstrate the different underlying pathologies and the relationship between distribution of air and prognosis.

1. Leong, K.M. (2008) *Pneumocephalus: an uncommon finding in trauma. Med. J. Malaysia.* 63(3), 256-258.

p095 **Is it isn't? The role of CT perfusion (PCT) in monitoring possible pseudoprogression of glioblastoma multiformes (GBM) - a pilot study**

Thomas Kelly; Kumar Das; Mark Radon

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Content: Recent advances in treatment regions have led to the emergence of the phenomena of pseudo progression (PSP). This can have important clinical imperative on the treatment management of this group of patients. This problem is particularly with present follow-up imaging. Previous studies have suggested that PCT may have a role in differentiating between PSP and recurrence or true progression.

Aims: To examine the suitability of perfusion CT in monitoring changes in cerebral blood volume following treatment for Glioblastoma.

Methods: 10 patients with previously treated GBM who showed possible recurrent or progressive enhancing lesions on their follow-up MR imaging underwent both MR and CT perfusion imaging examinations. Perfusion maps of cerebral blood volume, cerebral blood flow and mean transit time were generated using vendor workstation software.

Results: After processing the perfusion data obtain for both the MR and CT scans patients. Parametric maps of CBV, CBF and MTT. The initial results were suggestive that the study's null hypothesis that CT perfusion is no better than MR perfusion could be rejected. The full study data is at present undergoing further statistical analysis.

Conclusion: The results of the study have suggested that PCT may be equal to, if not possibly superior to MR perfusion imaging as to whether new contrast enhance seen on post treatment follow-up imaging is actually PSP and not true progression.

p096 **Gradient echo T2 for MRI brain should be a routine sequence to avoid misdiagnosis - a district hospital experience**

Garryck Tan; Rakhee Vaja; Juan Pena

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Gradient echo T2 (GRE-T2) is an advanced sequence not used routinely in all hospitals. New guidelines recommend gradient echo T2 as part of stroke specific sequences, however we believe it should be used for all neuroradiology cases and we present a pictorial review of how this sequence has helped reach the correct diagnosis, and will include cases of misdiagnosis before the sequence was used.

The following topics with examples will be discussed:

- 1a) Diagnose focal subarachnoid bleed presenting with focal neurology and no headache.

- 1b) Helping to differentiate causes of high signal within the subarachnoid spaces- causes include meningitis, carcinomatosis, subarachnoid bleed and local vascular ischaemia.
 - 2) As part of the workup of intracranial parenchymal bleed- GRE-T2 can identify sites of previous bleeds not seen on CT or conventional MRI sequences, identify cavernomas and microbleeds. This will help in diagnosing the aetiology of parenchymal bleed.
 - 3) Increase the sensitivity of venous thrombosis by picking up cortical vein thrombosis not readily seen on MRV or standard sequences.
 - 4) Diagnosing capillary telangiectasia which is a "do not touch" lesion, which can be initially misdiagnosed as a tumour.
 - 5) Stratify bleeding risk in stroke patients and evidence of associated bleeding.
 - 6) In cerebral oedema of unknown cause it can point to inflammatory cerebral amyloid angiopathy which is an uncommon cause of cerebral oedema.
 - 7) Common artefacts that the reporter will need to be aware of. There will also be a brief account of the physics of gradient echo T2 .
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p097 **Role of Computed Tomography Angiography (CTA) in acute stroke cases: Relevance to patient management**

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Background: Ischemic stroke is characterized by the sudden block of blood circulation to an area of the brain, resulting in a corresponding loss of neurological function. Limited time is available to obtain information for careful treatment, because of the relatively rapid onset of irreversible neuronal damage. Computed Tomography Angiography (CTA) is a fast and reliable method to detect the potential cause of the stroke event. This study aims to show how CTA can help decide subsequent patient's management.

Methodology: A retrospective study was carried out from September 1, 2015 to September 30, 2016 comprising of 132 patients with a high suspicion for stroke. Data collection was divided into two parts: namely, imaging whereby CTA reports were reviewed and characterized based on the site and extent of vessel occlusion; and patient management, basically the type of treatment carried out e.g. thrombolysis, thrombectomy no-treatment, etc.

Results: A total of 132 ischemic stroke patients were included in the study. Large vessel occlusions were detected in 37% of studies, 6% showed stroke mimics (including arteriovenous fistula, meningioma, and Moya-Moya disease) and the remaining 57% showed no significant findings. Large vessel occlusions occurred in the following sites which included the internal carotid artery, M1, M2, basilar and vertebral arteries. Of the patients with LVO, 17% underwent both thrombectomy and thrombolytic therapy, while 69% of patients received only thrombolytic therapy, and the remaining 14% were untreated.

Conclusion: CTA is able to detect large vessel occlusions in acute ischemic stroke and subsequently help to decide patient management.

p098 **Can the extent of the ischemic stroke penumbra be predicted by NIHSS and ASPECT scores?**

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Background: The identification of potentially salvageable brain "PNEUMBRA " using imaging may help in this selection process of patients suitable for thrombolytic therapy. A CT scan is the first line of imaging in acute stroke due to its sensitivity in excluding or confirming intracranial haemorrhage, however the detection of cerebral infarction on CT can be depicted in only a portion of patients and the penumbra is not visible. The aim is to find a simple readily available and non-expensive method that may help identify patients with penumbra. NIHSS is clinical tool used to quantify the neurological impairment. It is composed of 11 items, scored between a 0 and 4. ASPECT score is topographic scoring system used quantify the ischemic changes on CT scan. The brain is divided into 10 areas, each scored 1 for normal tissue, 0 for ischemic change.

Method: Retrospective study of 83 patients diagnosed with acute ischemic stroke. NIHSS and ASPECT scores were obtained after admission. Scores were compared to find an association or 'match' for each item of NIHSS and each ASPECT area of the brain.

Results: There are Strong correlation between some items of NIHSS and some areas of ASPECT Visual field "NIHSS" match M3,M5 with match P value =0.02, 0.01 Best motor RT/LT side weakness"NIHSS" match caudate, lentiform nucleus with P value =0.01,0.03 Best language"NIHSS"match M1,insula with match P value=0.05, 0.005

Conclusion: Early results show that a match between NIHSS and ASPECT scores may be used as an indicator for clinical penumbra.

p099 **Incidental findings on CT intracranial and cervical angiography in the context of acute stroke**

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Plymouth Hospitals NHS Trust

Background For patients presenting with acute stroke, most centres perform a non-contrast CT brain in order to confirm the diagnosis of stroke and exclude contraindications to intravenous thrombolysis such as haemorrhage and tumours. In Hyper-acute Stroke Units (HASU), a CT angiogram of the head and neck vessels is added to identify intracranial vascular occlusion, quantify carotid stenosis and provide a roadmap for mechanical thrombectomy. The study is performed from the vertex to the aortic arch and covers a wide range of extracranial and extracerebral anatomy including the cervical spine, lung apices and neck soft tissues.

Purpose This poster presents a brief outline of a standardised reporting strategy, including windowing techniques, assessment of the circulation of the head and neck and stating key review areas where pathologies can be missed. This will aid reports to be completed in a clear, logical structure, ensuring that all aspects of the study are comprehensively evaluated. The poster will then detail incidental extra-vascular and extra-cerebral findings which can be present on CT Angiogram of the head and neck vessels and their clinical significance. These include pulmonary emboli, vocal cord palsy, piriform fossa tumour and Paget's disease.

Summary This poster outlines a structured technique for reporting CT Angiogram of the head and neck circulation in stroke patients. Key examples of incidental extra-vascular and extra-cerebral findings are also detailed to aid the reporter detect concurrent pathologies in "review areas" which may be missed.

p100 **Southend imaging study**

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Purpose: Resting state fMRI (RS-fMRI) is a potential biomarker to aid in the diagnosis of different types of dementia; however scans would usually be performed in a dedicated research 3T scanner. The aim of this study is to evaluate if RS-fMRI can be used in routine practice on a 1.5T scanner to differentiate various types of dementia in selected cases.

Method: This is part of a prospective study on up to 300 patients. Patients with known Alzheimer's disease, Parkinson's disease dementia or vascular dementia undergo RS-fMRI in addition to conventional MRI and, separately, a battery of neuropsychological assessments. Functional connectivity in the Default Mode Network is evaluated and then correlated to the different types of dementia.

Results: We were able to show a correlation between individual measures of functional connectivity and global and episodic cognitive performance as measured by the neuropsychological tests.

Conclusion: Despite a current number of limited participants we were able to show that use of RS-fMRI on a 1.5T scanner is feasible in a routine clinical setting, outside of a dedicated research scanner. Differences in functional connectivity patterns can be used to differentiate between different neurodegenerative diseases in a routine clinical setting. Our findings could encourage other clinical sites to incorporate RS-fMRI for routine clinical diagnosis of various dementia types and may allow enhanced detection of dementia at various stages.

p101 **The diagnostic value of FDG and amyloid PET in Alzheimer's disease**

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Background: By 2050 it is projected that 115 million people worldwide will have Alzheimer's disease (AD) (WHO, 2012). The shift towards viewing AD as a clinico-biological continuum and our increasing knowledge regarding its aetiology has led to advances in the use of neuroimaging in the diagnostic workup of AD. This review aimed to investigate the current diagnostic use of amyloid PET and FDG PET in AD to detect amyloid plaque and neurodegeneration, respectively. Searches were performed using pubmed, EMBASE and the Cochrane library. The search and subsequent refinement process yielded 33 papers on FDG-PET, 29 papers on amyloid PET and 13 papers examining both techniques.

Purpose:

- Discuss the diagnostic accuracy of amyloid and FDG-PET compared to the gold standard (histopathology)
- Role of amyloid and FDG-PET in identifying which patients with mild cognitive impairment were likely to convert to AD
- Application of both modalities in distinguishing AD from other dementias

- The clinical application of FDG and amyloid-PET, with regards to safety, radiological reporting and economics

Conclusion: FDG and amyloid PET both identify AD with high specificity and sensitivity. To date their use has been mainly restricted to research and AD drug trials. They are of definite benefit in the hands of a specialist dementia expert who wishes to confirm/outrule AD in a case of diagnostic uncertainty, however our limited knowledge and therapeutic options to treat AD restricts their use in everyday clinical settings.

BREAST

p102 UK National Breast Screening Programme: Is there a demand for out of hours appointments?

Rupali Gleeson; [Paula Evans](#)

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The UK National Breast Screening Programme has attempted to attract as many women as possible since its inception in the late 1980s in the UK following the Forrest report. Age extension was brought in nationwide during the past few years. However in recent times, the uptake has been generally lower, particularly in the initial round of screening. In addition, there has been a strong government drive to offering services 24 hours a day 7 days a week where possible. Traditionally breast screening was offered during office hours only, Monday to Friday. An audit was originally carried out in 2009 to determine whether out of hours appointments would attract women, and how this varied across age demographics. This audit was extended and updated earlier this year. This poster will demonstrate whether there is indeed a demand for out of hours appointments, how this varies across age and location demographics, and how this could work in reality.

p103 The outcome of a departmental audit into digital mammography blurring.

[Beverley Moran](#)

Dudley Group NHS Foundation Trust

Background The screening service noted an increase in the number of technical issues associated with blurring. A review of related articles discussed the effects of compression paddle movement as a cause(1 and 2). With limited resources and academic support, the department attempted a more basic practical attempt to address the issue of blurring in our mammographic images.

Method An audit was undertaken where all patients were asked to hold their breath during their mammographic examination over a period of 6 months. Any exceptions were documented with a given reason. During film reporting, all images with blurring were documented.

Results 192 examinations contained a significant amount of blurring for audit purposes. 25% of these were recalled for Technical Recall examinations. A comparative analysis of the compression factors was undertaken for blurred images versus non blurred images per patient. The results demonstrated a 57% drop in compression factors for the blurred images compared to the non blurred side. In over 47% of the images, this was a difference of over 10 Newtons.

Conclusion The results demonstrated that this was significant in 3 members of Mammography staff. The audit was discussed at Team meetings and discussed as a learning exercise with the 3 individual staff to improve overall image quality, standardise compression factors, reduce Technical Recalls and improve the service user experience.

1.Hogg, P Kei Ma, W Kelly, J Millington, S (2015) A method to investigate image blurring due to mammography machine compression paddle movement *Radiography* 21 36-41. 2. Brittle, D Howard,D Kelly, J Kei Ma, P (2014) Extra patient movement during mammographic imaging: an experimental study. *British Journal of Radiology*

p104 What is the impact of delayed double reading of symptomatic mammograms?

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Aim To examine the consequences of double reporting symptomatic mammograms at one large District General Hospital in the North of England.

Method In a retrospective observational study, data from patients attending the one-stop diagnostic breast clinic from January - December 2012 were reviewed. The number of discrepant reads, number of additional cancers detected and volume of work generated by double reading were determined and an estimate of the economic cost of second reading made. The number of cancers not detected at initial presentation was determined during a 3 year follow-up period (December 2012 -- 2015). Results 1790 patient cases were reviewed. 231 malignancies (prevalence 1.3%) were reported by the first reading radiologist. Out of