connecting them with biology, physics, and oncology radiation researchers. The researchers gained an understanding of patient experiences of cancer and radiotherapy. Discussion was categorised into core themes: being young and diagnosed with cancer, radiotherapy treatment, side effects experienced and worries about late effects, measures taken to protect fertility, and importance of support, in particular peer support.

F4.6 What is the quality-of-life impact of surrendering a driving license for patients following stereotactic radiosurgery/radiotherapy for brain metastases at a single centre

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Background: Research suggests that driving plays an important role in a person's quality-of-life (QoL). In the United Kingdom patients with brain metastases have to inform the DVLA and are required to surrender their driving licence. When this is communicated during a Stereotactic Radiosurgery (SRS) consultation patients will often say that having to give up driving is worse than a diagnosis of brain metastasis (BM) due to the perceived impact this will have on their lives. In the absence of evidence exploring QoL impact upon driving cessation (DC) within radiotherapy, the aim of this study was to investigate the impact of DC on patients treated with SRS, and whether patients would like more support and information.

Method: 132 patients met the inclusion criteria and received an anonymised questionnaire. Participants scored their level of agreement (1-5) with statements grouped into themes: mobility, independence, social, depression, restriction, and overall QoL. Further questions explored whether there was a need for written information.

Method: 47 questionnaires were returned. All QoL themes demonstrated a negative impact: Mobility (mode 5), independence (mode 5), social (mode 5), depression (mean 3.5), and restriction, (mean 2.6), and overall QoL (mode 5). Written information was also deemed a useful means of support (mode 5). Open comments highlighted the depth of feeling of losing a drivng licence and frustrations with the DVLA.

Conclusion: Results indicated there is a link between DC and a reduction in QoL across all five domains and that some written information and intervention programmes may help in mitigating the impact.

1. Buys, L.R. and Carpenter, L., 2002. Cessation of driving in later life may not result in dependence. Australasian Journal on Ageing, 21(3), pp.152-155. 2. Chihuri, S., Mielenz, T.J., DiMaggio, C.J., Betz, M.E., DiGuiseppi, C., Jones, V.C. and Li, G., 2016. Driving cessation and health outcomes in older adults. Journal of the American Geriatrics Society, 64(2), pp.332-341. 3. Curl, A.L., Stowe, J.D., Cooney, T.M. and Proulx, C.M., 2014. Giving up the keys: How driving cessation affects engagement in later life. The Gerontologist, 54(3), pp.423-433. 4. Harrison, A. and Ragland, D.R., 2003. Consequences of driving reduction or cessation for older adults. Transportation Research Record, 1843(1), pp.96-104. 5 .Mansur, A., Desimone, A., Vaughan, S., Schweizer, T.A. and Das, S., 2018. To drive or not to drive, that is still the question: current challenges in driving recommendations for patients with brain tumours. Journal of Neuro-Oncology, 137(2), pp.379-385. 6 .Qin, W., Xiang, X. and Taylor, H., 2020. Driving cessation and social isolation in older adults. Journal of aging and health, 32(9), pp.962-971. 7. Ragland, D.R., Satariano, W.A. and MacLeod, K.E., 2005. Driving cessation and increased depressive symptoms. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 60(3), pp.399-403. 8. Siren, A. and Haustein, S., 2015. What are the impacts of giving up the driving licence?. Ageing & Society, 35(9), pp.1821-1838. 9 .Yeoh, S.F., Oxley, J., Ibrahim, R., Hamid, T.A. and Syed Abd. Rashid, S.N., 2018. Measurement scale development for mobility-related quality of life among older Malaysian drivers. Ageing International, 43, pp.265-278.

Proffered papers: Paediatrics

G5.1 The use of repetition computed tomography among paediatric patients in the Saudi health sector: How much is too much?

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Background: CT requests have increased, leading to higher rates of repeat imaging, raising concerns about collective radiation exposure, particularly in children who are highly sensitive to radiation. This study aims to determine the frequency and percentage of repeated paediatric CT exams in Saudi Arabia, prioritizing radiation safety in CT use.

Methods: This retrospective cross-sectional study analysed 7,707 patients over 6 months at King Fahad Armed Forces Hospital in Jeddah, Saudi Arabia. Of the 487 paediatric CT scans reviewed, patients ranged from 0 to 15 years old. Repeat scan percentages were calculated by identifying patient identification numbers, categorizing data by age and gender, and assessing duration between repeat scans.

Result: The study classified CT scan repetition into two, three, four, or five times, with 13%, 6%, 6%, and 1% of patients, respectively. The overall percentage of repeated CT scans was 27%, indicating a significant concern. The data revealed an average effective dose of 5567 mSv, with the highest dose reaching 21220 mSv and the lowest at 503 mSv. Most repetitions occurred within the same month, and the average age of paediatric patients was nine years old.

Conclusion: Despite the high priority given to radiation safety in Saudi Arabia, there is insufficient action to reduce the number of CT repeats. Modern approaches such as artificial intelligence and machine learning could improve radiation protection and provide a justification model. Additionally, the involvement of medical physics specialists in the decision-making process for repeat CT scans is urgently needed.

G5.2 Heads_Up - comparing upright open Magnetic Resonance Imaging (MRI) to conventional closed MRI for brain imaging in children -a pilot study

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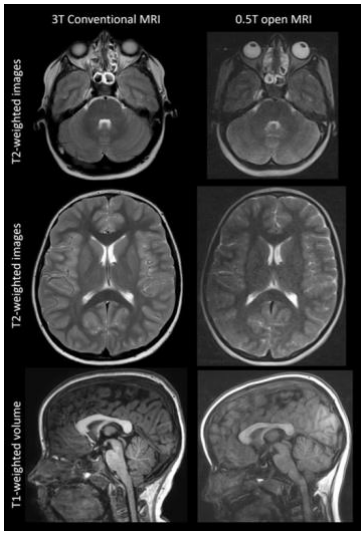
Background: MRI scans can be difficult for children to tolerate. Despite multiple techniques being developed to decrease child anxiety, there is still a high demand for sedation or general anaesthesia to successfully complete the MRI procedure. Upright open MRI scanners are less enclosed so may improve the child's scan experience and decrease sedation use. Currently, there are no studies evaluating image quality or experience of paediatric brain imaging in these scanners.

Aims: To establish the feasibility and acceptability of diagnostic brain imaging in young children using an upright 0.5T MRI scanner.



Methods: 6 children (5-10 years) who had been referred for a brain MRI to exclude a space occupying lesion were recruited to have an upright MRI scan following MR scanning in a 1.5 or 3T tunnel scanner. Participants and carers completed patient experience questionnaires after both scans. Image quality was assessed by a paediatric neuroradiologist.

Method: Feasibility criteria met - all children completed a diagnostic quality scan on the upright scanner, with no false negative or false positive findings on structural imaging compared to the concurrent 3T or 1.5T scans.

Acceptability criteria met - parents and children showed a clear preference for the upright scanner. Children also reported feeling less worried before and during the upright MRI scan, yet levels of comfort and self-reported motion remained the same.

Conclusion: The upright scanner improved child experience and provided scans of acceptable diagnostic quality for clinical practice. This promising data supports further investigation of this intervention in a larger population.

Afacan O, Erem B, Roby DP, Roth N, Roth A, Prabhu SP, et al. Evaluation of motion and its effect on brain magnetic resonance image quality in children. Pediatric Radiology. 2016;46(12):1728-35.
Artunduaga M, Liu CA, Morin CE, Serai SD, Udayasankar U, Greer MC, et al. Safety challenges related to the use of sedation and general anesthesia in pediatric patients undergoing magnetic resonance imaging examinations. Pediatr Radiol. 2021;51(5):724-35.
Chou IJ, Tench CR, Gowland P, Jaspan T, Dineen RA, Evangelou N, et al. Subjective discomfort in children receiving 3 T MRI and experienced adults' perspective on children's tolerability of 7 T: a cross-sectional questionnaire survey. BMJ Open. 2014;4(10):e006094.
Edwards AD, Arthurs OJ. Paediatric MRI under sedation: is it necessary? What is the evidence for the alternatives? Pediatr Radiol. 2011;41(11):1353-64.
Harrington SG, Jaimes C, Weagle KM, Greer MC, Gee MS. Strategies to perform magnetic resonance imaging in infants and young children without sedation. Pediatr Radiol. 2021:1-8.

G5.3 Children with autism - radiography staff development

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University of Bradford

Background: Autism is a neurodevelopmental impairment that effects more than 1 in 100 people worldwide. Within the UK there are around 700,000 autistic children and adults living with this development disability, affecting communication and social interaction within their everyday lives. Autistic children perceive the radiology department as an unfamiliar and stressful environment. Due to their heightened anxieties relating to cognitive functions, physical

senses and emotional intelligence and control, autistic children experience barriers to effective care in radiology. Enhancing the experience of autistic children to create a safe and positive environment that meets the individual needs of the child is therefore paramount.

Purpose: This poster is a practical evidence-based staff development resource for working with autistic children within a radiology department. Application of theory in practice is made accessible through infographics, conveying practical, responsive, and pro-active adaption of radiographic practice in a person-centred approach. Learning is supported through visual aids depicting evidence-based adjustments throughout the entire patient journey.

Summary of content: Key themes were established which are symptomatology of autism in children in the context of variation in barriers and individual accessibility to radiology services, a holistic determination of patient-centred practice, and improving patient experience. The work culminates in the presented 'The Children with Autism Patient Pathway' evidence-based guidance with wide applicability within radiology.

1. Berglund, I.G., Björkman, B., Enskär, K., Faresjö, M., & Huss, K. (2017) Management of children with autism spectrum disorder in the anaesthesia and radiographic context, Journal of Developmental & Behavioral Pediatrics, 38 (3), pp187-196. https://doi.org/10.1097/dbp.0000000000000432.
2. Drayton, A, N., Waddups, S. and Walker, T. (2019). Exploring distraction and the impact of a child life specialist: Perceptions from nurses in a paediatric setting. Journal for Specialists in Pediatric Nursing. 24(2), pp. 1-8. [Online]. Available at: https://doi.org/10.1111/jspn. 12242 [Accessed 23 January 2023].
3. National autistic society (2022) What is autism. Available at: https://autism.org.uk/advice-and-guidance/what-is-autism [Accessed: 23 January 2023]
4. Park, H.R., Lee, J.M., Moon, H.E., Lee, D.S., Kim, B.-N., Kim, J., Kimber D.G. and Paek, S.H. (2016). A Short Review on the Current Understanding of Autism Spectrum Disorders. Experimental Neurobiology, 25(1), p. 1. doi: 10.5607/ en.2016.25.1.1.

G5.4 Associations between cortical thickness and neuropsychological outcomes in HIV infected and uninfected children at 5 years

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Background: Neurodevelopmental delay and cognitive impairments are reported even in HIV-infected (HIV+) children starting antiretroviral therapy (ART) in infancy. Recently we reported a visual perception deficit only at age 5 years in HIV+ children from the Children with HIV Early Antiretroviral (CHER) trial who commenced ART before 18 months compared to uninfected controls. Within the same cohort and at the same age, preliminary analyses have revealed clusters in the frontal and temporal lobes with cortical thickness increases. In healthy children, it has been shown previously that cortical thickness is related to general cognitive ability and decreases in left frontal cortical thickness over a two-year period have been related to reductions in full scale IQ. In this work, we were interested in identifying potential relations between observed cortical thickness changes and neuropsychological performance. We present an analysis of the relationships between cortical thickness in the regions showing HIV-related increases and neurocognitive outcomes in this cohort at 5 years.

Conclusion Even though no group differences were reported in the personal-social subscale measure in this cohort at this age, we find that cortical thickness increases in HIV+ children are associated with lower scores on this subscale. In addition, in regions in which HIV+ children demonstrate higher cortical thickness, control children display positive relationships between three cognitive domains and cortical thickness, which are not seen in infected children.

Bearden, E. C., van Erp, G.M.T., Dutton, A. R., Tran, H., Zimmermann, L., et al. (2006). Mapping Cortical Thickness in Children with 22q11.2 Deletions. CerebralCortex. doi:10.1093/cercor/bhl097 Burgaleta, M., Johnson, W., Waberd, D. P., Colom, R., Karama, S. (2013). Cognitive ability changes and dynamics of cortical thickness development in healthy children and adolescents. Neuroimage, 84: 810-819. https://doi.org/10.1016/j.neuroimage.2013.09.038 Karama, S., Dab'bagh, Y., Haier, R. J., Deary, I. J., Lyttelton, O. C., et al. (2013). Positive association between cognitive ability and cortical thickness in a representative US sample of healthy 6 to 18 year-olds. Intelligence, 37(2): 145–155. doi: [10.1016/j.intell.2008.09.006] Laughton, B., Cornell, M., Kidd M., Springer P. E., Dobbels E. M., et al. (2018). Five year neurodevelopmental outcomes of perinatally HIV-infected children on an early limited or deferred continuous antiretroviral therapy. Journal of the International AIDS Society, 21:e25106. http://doi.org/10.1002jia2.25106.

G5.5 A comparison of computed tomography (CT) and magnetic resonance imaging (MRI) in the diagnosis of non-accidental head injury (NAHI) in paediatrics: a narrative review of evidence

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Background: NAHI has a 25% mortality rate, emphasising the significance of correct diagnoses (Joyce, Gossman and Huecker, 2020). CT is currently the 'gold standard' imaging modality, however peer-reviewed literature presents conflicting effectiveness data (Kleinman, 2009). This narrative review of literature investigates the sensitivity and specificity values of CT and MRI in the diagnosis of NAHI.

Method: A narrative review methodology was used to conduct this study. A variety of search terms were used to gather papers; literature was obtained from various databases. Inclusion and exclusion criteria helped to focus the review e.g; literature from the last 10 years. A relevant CASP tool was used to review the literature quality and a PRISMA flowchart shows the article filtration details. Articles passing the rigorous selection procedure were of high quality and relevance to this study's aims.

Method: Only five papers were eligible for the review. The ranges of CT sensitivity were 25.00%-87.00%, specificity 85.70%-100.00%. rMRI with GRE sequence sensitivity was 83.20%-92.80%, specificity 90.40%-96.20%. CT with rMRI with GRE sequence showed a sensitivity of 86.00%-90.00%.

Conclusion: The review concluded that rMRI scans with a GRE sequence increased sensitivity. However due to the lack of papers available further research is required before these findings can influence future practice.

1. Joyce, T. Gossman, W. and Huecker, M. (2020) 'Pediatric Abusive Head Trauma', National Center for Biotechnology Information (NCBI). Available from: https://www.ncbi.nlm.nih.gov/books/NBK499836/ [cited 18 November 2021]. 2. Kleinman, P. (2009) 'Diagnostic Imaging of Child Abuse', American Academy of Pediatrics, 123(5), pp.1430-1435. doi: 10.1542/peds.2009-0558

G5.6 Building a paediatric strategy for mobile fluoroscopy - three trusts, 80 units and one MPE

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Children are more radiosensitive than adults because they are growing at a faster rate [1]. For this reason, IRMER 2017 regulation 12 "Optimisation" requires that particular attention must be paid in relation to medical exposures involving children [2]. Although mobile fluoroscopic procedures are lower effective dose than many imaging investigations [3], there are a lot of them carried out. Paediatric use of mobile fluoroscopy commonly includes surgical and orthopaedic procedures related to physical injuries - orthopaedic pinning, manipulation under anaesthetic, open reduction and internal fixations, for example [4]. Historically many mobile fluoroscopy units were used with adult exposure curves, relying on the automatic brightness control to scale the exposure to the size of the much smaller patient, but this doesn't fulfill the obligation of paying particular attention. Across three large trusts and 80 mobile fluoroscopy units, various strategies were developed to improve paediatric protocols quickly. Although there is room for further in-depth optimisation work for specific procedures, the broad strategies outlined in this poster are a first step in the right direction.

1. Radiation risks from medical x-ray examinations as a function of the age and sex of the patient. HPA CRCE 028. Wall BF, Haylock R, Jansen JTM, Hillier MC, Hart D and Shrimpton PC, 2011. https://www.gov.uk/government/publications/medical-x-rays-radiation-risks-by-age-and-sex-of-patient 2. The Ionising Radiation (Medical Exposure) Regulations 2017. Statutory Instrument 1322. Crown Publishing. https://www.legislation.gov.uk/uksi/2017/1322/contents/made 3. Frequency and collective dose for medical and dental x-ray examinations in the UK. HPA CRCE 012. Hart D, Wall BF, Hillier MC and Shrimpton PC, 2008. https://www.gov.uk/government/publications/medical-and-dental-x-rays-frequency-and-collective-doses-in-the-uk 4. Local paediatric dose survey for mobile fluoroscopy, author's own.

Proffered papers: Education 1

H5.1 Qualitative content analysis of image interpretation education in UK pre-registration diagnostic radiography programmes

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Introduction: Image interpretation is a required capability for all UK pre-registration programmes in diagnostic radiography to meet the needs of graduate practice.(1,2) It also provides a potential educational foundation for future advanced clinical practice. The aim of this study was to explore how image interpretation education is designed, delivered, and assessed within contemporary UK pre-registration diagnostic radiography programmes.

Methods: Qualitative content analysis of open-source image interpretation curriculum data extracted from UK Higher Education Institute (HEI) websites for all HCPC-approved diagnostic radiography programmes. Extracted search data was initially coded and then identified into themes and sub-themes using thematic analysis.

Method: 34 pre-registration programmes across 27 UK HEIs were included in the study. There was marked variability in the open-source information available for analysis. Three overarching themes emerged; image interpretation education vision, operationalisation, and delivery and assessment.