



OBS & GYNAE

**P104 'Fertility patient' well no surprise there! Audit of request forms for hysterosalpingography (HSG)**

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**Background:** Provision of adequate clinical details by a referrer for an imaging investigation is an IR(ME)R requirement. The RCR provide an audit template for assessing adequacy of completion of forms. In women referred for hysterosalpingography a pre-procedure questionnaire, which records confirmation of patient demographics, information about current and past medical and reproductive history, written informed consent and procedural details, is completed by the radiologist undertaking the study. A perception arose that while patient demographics and name of referrer were always compliant insufficient clinical information was provided which had implications for patient rapport, conduct and interpretation of the procedure. An initial audit confirmed this suspicion: 15% of forms were deemed inadequate and a further 10% borderline. Following a variety of interventions, the compliance remains at 100% for demographics and has risen to 81% for clinical information.

**Purpose:** To outline and discuss the implications of inadequate provision of clinical information with particular reference to hysterosalpingography. To review the effectiveness of the interventions undertaken with 'offending' referrers. To present the results of the completed audit cycle with suggestions for future action to further improve compliance. Reasons for failure to achieve 100% compliance will be suggested.

**Summary:** The results of the initial audit and subsequent re-audit will be presented together with illustrative examples of compliant, borderline and inadequate requests. The interventions undertaken ranging from direct contact with individuals concerned to escalation to referring directorate clinical leads will be discussed. Implications for inadequately completed requests will be illustrated.

The Ionising Radiation (Medical Exposure) Regulations 2017 IR(ME)R <http://www.legislation.gov.uk/ukxi/2017/1322/regulation/10/made> Royal College of Radiologists. Adequate completion of Radiology Request forms <https://www.rcr.ac.uk/audit/adequate-completion-radiology-request-forms> Royal College of Radiologists. iRefer: RCR referral Guidelines 8th Edition London: RCR, 2017 <https://www.irefer.org.uk/guidelines/about-guidelines/communication-radiology-service>

**P105 Does a previous miscarriage cause anxiety for patients during the dating scan of a subsequent pregnancy?**

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A spontaneous miscarriage (SM) is the most common miscarriage in early pregnancy and is one of the leading causes of anxiety and depression for women during future pregnancy dating scans<sup>[1]</sup>. SM are often misunderstood due to the lack of knowledge surrounding the reasons for miscarriage and patient emotions in the psychological sequel are due to this lack of knowledge<sup>[2]</sup>. The purpose of this poster is to evaluate whether a previous miscarriage causes anxiety for patients during the dating scan of a subsequent pregnancy. "Scopus" database, along with "PubMed" and "Medline" was used to extensively search for relevant literature. A "CASP" tool was used to evaluate the papers. Anxiety in patients having suffered a previous miscarriage is evident at the 12 week dating scan however this is also coupled with other emotions such as excitement and fear<sup>[3]</sup>. The strength of these emotions is individual to every woman. It is difficult for sonographers to interpret these emotions. Ineffective communication between the ultra-sonographer and patient may cause more patient anxiety. However, the anxiety felt before the scan, following a previous spontaneous miscarriage is often uncontrolled by the sonographer. As women react differently and anxiety being an immeasurable scale, it is evident why sonographers may misread these emotions during the dating scan and do not know how to alleviate anxiety. However, the stigma surrounding SM is lessening and steps to promote ways to alleviate anxiety before, during and after the scan are being taken (4) Key words: Previous miscarriage, anxiety, dating scan, future pregnancy.

1. Jeve, B. Yadava, Davies, William (2014) Evidence-Based management of recurring miscarriages, Journal of Human Reproductive Sciences 7 ( 159-169

2. George, C, Lalitha A.R, Antony, A, Kumar, A.V, Jacob, K.S (2016) Antenatal depression in coastal South India: Prevalence and Risk Factors in the community. Int J Soc Psychiatry 62(2): 141-7

3. Moulder C (2016) Miscarriage: Women's Experiences and Needs, Psychology Press, pp 104

4. de Jong M. R (2013) Essentials of Sonography and Patient Care - E-Book, Elsevier Health Sciences, Chapter 5: Medical Techniques and Patient Care, pp 87

**P106 Computed tomography imaging: Beware the ovarian twist**

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**Background:** Ovarian torsion is a gynaecological emergency associated with partial or complete ovarian & fallopian tube rotation around its supplying vascular pedicle causing arterial, venous, and lymphatic compromise.<sup>1</sup>

Ultrasonography is the most reliable imaging modality for accurate diagnosis. The identification of ovarian enlargement combined with absence of blood flow increases its diagnostic sensitivity and specificity to 100% and 97%, respectively.<sup>2</sup>

Additional ultrasonic features indicative of torsion include findings of a solid, cystic, or complex mass, with or without free fluid, or cystic haemorrhage.<sup>3</sup>



If the adnexa appear normal on ultrasonography, Computed Tomography (CT) can be useful in excluding other acute presentations including ovarian torsion.<sup>4</sup>

**Purpose:** Patients presenting with severe abdominal pain may inadvertently have a CT scan performed as an initial imaging investigation to exclude suspected renal colic, acute appendicitis, ruptured ovarian cyst, or tubo-ovarian abscess. CT imaging of ovarian torsion may demonstrate a complex adnexal mass, with or without surrounding fat stranding, oedema, and free fluid. These features are non-specific and patients are often misdiagnosed with an ovarian tumour as a result. We're aiming to highlight the importance of this diagnosis despite its rarity and encourage colleagues to be more mindful of this condition as a potential diagnosis.

**Summary:** The poster will be organised into three main sections:

1. Ovarian Torsion - Introduction, Epidemiology, Clinical Presentation, Pathophysiology, and Radiographic Findings
2. Clinical Cases illustrating relevant radiographic findings of patients misdiagnosed with an ovarian tumour based on initial CT imaging
3. Conclusion

1) Hosny TA. (2017) Oophoropexy for ovarian torsion: a new easier technique. *Journal of Gynecologic Surgery*. 14 (1):7.

2) Beloosesky R, Deutsch M, Filmer S, Nizar K, Weiner Z, Weizman B. (2009) Doppler studies of the ovarian venous blood flow in the diagnosis of adnexal torsion. *Journal of clinical ultrasound*. 37 (8): 436-9.

3) Fleischer AC, Joo HJ, Kwon HC, Lee EJ, Suh JH. (1998) Diagnosis of ovarian torsion with color doppler sonography: depiction of twisted vascular pedicle. *Journal of Ultrasound in Medicine*. 17 (2):83-9.

4) Dixon A, Glick Y. (2018) Ovarian Torsion. [online] Radiopaedia. Available at: <https://radiopaedia.org/articles/ovarian-torsion/revisions> [accessed 17 December 2018]

### P107 Classic pathological appearances in female pelvic imaging

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**Background:** Across the range of gynecological imaging modalities there are a number of 'Aunt Minnies' in which certain appearances are thought to equate to a particular diagnosis. These imaging patterns are often 'once seen and never forgotten'. It is helpful for practitioners of all levels to be able to recognise these appearances, which can assist in determining an accurate diagnosis, but it is also important to be aware of some of the pitfalls.

**Learning outcomes:** To be able to recognise a range of typical radiological signs in female pelvic imaging.

**Summary:** We present a pictorial review of common and important radiological signs in pelvic imaging, including how they correlate to specific disease processes. We include hints and tips on how to clinch the diagnosis and illustrate some of the pitfalls. From the 'ring of fire' sign of the corpus luteum and the 'ground glass' sign of the endometrioma to the 'lines and dots' associated with dermoid cysts, we cover a broad range of gynecological pathology. Appreciating these distinct appearances will hopefully help radiologists and sonographers in deciding on a diagnosis more quickly and with more confidence, potentially avoiding further unnecessary tests.

### P108 A guide to the recto-vaginal septum - a mysterious but important space in the female pelvis

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**Background:** The recto-vaginal septum (RVS) consists of a fascial membrane which separates the posterior wall of the vagina from the anterior wall of the rectum. It extends from the perineal body to the inferior-most aspect of the Pouch of Douglas and usually contains fat. Given its deep pelvic location outwith the peritoneal cavity, the RVS is difficult to assess on physical examination and it is not directly visualised at laparoscopy, therefore any pathological involvement can be clinically occult. This space can however be readily and non-invasively evaluated with MRI.

**Purpose:** We aim to promote awareness of the RVS and highlight the importance of specifically evaluating this anatomical space for pathological involvement in patients with endometriosis, rectal or vaginal tumours and rectocoeles. This is of particular relevance to radiologists who report rectal and/or gynaecological imaging, who can assist in making the clinical diagnosis and provide useful information which will guide overall patient management.

**Summary:** We describe the anatomy of the RVS on MRI and demonstrate how it represents a potential site of involvement in deep pelvic endometriosis, an anatomical boundary between the vagina and rectum that may be breached by locally invasive rectal and vaginal tumours, and how it functions as a support structure which resists bulging of the rectum into the vagina (failure of which results in a rectocoele). We use illustrative cases to describe the relevant imaging features of RVS involvement and how this can influence clinical diagnosis, cancer staging and treatment strategies.

1. Coutinho A Jr, Bittencourt LK, Pires CE, Junqueira F, Lima CM, Coutinho E, Domingues MA, Domingues RC, Marchiori E. MR imaging in deep pelvic endometriosis: a pictorial essay. *Radiographics*. 2011 Mar-Apr;31(2):549-67. doi: 10.1148/rg.312105144

2. Dariane C1,2, Moszkowicz D1,2, Peschard F3,4. Concepts of the rectovaginal septum: implications for function and surgery. *Int Urogynecol J*. 2016 Jun;27(6):839-48. doi: 10.1007/s00192-015-2878-3. Epub 2015 Dec 21



**P109 Incidental ovarian cysts: What the general radiologist needs to know**

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**Background:** Ovarian cysts are a common incidental finding on clinical imaging performed for non-gynaecological indications. Although smaller cysts may be asymptomatic, their potential morbidity increases with cyst size and can result in rupture, haemorrhage or torsion. They must be carefully assessed to ensure that there are no features which are concerning for a cystic ovarian tumour. All general radiologists should therefore be familiar with surveillance and management strategies for ovarian cysts to ensure appropriate follow-up.

**Method:** This retrospective review of all CT Thorax, abdomen and pelvis (CT TAP) examinations includes all examinations over a year period in which the final report contained the phrase "ovarian cyst," and their subsequent imaging pathway.

**Results:** 46 CT TAPs were reviewed. 33 patients (76 %) were postmenopausal. 27 (58%) were not characterised as simple or complex. 11 (24%) of ovarian cysts had only subjective measurements of "small" or "large." Only 10 of 35 postmenopausal >1 cm had a follow-up ultrasound. 2 premenopausal patients had an ovarian cyst >5cm and both had follow-up imaging; MRI and ultrasound respectively. All complex cysts had follow-up ultrasound.

**Conclusion:** There was no consistent approach to follow-up in ovarian cysts, and the postmenopausal cohort in particular was not followed-up appropriately. Here we review the implementation of clinical support tools and the Royal College of Gynaecologists (RCOG) algorithm for imaging. This is essential for reducing the morbidity associated with ovarian cysts and for expediting surgical management in patients in whom the risk of malignant ovarian cystic neoplasm is high.

1. Ross, E.K. (2013) Incidental ovarian cyst: when to reassure, when to reassess, when to refer 80(8):503-514 2. The management of ovarian cysts in postmenopausal Women (2016) Green-top Guideline No. 34

**P110 Cups, coils and caesarian sections - a pictorial view of common gynaecological devices and other pelvic interventions**

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Royal Liverpool and Broadgreen Hospital Trust

**Background:** In recent decades the use of temporary and permanent gynaecological internal devices has become more diverse and commonplace. With increased use, there has also been a rise in the incidental imaging of both the devices and their complications. These devices may not be instantly recognisable to the general radiologist; this can lead to misinterpretation. Familiarity allows for accurate recognition, and the easy identification of their associated complications.

**Purpose:** The aim of the poster is to demonstrate the radiological appearances of common gynaecological interventions, contraception and hygiene products in the female pelvis. Examples will include intrauterine devices, tampons, menstrual cups, pessaries and post surgical appearances. We envisage this will increase diagnostic accuracy and reduce the confusion radiologists may encounter when faced with such images.

**Summary:** This poster will provide an overview of common gynaecological and contraceptive devices and their appearances on a variety of radiological images.

**P111 Interrupted vena cava: Ultrasound identifiers for prenatal diagnosis**

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**Background:** Interrupted vena cava is a rare (1:5000) congenital anomaly associated with azygos or hemiazygos continuation of the vena cava. The condition is largely an isolated variant with good prognosis, however, has been noted to have association with left isomerism and cardiac abnormalities with less favourable outcome.

**Identification Techniques for Prenatal Diagnosis:** There are a number of ultrasound identifiers which can aid in the identification of interrupted vena cava - many of which can be visualised in the standard cardiac FASP planes however may become more prominent within the third trimester. Images are included to illustrate these views, with explanation on how to achieve the technique.

**Summary:** Awareness of the potential ultrasound appearances of interrupted vena cava and how to assess for this may assist with diagnosis during routine scan assessment. Careful assessment of the aorta and IVC during second trimester scanning within the standard FASP planes will allow for detection of isolated interrupted vena cava however a secondary assessment within the third trimester may be of added value.

1. Bronshtein, M. et al (2010). Prenatal diagnosis and outcome of isolated interrupted inferior vena cava. American journal of obstetrics and gynaecology. 202(4), 1-4

2. Giang, D. et al. (2014). Prenatal diagnosis of isolated interrupted vena cava with azygos continuation to superior vena cava. Annals of paediatric cardiology, 7(1), 49-51

**P112 It takes two to tango: Azoospermia is a valid indication for Hysterosalpingography!**

*Anne Hemingway; Jennifer Wakefield; Siham Sudderuddin; Erika Kashef; Katherine vanRee; Susan Hesni; Nishat Bharwani*

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**Background:** Subfertility is defined as failure to conceive after one year of regular, unprotected sexual intercourse, 84% of couples conceive naturally within 1 year, 92% within 2 years. Male subfertility affects 1 in 20 men. The Centres for Disease Control and Prevention (CDC) annually publishes the diagnoses in couples who undergo ART (assisted reproductive therapy). Isolated male factors occur in 18-19% of couples. Multiple factors affecting both male and female partners occur in 18% of couples.

**Purpose:** To illustrate the spectrum of abnormalities found when imaging the female partner in cases of known male factor subfertility. A retrospective review of local experience revealed abnormalities in 39.5% of women undergoing hysterosalpingography (HSG) when a male factor was known to be contributory. Of this group 86% exhibited uterine abnormalities including polyps, fibroids, Asherman's syndrome, congenital anomalies and adenomyosis and 13 % tubal abnormalities including tubal occlusion, salpingitis isthmica nodosa (SIN) and hydrosalpinx.

**Summary:** The presentation will discuss the causes of female and male factor subfertility. The importance of imaging the female partner when there is known male factor subfertility will be illustrated with representative HSG images showing the range of uterine and tubal pathology detected. The implications of the abnormalities detected for fertility and management will be discussed. The need to image women who are undergoing donor insemination within same sex partnerships will also be discussed. A brief overview of relevant literature will be given.

Anawalt BD, Page ST 2017 Causes of male infertility, Centers for Disease Control and Prevention (2018). Assisted Reproductive Technology (ART) National ART surveillance

<https://www.cdc.gov/art/nass/index.html> Simpson WL, Beitia LG, Mester J (2006)Hysterosalpingography: A reemerging study Radiographics 26(2):419-431

<https://pubs.rsna.org/doi/10.1148/rg.262055109> Vickramarajah S, StewartV, VanRee K, Hemingway AP, Crofton ME, Bharwani N (2017) Subfertility:What the Radiologist Needs to Know Radiographics 1587-1602

**P113 Evaluating the impact of rectal gas on target volume position in gynaecological patients undergoing external beam radiotherapy**

*James Iddenden; Lousie Turtle; Robert Biggar; Victoria Chapman*

Clatterbridge Cancer Centre

**Purpose:** To evaluate the impact of no rectal preparation protocol on target volume position in gynaecological patients.

**Method:** A retrospective cohort (n=25) of gynaecological patients undergoing radical EBRT were identified by SQL query against the Aria Database. Results included patients requiring re-plan or an offline review by dosimetrists. The CT planning scan and CBCT (#1-3) were analysed for each patient, measuring the maximum rectal anterior/posterior (A/P) dimension and volume of gas present. The online matches were reviewed to assess any changes in CTV position compared to the planning scan.

**Results:** The CBCT match data demonstrated an association between the initial A/P rectum size at planning and the shift in CTV on treatment [Figure 1]. A measurement of  $\geq 4$ cm A/P and a volume of gas over 40cc were classified as a large rectum [Figure 2]. These cases were more likely to cause variation in the target position. This variation measured over 1-3# ranged from +2.6cm ant to -3.5cm post, with a median absolute move of 0.8cm. Online matches from the 3rd fraction suggested 50% of patients had CTV movement exceeding 1cm, which is clinically significant compared with the PTV margins of 1-1.5cm. In ~10% of patients sampled CTV was not covered by PTV.

**Conclusion:** Larger rectums have more gas at scanning. This gas has been seen to shift and not be present on CBCT images.

Further CBCT images during treatment should now be analysed to assess the potential benefit of using a rectal protocol early in the patient pathway.

Figure 1

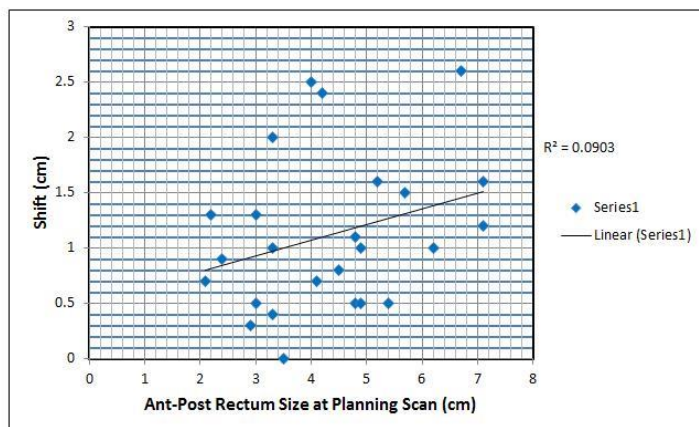
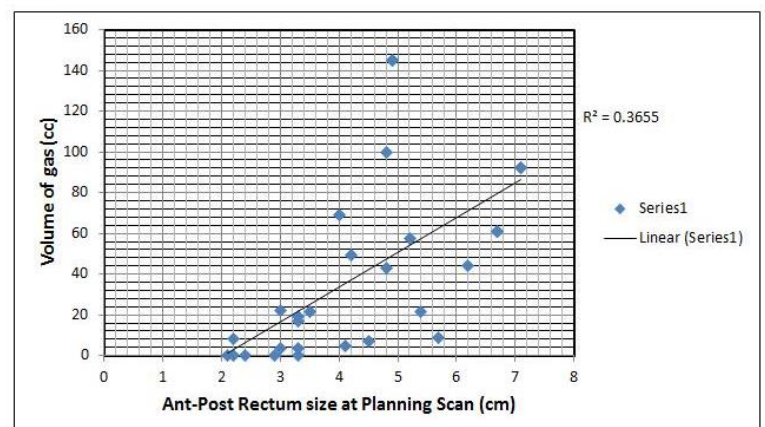


Figure 2







**P114 Assessing the effect of bowel and bladder size on treatment accuracy in post-operative endometrium patients**

*Carly Williams*

Guy's & St Thomas'

**Introduction:** An initial audit of current practice identified that using a 2D verification bone-match was not adequate for post-operative endometrium patients. This study evaluated 10 patients where daily 3D-CBCT was employed to measure the effect variations in bowel and bladder size had on the PTV.

**Method:** 10 post-operative endometrium patients were verified with daily 3D-CBCT using an bone-match, bladder assessment within 50% of planning volume and the rectum size within 1cm of planning scan. An independent offline review assessing soft tissue and PTV coverage was carried out. Bladder volume/positioning and rectum size was assessed using a bone-match and soft tissue match.

**Results:** Strong correlation was evident between large bladder and/or rectal size variations and inadequate PTV coverage. PTV tumour coverage was improved where bladder volume was within 50% and A/P rectum size within 1cm of that planned. PTV lymph node coverage was affected by adjustments to compensate for pelvic tilt and variations in bladder or rectum size.

**Conclusion and discussion:** During online 3D-CBCT the automatic bone match was regularly adjusted to achieve PTV coverage due to variations in rectum and bladder size causing soft tissue displacement. Corrections based on a bone match resulting in good PTV coverage occurred when bladder and rectum size were consistent. The FOV for CBCTs must include the whole volume to ensure PTV visualisation and adequate coverage. Staff training in soft tissue matching for Gynaecological patients is highly recommended, plus daily documentation of bladder and rectum status to ensure accurate PTV coverage.

1. National Radiotherapy Implementation Group Report. Image Guided Radiotherapy (IGRT) Guidance for implementation and use. Gynaecological. 2012

**P115 Early efficacy, toxicity and dosimetric analysis of volumetric modulated arc therapy (VMAT) and image guided adaptive brachytherapy (IGBT) in locally advanced cervical cancer following EMBRACE II protocol**

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**Background:** In 2017 we implemented VMAT and image guided brachytherapy following the EMBRACE II protocol in preparation for entering patients into this multicentre research study. We report our initial outcome, early toxicity and dosimetric analysis.

**Method:** Between June 2017 and October 2018, 63 consecutive patients with locally advanced cervix cancer treated with radical intent. Of these 53 received external beam radiotherapy (EBRT) followed by IGBT using the EMBRACE II protocol. EBRT with VMAT delivered dose of 45Gy in 25 fractions to the Elective PTV, if nodal involvement a simultaneous integrated boost up to 55-60Gy in 25 fractions to the nodal PTV. This is followed by 3 fractions of IGBT delivering a combined EBRT plus brachytherapy EQD2 HRCTV D90>85Gy ( $\alpha/\beta$  10), while adhering to organ at risk (OAR) constraints. Response was assessed by pelvic MR and PET-CT at 3 months.

**Results:** Baseline characteristics are described in Table 1. Median follow up of 9.0 (range 2.6-17.5) months. 3 months post-treatment restaging showed complete response in 76% of patients, partial response 19%, and progressive disease 5%. Local recurrence rate is 4% and distant recurrence rate is 8%. 2 patients died from disease. The majority of patients reported minimal toxicity, Grade 2 CTCAE toxicity in majority of patients are fatigue (28%), bowel(19%), bladder(13%) and vagina(4%). 2 patients were admitted due to toxicity. Full dosimetric analysis will be presented.

**Conclusion:** Implementation of VMAT and IGBT using the EMBRACE II protocol for locally advanced cervix cancer in routine clinical practice is feasible, safe, tolerable and dosimetric parameters achievable.

1. Choong, E.S. et al., 2016. Hybrid (CT/MRI based) vs. MRI only based image-guided brachytherapy in cervical cancer: Dosimetry comparisons and clinical outcome. *Brachytherapy*, 15(1), pp.40-48 2) Pötter, R. et al., 2018. The EMBRACE II study: The outcome and prospect of two decades of evolution within the GEC-ESTRO GYN working group and the EMBRACE studies. *Clinical and Translational Radiation Oncology*, 9, pp.48-60

**P116 Assessing the delivered dose to the CTV during external beam cervical cancer radiotherapy using cone-beam CT data**

*Victoria Moore; Sophie Otter; Chris South; Donna Rickard; Jordan Bravery*

Royal Surrey County Hospital

**Background:** Interfractional variations in bladder and rectal volume can change the position of the Clinical Target Volume (CTV) in cervical cancer. This study aims to assess whether current Planning Target Volume (PTV) margins ensure the prescribed dose is delivered to the CTV, and the effect on dose to surrounding organs at risk (OARs).

**Method:** Cone-beam CT (CBCT) image sets taken at each fraction of treatment were rigidly registered to the original treatment planning CT for five patients. Each patient had a prescription of 50.4Gy to the PTV over 28 fractions. The cervix/uterus CTV, rectum and bladder were contoured on each CBCT by a clinical oncologist and Dose-Volume Histograms (DVH) assessed for each fraction and compared to planning aims.

**Results:** The median delivered CTV D99 (dose to 99%) was 96.0% of the prescribed dose (range 65.6%-97.4%) compared to a planned PTV D99 of 95.7% (95.1%-95.8%). Median delivered bladder D1cc was 50.9Gy (49.2Gy-51.7Gy) compared to a planned value of 50.1Gy (50Gy-51.2Gy). For rectum, median delivered D1cc was 51Gy (49.2Gy-52.3Gy) compared to a planned value of 50.3Gy (49.7Gy-50.4Gy).



**Conclusion:** These results imply that current PTV margins are adequate to ensure the CTV receives an adequate dose and that planned OAR doses are representative of delivered doses despite interfractional variations.

## PAEDIATRICS

### P117 Assessing the impact of the latest RCR guidelines on skeletal survey follow up imaging

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**Background:** Diagnostic imaging plays an integral role in suspected Non Accidental Injury (NAI) investigations in Paediatrics. RCR guidelines underpin practice, with the most recent 2017 guidelines recommending more extensive follow up imaging than previously advised. This aims to standardise practice nationally, and improve diagnostic outcome. Increased awareness of the importance of effective safeguarding, and previous missed high-profile cases highlight the need for thorough NAI investigations. However, current literature indicates differing opinions regarding optimal follow up imaging with the increased radiosensitivity of Paediatrics a consideration.

**Aim/method:** This retrospective audit of skeletal surveys performed at NUH from August 2017, aims to assess the impact of the new RCR follow up imaging guidance (implemented at NUH in February 2018) with regards to attendance, radiation dose, time spent in department and diagnostic yield.

**Discussion:** To date, the audit suggests:

- More extensive follow up imaging has had no influence on patient attendance at follow up, with 100% of patients attending
- The additional views increase time spent in department, and dose to the patient (as expected)

Results from the audit so far suggest no additional injuries have been identified that would not have been detected on a chest X-ray as previously performed at follow up. As the guidance has been implemented for under 1 year, we intend to continue our data collection in order to increase the sample size. As a single site audit, we would welcome opportunities to extend the audit to other Trusts so as to compare results.

The Royal College of Radiologists (2017). The radiological investigation of suspected physical abuse in children. 1st ed. [ebook] London: The Royal College of Radiologists. Available at: [https://www.rcr.ac.uk/system/files/publication/field\\_publication\\_files/bfcr174\\_suspected\\_physical\\_abuse.pdf](https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr174_suspected_physical_abuse.pdf) [Accessed 10 Sep. 2018]

### P118 Paediatric supine chest X-Ray radiation doses: CR vs DR

*Megan Bunford; Angela Staley*

Nottingham University Hospitals NHS Trust

**Aim:** Investigate if there is a percentage difference in radiation dose between CR and DR exposures used on paediatric supine chests.

**Method:** An audit of CRIS dose data was conducted to establish the difference in resultant dose given to children in the age group 0-18 months for supine chest X-rays on a CR system and DR systems. The doses were compared to calculate a percentage difference in each age group, and then an overall percentage difference for the 0-18 month age group was generated.

**Results:** The audit shows on average a 67.35% reduction in radiation dose when using DR systems compared to CR.

**Discussion:** DR systems provide a better dose efficiency than CR systems leading to a greater potential for dose reduction whilst maintaining a diagnostic quality image. Trusts across the UK have been investing their budgets into DR systems. At NUH, paediatric radiographers have been working very hard to optimise the exposures that are used on DR systems to adhere to ALARP, especially with the greater radiosensitivity of children compared to adults. Through these measures there has been a dramatic reduction in dose for supine chest X-rays in children, supporting the trust's investment in DR and further investment for mobile X-ray equipment for paediatrics.

### P119 Change of practice-fluoroscopy of the paediatric abdomen

*Angela Staley; Vanessa Waspe*

Nottingham University Hospital

**Aim:** The ALARA principle should always be adhered to. Patients often require multiple abdominal X-rays for certain clinical findings which result in a substantial radiation dose. The dose was dramatically reduced using fluoroscopy instead of X-ray.

**Method:** Radiation doses to patients, with multiple attendances, were assessed. e.g. naso-jejunal tube position. We compared the dose received from an abdominal X-ray and a fluoroscopic image on the same patient; and audited this change of practice. Patients attending for feeding tube position or ingested foreign body had a low dose fluoroscopy image during normal working hours. Images were evaluated by the Consultant Radiologists to ensure the clinical question was answered. The dose of the fluoroscopic image was compared to the previous abdominal X-ray.

**Results:** Dose for the fluoroscopy image was on average 1% of the dose of an abdominal X-ray. This confirmed that we should change our practice permanently to adhere to ALARA.