



Discussions within management groups, clinical governance groups and with the CQC have also driven the development of this poster and patient safety drive. Staff have been reviewed the document and fed back their thoughts and comments in regards to implementing the system into their daily practice. Other departments within the Trust have also taken on the format of the poster to apply to their own practice; the acronym is easily adapted to other specialities systems of work.

The department is sharing the poster amongst the wider profession to raise awareness of patient safety and will be reviewing incident trends in future to assess its impact.

P136 To 'err is human': Assessing pitfalls in contemporary radiography

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This poster will discuss the findings uncovered from a PhD study conducted in the United Kingdom (UK). It will illustrate new errors in diagnostic radiography within the general radiographic environment, attributed to advancing technology. It highlights new challenges that radiographers and managers may encounter following the integration of digital radiography within a clinical environment, which can be overcome. The research demonstrates an awareness of potential pitfalls that X-ray operators can overcome. Through this awareness the future use of digital radiography can be enhanced, prevent radiological errors and facilitate optimum patient care delivery.

Molecular and functional imaging

P138 Impact of FDG PET-CT in gynaecological malignancy: Single institutional experience

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Aim: To evaluate the clinical impact of PET-CT in gynaecological malignancy at our institution.

Method: Retrospective CRIS search for all patients referred for PET-CT from gynaecology at our institution. Comparison was made with previous MR/CT and subsequent histology/surgicopathological findings where available. Impact on treatment intent was assessed.

Results: 19 PET-CTs in 18 patients between March 2009 and November 2014. Primary sites included cervix (10), ovary (4), endometrium (2), vagina (1). 2 presented with vulval and retroperitoneal lesions respectively.

PET-CT indications included: diagnosis of primary cancer (2), initial cancer staging (2), to exclude extrapelvic metastases in known pelvic recurrence (7), for diagnosis of suspected recurrence (6), for restaging of recurrent disease (1) and to assess for residual disease post chemoradiotherapy (1).

PET-CT had major impact in 12 cases with detection of pelvic recurrence, occult colonic primary, breast pathology, nodal and bone metastases and characterisation of liver and adrenal lesions, indeterminate on CT. Minor impact with confirmation of suspicious findings at MR/CT but no change to management in 5 cases. No impact in 1 case. 1 false negative with PET-negative vaginal vault lesion and right external iliac node in patient with previous TAH and BSO for endometriosis. Subsequent vaginectomy and lymphadenectomy showed endometrioid cancer in atypical endometriosis.

Outcomes: PET-CT in gynaecological malignancy had major impact in 63% and excluded further metastatic disease in 26% cases.

Discussion: PET-CT had significant impact on patient management, stratifying into palliative or curative treatment and optimising radiotherapy planning. It is a useful adjunct to MR/CT.

P139 Local institutional experience of FDG PET-CT in plasma cell dyscrasias

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Aim: To evaluate indications for PET-CT in plasma cell dyscrasia, its added value to other imaging modalities and impact on patient management.

Method: Retrospective CRIS search for all patients referred for PET-CT from haematology between October 2007 and March 2013. Indications, previous imaging and changes to patient management were evaluated.

Results: 19 PET-CT in 14 patients (11 male, 3 female).

Indications: Non-secretory disease (3), staging myeloma (4), plasmacytoma response to treatment (5), staging POEMS disease (4 new, 1 relapsed) and to look for MGUS transformation to myeloma (2).

Staging PET-CTs showed no active disease (2) and active disease in L2/sacrum (1). 1 case of diffuse spinal uptake classified as activated marrow or disease. In response to treatment, 2 showed residual or new active disease and 3 showed complete metabolic response. Positive PET-CT in all POEMS with active nodal and sclerotic bony disease. Incidental finding of adrenal adenoma and right cervical adenopathy in myeloma.

Outcomes: PET-CT was used for a number of indications which has influenced patient management in 95%.

Discussion: Although PET-CT is recommended by Durie-Salmon Plus, it is not widely adopted. RCR guidelines advise PET-CT for monitoring non secretory myeloma and assessing active disease. Our study shows that PET-CT is useful in staging myeloma, in detection of occult bone/nodal disease and in detecting residual active disease or recurrent disease post chemoradiotherapy/bone marrow transplant. It is of less value in diffuse bone marrow involvement. PET-CT has added value to conventional imaging techniques especially when they are normal, indeterminate or contraindicated.

P140 Assessment for a novel hybrid optical-gamma camera for lymphoscintigraphic imaging

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Objectives: The Hybrid Compact Gamma Camera (HCGC) is a handheld device designed to enhance radioguided surgical procedures such as sentinel lymph node (SLN) biopsies. This study evaluates the performance of the HCGC for lymphoscintigraphic imaging utilising a bespoke melanoma lymph node phantom.

Materials and methods: The melanoma lymph node phantom simulates an injection site (IS), lymphatic vessel (LV) and a SLN in the presence of background activity. The phantom consists of two square Perspex plates (80×80mm) a 10mm diameter conical micro vial and 80mm capillary tube 1.1mm in diameter. 15MBq of ^{99m}Tc (0.5ml) was added to the micro vial to simulate the injection site.

A 7mm diameter hole in one plate was used to mimic a SLN. SLN activity:IS activity ratios ranged between 1:20 to 1:100 in 0.1ml solutions. The capillary tube contained the same activity in the SLN distributed over approximately 0.1ml. The second plate with a 70×70mm square hole was used to simulate the background containing one tenth of the SLN activity.

Results: Analysis was performed on gamma images with 1000frames (~100s) acquisition time. The HCGC could detect the SLN containing different radioactivity concentrations and under various scattering thicknesses (ranging between 5mm to 30mm) with high contrast-to-noise ratio (CNR) values (ranging between 110.8 and 11.6). Co-alignment between the gamma and optical images provided an accurate physical localisation of radiopharmaceutical uptake.

Conclusion: This study demonstrated the capability of the HCGC in an experimental setting and shows the potential for acquiring hybrid images containing sufficient clinical details for localisation purposes during surgery.

P141 Dynamic contrast-enhanced MRI in prostate cancer - our local clinical experience

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Dynamic contrast-enhanced MRI is a technique that provides functional information to aid in the diagnosis of prostate cancer. It uses a rapid acquisition of sequences to observe uptake and washout in the prostate before, during, and after the injection of an exogenous contrast agent. This technique relies on the angiogenesis and increased vascular permeability that occurs within malignant tumours. Cancer is expected to demonstrate increased maximum relative enhancement with fast uptake following injection, along with an increased area under the curve for enhancement. Normal peripheral zone tissues demonstrate a slower and less intense enhancement for the first three minutes following contrast injection.

Most centres use a combination of conventional T2 imaging and diffusion imaging for prostate cancer. We aim to show our methods and experiences of using dynamic contrast-enhanced MRI of the prostate in a tertiary urology cancer centre setting. We will show cases where this technique has made an impact clinically. We will also illustrate how benign findings can appear similar to cancer, limiting this technique's utility in localisation and staging. Crucially, we will show how a negative scan may be able to preclude biopsies in the correct clinical pathway.

P142 Audit: Accuracy of localisation of bone lesions with SPECT.CT

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Aim/introduction: Anecdotal evidence suggested appendicular focal bone lesions undergoing further evaluation with isotope bone imaging were not being fully covered by the standard rotational SPECT.CT acquisitions used at our institution. The aim of this audit was to confirm if this was a problem and amend our protocols accordingly.

Content: Targets of 100% for spine lesion coverage and 95% for appendicular lesions were used to measure performance of the existing protocol.

Relevance: We looked at adjusting our standard protocol to allow better evaluation of all bony lesions and considered dose impact and time penalties in undertaking this adapted scanning technique.

Outcome: 300 SPECT.CT scans were retrospectively reviewed from the previous 6 months. We found 100% coverage of spine lesions but <95% coverage of appendicular lesions. We assessed ways to optimise coverage, changing how we acquired spine and appendicular imaging in combination or appendicular lesions in isolation. Evaluated dose penalties and scan times suggested negligible difference between protocols.

Discussion: Pros and cons of our techniques will be reviewed along with limitations imposed by the gamma camera and patient/scan times.

P143 Computer aided-detection of sacroiliitis on MRI with Dynamika: pilot study

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Aims: Sacroiliitis can be difficult to diagnose and harder still to quantify or monitor in response to disease. Dynamika is a stand-alone, cloud-based software using complex algorithms to allow real-time, user-defined analysis of regions of interest in 2D/3D and allows (semi-) quantification of activity/signal intensity apparent within regions of interest on scans. The ROI evaluation technique in its simplest guise is used in isotope imaging but we aim to better those outcomes and show similar success with this software on STIR MR images as well as with bone scintigraphy.

Content: Data from 50 MRI and 50 bone scans has been analysed to evaluate initial validity of this software; some scans represent follow-up imaging, giving an insight how disease monitoring could be undertaken with this software. Dynamika analysis was benchmarked in bone scans against standard algorithm of analysis. This comparison data will also be presented.

Impact: Potential to grade and monitor disease with MRI, as well as show its superiority and zero radiation compared with bone scanning-though show utility of software with bone scans also.

Outcomes: Patients can be semi-quantitatively graded into mild, moderate or severe sacroiliitis with greater reliability using MRI and Dynamika than isotope scans; this software shows utility in bone scanning analysis also;



disease response to treatment on MRI can also potentially be graded using this software (but too few patients were present in this cohort to evaluate this fully).

Discussion: Needs validating in bigger studies but initial results of Dynamika software are promising and simple to reproduce in evaluating sacroiliitis.

Innovation in service delivery

P144 **e-Hospital: The good, the bad and the ugly**

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Cambridge University Hospitals NHS Foundation Trust was the first UK NHS trust to become a fully digitalised hospital with the introduction of its new tailor-made Electronic Patient Record (EPR) system. This was provided in partnership with EPR software manufacturer EPIC with the IT infrastructure provided by Hewlett Packard in a £200 million, 10-year investment.

The aim of e-Hospital is to provide easy and swift electronic access to all aspects of a patients medical record in order to facilitate timely, effective and safe delivery of medical care. All clinical documentation is now performed electronically. This gives any clinician access to any aspect of medical information at the bedside and at any terminal within the hospital. The aim of e-Hospital is to introduce a better quality of patient care implementing this safely, more timely whilst maintain a patient centric approach.

Specialist training was provided for every member of the Radiology team. A series of role specific training modules were designed for the various users in preparation of a global go-live scenario. We look at the impact e-Hospital had on the Radiology department. We surveyed members of the department in order to ascertain the personal impact of the introduction of e-Hospital on members of the multidisciplinary radiology team. Departmental reporting statistics were used in parallel to assess productivity changes.

P145 **Paperless radiology - the Warrington strategy**

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This poster will document the processes put in place to identify and tackle the areas of clinical Radiology that use paper. Cost saving is the obvious benefit to going paperless, but the following principals guided the approach we adopted. Achieving one or more of these should be the driver for change:

- Safety - the new workflow must be at least as safe as the previous;
- Efficiency - the time the new method takes must not be significantly slower than the old one;
- Effectiveness - the ability to perform a task must not be hindered more using the new technique;
- Business Intelligence - ideally the new method should provide information we can analyse to improve services further.

We started out by mapping the entire patient journey and seeing which parts use paper, and why. We then created a trail for each of the types of paper, using the theory that you need to eliminate the dependency at the end before removing it from the beginning.

P146 **Short term planning - intimations of disaster**

[David Collier](#)

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The paper considers the impact on the national health budget from a changing emphasis in service delivery. Using the Australian expenditure data where the average annual growth over the last decade of expenditure on health has been 5.1% but still the lowest growth the AIHW has recorded since the mid-1980s. Government health funding fell by 2.5% during a decade where overall government funding grew by 4.4%.