

the importance of not ignoring ancillary findings e.g. localised free fluid in this population as well as optimising scanning technique.

P-102 Leadership qualities framework: can you improve over time?

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Purpose: This paper is part of a wider, CORIPS funded case study, which explored the leadership function of 6 consultant radiographers in the UK. This paper explores the change in leadership capabilities demonstrated by the repeated LQF, as a result of involvement in the study, executive coaching provided and an increased awareness of, reflection on, and analysis of the leadership function.

Methods: A longitudinal case study was used as a framework for this study. A range of data collection methods were used to triangulate data and increase validity, including an objective leadership measure (the Leadership Qualities Framework (LQF)) which was undertaken prior to any interventions and at the end of the study.

Results: The study found that there was clear evidence of change over time. The qualitative data highlights the impact of specific interventions on those changes, in the opinion of the consultants involved.

Conclusion: The results clearly demonstrate that leadership function can be impacted on over time and offers suggestions as to which specific interventions resulted in a measured change, which could impact on future development planning for advanced and consultant practitioners.

Service delivery

P-103 Should surgeons be responsible for acute ultrasound list? Our experience in a tertiary centre

Cindy Leung, Cardiff and Vale University Health Board

Background: In our centre a daily ultrasound list dedicated to acute surgical patients has been implemented to facilitate patient turnover. On-call surgical teams are responsible for patient booking and preparation. We systemically reviewed our service and aimed to introduce changes for further improvement.

Method: We prospectively studied the appropriateness of requests and patient preparation for the dedicated ultrasound list for a 3-week period in January 2010. A trust-wide ultrasound patient preparation guideline was subsequently introduced and junior doctors ultrasound teaching sessions were introduced. We re-audited this service in the following year.

Results: In 2010, inadequate preparation occurred in 21 scans out of 91 patients. 'Full bladder' was not achieved in 58% of scans where it was required. Similarly, 12% of patients did not accomplish 'Nil-by-mouth' when required. Three ultrasound scans were inappropriately requested. Following the guideline introduction and junior doctor education, an improvement in patient ultrasound preparation was observed in our re-audit of 115 patients, with only 36% and 5.6% of patients not achieving 'full bladder' and 'Nil-by-mouth' respectively. There remained 4 inappropriate ultrasound requests.

Conclusion: Our new service has been highly valued amongst surgeons. With appropriate guideline and education, satisfactory standards of service provision can be accomplished especially in a busy tertiary centre where ultrasound demand is high. Similar working model is applicable to other hospitals in the UK to manage the increasing radiology demand

P-104 Omitting neck ultrasound in lung cancer – making best use of a department of radiology or an opportunity lost?

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Objectives: Staging CT chest to include the lower neck and PET-CT (where radical treatment is being considered) may obviate the need for cervical ultrasound in N3 disease.

Relevance/impact: Lung cancer is a leading killer in the UK. The notorious status awarded to it has resulted in numerous guidelines regarding management. Radiology is an important component of this management. Cervical ultrasound for confirming N3 disease is recommended as per BTS guidelines. However, this may not influence patient management and also involves logistic issues with scan times and costs.
CONTENT OF PRESENTATION: We present our 2 year data of 100 lung cancer patients encountered in our tertiary set up situated in a socially deprived area of the UK. The staging CT scans of 100 consecutive patients with biopsy proven lung cancer were reviewed to confirm or refute the presence of N3 disease. Further imaging if any and reports thereof were checked on the PACS system. Presently, cervical ultrasound for supraclavicular lymphadenopathy in lung cancer is not part of our standard practice.

Outcomes: All 100 staging scans included the lower neck as per BTS guidelines. Patients being considered for radical treatment underwent PET- CT as standard practise in keeping with guidance. However our patients with N3 disease did not undergo neck ultrasound. Out of 94 cases included in the final evaluation, 22 (23%) had supraclavicular lymphadenopathy none of which were subjected to cervical ultrasound. Of these 13 (60%) had lymph nodes measuring > 5 mm (largest measuring 11 mm). The remaining 9 had lymph nodes < or = 5 mm (40%). Of all the patients with supraclavicular lymph nodes 14 had T4 disease with 7 patients having M1b disease. Patients with T2 or T3 disease and no distant metastases were 7 in number none of whom were considered fit for radical treatment.

Discussion: Staging CT chest to include the lower neck and PET-CT (where radical treatment is being considered) may obviate the need for cervical ultrasound in N3 disease. Cervical ultrasound is not presently part of standard work-up for lung cancer in our set-up. However, it can be performed in appropriately selected cases.

P-105 **Utilising BICS for workflow re-design in a digital screening mammography service**

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Aims/objectives: The introduction of a digital mammography unit into a new site initiated a number of changes to practice. New workflow arrangements were developed along with the identification of costs savings for the department.

Content: Identification of how using BICS principles can assist workflow re-design and assist with service delivery.

Relevance/Impact: The identification of how small changes to workflow can assist in client flow and increase service outcomes; which in turn will assist other services moving to digital mammography.

Outcomes: Using BICS principles we designed the room layout and sub wait layout to enable best flow and aimed to reduce the flow time for mammogram images and documents being received by 80%. We identified a potential cost saving to the department by the introduction of better flow and improved the rate of staff engagement by 50% by assisting in the development of new workflow documents

Discussion: Improved flow time for the receipt of mammograms back at base site from 2-3days to immediately; improving the accessibility of images for double reading. Staff engagement for workflow procedures and involvement from the beginning for the design of the process. The re-design process of 'transportation' of documents to NBSS paperless system. The reduction of flow time by ceasing use of taxi service 90% of the time achieving saving of £12k to department. We achieved a saving of £12k per annum to the department

P-106 **Enhancing the quality of our services by using a quality toolkit**

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InHealth Group Limited

Aims: To provide all staff with useful tools to enable them to improve the quality of our service and obtain feedback from patients, customers, and colleagues.

Methods: A quality improvement framework, "Excellence in Action", was launched to ensure that all staff - clinical and managerial - were aware of what is expected from them in their everyday roles. A supporting toolkit was developed to provide tools which could be used to improve the following: working environment, communication, working together, caring for others and patient feedback. The Clinical Services Team held fifty workshops to introduce colleagues to the toolkit. Each department is required to complete 3 mandatory tools and select additional tools for ongoing quality improvement programmes. The benefits of implementing each tool are documented and shared with colleagues.

Results: Feedback is collected centrally on the tools completed and the other initiatives selected. This is reported monthly to senior management.

Impact: The framework and toolkit act as best practice reminders to all staff and provide an easy to implement project which improves patient care and colleague cooperation.

Monitoring complaints and incidents and ongoing patient feedback allows us to measure the improvements to patient care.

Discussion: The toolkit provides the means to initiate quality improvement projects and measure their impact using ready-to-use templates for obtaining feedback from patients and colleagues. The presentation will present some of the tools and how they are implemented as examples .

P-107 Peer audit of image quality in gynaecological ultrasound. Is it feasible?

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Aim: To develop an audit tool for peer-to-peer assessment of gynaecological ultrasound image quality.

To determine the best method of data collection (binary scale, Likert 5 point scale or continuous scale)

To test inter-rater agreement in using the tool

To determine whether length of experience and clinical grade affect inter-rater agreement,

To test whether ultrasound practitioners can identify when imaging difficulties contribute to poor image quality.

Content: A quantitative study to assess the effectiveness of peer audit among a group of sonographers in assessing image quality in gynaecological ultrasound. Six sonographers independently reviewed nineteen ultrasound studies using a specially designed audit tool. The level of agreement between sonographers was assessed. Correlation with study difficulty, reviewer grade and length of experience was made.

Relevance: With the introduction of external accreditation, assessment of image quality in ultrasound will become more widespread. Peer-to-peer audit is rarely utilised among sonographers, but is a potentially useful tool in auditing ultrasound image quality.

Outcomes: Agreement between sonographers was good. Length of clinical experience had no effect on inter-rater agreement. Those of a higher clinical grade scored ultrasound studies significantly lower. There was strong correlation between study score and study difficulty.

Discussion: This study demonstrates that sonographers are in broad agreement when rating ultrasound studies. Length of clinical experience should not be a barrier to participating in this process. Experience with peer-to-peer audit is positive, deepening the involvement in the audit process and allowing professionals to benchmark their performance against their peers benchmark their performance against their peers.

P-108 How long is long? A prospective study of a longitudinal couch setting in pelvic patients receiving a course of radiotherapy

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Introduction: A couch longitudinal deviation had been observed in many patients, resulting in a manual override in the Mosaiq® sequencer. It was suggested that this was due to the soft foot rest on the Combifix™, which could allow for a daily deviation of 1 -2 cm. A couch long setting was proposed as a solution.

The aim of this study was to evaluate the proposed longitudinal setting before and after implementation using geometric displacements on treatment as the outcome measure.

Method: At CT simulator a measurement was recorded from an index point on the ibeam® evo couch top to the patients anterior and lateral tattoos, and this longitudinal setting used daily on treatment.

Patients were eligible if they have had five previous scheduled images before implementation with five more scheduled after. Geometric displacement: Systematic and random errors of the selected patients were assessed before and after implementation.

Result: 17 pelvic patients were selected with an age range of 50 – 80 years with diagnosed prostate and gynaecological cancers. 76% had a longitudinal override before implementation of the couch long setting, and 0% after.

	Before implementation			After implementation		
	Vertical	Lateral	Long	Vertical	Lateral	Long
$\Sigma_{pop} =$	2.9 mm	2 mm	1.6 mm	1.5 mm	1.4 mm	1.3 mm
$\sigma_{pop} =$	1.9 mm	2 mm	1.9 mm	1.4 mm	1.7 mm	1.6 mm

Discussion: Setting an absolute longitudinal setting on a daily basis reduced the set up deviation. The systematic and random errors were lower in all directions after the implementation of a couch longitudinal setting. A particular difference was noted in the vertical direction as shown in table 1. A change in practice is recommended based on the results of this small study.

P-109 “Walk-in” service for the emergency department: impact on the management of scaphoid wrists

*Lauren Banks; Jan Kennedy;
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The snow led to an increase in wrist injuries with an increase in referrals for scaphoid MRI and no time allocation for these appointments. Walk-in slots were created during the day to alleviate the pressure. The dept ran the risk of losing slots for pre-booked appointments. The impact being our 2-week waiting time may be breached. We are already scanning approx 788 patients a month with the dept open 7 days a week (0800-2000 and 0800-1800).

We checked the available slots at the end of each day and week to see how effective the walk-in slots were. The most important factor, was there an impact on the 2-week waiting list?

The scaphoid protocol is shorter than a normal routine wrist protocol and takes 8 minutes to run. Patients were asked to wait or offered a walk-in appointment of their choice. All patients were scanned within a week.

In February 1 fracture detected on X-ray, 14 on MRI.

In March 3 fractures detected on X-ray, 6 on MRI

In April 2 fractures detected on X-ray and 8 on MRI, 28 patient treatments changed. 20 of the 28 fractures were treated immediately

The results showed that no appointment slots were lost; there was a more efficient use of appointment timings due to cancellations and DNA slots being filled by the walk-in service. Injuries

were picked up early in the patient's pathway leading to earlier effective treatment plans and injury stabilization.

P-110 Audit of lumbar spine radiograph requests from GP's: are we meeting NICE guidelines?

Michael Cooke; Emma Rowbotham; Constantinos Tingerides,

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Objectives: Chronic low back pain is a common complaint amongst patients presenting to both primary care and musculoskeletal services. At present many of these patients are referred for lumbar spine plain radiographs which are of little diagnostic value (NICE) and result in exposure to a significant radiation dose (3.7mSv). The aim of this audit was to gather evidence to support a significant reduction in the number of lumbar spine film requests and improve the overall referral process.

Content: A retrospective analysis of 120 GP referrals for lumbar spine radiographs was carried out in September 2011 over a one week period. Requests were grouped into categories according to NICE guidelines. Data were analysed using SPSS version 19.

Impact

Reduction in radiation exposure to patients

Reduction in the number of unnecessary plain film appointments

Reduction in costs associated with the investigation of long term non-specific low back pain

Outcomes: 81% of referrals for lumbar spine radiographs did not meet the guidelines set out by NICE. 63% of referrals had no indication for any imaging. Data are to be discussed at the next local audit meeting and discussions around the most appropriate way to deliver the message to GP's as well as a reduction in the number of requests fulfilled by radiographers is under consideration.

P-111 CT colonography diagnostic performance in four district general hospitals

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Aim: to assess the diagnostic performance of CT colonography in detecting colorectal neoplasia and polyps across four district general hospitals in the UK.

Methods: CTC reports from all four sites over a one year period were analysed. CT findings recorded included colorectal neoplasms, polyps measuring < 6mm, 6-9mm and > 9mm. The use of faecal tagging was also noted. CT findings from the reports were compared to colonoscopy report findings (gold standard) if available. True positive and true negative data was recorded using an excel spreadsheet. Sensitivities and positive predictive values were calculated.

Results: a total of 522 CTC reports were analysed. 254 had comparable colonoscopy report findings. 178 of CTCs used faecal tagging, 344 used no faecal tagging. The sensitivities for each CT finding are as follows, colorectal neoplasms (100% sensitivity, PPV 1.0), polyps > 9mm (83% sensitivity, PPV 0.71), polyps 6-9mm (93% sensitivity) and polyps < 6mm (26% sensitivity). No significant difference in sensitivity was found between CTCs that used faecal tagging and those without faecal tagging in detecting colorectal neoplasm and large polyps. However for smaller polyps < 6mm CTCs that used faecal tagging recorded a higher sensitivity (50%) compared to CTCs without faecal tagging (23%).

Conclusion: overall diagnostic accuracy of CTC across four UK district general hospitals in detecting colorectal neoplasm and large polyps showed to be excellent and supported its role in colorectal cancer screening. The use of faecal tagging appears to be helpful in detecting smaller polyps.

P-112 Re-audit of imaging in prostate cancer patients: are we scanning more of the right patients?

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Guy's and St Thomas' NHS Foundation Trust

Purpose: A diagnosis of prostate cancer following TRUS guided biopsy frequently leads to related imaging, particularly bone and MRI scans. Local guidelines created in late 2009 define criteria based on risk factors to determine which patients with prostate cancer would benefit from further imaging. The aim of the study was to assess the effectiveness of these guidelines.

Methods: All men undergoing prostate biopsy in 2009 and 2010 had their electronic records examined to determine the result of their biopsy. Men with a diagnosis of cancer had their records searched for all related imaging and data was collected on risk factors for metastatic disease including PSA level and Gleason score.

Results: 613 patients underwent a prostate biopsy. 386 (63%) men were diagnosed with prostate cancer, 197 (51%) underwent a bone scan and 260 (67%) had an MRI scan. Since local criteria were created in 2009 the proportion of bone scans meeting the criteria increased from 69% to 88%, while MRI scans meeting criteria improved from 55% to 61%. The absolute number and proportion of men undergoing bone scans also fell from 108 (34%) in 2009 to 89 (29%) in 2010.

Conclusion: The proportion of men undergoing inappropriate bone and MRI scans has reduced since the implementation of local guidelines. Furthermore the number of bones scans carried out has also been reduced. Unnecessary bone scans and related imaging leads not only to potentially avoidable radiation exposure but also constitutes a significant cost to the health service which given the current financial climate it can ill afford.

P-113 **Radiology services provision at the games of the XXX Olympiad**

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Aims/ Objectives

To present an overview of the imaging services provision at the Games of the XXX Olympiad.

Content: A review of the planned radiology services across the various venues of the 2012 games.

Relevance/Impact: The role of radiology is central to the successful provision of world class sports medicine. In this poster we outline the planned radiology services for the 2012 summer Olympic games.

Outcomes: A better understanding of the central role of imaging in the successful delivery of a world class Olympic games.

Education/Training

P-114 **Are radiology reports read and acted on?**

*Nevine Anandan; Carl Sullivan; Sharon Evans;
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Relevance: A request by the Ombudsman to the Hospital Trust Directors followed an occasion where a patient underwent a radiological investigation from which concern was raised in the radiology report. The referring clinician failed to act which resulted in significant harm to the patient.

Objectives:

- 1) Assess if radiology reports are read and acted upon by referring health professionals.
- 2) Identify clinical areas which do not meet the standard (100%).
- 3) Discuss ways improve outcomes.

Methods: Retrospective audit of 100 patients, from 20 clinical areas across specialities. Assess for presence of clear documentation of the radiology report and subsequent management.

Results:

1 st Cycle	Number of cases	Reports documented	Management documented