P-071 Evaluation of wrist biomechanics on radiographic imaging

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Aims/objectives: To evaluate variation in wrist anatomy on plain radiography and the resultant effect on wrist biomechanics.

Content: Comprehensive guide to normal wrist anatomy, variations and their causes, the radiographic appearances, and implications of these variations.

Relevance/impact: Good radiographic technique is vital to enable accurate assessment of wrist alignment. Understanding of the implications of radiographic technique on anatomy helps radiographers achieve quality diagnostic imaging. Use of relevant supplementary projections can assist recognition of significant abnormalities. Early diagnosis of conditions affecting carpal stability allows early intervention so can minimise the debilitating effects on the patient.

Discussion: Normal anatomical variants, traumatic injuries and arthropathy alter the biomechanics of the wrist joint. Plain film radiography is the primary method of imaging the wrist. Recognition of these appearances on imaging and awareness of their significance can facilitate early diagnosis and appropriate management resulting in limitation of disability and improved patient outcome.

P-072 Ankle pain! Posterior malleolar fractures: A review of the imaging findings and orthopaedic classification of injuries

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Aims/objectives: We present a pictorial synopsis of posterior malleolar fractures found at the back of the tibia at the level of the ankle joint. We aim to emphasis the importance of pre and postoperative imaging capabilities and the surgical fixation options. We facilitate the observer in better recognizing posterior malleolar fractures and their classification pattern.

Content: We will highlight cases of simple and complex posterior malleolar fractures using plain radiographs, computed tomography (CT) and three-dimensional (3D) volume rendered images. We will also consider the indications for surgical management and discuss the classification of injuries.

Relevance/impact: Posterior malleolus fractures can be divided into simple or complex fractures depending upon the fracture morphology and the impact upon the stability of the ankle joint. Factors that favour surgical fixation over conservative management include the degree of comminution, articular involvement, fragment size and joint stability.

Classification of injuries: Type I fracture has high degree of syndesmotic instability
Type II fracture is an articular push off fracture
Type III fracture has low degree of syndesmotic instability with common posteromedial injury +/- anterior avulsion (Y fracture)

Outcomes: We focus on the importance of a joint radiological and orthopaedic approach in accurately reporting and managing posterior malleolar fractures.

Discussion: The advances seen in recent years in CT and 3D volume rendered images have improved our ability in demonstrating and delineating different posterior malleolar fracture patterns. We hope to inform the audience by presenting cases, which illustrate important imaging findings and the classification pattern.

P-073 The use of the Ottawa ankle rules in the emergency department

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According to the Ottawa ankle rules, radiographs should be requested in cases of trauma only when there is malleolar pain associated with one of three other criteria: bone tenderness over the posterior distal tibia or medial malleolus tip, the posterior distal fibula or lateral malleolus tip or an inability to weight bear immediately and on presentation for 4 steps.

Aim: An audit to determine the frequency with which radiograph requests in the Emergency Department comply with the Ottawa ankle rules.

Objectives: To audit the contents of radiology requests against the Ottawa ankle rules stipulated above.
To provide educational material for staff within the emergency department to improve the quality of requests.
To re-audit following our intervention.

Method: We conducted an audit of 200 consecutive cases attending the Emergency Department with traumatic ankle injury in October and November 2015. We identified all requests that did not satisfy the criterion for the Ottawa ankle rules.

Results: 32% of requests did not contain adequate information in relation to the Ottawa ankle rules. We are currently in the process of implementing teaching and posters within the emergency department. Results of re-audit are awaited and will be presented.

Discussion: Our presentation will also discuss the evidence basis for use of the Ottawa ankle rules for traumatic ankle injury.

P-074 Total knee replacement wear debris presenting as a complex soft tissue mass: A multimodality diagnostic approach

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Leeds Teaching Hospitals NHS Trust

Aims/objectives: To describe the phenomenon of wear debris disease related to prosthetic joint replacement and to illustrate how a clear history and multiple imaging techniques may be required to reach the diagnosis of this condition in a patient with a history of joint replacement.

Content: Pictorial presentation of ultrasound, X-ray and MRI images of a patient referred by the local ultrasound department to the regional sarcoma MDT with a complex soft tissue lesion in the popliteal fossa. Discussion of the prevalence of this condition and the presenting findings.

Impact: To highlight the importance of wear debris disease, the common features at presentation and imaging findings.

Discussion: The cancer network soft tissue sarcoma guidance is that suspicious soft tissue masses on local imaging should be reviewed by the regional sarcoma multidisciplinary team. In patients who have undergone a total joint replacement, any mass occurring in or adjacent to the joint requires thorough investigation and a wear debris-induced cyst should be considered in the differential.

P-075 The sternum and sternoclavicular joints - a pictorial review

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A variety of imaging modalities can be used to assess sternal and sternoclavicular pathology. The aetiology can be traumatic, infectious, rheumatological, inflammatory or neoplastic (both primary and secondary), with an equally wide variety of appearances.

As the traditional sternal radiograph and sternoclavicular views become less frequently used, we present a pictorial review of pathology not only on plain radiographs but also on CT, MRI, nuclear medicine and ultrasound.

Despite being a relatively common site of pathology, sternal pathology is often overlooked, sometimes because the imaging plane or reconstruction kernel is inappropriate to adequately view the region. Sternal pathology can suggest further systemic pathology not just in neoplastic disease, but in trauma, where it is associated with a substantial force of impact, increasing the likelihood of underlying injury.

Case examples include imaging of congenital anomalies before and after treatment (for example pectus excavatum following the Nuss Procedure as well as following non surgical silicone implant), trauma, osteoarthritis, infection, tumour and SAPHO syndrome.

P-076 The pathogenesis of osteomyelitis correlated with radiological findings: A pictorial review

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Introduction: Radiologists have an important role in establishing the diagnosis of osteomyelitis and characterising the extent of infection spread. A multimodality approach is often utilised as part of the diagnostic work-up. MRI in particular has emerged as the imaging modality of choice because of its sensitivity for detecting early osteomyelitis and excellent soft tissue resolution.

An understanding of the pathogenesis of osteomyelitis is necessary for recognition and interpretation of its imaging features. In this pictorial review, the pathological features of acute and chronic osteomyelitis are illustrated and correlated with radiological images from four clinical cases.

Objectives: Describe the key pathological features of acute and chronic osteomyelitis
Recognise the key imaging findings in osteomyelitis such as bone marrow oedema, subperiosteal abscesses and sequestra
Understand the underlying mechanisms through which these features arise

Content: An illustration of the pathogenesis of acute and chronic osteomyelitis

Definitions and explanations of key terms used to describe the pathological features

Plain film, CT and MRI images from four cases of long bone osteomyelitis

P-077 Pictorial review of peripheral nerve sheath tumours

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We are presenting 6 cases of peripheral nerve sheath tumours (PNST) and their radiological appearances as depicted on MRI.

PNST can affect any nerve and may be associated with neurofibromatosis. The main subtypes are: Schwannoma, Neurofibroma, and malignant PNST, encapsulating fibrosarcoma and malignant schwannoma. Schwanomas are encapsulated and rarely undergo malignant change. Multiplicity suggests neurofibromatosis. Neurofibromas can be localised (~90%), diffuse or plexiform. The latter is pathognomonic for NF with half undergoing malignant degeneration.The range of PNST presented in this review includes 5 cases of benign PNST of varying appearances and one case of neurofibroma with malignant change (fibrosarcoma).

PNST's have an incidence of ~1 per 100,000/year. They can be a great source of anxiety, morbidity and potential mortality. Imaging acts as an adjunct to diagnosis; most cases will require tissue biopsy.

The modality of choice for PNST's is MRI, in which they are seen as well defined lesions of low T1/high T2 signal with avid gadolinium enhancement. A target sign suggests benignivity and may be produced from T2 MRI. Although malignant and benign lesions cannot be reliably distinguished, certain findings should raise the suspicion of a malignant tumor: size >5 cm, ill-defined margins with adjacent oedema, heterogeneity with central necrosis.

In general, radiologic findings are nonspecific and tissue diagnosis is paramount. In conclusion, knowledge and recognition of the characteristic signs for peripheral nerve sheath tumors can aid in the proper diagnosis and treatment of these lesions.

P-078 Patient reported outcomes of suprascapular nerve block

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Purpose: To assess patient reported scores of shoulder pain following suprascapular nerve blocks at a tertiary referral centre.

Methods: Prospective analysis of patient reported pain score questionnaire results for chronic shoulder pain (January 2013 -May 2015.

Standard: 75% reduction in pain score after supra-scapular nerve block was set at 2 weeks follow-up.

Results: 118 suprascapular nerve block injections performed. 102(86%) completed and returned pain diaries with 8% comprising bilateral injections. Indications were 82% rotator cuff tear, 68% degenerative disease, 5% rheumatoid arthritis and 3% humeral neck fracture. 79% of patients were female with mean age 76 (48-95) years. Average pre-injection scores 8.5 on a 10-point visual analogue scale.

Intervention: A mixture of steroid (40mg depomedrone or triamcinolone acetate) and 0.5% Marcaine injected under ultrasound guidance into the suprascapular fossa using 9MHz linear probes by experienced consultants or MSK fellows.

Post-intervention results: Average post-injection scores at two days and two weeks were 5.7 and 5.8 on a 10-point scale, respectively. An average reduction of 68% in patient reported pain outcomes. Most reported daily activities were carried out the same and analgesic use was the same or reduced, with an overall report that the injection was somewhat helpful. No complications were recorded.

Conclusion: Suprascapular nerve block plays a promising role in patients with severe, chronic shoulder pain not amenable or responsive to other forms of therapy. Ongoing active surveillance must be made and patient selection should be targeted to ensure an improvement in pain response.

P-079 Multimodality imaging review of the post-amputation pain

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Limb amputation is one of the oldest known surgical procedures performed for a variety of indications. Little surgical technical improvements have been made since the first procedure but peri-and post-operative refinements have occurred over time.

Postamputation pain (PAP) of the stump is a common complication but is an extremely challenging condition to treat. Imaging allows early diagnosis of the underlying cause such that timely intervention is possible to minimize physical disability with its possible psychological and socioeconomic implications. A multidisciplinary approach should be taken involving rehabilitation medicine team, surgeon, prosthetist, occupational therapist and social workers.

Conventional radiographs demonstrate osseous origin of PAP while high resolution ultrasound is preferred to assess soft tissue abnormalities. These are often the first line investigations. Magnetic Resonance (MRI) imaging remains as a problem solving tool when clinical and imaging findings are equivocal.

In this presentation, we aim to raise clear understanding of common pathologies expected in the assessment of PAP. A selection of multi-modality images from our specialist mobility and rehabilitation unit will be presented such that radiologists are aware of and recognise spectrum of pathological conditions involving the amputation stump. These include but not limited to aggresive bone spurs, heterotopic ossification, soft tissue inflammation (stump bursitis), collection, neuromas, osteomyelitis etc. The role of radiologists in reaching the diagnosis early is vital so that appropriate treatment can be instituted to limit long term disability.

P-080 Ultrasound-guided platelet-rich plasma injections for the treatment of musculoskeletal soft tissue injuries

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Aims: Platelet-rich plasma (PRP) is a fragment of whole blood that contains a much higher concentration of platelets compared to whole blood itself. Its predicted benefit is enhanced healing of soft tissues through the delivery of multiple growth factors and the formation of a fibirin or platelet clot. Our aim was to assess the use of ultrasound-guided platelet-rich plasma (PRP) injections for the treatment of musculoskeletal soft tissue injuries.

Methods: Retrospective review of 18 patients who received ultrasound-guided PRP injections for injuries including patella and achilles tendonitis. Diagnosis was confirmed using ultrasound or MRI. Patients were evaluated using the

Victorian Institute of Sport Assessment score, a pre-operative assessment score; patient's subjective impression of their pain severity expressed on a visual analogue scale and their functional state.

Results: Mean age was 38 with an average duration of symptoms of 22 months. All patients had previously failed conservative therapy including physiotherapy or steroid injections. At 1 month and 3 months, 72% and 61% of patients reported improvement in symptoms, respectively. There was sustained improvement throughout the follow up period for 5 patients, with 3 patients discharged from orthopaedics due to resolution of symptoms. There were no documented complications. Three patients reported worsening symptoms and 5 patients went on to receive other treatment methods, such as surgery.

Conclusion: At short term follow-up PRP can be shown to be a successful treatment for soft tissue injuries, without immediate complications. Further work is required to consolidate its role within this field.

P-081 Service evaluation of image guided glenohumeral hydro distension

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Aim: To evaluate process and initial outcome of consecutive image guided hydro distension procedures.

Methods: All patients undergoing image guided hydro distension between November 2014 and December 2015 were retrospectively identified using the integrated patient record (Epic, software manufacturer). Patient characteristics, pre procedural range of movement, technical procedural details and initial clinical outcome were retrospectively evaluated from the integrated patient record.

Results: 81 patients underwent 82 procedures/ 81 patients (29 male 52 female, median age 52, range 19-76) underwent image guided hydro distension (27 US/ 54 fluoroscopic) between Nov2014 - Nov 2015. Intra- articulate Steroid was administered on 81 occasions. Average volume of injection was 26 mls (range: 10-42) and intra-procedural capsular rupture occurred in 29. Immediate post procedure physiotherapy was performed within 24 hours in 62. Initial clinical outcomes (6/52) demonstrated improved range of 10 degrees or greater of external rotation in 53 with no complications. Early discharge was possible in 41. Post-procedural pain scores were incompletely and inconsistently obtained.

Conclusion: Image guided hydro distension improves range of movement in the majority of patients, with improvement of 10 degrees or greater in 65%, and permits early discharge in 50%, without complication in this series. Pre and post- procedural pain scores are inconsistently documented, which forms a useful point for service improvement.

P-082 Eponymous injuries in musculoskeletal radiology

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Learning objectives: To provide a pictorial review of commonly encountered eponymous extremity musculoskeletal injuries in radiology.

Description: Many injuries are known by their eponymous names, however little is known about the initial person who described them injuries. We present examples of a variety of upper and lower limb extremity injuries as well as a brief description about the

Conclusions: Imaging plays a fundamental role in the diagnosis and treatment follow up of orthopaedic injuries. We hope this pictorial review will be of learning value for both radiologists and orthopaedic surgeons.

P-083 Audit for SUFE imaging - is one view enough?

Neena Kalsy; Caren Landes
Alderhey Children NHS Foundation Trust

Aims/objectives: Determine our centres accordance to guidelines for including anterior posterior (AP) and frog lateral views for query SUFE. Determine if only a frog lateral view is enough to diagnose pathology?

Content: The frog lateral leg view is used to identify the presence of a posteromedial slip. Our centre protocol advises patients undergo AP and frog lateral leg radiographs to determine pathology. We want to evaluate our centres accordance to guidelines and determine if one view is enough to diagnose pathology.

Relevance/impact: Determine our hospital rate of accordance to guidelines.
Conducting one view can reduce radiation and radiographer time.

Outcome: Radiographs from January 2013 to October 2015 were reviewed, with 77.5% accordance to the guideline. 11 positive SUFE were identified with the diagnosis only seen on frog lateral view in 2 cases, despite there being an AP film. However, due to the low numbers of data we are unable to determine statistically if one view is enough for SUFE diagnosis.

Discussion: To improve accordance to guidelines:
Radiographer education – in house and presentation
Change guidelines to include radiographer autonomy i.e. when the physis is fused further views are not conducted.
Re audit: Further data collection to determine if one view is enough for diagnosis.

P-084 Assessment of the appropriateness of lumbar spine radiograph referrals for non-specific lower back pain

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Aims/objectives: To evaluate the appropriateness of lumbar spine radiography referrals for lower back pain, compared to NICE and the Royal College of Radiologists 'iRefer' guidelines, which states that lumbar spine x-ray provides no additional role in non-specific back pain, except when presentation suggests osteoporotic collapse.

Content: A retrospective study of trust wide lumbar spine radiographs was conducted. The request card was analysed and placed into either: Group 1- appropriate referral; Group 2- inappropriate referral (red flag signs or acute pain), or Group 3- insufficient clinical detail. The reports were analysed to determine if the resulting images were normal or abnormal, and if abnormal, were they in keeping with the request. The referral source was also noted.

Results: 200 patients were analysed, only 29% of referrals met current guidelines. Of the inappropriate referrals 62% had normal radiographs and only 6% of the abnormal scans demonstrated osteoporotic collapse or fracture. 82% of referrals were from General Practice.

Discussion: The results demonstrate a large proportion of referrals are inappropriate. Providing relevant clinical information, requesting in accordance with guidelines and strict vetting procedures together will reduce inappropriate referrals leading to less unnecessary radiation doses and more prompt management for patients in accordance with current guidelines; as well as a considerable reduction of cost and workload in the radiology department.

Outcome: A summary of guidelines and vetting protocols were distributed to all referral sources and radiology staff. Additional vetting training for radiographers will be provided and re-audited in 2016.

P-085 Lumbar spine X-rays: Is the posterior-anterior projection better than anterior-posterior?

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Purpose: There is significant evidence that changing the lumbar spine projection from Anteroposterior (AP) to Posteroanterior (PA) may reduce the patient dose, with little compromise in image quality (Heriard, et al., 1993, Mekiš, et al., 2010). However there is a paucity of research focusing on improving image quality and this research is film-screen based. (Heriard, et al., 1993). Therefore although techniques of reducing dose are still appropriate, there may be different requirements for digital systems which remain unexplored (Uffmann & Schaefer-Prokop, 2009).

Method: A phantom was used to produce set AP and PA radiographs of the lumbar spine. Magnification was controlled by changing the source to image distance, exposure was controlled using AEC and pre-designated kVp values, and entrance surface dose (ESD) was measured alongside exposure index values. The images were anonymised and scored for image quality by qualified radiographers using a scaler based on EC guidelines.

Results: Analysis of data has highlighted that PA projections may demonstrate the sacro-iliac joints better than AP. This was also the case for the reproduction of intervertebral joints, with the exception that AP projections at an SID of 180cms appear to be comparable. Results demonstrated no significant difference in ESD between AP and PA projections.

Conclusion: Further investigation is needed to determine the clinical significance of any perceived differences in quality of radiographs, however visual analysis looks promising alongside the already documented dose advantages of PA lumbar spine projections.

P-086 The trouble with trolleys: A modified shoulder view on trauma patients

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Patients attending the Accident and Emergency (A&E) Department with trauma to the shoulder are often placed on a trolley as it is easier for the clinical team to assess them. However, obtaining the correct radiographic positioning, with minimal discomfort for the patient, is particularly challenging for the radiographer.

The St Helens and Knowsley Teaching Hospitals (STHK) protocol for shoulder imaging in trauma is an AP view, followed by an axial view. When pain restricts sufficient movement to obtain an axial the alternative is a modified axial ('Wallace' or 'Velpeau') view. This is important to assess the relationship between the humeral head and glenoid (Rockwood and Green's, 2015).

This modified axial is obtained by leaning the patient backward 30 degrees over the cassette on the table (UW Medicine, 2015). The x-ray tube is placed above the shoulder and the beam projected vertically down through the shoulder onto the cassette centring over the head of the humerus (UW Medicine, 2015).

A&E trolleys have been specifically designed with a tray beneath the patient mattress, to assist radiographers in obtaining high quality diagnostic images. For a modified axial view, this tray can be used as a 'table' and the patient positioning can be achieved by lowering the backrest of the trolley to the required 30 degrees. This minimises patient discomfort and produces a high quality image.

References

· Rockwood and Greens, Fractures in Adults, 2015, 1346-1348.
· University of Washington, Orthopaedics and Sport Medicine, 2015.

P-087 Does dose matter? A retrospective comparison of clinical outcome of ultrasound guided subacromial bursa steroid injections in relation to the dose given

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Background: Ultrasound guided steroid injections into the subacromial bursa are currently used to provide relief for patient's symptoms from inflammation. There is limited evidence proving or refuting its efficacy. This is partly due to the wide-ranging techniques used as well as variations in doses of corticosteroids used.

Aim: To determine whether high dose injections provides more effective relief in comparison to a lower dose.

Methods: A retrospective study. Participants (n=13) where identified as having received either 80 mg triamcinolone (n=6) or 40 mg triamcinolone (n=7). Participants were contacted after treatment and assessed via questionnaires on symptom relief.

Results: Average age of group=72 years. None of the participants experienced worsening of their symptoms post-treatment. Only 46% found an improvement in the symptoms they experienced (pain and impact on daily activities); the remainder experienced no change. Analysis showed that 67% of patients receiving 80mg experience an improvement in symptoms, compared to only 29% of those who had received 40mg. However, this was not found to be statistically significant.

Conclusion: With the majority of participants finding no improvement in symptoms (regardless of dose), this study refutes the efficacy of steroid injections. Closer analysis of the data suggested that more of those who had received a higher dose experienced an improvement of symptoms. However, due to the small sample size and confounding

factors (a subjective and retrospective study), this is statistically insignificant. However, this highlights the need to further investigate the relationship between dosing and symptom relief through a larger prospective study.

Head, neck and neuroradiology

P-088 HONK chorea: 5 cases and 1 mimic

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Non-ketotic hyperglycaemic hemichorea-hemiballismus is an uncommon neurological presentation of type 2 diabetes. Examples of 5 different cases and 1 mimic are presented.

Non-ketotic hyperglycaemia is characterised by severe hyperglycaemia without significant hyperketonaemia or acidosis. It is one of the presentations of type 2 diabetes, and usually affects elderly patients. Hyperglycaemic non-ketotic coma (also sometimes abbreviated to HONK) may lead to death if untreated.Hemichorea-hemiballismus (HC-HB) may occur as an unusual complication of non-ketotic hyperglycaemia. The typical appearance on CT is of unilateral caudate and/or lentiform nucleus hyperattenuation, and on MRI there is unilateral T1 shortening. There is no surrounding oedema or mass effect.

The prevalence of diabetes and neuroimaging within practice suggests that Hemichorea-hemiballismus could well be encountered in a general radiology setting and our examples demonstrate that.

Our cases of Hemichorea-hemiballismus confirm previous studies in demonstrating that lentiform and caudate nucleus hyperdensity may or may not occur. Furthermore the lesion on imaging is consistently in the opposite hemisphere to the affected limbs.

The most common cause of hemichorea-hemiballismus is a vascular insult in the region of the striatum and subthalamic nucleus.Other causes include tumours, neurodegenerative disorders, encephalitis, drugs, systemic lupus erythematosus and hyperthyroidism.Acute treatment of non-ketotic hyperglycaemia is with fluid replacement and insulin with potassium. The movement disorder can be treated with sulpiride, haloperidol and tetrabenazine. Most patients recover fully within 6 months

P-089 Integrating whole brain volume measurement with PACS

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Background: Measurement of the effectiveness of pharmaceutical treatments for Multiple Sclerosis (MS) now involves measuring whole brain atrophy. These subtle changes in volume cannot be detected by visually reviewing 2D MRI datasets

Objectives: Safe and seamless integration of novel CorTechs NeuroQuant MR analysis software with Agfa IMPAX PACS.

Content: Description of the technical prerequisites and integration requirements with reference to the associated clinical safety, information governance issues and clinical benefits.

Relevance/impact: This work is relevant to neuroradiologists, clinicians, commissioners and pharmaceutical companies as it allows us to objectively determine the effectiveness of expensive MS treatments. It guides PACS teams in the safe integration with external analysis software.

Outcomes: We configured bidirectional DICOM integration of a dedicated NeuroQuant terminal (64bit OS, dual core, 4GB RAM, 500GB HDD, 100Mbps) with our clinical Agfa PACS. Clinicians transmit volumetric T1 weighted MR series to NeuroQuant from within their PACS Viewer. To improve information governance NeuroQuant was installed within the hospital IT network and the results archived only in PACS avoiding the need for anonymisation and reidentifcation. We have achieved seamless, automated, objective analysis of brain volume in a clinically safe PACS environment.