PAEDIATRICS

P117 The neonatal chest X-ray: Common conditions and tips for non-paediatric radiologists

James Ross; *James Halls*
The Great Western Hospital NHS Foundation Trust

Background: Neonatal respiratory distress is a common cause of admissions to special care units, affecting up to 7% of term newborns. The chest radiograph is the first line imaging test in the assessment of the neonate with respiratory distress and the ability to interpret it is key for prompt diagnosis and appropriate management. Radiologists without a specialist interest in paediatric radiology may feel unfamiliar with common lung abnormalities and their radiographic appearances.
Purpose: This poster is designed as an educational aid to increase confidence in neonatal plain film reporting for all levels of radiologist from trainee to consultant. It will describe the basics of neonatal film reporting and differences compared to adult films. Common neonatal conditions including transient tachypnea of the newborn (TTN), meconium aspiration syndrome (MAS), neonatal pneumonia, pneumothorax and surfactant deficiency disease (RDS) will be described with typical radiological appearances and basic pathophysiology, with reporting tips and pitfalls to avoid. Neonatal lines and tubes will be displayed including umbilical catheters, ET tubes, chest drains and ECMO lines with advice on associated complications/misplacement.
Summary: Content will be set out as a display of high quality plain radiographs, annotated to explain the basics of reporting and pathophysiology flanked by important learning points and take home messages.

Arthur R. (2001) The neonatal chest x-ray. Paediatric respiratory reviews. 2 (4), 311-323. Liszewski, M.C. (2017) Respiratory distress in neonates. Underlying causes and current imaging assessment. Radiol Clin N Am, 55, 629-644. Pramanik A.K. (2015) Neonatal respiratory distress: a practical approach to its diagnosis and management. Pediatr Clin North Am. 62 (2), 453-69. Reuter, S. et al (2014) Respiratory distress in the newborn. Paediatrics in Review, 35 (10), 417-429.

P118 Vacuum immobiliser use for infant CT and MRI - is this the end of 'feed and wrap'?

James Ross; *James Halls*
The Great Western Hospital NHS Foundation Trust

Background: Cerebral imaging with CT and MRI is commonly used to evaluate brain injury and development in neonates and infants within our institution. Traditionally, such imaging has required the use of a 'feed and wrap' technique to allow the scan to occur when the infant is sleeping following a feed or occasionally sedation. We now routinely use a vacuum immobilsation device that cocoons the infant and provides significantly improved image quality without the necessity for 'feed and wrap' or sedation. The technique has many advantages over the traditional 'feed and wrap' technique such as absence of motion-degradation, improved scan times and absence of repeated studies.
Purpose: The poster will be of interest to both radiologists and radiographers, particularly those with an interest in paediatric imaging. It will demonstrate at length the safe usage of the vacuum immobilizer device; before, during and after a scan. We will describe the many benefits that we have observed and highlight the advantages the technique has over both the use of sedation and the traditional feed and wrap technique.
Summary: This poster will be an educational visual display, utilising many images, explaining the contrasting techniques being discussed together with examples of the disparity in typical image quality from MR and CT studies and a summary of the benefits of immoblisation compared with traditional 'feed and wrap'.

1.Golan A. (2011) Imaging in the newborn: infant immobilizer obviates the need for anesthesia. Isr Med Assoc. 13(11):663-5 2.Ibrahim T. (2015) 'Feed and wrap' or sedate and immobilise for neonatal brain MRI? Archives of Disease in Childhood - Fetal and Neonatal Edition. Published Online First: 30 June 2015. doi: 10.1136/archdischild-2015-308847 3.Mathur, A.M. (2008) Transport, monitoring, and successful brain MR imaging in unsedated neonates. Pediatr Radiol. 38, 260-264.

P119 Procuring a new device for reducing intussusceptions in paediatric patients

Angela Staley; *Vanessa Waspe*
Nottingham University Hospital

Aim: The old equipment was no longer supported by clinical engineering so a suitable replacement was required to prevent patients being transferred to other centres for this procedure.
Method: A risk assessment was performed to demonstrate the need for new equipment, and presented at the medical equipment planning group (MEPG). Paediatric centres contacted to find what devices are used elsewhere, and internet research carried out. Manufacturers who recommended their product for the procedure were contacted for advice and to arrange demonstrations. A suitable device was sourced, and purchased. Training competencies were developed with Clinical Engineering and the manufacturer prior to the equipment being implemented. Application training was provided for the Consultants and radiographers. Cascade training provided for rotating and new staff.
Results: Robust training program implemented. Radiologists completed competencies and found equipment easy to use. Radiographers completed competencies and found equipment easy to set up as catheter packs provided contain all the equipment needed to use with the new machine. Ongoing audit shows short reduction times and reduced recurrence of intussusceptions.
Conclusion: Thorough research prior to procurement ensured correct equipment for procedure chosen. Correct procurement process followed ensured swift approval to proceed. Support and advice provided to other centres that had purchased the equipment and those who were looking to procure.

P120 **Standards for radiological investigations of suspected non-accidental injury: A review of the updated guidelines**

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Plymouth Hospitals NHS Trust

Background: New guidance for the radiological investigation of suspected physical abuse in children was produced by The Royal College of Radiologists (RCR) and The Society and College of Radiographers (SCoR) in September 2017 and replaces the 2008 Standards for radiological investigations of suspected non-accidental injury. The update is based on up-to-date evidence-based practice and guides referring clinicians, radiologists, and radiographers involved in imaging the child in suspected cases of physical abuse.

Purpose: The new guidelines are detailed in a substantial and comprehensive 54 page document. We review and summarise the key areas addressed in the new guidance and highlight the changes from the previous 2008 guidance. We aim to educate the reader succinctly on current best practice for this critical area of imaging practice.

Summary: We provide an overview for the general radiologist on the updated RCR/SoCR 2017 standards for radiological investigations of suspected physical abuse in children. Important changes as well as critical clinical pointers are covered. Illustrations with cases are included, where appropriate.

1. Society and College of Radiographers and The Royal College of Radiologists. (2017) The radiological investigation of suspected physical abuse in children. The Royal College of Radiologists, London. 2. Royal College of Paediatrics and Child Health and The Royal College of Radiologists. (2008) Standards for Radiological Investigations of Suspected Non-accidental Injury. Royal College of Paediatrics and Child Health and The Royal College of Radiologists, London.

P121 **AP vs PA spinal imagining: A comparison on the effective dose to radio sensitive organs in 13 year olds**

Beckie Powell
Great Ormond Street Hospital

Background: Whole spine x-rays are imaged frequently in a paediatric setting due to the incidence of Scoliosis. This is found particularly in adolescents who are reaching puberty due to an increase in growth and can therefore exacerbate the degree of scoliosis. Around this time, the number of images required increases in respect to these growth periods. Patients can be imaged either antero-posterior (AP) or postero-anterior (PA) depending on the patients ability and images required. During these examinations the age of the patient and the dose implication, particularly to the radiosensitive organs, is of paramount importance.

Aim: The aim of this study was to compare the dose to the radiosensitive organs when imaging the whole spine PA compared with AP. Additionally, the study also assessed if PA positioning is the gold-standard in terms of dose reduction to radiosensitive organs. Data was collected from whole spine images for 135 patients, aged 13 at the time of their examination, using RIS. Radiosensitive organs included thyroid, breast tissue,ovaries and testicles.

The Purpose was to show the significant dose reduction to the patient when imaging was acquired PA. There was a 48% dose reduction factor to whole body, 87% to thyroid and most markedly, 91% to breast tissue. The cancer reduction risk was calculated with significant results, particularly for breast tissue. **Summary:** Introduction to AP vs PA whole spine imaging.

Summary of results: Calculated comparison of cancer induction risk

American Academy of Orthopedic Surgeons . (2010). Congenital Scoliosis. Available: www.orthoinfo.aaos.org/topic.cfm?topic=A00576. Last accessed: 22nd October 2017. Dartford and Gravesham NHS Trust. (2012). Postural Scoliosis. Available: www.dvh.nhs.uk/EasySiteWeb/GatewayLink.aspx?alId=266516. Last accessed: 20th October 2017. Javed, A Ltief, A. (2013). Development of the Human Breast.Available: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3706056/ . Last accessed: 24th October 2017. North American Spine Society. (2005). Adolescent Idiopathic Scoliosis.Available: www.knowyourback.org/Documents/scoliosis.pdf. Last accessed: 21st October 2017. NHS Choices. (2017). Scoliosis. Available: http://www.nhs.uk/conditions/scoliosis/Pages/Introduction.aspx. Last accessed: 24th October 2017.

P122 **Radiodiagnosis of ischemic stroke in children**

***Maksim Molodtsov**; Igor Koltunov; Alexander Mazaev; Alexander Gorbunov*
Morozov Children's City Clinical Hospital

Purpose: Assessment of radiodiagnosis capabilities and aspects of ischemic stroke (IS) visualization in children.

Methods and materials: 44 patients with cerebral IS (28 boys, 16 girls), aged 0 - 18 years, were examined. The patients underwent a comprehensive clinical investigation in combination with CT and MRI, sometimes under an anaesthetic (at the early age).

Results: IS was mostly diagnosed in children aged 10 - 18 years (34% of patients). Hyperacute stage (HAS) was detected in 2 patients, acute - in 18, subacute - in 4, chronic - in 20. HAS was visualized only on DWI images. In 61% of cases, IS had a multifocal nature. Children under one year had mostly single focus (8 patients), children aged 1-5 years - one or two focuses (5 patients), children above 5 years had multifocal alterations (21 patients). Ischemic focuses predominantly affected the nuclei basalis (57%), frontal (55%) and parietal (43%) lobes. When IS at the chronic stage localized in central brain compartments, the cystic component predominated (10 patients), in peripheral compartments - the gliosis component prevailed (6 patients). In performing MR-angiography, a reduction in intensity of MR-signal from the artery feeding the area of lesion was observed in 34% of patients, which was caused by decreased blood flow.

Conclusion: IS most commonly affects children aged 10 - 18 years, especially boys. In 61% of cases, IS is characterized by two and more focuses, mostly in the middle cerebral artery basin. Predominance of cystic or gliosis components depends on pathologic process localisation.

P123 **Estimating bone mass in children: A comparison between DXA and hand radiographs analysed using BoneXpert software**

Khalaf Alshamrani; *Jean Russell; Amaka Offiah; N J Bishop*
University of Sheffield

Background: Dual-energy X-ray absorptiometry (DXA) is the current gold standard for assessing bone mineral density (BMD), however it does not predict fracture risk. BoneXpert computes bone health index (BHI) from hand radiographs by measuring cortical thickness, width and length of the three middle metacarpal bones.
Objective: To compare BHI with BMD as measured from DXA scans.
Materials & methods: We retrospectively identified DXA scans and hand radiographs for patients aged between 5 and 20 years acquired on the same day between 2008 and 2017. We documented absolute values and z-scores for whole body less head BMD (BMDTLH) and lumbar spine BMD (BMDLS1-LS4) and correlated these with BHI in different patient groups depending on their ethnicity and diagnosis. Pearson's correlation was performed using SPSS version 24 for PC (IBM, Armonk, New York). Results: 327 Caucasian (age 11.88 ±3.6 years) and 32 Asian (age 11.09 ±3.05 years) patients were included. BHI showed strong correlation with BMDTLH (r=0.64), BMDLS1-LS4 (r=0.71) in Caucasians, moderate correlation in patients treated with bisphosphonate BMDTLH (r=0.40), BMDLS1-LS4 (r=0.47) and weak correlation in Asians BMDTLH (r=0.15), BMDLS1-LS4 (r=0.19).
Conclusion: In Caucasians, BHI has moderate to strong correlation with DXA absolute values. However, BHI has a weak correlation with DXA reads in patients who are of Asian ethnicity. Although numbers of Asians studied was small, our preliminary results suggest that normative BHI data is required for different ethnicities. The situation in Africans is unknown.

P124 **Improving patient attendance for follow-up imaging after non-accidental injury skeletal survey**

Angela Staley; *Vanessa Waspe*
Nottingham University Hospital

Aim: Follow up imaging is an essential part of the NAI skeletal survey, and has been shown to improve diagnostic yield. A system to ensure that patients returned for follow up imaging was designed, implemented, audited, changed and re-audited.
Method: The standard for re-attendance is 100% as documented by the RCR and RCPCH guidelines. An initial audit was undertaken over two years to assess attendance for follow up imaging. Following this initial two year cycle a further two year cycle was undertaken after the following improvements were made to the process. Improvements included:

- Appointment letter given to persons accompanying patient at the time of the skeletal survey
- Verbal communication on the importance of attending, emphasising safeguarding will be informed for nonattendance
- Clear documentation regarding the follow up appointment in CRIS, request card and departmental diary
- Appointment documented in patient notes, ensuring information is shared at strategy meetings, promoting multidisciplinary team involvement
- Nonattendance is followed up with a phone call to Safeguarding, documented on CRIS and shared with the paediatric imaging team, ensuring patient does attend.

Results: Re-attendance in years one and two was 87% and 83% respectively. Following the implementation of the changes, re attendance improved to 92% and 97% in years three and four respectively.
Conclusion: Changing our approach and practice has significantly reduced the nonattendance rate. The correct high quality follow up images are taken at the required time enable precise reporting including dating of any fractures.

P125 **Is there evidence of gadolinium deposition in the brains of paediatric patients after multiple doses of contrast agent?**

Selene Rowe; *Daniel Rodriguez; Paul Morgan; Robert Dineen; Timothy Jaspan; Eleanor Cohen*
Nottingham University Hospitals NHS Trust

Background: Since 2014 studies have demonstrated hyperintensities in the dentate nucleus (DN) and globus pallidus (GP) in patients after receiving multiple doses of gadolinium based contrast agent (GBCA). Only a small number of studies have been conducted on paediatric patients.
Objectives: To establish if signal intensity (SI) increases in children after multiple doses of GBCA even when they received surgery only/no treatment. To compare linear and macrocyclic GBCAs and whether SI continues to increase when the GBCA was changed from linear to macrocyclic.
Method: Regions of interest (ROIs) were drawn on the GP and the DN, normalised to the middle cerebellar peduncle, pons and cerebral white matter on unenhanced axial T1weighted images in 35 paediatric brain tumour patients. SI ratios were compared in the patients who had received treatment against those who had surgery only/no treatment and in patients who had received linear against those who had received macrocyclic agents.
Results: There is a significant increase in SI ratios for all regions tested in patients who received linear agents: $P<0.05$. There was no significant difference in SI ratios between patients who had received chemo/radiotherapy and those who had surgery only/no treatment: $P>0.05$. There is a significant change in SI for the DN when patients changed from receiving a linear GBCA to a macrocyclic; $P<0.05$
Conclusion: Hyperintensities in the DN and GP of paediatric patients is caused by multiple doses of a linear but not macrocyclic GBCA regardless of whether they had chemo/radiotherapy.

P126 **Eye ultrasound in children a quality improvement exercise**

Morag Green; *Susie Goodwin*
NHS Greater Glasgow and Clyde, Royal Hospital for Children Glasgow

Eye Ultrasound is a recognised useful tool in distinguishing Optic Disc Drusen (ODD), a build up of protein and calcium salts inthe optic nerve head, from papilloedema. ODD is a benign condition, however, papilloedema can indicate raised intracranial pressure, an important finding which requires further crosssectional imaging. Audit of referrals for eye ultrasound in our centre was audited over a 2 year period.

Between 2015/16 and 2016/17 there was a sharp increase of 76 % in paediatric eye ultrasound referrals within the RHC Glasgow, which may in part be due to some high profile national legal cases involving missed intracranial tumours. The majority of request were for optic disc drusen, however the requests were diverse and included retinal detachment and retinoblastoma. Due to the increased number and complexity of the referrals, the need for service improvement was recognised and a quality improvement program was implemented within the imaging department.

The aim of the exercise was to improve eye ultrasound assessment accuracy for ODD from baseline to 95%. Using the plan, do, study, act (PDSA) cycle problem solving was undertaken which include introducing a standardised reporting tool.

1 Ballantyne et al. 2002; Blaivas et al. 2003; Girisgin et al. 2007; Helmke and Hansen 1996; Newman et al. 2002; Tayal et al. 2007; Tsung et al. 2005. Optic nerve sheath diameter: An ultrasonographic window to view raised intracranial pressure? 2 Barnett SB, Ter Haar GR, Ziskin MC, Rott HD, Duck FA, Maeda K. (2000) International recommendations and guidelines for the safe use of diagnostic ultrasound in medicine. Ultrasound Med Biol. 26:355–66. [PubMed] 3 Ertl, Michael & Gamulescu, Maria-Andreea & Schlachetzki, Felix. (2012). Application of Orbital Sonography in Neurology. 10.5772/31181. 4 Helmke K, Hansen HC (1996) Fundamentals of transorbital sonographic evaluation of optic nerve sheath expansion under intracranial hypertension ii. Patient study. Pediatr Radiol 26:706–710

P127 **Fluoroscopic guided oesophageal foreign body retrieval: 10 year review of practice at a paediatric centre**

*Michael Jackson [1]; **John Fitzpatrick** [1]; Menelaos Philippou [2]*
[1]NHS Lothian; [2]Glasgow Hospitals

Background: Ingested foreign bodies are a common problem in the paediatric emergency department. At our institution patients with smooth, radio-opaque foreign bodies (most commonly a coin) lodged in the upper oesophagus with a short duration history have undergone attempted retrieval using a Foley catheter under fluoroscopic guidance. In contrast to endoscopic removal, this procedure does not require general anaesthesia but departmental concerns related to the risks of the procedure and patient tolerance prompted this study to inform a new foreign body retrieval pathway.

Methods: Retrospective analysis of all fluoroscopic guided retrieval procedures performed at our institution over a ten year period (2008-17) was conducted. Cases were identified via PACS, with the procedure report and clinical outcome reviewed via EPR.

Results: 76 patients were identified during this period (F:M 45:31, age range 3 months to 13 years). Procedure was successful in 69 cases (90%) (foreign body retrieved in 52 cases, advanced into stomach in 17). Oesophageal tear occurred in one case. 7 patients underwent an unsuccessful attempt, requiring subsequent endoscopic retrieval. Minor complications included (vomiting in 4, gagging in 1, and minor bleeding in 1). A total of £13.79 and 2 US cents were retrieved.

Conclusion: Data demonstrates a good success rate and only one serious complication. Risks of airway obstruction and oesophageal rupture, and concern regarding patient tolerability nevertheless persist. We anticipate the new local retrieval pathway will be complete by June 2018. This paper will contextualise the role of this procedure in this light.

P128 **Determinants of radiographer abnormality detection error in paediatric patients**

Darren Dewick; *Philip Cosson*
Teesside University

Background: Diagnostic error can lead to missed, delayed or incorrect diagnosis, causing many potential problems (Singh et al, 2011). This is particularly important in paediatric patients where unidentified fractures can lead to misalignment and callus formations to occur which can affect growth development (Mounts et al, 2011). Smaller non-ossified bones and the presence of ongoing epiphyseal fusion might make it difficult for referrers to detect subtle fractures and radiographers who commonly engage in first line abnormality detection; the so called 'red dot system'. However, the determinants of radiographer red dot error are not fully understood. Therefore, the purpose of this study was to identify any patient characteristics or anatomical/pathological features that might predict this error.

Method: A retrospective secondary data analysis was conducted identifying paediatric long bone radiographs from a non-clinical pseudonymised PACS. Prevalence of red dot was identified and compared with gold standard radiology reports. Fractures were classified using the Li-La paediatric long bone classification system. A binary logistic regression was performed identifying predictive factors of radiographer error.

Results: Li-La non-articular fractures type I, II and III, Li-La articular fractures type V and the presence of joint effusions predicted radiographer false negative error. The ankle, wrist, elbow and foot had the most incorrect red dot cases.

Conclusion: These fracture types and joint effusions are often overlooked, despite joint effusions being consistently associated with the presence of occult fractures. Further training and clear policies for application of 'red dot' would be beneficial.

Mounts, J., Clingenpeel, J., McGuire, E., Byers, E., and Kireeva, Y. (2011) Most frequently missed fractures in the emergency department. Clinical Paediatrics, 50(3), pp.183-186. Singh, H., Graber, M. L., Kissam, S. M., Sorensen, A. V., Lenfestey, N. F., Tant, E. M., Henriksen, K., and LaBresh, K. A. (2011) System-related interventions to reduce diagnostic errors: a narrative review. British Medical Journal Quality and Safety, pp.bmjqs-2011.

P129 Are we ALARP? An analysis of Dr paediatric exposure factors

Theresa Noon

Royal Bolton Hospital

Radiographers have a professional and legal responsibility to adhere to NDRL's and local DRL's in accordance with IR(ME)R (2000). This ensures a mindful approach whilst maintaining a dose which is ALARP for all patients across all examinations. Across the UK the majority of children's examinations are not carried out at the specialist Children's hospitals. There is a clear relationship between dose and patient age and for this reason the NRPB recommends the adoption of reference levels for a range of patient ages.

Aim: Asses the DAP readings for Paediatric examinations for all DR rooms. To ensure that all Radiographers are adhering to the ALARP principle for all examinations. To provide a baseline locally for Paediatric patients

Standard: There is currently no standard set within the UK in relation to the use of DAP as a DRL, however there is with the use of ESD Methodology: DAP readings were audited over a 12-month period, from September 2015 to September 2016 for Paediatric examinations only. n= 8392 examinations. The data was collected retrospectively and was subject to strict inclusion criteria which adhered to standard protocols.

Results: From the original sample, 5147 examinations met the inclusion criteria and demonstrated safe radiation protection practices across the team.

Conclusion: As a department we are adhering to the ALARA principle, Radiographers do adjust their exposure factors dependent upon each patient.

Recommendations: Update departmental IRMER document. Provide data for Christie's to compose DRL's.

1.Diagnostic reference levels in medical imaging: review and additional advice. Ann ICRP 2001;31:33–52 http://www.icrp.org/docs/DRL_for_web.pdf 2.Medical Exposure Radiation Unit, HSE. Population Dose from General X-ray and Nuclear Medicine. 2010. 3.Medical Council . Diagnostic Reference Levels Position Paper. 2004. 3. European Commission . Guidance on Diagnostic Reference Levels for Medical Exposures. 1999. 3.Diagnostic reference levels in medical imaging: review and additional advice. Ann ICRP 2001;31:33–52 http://www.icrp.org/docs/DRL_for_web.pdf 4.European guidelines on quality criteria for diagnostic radiographic images in Paediatrics. EUR 16261 EN (1996). 5. Hart D., Hillier M.C., Wall B F. NRPB – W14 (2002)Doses to patients from medical X-ray examinations in the UK – 2000 review 6.Evans, S. (2014). European diagnostic reference levels in paediatric imaging. Physica Medica, 30, pp.e14-e15. 7.Paulo, G., Vaño, E. and Rodrigues, A. (2016). Diagnostic reference levels in plain radiography for paediatric imaging: A Portuguese study.Radiography, 22(1), pp.e34-e39. 8. Strauss, K. J., & Kaste, S. C. (2006). The ALARA (as low as reasonably achievable) concept in paediatric interventional and fluoroscopic imaging: striving to keep radiation doses as low as possible during fluoroscopy of paediatric patients—a white paper executive summary. Paediatric Radiology, 36(Suppl 2), 110–112.http://doi.org/10.1007/s00247-006-0184-4 9.The 2007 recommendations of the International Commission on Radiological Protection. ICRP publication 103. Ann ICRP 2007;37:1–332 10.Wall, B. and Shrimpton, P. (1998). The Historical Development of Reference Doses in Diagnostic Radiology. Radiation Protection Dosimetry, 80(1), pp.15-19. 11. European Communities (Medical Ionising Radiation Protection) Regulations 2002. EEC Directive 97/43/Euratom. Health Protection of Individuals against the danger of Ionising Radiation in relation to Medical Exposures. S.I. 478 (2002).

OTHER

P130 Military field hospital versus UK Emergency Departments in major trauma: a radiographer's perspective of patient care

Chloe Shand; ***Kirsty Wood***

University of Derby

The aim of this poster is to demonstrate the variety of patient experiences through a range of trauma situations. The objective is to demonstrate where lessons have been learned and where patient care can be enghanced to improve the overall patient experience from a radiographer's perspective. The poster will demonstrate how each patient travels through the emergency department in a military field hospital and in a UK emergency department, this will create the viewer with a visual and direct comparison between the two. The process will include examples for good patient care and areas where improvements could be made, or is sometimes lacking. A timescale will be included to demonstrate the varying patient throughput speeds. Photographs of each department will be included for visual validity. The poster is relevant to all current emergency departments and radiographers who work within them. It can provide evidence of the lessons learned in the military setting and how these can be applied. The outcome should be to improve patient care in a trauma setting, both by radiographers and other healthcare professionals. It will also demonstrate that severe trauma can lead to an abrupt care approach and how this can be avoided. It will also demonstrate the importance of teamwork and having a strong structure of the trauma team. There is scope for further research in this topic area with the fluid nature of trauma departments. The patient journey is constantly evolving and it is important to keep up with the pace.

1. Ehrlich, R.A., Coakes, D.M. (2017) Patient care in radiography: with an introduction to medical imaging. Missouri: Elsevier. 2. Harcke, T., Statler, J.D. and Montilla, J. (2006) Radiology in a hostile environment: Experience in Afghanistan.Journal of military medicine. **171**(3), 194-199. 3. Sharma, V., Sreedhar, M. and Debnath, J. (2017) Combat radiology: Challenges and opportunities. Medical journal armed forces India. **73**, 410-430.

P131 **Review areas in the search for a primary: Learning points from our cancer of unknown primary MDT experience**

*Nicholas Chua; **Anjali Sujith**; Anita Lazarevska*
Basildon University Hospital NHS Foundation Trust

Background: The incidence of cancer of unknown primary (CUP) occurs in about 0.5-9% of all cancer patients[2]. Identification of the primary lesion is vital to predict the natural progression, treatment options and prognosis for the patient. Patients with cancer of unknown primary have a significantly worse prognosis, with median survival between 6-14 months, than those with readily identifiable primaries either through time delay to treatment or unfavourable aggressive histology[1]. At our institution patients without a readily identifiable primary are referred to the CUP MDT upon which their imaging and histology are reviewed. Through our experience we note a small subset of patients referred to CUP MDT, upon review, actually have an identifiable primary that was not fully appreciated on initial reporting.
Purpose: We describe a series of cases to highlight the various imaging features that radiologists need to be aware of in the search for a primary and thus to avoid delay in appropriate MDT referral and oncological treatment and to afford the patient the subsequent survival benefits.
Summary: The most common radiological discrepancy was found to be pancreatic lesions followed by gastro-esophageal junction lesions and lung and pleural lesions. This study serves to highlight the important review areas for all radiologists with the view to reducing delays in cancer diagnosis and treatment.

1. Pavlidis N. Cancer of unknown primary site: 20 questions to be answered. Annals of Oncology. 2010; 21:vii3003-vi307 2. van de Wouw AJ. Eur J Cancer 2002; 38:409-413

P132 **Nodal staging with TNM 8 in head and neck cancer: How can the radiologist help?**

***Rhys Thomas**; Chris Greenall; Rhian Rhys*
Cwm Taf UHB

We review the new TNM 8 nodal staging for H&N cancer, concentrating on two important changes - extracapsular spread and the occult primary. We present a practical approach to these significant changes in the form of a pictorial review. We demonstrate their implications and how the radiology is key to correct staging and an accurate prognosis for the patient.

1. Lydiatt, W.M. et al.(2017) Head and Neck Cancers—Major Changes in the American Joint Committee on Cancer Eighth Edition Cancer Staging Manual. CA Cancer J. Clin **67**, 122-137.

RADIATION PROTECTION, DOSE OPTIMISATION & QUALITY ASSURANCE

P133 **Saying sorry when a patient receives an unintended radiation dose in the imaging department**

***Nicholas Barlow**; Lisa Field*
Mid Yorkshire NHS Trust

The Francis report highlighted requirements for openness and transparency when things go wrong. The Health and Social Care Act 2008 - ensures that providers are honest with patients and relatives in relation to their care. Other professional bodies have emphasised the importance of duty of candor (DoC); including the National Patient Safety Agency (NPSA), the Department of Health and the Royal College of Radiologists. The NPSA categorise harm into low/minor, moderate, severe and death and advise candour in those of moderate harm. There is confusion regarding this guidance; particularly for unintended doses of radiation as often no direct harm is caused. Radiation dose and risk are often weighted in relation to cancer risk, which causes anxiety and confusion amongst patients when investigation findings are discussed.
This poster will discuss the responsibilities of duty of candour in radiology for unintended doses of radiation and clearly define the professional's role in this process. A comparison between dosage and relevant risk will be provided for reference in local department policy. To assist colleagues with patient feedback (and for everyday explanation of dose to patients) a table of comparative radiation dose sources will be provided that can be tailored to provide a more patient-friendly resource.
The poster will contain the following:
1. Introduction - The need for DoC in radiology
2. Levels of harm - With relative radiation dose
3. DoC Procedure - In flow chart form
4. Patient feedback - Table of comparative doses
5. Conclusion/Recommendations offering advice for clinical practice and scenarios.

P134 **Understanding the patient journey in MRI: the good, the bad and the ugly**

Darren Hudson
InHealth

Background: Understanding the experiences of patients undergoing MRI is fundamental to providing truly patient centred care. The nature of the modality itself is not the most patient friendly and many factors contribute to the ability of patients to successfully complete a scan and have a positive experience. It is an acknowledged barrier to patient compliance and the consequences are important as it can delay or inhibit diagnosis and treatment. Demand and throughput for MRI has increased